



What Do We Really Know about Productivity Differentials across Countries

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April 2022

WORKINGPAPER SERIES

Number 560

POLITICAL ECONOMY
RESEARCH INSTITUTE

This paper will be published as the David Gordon Lecture in a forthcoming issue of the *Review of Radical Political Economics*.

What do we really know about productivity differentials across countries?

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Abstract

This paper examines and critiques the most widely used measure of productivity (output per worker employed) and argues that this is a flawed, inadequate and even misleading measure of economic progress. In terms of cross-country comparisons and assessing trends over time, both the numerator (GDP or value added) and the denominator (number of workers or hours worked) have significant conceptual and measurement problems. These issues are considered in general, and also with regard to how they affect analyses of productivity differentials in the US and India in the recent period.

Keywords

Productivity, GDP, Employment, Work

Introduction

A central goal of economists and policy makers—across the ideological spectrum—is that of increasing productivity. This holy grail is embraced by mainstream economists, heterodox, pluralist and dissident economists, policy makers and the general public as an obviously desirable goal that all economies must strive for. In addition, of course, progressive economists have sought to link productivity changes with socio-economic forces. Indeed, understanding patterns of change in productivity and linking these to varying patterns of capitalist accumulation, social structures and the balance of class forces was one of the important themes of David Gordon's work.

Yet of all the economic concepts widely in use, that of aggregate productivity in an economy may be the most problematic and full of conceptual and measurement holes. In the spirit of David Gordon's own work, which emphasized the need to have a strong conceptual framework within which to engage in relevant empirical analysis, this article is a critique of both the concept of productivity (especially aggregate labor productivity) as generally used in economic analysis, as well as of the attempts to measure it to compare across countries and within a single country over time. I hope to indicate that the widespread use of this concept is analytically and empirically flawed, and for several reasons does not necessarily capture the trends that it is purported to do. Therefore, while the concept remains an important one for understanding capitalist dynamics, a post-neoliberal economics that captures the true spirit of political economy must move beyond that to better, more relevant

¹ This paper is an extended version of the David Gordon Lecture presented to the URPE Annual Conference in January 2021. I am grateful to Stephanie Seguino for very valuable comments on the lecture; to Nancy Folbre, Gregor Semeniuk and other participants in the discussion; and to CP Chandrasekhar, Prabhat Patnaik, Robert Pollin, Gerald Epstein, and Gary Mongiovi for their comments on the draft paper that greatly helped to improve it.

and meaningful measures of human progress, even when progress is measured only in material terms.

It may appear that the importance of productivity improvements is so obvious that it requires no further elaboration. After all, productivity simply represents the amount of output per unit of input, and obviously it would be more “efficient”, less costly, and therefore presumably more desirable, to produce more output with the same or less inputs. Obviously, it is strongly positively related to per capita income growth in an economy, especially over medium/long run. It is therefore seen as key to improving living standards and poverty reduction. Typically, it is seen to result from a mix of technical change and “efficiency” change: static economies of scale; dynamic economies and learning by doing; capacity utilization; worker skill and effort; and spillover effects. The literature on productivity growth has identified drivers such as capital accumulation, new technology, physical and social infrastructure, organizational improvements; improved health and skills of workers, and—especially within the heterodox and Marxian tradition as exemplified for example in Gordon, Bowles and Weisskopf (1986 and 1994)—social and institutional conditions including the balance of class forces (workers vs. capital) and innovative pressures on capital.

The most common indicator of productivity used for comparison across economies and in any one economy over time is GDP per worker. Yet usefulness of this indicator is in serious doubt, because both the numerator (GDP) and the denominator (number of workers or labor time) may be wrongly estimated—and even wrongly conceptualized. When relying on this aggregate measure to understand economic changes, we may therefore be missing or misinterpreting some of the actual economic processes under way. In what follows, I elaborate this argument by considering the concerns with measures of GDP, or value added; and measures of number of workers or working hours. I point out how this has affected comparative estimates of productivity changes in the economies of the US and India. But first, I consider some recent estimates of productivity variations and what they suggest in terms of our understanding of cross-country comparisons.

Some estimates of productivity differentials across countries

At one level, productivity is a relatively simple concept: the amount of output (or value added) per unit of inputs. At the national economy level, GDP, or national value added measured through national accounts data, is usually taken as the numerator for measures of labor productivity. The problems of using national income expressed in Gross Domestic Product are now widely recognized, in terms of the blindness to distributional issues and the inability to measure either the quality of life or the sustainability of any particular system of production, distribution and consumption. Additional concerns are highlighted below in the next section. Despite these obvious limitations, however, it remains the most widely used indicator on any economy, and is generally the one that is tracked to determine both perceptions of national economic performance and policy orientations of most governments.

