

## Development and inequality : A long-run view

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**INTRODUCTION**

# Development and inequality: A long-run view

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**Abstract**

We provide a comprehensive review of the literature on the drivers of long-run development and inequality, and new datasets for their study. Three distinct elements emerge in the 10 articles of this special issue that broadly characterize the field. First, development should be understood from a multidimensional perspective and when considering long-run patterns a wide array of indicators must be used, ranging from material living standards to health, education, and gender. Second, the construction of widely used development metrics has to be critically reviewed to arrive at more accurate narratives of how the world developed. Third, the drivers of development and global inequalities are best analyzed and understood from a long-term perspective. Some sweeping trends with major consequences for countries and regions alike took many years to unfold, such as the emergence of the modern state, or the implementation of large-scale education reforms. In sum, this special issue shows that global inequalities are the result of long-term persistent forces that have operated through periods of decades (and centuries), involving institutional change, demographic processes, and cultural persistence (among others). A better understanding of patterns and explanatory factors of development over the long term is key to tackle current-day challenges for development and inequality.

**KEYWORDS**

development, economic history, inequality

## 1 | INTRODUCTION

A recurrent idea transcending the articles of this special issue is that a better understanding of long-run trends and drivers of development is essential to comprehend current-day opportunities and challenges for development and inequality. Global inequalities are the result of long-term persistent forces that have operated through periods of decades (and centuries), involving institutional change, demographic processes, or cultural persistence. The scholarship we present shows that we need a careful consideration of the timing and unfolding of historical processes to properly understand the patterns and drivers of long-run development. In this endeavor, measurement aspects deserve special attention since temporal and spatial comparisons over long periods of time pose formidable challenges to commonly-used metrics.

The articles in this special issue cut in one way or another through three important themes. The first relates to long-run patterns of various aspects of development. In particular, eight dimensions<sup>1</sup> are considered, ranging from material living standards to health and education. Second, some authors provide a critical review of how widely used metrics (e.g., income, poverty) are constructed. Consequently, narratives may need to be revised depending on the indicators used. This is an additional challenge for economic historians and economists alike, when making sense of how the world developed. Third, the articles examine the drivers of development and inequality from a long-term perspective. Some sweeping trends are closely scrutinized, such as the fundamental role of 19th century developments in state formation, major education reforms, the rise of the male breadwinner model, or the take off of the global North. In this respect, too, the research in this issue points at considerable challenges of explanatory frameworks that do not sufficiently recognize the transnational and temporal factors influencing nation states.

The following section introduces the articles to the special issue. We begin with research on material living standards, which includes elements such as wages, income, economic inequality, or poverty (Alfani, 2024; Bolt & van Zanden, 2024; Frankema, 2024; Moatsos, 2024; de Zwart, 2024). Then, we move on to two aspects of human development that have received substantial attention since the work of Sen (1985): health and education (Gallardo-Albarrán, 2024; Schneider, 2024). We conclude with research that discusses how considering various development dimensions is crucial to understand gender inequality and overall well-being (Dilli, 2024; Rijpma et al., 2024).

## 2 | MATERIAL LIVING STANDARDS

Bolt and van Zanden (2024) review the literature on historical national accounting and present an update of the well-known Maddison Project Database (MPD), which provides country-level information on global long run economic development.

They first survey how economic historians have reconstructed historical estimates of gross domestic product (GDP). Crucially, the authors discuss the fundamental role of purchasing power parities (PPP) in translating country-specific GDP estimates expressed in national currencies into comparable units to perform meaningful relative income comparisons. They identify three alternatives available to the Maddison Project for combining recent PPPs with time series of GDP growth. The first consists of using both the original 1990 “Geary-Khamis” benchmark of Angus Maddison and GDP growth rates in constant prices to extrapolate backwards in time. The sec-

ond entails the same procedure, but using more recent 2011 PPPs instead, from the International Comparison Program. The third approach makes us of multiple contemporary and historical PPP benchmarks taken at face value, to which GDP growth rates are anchored. There is no perfect method among these three, since earlier PPP benchmarks are considered less reliable, but the extrapolation of recent benchmarks introduces an important bias by keeping fixed the underlying price structure of economies.

