

# 3

## THE CHARACTERISTICS OF UNDERDEVELOPMENT AND STRUCTURAL CHANGE

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## Introduction

This chapter is about the distinguishing characteristics of poor developing countries, and the process of structural change necessary for a rise in living standards. There cannot be an increase in living standards and a reduction in poverty without an increase in output per head of the working population or an increase in labour productivity. This is the sine qua non of development. Rich countries have high levels of labour productivity, poor countries have low levels of productivity. Why is productivity low in poor countries, and what are the major sources of productivity growth?

The major distinguishing characteristics of poor countries that contribute to low levels of productivity and poor economic performance are: the dominance of low-productivity agriculture and petty service activities in the economic structure; low levels of capital formation, physical and human (education); rapid population growth; and exports dominated by primary commodities. Some of these major characteristics of underdevelopment are both causes and effects of poverty; for example, low savings and investment, poor education, and rapid population growth can be causes of poverty but also symptoms.

In addition to these major distinguishing features of poor countries, some suffer from what is called 'the curse of natural resources', which refers to the detrimental effects that high dependence on natural resource exploitation and exports can have on an economy, because of an over-valued exchange rate (the Dutch disease), corruption and rent-seeking behaviour.

Many poor countries possess weak institutional structures such as lack of property rights, absence of the rule of law and political instability, all of which act as disincentives to investment.

In this chapter we also discuss many other dimensions of poverty in poor countries such as unemployment, income inequality, and the basic needs of people.

The chapter ends with a discussion of the **stages of growth** and development that countries go through, and the strong association that seems to exist between the progress of nations and the shift of resources from agriculture into industry and sophisticated service activities, known in the literature as **Kaldor's growth laws**. The fastest growing developing countries today are those where the share of industry in GDP is rising the fastest; and this is no accident, because manufactured goods have production and demand characteristics that make them the 'engine of growth'.

## The dominance of agriculture and petty services

One of the major distinguishing characteristics of poor developing countries is the fact that their economies are dominated by agriculture and petty service activities. There is very little manufacturing industry in many of the poorest countries. Table 3.1 shows the distribution of employment by sectors of the economy in low-, middle- and high-income countries in different continents. It can be seen that in low-income countries, a large proportion of the labour force still relies on agriculture to make a living: 71% in sub-Saharan Africa and 67% in South Asia. By contrast, the proportion engaged in agriculture in high-income countries is less than 5%. The proportion employed in industry in low-income countries is very low – only 7% in sub-Saharan Africa. In high-income countries, employment is dominated by high-productivity service activities.

Most of those working on the land in poor countries are either subsistence farmers (producing only for themselves), tenant farmers (with no land rights and no incentive to increase output) or landless labourers (selling their labour in a daily labour market). Some high-productivity commercial agriculture does exist, but it forms a small proportion of total agricultural activity. The dominance of agriculture has a number of implications and poses a number of problems for developing

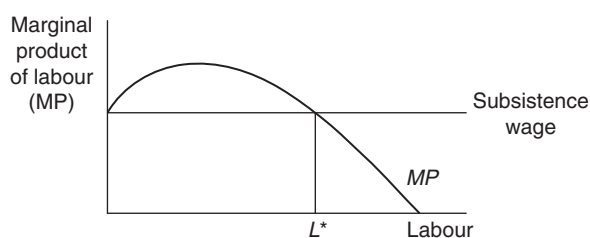
**Table 3.1** Distribution of employment, by sector (percentage)

	Region	Agriculture (%)	Industry (%)	Services (%)
Lower income	Asia and the Pacific	53.7	17.9	28.4
	Eastern Asia	34.8	23.8	41.4
	Latin America and the Caribbean	43.3	10.8	45.9
	South-Eastern Asia and the Pacific	50.1	16.8	33.1
	Southern Asia	67.5	14.6	17.9
	Sub-Saharan Africa	71.2	7.1	21.7
Lower middle income	Asia and the Pacific	43.8	21.8	34.4
	Latin America and the Caribbean	28.7	18.2	53.1
	South-Eastern Asia and the Pacific	38.1	19.0	42.9
	Southern Asia	46.0	23.0	31.0
	Sub-Saharan Africa	49.0	10.9	40.2
Upper middle income	Asia and the Pacific	24.5	25.7	49.8
	Eastern Asia	24.0	25.7	50.3
	Latin America and the Caribbean	15.2	21.2	63.6
	South-Eastern Asia and the Pacific	34.3	22.0	43.7
	Southern Asia	19.8	32.0	48.2
	Sub-Saharan Africa	18.8	16.1	65.1
High income	Asia and the Pacific	4.0	25.5	70.5
	Eastern Asia	4.2	26.2	69.6
	Latin America and the Caribbean	4.9	22.5	72.7
	South-Eastern Asia and the Pacific	2.9	21.2	75.9

Source: ILO, 2015, Table R4.

countries. First, agriculture is a **diminishing returns** activity because cultivatable land is ultimately a fixed factor of production. There are only a few incontrovertible laws in economics, but one is that if a variable factor is added to a fixed factor, its marginal product will eventually fall: **the law of diminishing returns**. This principle is illustrated in Figure 3.1.

As labour is added to the land, the marginal product of labour first rises because land requires a certain amount of labour for each unit of labour to work with maximum efficiency, but then the marginal product declines and could become zero (or even negative in extreme cases where

**Figure 3.1** The law of diminishing returns

there is so much labour on a fixed piece of land that everyone gets in each other's way, reducing total output).

If the marginal product of labour falls below the subsistence level, the unit of labour will not be able to survive unless total output is shared. This may characterize family farms. If labour is hired, however, or works on commercial farms, no (profit-maximizing) employer will pay a wage above the marginal product of labour. We reach the conclusion that in a diminishing returns activity, such as agriculture, there is always a limit to employment set by the minimum subsistence wage. This can lead to unemployment, open or disguised (see Chapter 5), particularly in a society where the population is growing rapidly and there are limited alternative employment opportunities.

Second, on the demand side, the demand for most agricultural products (and other primary products derived from the land) is **income inelastic**. This means that the rise in demand is proportionately less than the rise in income, and the growth of demand for agricultural output is less than the growth of supply potential determined by the growth of the labour force plus the growth of labour productivity. For example, suppose that the agricultural labour force is growing at 2% and labour productivity is growing at 1%, so that the growth of productive potential in agriculture is 3%. Now suppose that income growth in the economy is 3% but the income elasticity of demand for agricultural products is only one-half (0.5). The demand for output therefore grows by only 1.5%. The gap between the growth of potential supply and demand is 1.5%, which will manifest itself in unemployment.

There are thus two major causes of surplus labour in agriculture: one arises from the low income elasticity of demand for agricultural output; the other arises from the fact that agriculture is a diminishing returns activity, so that there is a limit to the employment of (paid) labour set by the minimum subsistence wage. What happens to this surplus labour? First, it may stay in the rural sector and work is spread, with each unit of labour working a suboptimal day. This is described as **disguised unemployment** (see Chapter 5). This, of course, depresses labour productivity and therefore per capita income. Second, the surplus agricultural labour may migrate to the towns to find alternative work. If work cannot be found in the formal sector of the economy, the labour attempts to make a living in the informal sector by providing petty services of various kinds: street trading, haircutting, shoe-shining, transport and so on. These are also very low-productivity activities.

Industry has very different characteristics from agriculture. First, it is not a diminishing returns activity. If anything, it is an increasing returns activity. All factors of production are variable, and no limit to employment is set by the marginal product of labour falling below the minimum (subsistence) wage. Second, the demand for most industrial goods is income elastic so that the demand for labour may rise faster than labour productivity, leading to increases in employment – at least in the early stages of industrialization. Also, there is greater scope for capital accumulation in industry, which enhances labour productivity. Overall, the productivity of labour in industry is much higher. As discussed later, there is a strong association across countries between the level of per capita income, and the share of resources devoted to industrial activities, and between the growth of industry and the growth of economies as a whole.

## Low level of capital accumulation

A second major distinguishing characteristic of developing countries is their low level of capital accumulation – both physical and human. Physical capital refers to the plant, machinery and equipment used in the production of output. Human capital refers to the skills and expertise

embodied in the labour force through education and training. (The role of education in the development process will be discussed in Chapter 7.) Low levels of capital accumulation are a cause of low productivity and poverty, but are also a *function* of poverty, because capital accumulation requires investment and saving and it is not easy for poor societies to save. The process of development can be described as a generalized process of capital accumulation, but the levels and rates of capital accumulation in poor countries are low. The amount of physical capital that labour has to work with in a typical developing country is no more than one-twentieth of the level in Europe and North America. This reflects the cumulative effect over time of much higher savings and investment ratios in rich countries.

The saving and investment ratios for various regions are shown in Table 3.2. Domestic investment can differ from domestic saving owing to capital inflows from abroad. This can be seen in Table 3.2 for the low-income countries where domestic saving is only 16% but gross capital formation is 28%. Notice the high ratios of savings and investment in East Asia and the Pacific region. In general, savings and investment rise with development and then fall, as shown by the figures for the high-income countries. If we exclude China, the savings ratio of low-income countries is less than half that of the middle- and high-income countries, although their investment ratio is still relatively high because of capital inflows from abroad. These are not always stable, however.

Sir Arthur Lewis, distinguished development economist, once described development as the process of transforming a country from a net 5% saver and investor to a 12% saver and investor.<sup>1</sup> Walt Rostow, in his well-known book *The Stages of Economic Growth* (1960), defines the take-off stage of self-sustaining growth in terms of a critical ratio of savings and investment to national income of 10–12% (see below for a discussion of Rostow's model). What is the significance of this ratio? It has to do with a very simple growth formula, which originally came from the growth model of British economist (Sir) Roy Harrod (see Chapter 4). The formula is:

$$g = s/c \quad (3.1)$$

where  $g$  is the growth of output ( $\Delta Y/Y$ ),  $s$  is the savings ratio ( $S/Y$ ) and  $c$  is the incremental capital–output ratio – that is, how much investment is associated with an increase in the flow of

**Table 3.2** Savings and investment as a percentage of GDP, 2014

	Gross capital formation	Gross savings
<b>Low income</b>	28	16
<b>Middle income</b>	31	31
Lower middle income	27	29
Upper middle income	32	32
<b>Low and middle income</b>	31	31
East Asia and Pacific	42	45
Europe and Central Asia	21	16
Latin America and Caribbean	21	18
Middle East and North Africa	30	–
South Asia	30	31
Sub-Saharan Africa	22	16
<b>High income</b>	20	21

output by one unit ( $1/\Delta Y$ ). Substituting these definitions of  $s$  and  $c$  into equation (3.1) shows that, in an accounting sense, the formula is an identity since in the national accounts  $S = I$

$$\Delta Y/Y = (S/Y)/(I/\Delta Y) \quad (3.2)$$

That is, if  $S = I$ , then  $g = s/c$ .

