Configuring the World: A Critical Political Economy

Readings Week One – Part 1

The readings for the course are mainly formed by extracts from the draft chapters of the book by the same name which I was writing before the recordings started for the MOOC. The script of the MOOC was between April/May 2014 and recorded in May/June. A surprising amount of information was released in those months which I have not yet been able to incorporate into the text. In some respects, therefore, the MOOC is more up-to-date than the information in these drafts. Whenever this is the case, I will point to the details in the introductions to the extracts form the draft chapters. One final comment, some of the source referencing still needs completion (especially the bits that are familiar to me…of course, not necessarily to you) for which I offer my apologies. Finally, remember that all the statistics exclude countries with populations below 1.5 million.

The readings part 1 will cover Population and GDP. The lecture of Poverty will be covered in the readings part 2.

Contents

Population

If you have heard that the most reliable statistics we have are those relating to population, then this story should make you change your mind. On 31st October 2011 the UN announced that the seven billionth citizen of this planet had been born. This is quite a feat because they had announced the date about six months in advance, and, if you think about it for a moment, it was going to be even more difficult to actually specify to whom exactly that honour should fall. Many souls enter and leave the world in the course of a day. No less than 250 babies are born every minute and those souls arriving on Earth pass the 105 that depart this life during that self-same sixty seconds. Nevertheless, on the appointed day, UN officials duly arrived at a Manila hospital with the gift of a pair of shoes and a chocolate cake. The local authorities were a little more forthcoming, promised the parents some cash to start up a shop. In the event, baby Danica May Camacho had been in such a hurry to be the seven billionth that she was actually born two minutes before midnight, on the 30th of October 2011 (Guardian, 31.10.2011).

The same day a children's rights group called Plan International announced that the seven billionth citizen had been born in Uttar Pradesh and that she a baby girl called Nigris. The organization had favoured a girl in order to draw attention to the practice of female infanticide that was common in India (BBC News. South Asia, 31.10.2011). Not to be outdone, the newspaper Ottawa Citizen declared that the seven billionth citizen had been born in their city – a baby boy named Caiden Lewis McCrindle. The father reflected "It's amazing, it really is. To think there are seven billion people in the world and we have our mark in history is quite surreal" (Ottawa Citizen, 1.11.2011). Meanwhile a second UN delegation had arrived in Kaliningrad to welcome Petya Nikolayev into the world as the seven billionth citizen. So pleased was the regional governor that the family was granted a plot of land on which to build a new house. The South African orange growers promised to send him seventy boxes of oranges (South African Embassy to Russian Federation, News Release, 13.12.2011). In the middle of the chaos, the UN Secretary-General Ban Ki-Moon admitted that the chosen baby, and even the chosen date, were both meant to be symbolic and he confessed that he did not

have a clue who the seven billionth citizen was (UN News Centre 31.10.2011). At the same time, the head of the population division of the UN's Department of Economic and Social Affairs, Hania Zlotnik, was delivering a decidedly downbeat welcoming speech. Her long discourse dwelt on the need for family limitation, and it included the reflection that if every country had limited their number of children as well as Bangladesh had done, there would have been 22 per cent fewer children under fifteen years old in the world today (UN DESA, 31.10.2011) - presumably including Danica, Nigris, Caiden and Petya.

Population Size

Since 1900, the World's population has grown from approximately 1.6 billion to over 7 billion today. The table below shows the years in which the UN Population Division estimates that the World's population reached a new one billion milestone. The intervals between these milestones seems to be decreasing but, because each interval starts from a higher base-line, the rate of increase is in fact declining. This is shown in the second row, which gives the compound rate of growth between the 1804 and 1927, and so forth.

World Population Milestones

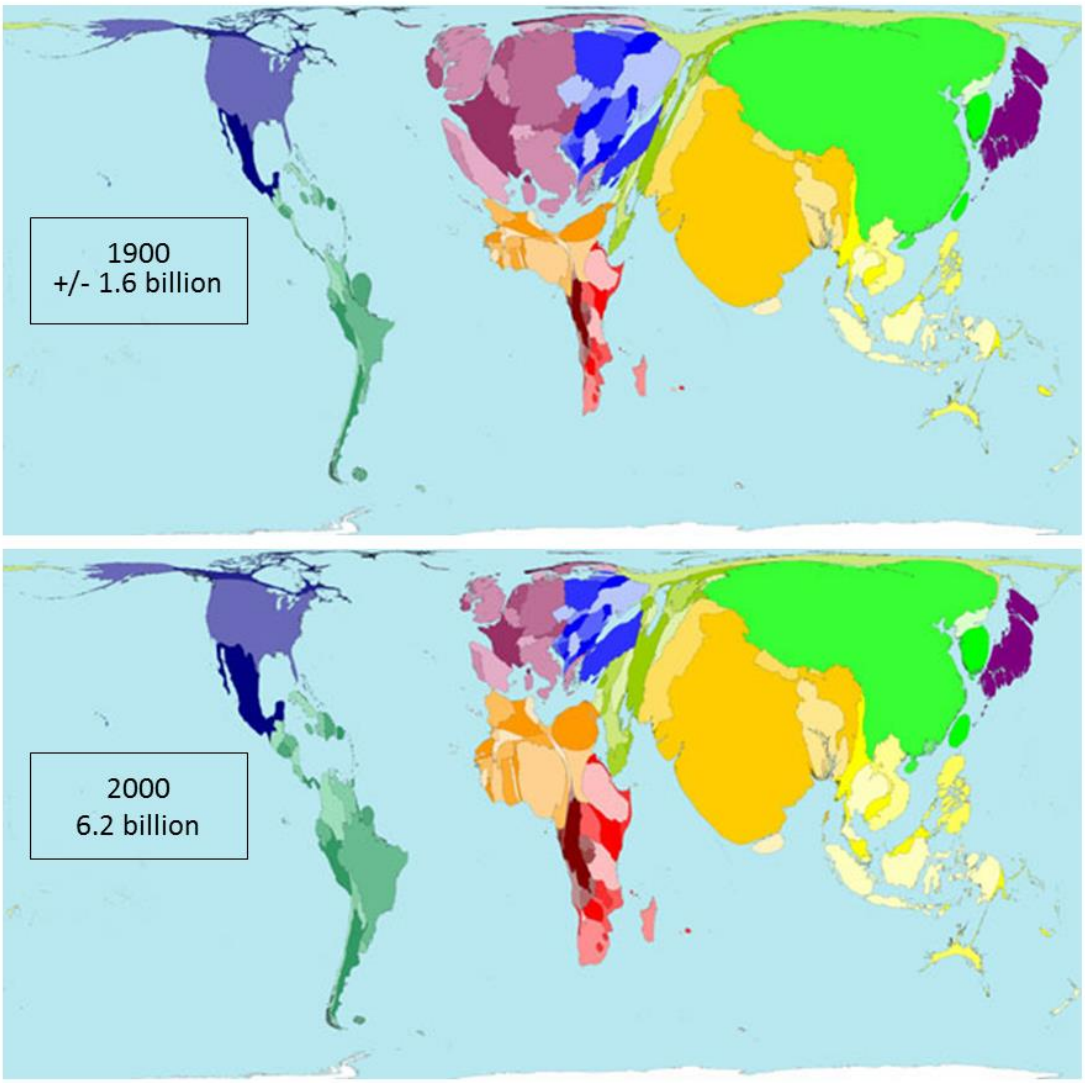
	1804	1927	1960	1974	1987	1999	2011
Population	1 bln.	2 bln.	3 bln.	4 bln.	5 bln.	6 bln.	7 bln.
Growth Rate		0.57%	1.24%	2.08%	1.73%	1.53%	1.29%

Source: 1950-2011 UN, DESA, Population Division database

But not only has the World's population been increasing, there have been major shifts in its geographical distribution. The best way to configure this is to employ what is known as a cartogram, whereby the sizes of countries are morphed to reflect their relative size (according to the indicator adopted) while retaining something approximating their shape.

