10

DUALISM, CENTRE–PERIPHERY MODELS AND THE PROCESS OF CUMULATIVE CAUSATION

Introduction

It is easy to argue that poverty and backwardness are due to a general shortage and inefficient use of the key factors of production; it is much harder to determine precisely why there should be a dearth of some factors and an abundance of others, and why development may be a slow and lengthy process. It is certainly impossible to explain current international discrepancies in the level of development with reference to *initial* differences in factor endowments. The present development gap in the world economy has arisen largely through industrial development in certain selected areas of the world, which, in turn, has generated its *own* factor endowments. The purpose here, however, is not to consider why some countries were able to industrialize sooner than others, but rather to consider some of the mechanisms through which divisions in the world economy, and unequal advantage between developed and developing countries, are perpetuated.

First, the **dualistic structure** of developing countries will be considered. Then we shall examine Gunnar Myrdal's model of the process of **circular and cumulative causation**, which can be applied to regions and countries alike (Myrdal, [1957] 1963). We shall see that Myrdal's model is one of many that can be used to understand the perpetuation of the development gap and divergences between North and South or between the 'centre' (industrialized) countries and the 'periphery' (primary producing) countries.

The pioneering models of Raúl Prebisch and Nicholas Kaldor will be examined in this context, and their similarities emphasized. We will then discuss the **new economic geography**, which has links with the model of cumulative causation, and the role of geographic factors that seem to be associated with divisions in the world economy. Finally, we shall briefly discuss models of **unequal exchange** and **dependency**, which emphasize alternative institutional and economic mechanisms making for international inequality in the world economy.

Dualism

The term 'dualism' describes a condition in which developing countries usually find themselves in the early stages of development, which can have implications for the future pattern and pace of development. There are a number of possible definitions and interpretations of 'dualism', but the term is used mainly to refer to the economic and social divisions in an economy, such as differences in the level of technology between sectors or regions, differences in the degree of geographic development, and differences in social customs and attitudes between the rural and urban sectors of developing countries.

Dualism in all its aspects is a concomitant of the growth of a money economy, which, as we saw in Chapter 5, may either arise naturally as a result of specialization or be imposed from outside. Basically, therefore, a dual economy is characterized by a difference in social customs between the subsistence and exchange sectors of the economy, by a gap between the levels of technology in the rural subsistence sector and the industrial monetized sector, and often by a gap in the level of per capita income between regions of a country if the money economy and industrial development are geographically concentrated. In fact, it is not unusual for **geographic**, **social** and **technological dualism** to occur together, with each type of dualism tending to reinforce the other. Also, the more 'progressive' sectors typically have favourable access to scarce factors of production, which is a major cause of the persistence of dualism. **Urban bias** plays an important part in this process (Lipton, 1977).

The first question to ask is: What development problems does the existence of dualism pose for an economy, and how can dualism impede and retard development? As far as **social dualism**

is concerned, the obstacles are similar to those presented by a traditional society with no modern exchange sector at all. The task is one of providing incentives in the subsistence sector and drawing the subsistence sector into the money economy. The fact that the indigenous subsistence sector may be reluctant to alter its traditional way of life and respond to incentives is not peculiar to a dual economy. It is therefore true that underdevelopment tends to be associated with social dualism, but it would be misleading to regard social dualism as an underlying *cause* of backwardness and poverty. It is difficult to argue that development would be more rapid in the absence of a monetary sector, from which the existence of dualism stems. Even if the growth of the exchange sector makes little impact on attitudes in the indigenous sector, it is difficult to envisage any progress without the growth of the money economy. In short, it seems more realistic to regard social dualism as an inevitable consequence of development rather than as a basic cause of underdevelopment itself.