Now, for the level of per capita income to rise, output growth must exceed population growth. If population growth is 2% per annum, output growth must exceed 2% per annum. It can be seen from equation (3.1) that how much saving and investment as a proportion of national income is required for growth depends on the value of the incremental capital–output ratio ( $c$ ). If 4 units of capital investment are required to produce a 1 unit flow of output year by year over the life of the investment, then  $c = 4$ , so  $s$  must exceed 8% for the growth of output to exceed 2%. A net rate of saving and investment to national income of at least 8% or more is therefore necessary if there is to be sustained growth of per capita income. In most developing countries, the net savings and investment ratio is above this critical magnitude, but the fact remains that a major cause of low productivity and poverty in developing countries is the low level of capital that labour has to work with. In Case example 3.1, the interrelationship between saving, investment and growth is discussed.

## Rapid population growth

A third distinguishing feature of most developing countries is that they have a much faster rate of population growth than developed countries – in fact, their population is growing faster than at any time in the world's history (see Chapter 11 for a full discussion). This can confer advantages, but

### Case example 3.1

#### The interrelationship between savings, investment and growth

The relationship between savings, investment and growth is complex, with causality running in several different directions, but recent research suggests two important conclusions: first, saving often seems to follow, rather than precede, investment and growth (contrary to orthodox theory); and second, investment and innovation are the centrepieces of growth.

Saving may not be the chief driving force behind growth, but ensuring an adequate savings level must remain a central policy concern – to ensure enough financing for capital accumulation and to prevent inflationary pressures or balance of payments disequilibrium, or both. And encouraging private saving may be essential to expand investment, considering capital market imperfections and liquidity constraints on firms and households in many developing countries. Four main policy conclusions emerge:

- 1 Public saving does not crowd out private savings one to one, so increasing public saving is an effective direct way to raise national saving
- 2 Foreign saving should be allowed to support domestic investment
- 3 Higher private saving should not be expected in response to the liberalization of interest rates. Pension reform may be a better way to raise domestic savings
- 4 The best way to promote investment and growth is a supportive policy and institutional environment ensuring macroeconomic stability, social consensus, and a low cost of doing business.

Source: Schmidt-Hebbel et al., 1994.

it also imposes acute problems. Population growth in the developing countries as a whole averages 1.3% per annum, resulting from a birth rate of 24 per 1,000 population (or 2.4%) and a death rate of 11 per 1,000 population (or 1.1%). The rapid acceleration of population growth compared with its historical trend is the result of a dramatic fall in the death rate without a commensurate fall in the birth rate. Population growth in developed countries averages no more than 0.6% per annum. The population growth rate in low-, middle- and high-income countries is shown in Table 3.3. Population growth in low-income countries is over four times higher than in high-income countries.

**Table 3.3** Population growth (average % per annum)

	2000-05	2005-10	2010-15
Low income	2.72	2.69	2.69
Middle income	1.28	1.21	1.18
High income	0.59	0.69	0.52

Source: UN DESA, 2015.

Rapid population growth, like low capital accumulation, may be considered as both a cause and a consequence of poverty. High birth rates are themselves a function of poverty because child mortality is high in poor societies and parents wish to have large families to provide insurance in old age. High birth rates also go hand in hand with poor education, a lack of employment opportunities for women, and ignorance of birth control techniques. Population growth, in turn, helps to perpetuate poverty if it reduces saving, dilutes capital per head, and reduces the marginal product of labour in agriculture. The pressure of numbers may also put a strain on government expenditure, lead to congestion and overcrowding, impair the environment, and put pressure on food supplies – all of which retard the development process, at least in the short run. In the longer run, population growth may stimulate investment and technical progress, and may not pose such a problem if there are complementary resources and factors of production available, but the short-run costs may outweigh the advantages for a considerable time.

## Exports dominated by primary commodities

A fourth distinguishing characteristic of developing countries is that their trade tends to be dominated by the export of primary commodities and the import of manufactured goods. This has consequences for the terms of trade of developing countries, the distribution of the gains from trade between developed and developing countries, and the balance of payments situation – all of which may adversely affect real income per head. Table 3.4 shows primary commodities as a percentage of the total exports of different continents. The trade of Africa, the Middle East, Latin

**Table 3.4** Primary commodities as a percentage of total exports, 2014

East Asia and Pacific	13
Latin America and Caribbean	43
Middle East and North Africa	84 (2006)
South Asia	35
Sub-Saharan Africa	73

Source: World Bank, 2015, Table 4.4.

America and the Caribbean is still dominated by primary commodities. Only Asia and the Pacific region have made headway in reducing dependence on commodity exports.

The **barter terms of trade** measures the ratio of export prices to import prices. There has been a historical tendency for the terms of trade of primary goods relative to manufactured goods to deteriorate over the past 100 years or so – by about 0.5% per annum on average. This tendency is known in the literature as the ‘Prebisch–Singer thesis’ (see Chapter 15). The falling price of exports relative to imports reduces the real income of a country because more exports have to be exchanged to obtain a given quantity of imports.

A second point to note is that the income elasticity of demand for primary commodities in world trade is less than unity, while the income elasticity of demand for manufactured goods is greater than unity. This means that as world income grows, the demand for primary commodities grows at a slower rate, but if developing countries grow at the same rate as the world economy, their demand for manufactured imports grows at a faster rate. As a consequence, developing countries specializing in the production and export of primary commodities suffer acute balance of payments difficulties. Often, the only means available to developing countries to adjust the balance of payments is to slow down their economies in order to reduce the growth of imports.

The prices of primary commodities are also more cyclically volatile than the prices of manufactured goods. This can also cause havoc with a country's balance of payments and its tax revenues if it relies heavily on trade taxes. The resulting instability makes planning difficult and may deter private domestic investment and investment from overseas.

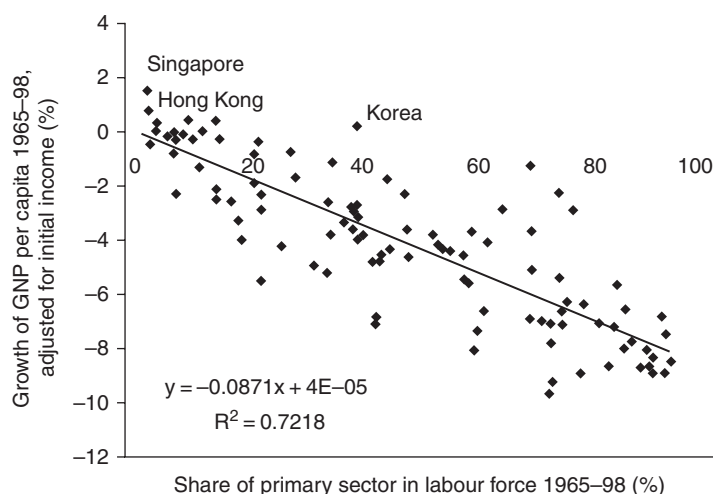
For all these reasons, the structure of trade poses severe problems for many developing countries and may keep countries poorer than they would be if they were able to produce and export more industrial goods. It is not possible to understand the growth and development process – and the perpetuation of divisions in the world economy – without reference to the unequal trading relations between rich and poor countries and the balance of payments consequences of specializing in primary commodities.

## The curse of natural resources

In general, it seems to be the case that the more natural resources a country has, the worse it performs. This phenomenon is referred to in the literature as the **curse of natural resources** (Sachs and Warner, 2001; Gylfason, 2001). This is illustrated in Figure 3.2, which shows a scatter diagram for 105 countries of the relationship between the growth of per capita income over the period 1965–98, and the share of the labour force employed in the primary sector. There is a very strong negative relationship ( $R^2 = 0.7218$ ), and the regression coefficient of  $-0.0871$  indicates that a country with a primary sector share 10 percentage points above the average has experienced a growth of per capita income of nearly 1 percentage point below the average (controlling for the initial level of per capita income). This represents a substantial loss of welfare.

The same negative pattern emerges when the growth of per capita income is regressed against the export of natural resources as a share of GDP; and the negative relation persists even when controlling for other variables, such as differences in the level of investment between countries, and climate and geography (Sachs and Warner, 2001). Most countries that have grown rapidly in recent decades started as resource poor, not resource rich. There are exceptions to this general rule – countries such as Malaysia, Thailand, Indonesia and Botswana, for example – but most of these exceptional countries have grown fast not through the exploitation of natural resources but through diversification into manufacturing industry.



**Figure 3.2** Natural resources and economic growth

What lies behind this ‘curse of natural resources’? A number of interrelated factors can be mentioned that seem to have an adverse effect on many of the important determinants of development. Gylfason (2001) shows a negative relation across countries between the share of the primary sector in the labour force and export performance, domestic and foreign investment and education, and a positive relation with the size of external debt, the level of protection, corruption and income inequality. We have already seen why primary production can lead to poor export performance because many natural resources are income inelastic and suffer terms of trade deterioration, but why should natural resource-abundant countries neglect investment and education, and be more corrupt? There are two major explanations.

First, natural resource abundance may ‘crowd out’ other activities through two mechanisms: higher wages or earnings in the natural resources sector discouraging entrepreneurial activity and innovation in other sectors; and revenues from natural resource exports keeping the exchange rate artificially high, which makes the rest of the economy uncompetitive. This is known as the **Dutch disease** – so named because of the effect that the discovery of natural gas in Holland in the 1960s had on the exchange rate and other sectors of the economy. Sachs and Warner (2001) test this ‘crowding-out’ hypothesis across 99 countries and find a positive correlation between natural resource abundance and the domestic price level. The higher relative price level is then found to impede the export growth of manufactured goods. It could also be that a country rich in natural resources simply neglects to develop other sectors of the economy.

A second major explanation why natural resource abundance may lead to poor performance is that the **rents** from natural resources may be misused by politicians and bureaucrats. Democracy and the rule of law seem to be inversely related to natural resource abundance, and Gylfason (2001) shows corruption to be more widespread in natural resource-abundant countries. This is not surprising since limiting access to a resource provides a rent, and where the state owns the resource, bureaucrats will take bribes in return for exploitation rights. Rent earners may not be interested in schooling and education, having lined their own pockets and those of their children, without acquiring an education. Thus, rent-seeking leads to low levels of expenditure on education and school enrolment. It is also the case that the primary sector of an economy does not have the same educational needs as a more diversified economy.

## Weak institutional structures

Economies cannot function in an institutional vacuum, otherwise there is economic (and political) chaos. At the very minimum there has to be the rule of law, the protection of property rights, and constraints on power and corruption if private individuals are to be entrepreneurial, to take risks and invest. In many developing countries, the rule of law and the protection of property rights is still rudimentary, and politicians (and bureaucrats) abuse their powers. Many economists (e.g. Acemoglu, 2003; Rodrik, 2007) have argued that it is weak institutional structures that are the fundamental cause of underdevelopment, because the character of institutions is the determinant of all the proximate causes of progress such as investment, technology, education and trade. There are several measures of institutional quality that economists focus on, and they will be discussed in detail in Chapter 8. Three main ones are: the extent of legal protection of private property, the quality of governance (including the strength of the rule of law), and the limits placed on political leaders. Attempts have been made to distinguish econometrically the relative importance of institutions compared with other factors (including geography) in explaining different levels of per capita income across the world, with interesting, but controversial, results. Rodrik et al. (2004) take a large sample of developed and developing countries, measuring the quality of institutions mainly by a composite indicator of a number of elements that capture protection afforded by property rights, and conclude: 'Our results indicate that the quality of institutions overrides everything else. Controlling for institutions, geography has, at best, weak direct effects on income ... similarly trade ... has no direct positive effect on income.' Easterly and Levine (2002) also test the influence of institutions compared with geography and policy variables across 75 rich and poor countries and find that institutions seem to matter most as the determinant of per capita income. Even countries with 'bad policies' do well with good institutions. We will examine the evidence for this in more detail in Chapter 8.

