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African Growth Miracle or Statistical Tragedy? Interpreting trends in the data over the past two decades.

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Abstract

This paper reviews the current problems of national accounting in Sub-Saharan Africa. With the current uneven application of methods and availability of data, any ranking of countries according to GDP levels is misleading. It is increasingly acknowledged that the problems associated with national accounts in Africa may have caused growth to be underestimated, and there are concerns that GDP does not capture or cohere with concurrent trends poverty and wealth from other surveys. It is argued that this depends from country to country, and that in some countries current wealth is underestimated, whereas in others recent growth is overestimated.

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1 Introduction

This paper reviews the current problems of national accounting in Sub-Saharan Africa. With the current uneven application of methods and availability of data, any ranking of countries according to GDP levels is misleading. It is increasingly acknowledged that the problems associated with national accounts in Africa may have caused recent economic growth to be underestimated. Furthermore, there are concerns that the GDP data does not capture or cohere with concurrent trends poverty and wealth from other surveys. It is argued that this depends from country to country, and that in some countries current wealth is underestimated, whereas in others recent growth is overestimated.

The paper discusses three problems in the African growth and income data. First, many countries are using outdated base years for their accounts, and this means that in many economies GDP levels are currently grossly understated. Second, there are some economies that have recently updated their base years. These upward revisions, such as the one in Ghana (Jerven and Duncan 2012), are adding to the recent very high growth rates reported for Sub-Saharan Africa. Finally, the paper discusses the problem of the underlying uneven availability of data. It is shown that while some GDP estimates are aggregated on reasonable basis, many are guesstimates. Consequently this paper suggests that a) statistical capacity building efforts should be guided by this uneven application of methods and b) that datasets disseminated by institutions such as the World Bank should contain information that cautions about this level of unreliability of the estimates.

The paper uses data from a recent survey of methods and data for GDP estimation in African economies (Jerven 2013; AfDB 2013; IMF 2013), and data collected from national statistical offices are compared with those available from the World Bank database. The paper also reviews the recent suggested alternative measures, such as taking asset or consumption data from household budget data, or asset information from similar surveys. It is argued that there is a discord between GDP production figures, survey based income data and the alternative measures such as those using asset data, and that these measures seem to be telling us quite different things about economic development in Africa during the past decade or two. It is shown that this question is better approached on a country by country basis, and this paper makes the first systematic effort of mapping which countries where recent growth is overstated and in which countries current GDP levels are currently understated.

The paper is organized as follows. First, I review the debate on the “African Growth Miracle” and the “African Statistical Tragedy”. Second, I lay out the current landscape of economic statistics in Sub-Saharan Africa. In a third section I put forward my own argument which is that the published accounts are, with a few exceptions, underestimating GDP levels. This has implications for the current growth evidence. Most importantly current and recent economic growth has been overstated for most African economies. I suggest that one way of reconciling the conflicting evidence on wealth, expenditures and production growth is that most African economies currently are richer than we are led to believe by the GDP estimates. Meanwhile the continent is growing slower than we are told by the same evidence. Finally, in the concluding remarks I sketch out the implications of the knowledge problem for data users, data disseminators and data producers.

2 Between the African Growth Miracle and the African Statistical Tragedy

Is Africa Rising? According to most available datasets GDP growth rates are on the rise in most African economies, and have been rising since the mid-1990s (McKay 2013). But these official datasets have been demonstrated to be invalid and unreliable (Jerven 2013). Young (2013: 698) constructed an alternative set of accounts based on asset data, and found that “that real household consumption in sub-Saharan Africa is growing between 3.4 and 3.7 percent per year, that is, three and a half to four times the 0.9-1.1 percent reported in international data sources”. His sample includes 29 countries from sub-Saharan Africa. Young’s sample is biased in that it is based on DHS surveys. These are only conducted in countries that were relatively peaceful.¹ The most important shortcoming of Young’s analysis is that assets are not a perfect proxy for expansion in income, production or expenditures. Flows are different from stocks. However, his investigation is still very useful in that it draws our attention to three very important issues.