The most obvious change in the course of the twentieth century is the enormous shrinkage in the share of Europe in the World's total, and a contraction also evident in Japan and China. On the other side of the coin, virtually everywhere else registers relative gains. Both Africa and South America show considerable increases in their relative share, as too the countries of South East Asia and the Indian sub-continent.

World Population Distribution 1900 and 2000



Source: *Worldmapper.org*

The drawback with the cartogram is that it is difficult to see the relative positions of individual countries… and states do matter. They do have specific functions. Firstly, someone has to do the counting and the collation of results and so many of our statistics come pre-wrapped, as it were, in a country-sized package. But countries do more than simply deliver statistics – they provide the framework for law and regulation, they impose duties and confer rights on their citizens, they protect the borders and so on. And in all of these functions, population size actually matters. Larger populations may offer opportunities for a broader scale of activities but they may also be more diffuse, and therefore more difficult to fit into a single set of regulations and more difficult to satisfy with a single package of policies, however carefully

calibrated. Smaller countries, on the other hand, may have difficulties in supplying labour for a wide range of activities and, although they may be more homogenous, they may be vulnerable to 'state capture' and lack any countervailing power. Thus, countries do matter and so does the size and development of their populations.

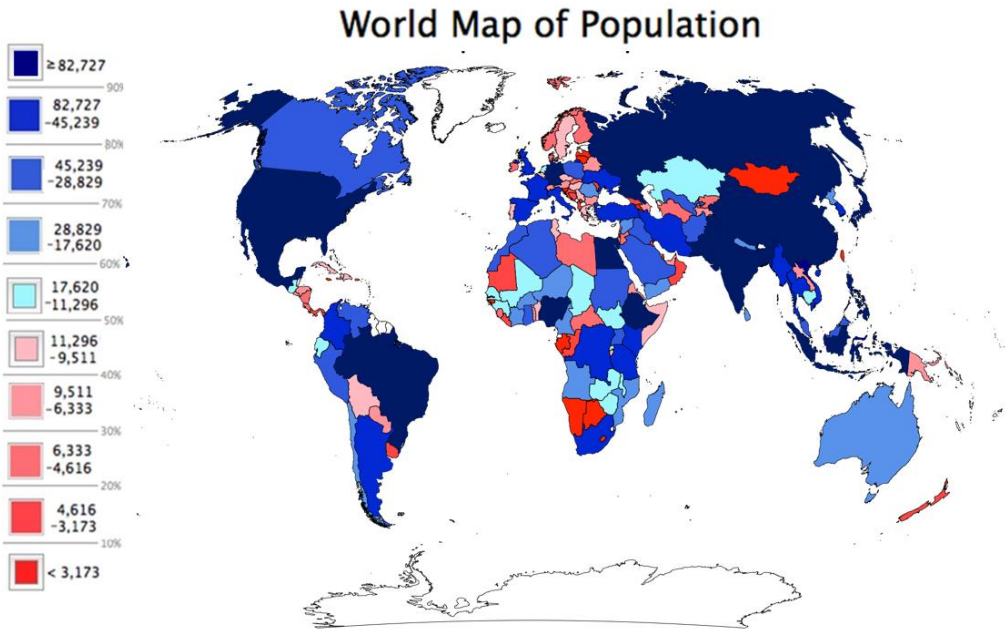
If we move away from the visually strong (but amorphous) analysis by areas and turn to individual countries, the table below identifies the fifteen largest countries, in terms of population size.

Fifteen Largest Countries Population for 2012 in Millions:

China	**India**	**USA**	**Indonesia**	**Brazil**
1385.6	1252.1	320.1	249.9	200.4
Pakistan	**Nigeria**	**Bangladesh**	**Russia**	**Japan**
182.1	173.6	156.6	142.8	127.1
Mexico	**Philippines**	**Ethiopia**	**Vietnam**	**Germany**
122.3	98.4	94.1	91.7	82.7

Source: UN, DESA, Population Division, Database, published in 2013
http://esa.un.org/PopPolicy/cprofile_report.aspx

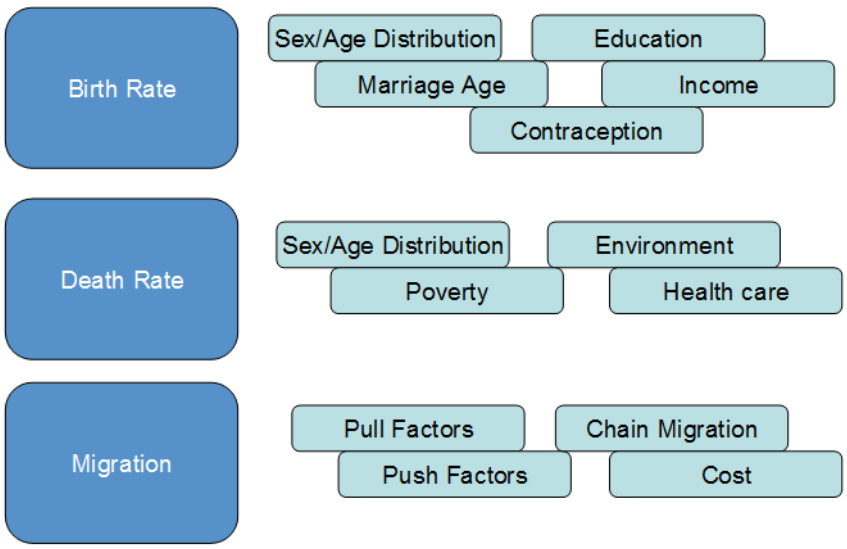
China and India, both with well over a billion inhabitants, top the list by some considerable margin. There are no surprises there, but outside the top two or three, most people would have difficulty naming, let alone in correctly ranking, the remainder. Third in line comes the USA with a little over three hundred million, and from there on downwards the population size declines until it reaches Germany, with slightly over 82 million inhabitants. Among the top fifteen, we find recent ex-superpowers, current superpowers and potential superpowers (USA, Russia and China) but the status seems to bear little relation to current population size. India's population, for example, rivals that of China, but it is rarely seen as a potential superpower, despite its access to nuclear weapons. Russia's population is not much more than that of Japan, but while the former stood toe-to toe with the United States for over forty years, the latter has never even aspired to superpower status. Thus the political aspirations of counties seem to have more to do with their accumulated military capacities, and the political choices they have made to acquire or deploy their military capability, than it has with the manpower resources at their disposal.