Similar reservations can be raised over whether it is accurate to describe **technological dualism** as a cause of underdevelopment. As with social dualism, it is probably more realistic to regard it as an inevitable feature of the development process. Two disadvantages are commonly associated with technological dualism. The first is that where technological dualism is the result of a foreign enclave, a proportion of the profits generated in the industrial sector will be remitted to the home country, reducing the level of saving and investment below what it might have been. The second disadvantage is more fundamental, but difficult to avoid. If in the rural, or non-monetized, sector of the economy, production processes are characterized by labour-intensive techniques and variable technical coefficients of production, while production processes in the industrial, technologically advanced sector are capital-intensive and possess relatively fixed technical coefficients, it is possible that the technology of the industrial sector may impede the progress of the rural agricultural sector. First, relatively fixed technical coefficients (that is, a low elasticity of substitution between factors) means that labour can be absorbed from agriculture into industry only as fast as the growth of capital, and second, capital intensity itself will restrict employment opportunities in the industrial sector, contributing to urban unemployment and perpetuating underdevelopment in the rural sector. Hence, productivity growth in the agricultural sector, which is recognized as being necessary to establish a secure basis for take-off into sustained growth, may be slowed down.

It is true that if the technology of the modern sector (imported or otherwise) does embody fixed technological coefficients, it may be difficult for an economy to use the socially optimum combination of factors, but this disadvantage must be weighed against the favourable impact on productivity stemming from the more advanced technology. If capital accumulation and technical progress, and the development of an industrial sector – in addition to agricultural development – are essential for raising the level of per capita income, it is difficult to see how technological dualism can be avoided, at least in the early stages of development. The best that can be done is, first, to encourage the widespread application and rapid assimilation of technical progress throughout all sectors of the economy, and, second, to ensure the 'proper' pricing of factors of production to prevent the introduction of a technology that may be profitable to private individuals but does not maximize the returns to society at large because factor prices do not adequately reflect relative factor endowments. But even a technology that is socially optimal in this sense may not be the technology that provides the soundest basis for sustained growth in the long run. The question of the choice of techniques was discussed in detail in Chapter 6, and the issue of the 'social' pricing of factors of production can be found on this book's website (www.palgravehighered.com/Thirlwall-Econ-Of-Dev-10e).

The process of cumulative causation

The hypothesis of cumulative causation as an explanation of the backwardness of developing nations is associated with Gunnar Myrdal ([1957] 1963), the well-known Swedish economist who won the Nobel Prize for Economics in 1974. Basically, it is a hypothesis of **geographic dualism**, applicable to nations and regions within nations, which can be advanced to account for the persistence of spatial differences in a wide variety of development indices, including wage rates, per capita income, employment growth rates and levels of unemployment. As such, the process of cumulative causation is a direct challenge to static equilibrium theory, which predicts that the working of economic and social forces will cause spatial differences to narrow.

Myrdal ([1957] 1963) contends that, in the context of development, economic and social forces produce tendencies towards *disequilibrium*, and that the assumption in economic theory that disequilibrium situations tend towards equilibrium is false. If this were not so, how can we explain the tendency for international and regional differences in living standards to widen? Thus, Myrdal replaces the assumption of stable equilibrium with what he calls the hypothesis of **circular and cumulative causation**, arguing that the use of this hypothesis can go a long way towards explaining why international differences in levels of development, and interregional differences in development within nations, may persist and even widen over time.

Myrdal ([1957] 1963) first considers the hypothesis in the context of a geographically dual economy, describing how, through the mechanisms of **labour migration**, **capital movements** and **trade**, the existence of dualism not only retards the development of backward regions but can also slow up the development of the whole economy. To describe the process of circular and cumulative causation, let us start off with a country in which all regions have attained the same stage of development, as measured by the same level of per capita income, or by similar levels of productivity and wages in the same occupations. Then assume that an exogenous shock produces a disequilibrium situation, with development proceeding more rapidly in one region than another. The proposition is that economic and social forces will tend to strengthen the disequilibrium situation by leading to cumulative expansion in the favoured region at the expense of other regions, which then become comparatively worse off, retarding their future development.