First of all, it makes clear that the national accounts may have missed something. This is extremely likely. As I have shown in a recent book, most national accounts are compiled on a very meagre data basis. In many countries the benchmark or base years for the national accounts are so out of date that they do not capture very much real information on the large informal sector – and more specifically misses information food production, and urban and rural small and medium sized enterprises. Indeed, in many countries the coverage of what we would call the formal sector is also very patchy. This is caused by outdated benchmark shares, obsolete business registers, incomplete recording of the external sector, and a simple dearth of regular primary data for national accounts compilers (Jerven 2013). Thus, it is abundantly clear that the data sources currently available to most national accounting departments in sub-Saharan African economies are not capturing economic growth properly, and furthermore that the published GDP per capita level estimates are not adequate reflections of living standards.

Second, it reminds us that, put simply, different measures may show different things – yet it requires a strong theoretical rationale in order to argue that one proxy should substitute for the real measure of economic activity. As argued by Johnston and Abreu (2013) and Harttgen et al (2012), replacing income growth with asset accumulation and consumption of basics such as education, health and clean water does not only introduce measurement problems on its own, it also creates a new composite measure which may have a different interpretation than GDP has. This is true of the whole spectre of alternative measures that has been suggested. Miguel Satyanath, and Sergenti (2004) suggested rainfall also in response to measurement problems in the African data, because as they put it: “Unfortunately, we are aware of no work that quantifies the extent of measurement error in African national income data or determines whether measurement errors are classical (i.e., white noise) at all, although the claim is often made that these errors are likely to be large” (2004: 740). They therefore resorted to the use of rainfall data as an instrumental variable in order to “control” for measurement error. In their subsequent analysis they used only the variation in economic growth that correlates with or can be explained by variations in rainfall. The objective was to only pick up growth that relates to food production and therefore living standards. What Miguel et al did not know was that statistical offices do use

¹ For a description of the Demographic Health Surveys and the data used, see Young (2012: 733-736).

rainfall data (sometimes for ad-hoc adjustments, and other times such as in crop forecast data, which are often used as the final data) when estimating growth in the agricultural sector. Thus in effect, when Miguel et al use rainfall to control for measurement error, they are redoing the same exercise that was done to create the agricultural production series in the first place.

Using rainfall to strip the data of measurement error is a scholarly solution to a knowledge problem. While it may yield some insights for scholars looking into particular trends and cause and effect relationships, it does very little to remedy the governance problem of unreliable economic statistics. It circumvents the issue of survey and administrative data entirely. A similar problem pertains to the well-advertised use of luminosity data to measure economic growth from outer space (Henderson et al 2009; Chen and Nordhaus 2010). Ignoring for a moment the problem that these three proxies (assets, rainfall and luminosity)² do not provide a coherent, uniform or predictable correction to the national accounts data,³ the luminosity data will only serve as a short term correction to measurement problems in scholarly contexts. Today, in reports published by the UN and its agencies countries of the world are routinely rated and ranked according income and growth and correlates such as poverty, health, education and others. It is unlikely that luminosity can serve the same purpose, and even more unlikely that central banks and executive powers will govern in order to achieve more light. Moreover, those who are interested in long term trends of economic growth in the past, face the impossibility of catching up with the light already emitted into space⁴ – digging into the archives to unearth and interpret administrative data will yield better returns (Jerven 2012a).⁵

The third issue raised by these competing proxies for national income is the inherent difficulty not only of measuring, but actually comparing economic activity across time and space (Jerven 2012b). The question that appears when you are counting numbers of assets or using binary values such as yes or no access to clean water or literate/illiterate are the same that pertain to the use of literacy and life expectancy in the Human Development Index (Ravallion 2010). Johnston and Abreu (2013) furthermore argue that these assets have particular interpretation in different geographical contexts. They concur with Harttgen et al's (2012) basic critique. The accumulation of assets such as cars, fridges and mobile phones is not appropriate for intertemporal comparisons of welfare. The problems arise from changes in relative prices over time. One would hasten to add that real GDP numbers and PPP adjusted GDP data are riddled with the very same problems. And herein lays precisely the parts of the puzzle. To make their general point, Harttgen et al (2012:5) point to the example of mobile phones. Mobile phones, they say, is not suitable for measuring gains in living standards because “preferences for certain assets might rise over time as assets become more prevalent and part of ‘normal’ living conditions, and moreover “changing relative prices can lead to a demand shift favoring some assets at the expense of other household expenditures. Again mobile phones are probably the

² A fourth alternative is the use of anthropometrics, see for instance Moradi and Baten (2005).