Bolt and van Zanden seek to find the best approach to compare relative income levels in the long run. They construct various scenarios employing the three approaches mentioned above. Their analysis shows that the choice of which benchmark to use has important implications for income level differences. For instance, moving from the 1990 to the 2011 benchmark results in implausibly large GDP per capita estimates for oil rich countries in earlier periods. Similarly, using the multiple benchmark approach increases the number of countries in the database with income levels below subsistence in the past. While this is not an entirely implausible outcome at a given point in time, some of the low income levels are at odds with the well-documented economic history of some countries, such as Peru or Korea.

Specifically, Bolt and van Zanden introduce three major changes to the earlier version of the MPD. They integrate the 2011 benchmark by adapting the growth rates of GDP per capita for the period 1990–2011. Also, they have used historical benchmark estimates of high quality to adjust some countries in the dataset for the pre-1940 period.<sup>2</sup> Finally, a number of historical estimates published since the latest revision of the MPD in 2013 have been added. These changes represent an important step forward within the field that should benefit anyone interested in measuring and understanding long-run economic development.

De Zwart (2024) takes us through the vibrant literature of real wages that traces the evolution of how much a person earned from a day's work. The real wage concept is an important element in tracking the broad evolution of living standards, and even more important, in times and places where there is no estimate regarding the standard GDP per capita. This literature has unearthed a wealth of historical material regarding wages and prices, and produced estimates across several centuries and distant parts of the world. The particular take of the literature, which typically focuses on the earnings of unskilled (male) workers, has been favored as one that traces the “material living standard of the bulk of the population” (Clark, 2007, pp. 21–22), as reiterated in this piece.

The author transcends key topics in this literature, the little, the great and the colonial divergences, as well as global real wages trends, putting together main pieces of each puzzle. Along these lines, there has been some substantial revisions of earlier findings. The variety of factors underlying these findings are discussed further, such as migration, trade opportunities, and labor market institutions, as well as the role of family earnings as opposed to the “standard” take of a male breadwinner perspective (which “was not the norm throughout history” (de Zwart, 2024, p. 15)).

De Zwart highlights that much of the ongoing debates and controversies in the literature arise from the “inherit” tension between, on the one hand, evaluating the trends over long stretches of time in one location, and on the other, comparing different locations around the world. For example, de Zwart points to a comparison of real wage levels of Quebec against France and South England, which changes the ranking of these regions depending if a bare bones basket is used or if the more luxurious respectability basket is used instead. Which definition suits best for assessing local living standards and which for international comparisons clearly plays a decisive role. The case of Spain is also indicative in that regard, but also regarding the role of institutions, as the

use of unprocessed grains as a staple food in the calculations “disadvantages Spanish workers in a comparison, as bread was relatively cheap there as a result of low taxation” (de Zwart, 2024, p. 8).

On the other side of the indicator, that is, the denominator, come the prices and the particular cost-of-living estimator used to calculate it; this aspect usually gets less attention across the literature despite its decisive role on the results. De Zwart highlights that the characteristics of the main approach (a fixed basket of goods) are making the results too sensitive to inflation on particular goods. The linear programming approach, that is, identify the cheapest way to meet specific nutritional targets across a given set of product prices and product level nutrient information<sup>3</sup>, may provide some remedy in that regard. Housing costs and heating cost needs also play an important role, especially across international comparisons, though research in that regard is still nascent. The prices used in any case are typically sourced from the logs of large institutions that typically “did not pay market prices” (de Zwart, 2024, p. 20), which implies another issue of consistency at least with respect to international comparisons, as the difference between institutional and market prices may vary widely.

Moatsos (2024) presents and reviews the evolution of the various methodologies used in absolute poverty measurement on a global scale since the beginning of that literature at the end of the 1970s. The empirical analysis on the other hand goes far beyond that time point, stretching back to the early 19th century.

The debate regarding the appropriateness of the popular dollar-a-day approach, that is, that the threshold for separating poor from nonpoor all around the world boils down to a single dollar value (initially 1 dollar in 1985 prices, but recently \$2.15 in 2017 prices), along with its variants, is central to this piece. The paper contrasts this approach with the cost of basic needs as an important alternative, which in its applications in the global poverty literature is inspired by innovations stemming from the real wages literature that lies at the heart of the economic history domain (real wages are reviewed in a different contribution of this special issue by de Zwart (2024)).

