

The poverty of statistics

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Introduction

In 2000, the UN took the unusual step of defining a human right in terms of a statistical construct. Its New York Millennium Summit specified the first of eight Millennium Goals, 'Eradicating extreme poverty and hunger', as follows:

- Reduce by half the proportion of people living on less than a dollar a day
- Achieve full and productive employment and decent work for all, including women and young people
- Reduce by half the proportion of people who suffer from hunger

The dollar of target 1 is economically unique. It cannot buy anything and is nowhere legal tender. It is not a money of account for entitlements like the European 'Green Pound', nor a borrowing unit like Special Drawing Rights, nor a special means of payment like the Patacon and Lecop notes issued by Argentine provinces after the 2002 Peso collapse. No financial instruments, not even derivatives, are denominated in it. The Purchasing Power Parity (PPP) international dollar is not, in a word, money. It is a summary measure of welfare, standing in place of everything an individual, or a national economy, can theoretically access in a market economy.

The target is also socially unique. Other Millennium goals specify tangible social achievements rooted in rights and capabilities: food, shelter, education, and life. Goal two seeks to 'reduce by two thirds the mortality rate among children under five'. Goal three seeks 'a full course of primary schooling'. The dollar-a-day target substitutes an abstraction, a basket of goods which nobody actually buys.

PPP-denominated indicators are thus neither fish nor fowl. They record neither actual economic activity nor tangible social welfare. Nevertheless they have, in the last 25 years, become a near-universal substitute for both. It is a safe bet that an economic journalist, reaching for a number to encapsulate the state of spaceship Earth, will hit on something measured in PPP, be it world output, inequality, productivity, or headcount poverty. PPP-denominated performance has become a catch-all synonym for the achievements, and collateral damage, of globalisation.

The purpose of this paper is to sound a note of caution. I contest the wide economic consensus that this transformation in economic reporting and targeting has been an advance. I will show that as an analytical tool, PPP indicators have disguised what they should reveal, and PPP targets have worsened what they should have improved.

Criticisms fall into two main groups. One concerns the 'weighting' assigned to country sizes.¹ A second focuses on technical flaws in PPP calculations.² The discussion on both fronts is extensive, and I will not add to it.

I will embark on a third course. I will *accept*, for the sake of argument, the claims

1 Cf Milanovic (2002), Sala-i-Martin (2001)

2 Cf Wade (2002), Reddy (2002), Ravallion (2002)

advanced in favour of PPP measures. I discount problems of transitivity, representativity, comparability, and Gershenkron effects, and set aside the differences between the 11 aggregation procedures under current consideration,³ dismissing the 33 per cent discrepancy between Maddison's and ICP estimates.⁴ I will assume that all problems of low participation and missing data have been overcome,⁵ ignore the acknowledged fact that the characteristics required of a PPP index cannot all be met by a single indicator,⁶ and will not heed practitioner warnings that PPP estimates, extrapolated from a single benchmark year, cannot be used to infer trends.⁷

In short, I assume that PPP measures of performance do what they say on the tin: provide an accurate measure of the relative prices of goods and services in different countries and over time. I will then show that the results expose fundamental flaws in the reasoning behind their adoption, and demonstrate that they are not fit for the purpose claimed for them. I will focus on two problems: the measurement of poverty, and of growth.

Poverty and prices

Headline reductions in PPP indicators of poverty, I will show, do not express improvements in performance. Instead they express, and depend on, a long-term process of *reductions in the price of consumption goods in the third world relative to the first world*.

It is obvious that such a process could never have been sustainable. It has now reversed, placing hundreds of billions at risk. As reported to the UN June high-level conference on the world food crisis:

The food crisis ... has not been caused alone by the rise in oil prices, climatic conditions, speculation, nor biofuels production. It is also the consequence of changing demographic and consumers' patterns and years of systemic failures of development strategy on many fronts. (UN 2008:2)

Reliance on PPP measures of performance is one such front. Their wholesale and misleading adoption has obscured the improvements in third world capacity really required to rise from poverty and stay out of it.

The crux of the matter is this: as soon as a majority, or even a large proportion, of the people in any country live in towns making industrial products,⁸ food production no longer guarantees their livelihood. Their survival depends on exchanging industrial products for sufficient money to purchase food from the dwindling population of agricultural producers. Furthermore, as the productivity of agriculture itself rises, it loses any residual natural character and depends on access to industrial products of all kinds, from tractors to transport, from fertilisers to pharmaceuticals.

Genuine development from this point on depends not on the simple price of foodstuffs or even consumer goods in general, but on the price of the *means of producing them* – in short on the price of capital and intermediate goods. Genuine and sustainable poverty reductions are for this reason conditional on acquiring and

3 See Dikhanov (1997) for an detailed assessment of the merits and demerits of the main procedures

4 Kravis 1986

5 Wade (2004a)

6 Gulde and Schulze-Gattas(1992:111)

7 Dey-Chowdhury (2007)

8 In this article I use the term 'industrial products' as a shorthand for 'non-agricultural goods and services'.

deploying advanced technology under a skilled and educated workforce.⁹

The principal indicator of economic progress in every country, from which no third world country is exempted, is the power to purchase capital and intermediate goods, not consumer goods. The price of the former, set by the advanced countries, has remained high in the third world. PPP measures of performance, I will show, have failed to capture this reality, crucially reducing costs of *production* to mere costs of *consumption*.

This is so far developed that, as I will show, an entire element of the costs in the third world – intermediate capital goods – is completely omitted from PPP calculations, even though they constitute 50 per cent or more of the actual costs that third world countries incur, and their high prices rank among the greatest obstacles to third world development.

Cheap consumer goods are not a proxy for growth. They have not translated into sustained social or economic progress. The classic Singer-Prebisch ‘scissors’ divergence between the price of consumer and capital goods has accentuated, leaving the South dependent on a relation to the North as distorted as in the classical period of neo-colonialism.

With the post-liberalisation closing of the scissors, and the onset of a new period of rising prices, hundreds of millions of people are now at risk on a scale no statistic can conceal.

Growth, trade and China

The impact of PPP-based evidence on poverty spills over into its implications for world growth. In a nutshell, PPP statistics attribute to ‘globalisation’ what should be attributed to China.¹⁰ This, they do by greatly overstating China’s weight in the world economy. This in turn conceals the true causal relationships between growth and liberalisation.