³ According to Henderson et al “growth is more likely to be underestimated in the WDI for countries with low measured income growth rates, and overestimated in the WDI for some countries showing very high growth rates. But there is a lot of variation across countries in the adjustment.”

⁴ Annual data are available back to 1992.

⁵ This would mean travelling faster than the speed of light, and if we could it would make the travelling into space to gather light data redundant as it would also, if Einstein is right, enable us to travel in time which would considerably ease the collection of historical data.

best example of an asset whose relative price has declined dramatically over recent years” (ibid). The critique put forward here makes perfect theoretical sense, yet it misses the practical point.

Young suggested the use of asset data as a proxy for national income data, because the published national accounts may have missed something. In the case of Ghana we now have it confirmed, between 1993 and 2010 the old estimates had missed more than 18 billion Ghana cedi. The new GDP estimates for 2010 showed 44.8 billion Ghana cedi, compared to the old estimates of 25.6 billion cedi.

Until 2010, the Ghanaian economy was measured at the Ghana Statistical Services using a template devised in the 1990s, and real price estimates were published in 1993 prices. As documented at the Ghana Statistical Service, work toward a rebasing of the national accounts had begun in 2002, but it was not until 2010, when the rebasing to a new benchmark year for 2006 was completed (Jerven and Duncan, 2012).⁶ When the estimates were ready it became clear that the outdated 1993 series had underestimated the size of the economy.

Table 1: GDP in Ghana according to New (2006) and Old GDP (1993) Series

GDP New Series

	2006	2007	2008	2009	2010*
GDP GH¢ million	18,705	23,154	30,197	36,867	44,799
Cedi/dollar rate	0.92	0.94	1.07	1.42	1.42
GDP (\$ million)	20331.61	24,632.39	28,204.30	25,962.98	31,548.40
Population estimate (million)	21.88	22.39	22.9	23.42	23.93
Per Capita (GH¢)	854.89	1,034.14	1,317.84	1,574.18	1,872.07
Per Capita \$	929.23	1,005.15	1,231.63	1,108.58	1318.36

GDP Old Series

	2006	2007	2008	2009	2010*
GDP GH¢ million	11,671.99	14,045.85	17,451.60	21,746.80	25,602.5
Cedi/dollar rate	0.92	0.94	1.07	1.42	1.42
GDP (\$ million)	12,686.95	14,942.39	16309.91	15,423.26	18,029.90
Population estimate (million)	21.88	22.39	22.9	23.42	23.93
Per Capita (GH¢)	533.45	627.33	762.08	928.56	1069.89
Per Capita \$	579.84	667.31	712.22	658.55	753.44

*Provisional Estimates

Source: Ghana Statistical Services (2010)

Most of the revision (72%) originated in the service sector; 10% was due to increases in the industry sector; and the remaining 18% came from the agriculture sector. The relatively minor share of the revision originating in the industry sector is, of course, a reflection of its small share

⁶ “Rebasing” refers to a change in the base year for volume estimates, which may cause changes in growth (depending on how the index number problem is handled). “Revision” implies that the estimates are upgraded with new data. In this case, both took place simultaneously.

of the economy. And while the estimate for manufacturing almost doubled, the estimates for construction, water and electricity, and mining and quarrying were largely unchanged. Within the agriculture sector, non-cocoa crop production accounted for most of the increase (Jerven and Duncan, 2012: 19).

Why had the large economic activity in the service sector gone missing? Well, in part it was because the data sources had not picked up – for instance – the large growth in communications sector, because they did not include data on mobile phones. The old estimates, again because of obsolete data sources, had not captured the growth in private education services. In total, increases in the industrial classifications categories Wholesale and retail trade; Hotels and restaurants and Transport, storage and communications, alone made up 50% of Ghana’s total GDP increase. Thus, the DHS data on Ghana would have captured some of these heightened living standards directly as yes to the question of whether one had telephone or a whether one did attend school.

