Chapter 1
Macroeconomic history

I said one of the things we need to do if we are to understand Becky's and Desta's lives is to uncover the pathways by which their families came to inherit their current circumstances. This is the stuff of economic history. In studying history, we could, should we feel bold, take the long view – from about the time agriculture came to be settled practice in the northern part of the Fertile Crescent (roughly, southeast Turkey today) some 11,000 years ago – and try to explain why the many innovations and practices that have cumulatively contributed to the making of Becky's world either didn't reach or didn't take hold in Desta's part of the world.

Scholars have tried to do that. The geographer Jared Diamond, for example, has argued that people in the supercontinent of Eurasia have enjoyed two potent sets of advantages over people elsewhere. First, unlike Africa and the Americas, Eurasia is oriented along an east–west axis in the temperate zone and contains no overpowering mountain range or desert to prevent the diffusion of people, ideas, seeds, and animals. Second, Eurasia was blessed with a large number of domesticatable species of animals, which made it possible for humans there to engage in tasks they wouldn't have been able to undertake on their own. Economies grew and declined in different parts of Eurasia at different times – now India, now China, now Persia, now Islam, now one region in Europe, then another – but the supercontinent's size and orientation meant that, during the past 11,000 years, humanity's achievements there have been rather like the performance of financial stocks: declines in some regions have been matched by growth in others. By the 16th century, the technological gap between the seafaring nations of Western Europe and the Americas was so large that a combination of guns, steel, and European germs enabled tiny groups of invaders to conquer the New World. Becky's very successful part of the world is in effect the outgrowth of a societal transplant that took place less than 500 years ago.

GDP as measuring rod

In order to talk of success and failure, as we are doing here, we need a measuring rod. The one most commonly used today is *gross domestic product* per person, or *GDP* per capita. Economists may have invented the concept and may have also warned against its many limitations; but, like it or not, the term is so ingrained in public consciousness, that if someone exclaims, 'Economic growth!', we don't need to ask, 'Growth in what?' – we know they mean growth in *real* GDP per capita; which is growth in GDP per capita, corrected for inflation or deflation.

A country's GDP is the value of all the final goods that are produced by its residents in a given

year. It is a measure of an economy's total output. But when a commodity is produced and sold, the price paid for the purchase finds its way into someone's pocket. So, GDP can be measured also by adding up everyone's incomes – wages, salaries, interests, profits, and government income. GDP and national income are therefore two sides of the same coin.

Although GDP is often said to measure wealth, it doesn't do so. GDP is a flow (dollars per year, say), whereas wealth is a stock (dollars – period). As the concept of GDP was developed originally for market economies, the values imputed to the goods were market prices. But by a clever construction of notional prices (called 'shadow prices'; Chapters 7–8), economists have adapted GDP even for economies like Desta's, where much economic activity is undertaken in non-market institutions. It was by imputing values to the produce taken from the local commons in Desta's village that economic statisticians concluded that one-fifth of her household's income amounts to the value of goods obtained directly from the natural resources in her locality, a figure I reported when describing Desta's world.

Adjusting for differences in the cost of living across the world, global income per head today is about $8,000 a year. But for most of humanity's past, people have been abysmally poor. The economic statistician Angus Maddison has estimated from the very fragmentary evidence that exists, that, at the beginning of our Common Era (CE 0) the per capita income of the world was about $515 a year in today's prices. If Maddison's estimate is even approximately correct, it means that the average person 2,000 years ago enjoyed not much more than a dollar a day, a figure deemed by the World Bank as the line below which a person is in extreme poverty. Maddison has also suggested that the distribution of income 2,000 years ago was remarkably equal: almost everyone, everywhere was very poor. The figures he has reported tell us furthermore that average world income and the regional distribution of income per head were pretty much the same in CE 1000 as they had been 1,000 years earlier. It would appear that regional disparities became significant only from the beginning of the 19th century: income per head in Western Europe had by then become three times that in Africa. But world income per head was still only $755 a year in today's prices, meaning that it had increased by less than 50% over a 1,800-year period; amounting to an annual growth rate of under 0.02%. The figure is extremely low by contemporary standards: the annual growth rate of income per head has been about 2% a year over the past four decades. (A useful formula to remember is that, if a numerical entity – say real GDP per person – grows (or declines) at the annual rate of g%, that entity doubles (or halves) approximately every $70/g$ years. Examples: GDP per capita would double every 35 years if it were to grow at an annual rate of 2%; and halve every 140 years if it declined at an annual rate of 0.5%.)