No room remains for doubt that China’s growth is historically and geographically without parallel. Its sustained average growth is 2-3 times greater, in real terms, than that of any advanced country and outstrips all other third world nations.

However China’s growth has many causes other than its simple insertion into the world market, not least its distinct property relations and its vigorously-disputed approach to capital controls, joint ventures and technology transfer. Its process of development differs from all others precisely in its single-minded approach to acquiring advanced technological capacity. It is all too convenient to forget that China entered the WTO from a previously acquired position of strength, holding over half a trillion dollars of US debt.

It is therefore at least moot whether ‘globalisation’ transformed China, or whether China transformed ‘globalisation’.

9 Throughout, the words ‘Advanced countries’ and ‘First World’ are used interchangeably to mean those countries defined as advanced by the IMF. ‘Third world’ refers to all other countries except countries in transition, for which economic data remains disputed, and countries for which consistent long-run data is not available. All data and sources available at www.radicaldemon.org.

10 ‘Globalization’ in this article refers to the rhetorical usage of its advocates and detractors. Elsewhere I use the more precise ‘Financial and Trade Liberalization’ (FTL) to refer to the range of liberalization policies introduced nationally and internationally following the debt crisis: structural adjustment plans, privatization, deregulation, and the multilateral trade agreements overseen by the World Trade Organisation (WTO).

As commentators acknowledge,¹¹ the answer given depends critically on the denomination of the statistics. If world GDP is calculated by aggregation at PPP exchange rates, China's growth is assigned a weight some 3.5 times greater than at market exchange rates.¹² This device boosts world growth to levels where the rhetoric of globalisation works. World performance appears to have improved during the FTL decades 1980-2000 *only* if PPP statistics are used, making it possible to claim the small impact of the early stages of China's growth as a success of 'globalisation'.

This has also led to a systematic tendency to overstate the economic health of the world system, at the very point when the credit crunch and attendant slowdown made prudence doubly important. Attention was drawn to this in April 2008 when the IMF reduced its estimates of China's GDP by 40 per cent, reducing world growth by over half a percentage point.

Scholarship on the causes of recent world growth should, I suggest, focus on the *specifically Chinese* factors leading to this exceptional performance, which calls for attention on the one hand to the true circumstances within China, and on the other to China's decisive impact in the rest of the third world, alongside an emerging nexus of South-South economic relationships within which it plays an integral role.

PPP measures, by incorporating Chinese success into world aggregate statistics at a level that overstates China's real weight, dissolve both of these into vague and false claims of a general phase of world expansion in which China merely participates passively. With the credit crunch and US slowdown, such claims ring increasingly hollow. PPP statistics have thus rendered plausible an explanation which otherwise would not hold water, that world and Chinese growth are merely two aspects of a single common phenomenon – 'globalisation'. A more sanguine approach to measurement cannot but lead to a more accurate appreciation of the both the true risks facing the world economy, and the true causes of the genuine – but limited – economic successes of the past few years.

Purchasing power and 'globalisation'

A third dimension of doubt arises from the above: the close association between the rhetoric of 'globalisation' and the recourse to PPP-based evidence. We have noted that PPP-based achievements are today virtually synonymous with the successes of 'globalisation'. It would be disingenuous to claim that this relation is driven by the thirst for truth alone.

As late as 1995, the IMF was still assessing whether or not to adopt PPP weights for its estimates of world growth. Like 'globalisation' itself, the concept of Purchasing Power Parity has made a rapid journey, from the unrecognised work of a coterie of enthusiasts to a near-universal mode of discourse. In both cases, the marriage of political expediency and unrequited expertise has, as ever, proven a potent antidote to professional caution. PPP statistics, in a nutshell, make globalisation look good. More specifically, they make the World Bank and the IMF look good.

It is hard to believe the transition would be so complete, or rapid, were it not for the huge volume of PPP-based studies emerging from World Bank and IMF researchers, which have virtually set the terrain of the entire discussion. Yet their statistical

11 See for example, 'Economics Focus', *The Economist*, 4 August, 2001.

12 From now on, I use 'Monetarily Effective Purchasing Power' (MEPP) to replace the verbose 'nominal GDP in dollars at current market exchange rates'. The 'implicit price index' – following the convention established by ICP reports – is GDP in MEPP dollars divided by GDP in PPP dollars.

departments rank among the few in the world unprotected against bias by formal independence. This cannot but raise questions about their objectivity.

Admittedly there are limits on the scope for politically-induced distortion. The International Financial Institutions (IFIs) are secondary providers, using data from national sources and independent bodies like the International Comparison Programme (ICP). Nevertheless, as widely-accessible sources for internationally comparable data, they exercise enormous authority.¹³ They have considerable discretion in nominating the evidence deemed appropriate to judge the success of their own policies. They have led the field in promoting PPP statistics on world poverty and growth, whose general availability is almost entirely due to this fact.

A balance is long overdue. I do not deny the genuine improvements in understanding that can arise from PPP evidence, above all in making transparent processes of price differentiation which, this paper will argue, are essential to understanding the shape of the modern division of the world. When used to *supplement* more conventional statistics, they offer vital extra information. This is not, however, how they figure in discussions on development, poverty and growth, where they are used as a *substitute*. I find the balance sheet of this almost wholly negative. PPP evidence has led to misleading conclusions supporting misguided policies. The goal of a single measure of consumption and production, independent of monetary magnitudes, is theoretically and empirically flawed. It should be abandoned, and claims about social or economic advance which rest on it should be carefully scrutinized, re-assessed, and for the most part, dropped.

Poverty reduction or price reduction?

I begin with a simple calculation. Chart 1 shows GDP per capita, relative to advanced countries, of the third world both excluding and including China.¹⁴ GDP is here measured by the same means as that used by accountants and financiers. It is converted into a single currency at market exchange rates. Dollars are usually used in comparisons because it is the normal reporting currency for world transactions; for equality comparisons such as charts 1 and 2, any currency of course yields the same results.¹⁵ The measure, in short, is *money*, as normally understood and obtainable in the market. To emphasise this, in this article I adapt a phrase of Keynes and describe it as *Monetarily Effective Purchasing Power* or MEPP.