This piece compares all three main approaches used to estimate global poverty in the medium and long run, dollar-a-day, mixed dollar-a-day, and cost of basic needs. It is shown that the dollar-a-day and the mixed-dollar-a-day provide *ceteris paribus* very similar results once the international poverty line used in the dollar-a-day method is cut in half.

Similar to the composite well-being indicators literature, the choices made at all points of the empirical implementations have important ramifications for the final result, which makes it impossible to compare most of the recent literature one to one. Fortunately, some more recent contributions reviewed here provide for direct *ceteris paribus* comparisons of all three methods. To some degree, this addresses the problem, but still leaves an important gap. The cost of basic needs methods used in the direct comparison with the dollar-a-day variants is built in such a way by Allen (2017) to practically provide the same results for the benchmark year (2011 in that case). Therefore, the comparison does not provide a pure cost of basic needs investigation but a rather tailored one. Future research can address this in a satisfactory manner.

Moatsos iterates an important element of the global poverty empirics: the high degree of uncertainty in the estimates, which is a key finding of the recent literature, yet underplayed in the debates and the ongoing discussions on the topic. The users of these estimates need to entertain the high degree of interpolations and extrapolations used to reach a reasonable level of global population coverage, and claim that they are capturing the incidence of poverty on a global scale. Apart from a couple of very recent publications, no confidence intervals are provided in those estimates, and certainly no contribution has been made to satisfactorily address the “total-error” approach in error accounting, that is, accounting for sample and nonsample errors in the

estimates, proposed by the Atkinson Commission on Global Poverty (Atkinson, 2016), despite a couple of limited efforts.

Frankema (2024) focuses on the limitations of the current Global North versus South paradigm, describing the very promising research area to be discovered beyond this research frontier; he advocates for a research focus on a South–South paradigm that spans across the countries comprising the à la Brandt global South region. This is a call for the entire field of economic history regarding the benefits to the discipline that may emerge from such a shift of focus; theoretically, methodologically, and empirically. Instead of trying to find similarities and differences between global north and south territories, Frankema argues to take the North as a given, and investigate the vast (technological) gaps, (institutional) limitations, and (country level) idiosyncrasies across the global South in the context of “rapidly closing land and resource frontiers” (Frankema, 2024, p. 2).

This is especially the case in the context of a reconfiguration of the gravitational points of global economic activity, where the North is quickly losing ground. Such a reconfiguration, Frankema argues, “cannot but have profound implications for international economic and political relations in terms of divisions of labor, food demand, capital flows, trade, investment, and migration patterns” (Frankema, 2024, p. 8). In a very clear way, the proposal as put forth by Frankema traces exactly this reconfiguration, and can be thought of as the consequential result of it.

A second key element in Frankema’s thesis evolves around the fundamental question if the entire world can become developed, particularly focusing in Sub-Saharan Africa. In an economic environment favoring rent seeking behavior, for example, on mining monopolies, countries may not get exposed to the best opportunities for benign specialization, and may rather compromise export diversification and thereby receive increased exposure to economic volatility, both stemming from the resource curse predicament. In such a context, long-run comparative frameworks may well provide a fruitful domain for accounting for the changing opportunities and limitations for catch-up growth.

Frankema investigates the inconveniences stemming from cracks to long held assumptions, and particularly “whether liberal democracy is a *conditio sine qua non* for sustained economic development” (Frankema, 2024, p. 15). For him, limitations of the current social orders framework, such as the closed economy and sovereignty assumptions, can be disentangled within a global South–South research context, since those assumptions are simply inapplicable in the present day Global South. Frankema prescribes that global economic historians have an important role to play in that regard, by blending long-run transnational aspects and elements of colonialism with theories regarding the political economy of late development, and the window of opportunity is now open.

Alfani (2024) provides us with a very long run take on the evolution of wealth and income inequality, across seven centuries, with no reservation in extensively discussing the key hot-spots in the literature in this synthesis.