Dynamics of Population Growth

Population growth is explained by what is called the 'natural rate' of change. This is a sum total of the number of births minus the number of deaths plus net migration (immigration minus emigration). If we divide the number of births by the number of population for a country, we obtain a *'crude' birth rate*, and we can do the same with the number of deaths to calculate a *'crude' death rate*. And, just to complicate matters, whilst growth rates are expressed in terms of percentages, birth and death rates are expressed in the numbers per thousand. Birth and death rates can be applied to the existing population, as a first step in estimating future population growth.

Figure: Dynamics of Population Growth



The ***birth rate*** measures the number of live births relative to the total population, but that is a pretty crude indicator. Evidently, not everyone can have babies. That biological role is (still) a preserve of females, and, moreover, females of childbearing age. Thus it is important to know both the gender balance and the age distribution within a society. For this reason, demographers tend to prefer to think of a '*general fertility rate*', which is the number of births relative to the number of women of childbearing age. This is usually defined as women's ages between 15 and 49, but this measure, too, varies from country to country (and between regions or groups within a country) and through historical time. It is far from reality for most societies that women have intercourse throughout their reproductive lives, producing babies at the rate of one every 15-18 months. If they did, they would have about twenty babies each. If you were to go back possibly to your great-grandparents you might find them with families of ten or twelve children, a couple of stillbirths and you would be getting, more or less, a picture of untrammelled birth rates. It is interesting in the literature that nobody seems to comment on male fertility. However, there is a debate raging over whether male fertility is declining, whether it is declining among groups exposed to certain pollutants or stress, or whether the delay in child-bearing means that men are trying to be fertile at a later stage of their (natural) fertility decline (Cocuzza and Esteves, 2013).

Nowadays, in most Western societies and in many others, women do not have children throughout their reproductive lives. One important factor in determining the fertility rate is

the age of marriage, or the age at the birth of the first child, since this determines the length of the period of fertility. Only in a few societies the age of marriage is extremely young, occasionally before pubescence, and childbearing starts with puberty. In others cohabitation or marriage occurs when the couple are able to establish an independent household, with a corresponding delay in the age at which the first child is conceived. Another factor, particularly important in traditional societies, are the periods of fecundity (infertility) since women tend to be infertile during periods of breast-feeding, and in some African cultures it is the custom to breast-feed children until they are two or three years old. The social norms and cultures influencing childbearing and marriage are not fixed or even stable, but most observers agree their impact is most pervasive in small-scale (often rural) societies. Elsewhere, more individual patterns emerge, though that is not to say that these too are immune for social conventions.

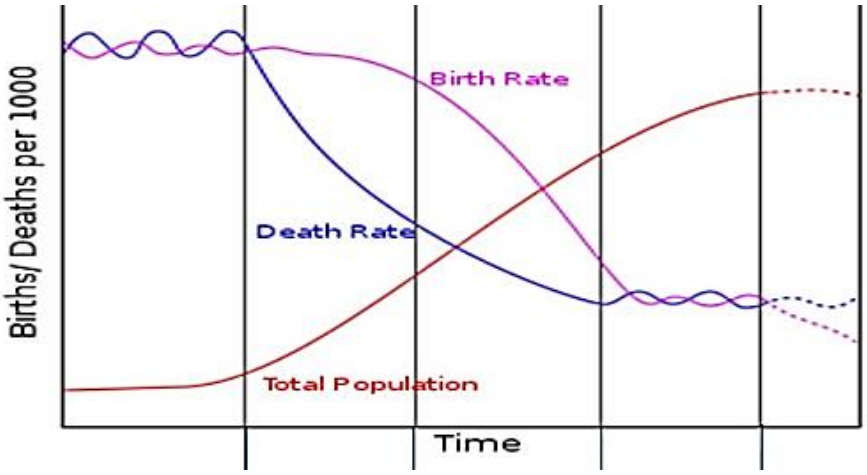
A major factor in determining the birth rate today is the ability of women, or couples, to limit the number of children they have. This option has always been available to societies, whether through the use of contraceptive devices, through abortion or through deliberate neglect or infanticide. The last was often applied to (unwanted) female babies but this function has now been taken over by (selective) abortion (Hesketh, Lu and Xing, 2011). Family limitation may be part of official policy, either on the part of development agencies or NGO's or part of official government policy, as in the case of India and China. In fact, in China until recently, if you have more than one child, you will have it aborted. In the countryside now it's slightly modified to allow two children, and even in the towns the sanctions on having extra children are being relaxed. In February 2014 the authorities allowed couples where one had been a single child, to have a second child of their own. Previously both parents had to have been an only child (*New York Times*, 21.2.2014). In other societies, the availability of contraception has allowed sexual activity to be uncoupled from childbearing and child rearing. In India, publicity campaigns and the availability of contraception has helped to reduce the birth rate since the 1960s by 40 per cent (Chandrasekhar, 2013). The use of contraception to enable later and smaller families may also be explained by the wider employment opportunities available to women, and their decision, for economic reasons or for reasons of personal development, to exploit them. And once the decision had been taken to start a family, the situation where children's income was less important in old age, accompanied by a cultural shift towards investing more time and resources in child-rearing, has contributed to limiting family size.

We cannot just keep adding people to the earth. If no one had ever left, we would be stuck with over 106 billion – most of them very, very old! Thus we should be thankful that there is a ***death rate***, the number of deaths per thousand of the population. One of the main determinants is the *age structure* of the population since generally, but not always, the older people tend to die more often (males earlier than females). This tends not always to be the case since epidemics seem to fall hardest on the very young as well as the old, and wars always rip the young (usually males) out of the heart of the population. Thus a population with a high birth rate will tend to a lower death rate than one with a low birth rate population, assuming that the life expectancy is the same. But then, life expectancy never is the same, whether through space or through time. One basic determinant of life expectancy is *poverty* - badly housed, poorly fed, susceptible to disease, deprived of medical care, ignorant of hygiene and nutrition – the poor die early. Poverty, in turn, depends on levels of development, returns to labour and the regularity of work, and the distribution of the income that a society generates. But even among the (somewhat) richer there are significant differences, much of which is dependent upon pollutants. These can be personally administered – sugars, nicotine, alcohol or trans-unsaturated fats. But they may also be environmental – air, water and ground pollution. While dealing with the *environment*, we could also mention the negative effects of stress. Finally, we should mention the impact of disease – epidemics that weaken and debilitate and those that surely, sooner or later, lead to death. In richer societies many of these are prevented by immunization, limited by good public health care arrangements or cured by drugs. However, as life expectancy increases, a new set of tumours and cancers attack are deteriorating the human immune system. Health expenditures, health care (and health insurance) may help delay the impact of these for some but ultimately some bits of the body simply stop working. Here again, nature and nurture play a role adding genetics and localities to the geography of death.