Large regional disparities in income are also less than 200 years old. The ratio of the average incomes in the US and Africa has risen from 3 at the beginning of the 19th century to more than 20 today – about $38,000 compared to $1,850 per year. Real GDP per capita in the US has grown 30 times in size in 200 years, implying that the average annual growth rate of income per person there has been about 1.7%. In sad contrast, income per capita in Ethiopia is about the same today as it was 200 year ago (a little over $700 a year today), a fact that is reflected

in the differences we noted between the incomes per member in Becky's and Desta's households, respectively.

If you were to line up countries according to GDP per capita today, you would find two clusters: one poor (Desta's world), the other rich (Becky's world). There are middle-income nations spread thinly between the extremes (China, Brazil, Venezuela, and Argentina are prominent examples), but a large cluster of countries (in sub-Saharan Africa, the Indian subcontinent, South East Asia, Melanesia, and Central America) – with a total population of 2.3 billion – produces an average $2,100 a year per head, while another, smaller, cluster (Europe, North America, Australia, and Japan) – with a total population of a little under 1 billion – enjoys an average annual income of $30,000 (Table 1). The world would appear to be polarized. Moreover, with the possible exception of India, there is little sign that the poor world will catch up with the rich world in the foreseeable future. During the past four decades, real per capita GDP has grown at an average annual rate of 2.4% in rich countries, whereas it has grown at 1.8% in poor countries (Table 1). Worse, within the poor world, sub-Saharan Africa has experienced a small decline in real GDP per capita during the past four decades.

In contrast to poor countries, agricultural output is a small fraction of national income in the rich world. The share of agriculture in GDP is about 25% in the poor world; less than 5% in rich countries. Less than 10% of the population in rich countries live in rural areas. In contrast, more than 70% of people in poor countries live in villages (Table 1); which gives rise to the thought that people in poor countries mostly work in economies that draw their production inputs directly from Nature – they are 'biomass-based' economies. Ecology is of direct concern to the world's poor, in a way it isn't to the world's rich.

Recently, the United Nations Development Programme (UNDP) has sought to extend the basis on which the standard of living is measured. It has done so by constructing a numerical index that combines GDP per capita, life expectancy at birth, and literacy. UNDP has christened it the Human Development Index (HDI). Again, leaving aside a few exceptions, HDI has been found to be low in poor countries, high in rich countries (Table 1).

Proximate causes behind differences between Becky's and Desta's worlds

What enables people in Becky's world to be so much richer than people in Desta's world? Several features suggest themselves.

People in rich countries have better equipment to work with (electric drills are more powerful than pickaxes; tractors are superior to ploughs; and modern medicine is vastly more effective than traditional cures). So, one argument goes that the accumulation of physical capital (more accurately, *manufactured* capital) in Becky's world has been a significant contributor to the high standard of living people enjoy there. This could be the factor *X* that I mentioned in the Prologue to illustrate the way economic theory and applied economics mesh today.

Others have noted that people in rich countries are far better educated, implying that they are

able to make use of ideas to produce goods that are out of reach for people in countries where large numbers are illiterate. A crude index of education is the proportion of adults (people aged 15 and above) who are literate, the figure for which today is over 95% in the rich world, but only 58% in the poor world (Table 1). Gender inequalities are considerably greater in the poor than in the rich world. The proportion of adult women who are literate in poor countries is 48%, whereas in the rich world the corresponding proportion is pretty much the same as that for men, namely, over 95% (Table 1).

Table 1. Rich and poor nations

	Rich nations	*Poor nations*
Population (billions)	1.0	2.3
GDP per capita	$30,000	$2,100
Human Development Index	high	low
Annual population growth rate (%): 1966–2004	0.8	2.4
Annual growth rate of GDP per capita (%): 1966–2004	2.4	1.8
Total fertility rate (TFR)	1.8	3.7
Adult literacy (%) (female literacy (%))	>95 (>95)	58 (48)
Index of government corruption	low	high
Life expectancy at birth (years)	78	58
Under 5 mortality (per 1,000)	7	120
Rural population (% of total population)	10	70
Agriculture's share in GDP (%)	5	25

Source: *World Development Indicators* (World Bank, 2005)

Allied to education is health. Life expectancy at birth in rich countries is now 78 years, whereas it is about 58 years in poor countries. Some 120 children among every 1,000 of those under 5 years of age die each year in the poor world; the corresponding figure for rich

countries is 7 (Table 1).