Gunnar Myrdal

Born 1898, Skattungbyn, Sweden. Died 1987. Politician, economist and prolific writer in several fields of economics. One of the architects of the Swedish welfare state in the 1930s. His early work in macroeconomics anticipated Keynes' *General Theory*. In development economics, best known for his challenge to equilibrium theory, and the notion of 'circular and cumulative causation', in books such as *An American Dilemma: The Negro Problem and Modern Democracy* (1944) and *Economic Theory and Underdeveloped Regions* (1957). Also wrote a massive three-volume tome, *Asian Drama: An Inquiry into the Poverty of Nations* (1968). Awarded the Nobel Prize for Economics, 1974.

This contrasts with neoclassical equilibrium theory, which assumes that, through the process of factor mobility, wage rates and the rate of profit will equalize across regions. According to neoclassical theory, in places where labour is scarce and capital is abundant, labour will flow in and capital will flow out, thus reducing wages and raising the rate of profit, while in less prosperous areas where labour is abundant, labour will flow out and capital will flow in, raising wages and reducing the rate of profit.

In contrast, what Myrdal ([1957] 1963) has in mind is a type of multiplier–accelerator mechanism producing increasing returns in the favoured region. Instead of leading to equality, the forces of supply and demand interact with each other to produce cumulative movements away from spatial equilibrium. Since the wage level is the basic determinant of per capita income, let us take the example of wages and wage differences to illustrate the kind of process that Myrdal has in mind. Take two regions, *A* and *B* (for example, northern and southern Italy), and assume that wages are determined by supply and demand, as in Figures 10.1 and 10.2.

Suppose to start with that wage levels are identical in the two regions, that is, $W_A = W_B$. Then assume that a stimulus of some sort causes the demand for labour, and therefore wages, to rise in region *A* relative to region *B*; that is, the demand curve for labour in region *A* shifts to D_1D_1, causing wages to rise to W_{A1}. Since labour tends to respond to differences in economic opportunities of this sort, the wage discrepancy may be assumed to induce labour migration from region *B* to region *A*. Equilibrium theory then predicts that there will be a tendency for wage levels to be equalized once more through a *reduction* in labour supply in region *B* from *SS* to S_1S_1 and an

Figure 10.1 Region *A*

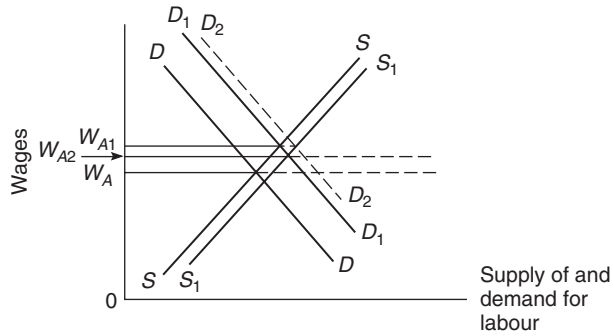
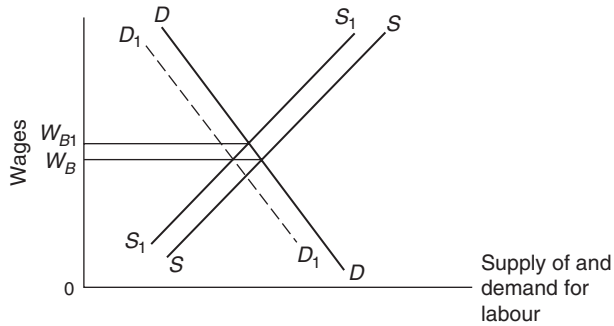


Figure 10.2 Region *B*



increase in labour supply in region *A* from *SS* to S_1S_1, giving a wage in region *A* of W_{A2}, equal to a wage in *B* of W_{B1}.

According to the hypothesis of cumulative causation, however, changes in supply may be expected to react on demand in such a way as to counteract the tendency towards equilibrium. Migration from region *B* denudes the area of human capital and entrepreneurs, and depresses the local demand for goods and services and factors of production, while movements into region *A*, on the other hand, will tend to stimulate enterprise and the demand for products, adding to the demand for factors of production. In short, migration from region *B* will cause the demand curve for labour to shift to the left, say to D_1D_1, and migration into region A will cause the demand curve for labour to shift further to the right, say to D_2D_2, causing the initial wage discrepancy at least to persist, if not widen (if the shifts in demand are greater than those assumed). Thus, once development differences appear, a chain of cumulative expansion in the favoured region is set in motion, and this has what Myrdal ([1957] 1963) calls a **backwash effect** on other regions, causing development differences in general to persist or even diverge.