For international comparisons, there is the further choice of exchange rates for comparison, that is, whether to use Market Exchange Rates (those actually prevailing in any period) or Purchasing Power Parity (PPP) exchange rates. There are several concerns with the use of PPP exchange rates to form the basis of comparison across countries. As I have written elsewhere (Ghosh 2018) while PPP exchange rates appear to control for differences in price levels and standards of living in different countries, they are ridden with conceptual, methodological and empirical problems. They assume that the structure of each country's economy is similar to that of the benchmark country (the US) and changes in the same way over time beyond the reference year, which is clearly wrong across advanced and developing economies. The absence of weights within basic headings of goods and services, including the lack of representative weights, can result in these basic headings being priced using high-priced unrepresentative goods that are rarely consumed in some countries. For example, Angus Deaton (2010) has provided the example of packaged corn flakes, which are available in poor countries, but only accessed by a relatively small minority of rich people. Country PPP rates are constructed from the prices of basic headings using expenditure weights from the national accounts — but these do not reflect the consumption patterns of people who are poor by global standards. While the current measure does try to differentiate across regions, the different regions are linked using the region-wide 'super' PPP rates, which generate, for example, a price level for all of (say) Asia relative to the OECD countries. There are additional concerns about the nature of the surveys conducted to establish the price levels in each country.

There is a further, and possibly even more damning, conceptual issue. In general, countries that have high PPP, that is where the actual purchasing power of the currency is deemed to be much higher than the nominal value, are typically low-income countries with low average wages. This occurs precisely because there is a significant section of the workforce that receives very low remuneration, which then means that goods and services are available more cheaply than in countries where the majority of workers receive higher wages. When even these activities are further subsidized by the widespread incidence of unpaid labor, as is typically the case in poor households in low income countries, then it is clear that the greater purchasing power of that currency reflects conditions of indigence and low or no remuneration for what could even be the majority of workers. Therefore, using PPP-modified GDP data may actually miss the point, by seeing as an 'advantage' (of greater purchasing power of a given monetary income) the very feature that reflects the greater absolute poverty of the majority of workers in an economy. This means that PPP income estimates effectively overstate incomes of poorer countries when it comes to comparing incomes across rich and poor countries. As countries move up the per capita income ladder, the difference between PPP and MER would reduce – not necessarily over time, but with increasing incomes of the lower income country. As aggregate incomes increase, wages and prices in that economy also increase, typically relatively faster than in richer countries, thereby reducing the so-called 'PPP advantage'. This is strongly evident in the case of China, for example, where the ratio of per capita income measured in PPP terms to that measured in MER declined from 3.1 in 2000 to 1.7 in 2015 as the Chinese economy became richer.

All these factors inevitably make the use of PPP exchange rates in inter-country income comparisons extremely problematic. Nevertheless, cross-country comparisons of GDP are increasingly and now even typically made in terms of PPP exchange rates rather than actual Market Exchange Rates, which obviously carries strong and potentially misleading biases.

Then there is the question of what to use as the denominator. Total factor productivity is meant to take account of all input use, but is riddled with problems, not just in the problems of double-counting in empirical measurement, but more importantly in the valuation of assets like land and (most of all) capital. In addition, there is of course the inherent contradiction identified by Piero Sraffa (1960) of the self-referential nature of the measurement of capital and the rate of profit. All “total factor productivity” calculations are therefore suspect. Nevertheless, the “Solow residuals”² emerging from such decomposition exercises, which are thereby supposed to represent the productivity improvement, have been variously ascribed to “social infrastructure” like institutions and government policies (Hall and Jones 1999) and human capital and incentives for investment (Acemoglu and Zilibotti 2001).

It has therefore been more common to indulge in productivity comparisons across countries on the basis of per worker productivity or output per unit of labour, calculated in terms of hours worked. This is seen to indicate many other features of an economy: the per capita income; the extent of capital in use; the level of skill of the workforce; the potential of the economy to provide for the basic needs of the population; and so on

As a result, labor productivity has emerged as the most widely used concept. This is also given normative significance. For example, according to the ILO³, labor productivity measures the efficiency of a country with which inputs are used in an economy to produce goods and services and it offers a measure of economic growth, competitiveness, and living standards within a country. According to the World Bank⁴, labor productivity is used to assess a country's economic ability to create and sustain decent employment opportunities with fair and equitable remuneration.