Relatedly, clean water and good hygiene have reduced morbidity in rich countries greatly. About one-quarter of the population in the poor world suffer from undernourishment, whereas the corresponding figure in rich countries is negligible. As undernutrition and vulnerability to infections reinforce each other, poor nourishment and morbidity go together. There is evidence that undernourishment in early childhood affects the development of cognitive faculties. Taken together, the average person in the rich world is capable of supplying work of far higher quality and for many more years than his counterpart in a poor country. Education and health go by the name *human capital*. A literature pioneered by the economists Theodore Schultz and Gary Becker reveals that the accumulation of human capital has been a significant factor behind the high standard of living people in Becky's world enjoy today. This could be the factor *Y* that was mentioned in the Prologue.

Many economists, however, regard the production of new ideas as the prime factor behind economic progress. They say that rich countries have become rich because people there have been successful in producing ideas not only for new products (printing press, steam engine, electricity, chemical products, the electronic computer), but also for cheaper ways of producing old products (transportation, mining). Of course, education and advances in science and technology combine as an economic force. Primary and secondary education alone can't take a society that far today. A country where tertiary education is low would not have a population capable of working with the most advanced technology. Nor are scientific and technological advances capable of being achieved today by people with no advanced education. Ideas could be the factor *Z* that was mentioned in the Prologue.

Related to this is an issue that has proved to be far more contentious than it should have been: population growth. Even unaided intuition suggests that if numbers grow quickly, the rate at which capital assets must increase would need to be high in order to maintain living standards. If the desire to accumulate physical and human capital is the same in two countries, and if rising numbers don't reduce the cost of accumulating that capital, the country where population grows at a slower rate can be expected to enjoy a higher living standard in the long run. Since the mid-1960s, population in what is today the poor world has grown at an average annual rate of about 2.4%, while the corresponding figure in today's rich world has been about 0.8% (Table 1). This is a big difference. Statistical demographers now agree that, controlling for other factors, countries where population increase has been large in recent decades have experienced slow growth in real GDP per capita. Later in this book we will note that high population growth in today's poor countries has also put enormous pressure on their ecology, creating further problems for rural people.

A country's population growth is affected not just by net reproduction, but by net immigration and the age distribution too. In order to isolate net reproduction, it is common practice to work with the *fertility rate* (more accurately, the *total fertility rate* or *TFR*), which is the number of live births a woman expects to deliver over her life. Suppose parents desire to have a certain number of surviving children. Then the fertility rate should decline once the mortality rate

among children under 5 starts to decline. Demographers have puzzled why reductions in fertility rates in today's poor world have been slower than they had expected. The first known decline in fertility rates in northwestern Europe (England and France especially) occurred in the 17th century, when the rate fell from about 7 to 4 (Chapter 6). The fertility rate in the rich world today is 1.8 (below 2.1, the figure at which population would stabilize in the long run), whereas it is 3.7 in the poor world (Table 1). Despite a significant decline in child mortality rates, the TFR in a number of countries in sub-Saharan Africa continues to be between 6 and 8. We should ask whether there have been countervailing forces at work to keep fertility rates high in that continent. We should ask too whether the resulting population growth has been a factor in its terrible economic performance over the past four decades. We will study the question in greater detail in Chapter 6, but one implication of high fertility rates for women's conditions follows at once.

In sub-Saharan Africa, extended breastfeeding has been a traditional practice for controlling pregnancies. Among the !Kung San nomads of the Kalahari Desert, children have been known to be breastfed until they are 4 years old. Even if we were to ignore such extreme cases, successful reproduction in Africa would involve two years of pregnancy and breastfeeding. This means that in societies where female life expectancy at birth is greater than 45 years and the fertility rate is 8, girls can expect to spend more than half their fecund life (say, 15–45) in pregnancy or nursing; and we have not allowed for unsuccessful pregnancies. Under these circumstances, women such as Desta's mother are unable ever to seek employment outside subsistence agriculture.

No economist has ever claimed that there is a single driving force behind economic growth. All would appear to agree that the accumulation of manufactured capital, human capital, and the production, diffusion, and use of new scientific and technological ideas go together, each contributing positively to the contributions of the others. In the contemporary world, an accumulation of, say, manufactured capital goods raises real GDP, other things being equal. This enables societies to set aside more of their incomes for education and health, triggering a reduction in both fertility and child mortality. Education increases GDP further, other things being equal, while reduced fertility and child mortality typically lower population growth; which, taken together, enable societies to set aside more of their incomes for the production of new ideas. This raises the productivity of manufactured capital; which in turn brings forth further accumulation of manufactured capital; and so on, in a virtuous cycle of prosperity. The flip side of this is, of course, a vicious cycle of poverty. The polarization that separates the rich and poor worlds today is a manifestation of those two movements. Economists use the terms *virtuous* and *vicious* cycles to characterize polarization (a few of us refer to vicious cycles as *poverty traps*); mathematicians say instead that the poor and rich worlds are in two different *basins of attraction*.