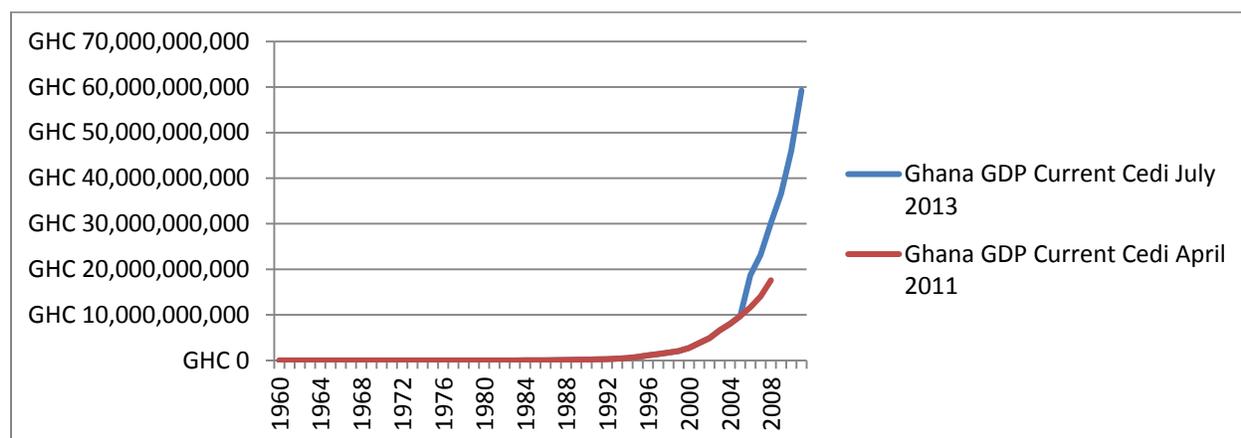
Did this mean that GDP levels have always been underestimated in Ghana? Or is it only recent growth that has been underestimated? Unfortunately, I have not had access to the materials used to compile the 1993 estimates but it is not likely that it is definitions or methods that have made a large difference – most of the increase came from new data sources that exposed new economic activity that had not been accounted for before. If this had been a simple issue of new ‘definitions’ as in upgrading from the 1968 United Nations Standard of National Accounts to the 1993 United Nations Standard of National Accounts one could – depending on data availability – extrapolate does new definitions backwards.⁷

When European countries updated from 1993 to 1968 SNA it generally entailed a quantitative change upwards of between 1 to 7 percent, and the average upward revision of 15 European countries was 2.9 percent. It is thus clear that we are talking of areas of the economy where one did not previously have any data, and this complicates backward extrapolation. When changes were made to the national accounts in US and Canada, historical data were used to adjust the time series back to 1960, whereas many Western European countries revised back to the 1970s (UNECE, 2000: 210-211). In Ghana the new GDP series has not been backdated. So we only have data on the ‘new’ Ghanaian economy between 2006 and 2012. The World Development Indicators published a series on the 1975 base year (it is not clear why the series was not updated to the 1993 base year) until 2012 when they updated their series.

The problem is that the new series only goes back to 2006. For illustration, here is how Ghana looked according to the series published in World Bank Data until 2012 (red) and from 2013 (blue). This is in current prices, but shows how the revision radically changed the post 2006 growth story in Ghana. Note that there is a perfect overlap between the two series from 2005 and back to 1960. Figure 1 clearly shows that there is a pronounced acceleration in the post 2006 economy on the new series, which did not exist in the old series.

⁷ The change of base years also coincided with a change in the System of National Accounts. Shantayanan Devarajan, World Bank Chief Economist for Africa, stated that the main cause for the revision was the upgrade from the 1968 version of the System of National Accounts (SNA) to the 1993 version (Devarajan 2011), this is not correct.

Figure 1: Ghana GDP, new and old series as published by WDI (Current Cedi)



Source: WDI 2013 and WDI 2011.

2 How much do we know about income and growth in Sub-Saharan Africa?

In *Poor Numbers*, I attempted to survey the status of GDP statistics all countries in Sub-Saharan Africa, and in particular to collect information on the methods and data in use to compile national accounts. One of the main purposes was to see if Ghana was a truly exceptional case, or whether there were more cases like it. The table I compiled in 2011, contained information on 37 countries showed that only 10 countries had a base year that was less than ten years old (Jerven 2013: 24-25). I further showed that seven countries had a base year that was more than two decades old (1990 or older), and that there was only 6 countries (Burundi, Ghana, Mauritius, Niger, Rwanda and Seychelles) that followed the advice of the IMF to have a base year that was 5 years or newer (2006 or newer).⁸