So far we have listed factors determining birth and death rates, without employing any overarching pattern. Thomas Malthus, writing in 1798, produced one of the most enduring set of ideas on population growth and its consequences for society. He argued that humans have an urge to reproduce, with the result that populations tend to grow more rapidly than the food supply (the modern version substitute resources for food). As the population descends towards mere subsistence, the resulting misery and poverty (the subsistence crises)

will increase the death rate and bring the population back into equilibrium. This is what he called a 'positive check'. He points as examples to period as the 'Dark Ages' after the collapse of the Roman Empire and the spread of the Black Death in the Middle Ages. However, such examples in history were rare. The fact that these crises did not occur, he suggested, was the result of deliberate efforts ('preventative checks' or 'negative checks') undertaken by society to limit the growth of population. Society responded to the deteriorating situation by restricting the birth rates – by birth control or delay of marriage. The modern equivalent of Malthus was the so-called 'Club of Rome' whose reports in the 1970s warned of the exhaustion of Earth's resources and the more pessimistic (realistic) of the exponents of global warming argue along similar lines. Without entering the recent debates, it is still possible to see that Malthusian ideas have only a limited explanatory power – the historical experience is too varied and the explanatory variables too few.

A more nuanced explanatory approach, admittedly to specific conditions, is offered by so-called 'transition theory' which, in its classic form, envisages a four-stage model of population growth. In the first stage death rates were high and life expectancy low as societies struggled to maintain themselves in the face of harsh living conditions. High birth rates were encouraged (associated with status and virility) but they were also necessary to compensate for the attrition of hunger, war and disease. The second stage is marked by a fall in the death rates, probably because of improved nutrition and health and, because women were healthier and lived longer, birth rates might have increased as well. It was for this second stage that in 1945 the demographer Kingsley Davis coined the phrase "the population explosion".



Source: Wikimedia Commons, the free media repository, The Demographic Transition Model, including stage 5.

Population surges ahead until it either places pressures on resources or until the imperatives towards large families diminish. At this point, the third stage is reached and the birth rate falls until population growth approaches zero and from then onwards, in the fourth stage, falling death rates and falling birth rates halt serve to maintain, at best, a low population growth or (in its more modern version) to allow the population to slides into a decline. Many advanced Western countries are considered to have passed through all four stages. The beauty of transition theory is that the process is not seen as one single monolithic change but rather as a set of interrelated transitions. For example, the staggered impact of medical advances may change the pattern of death rates. The move from countryside to town may loosen social controls on birth rates. The impact of increasing living standards may percolate through social classes, with middle classes limiting family size before working classes. And the arrival of migrant groups at an earlier stage of the process (i.e. with higher birth rates) may even help neutralise the effects of change among the indigenous population (Caldwell, 2006; Kirk 1996).

Assessing Data Accuracy

Since the second half of the previous century the census has been the benchmark of population statistics – a deliberate count of the population held at regular intervals (usually every ten years). Their accuracy, however, depends on the resources devoted to the exercise and the breadth of coverage. In this respect, poorer countries tend to produce less reliable results but although lack of resources obviously plays a role in this situation, it is by no means the only factor. Obviously, an even worse situation prevails in countries with political unrest, rebellion, revolution or civil war or in their aftermath. In these cases it is almost impossible to conduct a census, and even if one is held there is a distinct possibility that returns on religion or ethnicity might be deliberately distorted, either by those filling-in the questionnaires or by the authorities collating them in an effort to magnify their own position in the region/conflict. One factor playing a role is the political environment within which the census takes place. In Nigeria, for example, the 1953 census took place when the country was under British colonial rule and, since it was feared that it would be used as the basis for tax assessment, there was probably a significant degree of under-counting. The 1962 census, by contrast, took place after independence and since it was thought that it would be used as a gauge of government expenditure, it probably led to an overestimate. Since both the North and the South had helped inflate the figures, the census results were politically contentious… and have remained

so ever since. In any event, the census outcomes have generated implausible growth rates, with those between 1953 and 1962/3 being too high and those between the widely rejected census of 1973 and disputed census of 1991 being too low. The results generated from Nigeria are still considered unreliable and, for much of the period the UN has simply assumed a growth rate, and extrapolated the population numbers from there (Jerven 2013, 56-61). Errors in the Nigerian census are not an isolated incident. The most recent census in Kenya has shown how politically charged the simple act of counting people can be. In 2009 the country was emerging from a convulsive burst of blood-letting across its tribal lines which had killed one thousand people and displaced more than 600,000. It was known that the new census would be used to define electoral boundaries and distribute development funds. The authorities cancelled the results in eight districts in the North East for producing unrealistically high growth rates. The local authorities response suggested that the problem lay elsewhere, in the under-recording of the nomadic livestock herders in the previous count, though the census question was the same in both cases (Jerven, 73-74). Census errors also occur in the absence of political or tribal differences.

A failure by the authorities to identify the dwellings, to list the household correctly, to send out the questionnaires to everyone and the failure of the informant to understand the scope of inquiry can all lead to undercounting. The degree of error is usually individual visits to a sample of addresses to check the accuracy of the reported results. The results are often wide of the mark. The 2011 census in South Africa eventually reported an undercount of 14.6 per cent, or 6.3 million in a (revised) total of 51.7 million, ranging from 18.6 per cent in Western Cape province and 10 per cent in Limpopo (Statistics South Africa, 2012). Before feeling too superior, Western countries, too, are capable of generating unreliable census data. The Australian authorities, for example, estimated that its 2011 census had failed to record 374,500 of its (re-estimated) 20.5 million inhabitants; an undercount of 1.7 per cent (with an error of 0.2 per cent either way). The undercount rates were particularly striking among males in the age cohort 20-30, which were undercounted by over 7 per cent. There was also a high under recording of the 'indigenous' population, but this was as much due to misreporting of ethic status as to being absent from the census altogether (Australian Bureau of Statistics, 2012)

Many countries no longer hold a regular census and rely instead on data routinely collected in the process of registering births and deaths and residence, supplemented for control purposes by sample data. Most countries anyway employ this kind of material to estimate the size of population between census dates, that and an extrapolation forwards from the census data itself. For example, the last full census conducted in the Netherlands was in 1971. The 1981 census was postponed and eventually cancelled and the 1991 census ran onto such a storm of protest at the infringement of privacy that it was abandoned. Since then, no further efforts have been made. Germany conducted its last full census in 1987 and Sweden in 1990.

If one leaves aside the obvious trouble-spots, then one can be reasonably confident with (corrected) national population estimates, but a little less certain when one moves to a disaggregate level of provinces or cities. For example, the *China Peoples' Daily* in February 2010 confidently estimated the population of Shanghai in mid-2009 at 19,21 million (13,79 permanent inhabitants and 5,42 temporary residents). The 2010 census recorded a population of 23,02 million (14,10 permanent and 8,92 temporary). In both cases, a temporary resident had been in the city for at least six months, most of them being internal migrants from the country-side. To some extent, the error may be the result of underestimating the length of stay of these migrant workers but to overlook 3,5 million (mostly workers) is not a minor glitch – it is like overlooking the equivalent of the entire labour force of Bulgaria or Hong-Kong.

At least for Shanghai the census offers some reference point. In the case of Kibera, characterized as the largest slum in Africa, it does not. Kibera lies just outside Nairobi, the capital of Kenya. The official 2009 census recorded the population at 170,000 which is wildly at odds with UN-Habitat whose most recent estimate places the number between 500,000 and 700,000. UN-Habitat has its Head Quarters in Nairobi and has several projects in the area. The larger the problem, the more resources it requires and thus the greater the incentive to inflate the population size. Its estimates are based on an assumed density of population in the slums. In 2008 a *Map-Kibera* project started actually counting the population house-by-house, street-by-street and having mapped a small corner (of 5000 houses) and extrapolating to the whole area, its estimates lie between 235,000 and 270,000; closer to the census data than the UN estimates. Most of the migrants in these two examples are internal migrants, legally resident in the area; they have simply not been counted properly.