It is possible to discover the relative importance of the various factors responsible for economic growth. No doubt the answer is different in different places and in different periods of history; but five decades ago, Robert Solow showed us how to investigate the question, by

devising a way to decompose recorded changes in an economy's real GDP into their measurable sources. In contrast to the empirical exercise on *cross* country statistics that I described in the Prologue, the idea here is to measure *changes* in *X, Y, Z* over a period of time in a given country and estimate the relative importance of those changes for growth in real GDP there over that same period. Suppose that over an interval of time a country's real GDP has increased. Solow, and subsequently others, showed how to attribute that growth to increases in labour force participation (population growth; increases in women's employment in paid labour), the accumulation of human skills and manufactured capital, improvements in the quality of machinery and equipment, and so on. Now suppose that when we have added up all the contributions made by these factors of production, we find that the sum falls short of real GDP growth. We are entitled then to interpret that shortfall as an increase in the overall productivity of the economy's capital assets; by which we mean that more output can be produced now than earlier, even if the amounts of such factors of production as machines and equipment and skills had remained the same. This is a formal way of acknowledging that there has been a general rise in the efficiency with which goods are produced. Economists call that rise growth in *total factor productivity*.

How does that latter growth come about? It comes about when people acquire knowledge and make use of it, or when people make better use of what they already know. Which is why economists often refer to growth in total factor productivity as *technological progress*. But there are other changes in an economy that could leave an imprint on total factor productivity, such as improvements in the workings of institutions. Growth in total factor productivity may be an ungainly way to convey an idea, but it reflects the unexplained bit of real GDP growth pretty well. In the economics literature the name has come to stay.

Since the Second World War, growth in total factor productivity in the rich world has been considerable. It has been estimated, for example, that during 1970–2000 the average annual rate of growth of total factor productivity in the United Kingdom (UK) was 0.7%. Economists have estimated that, in contrast, total factor productivity *declined* slightly in a number of countries in sub-Saharan Africa during that same period.

What do these figures mean? Take the case of the UK. The country's real GDP grew at an average annual rate of 2.4%, which means about 29% of that growth (that is, 0.7/2.4) could be attributed to increases in total factor productivity. At 2.4% growth rate, real GDP in year 2000 was twice the real GDP in 1970. Nearly one-third of that increase can be attributed to growth in total factor productivity. In contrast, the economies in sub-Saharan Africa where total factor productivity declined during that period became less efficient in their use of such factors of production as machines and equipment, skills and labour hours. It's hard to believe that people in those countries systematically forgot technical knowledge they had known in the past. So the decline in total factor productivity there must have been due to a deterioration in local institutions, precipitated by civil wars and bad governance.

These statistics raise a puzzle. Today's poor countries lie mainly in the tropics, whereas the rich countries are mostly in temperate zones. No doubt the tropics are a breeding ground for

many diseases, but they also harbour vast quantities of natural resources (timber; minerals; and conditions suitable for the production of spices, fibres, coffee, and tea). During the past several centuries, the countries that are rich today have been importing those very resources and products to fuel their factories and mills, and to make their meals enjoyable. They accumulated machines, human capital, and also produced scientific and technological knowledge. Why didn't the poor world take advantage of their resource endowments to enrich themselves in the same way?

Colonization is a possible answer. Historians have shown that, from the 16th century, European powers have extracted natural resources from the colonies – including cheap (read, slave) labour – but have mostly invested the proceeds domestically. Of course, one should ask why it is that the Europeans managed to colonize the tropics; why colonization didn't take place the other way round. As noted earlier, Jared Diamond has offered an answer. That said, many of the most prominent of those ex-colonies have been politically independent for decades now. During that time real income per head in the rich world has increased over and over again. With the exception of a few striking examples in South and South East Asia, though, most of the ex-colonies have either remained poor or become poorer still. Why?

Institutions

Economic historians such as Robert Fogel, David Landes, and Douglass North have argued that the rich world is rich today because, over the centuries, it has devised institutions that have enabled people to improve their material conditions of life. This is a deeper explanation. It says that people in rich countries work with superior technologies, are healthier, live longer, are better educated, and produce many more productive ideas, *because* they have been able to get on with their lives in societies whose institutions permit – even encourage – the economy-wide accumulation of such factors of production as machines, transport facilities, health, skills, ideas, and the fruits of those ideas. The accumulation of productive capital assets is only a proximate cause of prosperity, the real cause is progressive institutions.