In response to this survey, the African Development Bank, commissioned a study which was published in 2013 which provided information on the same variables.⁹ The AfDB attempted to get a response from all 54 member countries, and received a response from 44 of them.¹⁰ In the survey of base years the AfDB report results from only 34 countries (as compared to 37 in Jerven 2013), and reports: “the base years now being used for constant price estimates in 34 countries. Only nine – Cape Verde, Egypt, Ethiopia, Djibouti, Guinea, Malawi, São Tomé & Príncipe, Togo, and Zimbabwe – have base years that meet the five-year rule (i.e. 2007 or later). Nineteen countries have base years that are at least ten years old, and eight (Benin, Central African

⁸ Only Mauritius had a base year from 2007, the rest were from 2006, so by the time the book and survey was published (2013) these were all out of date according to the strict IMF criterion.

⁹ In the introduction of the report: “But are Africa’s statistics as bad as they are being portrayed by some critics? In attempting to answer this question, the African Development Bank in March 2013 decided to undertake a survey to assess the reliability of GDP data, including the availability of survey data, price indices, and base years for constant price GDP” (AfDB, 2013: 6).

¹⁰ In difference to Jerven 2013, and IMF 2013, the AfDB 2013 also cover North Africa. The non responding countries in the AfDB survey were Angola, Burundi, Eritrea, Gabon, The Gambia, Liberia, Libya, Sierra Leone, Somalia, South Africa and South Sudan.

Republic, Comoros, Congo Republic, Madagascar, Mali, Nigeria, and Sudan) use base years that are more than 20 years old.

The second report in 2013 that set out to replicate the collection of some metadata on GDP statistics in response to the attention to the importance of base years in *Poor Numbers* was published in the IMF's 2013 Regional Economic Outlook for Sub-Saharan Africa in May (IMF 2013: 6). According to their survey of 45 countries, summarized in a table only four countries meet the so called five-year rule (with base year from 2007 or newer) - Cape Verde, Malawi, Mauritius and South Sudan.¹¹ Recall that Jerven (2013) found in 2011 that seven countries met this criterion, with base years of 2006 or later. If, for the sake of comparison, we would considering base years 2006 or later as meeting the five-year rule, thus including among others Ghana, you will find that according the IMF finds 11 countries to fall within this range in 2013. How come IMF and AfDB differ so widely in their information? Well, the two institutions agree upon the base year of Cape Verde and Malawi being recent, but the AfDB either did not get information on Mauritius or missed it in their count. Egypt and Djibouti are not included in the IMF table, whereas the countries that AfDB reports as having a base year from within the last 5 years include: Ethiopia (whose base year is 2000 according to IMF); Guinea (whose base year is 2003 according to IMF); Sao Tome and Principe (whose base year is 1996 according to IMF); Togo (whose base year is 2000 according to IMF) and finally also Zimbabwe (whose base year is 2000 according to IMF).

Oddly enough, the IMF concludes from their report (2013: 4) that their “median base year is around the year 2000, which, although now 13 years ago, is more recent than had been suggested by Jerven (2013)”. In *Poor Numbers* I did purposefully not report a mean or median year, because I am not sure if it is a useful statistic. The samples reported in *Poor Numbers* and the AfDB are both positively biased. We do not have responses from countries that are in more economic and political distress, which we would expect, all other things being equal, affects the timeliness of economic statistics negatively. For the record, in my 34 country sample the mean and the median base year is 1999 and 2001 – so contrary to the IMF report, my book paints a similar if not more positive picture compared to the data reported in the IMF table.¹² Meanwhile, the AfDB (2013:5), conclude that: “Overall, the situation with regard to GDP is not nearly as bad as has recently been suggested”. It is not clear what this conclusion is based on, but in the same executive summary it is noted that (2013:5):

A country's GDP estimates are only as good as the data on which they are based. Although industrial production is believed to be rising sharply in most countries, nearly one-fifth of the respondent count tries had not conducted an industry survey since 2000. Even fewer countries conduct regular surveys or censuses of agriculture, despite its criticality to the food security situation in the continent. What is equally surprising is that Algeria, the Democratic Republic of the Congo, and Nigeria, which are three very large countries, have not carried out a population census in the last 20 years. On the other hand, almost all the 44 respondent countries have carried out at least one household survey of income/expenditure since 2000, more than two-thirds have conducted a household labor force survey, and half have undertaken one or more special surveys focusing on the informal sector.