But how is total labor to be measured? The available options are either total number of workers or hours of work, but it will be seen below that there are major problems in

² A “Solow residual” is based on the growth model of Robert Solow (1956) that sought to identify the relation of output growth to the growth of inputs, which in his model were the “factors of production” capital and labor. Empirical decomposition exercises accordingly seek to identify the residual growth as evidence of technological progress, representing that part of an economy's output growth that cannot be attributed to increases in capital and labor.

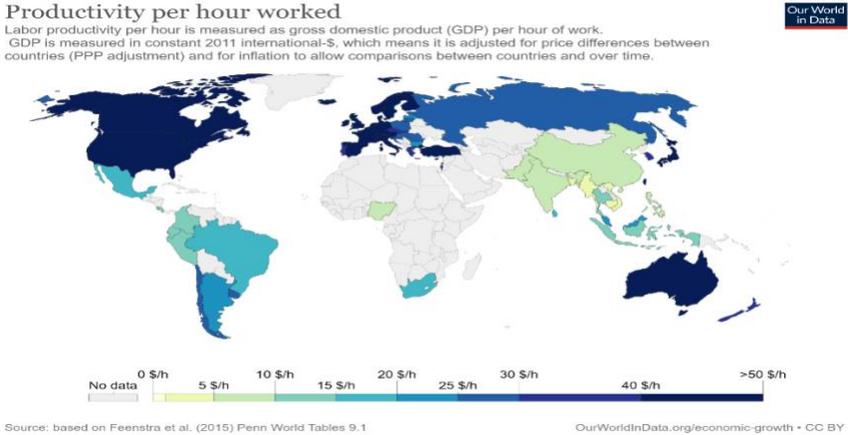
³ ILO. KILM 16.

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⁴ World Bank. Databank: Metadata. <https://databank.worldbank.org/metadataglossary/world-development-indicators/series/NV.AGR.EMPL.KD>.

defining and measuring both. Because most countries in the world—and especially those with a high degree of informality in the workforce do not really measure working hours with much reliability, data on productivity per hour are not available for many countries and doubtful for high-informality economies. Figure 1 provides a typical estimate of labor productivity per hour (relying on data from the Penn World Tables, inevitably using the problematic PPP exchange rates to arrive at these numbers). It is evident not only that there are simply no data for large parts of the “developing” world, and that even the estimates for many other countries are likely to be extremely unreliable.

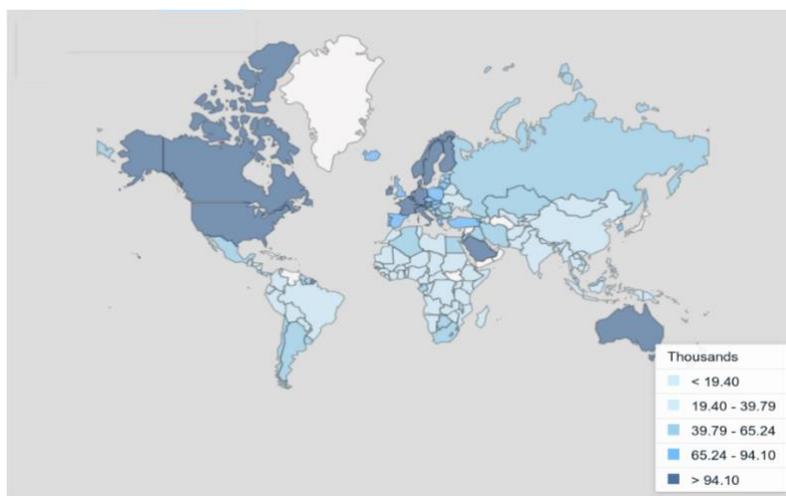
Figure 1.



Source: <https://ourworldindata.org/grapher/labor-productivity-per-hour-pennworldtable?tab=map>

Other estimates measure productivity per worker rather than per hour worked, and as expected, this measure broadly tracks per capita income across countries. However, the match is not complete, largely because of demographic differences (in age structure of population) and because recognized work participation rates differ across countries. Essentially, therefore, such measures still gloss over many problems stemming from measuring both GDP and workers, as will be elaborated below.

Figure 2.