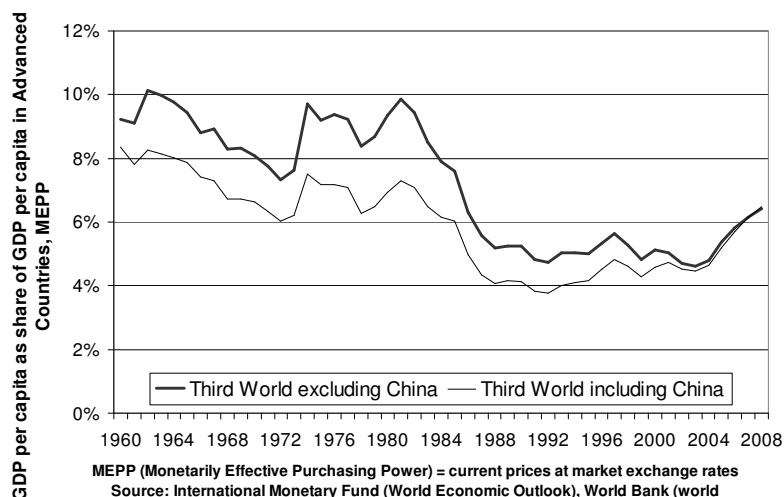
The MEPP income per capita of the third world excluding China more than halved, relative to that of the advanced countries, between 1980 and 1992. Inequality, measured in these terms, doubled. Chart 2 shows the same magnitude, calculated in PPP terms.

13 The United Nations is a noteworthy exception. OECD statistics, though produced to a high quality, unfortunately only cover OECD countries.

14 Milanovic (1999 2005) (see also Ravallion et al 2008) criticises poverty measures drawn from GDP statistics, calculating inequality instead from household income data independent of national boundaries. I comment on only two points which affect my argument. Firstly, I myself define inequality in terms of *territories* – the first and the third world – not countries. GDP per capita in each territory is unaffected by national division within them. Secondly, differences *between* these worlds is a basic geopolitical fact, re-enforced by ‘globalisation’ to the great detriment of the third world, and cannot be set aside. In throwing out a much-needed baby with some admittedly dirty bathwater, the ‘household headcount’ approach comes perilously close to denying that the third world exists.

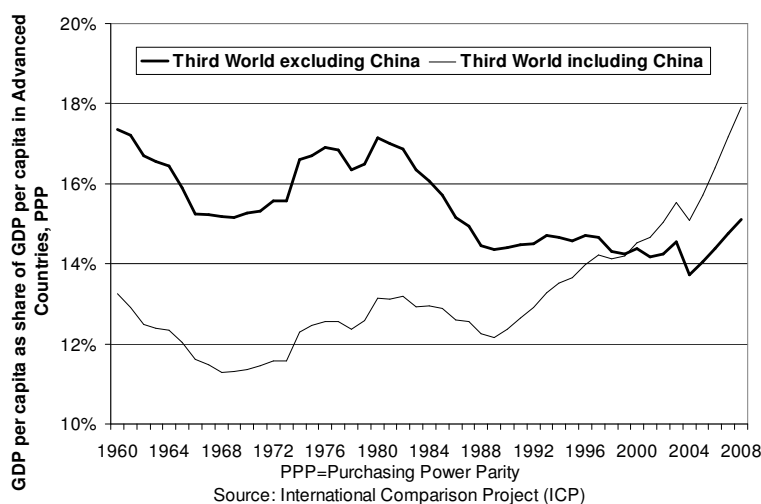
15 Figures for 2007 and 2008 are ‘nowcasts’ – best estimates based on the IMF’s forecasting model and data available as of April 2008.

Chart 1: World inequality (low = less equal)



The two measures tell a different story, highlighted in Chart 3, which compares the ‘worst case story’ from chart 1 – at market exchange rates without China – with the ‘best case story’ from chart 2 – at PPP exchange rates including China.

Chart 2: World inequality using PPP (low = less equal)

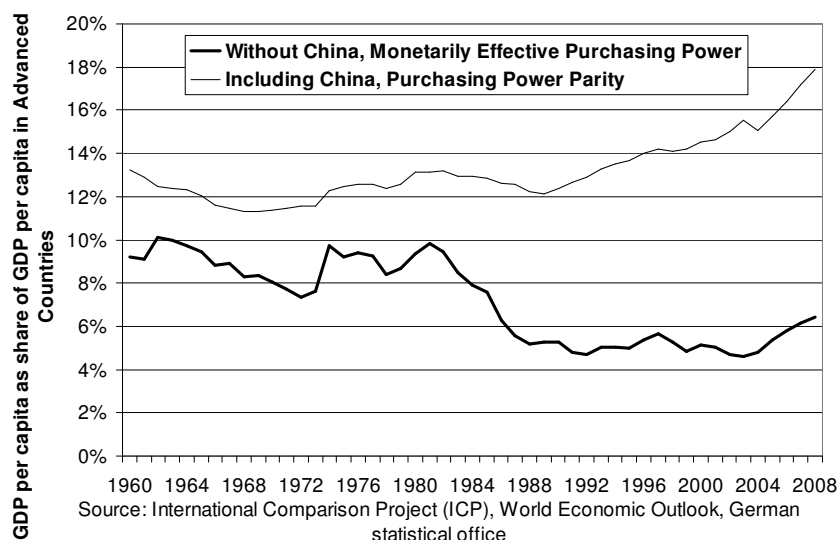


Using PPP and including China, inequality appears to have reached its worst ever point in 1968 when it bottomed out at 12 per cent, dipping briefly in 1988 before twenty years of almost uninterrupted betterment. Using MEPP and excluding China, inequality became sharply worse in the FTL decades, reaching an unprecedented and historic low of 4 per cent in 2004. A correction did begin in 2000 but even so, by 2008 world inequality at 6 per cent remained significantly worse than its pre-globalisation average of 8 per cent.

To see how critical these statistical choices are to basic judgements about inequality and growth, let us consider the debate provoked by Firebaugh and Gosling (2004) who write as follows: “Following nearly two centuries of growth,”

global income inequality declined in the last decades of the 20th century ... the major equalizing force is faster-than-world average income growth in China and South Asia, industrializing regions where 40% of the world’s people live. Apparently what matters most about economic globalization thus far is its role in the spread of industrialization throughout populous poor regions of the world. If so, then globalization most likely has reduced global income inequality.