The 2012 Olympics is located in the London Borough of Newham. It is in the East End of London, which, since the disappearance of the London docks, has been an area of great deprivation. To help its regeneration, decades ago the government reduced planning restrictions and all around the borough have risen the shiny new tower blocks of the Docklands. It was the lack of planning restrictions that also made possible the reallocation of land to allow the stadiums and other facilities to be built. One function that has not changed is Newham's role as a magnet for new immigrants, but rather than settle, once they have some income, they tend to move out of the area. Newham remains a sump for poor, usually unemployed migrants. With low taxation potential and large social problems, it depends heavily on central government funding to run its social services, and that in turn, depends on the number of inhabitants! The Office of National Statistics (ONS), on which funding depends, estimated for 2009 that the borough housed 245,800 residents, whereas the Greater London Council (GLC) put the number at 281,948 – difference of 13 per cent. Unfortunately for the local council, the ONS figures provided the basis for government funding. The council put the population in 2011 at 295,772 whereas the ONS suggested that the numbers were falling. In July 2012 the annual census seemed to resolve the debate. It gave a figure for March 2011 of 308,000. The reason for the difference was that the ONS relied on projections based on past migration trends and on out-dated information on household size. The relaxed planning regime did not just benefit business high-rise, it also allowed the proliferation of extensions and shed in back gardens, many crammed with new migrants. The London police, by the way, puts the figure neared 320,000.

In Moscow even internal migrants need to a permit. Not having one makes them illegal. The 2010 census recorded the population of the city as 11,51 million but the conduct of the poll tended to be patchy. Moreover, although respondents were not required to give their legal status, it is probable that many irregular residents, especially from the Caucuses, did not do so. The *Moscow Times* in April 2011 cited a university expert who estimated the number of illegal residents at 2-3 million and the head of a migrant legal-aid centre who put the figure as high as 5 million (which may include those journeys into the city for a couple of days to sell goods they have brought in - RTG). This brings us back to the national data for irregular migrants we mentioned earlier, most of whom live in cities, more often than not near the regularised ethnic or national groups living legally in the same cities. If the estimates of

irregular migration seems acceptable in relation to national totals, the margins of uncertainty and error increase when they are set against smaller urban populations.

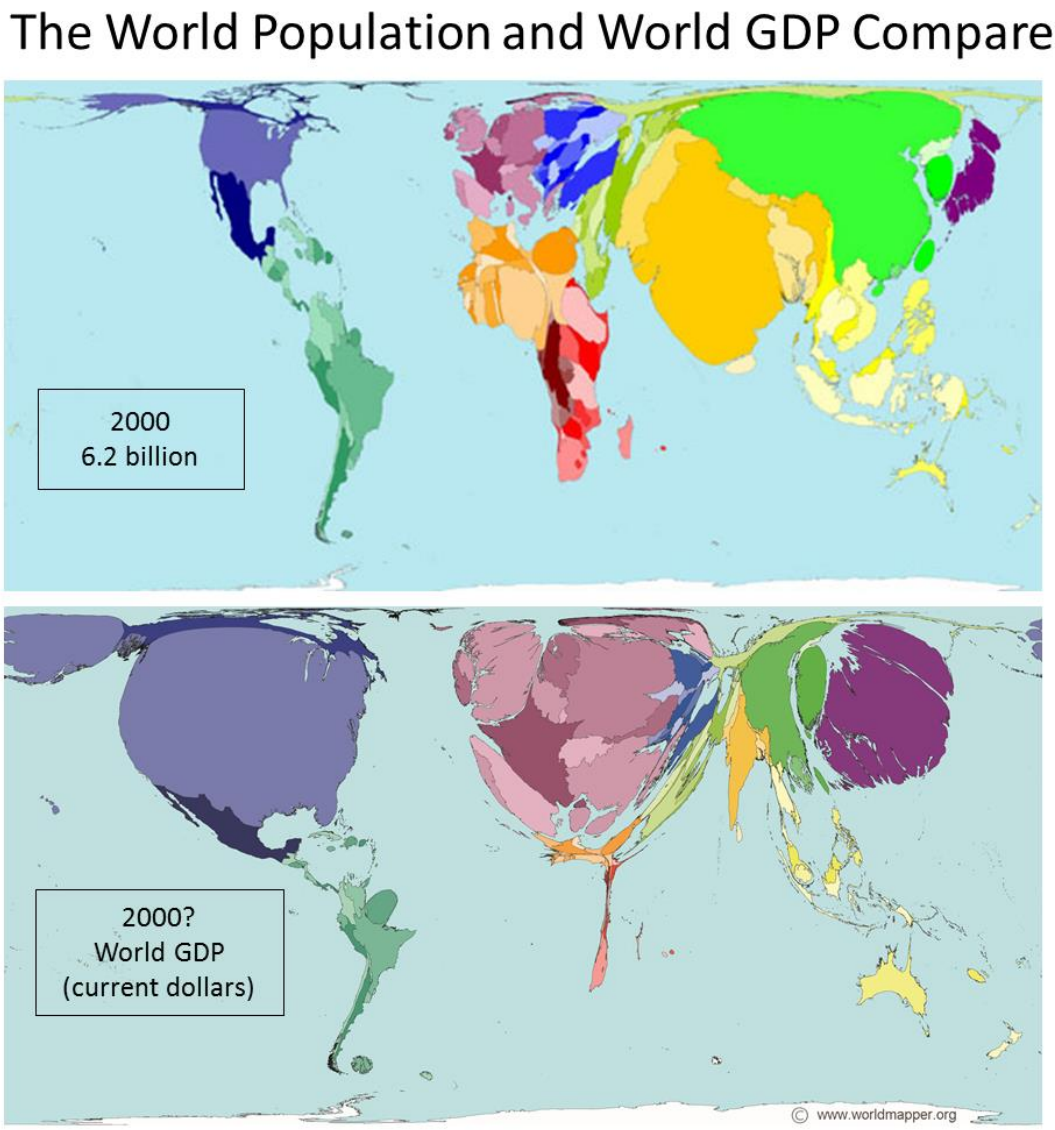
GDP Current Values

Alongside land area and population, production is probably the most common way in which we configure the world. Most of us know that the United States of America is the largest economy in the world and that China is now an 'emerging giant'. We know that some countries are stagnating while others are enjoying double-digit growth. We know that some are rich and others are poor, and that the latter are labelled part of the 'third world', almost as though they were something almost alien and separate from the rest of us. In each case, we are employing what are generally known as 'national income' statistics, although these refer, more precisely, to one of two composite indices, known respectively *Gross Domestic Product* (GDP) and *Gross National Income* (GNI). Curiously enough, neither measure has much to do with production or with income. In fact, both measures provide data on (cash) transactions. That is not quite the same thing. For example, if you go out to a café and have a cup of coffee, it is a transaction. You will pay for it and it will register on GDP figures. If you stay at home and you make yourself a cup of coffee, the effect is the same; you have a cup of coffee, but it's not a transaction and it won't appear on GDP figures. Similarly, if you put your grandmother in a nice comfortable home to be looked after, it will appear on GDP figures. If on the other hand you look after her at home, and it costs nothing or you make no transactions, it will not appear on GDP figures. Similarly, GDP only records income in terms of cash, and not in goods, services and other favours. Thus, if no cash changes hands, the data will not enter the calculations. For example, if you manage to find a plumber to fix a leaking tap and pay him, it will appear in GDP figures. If, one the other hand, a friendly neighbour does it in exchange for a cup of tea and a piece of cake, it will make no difference to the GDP calculations. Equally, if the cash transaction remains unrecorded, and our plumber does not declare this payment to the tax authorities, it will not enter the calculations either. We will return to all these observations in greater length later.