Source: <https://data.worldbank.org/indicator/SL.GDP.PCAP.EM.KD?view=map>, accessed on 15 July 2021

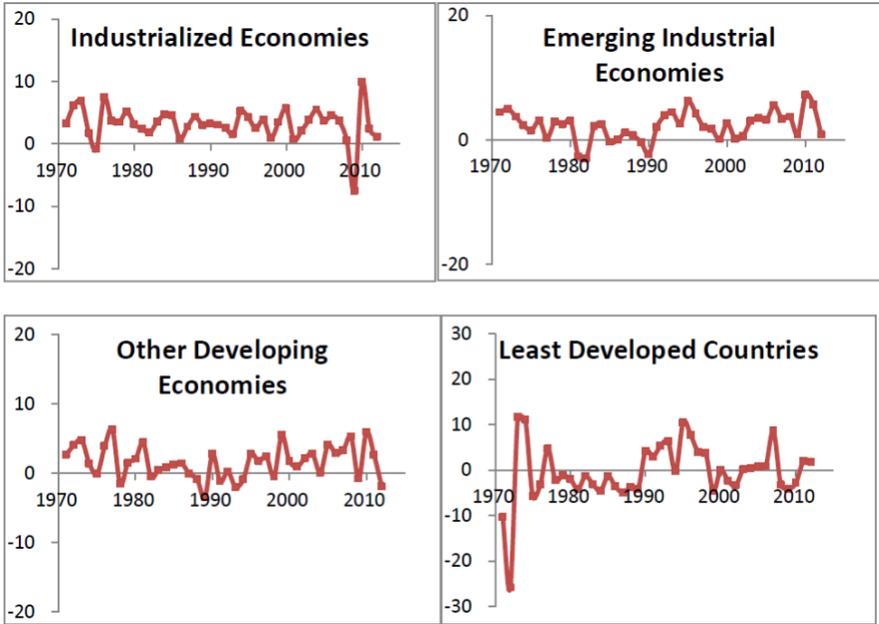
The flaws and even misleading character of these estimates become particularly evident not just in comparison of absolute labor productivity across countries, but even in assessing changes in productivity over time. For example, data from the World Bank's World Development Indicators that provide estimates of labor productivity over different economies over time provide some bizarre results.⁵ According to this, GDP per person employed (in constant 2017 PPP dollars) between 2000 and 2019 increased by 27 per cent in the US and 24 per cent in Canada, but only 6 per cent in Argentina—and it even declined by around 3 per cent in Mexico and 30 per cent in Bahrain. In the same period, productivity in China is supposed to have increased nearly fourfold, by 390 per cent. All this may seem plausible and even confirm existing prejudices and/or perceptions. But then data on other countries highlights the implausibility of the estimates. For example, according to these data, labor productivity in Armenia over the same period 2000-19 is shown to have increased by 246 per cent, in Azerbaijan by 244 per cent, in Georgia by 204 per cent, in Ethiopia by 173 per cent, in Cambodia by 139 per cent, and in Myanmar by as much 407 per cent! These figures are obviously affected by the numerator—GDP—which can change sharply for countries that depend excessively on certain mineral or raw material exports, as global prices change. It also varies significantly over the business cycle, affecting worker productivity estimates. This obviously plays a role in creating the dramatic increases and some declines in particular countries, and cannot therefore be construed as saying anything about labor productivity as generally understood.

While the problems of valuation of GDP are extensive and are discussed in more detail in the next section, it could be argued that there is less of such a problem for estimating productivity in particular sectors, such as manufacturing. Even in the case of manufacturing, however, there is high volatility in per worker productivity and little evidence of clear trends

⁵ <https://data.worldbank.org/indicator/SL.GDP.PCAP.EM.KD?end=2020&start=1991&view=chart>

across different groups of countries, even when such differences (and the associated “convergence” of lower income countries with higher income countries) are often taken for granted in much of standard development economics. The volatility persist even when moving averages are taken rather than simple annual data. Estimates by Lewis and Feng (2018) for UNIDO indicate the absence of clear trends or clear differences in trends in manufacturing productivity across various categories of economies, as shown in Figure 3.

Figure 3.



Note: Data for 129 countries, based on value added in manufacturing at 2005 US\$.
 Source: Lewis and Feng (2018) Figure 1, page 16.

Clearly, therefore, it is necessary to unpack the concept of labor productivity by looking more closely at the elements of the measure. I first interrogate GDP’s claim to be an accurate representation of even the extent of economic activity.

The numerator: Value Added, or Gross Domestic Product

The problems of using national income expressed in Gross Domestic Product are now widely recognized, in terms of the blindness to distributional issues and the inability to measure either the quality of life or the sustainability of any particular system of production, distribution and consumption. Despite these obvious limitations, however, it remains the most widely used indicator on any economy, and is generally the one that is tracked to determine both perceptions of national economic performance and policy orientations of most governments. This is unfortunate, because this obsession with GDP growth in itself, and independent of other markers of well-being, makes for problematic assessments of the actual performance of economies and, even more tellingly, for poor policy decisions and outcomes. Because GDP in most countries captures only marketed transactions, it excludes

a significant amount of production of goods and services for self or household consumption. It makes market pricing the chief determinant of value, irrespective of the social value of any activity, which leads to massive undervaluation of what are now (especially post-pandemic) recognized as essential social services relating to the care economy. It correspondingly overvalues those activities, goods and services that are priced higher because of the oligopolistic structure of markets.