¹¹ Cape Verde and Malawi have updated their base years since I did the research for *Poor Numbers*, and I did not have information on South Sudan, because they had not yet made their first estimates.

¹² In fact according to mean and median it is identical. The median is 2001 in the IMF table as well.

This summary mirrors the picture painted in *Poor Numbers*, where the main trend since the 1990s was observed to be a low priority for industrial and agricultural statistics, and a high priority for household budget surveys. It should be noted though that the AfDB paints a too bleak picture of the population census taking in Africa. Nigeria did conduct a population census in 2006 (as described in Jerven 2013: 56-61).

Despite these discrepancies and disagreements on the number of the very recent updated GDP estimates, they are in both reports outnumbered by countries using very out-dated base years. The African Development Bank reports that 19 countries have base years older than ten years old, including eight with base years greater than 20 years old. In IMF's larger sample, one finds 28 countries with base years more than 10 years old, while 13 countries are still using base years more than 20 years old. Since the IMF data has the best coverage (but if we trust the AfDB they may have missed a few base year revisions) the information on current base years is reported in Table 2.¹³

Table 2: Base years and planned revision in SSA

Country	Base Year	Planned Revision	Years Btw Revisions
Angola	1987	2002 (2013)	15
Burundi	1996	2005 (n/a)	10
Benin	1985	1999 (2014)	14
Burkina Faso	2006		
Botswana	2006		10(1996-06)
Central African Republic	1985	2005 (2014)	20
Cote D'Ivoire	1996		
Cameroon	2000		
DRC	1987	2002 (2014)	15
Republic of the Congo	1990	2005 (2013)	15
Comoros	1999	2007 (2013)	17
Cape Verde	2007		28 (1980-07)
Eritrea	2004	Not compiled after 2005	
Ethiopia	2000/01	2010/11 (2013)	10
Gabon	2001		
Ghana	2006		13 (1993-06)
Guinea	2003	2006 (2013)	3

¹³ According to information submitted to me from Burundi has a base year from 2006, not 1996 as reported in Table 2. Furthermore, Madagascar has, according to information submitted to me from UNECA, a base year from 1995, and the statistical office is currently preparing for SNA 2008 (and presumably a rebasing) for 2016. For Mali I reported 1997 Base year (compared to 1987 as reported here) based on information submitted to me from Mali. The provenance of the information in the IMF and AfDB is not detailed in their reports, whereas it is described how all the data was retrieved for *Poor Numbers* in the appendix, pp. 123-137.

Gambia	2004		28 (1976/77-2004)
Guinea-Bissau	2005		19
Equatorial Guinea	1985	2007 (2013)	22
Kenya	2001	2009 (2013)	8
Liberia	1992	2008 (2015)	16
Lesotho	2004	2013 (2015/16)	10
Madagascar	1984		
Mali	1987	1997 (2013)	10
Mozambique	2003	2009 (2013)	6
Mauritius	2007	2012 (2015)	5
Malawi	2009	2014	5 (2002-07)
Namibia	2004	2009(2013)	6
Niger	2006		19
Nigeria	1990	2010 (2013)	not known
Rwanda	2006	2011 (2013)	5
Senegal	1999	2010 (2014)	11
Sierra Leone	2006		5 (2001-06)
South Sudan	2009		
Sao Tome and Principe	1996	2008 (na)	12
Swaziland	1985	2011 (2014)	
Seychelles	2006		
Chad	1995	2005(2014)	10
Togo	2000		22
Tanzania	2001	2007	6
Uganda	2002	2009/10 (2013)	8
South Africa	2005	2010 (2014)	5
Zambia	1994	2011 (2013)	
Zimbabwe	1990		

Source: International Monetary Fund 2013; 21

To argue about how many countries have a five year old base year or not, or calculate means and medians on the basis of surveys conducted in different years will only reach conclusions of temporal validity. Moreover, it follows from basic probability that if a group of 54 countries randomly update their base year every 20 years or so then you would in any given year have a handful or so countries that have a base year within the past five years. It is worthwhile drawing from this table that there are some countries which have a GDP that may give a fair approximation of economic activity in the country,¹⁴ but it is perhaps more important to point out that for the biggest countries (DRC, Nigeria and Sudan) we are approaching a quarter of a century since there was benchmark study of the size of the economy.¹⁵ This alone adds a serious

¹⁴ On this evidence and the one reviewed in the book, it appears that South Africa, Tanzania, Rwanda, Namibia, Mauritius, Kenya