Capital movements and **trade** also play a part in the process of cumulative causation. In a free market, capital, like labour, will tend to move to where the prospective return is highest, and this will be to the region where demand is buoyant (not necessarily the region where the wage is lowest, as in neoclassical theory). Capital, labour and entrepreneurship will tend to migrate together. The benefits of trade will also accrue to the host region. Regions within a nation using a common currency cannot have balance of payments difficulties in the normal sense, but the maintenance of employment depends on the ability to export, otherwise unemployment will appear. If production is subject to increasing returns, the region experiencing the rapid growth of factor supplies will be able to increase its competitive advantage over the relatively lagging regions containing smaller scale industries, and increase its real income accordingly. In this same way, the general freeing and widening of international markets and the expansion of world trade will tend to favour the more rapidly growing regions within nation-states.

The impact of immigration into the expanding region is also likely to induce improvements in transport and communications and education and health facilities, improving efficiency and productivity and widening still further the competitive advantage of the growing region over the lagging regions experiencing emigration of the factors of production.

Such is the potential strength of the backwash effects of the process of circular and cumulative causation that Albert Hirschman (1958), eminent development economist, once suggested that lagging regions may possibly be better off if they became sovereign political states. If a lagging area was an independent 'country', the mobility of factors of production could be more easily controlled, competition between the leading and lagging regions could be reduced, each region could more easily concentrate on producing goods in which it possessed a comparative cost advantage, separate exchange rates could be fixed for the two regions, and regions could more easily protect themselves.

Despite these potential advantages of nationhood for a backward region, Hirschman (1958) argues against sovereignty because he believes that the forces making for the interregional transmission of growth are likely to be more powerful than those making for 'international' transmission.

Hirschman (1958) recognizes, however, the continued existence of backwash effects and argues that, to offset them, a nation that is concerned with developing its backward regions should provide certain equivalents of sovereignty, such as a separate tax system and the right to protect certain activities. Policies must be designed to reduce what he calls the **polarization effects** of interregional differences in development and to strengthen the **trickle-down effects**. The 'trickle-down' effects are the favourable repercussions on backward regions emanating from expanding regions, which Myrdal ([1957] 1963) calls **spread effects**. These trickle-down or spread

effects consist mainly of an increased demand for the backward areas' products and the diffusion of technology and knowledge. In Myrdal's view, the spread effects are weaker than the backwash effects, and if interregional differences are to be narrowed, nations must rely on state intervention through regional policies. The only alternative is to wait for a natural end to the process of cumulative causation.

A time must eventually come when increasing costs in the expanding region will halt expansion. The higher costs of living, and the external diseconomies produced by congestion, will ultimately outweigh the benefits of greater efficiency and higher money returns to the factors of production. The process of migration will then be halted, and possibly reversed. This stage has now been reached in some developed countries. The question for governments with certain growth and welfare objectives is whether they can afford to let the process take its natural course, and to tolerate the inequalities that may arise before the process ends. High levels of inequality can lead to negative social, economic and political consequences that have a destabilizing effect on societies, causing insecurity and social unrest. In practice, governments in many advanced countries have taken active steps for many years to redress regional imbalances, and this is one reason why regional disparities tend to be less in advanced countries than in developing countries. In developing countries, however, Myrdal ([1957] 1963) was of the view that, far from lessening regional inequalities, the state has been a positive force in their persistence: 'In many of the poorer countries the natural drift towards inequalities has been supported and magnified by built-in feudal and other inegalitarian institutions and power structures which aid the rich in exploiting the poor.' This is still true in many poor countries today.