In the pre-industrial context Alfani points to many reasons why inequality may grow even in absence of economic growth, for example, regressive taxation, and he locates the historical evidence that speak to some stylized facts: long-run tendency for inequality is to grow; only truly major catastrophes can reverse that course; wealth and income inequality trends follow each other closely. The latter observation, which Alfani points out that it is not a statistical necessity, but an “empirical regularity” (Alfani, 2024, p. 5), would allow investigators to, conditionally, use the two in an interchangeable manner. He points to institutional changes that prevent low frequency recurring catastrophes to reverse long-run inequality growth. It seems that a degree of unexpectedness plays some role in that regard. The 17th century major plague shock in Northern

Italy provides evidence for such a reading. For Alfani, the historical context matters greatly and the potential impact of such a shock is not simply the result of the observed mortality rates.

For the most recent period, he argues that the “exceptional resilience of the rich [...] has partly been achieved by successfully dodging increases in progressive taxation” (Alfani, 2024, p. 16), which in turn is an institutional element. Despite an extensive historical approach, Alfani spends a good part of his article discussing post World-World-II inequality all the way to present day developments, demonstrating the accrued cross-fertilization between economics and economic history on the topic. Pointing to the 21st century, he constructs a very skeptical reading regarding the leveling power of catastrophes on inequality. For Alfani, the context around 20th century shocks is instrumentally different than that of the premodern period, as fiscal systems in the modern period are comparatively overall more progressive. He also makes a different reading compared to Milanovic (2016) regarding the (“benign”) forces that may result in a reversal of the increasing inequality trends. Most importantly pointing at the lack of political shift towards a more progressive taxation, and more equal access to quality education.

Alfani concludes with a very powerful observation: “The fact that, across history, human agency has tended to favor inequality growth much more frequently than inequality decline should make us value more the exceptional phase of substantial and enduring equalization which has characterized most of the twentieth century—and maybe, it should make us worry about what we stand to lose” (Alfani, 2024, p. 17).

### 3 | HEALTH AND EDUCATION

Gallardo-Albarrán (2024) looks at the causes and consequences of the global sanitary revolution, that is, the adoption of waterworks and sewerage systems since the middle of the 19th century. He presents new stylized patterns about the unfolding of this process during the period ca. 1850–1950, showing that the spread of pipe and sewer networks was relatively similar in major cities across the world, while within- and between- country diffusion patterns were markedly unequal. In fact, he argues, this period witnessed a major public health divergence, as cities in the Global North were largely supplied by sanitary services while many in the Global South were not.

The author argues that the divergence in access to sanitary services probably had an impact on levels of health inequality. Clean piped water and efficient sewerage systems helped to stop the transmission mechanism of fecal-oral diseases. In addition, public health interventions influenced mortality outcomes indirectly, by reducing the extent to which waterborne sicknesses with severe symptoms weakened the immune systems of individuals. Results from comparable empirical frameworks show that infant mortality declined between ca. 10 and 30% following their construction. In industrial contexts, the literature suggests that the effectiveness of waterworks was limited if sewerage systems were not available. While these findings are based on a large number of countries, he points out that non-Western countries are not well represented. This is a missed opportunity given that local contexts clearly interact with the effectiveness of sanitary infrastructures, such as prevailing levels of poverty or the epidemiological context.

Gallardo-Albarrán also offers a new framework to study the determinants of spending on waterworks and sewerage that distinguishes between proximate factors and ultimate factors à la growth economics. The former refers to observable inputs of a production process (e.g., physical and human capital), while the latter refers to processes operating indirectly and over long periods of time (e.g., institutions, biogeography, or culture). One of the elements of his framework that we could highlight is democratization. In fact, he argues that this was not a necessary condition

to invest in sanitary infrastructures. Highly unequal political environments in places such as the German Empire also resulted in substantial sanitary expenditures, as economic elites supported their provision, to promote their industrial businesses requiring clean water and the health of their labor force. Gallardo-Albarrán indicates that greater evidence is needed from non-Western experiences. More specifically, we need to understand how economic and political mechanisms, that operate within broader institutional, cultural and biogeographic contexts, produce constraints and opportunities in the public health domain.