Chart 3: Inequality measures compared (low = less equal)

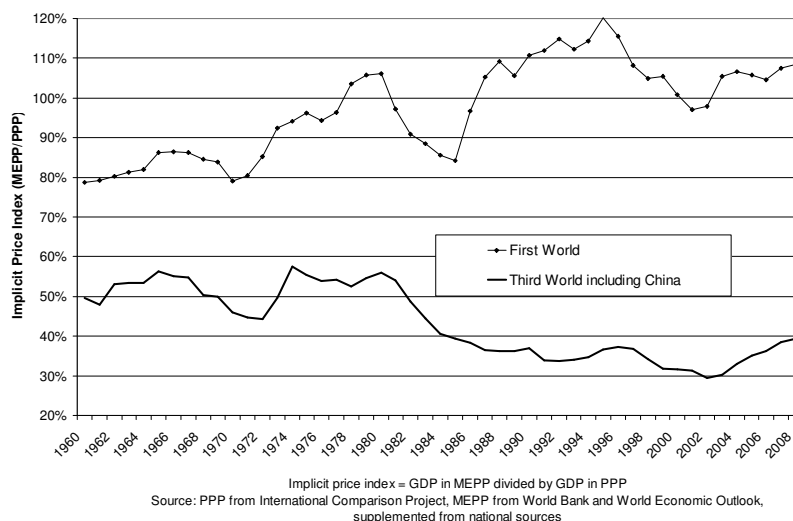


Statements of this nature depend absolutely on an uncritical acceptance of PPP-based evidence and a renunciation of any other. It holds only if the upper measure in Chart 3 is treated as unconditionally true, and the lower measure ignored. Let us therefore interrogate it more closely.

As indicated in the introduction, we assume that the PPP figures on which chart 2 is based are a true record of the relative differences in the prices both of individual commodity ‘basic headings’, and of baskets of goods derived from the country compositions of Gross Domestic Product.

It is then the case that GDP per capita in MEPP follows a completely different trend from GDP per capita in PPP. The two measures diverge. Why should this be? Chart 3 shows the ‘implicit price index’ – the ratio between GDP measured in MEPP and in PPP terms. On the assumption that PPP exchange rates offer a ‘competent’ measure of relative prices, a clear conclusion emerges: since 1981 there has been a prolonged process of divergence between prices in the third world, and prices in the first world. In the advanced countries, prices relative to ‘world’ PPPs have basically trended slowly upwards since 1960. In the third world, prices more than halved between 1981 and 2003.

Chart 4: implicit price index in the first and third worlds (low = lower prices)



“Improvements” in inequality or poverty recorded since 1980 are thus entirely due to the fall in prices experienced by the third world since the onset of ‘globalisation’. The World Bank’s ‘Povcal’ site¹⁶ lets us calculate the consequences. In 1981, using the ‘dollar a day’ measure of \$32.74 per month, headcount poverty stood at 40 per cent of households worldwide. If prices had remained constant, in 2004 an income of \$2.4 per day would be required to maintain the same living standard, giving a headcount of 54 per cent.

Only low prices therefore stand between half the world’s population and complete economic marginalisation. Without them, the number in extreme poverty would have risen from 40 to 54 per cent of the world’s people. We would now be further from the first millennium goal than in 1980. The balance sheet of ‘globalisation’ would be indisputably negative.

Does money matter?

Let us now revisit the arguments in favour of Purchasing Power Parities and reconsider them in the light of these facts. Two different arguments are often conflated. The first, a statistical argument, is that if two individuals face different prices, the person facing lower prices can consume more for the same money, and this should be taken into account when comparing their well-being.

This argument is unexceptionable. However behind it lurks the much stronger claim that price is some kind of superficial distortion, superimposed on a ‘true’ reality of tangible consumed and produced things. PPP then becomes more than an additional insight: it becomes the ‘correct’ or ‘true’ measure of the economy. PPP proselytisers write as if price differences were some kind of geographical inflation, a source of irrelevant variation to be eliminated and ignored. “Purchasing power parities” writes Kravis (1986:24):

...are the *correct* converters for translating GDP and its components from own-currencies to dollars (the usual numeraire); the alternative measure, exchange rates, *obscures* the relationship between the quantity aggregates of different countries. Drawing on the reports of the United Nations International Comparison Project (ICP), the article contends that exchange rates systematically *understate* the purchasing power of the currencies of low-income countries and thus *exaggerate* the dispersion of national per capita incomes. (my emphasis - AF)

The emphasised words point to the problem. That the two measures – MEPP and PPP – yield different results, nobody denies. But what determines that one of these is superior? We might with equal validity say that PPP ‘obscures’ the underlying monetary reality, ‘exaggerates’ the purchasing power of low-income currencies and ‘understates’ the dispersion of per capita incomes.

There is no *a priori* reason for claiming that money prices obscure or distort some true relationship which quantity measures reveal. The reasons usually given, on closer study, turn out not to be reasons at all, but restatements of the single unproven prejudice that money does not measure anything useful. “Because market exchange rates are based on short-term factors and are subject to substantial distortions from speculative movements and government interventions”, writes Datuk Chander (2002:1) in a paper prepared for the World Bank and referenced on the ICP site, “comparisons based on exchange rates, even when averaged over a period of time, such as a year, yield unreliable and misleading results.” Chander goes on to cite the

16 World Bank Povcal group, www.iresearch.worldbank.org/PovcalNet/jsp/index.jsp.

case of Japan whose per capita GNP was 67 per cent of that of US in 1985, but rose to 147 per cent in 1995. “This was not”, says Chander “because of superior performance of the Japanese economy but because of the phenomenal appreciation of the Japanese yen versus the US dollar.”

This ‘phenomenal appreciation’ amounted to 56per cent over eight years – less than in any of the previous eight comparable periods. For comparison, between April 2007 and April 2008 wheat, rice, and soybean prices rose by 40 per cent, 60 per cent and 40 per cent. respectively, whilst fertiliser prices rose by two *hundred* per cent and oil by 150 per cent. By what standard are exchange rate movements judged ‘phenomenal’ or ‘short-term’? Set against commodity price movements so violent as to threaten halving the living standards of the majority of the world’s poor within a few years, exchange rates are a paragon of stability. Food prices are, moreover, just as subject to speculative movements and government interventions as foreign exchange rates, if not more. Why are these not deemed to count as ‘distortions’?