It is recognized, however, that the correlation found between institutions and economic development could reflect reverse causality, or omitted factors. We need to find a source of exogenous variation in institutions where institutions differ or change independently of other factors. Acemoglu et al. (2001) argue that the different experience of **colonization** is one exogenous source where, at one extreme, colonizers set up exclusively extractive institutions (to exploit minerals and other primary products) – such as slavery and forced labour – which neither gave property rights to inhabitants nor constrained the power of elites. This was the experience in Africa and Latin America. At the other extreme, colonizers created settler societies, replicating the European form of institutions protecting private property and controlling elites and politicians, in countries such as Australia, New Zealand and North America. But what determined why some countries were settled and others not? Acemoglu et al. (2001) argue that the major determinant was the mortality rate faced by the early settlers, and that there is a strong negative correlation between past mortality rates and current institutional quality (because institutions persisted) and between past mortality and the current levels of per capita income. In fact, over 50% of the variation in per capita income across the 75 countries is associated with variation in one particular index of institutional quality, which measures 'protection against expropriation'. Acemoglu et al. (2001) conclude:

There is a high correlation between mortality rates faced by soldiers, bishops and sailors in the colonies and European settlements; between European settlements and early measures of institutions, and between early institutions and institutions today. We estimate large effects of institutions on income per capita using this source of variation. ... this relationship is not driven by outliers, and is robust controlling for latitude, climate, current disease environment, religion, natural resources, soil quality, ethnolinguistic fragmentation, and current racial composition.

But this is where the controversy starts because presumably the mortality rates of the early settlers, which affected the nature of institutions, was strongly influenced by geography because this affects disease. In the same vein, Sachs (2008) argues that Acemoglu et al.'s (2001) finding concerning the negative relation between mortality rates 200 years ago and per capita income today is simply picking up the pernicious effects of malaria (which still persists), not institutions. Development is not simply about good government and institutions. Institutions might make anti-poverty policies more effective, but that is all. Poor countries need resources to fight disease, to provide education and infrastructure, and all the other resource prerequisites of development. Sachs (2008) classifies three types of countries combining institutions and geography, which is a sensible approach:

- Countries where institutions, policies and geography are all reasonably favourable, for example the coastal regions of East Asia.
- Countries with favourable geography, but weak institutions, for example many of the transition economies of Eastern Europe and the former Soviet Union.
- Countries impoverished by a combination of unfavourable geography, such as landlocked countries and those plagued with disease, and poor governance, for example many of the countries of sub-Saharan Africa.

One manifestation of poor governance and weak institutions is **wars** both within countries (civil wars) and between countries. According to Oxfam (2007), conflicts in Africa since 1990 have cost the continent \$150 billion, equivalent to the total amount of foreign aid received over the same period. The economic damage to economies is immense. In countries such as the Democratic Republic of the Congo, Burundi and Rwanda, for example, wars have reduced national output by over 20%. This is the 'conflict trap' referred to by Collier (2007) in his book *The Bottom Billion*. In war-torn countries, inflation, debt and unemployment are all higher, public investment in education, health and infrastructure suffer, life expectancy is lower, and people are more prone to disease and malnourishment.

## Other dimensions of the development gap

Deprivation in developing countries is not simply a matter of low levels of per capita income. There are many other dimensions to the development gap between rich and poor countries. Developing countries generally experience much higher levels of unemployment – open and disguised – than developed countries. The levels of education, health and nutrition are often abysmally low, and income distribution tends to be much more inequalitarian. Policy in developing countries is increasingly concerned with these other features of the development gap. The **basic needs approach** to development, originally pioneered by the World Bank, is a reflection of this switch of emphasis from exclusive concern with per capita income to these wider development issues. Here, we consider unemployment and the distribution of income. In Chapter 7, we discuss education, health and nutrition.

## Unemployment

The developing countries contain a huge reservoir of surplus labour. For a long time, poor countries, particularly since the population explosion, have been characterized by underemployment or disguised unemployment in rural areas (see Chapter 5). What has happened in recent years is

that disguised rural unemployment has transferred itself into **disguised and open unemployment** in the towns. Unemployment in the urban areas of developing countries is another dimension of the development problem and an increasingly serious one. The rationale for rural–urban migration will be considered later, but first it is appropriate to outline some of the facts on employment and unemployment. According to the International Labour Organization (ILO, 2009) in Geneva, 1 billion people in developing countries are either jobless or underemployed, which amounts to one-third of the total working-age population.

This represents a colossal challenge, particularly as the workforce is expected to grow by another 1.5 billion by the year 2025. The ILO argues for a renewed commitment by developing countries to the goal of employment creation, and not to treat current unemployment levels as natural and the inevitable outcome of market forces, as if nothing can be done. The World Bank devoted its 1995 and 2013 *World Development Reports* to the conditions of employment in developing countries, and it painted a sombre picture (World Bank, 1995, 2012). (See Case example 3.2.) To stop unemployment rising, there has to be employment growth of at least 2% per annum, which requires output growth of at least 4% per annum. Not many countries are able to grow this rapidly and consistently over time.

### Case example 3.2

### The importance of jobs

Jobs provide higher earnings and better benefits as countries grow, but they are also a driver of development. Poverty falls as people work their way out of hardship and as jobs empowering women lead to a greater investment in children. Efficiency increases as workers get better at what they do, as more productive jobs appear, and less productive ones disappear. Societies flourish as jobs bring together people from different ethnic and social backgrounds and provide alternatives to conflict. Jobs are thus more than a byproduct of economic growth. They are transformational – they are what we earn, what we do, and even who we are.

High unemployment and unmet job expectations among youth are the most immediate concerns. But, in many developing countries, where farming and self-employment are prevalent and safety nets are, at best, modest, unemployment rates can be low. In these countries, growth is seldom jobless. Most of the poor work long hours but simply cannot make ends meet. And the violation of basic rights is not uncommon. Therefore, the number of jobs is not all that matters: jobs with high development payoffs are needed.

Confronted with these challenges, policy-makers ask difficult questions:

- Should countries build their development strategies around growth, or should they focus on jobs?
- Can entrepreneurship be fostered, especially among the many microenterprises in developing countries, or are entrepreneurs born?
- Are greater investments in education and training a prerequisite for employability, or can skills be built through jobs?
- In times of major crises and structural shift, should jobs, not just workers, be protected?
- Is there a risk that policies supporting job creation in one country will be at the expense of jobs in other countries?

## Case example 3.2

The importance of jobs – *continued*

The *World Development Report 2013: Jobs* offers answers to these and other difficult questions by looking at jobs as drivers of development – not as derived labour demand – and by considering all types of jobs – not just formal wage employment. The report provides a framework that cuts across sectors and shows that the best policy responses vary across countries, depending on their levels of development, endowments, demography and institutions. Policy fundamentals matter in all cases, as they enable a vibrant private sector, the source of most jobs in the world. Labour policies can help as well, even if they are less critical than is often assumed. Development policies, from making smallholder farming viable, to fostering functional cities, to engaging in global markets, hold the key to success.

Source: World Bank, 2012.

All this is a very aggregative analysis. The issue still to be addressed is the emergence of increasing urban unemployment. The problem is not so much one of a deficiency of demand for labour in an aggregate demand sense. The causal factors relate to the incentives for labour to migrate from rural to urban areas, and the incapacity of urban areas to provide employment owing to a lack of other necessary factors of production to work with labour, particularly capital. As far as migration is concerned, there are both push and pull factors at work.

The **push factors** have to do with the limited job opportunities in rural areas and a greater desire and ability to move, fostered by education and improved communications. The **pull factors** relate to the development of urban industrial activities that offer jobs at a higher real wage than can be earned in rural areas, so that even if a migrant is unemployed for part of the year, they may still be better off migrating to the town than working in the rural sector. If there is no work at all in the rural sector, the migrant loses nothing, except friends and the security of the extended family system. The rate of growth of job opportunities in the rural sector depends on the rate of growth of demand for the output of the rural sector and the rate at which jobs are being ‘destroyed’ by productivity growth.

As we saw earlier, if the demand for agricultural output is growing at 1.5% and productivity is growing at 1%, then the growth of labour demand will be 0.5%. But if the labour force is growing at 2%, there will be a 1.5 percentage point gap between the supply and demand for labour. If the level of disguised unemployment in the rural sector does not increase, this figure constitutes the potential volume of migrants. If the urban labour force is one-half of the size of the rural labour force, a 1.5% migration of rural labour would represent a 3% increase in the urban labour force owing to migration.

On average, this is about the extent of the influx from the rural sector into the urban areas of developing countries. On top of this, there is the natural increase in the workforce in urban areas of 2% to consider. If job opportunities in urban areas are increasing at only 3%, then 2–3% of the urban labour force will be added to the amount of urban unemployment year by year, forcing labour into the informal service sector. In that case, unemployment shows up as poverty.

Historically, the process of development has always been associated with, and characterized by, an exodus from the land, continuing over centuries. The uniqueness of the present situation is not the migration itself, but its magnitude and speed. And the problem is that the urban sector cannot absorb the numbers involved. For any given technology, the rate at

which the urban (industrial) sector can absorb migrants largely depends on the rate of capital formation. If labour and capital must be combined in fixed proportions, and the rate of capital accumulation is only 3%, then the rate of increase in job opportunities can be only 3% also. Unfortunately, however, as will be shown in Chapter 5, the problem is not necessarily solved by a faster rate of capital accumulation in the urban sector, because migration is not simply a function of the actual difference in real remuneration between the two sectors, but also of the level of job opportunities in the urban sector. If the rate of job creation increases, this may merely increase the flow of migrants, with no reduction in unemployment. The solution would seem to be to create more job opportunities in the rural sector. This requires, however, not only the redirection of investment but also the extension of education and transport facilities, which, in the past few years, have themselves become powerful push factors in the migration process. Whereas formerly redundant labour might have remained underemployed on the family farm, nowadays education and easy transportation provide the incentive and the means to seek alternative employment opportunities. While education and improved communications are desirable in themselves, and facilitate development, their provision has augmented the flow of migrants from rural to urban areas.

The pull factors behind migration are not hard to identify. The opportunities for work and leisure provided by the industrial, urban environment contrast sharply with the conservatism and stultifying atmosphere of rural village life and naturally act as a magnet for those on low incomes or without work, especially the young. Given the much higher wages in the urban sector, even the prospect of long spells of unemployment in the towns does not detract from the incentive to migrate. Moreover, the choice is not necessarily between remaining in the rural sector and migrating to the urban sector, with the prospect of long periods of unemployment. The unemployed in the urban sector can often find work, or create work for themselves, on the fringes of the industrial sector – in particular in the **informal service sector** of the urban economy. The wages may be low, but some income is better than no income. In other words, unemployment in urban areas may take the form of underemployment, or become disguised, just as in the case of the rural sector – its manifestation being low income. This has led to the notion of an **income measure of unemployment**, which needs to be added to registered unemployment to obtain a true measure of unemployment and the availability of labour supply.