Schneider (2024) examines long-run change in child growth patterns and connects child growth with recent declines in child stunting. The article discusses how researchers use growth standards and references to understand malnutrition. One indicator, in particular, has become a key in policy and academic discussions: child stunting. This metric measures whether a given child has a low height relative to a population-wide standard set by the World Health Organization. Schneider points at some limitations of this metric (e.g., arbitrary threshold employed to define stunting), though he concludes that they do not invalidate the use of stunting rates.

Schneider also looks into how various aspects of children's growth have changed during the health transition, a long-run process characterized by persistent improvements in survival. He finds important similarities across countries and time, such as declines in growth faltering (i.e., falling behind relative to a growth standard) or reductions in the age when children reach their final height. These developments, in turn, have been followed by major declines in child stunting. Schneider presents long-run trends for current high- and low-income countries that unequivocally shows a dramatic decline in stunting during the 20th century, in spite of large variations in initial levels.

The article further discusses determinants of child growth by reviewing the historical and modern development literatures, with a focus on the so-called "Indian enigma" (i.e., why young children are shorter in India than in sub-Saharan Africa, despite the former performs better in many dimensions of development). He considers many factors (e.g., nutrition, economic growth), but two seem to stand out. Maternal health and poor access to sanitary infrastructures are closely associated with child stunting in modern lower-income settings. At the same time, however, the author remains cautious about their actual potential in bringing down stunting, because their explanatory power in historical settings is much lower. This is a good example of how modern-day policy can be informed from historical research.

Schneider concludes with some key lessons that historical research provides for sustainable development. First, past interventions leading to lower child stunting in industrialized countries may not be enough in lower-income settings today, because maternal health in the latter group is comparatively poorer. Second, historical evidence on the long-run decline in child stunting could be used to set up future development targets. And third, child stunting decline has been a general part of the health transition around the world, regardless of initial levels. In other words, current stunting levels are not immutable. They can be improved together with the lives of millions of children and adults.

Cappelli et al. (2024) provide a survey of the human capital literature, with a focus on Europe during the period 1830s–1930s. Two long-term determinants of spending in education deserve special attention, namely religion and institutions. The spread of Protestantism has been linked to better and more equal educational outcomes, by encouraging the accumulation of literacy skills to read the Bible among boys and girls. With regards to institutions, the authors present a recent set of studies linking nondemocratic settings and the expansion of primary schooling. This happened, for instance, in Portugal when the public considered the anti-Catholic stance of the democratic regime as a threat to their cultural identity.

The article considers factors that vary over shorter periods of time, such as issues of political economy. This literature argues that the interaction between ruling elites and households influences the supply and demand of education investments, respectively. Accordingly, the economic background of elites plays an important role in supporting expensive reforms. For instance, it is hypothesized that landed elites see human capital as less complementary in the production process than owners of industrial capital, which leads industrialists to support school reform. While not everyone agrees with this hypothesis, other studies have shown that elites may support education investments to promote nation building. Schools are an effective tool in providing a homogeneous set of cultural and civic values among an otherwise diverse population.

Cappelli et al. also consider the implementation of major educational reforms, that a recent literature has associated with greater levels of education. For instance, the 1911 Daneo-Credaro Law in Italy centralized the primary school system and led to faster literacy growth rates. For those interested in this type of policies, Cappelli et al. have put together a useful timeline of national school acts throughout Europe, with details on the type of regulations implemented (e.g., gender, school age), the governing bodies in charge of their organization, and information about fees and expenditures.

Cappelli et al. put together a new dataset on regional primary schooling in Europe for the period ca. 1850–1910. These new data reveal some important patterns that deserve further exploration in the future. For instance, at the beginning of the period, there was marked heterogeneity both within and between countries in terms of educational outcomes. Interestingly, clusters were concentrated across large regions spanning various nation states. A few decades later, however, the pattern changes characterized by a North–South divide. Spanish and Italian provinces converged towards low education clusters, whereas the opposite is true for countries in Central Europe, such as France or Prussia. This development hints at the importance of understanding the impact of national institutions and regulations in the domain of education (e.g., via government funding or centralization policies), for which regionally disaggregated data are crucial.