For example, a chaotic, polluting and unpleasant system of privatised urban transport involving a multiplicity of private and polluting vehicles on over-congested roads (as is common in many developing countries) typically generates more GDP than a safe, efficient and affordable system of public transport that reduces vehicular congestion and provides a more pleasant living and working environment. Furthermore, where health services are more commercialized, the consequent increase in morbidity from pollution and mortality from vehicular accidents also raises GDP, because of the resulting (largely private) expenditure on health services, etc. The depredations caused by climate change and other evidence of ecological damage are the result of unsustainable patterns of economic activity that are simply not factored into estimated of national income, despite various attempts to incorporate them.

Services GDP is particularly hard to evaluate, because of the wrong valuation (from a human and social welfare standpoint) of different types of services. Financial services, for example, are hugely over-rewarded, at least partly because of the political and lobbying power of financial interests in contemporary societies—and financial asset booms that reflect asset price changes then get reflected in increasing share of financial services in national income, without any underlying real economic changes. Meanwhile, as the Covid-19 pandemic has shown, care services that are crucially important for human welfare, for the survival of societies and the resilience of economies, are routinely undervalued, with much of this activity performed unpaid (largely by women) within households or in extremely underpaid form.

In any case, calculating output (and therefore productivity) in many service activities could well be a fool's errand. As was famously pointed out by Baumol and Bowen (1965) the number of musicians required to play a Beethoven string quartet had not changed for over a century—implying therefore no increase in “productivity” over that period. While Baumol identified this as a “cost disease” that was also evident in other sectors like education, this could well be turned on its head to argue that such a notion of productivity is fundamentally misplaced. This consideration affects calculations of “productivity” in many other services sectors, particularly those services sectors that are relational in nature, and is certainly strongly evident in education and health services.

This is exemplified in care activities, whether they occur as paid employment or unpaid work. As I have argued elsewhere (Ghosh 2017) because of the specific nature of care work, better quality care (whether in paid or unpaid forms) typically requires more intensive human input. So standard approaches based on puerile notions of labour productivity may

not only be irrelevant for such activities, but even misleading and counterproductive. It should be obvious that “good quality care, whether paid or unpaid, is very labour intensive” (Razavi 2007). Similarly, Himmelweit (2005) noted that the difficulty – if not impossibility – of increasing productivity of care workers without eroding the quality of the output is one of the distinctive features of care work. Unlike many other activities, this is one sphere in which productivity cannot be raised significantly through mass production. Therefore, assessing improvements in care services or ascribing greater “efficiency” to them, on the basis of criteria like numbers of people served per care worker, is not only wrong but often downright misleading. There may be some aspects of care delivery that can indeed be made more efficient and productive by reducing drudgery, difficulty and repetitiveness by substituting machine labour for human labour – and these should be welcomed. However, in general productivity in care work cannot be measured in the standard ways so often used by economists and policy makers. Yet low “productivity” in such activities is frequently provided as the reason for low remuneration for such work, in a complete inversion of the causation and a reflection on the wrong ways in which different activities are valued in our societies (Mazzucato 2018).

Clearly, therefore, GDP expansion as the desirable goal or indicator contains all sorts of concerns and contradictions. But even if GDP as the sum of monetary exchanges in a society is somehow seen as the appropriate indicator of economic output, there are many concerns with the estimation of GDP that render it less useful particularly for discussions on productivity. As was shown above, GDP is affected by sectoral changes and valuation changes within sectors. For example, it can change sharply for countries that depend excessively on certain mineral or raw material exports, as global prices change. In a downswing worker productivity can fall because output falls more than the number of workers, while the opposite can occur in a boom. But, as was evident in the World Bank evidence for the first two decades of the current century, looking at the medium term does not always resolve the valuation problems.