One way of measuring the extent of unemployment disguised in the form of low- productivity/low-income jobs is to take the difference between the actual labour employed at the sub-standard income and the labour that would be required to produce a given level of output or service at an acceptable level of income per head. Before measurement can take place, of course, the acceptable (standard) level of income has to be defined. It could be that the level is set as the 'poverty line', below which health and welfare become seriously impaired. The income measure of unemployment would thus be:

$$U = L - L^* = \frac{O}{O/L} - \frac{O}{O/L^*}$$

where  $L$  is the actual labour employed,  $L^*$  is the labour consistent with an acceptable level of income per person employed,  $O/L$  is the actual level of productivity (or income per head),  $O/L^*$  is the acceptable level of income per employed person, and  $O$  is output. Let us work an example. Suppose that the annual flow of output of an activity or service, such as haircuts, is \$1 million and that the existing number employed is 5,000, giving a level of productivity of \$200. Now suppose that the acceptable level of productivity to produce an acceptable level of income per person



employed is \$500 (roughly the international poverty line of \$1.90 a day). The income measure of unemployment is then:

$$U = \frac{1,000,000}{200} - \frac{1,000,000}{500} = 3,000$$

that is, over one-half of the existing labour force is disguisedly unemployed, in the sense that the level of output is not sufficient for those who currently work to maintain an adequate standard of living.

The above analysis of employment and unemployment trends in developing countries points to a number of policy implications that were also highlighted by the ILO as long ago as 1969, when it first sponsored missions to several countries to undertake a detailed diagnosis of the employment problem (see Thorbecke, 1973). Certainly, an adequate rate of output growth is required to employ workers entering the labour market for the first time and to absorb the effects of productivity growth, but much more is required. There is a case for the use of more labour-intensive techniques of production (see Chapter 6), and the issue of rural–urban migration needs to be tackled by promoting more employment opportunities outside the urban centres, particularly for young people. Without such measures, unemployment will continue to grow, especially in urban areas. Felipe and Hasan (2006), at the Asian Development Bank, argue that employment creation, and combating unemployment, is the major development challenge facing Asian economies today because unemployment is a major cause of poverty and social unrest.

One way of mitigating the effects of unemployment is through **public employment schemes**. India has a national rural employment guarantee scheme, which was launched in 2006, whereby every rural household is guaranteed up to 100 days of unskilled manual wage employment per year at the statutory minimum wage for agricultural workers. If employment is not provided within 15 days, the worker is entitled to an unemployment allowance. So far, over 5 million public works have been undertaken across India, providing employment to more than 50 million households, and over 3 billion person days of work have been generated on projects such as water conservation, rural connectivity and land development. A beneficial side effect of the scheme is that it raises productivity in agriculture and raises agricultural incomes as the demand for food rises. The scheme costs the Indian government about 0.6% of GDP.

In 2002, Argentina launched a programme for providing a subsistence income to unemployed heads of households with at least one child in return for work for a minimum of 20 hours a week on small projects that improve local infrastructure. About 2 million households have benefited from the scheme, at a cost of 1% of GDP. The impact on unemployment and poverty has been significant, with multiplier effects on the rest of the economy estimated as 2.5 times the amount of initial expenditure.

There is much scope for these programmes to be adopted more widely across developing countries.

### Inequality: vertical and horizontal

As well as the average per capita income being low in developing countries, the distribution of income, wealth and power is also typically very unequal, and much more unequal than in developed countries. All too often, the growth and development that takes place in poor countries benefits the richest few, and the vast mass of the population is left untouched. Rural and urban poverty are still widespread, and if anything the degree of income inequality within many

developing countries is increasing. The way income is distributed across individuals and households is referred to as **vertical inequality**, and is the traditional measure of inequality that development policy focuses upon. There is also the concept, however, of **horizontal inequality**, which is concerned with how different *groups* in society are treated, based on race, religion, language, class, gender and so on. The well-being of people can be affected as much by horizontal inequality as by vertical inequality. First, we will consider vertical inequality and then horizontal inequality.

It should come as no surprise that the transformation of economies from a primitive subsistence state into industrial societies, within a basically capitalist framework, should be accompanied in the early stages by widening disparities in the personal distribution of income. Some people are more industrious than others and more adept at accumulating wealth. Opportunities cannot, by the very nature of things, be equal for all. In the absence of strong redistributive taxation, income inequality will inevitably accompany industrialization because of the inequality of skills and wealth that differences in individual ability and initiative – and industrialization – produce.

The observation that income inequality increases with the level of development and then declines is often called the **Kuznets curve**, named after the famous development economist Simon Kuznets, who did pioneering research on structural change and income distribution in the 1950s and 1960s (e.g. Kuznets 1955, 1963), which earned him the Nobel Prize for Economics in 1971. Kuznets showed that in many of the present developed countries, the degree of inequality first increased and then decreased in the later stages of industrialization, giving an inverted U-shaped curve. For the developing countries, the pioneering work of Adelman and Morris (1971), extended by Paukert (1973), also showed fairly conclusively that inequality increases up to a certain stage of development and then declines, graphically showing an inverted U-shape similar to the work of Kuznets for developed countries. The greater degree of inequality in developing countries appears largely due to the higher share of income received by the richest 5% of income recipients – nearly 30% of income in developing countries compared with 20% in developed countries.

Deininger and Squire (1996), of the World Bank, have surveyed 682 studies of income distribution in over 100 countries and calculated average Gini ratios for each country, together with the ratio of the share of income received by the top 20% of income earners (top quintile) to that of the bottom 20% of income earners (bottom quintile). Latin America, the Caribbean and Africa have by far the largest degree of income inequality, with the Gini ratio well over 50 in many countries, for example Brazil (57.3), Mexico (53.8) and South Africa (62.3). In contrast, income inequality in Asia, the Pacific region and Eastern Europe appears to be much less. In China and India, the two largest countries in the world measured by population, the Gini ratio is just over 30, much the same as for high-income countries. Generally speaking, the higher the Gini ratio, the greater the ratio of income shares between the top and bottom 20% of income earners. In South Africa that ratio is 32:1 and in Brazil 23:1.

Income inequality has been increasing in most countries since the mid-1980s, supporting the Kuznets curve for developing economies, but defying the Kuznets curve for developed countries. The exception is some Latin American countries, particularly Brazil, Mexico and Argentina, where inequality is still high, but declining. In China and India, inequality is increasing.

The traditional view used to be that inequality was good for growth because investment relied on savings from the rich. This view is now challenged because physical capital accumulation has become less important than human capital (education and skills) for growth, and income inequality is not good for growth if those on low incomes suffer poor health, a lack of education and low productivity. Income inequality can also lead to a lack of social cohesion and damaging political lobbying by rich vested interests. It has been estimated by the World Bank that a 5 point increase in the Gini ratio reduces growth by about 0.5% per annum (Milanovic, 2011).



Redistributing income to reduce inequality can promote growth. Table 3.5 gives some representative figures for the Gini ratio in countries with the highest and lowest levels of inequality.

South Africa has the second highest degree of income inequality as measured by the Gini ratio. This is the legacy of the apartheid policy pursued in South Africa over many years, with a minority white population discriminating against the black and Asian majority with regard to jobs, housing, education and health. Four other African countries stand out – Central African Republic, Zambia, Lesotho and Rwanda. Notice also that many of the countries with the highest degree of inequality are located in South and Central America, but there are no countries in Asia with Gini ratios over 50. Countries with the lowest Gini ratios are either Scandinavian or former territories of the Soviet Union.

There are several formidable barriers to narrowing the income distribution gap:

1. There is the dualistic nature of many economies (see Chapter 10), perpetuated by feudal land tenure systems and urban bias in the allocation of investment resources.
2. There is inequality in the provision of education facilities, and a particular lack of facilities in rural areas where the poorest are concentrated.
3. There is disguised rural unemployment, underemployment and open unemployment in urban areas created by rural–urban migration, a shortage of investment resources and inappropriate production techniques.

Until development policy comes to grips with these problems, there will continue to be large pockets of absolute poverty and a marked degree of inequality in income distribution. When deciding on the allocation of investment resources and the choice of projects, a high weight must be given to projects that raise the income of the poorest if the income distribution is to be narrowed (see Chapter 6).

Now let us turn to horizontal inequality (HI), which is concerned with how economic differences, social demarcations and political power combine to produce differences in entitlements and

**Table 3.5** The Gini ratio for high and low inequality countries, 2013

High inequality	Gini ratio	Low inequality	Gini ratio
Namibia	63.9	Sweden	25.0
South Africa	63.1	Ukraine	25.6
Haiti	59.2	Norway	25.8
Zambia	57.5	Slovakia	26.0
Bolivia	56.3	Belarus	26.5
Central African Republic	56.3	Finland	26.9
Colombia	55.9	Romania	27.4
Guatemala	55.7	Afghanistan	27.8
Brazil	54.7	Bulgaria	28.2
Lesotho	52.3	Germany	28.3
Chile	52.1	Montenegro	28.6
Paraguay	52.4	Kazakhstan	29.0
Panama	51.9	Austria	29.2
Rwanda	50.8	Serbia	29.6

capabilities for different groups in society. Groups may be defined in a number of ways, as already mentioned: race, religion, gender, location, class, language and so on. Stewart (2001) develops the hypothesis that not only is HI responsible for much conflict within societies, but it also affects the development process in a number of ways. For example, some groups may be denied access to public goods such as education and healthcare. This impoverishes not only the group, but the economy at large. Certain regions may be deprived of infrastructure investment because of particular groups located in these regions, which not only damages the region but the progress of the whole economy. To be discriminated against on the basis of a particular group identity has psychological effects, and affects the core goals of development discussed in Chapter 1: life sustenance, self-esteem and freedom. Thus, HI is an important dimension of well-being, and can have economic and political consequences highly detrimental to development. Despite this, international development policy is rarely focused on the narrowing of group divisions. HI would not matter so much if there was mobility between groups, or if individuals were free to choose which group they belonged to, but this is rarely the case in often highly stratified developing countries. Stewart (2001) gives examples of several case studies of the basis and consequences of horizontal inequality, for example, in Mexico, Brazil, Fiji, Malaysia and South Africa. The situation in several countries is given in Case example 3.3. It is clear that development policy needs to tackle horizontal inequality between groups, as well as vertical inequality with respect to income distribution across individuals.

### Case example 3.3

### Inequalities between groups can fuel conflict and tension

The root causes of violent conflict are rarely simple. But as the examples below show, a common theme is emerging from recent research into conflict: the role that socio-economic and political inequalities between groups can play in causing tensions and violence. Less research has been done on the role that cultural exclusions of groups may play (such as lack of recognition of languages or religious practices), but these are also issues that can lead to mobilization and protests and so may also be important root causes or triggers of conflict.