#### 4 | GENDER INEQUALITY AND OVERALL WELL-BEING

Dilli (2024) assesses the drivers of various dimensions of global gender inequality—socioeconomic status, household, health, and politics. She discusses the relevance of economic and structural factors in explaining labor market inequalities via female labor demand, fertility choices, or the adoption of technologies that give women more autonomy (e.g., birth control pills). In addition, she argues that we should be careful in generalizing the well-known U-shape relationship between economic development and female labor force participation rates, first discussed by Goldin (1995). A significant fraction of the evidence linking economic growth and female labor demand comes from Western contexts. Moreover, countries in Asia and Africa are leap-frogging some industrialization stages, leading to different development paths. For instance, female employment in these contexts is higher today than 30 years ago, even though the level of economic development has barely changed. In addition, Dilli shows that other dimensions of gender inequality does not exhibit a straightforward correlation with a range of economic indicators.

The author considers the role of policy and culture in influencing gender inequalities. In fact, she demonstrates that context matters greatly, as similar policies can lead to varying outcomes. For instance, primary-school centralization in Italy during the early 20th century improved female literacy significantly, while school construction in colonial India did not. Similarly, she shows how the general idea that the oppression of women is intrinsic to specific cultures or religious

denomination is at odds with historical evidence. Indeed, historical evidence indicates that traditional social norms, typically associated to modern-day developing countries, were very much present in Western countries not long ago. More specifically, recent research shows that son preference was not unique to South Asian countries, as it was present in late 18th- and 19th-century Southern Europe.

Dilli also offers an interdisciplinary framework aiming at explaining varying gender inequality patterns. It emphasizes complementarities between historical events, structural changes, and modern-day institutions over long periods of time. Proceeding in two steps, she suggests investigating whether and how exogenous conditions in the past shaped the formation of historical institutions. Then, we should study how those potential interrelationships set societies on different paths during the 20th century. To these aims, she urges researchers to adopt a dynamic and long-run perspective that pays attention to junctures, timings, and the long-run impact of economic and societal phenomena.

Rijpma et al. (2024) delve into the complex realm of multidimensional composite well-being indicators, tracing the development of the “beyond GDP” agenda through an economic history lens. They motivate their investigation around two important puzzles that have emerged in the literature: the “early industrial growth puzzle” (Komlos, 1998) and the positive decoupling between economic growth and well-being during the World Wars interbellum, and how various composite indicators reflect them.

In their investigation, they provide detailed evidence from the perspective of a highly economically developed country (the Netherlands), and from a global perspective using more aggregated data. This comparative analysis allows the *ceteris paribus* comparison of various (Human Development Index—style) indicators to flesh out the implications that some key choices in their construction have on the empirical outcomes, for example, goalposting, and functional form. This brings them to one key conclusion, that “composite indicators can tell us what assumptions are needed to decide between [...] two positions” (Rijpma et al., 2024, p. 23). In that regard, the space of options in terms of functional forms and parameters used in a composite index, and the supporting assumptions, are fundamental elements that their importance on the conclusions drawn is not highlighted enough in the literature.

Reading their work, one could conclude that although within each dimension, there is some sense of clarity as to what concept can be used and how well that concept is captured by the indicator, for an aggregate indicator of well-being, there is a problem with its very concept *per se*. What exactly is well-being, and how well it is formulated and defined are central issues that are not easily addressed. If we do not have that, then any attempt on creating an ideal composite well-being indicator appears futile. At the same time, we should come at terms with the remark made by Sen (1985) that we need to entertain some uncertainty in those issues, directly implying that there is no one perfect indicator, and thereby we must also accept a wider variety of concepts and formulations that can be used interchangeably. This may indicate that the result of a composite indicator may be a range of values and not just a time series of sharp estimates.

Rijpma, Philips, and van Bavel overall make the case that “[a]bandoning the work on composite indicators and their application to economic history [...] would be a wrong choice” (Rijpma et al., 2024, p. 25). Steering clear from the problem has little to do with addressing it.

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## ENDNOTES

- <sup>1</sup>Child growth, human capital, sanitation, real wages, poverty, gender inequality, economic inequality, and per capita gross domestic product.
- <sup>2</sup>An important correction in this regard concerns the United States and the United Kingdom. In the new estimates, the former emerges as the productivity leader between 1870 and 1880, instead of the early 20th century.
- <sup>3</sup>Obviously, this method can be applied for non-nutrient targets as well, for example heating needs.

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