Recent changes in the methods of calculating GDP may have made the problem worse. It has been persuasively argued by Jacob Assa that “the exercise of estimating national income or wealth as a form of numerical rhetoric. Rather than a statistical measure, GDP is an indicator of power (for countries, classes and industries) as well as an instrument for advocating specific policies.” (Assa 2019:81) In 1993 and then again in 2008, there were methodological changes to the System of National Accounts (SNA) of the UN system that led to significant changes in the determination what is included in GDP and what is not. Many economic activities – financial intermediation, research and development and the production of weapons – were previously excluded from GDP as either non-productive or as constituting productive inputs to other outputs (hence deducted as intermediate consumption). However, since 1993 and even more since 2008, these have been included, thereby adding “disproportionately to the GDP of developed countries, especially those which have in recent decades specialised in these activities and moved away from traditional

pillars of development such as manufacturing and infrastructure-related services.” (Assa and Kvangraven 2021: 989)

Most significantly, it has been pointed out that the rising power of international finance has likely influenced the compilation of national output statistics, especially through the reclassification of the finance, insurance and real estate (FIRE) sector from non-productive to productive (Christophers 2011). Since 1993, fee-based revenues of financial institutions have been treated as productive and *added* to GDP (rather than excluded or deducted as costs). This has obviously inflated the GDP of countries where such activities are important, such as the US and the UK where FIRE accounts for 20 to 30 per cent of national income. The change is important because it is conceptually hard to justify. Capital gains have been and continue to be excluded from GDP, and interest income is considered to be an intermediate input to other sectors, and therefore deducted as a cost in the calculation of value added. However, since 2008, the fee-based income of financial institutions has been treated as producing a final output (a service) and is added to GDP. It has been argued (Assa 2016) that this explains the growing discrepancy between GDP and other macroeconomic indicators like employment.

In addition, the 2008 revisions to the SNA included expenditures on weapons systems in government investment in fixed assets, which inflated the GDP of weapons-producing countries. Rents from intellectual property rights, which should also really be seen as costs, are also now included in GDP. Obviously, all of this affects productivity estimates in different ways.

The denominator: How do we count workers?

The denominator in the productivity estimate—the number of “workers”—appears to be less controversial or problematic, but in fact it is also a contentious issue. This is because it excludes the entire range of unpaid work that underwrites and typically subsidizes the “paid” economy. Such work is largely (but not only) in subsistence provision and care activities within households and communities, and performed largely (but not only) by women and girls. The 19th International Conference of Labor Statisticians (ILO 2013) finally recognized this, by distinguishing between “work” and “employment” and expanding the concept of work: ‘Work comprises any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use’. Employment—defined as ‘work for pay or profit’—is therefore a subset of work.

This lack of recognition of a significant part of the work (dominantly provided by women) has several important economic and social implications. The unpaid-paid continuum of work serves to devalue both those who do it and the work they do. For example, when women do enter labor markets, their wages tend to be lower than those of men – not only because they are willing to work for lower wages but because so much of their work is available for free. Related to this, the occupations in which women dominate tend to be lower paid – and the wage penalty extends even to men doing similar work, such as in the low paid care sector. Third, all this unpaid work provides a huge subsidy to the

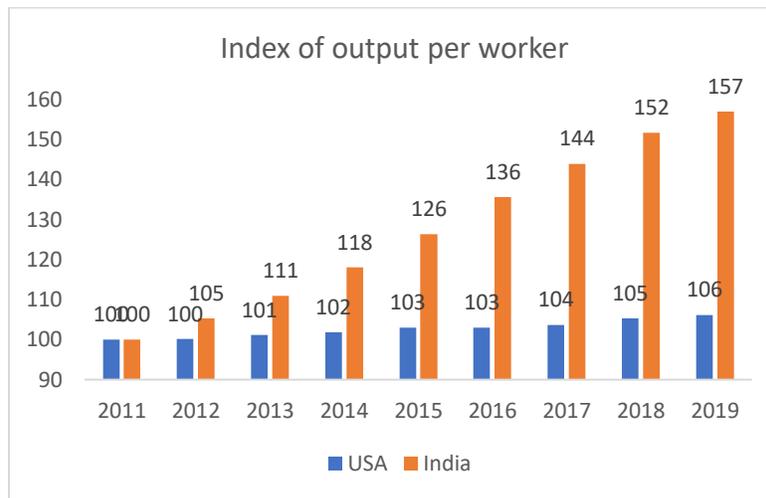
recognized economy and to the “formal sector”, which rely both directly and indirectly on the goods and services produced by these unsung and unrewarded workers.

Because this contribution is not recognized, it enables measures of rising aggregate labor productivity in the economy, which may be quite misplaced. The impact of this on both numerator and denominator (in labor productivity measure) can vary substantially across higher income and lower income countries, both because of the greater extent of informality in the work force and because of the greater prevalence of unpaid labor.