GDP Size

It is no secret that the distribution of the productive capacity of the earth at the present time is scarcely related to the distribution of its population. A comparison between the two reveals a disproportionate concentration of GDP in North America, Europe, Japan and Australia. By

contrast South America, Asia and Africa command proportionately (and absolutely) much less of the World's income.



Source: www.*worldmapper.org*

The distortions in cartogram do not allow for detailed country-by-country comparison so for this reason we have signalled out the fifteen largest economies. The domination of North America, Japan, Korea and the larger European economies is evident, but three of the five BRICS countries are also represented. Indonesia would have been in 16th place and South Africa, would have ranked 29th.

If we divide the GDP totals by population, then we will be able to gauge the per capita income of the countries in terms of their disposable dollar equivalents at the time. In this case we have used the data from 2011. The reason is that we want, later, to compare these with the

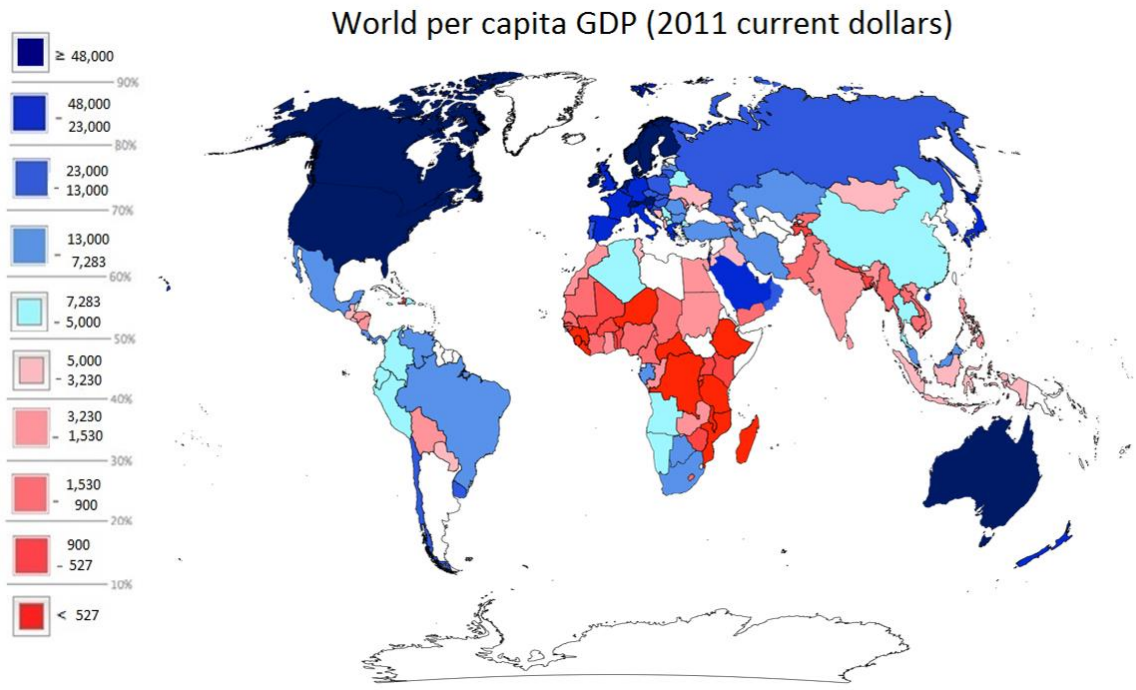
recent GDP figures calculated after allowance for differences in purchasing power (More Detail will be provided in the readings part two).

Fifteen Largest Countries GDP 2012 in Current Dollars (in Millions):

USA	**China**	**Japan**	**Germany**	**France**
16,244,600	8,277,102	5,961,065	3,425,928	2,611,199
UK	**Brazil**	**Russia**	**Italy**	**India**
2,475,781	2,252,664	2,014,774	2,103,375	1,858,740
Canada	**Australia**	**Spain**	**Mexico**	**Korea**
1,779,634	1,532,407	1,322,144	1,178,126	1,129,598

Source: World Bank Database

From among the largest economies in the World, only Australia, Canada, the USA and Korea make it into the top decile (top 10 per cent of the 'larger' countries) in terms of per capita income. Qatar and Kuwait are the only 'oil states', unless one wanted to include Norway, and the rest of the list comprises what can best be termed 'middle-size' states. None of the BRICs figure among the richest economies. Russia and Brazil head that particular list with per capita incomes of $13,298 and $12,873 respectively, followed by South Africa ($7963), China ($5456) and India ($1533).



Fifteen Richest Countries GDP per capita, 2011 Current Dollars:

Norway	**Qatar**	**Switzerland**	**Australia**	**Denmark**
99,035	97,091	83,054	65,464	60,030
Sweden	**Kuwait**	**Canada**	**Singapore**	**Netherlands**
56,704	52,379	51,572	51,242	49,888
USA	**Austria**	**Ireland**	**Finland**	**Belgium**
49,782	49,590	49,383	48,686	46,769

Source: IPC, Purchasing power parities and real Expenditures of World economies, 2014

Dynamics of GDP Growth

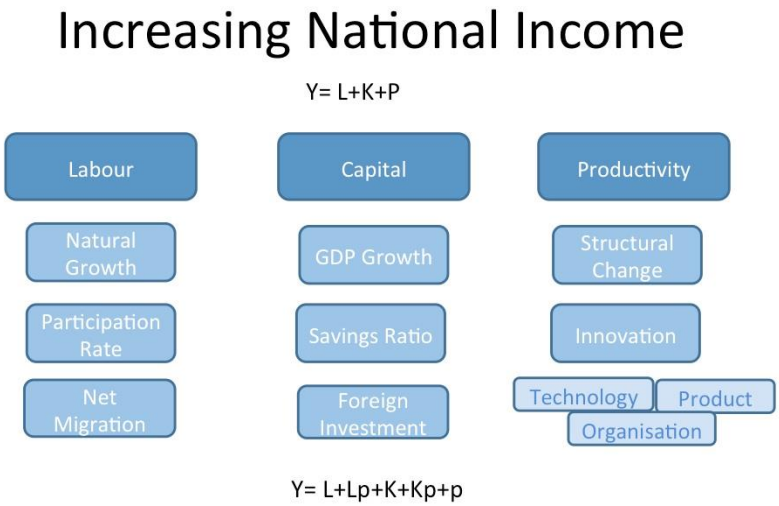
The output of an economy reflects the volume of resources used in production and the ingenuity employed in their utilisation. This is expressed in a formula (for those that like this kind of thing) whereby the output of an economy (Y) is the sum of Labour (L), Capital (K) and Productivity (P). Growth in the economy may be the result of any of the three. Capital nowadays combines both land and physical capital; in less sophisticated economies the two may be separated.

$$Y=L+K+P$$

Labour within an economy is in limited supply. It is determined by the birth rates (with a delay factor of several years until people reach working or retirement age) and by the participation rate. The participation rates are the proportion of the population within an age group or within a gender group that are engaged in work. However this demographic bottleneck may be broken by immigration. Likewise, within an economy, *capital* is in limited supply. It is limited by the degree to which the population is willing to sacrifice current consumption and the ability of the financial system to create money. This potential bottleneck, too, can be relieved by foreigners choosing to invest their assets in the country. That leaves productivity.