An exchange rate is, in the last analysis, simply a price like any other. It is the rate of exchange of one commodity – the currency of one country – for another, the currency of another country. The distinctive feature of money is that it is liquid – it can purchase other commodities. But this is the very reason monetary measures of performance are important, and not ignorable. Keynes clearly established – a finding which economics has not renounced – the centrality of money *qua* money in the business cycle, and I can think of no good theoretical reason why this centrality should evaporate when considering differences in space instead of time.

The real reason for claiming that money is insignificant is, in summary, neither the speed of exchange rate movements nor their vulnerability to speculative or non-market forces. It is the unsubstantiated prejudice that consumption and production can uniquely be expressed and understood in terms of ‘quantities’ – that ‘money is a veil’. This idea rests on the central false conception, already discredited in economic thinking, that money and price are of secondary importance, as if a market economy could somehow function without payments.

Among the many problems with this extensively-criticised ‘physicalist’¹⁷ view, are the assumptions that the idea of ‘quantity’ is as easy and unproblematic for all commodities as it is for simple primaries like corn, or that an unambiguous meaning can be assigned to such things as a quantity of education, or health, or entertainment.¹⁸ Here I will focus on one particular problem: price variations across space – like those in time – are not random and not superfluous.

Kravis (1986:13) acknowledges that price differences have a geographical structure. But he does not draw the obvious conclusion that price is non-ignorable in explaining other geographical differences. The dispersion of prices across territories is not a ‘distortion’. It is an irreducible causal factor of poverty and underdevelopment. If we suppress price information as ‘incorrect’, we irretrievably suppress its explanatory power. One cannot isolate a single aspect of a totality containing interrelated causes, if one particular cause is thereby obliterated.

What is the third world?

The division between first and third worlds, reduced to its economic essence, is a division of the world into zones of low wages and productivity on the one hand, and

17 Kliman, A. and Alan Freeman (xxxx) reference article on physicalism.

18 See for example Kravis (1986:22)

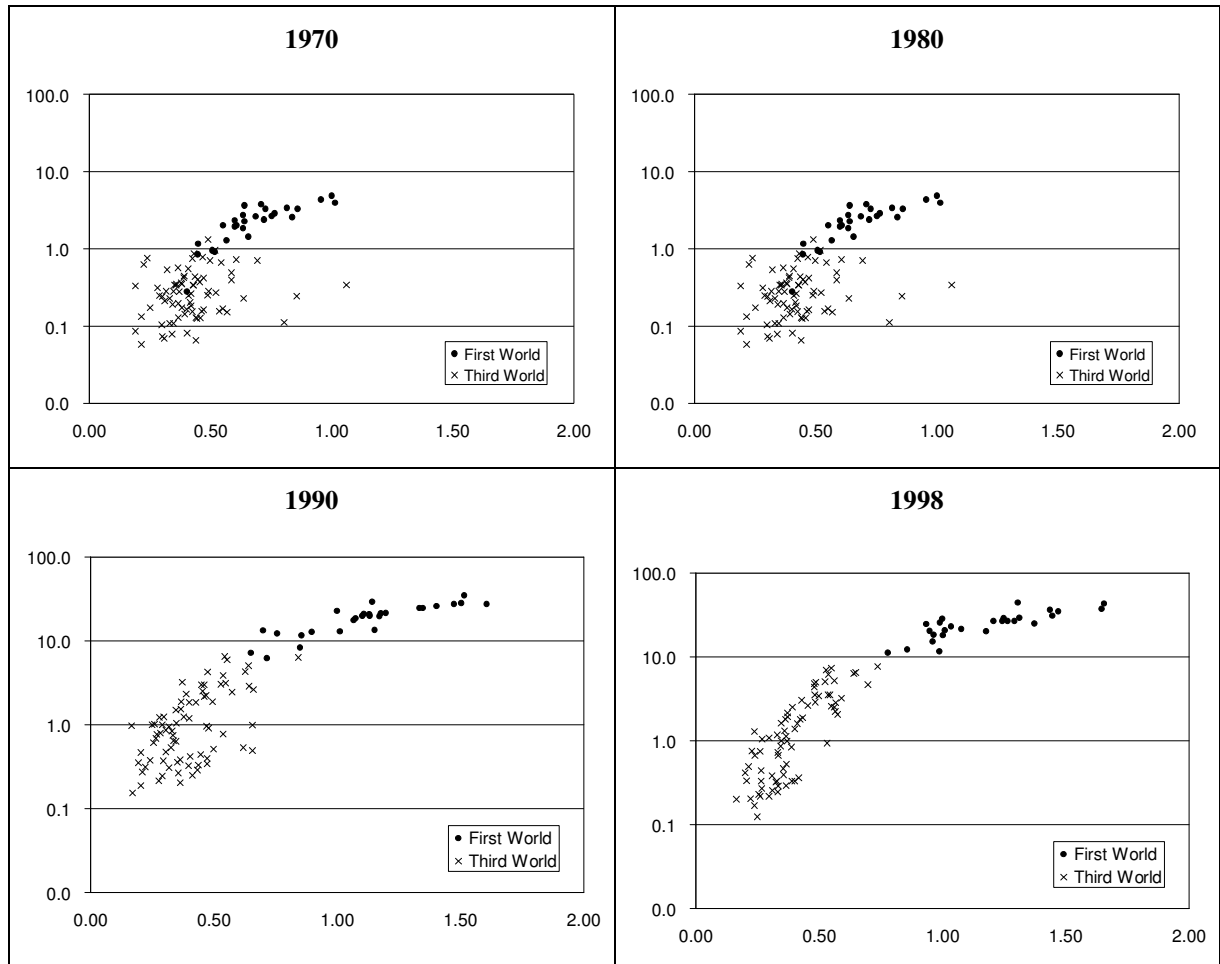
high wages and high productivity on the other. In this division, price is a causal factor, in two senses: the relatively low price of consumer goods, and the relatively high price of capital and intermediate goods, in the third world.