- Severe rioting against the Chinese in **Malaysia** in the late 1960s has been attributed largely to the animosity felt by the politically dominant but economically sidelined Bumiputera majority towards the economically dominant Chinese minority.
- Civil war in **Sri Lanka** since the early 1980s has been linked to tensions resulting from inequalities between the Tamil minority and Sinhalese majority. Colonial administrators had favoured the Tamil minority economically, but this advantage was sharply reversed once the Sinhalese gained power and increasingly sidelined the Tamil minority in areas such as educational opportunities, civil service recruitment and language policy.
- In **Uganda**, the Bantu-speaking people (largely in the centre and south) have been economically dominant but politically sidelined compared with the non-Bantu-speaking people (largely in the north). These economic and political inequities have played a role in major conflicts, including the violence initiated by Idi Amin (1970s) and by the second Obote regime (1983–85).
- Indigenous people in the state of Chiapas, **Mexico** have long suffered political and socioeconomic deprivation. They have demanded greater political autonomy, improved socioeconomic conditions and protection of their cultural heritage, culminating in uprisings against the Mexican state in four municipalities.

## Case example 3.3

Inequalities between groups can fuel conflict and tension – *continued*

- In **South Africa** before 1994, the black majority was severely disadvantaged politically and socioeconomically, which led to many uprisings between 1976 and the transfer of power in 1993.
- Catholics in **Northern Ireland** have suffered economic and political deprivation since the sixteenth century. The continuance of Northern Ireland as part of the UK in the 1920s ensured that Protestants would enjoy permanent political and economic dominance – fuelling demands by northern Catholics to become part of the predominantly Catholic Republic of Ireland. Violent conflict started in the late 1960s and began to ease in the 1990s following systematic efforts to reduce these inequalities.
- Constitutional crises and coups have occurred in **Fiji**, notably in 1987 and 1999, as economically sidelined indigenous Fijians have feared losing political control to the economically dominant Indian-origin Fijians.
- Increasing tensions between Muslims and Christians in Poso, Central Sulawesi, **Indonesia** began surfacing in the mid-1990s as the Muslim community increasingly gained more than indigenous Christians from new economic policies.
- Since colonial times, the indigenous people of **Guatemala** have suffered political and economic discrimination, contributing to the country's ongoing conflicts.
- The Maoist insurgency launched in **Nepal** in 1996 may be attributed to deep grievances stemming from the systematic marginalization and exclusion of certain ethnic groups, castes and women.

Source: UNDP, 2004.

## Growth and distribution

The observation that income inequality increases with the level of development and then declines is not to say that faster economic growth within a country necessarily worsens the income distribution. Recent international evidence suggests that rapid structural transformation and fast economic growth have benefited the poor as much as the rich. Nor, for that matter, is inequality a necessary condition for growth because it generates more saving, as it is sometimes claimed. Naqvi (1995) looked in detail at 40 developing countries and found that high growth rates and distributive justice (as well as macroeconomic stability) have tended to move together. This is also the conclusion of Dollar and Kraay (2000), who examined the relationship between growth and income distribution across 80 countries over 40 years. They found that the income of the poor (the bottom 20% of the population) rises one to one with overall growth, and the relation is no different in poor countries than in rich ones. Nor has the poverty–growth relationship changed much over time. In other words, growth seems to benefit the poor as much as the rich, so that relative inequality (the Gini ratio) stays the same (although *absolute* inequality still widens, of course, because the same growth of income gives more dollars to a rich person than a poor person).

On the question of whether inequality promotes growth, the answer seems to be 'no'. If the Gini ratio is included in a cross-section equation to explain differences in growth between countries, the coefficient is normally negative, not positive (see Forbes, 2000). In other words, a more equal distribution of income is good for growth. Income equality is probably standing here as a proxy for such growth-inducing factors as good governance, civil society, equal property rights and equality of opportunity. The successful Asian 'tiger economies' have much more equal distributions of income, and better governance, than most other developing economies.

## Poverty-weighted growth rates

Whether progress is being made towards achieving the twin objectives of faster growth and a more equal distribution of income can be examined simultaneously by constructing **poverty-weighted indices of growth**.

GNP growth as conventionally measured is a weighted average of the growth of income of different groups of people, where the relevant weights are each group's share of total income. The measured growth rate pays no regard to the distribution of income. A high growth rate may be recorded, but this may have benefited only the rich. For example, suppose the bottom third of the population receive 10% of income, the middle third receive 30% of income, and the top third receive 60% of income. GNP growth would be measured as:

$$\% \text{ growth of GNP} = r_1(0.1) + r_2(0.3) + r_3(0.6),$$

where  $r_1$ ,  $r_2$  and  $r_3$  are the respective rates of growth of income of the three groups. Suppose  $r_1 = 1\%$ ,  $r_2 = 1\%$  and  $r_3 = 10\%$ . A GNP growth rate of 6.4% would then be recorded, which looks very respectable but the position of the poorest will hardly have changed.

The idea of constructing poverty-weighted indices of growth is to give at least equal weight to all income groups in society, if not a higher weight to the poor, in order to obtain a better measure of the growth of overall welfare combining the growth of income with its distribution.

In the above example, for instance, if each group is given an equal weight of one-third, the measured growth of welfare becomes:

$$\% \text{ growth of 'welfare'} = 1(0.33) + 1(0.33) + 10(0.33) = 4\%$$

which is much less than the rate of growth shown by the conventional measure of GNP growth when distributional considerations are taken into account.

A society could go further and say that it places no value or weight on income growth for the richest third of the population, and places all the weight on the lower income groups with, say, a 60% weight to the bottom third and a 40% weight to the middle third. The growth of 'welfare' would then look derisory:

$$\% \text{ growth of 'welfare'} = 1(0.6) + 1(0.4) + 10(0) = 1\%$$

This approach has been experimented with by economists from the World Bank (see Ahluwalia et al., 1979) to compare countries, giving a 60% weight to the lowest 40% of the population, a 40% weight to the middle 40% and no weight to the top 20%. In countries where the distribution of income had deteriorated, the poverty-weighted measure of the growth of welfare showed less improvement than GNP growth, and where the distribution of income had improved, the poverty-weighted growth rate showed more improvement than GNP growth.

## Stages of development and structural change

It is often argued that countries pass through certain phases during the course of development and that by identifying the particular characteristics of these phases, a country can be deemed to have reached a certain stage of development. The simplest stage theory is the sector thesis of Fisher (1939) and Clark (1940), who employed the distinction between primary, secondary and tertiary production as a basis of a theory of development. Countries are assumed to start as **primary** producers and then, as the basic necessities of life are met, resources shift into manufacturing or

**secondary** activities. Finally, with rising income, more leisure and an increasingly saturated market for manufactured goods, resources move into **service** or **tertiary** activities producing 'commodities' with a high income elasticity of demand.

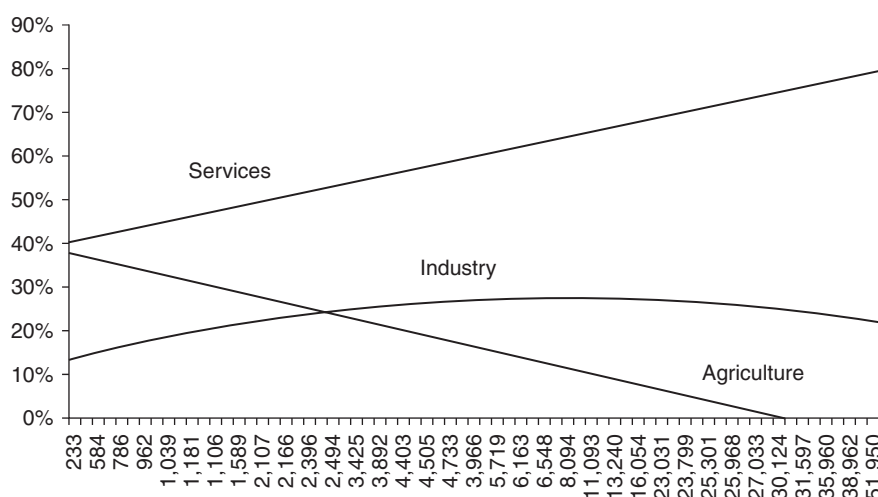
Naturally enough in this schema, less developed countries are identified with primary production, more developed countries with the production of manufactured goods, and mature developed economies have a high percentage of their resources in the service sector.

There can be no dispute that resource shifts are an integral part of the development process, and that one of the main determinants of these shifts is a difference in the income elasticity of demand for commodities and changes in their elasticity as development proceeds. But just as care must be taken to equate (without qualification) development and welfare with the level of per capita income, caution must also be exercised in identifying different degrees of underdevelopment, industrialization and maturity, with some fairly rigid proportion of resources engaged in different types of activity. Such an association would ignore the doctrine of **comparative advantage**, which holds that countries will specialize in the production of those commodities in which they have a relative cost advantage, as determined by natural or acquired resource endowments. The fact that one country produces predominantly primary products while another produces mainly manufactured goods need not imply that they are at different stages of development, particularly if productivity in the primary sector matches productivity in the industrial sector. Such an association would also ignore the different types of service activities that may exist at different stages of a country's history. There are three broad categories of service activities. Newer service activities linked with the growth of leisure and high mass consumption tend to have a high income elasticity of demand; services linked to the growth of manufacturing also grow, but at a declining rate; and traditional services of pre-industrial times, such as domestic servants, decline. In short, tertiary production is an aggregation of many dissimilar service activities, some of which are related to low per capita incomes and some to high per capita incomes. Thus, the same proportion of total resources devoted to services may be associated with very different levels of development.

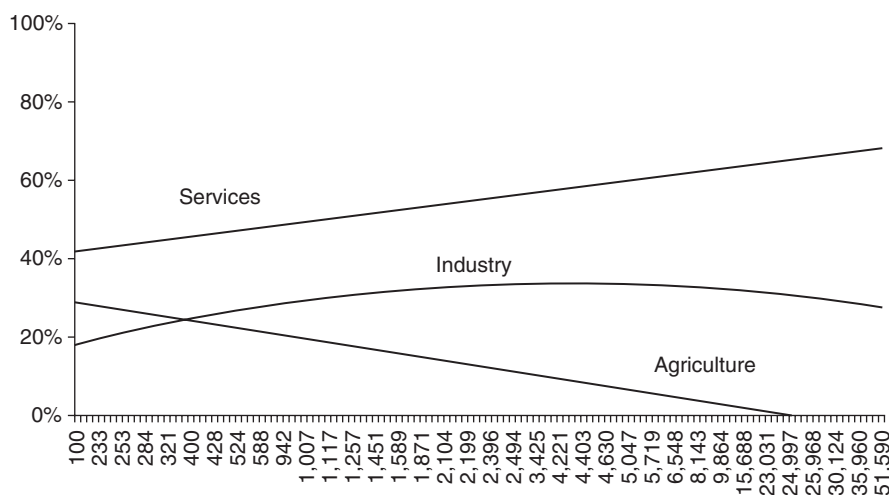
Having said all this, however, the fact remains that there is a good deal of empirical support for the Fisher–Clark view that the pattern of development across countries evidences many common characteristics, especially the shift of resources from agriculture to industry.

Figure 3.3 plots the relation between the level of per capita income and the share of employment in agriculture, industry and services across 69 countries using simple regression analysis. The broad thesis of Fisher and Clark is confirmed. On average, in low-income countries, the share of employment in agriculture is approximately 40% (and much higher in the very poorest countries of Africa), while only 15% is employed in industry. By contrast, in high-income countries, less than 5% is employed in agriculture and nearly 30% in industry. The proportion of the labour force employed in services rises inexorably, but the nature of the service activities is different – petty services in low-income countries and sophisticated services in the high-income countries.