An increase in *productivity* can be defined as either adding relatively more value with the same amount of resources, or by adding the same value with fewer resources. One way the productivity of an economy may be improved is by reallocating resources so that they are engaged in producing higher value-added goods and services, and possibly importing the output sacrificed. Indeed, the advantages of specialization and trade underpin much of today's

rhetoric on free markets and globalization. Historically, the main shift observed has been the transfer of labour from agriculture and into industry and services. However significant it may be in the long run, by itself the structural shift in resources can only make a one-off contribution to growth. What is needed for long-term growth is innovation. And innovation can take three forms. First, one may distinguish technological innovation in which the production process itself is improved. The second from is product innovation in which new products are introduced, or existing products redesigned to add a higher price. Finally one can distinguish organizational innovation, which involves improvement in management structures and the overall organization of the enterprise.



When, in the 1950s, studies were made using long-run (reconstructed) national income series it was discovered that labour and capital, by themselves accounted for very little of the observed economic growth. Most of the change came from productivity… so much so as almost to make the whole exercise futile (Griliches, 1995). Scholars decided that it was wrong to treat productivity as though it was some sort of external variable. Innovation is not a pool available to all. Economies have to invest in new buildings or machines, or in new designers or managers, in order to benefit from productivity change. Thus the calculations were redesigned, this time 'embodying' some of the productivity improvement in labour (through more education) and in capital (through better machines and a younger machine park). The formula now made the output of the economy (Y) dependent on Labour (L) plus the embodied productivity (lp) plus capital (K) and its embodied productivity (kp) plus the residual productivity (p):

$$Y = L+lp+K+kp+p$$

This may all have enhanced the conceptual strength of the exercise, but it did little to make the calculations any easier. And it still left open, what actually triggered higher investment or greater innovation in the first place. But that discussion would provide sufficient material for a whole course by itself, and falls outside the confines of this chapter.

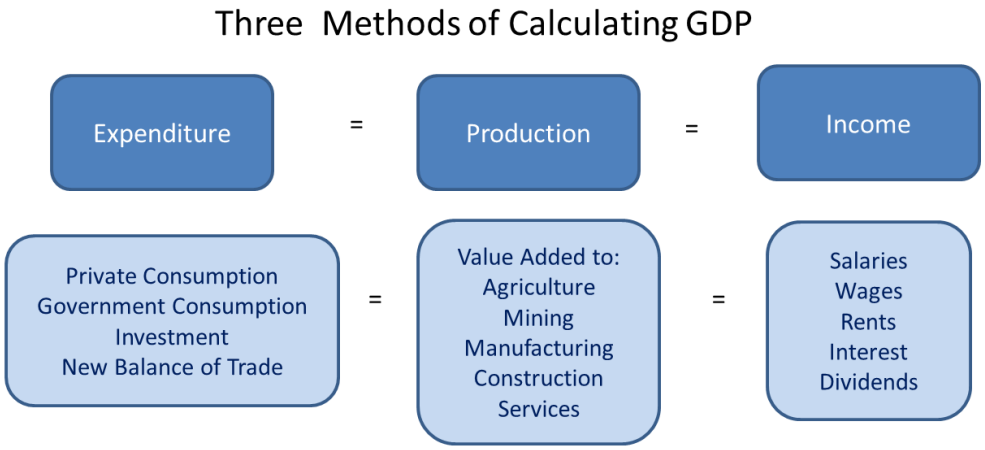
So, now we have established that economies grow, it is evident that changes in GDP is an appropriate way of capturing those developments. Every year countries are engaged in compiling their national accounts, so all that is required is a way of linking them together. The problem is that between one year and the next two things have happened concurrently – the size of the economy has changed and so have prices. Thus, to compile numbers for GDP growth, statistical offices have to compile an index for inflation. Most of us are familiar with a 'consumer price index' or a 'retail price index', which are often used to measure changes in the so-called 'cost-of-living'. The price index that has to be constructed for national income purposes is known as a 'GDP-deflator' and it is much wider in scope since it has to capture changes not only in end-use consumption articles, but also intermediary inputs and investment goods as well as a wider range of services. So when we have adjusted the nominal GDP calculations to take account of price fluctuations, we have a figure for 'real' GDP which we can express either as an index number (where the base year is 100 and the intermediary data shows the percentage difference) or in terms of national currency (also of a particular year).

There is one major difficulty in the construction of a GDP deflator. In order to construct a composite price index, the 'weight' of each component should reflect the importance of that item in the outcome to which it is linked. Thus the price components in a cost-of-living index will be linked to the importance of each in the final pattern of consumption and so the items in a GDP deflator will be linked to the importance in the overall structure of the economy. This composition is then fixed for a 'base year' and the calculations are made using that distribution. The problem arises that as the economy develops, shifts will occur in the pattern of production as some sectors will grow faster than others, and these expanding areas will become increasingly underrepresented in the index. For this reason the UN recommends changing the base year of the calculations every five-ten years (UNSD, nd). This does not remove the problem, but it diminishes its impact. Some statisticians use these base years to

calculate the index (known as the “Laspeyres Index” in case you come across it in the literature) whereas others prefer to project backwards from a final base calculation (known as a “Paasche Index”) and still others employ an average of the two (known as a “Fischer Index”). Statistically, the Laspeyres Index tends to overstate inflation whereas the Paasche Index tends to underestimate it. The Fischer Index, therefore reduces the margin or ‘error’, but loses the control over the direction on the residual error (Stuval, 1989). Basically, as long as one is capable of assembling the necessary information, and one can imagine the difficulties in meeting even this simple criterion in poorer countries, and as long as the base year is changed regularly, which is less likely if the collection of data is difficult in the first place, then major distortions are unlikely to arise. If that is not the case, then we have a problem.

Assessing Data Accuracy

Compiling national income accounts is not the same as counting people. It involves collating data from many different sources and integrating them into one consistent number. They are often reported monthly or quarterly, but most attention focusses on the twelve month picture (usually coinciding with the calendar year). The first problem and most obvious problem is when a country categorically denies the existence of the market and western concepts of GDP. This occurred most obviously in the case of the Soviet Union which, for most of its history (1928-1992) whose economy was centrally planned, run on an accounting principle of ‘material balances’ and had prices that were bureaucratically determined. It did provide an all-round number of the size of its economy, but one which discounted the service sector, that contained a large degree of double-counting and which were expressed in prices that had little relationship to those prevailing in the world market (this last point did improve in the 1960s) (Pockney 1991). This same problem also afflicted the estimates for Communist China where differences in the definition of the ‘economy’ and the nature of prices were compounded by systemic misreporting from all levels of the administration, leading to extreme scepticism, to say the last, of the very high growth rates reported in the 1980s and 1990s (Wu 2000).