This is clarified by a closer study of the geographical dimension of price differentiation as it developed in the FTL decades. Chart 4 gave the aggregate relation between prices in the first world as a whole and the third world as a whole. Chart 5 now shows this relation in more detail by considering individual countries. Each subchart, for a given year, shows the relation between GDP per capita (in MEPP) and price level in that year, each mark corresponding to a country.

By end of the FTL decades, the first and third world had separated into two entirely distinct price-growth zones. By 1998, all third world countries for which complete data is available had migrated to the bottom left quadrant and all first world countries to the top right quadrant.

Over the same period, income became highly correlated with prices. The 1998 chart demonstrates particularly clearly the tight power-law relation which evolved during the FTL decades, with a correlation coefficient of 0.94.

Chart 5: GDP per capita versus price level



Vertical axis: GDP per capita in PPP. Horizontal axis: implicit GDP price index. Each dot represents one country.

Source: ICP, WEO

This close association between price and income levels was a specific feature of 'globalisation'. It was a clear outcome of the impact of financial and trade

liberalisation, an outcome which vanishes from view if we eliminate price differences as unworthy of consideration. Table 1 shows how the correlation coefficient has evolved over time.

Table 1: Correlation between GDP per capita and price level.

1970	1980	1990	1994	1996	1998	2000	2002	2004	2006	2008
0.73	0.81	0.95	0.96	0.96	0.94	0.93	0.91	0.91	0.89	0.89

Source: ICP, WEO and national statistical agencies

To summarise: in the previous section I showed that poverty reduction, as reported using PPP statistics, was in fact achieved via a general reduction of the prices in the third world over the period of financial and trade liberalisation. In this section, I have shown that empirically, these low prices were systematically linked to low income. With fewer and fewer exceptions as this period rolled on, the lower the income, the lower the price level.

This does not necessarily imply a causal relation: I have not argued that low prices ‘cause’ poverty (or for that matter that poverty causes low prices). It does however indicate that the relation is systematic and structural. Such a tight correlation is cannot be accidental and *some* set of causal relations must be involved. Whatever these are, they cannot but be obscured if price is set aside as an irrelevant distortion. Money, in a word, matters.

Not by bread alone: the true cost of capital

What are the possible causal connections for the relations observed in the last section? I begin with the well-known fact that third world prices are not in fact uniformly lower. The low prices observed for consumer goods, the main preoccupation of poverty statistics, are not repeated for goods which form two decisive preconditions of sustainable growth and, hence, of stable and permanent reductions in poverty. The first of these are *investment* goods, commonly known as capital goods. The second, to which almost no attention at all has been paid, are *intermediate* goods, the inputs consumed by manufacturers. Both are systematically more costly in the third world than consumer goods.

I begin within the consumer goods market itself, with high-tech goods. A widely-cited illustration of PPP methodology is the ‘Big Mac’ index, showing the cost of a Big Mac in the major countries of the world. In 2007 CommSec created another index called the ‘iPod’ index.¹⁹ Table 2, extracted from this index, shows the US dollar cost of an iPod Nano in January 2007

Table 2: the iPod Index

Brazil	\$327.71	Germany	\$192.46
India	\$222.27	China	\$179.84
Denmark	\$208.25	US	\$149.00
France	\$205.80	Japan	\$147.63
UK	\$195.04	Canada	\$144.20
Spain	\$192.86		

Source: CommSec

The cheapest country in which to buy an iPod is thus Canada, followed by the US and China, with India and Brazil at the most expensive end. The price of goods

¹⁹ www.comsec.com.au/public/news.aspx?id=809

incorporating high technology of all kinds do not follow the same price patterns, geographically, as the goods that make up the PPP basket.

That this is a general rule is confirmed by PPP research itself. Kravis (1986) provides table 3, showing the inverse relation between the price of producer durables, and income level for a range of countries in 1975:

Table 3: price levels for producer durable goods by income class, 1975

Income class (US=100)	Relative producer goods price level
0-14.9	3.2
15.0-29.9	2.04
30.0-44.9	2.11
45.0-59.9	1.58
60.0-89.9	1.17
90.0-100.0	1.00

Source: Kravis (1986 p16, table 7)

A differential therefore exists not merely between price levels but between types of good. As is well known, this affects the structure of consumption. A country can enjoy a low PPP price index, with certain consumer goods available at low prices such as food, housing, clothing, health and education services, and so on. But this advantage does not apply across the range. Manufactured goods and advanced producer services, above all where their production requires advanced technology, are significantly more expensive in those countries which do not produce them. This is an important factor in class differentiation, since access to ‘Western’ living styles and standards is generally restricted to the upper-middle class layers who can afford luxury goods. It means that, in effect, the difference between the price of luxuries and staples is significantly greater in many third world countries than in the first world.

However this in itself is merely a difference between patterns of consumption. Much more significant is its implication for production.

Table 4 illustrates this point. The International Comparison Project releases ‘implicit price indices’ for each of the main components of GDP (Final consumption, Government expenditure, Capital Investment, Export balance) and its subdivisions. For capital investment these constitute Construction and Machinery, further broken down respectively into Residential, Non-residential, Other and Transport equipment, Non-Electrical Machinery, Electrical Machinery. Comparing the relative costs of capital investment and equipment with final consumption gives indication of the true cost of growth.

The relative price of these two components of GDP are significantly different for the two groups of countries. The median cost of both capital investment and machinery, relative to consumption goods, is over twice as high in the third world as in the first world.

Recall, at this point, that the average PPP ‘advantage’ of the third world, in terms of lower overall prices, was at that time just under 3 (chart 3). The differential between the price of capital and consumption goods in the third world wipes out more than two thirds of this advantage.

This is acknowledged by PPP statisticians who do make attempts to understand its causes, but appear to have dedicated little attention to its effects. “Exchange rates” write Kravis et al (1985)

... distort certain kinds of structural comparisons. These distortions arise because the deviation of purchasing power parities from exchange rates is not uniform for all kinds of goods. In the price structure of low-income countries, for example, capital goods tend to be more expensive relative to consumer goods than is the case in high-income countries. Exchange-rate conversions thus tend to exaggerate the relative proportion of GDP that is taken in the form of capital goods in poor countries.