Comparing productivity changes in the US and India

How do these concerns play out in inter-country comparisons? Consider the supposed variations and trends in aggregate labor productivity in the US and India as an example. World Bank estimates based on PPP exchange rates indicate that US worker productivity was 6 times higher than in India in 2019; in Market Exchange Rates the difference was even greater, with the US labor productivity estimated to be 18 times higher. However, the same database indicates that India has experienced much faster increases in worker productivity than the US—indeed, among the fastest in the world in the period 2011-19. Figure 4 indicates the trend in the two countries, which if true would definitely point to substantial “convergence”.

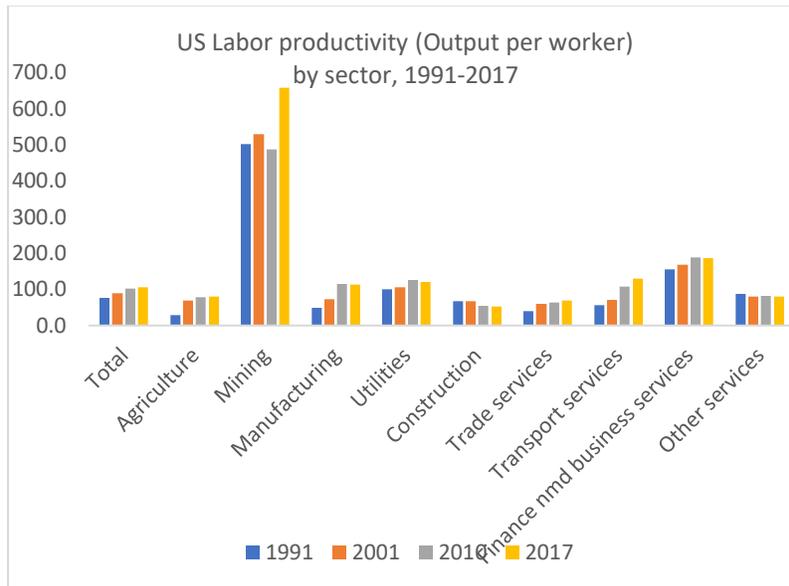
Figure 4.



Source: World Bank World Development Indicators.

It is clearly necessary to unpack this further, however, since aggregate worker productivity changes also reflect sectoral shifts in the economy. The variations in output per workers by sector between 1991 and 2017 in the US are indicated in Figure 5.

Figure 5.

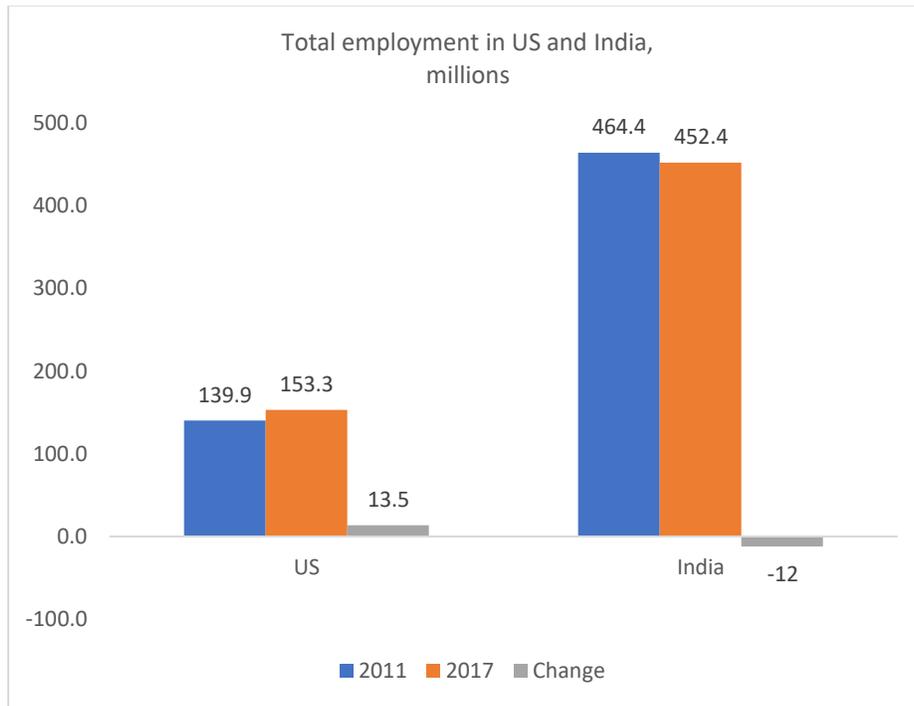


Source: World Bank World Development Indicators.