If we leave such instances aside a second problem in national accounting is simply poverty. Earlier in this chapter we stated that expenditure equalled production and that they together equalled income. This was not just an exercise in semantics. Ideally national income should be calculated independently through all three methods, and they should produce the same result. The range of evidence required to calculate national income through one method, let alone all three simultaneously, already gives an indication why and where things can go wrong. If one just looks at the categories and think about all the small farms, shops, truckers and day labourers from which to gather information on output, sales, wages and profits, not to mention the large national concerns, and multinationals from which one hopes to extract accurate and honest information and set that against the small, understaffed and underequipped agencies charged with assembling all this data and transforming it into a national income statistic that meets all the international standards, then one gets an idea of the mismatch between the ideal and reality in many poorer countries. Since most UN agencies insist on GDP figures to underpin their policy analyses and since most African statistical agencies are in no state to provide them, the result has been described by one observer as little better than random numbers (Jerven, 2012).

There are two ways in which to acquire the data, either as the by-product of statistics routinely collected by government agencies (known as *administrative data*) and by specifically collecting answers from those bodies responsible for producing the data in the first place (known as *survey data*). Obviously there may be an overlap. The tax authorities may get data from firms' reported profits from businesses themselves, or they may try to elicit the information through statistical surveys. Whether either answer is remotely correct is often a matter of conjecture.

Equally, the surveys may not even be comprehensive and they may themselves employ proxy indicators. For example, a sector of economic activity may be estimated by getting an idea of the numbers engaged in an activity, whether employment or crop acreage, and estimating, or guessing, the output or yield from that (Jerven, 2013 13-14). Crop yields anyway are difficult. In the West the harvest takes place in one campaign, but in Africa, many crops can be left in ground until ready for consumption. In such circumstances some estimates use rainfall as to gauge output or 'eye estimates' by experts. Interestingly, when Ugandans were asked to record their daily harvesting in diaries, the totals were up to 60 per cent higher than those reported to the national household survey, which was used in the compilation of national accounts (Jervan 2013, 78-79, 88).

The political context within which data is collected may also influence outcomes. For example, Malawi had estimated maize production in 2006 at 3.4 million tons. This had been based on the crop area as recorded fifteen years earlier and the estimated yields. The figure was way too high. Either maize was piling-up in hidden granaries, or Malawis were stuffing themselves with maize to an unhealthy degree (4000 calories daily). The 2006 census showed an output for maize of 2.1 million tons. The census also suggested that there were one million fewer farmers than had been estimated. The reason for the discrepancy was not hard to find. The government has been issuing subsidy vouchers to poor farmers, which explains the existence of the 'ghost farmers', and officials were anxious to show that the scheme was working, which explains the inflated statistics (Jervan 2013, 75-77).

A further complication lies in the existence of a large informal, non-monetary, subsistence, unrecorded economy. We can illustrate this from two examples from Tanzania. Before 1967, its accounts made no estimate for the unrecorded economy, but in 1967 it decided to enter data for construction and rents in the informal sector. The effect was to increase national income by 25 per cent. Once again, in the 1990s, it tried to gauge the contribution of the informal economy to GDP. Guesses varied from 30 per cent to 200 per cent. In the end, the authorities decided to increase GDP by 62 per cent, explained as an *ad hoc* adjustment that lay outside the accounting procedures. Usually the final outcome is a compromise decided in a meeting with officials of international organisations, like the World Bank. Little wonder that, with some exceptions, one scholar suggested that whole of sub-Saharan Africa should be

treated as one poor economy, and that statistical analyses trying to suggest some nuanced relationship between individual GDP data and other variables be abandoned (Jerven 2012).

Another source of difficulties in national accounting are changes in the method of calculation. In 1999 the UN recommended a change in the structure of national accounts. In July 2013, the United States increased its GDP estimates by fully three per cent and, in effect, added an output equivalent to the GDP of Belgium to the World economy. The new element in the statistics is 'intangible assets'. These have two components. The biggest (two per cent) is formed by the reservoir of R&D created and held in the US economy. Before the revision, research and development were seen as costs in the production process, an input into each and every i-pad or smart phone, but having no intrinsic value of its own. Now it gets very own entry into the calculations, affecting not only GDP but also the share of the investment and government spending elements and substantially altering the regional distribution of US GDP. New Mexico and Maryland will each get a huge lift, growing by ten per cent and six per cent respectively. Another element in the revision (one per cent) will be accounted for by the inherent value stored in movies, television series and books and music etc. The head of the US Bureau for Economic Analysis claims great things for the new insights that the new series will produce and boasts that the new series will be back projected to 1929 (*Financial Times*, 21.4.2013). The European Union is following suit in September 2014. The effect would be to raise the European union's GDP by 2.4 per cent with increases anticipated for Finland and Sweden of between 4 and 5 per cent, and between 3 and 4 per cent for Austria, the Netherlands and the UK (European Commission, *Press Release* 16.1.2014). Statistical sceptics should stay very alert!

Note: The case of the Nigerian calculation case which presented in the lecture appeared later than writing this reading chapter.

Finally, one last source of error is, no surprise, human error. On 23rd May 2013, the Thai Commerce Ministry announced that exports for April showed an increase of 10.5 per cent on the year before. Exports data is important for Thailand since they constitute 70 per cent of GDP. One week later they revised the growth downwards to 2.89 per cent… and the reason? The spokesperson "admitted there was an error in the entry for export items that resulted in an unusually high figure for April. One transaction for electronics worth 300,000 Thai Baht was

wrongly entered by an employee as 30 billion, causing a huge error…" (*Bangkok Post* 1.6.2013) Whoops!

References

Caldwell, J.C. (2006) *Demographic Transition Theory*. London.

Chandrasekhar, S. (Ed.). (2013). *Infant Mortality, Population Growth and Family Planning in India: An Essay on Population Problems and International Tensions*. London.

Cocuzza, M. and Esteves S.C (2013) *Shedding light on the controversy surrounding the temporal decline in human sperm counts: A systematic review*. From downloads.hindawi.com

Griliches, Z. (1995). *The Discovery of the Residual: an historical note*, National Bureau of Economic Research Working Paper 5348, Washington.

Hesketh, T., Lu, L., & Xing, Z. W. (2011) "The consequences of son preference and sex-selective abortion in China and other Asian countries*", Canadian Medical Association Journal*, 183, 12, 1374-1377.

Jerven, M. (2012) "An unlevel playing field: national income estimates and reciprocal comparison in global economic history" *Journal of Global History*, 7, 107–12

Jerven, M (2013) Poor Numbers. *How we are misled by African Development Statistics and What to Do about It*, Ithica/London.

Kirk, D. (1996) "Demographic transition theory" *Population Studies*, 50, 3, 361-387.

Pockney, B.D. (1991) *Soviet Statistics since 1950*, Palgrave Macmillan London.

Wu, H.X. (2000) "China's GDP level and growth performance: alternative estimates and the implications" *Review of Income and Wealth*, 46, 4, 475-499.

.