Table 4: Price of Machinery and Capital Investment, relative to domestic consumption

First world			Third world		
Country	Capital Investment	Machinery	Country	Capital Investment	Machinery
Portugal	144%	205%	Sri Lanka	94%	389%
Korea	135%	170%	Pakistan	264%	353%
New Zealand	136%	169%	Bangladesh	304%	352%
Hong Kong	155%	164%	Egypt	332%	323%
Greece	126%	158%	Morocco	237%	321%
Spain	129%	158%	India	211%	300%
Canada	97%	120%	Mauritius	369%	290%
Italy	114%	118%	Benin	327%	285%
Japan	129%	116%	Thailand	209%	274%
UK	118%	113%	Kenya	240%	265%
Ireland	98%	111%	Iran	139%	258%
Netherlands	113%	107%	Malawi	203%	252%
Norway	90%	106%	Madagascar	352%	232%
France	101%	103%	Cameroon	336%	225%
Belgium	98%	101%	Zimbabwe	209%	212%
United States	100%	100%	Congo	268%	210%
Australia	109%	98%	Zambia	253%	205%
Finland	89%	97%	Senegal	268%	203%
Austria	94%	97%	Philippines	284%	187%
Germany	97%	95%	Tunisia	194%	177%
Sweden	108%	95%	Rwanda	208%	165%
Denmark	96%	94%	Botswana	156%	163%
Luxembourg	98%	88%	Ethiopia	249%	161%
			Sierra Leone	451%	159%
			Cote d'Ivoire	181%	152%
			Mali	223%	144%
			Swaziland	162%	141%
			Nigeria	138%	125%
			Turkey	91%	105%
			U.R. Tanzania	77%	62%
Median	108%	107%	Median	230%	211%

Source: ICP 1985 price comparison round (UNSTAT 1994). As in the rest of this report, participating economies in transition (Hungary, Poland, Former Yugoslavia) have been omitted because of the lack of consensus around the data. Other omitted countries are those which did not take part in the 1985 programme.

The language is even more revealing. If capital goods are expensive relative to consumer goods – that is, if consumer goods are cheap relative to capital goods – by what standard is it decreed that exchange-rate conversions exaggerate the share of capital goods in poor countries? It is surely closer to the mark to say that PPP conversions understate the cost of capital goods – that is to say, understate the difficulty of industrialisation or indeed, mere industrial survival.

Moreover, whereas a theoretical argument, albeit disputable, support the notion that ‘real’ expenditure is somehow more basic than monetary expenditure, it cannot be called on in this case. Investment and capital goods are just as ‘real’ as consumer goods. Their quantities are just as measurable. By what criterion are their prices decreed to be ‘exaggerated’? The PPP approach is rooted both conceptually and, as I

will show, actually, in a *consumption* standard of price, excluding or wildly understating the impact of capital goods on third world costs.

This may have some justification in terms of the direct measurement of poverty. It is not justified as a generic measure of economic performance. It cannot be correct to assign capital goods secondary or trivial importance in any modern economy.

The problems created for developing countries by the relatively high cost of capital goods, compared with consumption goods, is well-known in development literature. Attention was first drawn to it by Singer (1950) and Prebisch (1950) who in the 1950s pointed to the depressive effect on development of relative decline in primary goods prices, compared to manufactures. The long-term nature of this trend is evident from the recurrence of references to it. Benham (1940) had drawn attention to it ten years earlier and the phenomenon of declining relative exchange rates was even noted by Marx in 1860 (ref), in his discussion of the colonies.

Table 5: Wages and Unit Labour Costs in Manufacturing – Comparison between China and Selected Developed and Developing Economies, 1998

Country	Relative to Chinese level of		
	Wages	costs	Implied labour productivity (output per worker)
United States	47.8	1.3	36.8
Sweden	35.6	1.8	19.8
Japan	29.9	1.2	24.9
Singapore	23.4	1.3	18.0
Taiwan Province of China (1997)	20.6	2.3	9.0
Republic of Korea	12.9	0.8	16.1
Chile	12.5	0.8	15.6
Mexico	7.8	0.7	11.1
Turkey	7.5	0.9	8.3
Malaysia	5.2	1.1	4.7
Philippines (1997)	4.1	0.7	5.9
Bolivia	3.7	0.6	6.2
Egypt	2.8	1.5	1.9
Kenya	2.6	2.0	1.3
Indonesia (1996)	2.2	0.9	2.4
Zimbabwe	2.2	1.2	1.8
India	1.5	1.4	1.1

Source: Wages and Unit costs UNCTAD (2002:159, table 5.4). Productivity calculated by author (column 2 / column 3)

Industrialization in the third world has modified the argument. Third world countries – acting on standard Ricardian advice – have moved into large scale production of certain types of manufactures and indeed many services,²⁰ particularly those in which cheap labour appeared to confer a competitive advantage. UNCTAD (2002:68) establishes that primary commodities declined between 1980 and 1998 from 51 per cent to 19 per cent of developing world exports. But as UNCTAD Trade

20 In China, (Freeman 2008) services are actually the only broad sector in which employment has risen, reaching 38 per cent in 2004 compared with 11 per cent in manufacturing and 42% in agriculture.

Development Reports also repeatedly point out, the relative price disadvantage of the third world has stubbornly persistent.

The move into manufactures has established a new world division of labour, no longer defined by primary exports but by the types of manufacture in which third and first world specialise. As UNCTAD (2005:86) puts it,²¹ attention has now shifted to the “prices of manufactures exported by developing countries relative to those exported by developed countries.” The fundamental difference between first and third world remains – as it always was – a division between *levels of productivity*.

This is made particularly clear by a comparison of wage costs and unit costs in various countries, given in table 5. There is room for some doubt over figures which show the USA as the country with the world’s lowest unit costs, most probably due to the effects of averaging. Nevertheless the basic qualitative point is so striking that it clearly holds regardless.

Taking the extreme case of the USA, where wages are nearly fifty times higher than Chinese wages, unit wage costs were, in 1998, only 1.3 times greater. This is just another way of saying that the labour productivity of a US worker is 36.8 times higher than that of her or his average Chinese counterpart. This clarifies one of the most basic issues of development, running counter to a great deal of conventional wisdom concerning comparative advantage – not to mention policy advice – which is that low wages cannot be traded for productivity advantage without the *additional* factors of capital and skills.