One can peel away the conceptual onion some more, and ask how and why past people in today's rich countries were able to fashion their institutions in ways that enabled those proximate causes of prosperity to explode there. One can even ask whether institutions did it, or whether it was the enlightened policies of the rulers that were responsible for the explosion. But then, policies aren't plucked from air, they emerge from consultations and deliberations within institutions. Nor is it likely that a policy designed to bring prosperity to a country will actually work unless the institutions there are capable of implementing it.

These dilemmas are of enormous importance for today's poor countries. What institutions should they adopt and what policies should their governments be encouraged to follow? There is little point in embarking on grandiose projects (steel mills, petrochemical plants, land reform, public health programmes, free education) unless a country's institutions have the necessary checks and balances to limit corruption and wastage. This brings us back to our earlier question: how did those institutions that promoted economic growth in today's rich

countries become established and flourish? Despite the attention the question has received from the world's most outstanding economic historians, the matter remains unsettled. In the next chapter I shall show why it is inherently so difficult to find a satisfactory answer (which, I guess, is itself a mark of increased understanding). In view of the difficulties, it is safest to regard institutions as the explanatory factor when we seek to understand why Becky's and Desta's worlds differ so much in terms of the standard of living.

The Oxford English Dictionary defines *institution* as 'an established law, custom, usage, practice, organization, or other element in the political or social life of a people'. We shall follow that lead, but recast it so as to stress the role of institutions in economic life. By institutions I shall mean, very loosely, the *arrangements* that govern collective undertakings. Those arrangements include not only legal entities, like the firm where Becky's father works, but also the *iddir* to which Desta's father belongs. They include the markets in which Becky's family purchase goods and services, and the rural networks Desta's household belongs to. They include the nuclear household in Becky's world and the extended kinship system of claims and obligations in Desta's world. And they include that overarching entity called *government* in both their worlds.

Institutions are defined in part by the rules and authority structure that govern collective undertakings, but in part also by the relationships they have with outsiders. The rules on the factory floor (who is expected to do which task, who has authority over whom, and so on) matter not only to members of the firm, they matter to others too. For example, rich countries have laws relating to working conditions in factories. Moreover, environmental regulations constrain what firms are able to do with their effluents. In every society there are layers of rules of varied coverage. Some rules come under other rules, many have legal force, while others are at best tacit understandings.

The effectiveness of an institution depends on the rules governing it and on whether its members obey the rules. The codes of conduct in the civil service of every country include honesty, but governments differ enormously as to its practice. Social scientists have constructed indices of corruption among public officials. One such index is based on the perception private firms have acquired, on the basis of their experience, of the bribes people have had to pay officials in order to do business. The index (see Table 1) – which is on a scale of 1 (highly corrupt) to 10 (highly clean) – is less than 3.5 for most poor countries (African countries and Eastern Europe are among the worst) and greater than 7 for most rich countries (Scandinavian countries are among the best). It used to be argued that bribery of public officials helps to raise national income because it lubricates economic transactions. It does so in a corrupt world: if you don't pay up, you don't get to do business. But corruption isn't an inevitable evil. There are several poor countries where corruption is low. Having to pay bribes raises production costs; so less is produced. Citizens suffer, because the price they have to pay for products is that much higher.

Economists have speculated that government corruption is related to the delays people face in having the rule of law enforced. The thought is that delays are a way of eliciting bribes to

hasten legal processes. To enforce a contract takes 415 days in the poor world, as against 280 days in the rich world. It may be that corruption is also related to government ineffectiveness. To register a business takes 66 days in the poor world, 27 days in the rich world. In poor countries, registering property takes 100 days on average, while in rich countries the figure is 50 days. Some economists have suggested that government officials in poor countries create lengthy queues (that's government ineffectiveness) so as to elicit bribes from applicants if they want to jump those queues (that's corruption).

How do government corruption, ineffectiveness, and indifference to the rule of law translate into the kind of macroeconomic statistics we have been studying here? They leave their imprint on total factor productivity. Other things being equal, a country whose government is corrupt or ineffective, or where the rule of law is not respected, is a country whose total factor productivity is lower than that of a country whose government suffers from fewer of those defects. Some scholars call these intangible but quantifiable factors *social infrastructure*, others call them *social capital*.

Institutions are overarching entities. People interact with one another *in* institutions. A more basic notion is that of *engagements* among people. The possibility of engagements gives rise to a fundamental problem in economic life. We study that next.