What is true of the sectoral distribution of the labour force is also true of the sectoral distribution of output, although the magnitude of the proportions differ in lower income countries because productivity differs between sectors. Figure 3.4 shows the sectoral distribution of output across 141 countries also by regressing the shares on per capita income. In low-income countries, on average, the share of agriculture in total GDP is 30% compared with an employment share of over 40%, because productivity is lower in agriculture than in industry. Industry's share of output in poor countries is 20% compared with an employment share of 15%. The share of output and employment in services is roughly equal.

**Figure 3.3** The distribution of the labour force (%)

Source: Data from the World Bank, 2009 and the ILO, 2009 for 69 countries.

**Figure 3.4** The distribution of output (%)

Source: Data from the World Bank, 2009 and the ILO, 2009 for 141 countries.

Notice also that while the share of agriculture falls continually, and the share of services increases continually, the share of employment and output in industry first rises and then falls as countries get richer. The latter is referred to as the process of **deindustrialization**. This process started in developed countries many years ago (see Rowthorn and Ramswamy, 1999), but is now beginning to hit middle-income (and even some low-income) countries (see Pieper, 2003; Tregenna, 2009). The level of per capita income at which the share of industry peaks seems to be falling; a phenomenon referred to as 'premature deindustrialization' or 'premature non-industrialization' (Rodrik, 2016). Some African and Latin American countries seem to be deindustrializing before they have ever been properly industrialized. This is worrying in an open economy where export growth is highly correlated with the growth of manufacturing output (see Pacheco-López and

Thirlwall, 2014). One explanation is that poor countries lack the capabilities and infrastructure to compete in the global marketplace for industrial goods, particularly with freer trade and the free movement of labour and capital. Manufacturers seek locations where wage costs per unit of output (the efficiency wage) are lowest, which are not necessarily the poorest countries. Another explanation would be that the world is becoming more and more saturated with manufactured goods, and there is a continued shift in the purchase of, and trade in, service activities. India has responded to this shift to the neglect of its industrial base. Pakistan, Sri Lanka and Nepal are imitating India and, to a large extent, skipping the stage of industrialization. If countries can acquire an early comparative advantage in tradable service activities, their exports may not suffer, but other countries are likely to get left behind. Also, many service activities, particularly in the information technology sector, require skilled labour, and are increasingly automated, which presents an enormous employment challenge as the labour force continues to grow. Only in East Asia and the Pacific region is the importance of industry increasing.

Table 3.6 gives a summary of output shares of GDP by activity in the different regions of the world. The shares of agriculture can be seen to go down the richer the countries, and the share of services to rise. The share of manufacturing starts very low in low-income countries and reaches a peak in the upper middle-income countries, and then falls again. Notice the very small share of manufacturing output in sub-Saharan Africa.

As already mentioned, the changing structure of output and employment is a function of the different income elasticities of demand for different products. It is possible to make estimates of the income elasticity of demand for different commodities by using an estimating equation of the form:  $\log V = \log a + b \log Y$ , where  $V$  is value-added (or output) per capita for good  $X$ ,  $Y$  is per capita income and  $b$  is the income elasticity of demand for good  $X$ . An income elasticity less than unity would imply that the share of the good in total output declines as income grows. Conversely, an income elasticity greater than unity means that the good's relative importance in total output will increase. To estimate the income elasticities, the equation is applied to data

**Table 3.6** The shares of output in GDP by region

	Agriculture	Industry		Services
	% of GDP	Total % of GDP	Manufacturing % of GDP	% of GDP
<b>World</b>	3	26	16	71
<b>Low income</b>	32	22	9	47
<b>Middle income</b>	10	35	22	56
Lower middle income	17	31	17	52
Upper middle income	10	36	24	57
<b>Low and middle income</b>	10	34	22	55
East Asia and Pacific	10	42	32	48
Europe and Central Asia	8	28	16	63
Latin America and Caribbean	5	30	14	65
Middle East and North Africa	11	37	14	52
South Asia	18	29	17	53
Sub-Saharan Africa	15	27	11	58
<b>High income</b>	2	25	15	74

Source: World Bank, 2015, Table 4.2.



across countries at different stages of development. When this is done, the income elasticity for agricultural products is typically estimated at about 0.5, while the income elasticity for services is significantly above unity. The income elasticity for industries is nonlinear. Up to a certain level of income, the elasticity is above unity, and then it falls below unity (consistent with the share of industrial output first rising and then falling).<sup>2</sup>

Within the industrial sector, there are also differences in the income elasticity of demand for products, which cause the pattern of industry to change as development proceeds. The most notable demand shift is the relative switch from basic necessities and low value-added goods to high value-added consumer durables.

### Rostow's stages of growth

Interest in stage theories of development was given a major impetus with the publication of Rostow's *The Stages of Economic Growth* (1960), which represents an attempt to provide an alternative to the Marxist interpretation of history – hence its subtitle, *A Non-Communist Manifesto*. Rostow presents a political theory as well as a descriptive economic study of the pattern of the growth and development of nations.

#### Walt Rostow



Born 1916, New York, USA. Died 2003. Professor of Economic History, MIT (1950–61) and, after US government service in the 1960s during the Kennedy and Johnson administrations, Emeritus Professor of Political Economy, University of Texas, Austin. Famous for his bestselling, but controversial book *The Stages of Economic Growth: A Non-Communist Manifesto* (1960), in which he identifies several necessary conditions for countries to take off into self-sustaining growth: important among them an agricultural revolution, an investment ratio at least 10% of GDP, and an institutional environment conducive to entrepreneurship.

The essence of Rostow's thesis is that it is logically and practically possible to identify stages of development and to classify societies according to those stages. He distinguishes five such stages: **traditional, transitional, take-off, maturity and high mass consumption**.

All we need say about **traditional societies** is that, for Rostow, the whole of the pre-Newtonian world consisted of such societies; for example, the dynasties of China, the civilizations of the Middle East, the Mediterranean and medieval Europe and so on. Traditional societies are characterized by a ceiling on productivity imposed by the limitations of science. Traditional societies are thus recognizable by a very high proportion of the workforce in subsistence agriculture, coupled with very little mobility or social change, great divisions of wealth and decentralized political power. Today, few societies could be classed as traditional, except perhaps some of the primitive tribes of Amazonia or Papua New Guinea. Most societies emerged from the traditional stage some time ago, mainly under the impact of external challenge or the rise of nationalism. The exceptions to the pattern of emergence from the traditional state are those countries that Rostow describes



as having been 'born free', such as the USA and certain British dominions. Here, the preconditions of 'take-off' were laid in a more simple fashion by the construction of 'social overhead capital' (growth-promoting institutions) and the introduction of industry from abroad. But, for the rest of the world, change was much more basic and fundamental, consisting not only of economic transformation but also a political and social transition from feudalism.

The stage between feudalism and take-off Rostow calls the **transitional stage**. The main economic requirement in the transition phase is that the level of investment should rise to at least 10% of national income to ensure self-sustaining growth. The main direction of investment must be in transport and other social overhead capital to build up society's infrastructure. The preconditions for a rise in the investment ratio consist of the willingness of people to lend risk capital, the availability of entrepreneurs, and the willingness of society at large to operate an economic system geared to the factory and the principle of the division of labour. But a country shifting resources out of agriculture needs to feed itself, so an agricultural revolution is also necessary.

On the social front, a new elite must emerge to fabricate the industrial society, and it must supersede in authority the land-based elite of the traditional society. Surpluses must be channelled by the new elite from agriculture to industry, and there must be a willingness to take risks and to respond to economic incentives. And because of the enormity of the task of transition, the establishment of an effective modern government is vital. The length of the transition phase depends on the speed with which local talent, energy and resources are devoted to modernization and the overthrow of the established order. In this respect, political leadership has an important part to play.

Then there is the **take-off stage**. The characteristics of take-off are sometimes difficult to distinguish from the characteristics of the transition stage, and this has been a point of contention between Rostow and his critics. Nonetheless, let us describe the take-off stage as Rostow sees it – a 'stage' to which reference is constantly made in the development literature. Since the preconditions of take-off have been met in the transitional stage, the take-off stage is a short stage of development, during which economic growth becomes self-sustaining. Investment must rise to a level in excess of 10% of national income in order for per capita income to rise sufficiently to guarantee adequate future levels of saving and investment. Also important is the establishment of what Rostow calls 'leading growth sectors'. Historically, domestic finance for take-off seems to have come from two main sources. The first was from a diversion of part of the product of agriculture by land reform and other means. The examples of Tsarist Russia and Meiji Japan are quoted, where government bonds were substituted for the landowner's claim to the flow of rent payments. A second source was from enterprising landlords voluntarily ploughing back rents into commerce and industry.

In practice, the development of major export industries has sometimes led to take-off permitting substantial capital imports. Grain in the USA, Russia and Canada, timber in Sweden and, to a lesser extent, textiles in Britain are cited as examples. Countries such as the USA, Russia, Sweden and Canada also benefited during take-off from substantial inflows of foreign capital. The sector or sectors that gave rise to the take-off seem to have varied from country to country, but in many countries railway building seems to have been prominent. Certainly, improvement of the internal means of communication is crucial for an expansion of markets and to facilitate exports, apart from any direct impact on industries such as coal, steel and engineering. But Rostow argues that any industry can play the role of leading sector in the take-off stage, provided four conditions are met:

1. The market for the product is expanding rapidly to provide a firm basis for the growth of output.
2. The leading sector generates secondary expansion.

3. The sector has an adequate and continual supply of capital from ploughed-back profits.
4. New techniques of production can be continually introduced into the sector, leading to increased productivity.

Rostow contends that the beginnings of take-off in most countries can be traced to a particular stimulus. Historically, this has taken many different forms, such as a technological innovation or, more commonly, political revolution, for example Germany in 1848, the Meiji Restoration in Japan in 1868, China in 1949 and Indian independence in 1947. Rostow stresses, however, that there is no one single pattern or sequence of take-off. Thus, there is no need for the developing countries today to repeat the course of events in, say, Britain, Russia or America. The crucial requirement is that the preconditions for take-off are met, otherwise take-off, whatever form it takes, will be abortive. Investment must rise to over 10% of national income; one or more leading sectors must emerge; and there must exist or emerge a political, social and institutional framework that exploits the impulse to expand. The examples are given of the extensive railway building in Argentina before 1914, and in India, China and Canada before 1895, which failed to initiate take-off because the full transition from a traditional society had not been made. The dates of take-off for some of the present developed countries are given as follows: Britain 1783–1802; France 1840–60; the USA 1843–60; Germany 1850–73; Sweden 1868–90; Japan 1878–1900; and Russia 1890–1914.

Then there is the **maturity stage**, which Rostow defines as the period when society has effectively applied the range of modern technology to the bulk of its resources. During the period of maturity, new leading sectors replace the old. By this criterion, Rostow sees the development of the steel industry as one of the symbols of maturity. In this respect, the USA, Germany, France and Britain entered the stage of maturity roughly together.

Accompanying changes in the industrial structure will be structural changes in society, such as changes in the distribution of the workforce, the growth of an urban population, an increase in the proportion of white-collar workers, and a switch in industrial leadership from entrepreneur to manager.