Regional inequalities

The international cross-section evidence on regional inequalities, and time-series evidence for individual countries, suggests that the degree of inequality follows an inverted U-shaped curve; that is, regional inequalities first rise with the level of development and then decrease. This pattern is not hard to explain. Very poor countries are uniformly poor. Regional differences then first emerge as a result of some favourable shock to one region or set of regions – for example an export enclave or the establishment of industrial activities. Once a difference has emerged, it will tend to be widened by the processes already described. In the early stages of development, migration from poor to richer regions will tend to be selective because only those with skills and education will be able to afford to migrate. Capital will tend to locate in the more dynamic region(s). Spread effects emanating from prosperous regions will be weak, owing to a general lack of political and economic integration.

The factors that accentuate differences in the early stages of development, however, will tend to weaken with time as countries get richer:

- migration will become less selective
- the spread effects will become more powerful
- industrialization will tend to spread and the size of the agricultural sector shrink
- external diseconomies of expansion and congestion in expanding regions will worsen, curbing capital and labour migration from poor to rich regions
- governments may also attempt to rectify imbalances through the implementation of regional policies.

The empirical evidence shows that regional disparities in output and income per head are much more unequal in developing countries than in developed countries.

Shankar and Shah (2003) look at trends in regional inequality over time in 14 developing countries and find inequalities increasing – or moving up an inverted U-shaped curve. Rodriguez-Pose and Gill (2006) also show this in a study of India, China and Mexico since 1980, and find that the growth of regional inequalities is significantly related to the shift of trade from primary to manufactured exports. This trade effect is greater, the larger the share of trade in GDP and the greater the shift. Regional inequalities continue to rise in India – see Case example 10.1.

Case example 10.1 **Regional disparities in per capita income in India**

India comprises 28 states and 4 union territories. There are huge regional differences in living standards measured by per capita income, ranging from 12,000 rupees a year in Bihar (the poorest state) to nearly 100,000 rupees per capita in Goa. These are the product of history and past growth experience.

Regional differences in living standards can have serious implications for the economic and political functioning of national economies. Inflationary pressure in prosperous regions can spread to poorer regions reducing real living standards. Political resentment can arise and disillusionment with the political process, leading to social unrest.

Over the period 1999–2011, regional disparities in India have widened, as measured by the standard deviation of per capita incomes, from 0.18 to 0.23 (see Chapter 2 for how standard deviation is measured). The growth of these divisions is related mainly to the higher share of agriculture in the poorer regions, the faster growth of population, and the lower rate of investment in physical and human capital. What is happening in India is supportive of Myrdal's model of circular and cumulative causation, and bodes ill for the large percentage of the Indian population that lives in the poorest states where life is already wretched.

Source: Cherodian and Thirlwall, 2015.

The experience of developing countries contrasts with what is happening in most developed countries, including the USA and the European Union. In the USA, Barro and Sala-í-Martin (1992) show that a process of regional per capita income convergence has been going on over the past 100 years. Taking personal income data, they find an inverse relation across US states between the average growth of per capita income over the period 1880–1988 and the initial (1880) level of per capita income. Only two subperiods, 1920–30 and 1980–88, show evidence of divergence.

In Europe, the evidence is more mixed. Across the regions of Europe, there is some evidence of per capita income convergence in the postwar years up to 1980, but not thereafter. Regional unemployment rate differences, however, both within Europe as a whole and within industrial countries, have remained very stubborn. Fagerberg and Verspagen (1996) took 70 regions in six EU countries and showed income convergence up to 1980, but not since. The authors argued that the scope for convergence is not exhausted, but other factors in the 1980s pushed towards divergence, particularly differences in unemployment and the R&D effort between industrial and agricultural regions.