According to these estimates, the most “productive” workers are in mining, followed by finance. (Indeed, within finance, thanks to the significance of fees and commissions in adding to GDP, worker productivity in the FIRE sector has been rising. As a result, employees of US credit card and other finance companies may be the most “productive” on the planet...) Sectoral changes help to explain the so-called productivity growth. While the share of agriculture and mining remained very small (at around 1 per cent of GDP), the share of manufacturing fell from 16 per cent to 11 per cent of GDP. However, the share of finance and business services rose from 16 per cent to 21 per cent. The share of “other services” share increased slightly from 36 per cent to 40 per cent, but with even greater increases in the share of workers employed. These include the “less productive” workers, many of whom are today’s “essential workers” critical for social welfare.

At first sight, changes in worker productivity indicate a more impressive trajectory, but the reality is very different and much more concerning. Unlike in the US, total employment in India **fell** in absolute numbers between 2011 and 2017, as indicated in Figure 6.

Figure 6.



This remarkable decline in total employment was driven by falls in women’s employment, especially in rural areas and in “subsidiary” employment. While employment of men increased marginally over this period by 12.5 million, from 338.5 million to 351 million, that of women (which was already quite low by international standards) fell by 22.3 million from 123.8 million to 101.5 million. This was associated with more Indian women involved in unpaid domestic work, which meant that they were not counted among the employed. This is confirmed by a time-use survey conducted in 2017-18, which shows very high gender gaps in engagement in and time spent in unpaid activities. For example, in the age group 15-59 years, 69 per cent of men were engaged in paid employment and less than half (49 per cent) did any unpaid work. By contrast, 94 per cent of women performed unpaid work, and only 20 per cent had any paid employment. In terms of time spent, the men who did do some unpaid work spent only 151 minutes per day doing so, while the vast majority of women who were engaged in unpaid activities spent more than double that time, at 388 minutes per day on average. In other words, this period really marks a shift of women from paid or recognized employment to unpaid, unrecognized work.

The implications of such widespread unpaid work in India are important not only for assessing gender relations, but for the impact on productivity measures. Many such activities are economic in nature, just not marketed. These include all care and extended care activities: care of young, old, sick and differently abled; cooking, cleaning and other “household duties”; collection of water (40 per cent of women involved in unpaid work have to do this); collection of fuel wood; kitchen gardening; poultry and small livestock raising;

helping in family farms or enterprises, etc. These activities effectively enable and subsidize employed workers and thereby indirectly add to the measured output.

The sheer volume of such work calls into question estimates of aggregate worker productivity based on recognized employment. This affects both cross-country comparisons and assessment of temporal trends in labor productivity. In addition, the growth of services in the Indian context ("premature servicization" with small pockets of high value services but mostly low paid services in low quality employment) is very different from that in the US at a high level of per capita income (which suggests the dominance of highly paid financial services along with low paid essential services involving relatively low quality employment).

Some concluding thoughts

This paper is essentially exploratory in nature: I have raised more questions than I have answered, and offered more criticism than solutions. Yet some preliminary conclusions are evident. Per worker productivity is a problematic and even perilous concept, giving rise to several analytical concerns and with big pitfalls in empirical measurement. Valuation differences play a huge role in determining productivity changes. Cross-country comparisons of worker productivity are potentially misleading and not meaningful. Even considering worker productivity trends over time in one economy is fraught with difficulty. The problem is not that there is systematic overestimation or underestimation of productivity differentials or trends over time; rather, there is no clear pattern since so much depends on specific changes in the way GDP is calculated and how workers and work time are measured. Simplistic analysis of the available data can therefore lead to wrong and misleading conclusions. Therefore, radical economists especially must take a harder look at unpacking this concept, and not accept analyses based on such data without very careful inspection and awareness of context and nuance.

Nevertheless, we cannot ignore worker productivity, as it is a fundamental part of the institutional and incentive framework of contemporary capitalism. The logic of capitalist accumulation assumes and even requires worker productivity increases, yet much of this can be a statistical chimera. More understanding is required of how this fits into accumulation patterns in both advanced and developing capitalist countries. For example, in India, apparent worker productivity increases have incorporated the large and growing mass of unpaid work that is not acknowledged. Capitalist development in India has relied hugely on this and the associated segmented labor markets (segmented by gender, caste, community) that enabled increased labor exploitation. By contrast, in the US, "slow" aggregate productivity growth may reflect the low pay and valuation of workers involved in essential services.

Progressive economic policy making needs to be aware of these issues. Productivity growth in itself should not really be a policy goal; rather, it could even distort the emphasis on what is socially valuable.

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