Maturity also has important political features. This is the period when nations grow confident and exert themselves – witness Germany under Bismarck and Russia under Stalin. This is also the period when fundamental political choices have to be made by society on the use to which the greater wealth should be put. Should it be devoted to high mass consumption, the building of a welfare state, or imperialist ends? The balance between these possibilities has varied over time within countries, and between countries. Eventually, however, every nation will reach the stage of **high mass consumption** whatever the balance of choices at the stage of maturity. Since there is no likelihood of developing countries reaching this stage in the foreseeable future, and only a handful of rich countries have reached it already, we shall ignore this fifth stage here.

Instead, let us evaluate Rostow's thesis and consider the usefulness of this type of stage theory, apart from its use in providing a valuable description of the development process and pinpointing some of the key growth variables. Most criticisms have hinged on whether a valid and operationally meaningful distinction can be made between stages of development, especially between the so-called transitional stage and take-off, and between take-off and maturity. Critics have attempted to argue that the characteristics that Rostow distinguishes for his different stages are not unique to those stages. Thus, the demarcation between take-off and transition is blurred because the changes that take place in the transition stage also seem to take place in the take-off phase, and similarly with the demarcation between take-off and maturity.

Despite these points of criticism, Rostow's stage theory still offers valuable insights into the development process. While the concept of a stage may be quibbled with, and stage theory dismissed

as a blueprint for development, there are certain features of the development process that do follow a well-ordered sequence. Moreover, there are certain development prerequisites that countries neglect at their peril. The importance of agriculture in the early stages of development cannot be overemphasized, together with the provision of infrastructure and political stability, if the preconditions for take-off into self-sustaining growth are to be met. The role of investment is also highlighted: investment must reach a certain ratio of GDP (at least 10%) if per capita income growth is to be positive. Finally, there is the transition from the rural to the industrial society, with growth based on the development of leading sectors and foreign trade, which propels a society from take-off to the stage of maturity and eventually high mass consumption. The process of industrialization is crucial.

## Diversification

Another feature of structural change is that, as well as resource shifts from agriculture to industry and services, the structure of production tends to become more diversified as countries develop, at least up to a fairly high level of per capita income – after which there is evidence that it becomes more specialized again. This is well documented in the work of Imbs and Wacziarg (2003) on ‘stages of diversification’ (see also Felipe, 2009). They take several different measures of industrial concentration (including the Gini ratio) and, using ILO and the UN Industrial Development Organization (UNIDO) data, show how the concentration of employment and value-added tends to fall as countries get richer up to about \$9,000 per head (at 2000 prices) and then increases, giving a U-shaped curve. Obvious explanations for this pattern are that people’s preferences widen as they get richer, and there are more risk-takers willing to undertake new investments, which increases diversification. But at later stages of development, international trade increases the degree of specialization due to agglomeration benefits (increasing returns) and falling transport costs.

## Industrialization and growth

From a global perspective, there seems to be a close association across countries between living standards and the share of resources devoted to industrial activities, at least up to a certain point. In very poor countries there is virtually no industrial activity at all, while middle- and high-income countries devote 20–40% of resources to industry. Only three countries in the world have become rich on agriculture alone: Australia, New Zealand and Canada. In all other countries, living standards have risen rapidly only as resources have shifted out of agriculture into industry and sophisticated services (see Szirmai, 2012).

Furthermore, research (see, for example, Szirmai et al., 2013; Thirlwall, 1983; Hansen and Zang, 1996; Guo et al., 2012; Wells and Thirlwall, 2003; Libanio, 2006; Necmi, 1999) also shows a close association across countries between the growth of industry and the growth of GDP; or more precisely, GDP growth is faster, the greater the *excess* of industrial growth relative to GDP growth; that is, when the *share* of industry in total GDP is rising the fastest. Figure 3.5 shows this relationship across 131 developing countries over the period 2000–14, with GDP growth measured on the vertical axis and the growth of industry on the horizontal axis. The scatter points represent the individual country observations. A line through the points with a slope less than unity shows that the greater the excess of industrial growth over GDP growth, the faster GDP growth seems to be. The point where this line cuts the 45° line gives the average growth rate that divides countries

into those where the share of industry is falling and are growing slowly, and those where the share of industry is rising and are growing fast. A linear equation fitted to the scatter points in Figure 3.5 gives the following regression result:

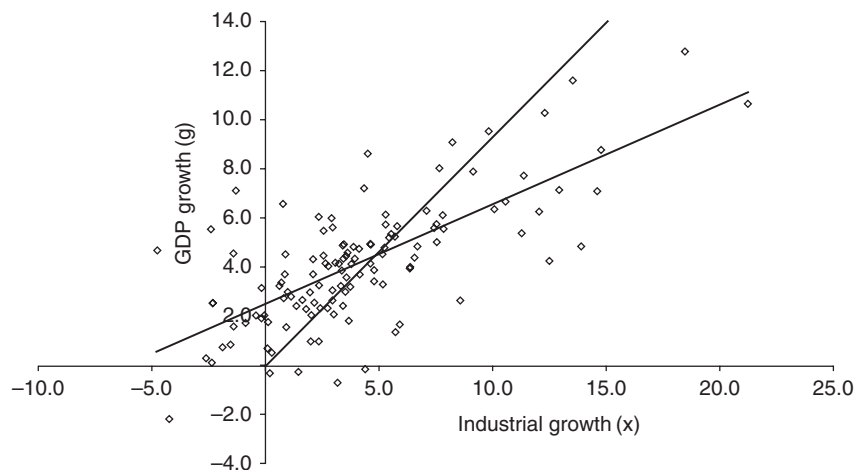
$$g = 2.529 + 0.394x \quad r^2 = 0.507$$

The equation says that a country with industrial growth one percentage point above the average for all countries will have GDP growth of 0.394 percentage points above the average; and the point where the regression line cuts the 45° line is approximately 4.5%.<sup>3</sup> This rate of industry growth separates the slow-growing countries from the faster-growing countries.

The structural thesis of the role of manufacturing is supported by the research of Szirmai and Verspagen (2015), who take a panel of 88 countries over the period 1950–2005 and regress the growth of per capita income on the share of manufacturing output and services in total GDP. Their results support the hypothesis of ‘manufacturing as the engine of growth’. A 10 percentage point rise in the share of manufacturing is associated with a 0.5 percentage point increase in the growth of per capita income. The impact has got weaker over time, however, as countries have got richer; the impact is stronger in low-income countries than in high-income countries. The significance of the service sector for growth is much weaker, but increases in high-income countries.

The question is: What is special about industry, and particularly manufacturing industry, which accounts for these empirical associations, and which makes industry ‘the engine of growth’? Since differences in the growth of GDP are largely accounted for by differences in the rate of growth of labour productivity, there must be an association between the growth of industry and the growth of labour productivity. This is to be expected for two main reasons. First, if there are increasing returns to scale in industry, both static and dynamic, a relation is to be expected between the growth of industrial output and the growth of labour productivity in industry. **Static economies of scale** refer to the economies of large-scale production whereby the mass production of commodities allows them to be produced at a lower average cost. **Dynamic economies of scale** refer to the induced effect that output growth has on capital accumulation and the embodiment of new technical progress in capital. Labour

**Figure 3.5** Association between growth of industry and growth of GDP



productivity also increases as output grows through **learning by doing**. Second, if activities outside industry, such as agriculture and petty services, are subject to diminishing returns, with the marginal product of labour less than the average product, then if resources are drawn from these activities into industry as industry expands, the average product of labour will rise in non-industrial activities. Case example 3.4 illustrates the role of structural change. These relationships between industrial growth, productivity growth and GDP growth are known in the growth and development literature as **Kaldor's growth laws**, named after the well-known Cambridge economist (Lord) Nicholas Kaldor, who first enunciated them in the 1960s (Kaldor, 1966, 1967).

#### Case example 3.4

### Structural change as the driver of growth: China, South Korea and Indonesia compared

Structural change – as the transition from low-productivity activities with low value-added, such as agriculture and garment production, to high-productivity activities that can absorb surplus labour, generate higher profits and wages, and are most closely associated with technological development and innovation, such as manufacturing – promotes economic growth. The *speed* at which such a transition takes place also has an impact on the rate of economic growth. Countries that quickly climb the ladder towards more technologically advanced economic activities grow more rapidly and are more successful at lifting people out of poverty.

The remarkable economic growth of China and Southeast Asia, for example, is linked to the decline in the significance of the traditional agricultural sector, and rapid expansion of the industrial sector and subsequent higher value-added. When the programme of economic reforms was initiated in China in 1978, 70% of the total labour force was engaged in primary sector activity. This figure declined to 38% in 2009, while the share of the labour force in industry rose from 17% to 28%. Today, China is an economic powerhouse, on account of its profound and planned structural change, spurred by economic reforms, liberalized foreign trade, and high domestic and foreign investment in industry.

Structural change analysis is a powerful tool with which to compare and contrast the development experience of different countries. Looking at how much and how fast countries have diversified their structure as they climbed the stairway of development can reveal useful insights into the sustainability of their growth strategies. A comparison of the development experience of South Korea and Indonesia illustrates this point. Comparing the two countries from the same starting point when their per capita incomes were equivalent, structural change has been much more rapid in South Korea than in Indonesia. As a result, South Korea has become one of the fastest growing manufacturing economies of the world. In Indonesia, by contrast, no profound structural change took place, resulting in much slower growth of the economy.

There is widespread agreement by development economists that structural change is necessary for economic growth, and that the state – and not market forces alone – has a role to play. It is also argued that the government should not attempt to modify the structures of the current economy too quickly or too drastically. Yet, how closely a government's industrial policies should conform to the country's current comparative advantage, or to what extent a country's industrial structure should deviate from it, continue to be debated.

Source: UNIDO, 2012.

## Kaldor's growth laws

There are three basic laws that have been widely tested in developed and developing countries using cross-section data (that is, across countries), time-series data, and panel data combining time-series and cross-section data.

The **first law** is that there exists a strong positive correlation between the growth of manufacturing output ( $g_m$ ) and the growth of GDP ( $g_{GDP}$ ), that is:

$$g_{GDP} = f_1(g_m) \quad f'_1 > 0 \quad (3.3)$$

where  $f_1$  is the functional relationship that is hypothesized to be positive.

The **second law** is that there exists a strong positive correlation between the growth of manufacturing output and the growth of productivity in manufacturing ( $p_m$ ), that is:

$$p_m = f_2(g_m) \quad f'_2 > 0 \quad (3.4)$$

where  $f_2$  is the functional relationship that is assumed to be positive. This law is also known as **Verdoorn's law** after the Dutch economist P.J. Verdoorn, who, in the 1940s, first discovered such a relationship across a sample of European countries.

The **third law** is that there exists a strong positive relationship between the growth of manufacturing output and the growth of productivity outside manufacturing ( $p_{nm}$ ), that is:

$$p_{nm} = f_3(g_m) \quad f'_3 > 0 \quad (3.5)$$

where  $f_3$  is the functional relationship that is assumed to be positive.

The most rigorous test of these laws is to take a cross-section of countries, or a cross-section of regions within a country, and to perform correlation and regression analyses for each equation. We will illustrate this with reference to an interesting study that applies the model across 28 regions of China, taking average data for the period 1965–91 (Hansen and Zhang, 1996). See Case example 3.5 below for an application of the model to the countries of Africa.