¹⁵ Sudan is missing from the IMF table, and for *Poor Numbers* it was not possible to retrieve information. The AfDB lists it among the countries with a base year which is two decades or older.

caveat to the ‘Africa Rising’ debate – particularly if you are wanting to generate a population weighted number .¹⁶

Table 3: Impact of rebasing GDP in African countries at current prices

Country	Old base year	New base year	% difference between GDP old base and new base
1. Botswana	1993/1994	2006	-10
2. Burundi	1996	2005	40.3
3. Cape Verde	1980	2007	13.7
4. Chad	1995	2005	6.6
5. DRC	2000	2005	66.4
6. Egypt	2001/2002	2006/2007	8.9
7. Ethiopia	1999/2000	2010/2011	-1
8. Ghana	1993	2006	62.8
9. Lesotho	1995	2004	-4.4
10. Morocco	1988	1998	11.7
11. Mauritius	1992	1999	1.2
12. Niger	1987	2006	2.5
13. Rwanda		2006	10
14. Sierra Leone	2001	2006	25.6
15. Tanzania	2001	2007	10
16. Tunisia	1990	1997	9.8
17. Uganda	1997/1998	2002	10.5
18. South Africa	1993	1998	13.7

Source: Kiregyera 2013, 13.

Table 3 confirms that while the Ghana upward revision was untypically large, there has been other recent revisions that makes considerable adjustments to GDP levels, and In Nigeria, the GDP revision is underway (Jerven 2013b, Kale, 2013), it may be as large as the one experienced in Ghana and such revisions will again upset what we thought we knew about income and growth in Africa. McKay (2013: i51) summarizes the pattern as such: “But from the early to mid-1990s on there is a significant reversal: aggregate per capita GDP rose by 31% between 1994 and 2010, an average of 1.7% a year.” An increase in the aggregate GDP of 31 percent is not that much, if we keep this other revisions in mind.

¹⁶ Angola is another of the fastest growers, with a base year from 1987

The good news is that after some decades of neglect, economic statistics seem to be improving in some countries, but it is important to remember that the base years and methods in use is just a symptom. The final estimates of growth and income are no better than the primary data they are based upon. As the African Development survey noted, “one-fifth of the respondent count tries had not conducted an industry survey since 2000. Even fewer countries conduct regular surveys or censuses of agriculture, despite its criticality to the food security situation in the continent” (2013:5).

3 Interpreting the growth evidence for the past two decades

Very recent growth is overestimated. First of all, there are economies such as Ghana, but also others where recent growth is higher because there was a recent large upward revision in GDP levels, and the smoothed series across the 2000s thus shows an exaggerated acceleration in growth. Second of all, for those economies that have very outdated base years the GDP level is most probably underestimated. This has two effects. One is obvious, when the base is too low, growth estimates are too high. One of the key reasons you would like to have an exhaustive GDP estimate is to avoid ‘statistical growth’ - that is growth arising from adding previously unmeasured parts of the economy. A second effect comes from statisticians and consultants adding to GDP measure to make it more exhaustive, by revising current and previous GDP estimates upwards as one goes along. A couple of things are going on here. When it is obvious that GDP is underestimated it makes sense to ‘add’ some growth to the estimates to have a more representative GDP. It may also be in interest of the statistical office to pre-empt a large future upward revision (particularly when some data sources are becoming available before the revision is complete, as in the case of Nigeria and Ghana) by upward adjusting recent and previous GDP estimates gradually. There is a conflict between two aims – reliability versus validity. Validity refers to whether the GDP estimate is correct, or exhaustive. Efforts to make it more valid may cause problems for data users, who are interested in a reliable measure of economic growth, but not necessarily a correct level of GDP. According to Heston in 1994, “Often officials, who use national accounts for growth purposes and who also evaluate work programs of statistical offices, may resist improvements in level estimates of output because it will introduce breaks in national accounts series. Perhaps this is a straw person, but I have been told this is not a trivial obstacle to improvements in some countries” (1994: 37).

For those countries that have recently or are currently undertaking a GDP revision, recent economic growth is probably overstated. For those countries that have not yet undertaken a GDP revision there is also an effect that biases the estimates of growth upwards – the size of the economy is small, and thus large effects in GDP derives from external change that is currently proportionally too large.