Development is conditional on being able to access and purchase the most advanced current technology, in the broadest sense of the combination of equipment, intermediate goods, and skills which are all required for competitive production.

However, this is only the tip of the iceberg. A still more basic problem, ignored by the PPP statistics, is not that of development, but mere survival. This is the subject of my final section.

The cost of survival and the price of manufactures

Why are capital goods assigned such secondary importance by PPP advocates in assessing economic performance? In this section, we show that the reason is not merely conceptual but arises from a fundamental error of calculation that goes to the heart of the PPP construct – the failure to recognise *intermediate* goods, required by industrial processes, as a cost.

First however let us consider some of the secondary reasons for underestimating their importance. The first point is that third world countries often acquire capital goods from abroad, and so the problem of their price is subsumed into the terms-of-trade discussion. However, the real issue is not one of trade but of price: it is the high price of the intermediate products consumed on a daily basis by the country’s industries which obstructs development, whether imported or produced locally.

Second, capital goods can appear as a kind of ‘luxury’ in comparison with the life-and-death issues of poverty itself. World opinion is focussed on the immediate problems of feeding, clothing, and housing two billion people on the margins of existence. But the price of capital goods *is* a life-or-death matter. The very successes, however limited, of third-world industrialisation, mean that an increasingly large majority of the population are industrial producers, and can therefore survive only if

21 in a prescient passage also predicting the present sharp rise in primary commodity prices

they can both sell their output competitively on the world market, and purchase their inputs at prices which provide a margin sufficient to live on.

This leads to the final point. For all the reasons given above, any attempt to record the true structure of third world costs must take full account of the cost of production. This, PPP statistics do not do. A fundamental flaw at their heart prevents them doing so, namely, their exclusion of the cost of intermediate goods.

The object of study, for price and growth comparisons, should be the total spending that a given country is required to make in order to reproduce itself from year to year. Conventionally, PPP statistics assume this is given by Gross Domestic Product. They begin from the main items that make up GDP: final consumption, government spending, investment, and the balance of trade. They then break down each item into various general types such as beverages and food, which is further broken down into such sub-items as bread and cereals, meat, fish and so on. Lastly, they consider the relative share of each of these items within spending on GDP, multiplying it by the country-based price of each such item, to arrive at the total PPP cost of GDP.

This can be thought of as a weighted average of individual prices, in which the weights are the share of each separate item in the country's expenditure.

At first sight, capital goods are therefore only a small proportion of the costs of a country, corresponding to the 10-20 per cent of GDP that is invested in new production. But these are *not* the only expenditures on capital the country makes. Industry relies not just on labour and capital equipment to keep going, but must also purchase the steady stream of components and raw materials that are needed simply to keep the production lines running. The more complex the manufacturing process, the more sophisticated the inputs required. The publisher requires paper and ink, the computer manufacturer the printed circuits, metal cases, power supplies, fans, screens and so on.

Table 6: Input-output table of the USA, 1987 (simplified)

	Intermediate Use			Final Expenditure					Total expenditure	
	Manufacturing Inputs	Non-Manufacturing inputs	Total intermediate use	Consumption	Government	Investment	Net Export	Total Final Consumption (GDP)	Statistical Adjustment	Total expenditure including the cost of intermediate goods
Non-Manufacturing goods	659	1,492	2,150	2,311	287	436	0	3,034	0	5,184
+Manufacturing goods	835	499	1,334	710	175	332	-175	1,042	0	2,394
+Statistical Adjustment	0	0	0	0	0	0	0	0	456	0
=Total Intermediate Use	1,512	1,991	3,503	3,020	463	768	-175	4,075	456	8,034
+Factor Incomes (value added = wages + rent + profit)	883	3,193	4,076							
=Total output including factor incomes	2,394	5,184	7,578							

Source: van Ark (1994, chapter 3). Table further simplified by author. Figures in billions of US dollars

GDP does not include all the monetary expenditures that a country makes in order to reproduce itself. It omits the most important costs of all, namely, what its producers must pay, in order to produce the products the population consumes.

The intermediate expenses which we have just assessed do not figure in PPP indicators. This is because of the definition of GDP itself which, as all first-year undergraduates are told, represents *final* consumption. It excludes intermediate goods and, with them, all those real and costly expenses which a producer must make in order to create the final product.

This vital but obscure point has to be fished out of a backwater of the PPP literature, the work of the International Comparison of Productivities (ICOP) project dealing with ‘producer PPPs’ for international comparisons of productivity.²² This work does not directly assess aggregate country PPP measures but seeks to compare the ‘true’ real output of individual industries, asking for example whether the car industry in Germany is more productive than that of the USA, when allowance is made for price differences between the two countries.

A central point emerging from these studies is that account must be taken not merely of the price of its outputs, but also the price of its inputs. This arises in connection with a rather technical procedure called ‘double deflation’, which deducts the adjusted price of inputs from the adjusted price of outputs to give real value added.

However, the issues raised go beyond this restricted technical question because the inputs themselves are a cost. As discussed above, these are simply absent from the normal GDP statistics. Van Ark illustrates this with the table that we have reproduced as table 6. This shows that the GDP of, for example, the USA, at \$4,075bn, is only half that of its actual total annual production and consumption, which, when intermediate goods are included, comes to \$8,034. A total of \$3,503 bn worth of goods are simply omitted from the nation’s true costs, if one reports – as PPP statistics do – only the unshaded part of the table. Indeed, if we add together intermediate costs and capital investment, find that for the USA at least, 54 per cent of total annual expenditure is accounted for by capital goods of one kind or another

However, as we have noted, it is precisely the price of such goods that account for the truly crushing costs falling on a third world country, which begins from a position of weakness in comparison to the first world in its technical development, in the skills of its workforce, and so on.

The structure of third world prices – cheap consumer goods, cheap wages, and expensive producer durables and consumables – does not improve this situation, but makes it worse. It is only those countries, most notably China, which have focussed their efforts in building up an independent and competitive capacity for producing such goods, which have held their own and advanced in the climate fostered by trade and capital liberalisation.

(TBA short conclusion on why it isn’t possible to ‘reform’ PPP but in fact the monetary measure should be the standard for international comparisons of inequality and growth, supplemented by PPP as a measure of standard of living and household income)

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22 cf for example van Ark (1993)

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