### Case example 3.5

#### Testing Kaldor's growth laws across African countries

One of the striking features about Africa since the 1980s is that there has been virtually no structural change. This is undoubtedly one of the explanations for its poor growth performance. Over the period 1980–96, the average growth of GDP was 2.09% per annum. The growth of manufacturing output was 2.11%, and the growth of agricultural and service output were both 2.07%. On the other hand, some African countries grew faster than others (e.g. Uganda, Botswana, Mauritius, Equatorial Guinea, Swaziland and Cape Verde grew particularly fast). To what extent can this differential growth performance be explained by the differential performance of manufacturing industries?

Regressing GDP growth against the excess of manufacturing growth ( $g_m$ ) over non-manufacturing growth ( $g_{nm}$ ) across 45 countries (the side test of Kaldor's first law) gives:

$$g_{GDP} = 0.021 + 0.408 (g_m - g_{nm}) \quad r^2 = 0.188$$

This suggests that a country with excess growth of manufacturing of 1 percentage point has experienced a GDP growth rate of 0.41 percentage point above average.



## Case example 3.5

Testing Kaldor's growth laws across African countries – *continued*

When GDP growth is regressed against the excess of agricultural growth over non-agricultural growth, there is a strong *negative* correlation.

Estimating Kaldor's second law gives a Verdoorn coefficient of 0.878, which suggests substantial increasing returns in industry.

Estimating Kaldor's third law gives:

$$p_T = 0.020 + 0.524 (g_i) - 1.606 (e_{ni}) \quad r^2 = 0.712$$

This shows that overall productivity growth ( $p_T$ ) across African countries is positively related to the growth of industry ( $g_i$ ), but negatively related to the growth of employment outside industry ( $e_{ni}$ ).

These results support Kaldor's structural thesis that there is something special about industrial activity that makes it the 'engine of growth'.

Source: Wells and Thirlwall, 2003.

Fitting equation (3.3) to the Chinese regional data gives the following regression result:

$$g_{GDP} = 1.79 + 0.56 (g_m) \quad r^2 = 0.67$$

The  $r^2$  measures the correlation between the two variables, so this equation says that 67% of the difference in the growth rate of output between the 28 regions in China can be accounted for by variation in the growth of manufacturing output between regions. This is a high degree of explanatory power. The regression coefficient of 0.56 says that a region with manufacturing output growth of 1% above the average for all regions will grow 0.56% above the average for all regions.

But before the equation can be used to support the hypothesis of manufacturing industry as the engine of growth, some words of warning are in order. If manufacturing output is a large fraction of total output, the correlation will, to a certain extent, be spurious because the same variable appears on both sides of the equation. There are ways to overcome this problem, however. One is to regress the growth of output on the *difference* between manufacturing and non-manufacturing output growth. The other is to regress non-manufacturing output growth on manufacturing output growth. Also, for manufacturing industry to be regarded as special, it needs to be shown that there is no significant relationship between total output growth and the growth of other major sectors, such as agriculture or services.<sup>4</sup>

Turning to the second law, fitting equation (3.4) to the regional data for China gave the following result:

$$p_m = -0.009 + 0.71 g_m \quad r^2 = 0.73$$

We see again that the correlation is very high, with 73% of the difference in the growth of labour productivity between regions accounted for by differences in the growth of output itself. On average, a 1% difference in the growth rate of output induces a 0.71 percentage point difference in the growth of labour productivity. This coefficient is referred to as the **Verdoorn coefficient**. The coefficient here is higher than typically found in developed countries, which is normally about 0.5, but this may reflect the large economies of scale to be reaped in the early stages of development. Again, for manufacturing industry to be regarded as special, this second law (or Verdoorn's law) should be weaker for other activities, which it will be in the absence of scale economies.

The third law is difficult to test directly because it is not easy to measure productivity growth in many activities outside manufacturing, particularly service activities where output can only be measured by inputs; for example, public services such as teaching, health, defence, the civil service and so on. It can be tested indirectly, however, by taking *overall* productivity growth ( $p_{GDP}$ ) as the dependent variable to be explained and linking this to employment change in non-manufacturing activities ( $e_{nm}$ ), holding constant the effect of output growth in manufacturing ( $g_m$ ). The equation to be estimated is thus:

$$p_{GDP} = a_3 + b_3 (g_m) + c_3 (e_{nm}) \quad (3.6)$$

with the expectation that  $c_3 < 0$ .

Fitting equation (3.6) across the Chinese regions gives:

$$p_{GDP} = 0.02 + 0.49 g_m - 0.82 (e_{nm}) \quad r^2 = 0.70$$

The coefficient on  $e_{nm}$  is significantly negative so that the slower employment growth outside manufacturing industry, the faster overall productivity grows. This study of China is supported by the work of Guo et al. (2012), who conclude: '[our] study validates Kaldor's laws in the regional economies of China ... the strong emphasis on the manufacturing sector has now proven to accelerate the growth of GDP and living standards in regions where the sector is concentrated'.

Kaldor's first and second laws have recently been confirmed in two major studies of a cross-section of 63 middle- and high-income countries over the period 1990–2013 (Marconi et. al., 2016), and a panel of 29 developing countries in Africa, Asia and Latin America over the period 1975–2005 (Di Meglio et al., 2015). In the former study, the relationship between manufacturing growth, productivity growth and GDP growth is particularly strong in middle-income countries, which include the newly industrializing countries of Southeast Asia. The study also confirms the importance of manufacturing exports in driving manufacturing growth and economies as a whole (see also Pacheco-López and Thirlwall, 2014). The latter study also finds that some service sectors, such as business services with their use of knowledge and technology, may also act as an engine of growth where industrialization is faltering, particularly in some Asian countries.

The complete Kaldor model of the relationship between industrial growth and the development process also contains a number of subsidiary propositions. First, as the scope for absorbing labour from diminishing returns activities dries up, the overall growth of GDP will slow down. The successful newly industrializing countries in Southeast Asia will not go on growing at close to 8% per annum forever. Second, there is the question of what determines the rate at which industry grows in the first place. In the early stages of development, it must be demand coming from the agricultural sector because this is what dominates the economy. In the later stages of development, however, it is export demand that drives the system. The internal market is often too small to reap economies of scale, and selling to the home market does not provide the foreign exchange to pay for necessary imported inputs. The most successful developing countries are those that have geared themselves to export markets. The third proposition is that the fast growth of exports and output can set up a **virtuous circle of growth** that other countries will find difficult to break into without exceptional enterprise or protection. This can lead to polarization between countries, which is the essential feature of the centre–periphery models of growth and development, which will be discussed in Chapter 10.

Finally, there is the big policy question of how developing countries bring about structural change in favour of industrial activities if growth and development are to be accelerated. Should everything be left to market forces, or is there a role for government? The late Cambridge



development economist Ajit Singh tells the story of when he first went to Cambridge University as a student of Kaldor in the 1960s, Kaldor taught him three things: first, developing countries must industrialize; second, they can industrialize only by protection; and third, anyone who says otherwise is being dishonest. It is indeed worth remembering that none of today's developed countries developed on the basis of free trade. All countries protected and promoted their infant industries in one way or another (see Chang, 2002; Reinert, 2007). And it is a myth, of course, that the highly successful countries of Southeast Asia have developed on the basis of minimalist state intervention and simply allowed markets to work freely (Wade, 1990). In Japan, South Korea, Singapore and other 'Asian tigers', there has been heavy state involvement in the promotion of industry, often working through the banking system. The issue is not *whether* to protect, but *how* to protect and promote industry while preserving efficiency and international competitiveness. These are issues that will be addressed when we turn to the topic of trade and development in Chapter 15.

## Summary

- Poverty and underdevelopment of poor countries are associated with many characteristics that combine to keep labour productivity low.
- The economic structure of poor countries tends to be dominated by low-productivity agriculture and petty service activities. Still over 50% of the labour force in many poor countries live and work in the rural sector where value-added per head is barely US\$2 a day.
- Levels of saving and investment are low in poor countries because poor people naturally lack the capacity to save, and investment can be risky.
- Poor countries tend to have higher rates of population growth than rich countries and while this can confer some benefits, it can cause major difficulties by depressing saving, putting pressure on food supplies and the environment, and adding to unemployment.
- Some poor countries suffer the 'curse of natural resources'. Mineral and oil production can lead to corruption and rent-seeking behaviour and keep the exchange rate high, making the production and export of other goods uncompetitive.
- Unemployment is high in poor countries because there are limited employment opportunities on the land, and the growth of alternative employment opportunities is constrained by a lack of investment. Rural–urban migration exacerbates unemployment in the cities.
- The distribution of income tends to be more unequal in poor countries than rich, and also in power relations between sections of society. There is very often discrimination on the grounds of gender, religion, race and ethnic origin.
- Countries pass through stages of development – what Rostow describes as traditional, transitional, take-off, maturity, and high mass consumption. Many poor countries are still in the transitional or early take-off stages. Certain preconditions must be met for full take-off including: an agricultural revolution; investment in infrastructure; the emergence of leading sectors in the economy; saving and investment of at least 10% of GDP; and an institutional structure conducive to risk-taking and investment.
- Countries grow fast and living standards rise when resources shift into industrial activities, because manufacturing industry experiences considerable static and dynamic returns to scale. This is the experience of history and the contemporary experience of the fast-growing countries of the world today (Kaldor's growth laws).

## Chapter 3

## Discussion questions

1. What are the major reasons why some countries are rich and others poor?
2. What is the importance of the distinction between diminishing returns activities and increasing returns activities?
3. Why have economists identified a certain ratio of investment to GDP as a necessary condition for self-sustaining growth?
4. What are the causes of growing urban unemployment in developing countries?
5. What is meant by 'income measure' of unemployment?
6. Why is the distribution of income more unequal in developing countries than in developed countries?
7. What major structural changes take place in a country during the course of development?
8. What contribution does Rostow's stage theory make to an understanding of the development process?
9. What accounts for the fact that a close association exists between industrial growth and the growth of GDP?
10. What is the difference between static and dynamic returns to scale?

## Notes

1. 'Net' in the sense of making an allowance for investment to cover depreciation of worn-out plant and machinery.
2. For pioneering studies of structural change, see Chenery and Syrquin (1975) and Chenery et al. (1986). For a more recent assessment, see Naqvi (1995).
3. Setting  $g = x$ , and solving for  $x$  gives:  $2.529/(1 - 0.394) = 4.17\%$ .
4. An alternative explanation of Kaldor's first law of growth in an open economy is that export growth drives GDP growth, and export growth is faster, the faster the growth of manufacturing output (Pacheco-López and Thirlwall, 2014). The importance of export growth for overall growth is discussed in Chapter 15.

## Websites on structural change and income distribution

## Labour market statistics

International Labour Organization <http://laborsta.ilo.org>

## Income distribution

University of Texas, Inequality Project [utip.gov.utexas.edu](http://utip.gov.utexas.edu)

UNU-WIDER [www.wider.unu.edu/project/wiid-%E2%80%93-worldincome-inequality-database](http://www.wider.unu.edu/project/wiid-%E2%80%93-worldincome-inequality-database)

Stone Center on Socio-Economic Inequality [www.gc.cuny.edu/stonecenter](http://www.gc.cuny.edu/stonecenter)