Quite a bit of the recent economic growth is not based on observed or recorded economic change, but is rather is simply occurring by assumption – there is some growth in the formally recorded sector, and accountants adjust the GDP estimates to capture growth in the unrecorded sectors. A good example of how unrelated economic growth can be comes from South Sudan. According to the *World Economic Outlook* 2012 the economy is projected to grow the quickest

in 2013 was South Sudan at 69.62 %. And which economy was projected to grow the slowest in 2012? Answer: South Sudan again, this time at minus 54.98 percent. It may be tempting to write this off as miscalculations at the world's youngest statistical office, but these data are probably more or less right. Of course, not to the second decimal point, and maybe give or take 5 to 10 percent, but in the case of South Sudan economic growth depends on the flow of petroleum, which was hindered in 2012, but projected to flow freely in 2013.

South Sudan is an extreme example, but by and large, the growth data are driven by changes in the very narrow external sector, and one has little or no information on economic growth in the informal sector. Take the example of Ghana. In some of the survey data they used to update for the base year in 2006 there was some information on previously unrecorded economic activities. After 2006 there is no information on the informal sector. Economic growth in the now very large and important small scale service sectors are primarily driven by VAT data, but that is by definition not including the informal sector.¹⁷ The situation is similar elsewhere. The GDP base year changes and revisions will cause big jumps and ad hoc improvement, but GDP growth data requires reliable annual data, and the data availability means that change in national accounts is driven by changes in the formal and often external sector, thus when many observers are saying (such as Lipton, 2012) that growth is driven mainly by mining, and do not reflect changes in labour productivity or agricultural yields, they are mostly right as far as it goes for the published national accounts.

This is where alternative data sources, proxies and triangulation using poverty data and household budget survey data to make sense of the national accounts data is important. One cannot, as Sala-i-Martin and Pinkovskiy did (2010), derive trends in poverty data from the national accounts data. The data basis is too weak. There are country level data on poverty that allows some analysis of these trends, but although one can find better numbers on country levels such as in McKay. "It is not straightforward though to use the evidence discussed here to draw conclusions about aggregate changes in monetary poverty in Sub-Saharan Africa; the periods covered differ from country to country, the underlying surveys and the poverty lines are not comparable" (McKay 2013: i71). It is important to add to this that according to Carr-Hill the survey data are biased and misses millions of poor as a matter of design (2013). Currently we do not too little about aggregate monetary poverty to assert elasticity between economic growth and poverty. One way of making sense of the discrepancies between national accounts and other indicators such as assets indices and luminosity is that national accounts systems have missed something. This does mean that some economies are richer than the data makes us believe, but it also means that some of data tells us that the economies are growing faster than they actually are.

¹⁷ According to a peer review of the Ghana revision commissioned by the African Development Bank the informal sector is not included in the new GDP numbers, and growth is entirely driven by the formal sector.

4 Concluding Remarks

What has been described here is a considerable knowledge problem. There are currently serious difficulties in the regular collection of economic statistics. Our current estimates are doubly biased. We know less about those economies that are poorer, and less about the populations that are poor in those poor economies. This knowledge problem stands in striking contrast with the demand for numbers in the development community.

Perhaps the most visible public commitment to results based policy and evidence driven policy was the adaptation of the Millennium Development Goals in 2000 when UN members pledge to commit policy and funds towards reaching the 8 goals, measured by 18 targets and 48 indicators. In retrospective it was strikingly naïve to assert this extent of measurability without a systematic understanding of how data can and should be generated by these weak statistical systems. While funds have been available for statistical offices – it has tended to divert resources and manpower from economic statistics towards social statistics. Moreover, these funds are ad-hoc funds, and reward employees to collect data for a donor funded project, which detracts from the offices regular responsibilities in analysis and dissemination. In practice many statistical offices have been a data collection agency for hire, and not an office that provides objective information needed in day to day politics of the state.

What to do about it? For data users it is crucial to question your evidence. In the macro analysis of growth and poverty the distance between the observed and the observer has increased since the 1990s, as analysts have increasingly made use of downloadable datasets to test econometric models. Data disseminators need to label their data correctly. A great deal of the information is sold as data are indeed only weak guesses and projections. The biggest challenge is to invest in better data for the future. A new agenda for data for development in Sub-Saharan Africa is required – where local demand, incentives and applicability is at the center.

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