Indeed, it appears to be the case from a further study by Fagerberg et al. (1996) that regional differences in per capita income are systematically related to differences in unemployment rates. They took 64 regions in Germany, France, Italy and Spain over the period 1980–90 and found

that the growth in poor regions was hampered by unfavourable industrial structure and weak R&D effort. There was evidence of convergence, but only after allowing for differences in industrial structure, R&D effort, population density and migration. Interestingly, labour migration was found to have a strong positive impact on per capita income growth, indicating that migration was disequilibrating during this period. The policy implications are that the predominance of agriculture is a barrier to growth in poor regions, mainly because the scope for scale economies and R&D is less than in industry. Greater regional balance requires structural change in favour of industrial activities, but this, in turn, requires an appropriate physical infrastructure and the provision of human capital.

International inequality and centre–periphery models

The process of circular and cumulative causation is also used by Myrdal ([1957] 1963) in an attempt to explain **widening international differences** in the level of development from similar initial conditions. Through the mechanisms of labour migration, capital movements and trade, international inequalities are perpetuated in exactly the same way as regional inequalities within nations. Myrdal argues that, through trade, the developing countries have been forced into the production of goods, notably primary products, with inelastic demand with respect to both price and income. This has put developing countries at a grave disadvantage compared with developed countries with respect to balance of payments and availability of foreign exchange. Moreover, with the tendency for the efficiency wage (that is, the money wage in relation to labour productivity) to fall in faster-growing areas relative to other areas, developed countries have gained a cumulative competitive trading advantage, especially in manufactured commodities. Myrdal, of course, is not alone in this view, and we shall elaborate below on other models that stress the unequal gains and balance of payments effects of trade as the main mechanisms through which international differences in development are perpetuated, including the contribution of the new economic geography pioneered by Krugman (1991).

Williamson argues, in his book *Trade and Poverty: Why the Third World Fell Behind* (2013), that divergence in the world economy between 'centre' and 'periphery' coincided with globalization in the nineteenth century that led to increased specialization of manufacturing industry in Europe and the USA, combined with increased specialization in primary products in the rest of the world. In the periphery, industrialization was thwarted by the rent-seeking behaviour of landowners, and price and income volatility slowed its growth compared to the 'centre'. Trade benefited the centre at the expense of the periphery.

In the case of capital movements, Myrdal ([1957] 1963) argues in the same vein; because the risks associated with investment tend to be higher in developing countries, the natural tendency will be for developing countries to be net exporters of capital. In practice, because of the large volume of capital from international lending organizations, and the favourable tax treatment of foreign direct investment, developing countries are generally net importers of long-term capital, although the short-term capital account tends to be adverse. The fact remains, however, as Lucas (1990) points out, that capital flows mainly to regions already rich. With regard to foreign direct investment, the richest countries receive over 80% of flows, while the poorest countries (excluding China) receive less than 5%.

The potential weakness of Myrdal's hypothesis at the international level concerns the effects of labour migration. The international migration of labour from developing to developed

countries can have beneficial as well as harmful effects on backward economies. The greatest deleterious effect on backward economies is the obvious one of possible loss of human capital, although even here, if the human capital is unemployed, migration may not be a serious loss. But it is not only the skilled and educated that may be induced to leave their native lands. Unskilled labour may also respond to the existence of better employment opportunities elsewhere. If it is argued that developing countries suffer from underemployment, and that productivity is low owing to surplus labour, the emigration of unskilled labour could be a substantial benefit to developing countries. It is possible, for example, that emigration has helped to raise per capita income in some countries, such as Mexico, Pakistan and Bangladesh, while improving the balance of payments through remittances by emigrants to their home countries. Migrant remittances now amount to over $500 billion a year, exceeding the level of official development assistance to developing countries (see Chapter 15). In this important respect, generous immigration policies in developed countries can provide a valuable means of development assistance.

Even so, any potential gain from unrestricted labour mobility is unlikely to offset the international backwash effects arising from trade and international capital movements. Even with unrestricted migration, therefore, there would still be a tendency for international differences in the level of development to widen through trade and the free movement of capital. The existence of international spread effects gives no reason for modifying this conclusion. International spread effects are relatively weak – certainly weaker than the spread effects within nations.

What, then, should be our verdict on the hypothesis of cumulative causation? Given that the hypothesis assumes free trade and free mobility of the factors of production, it perhaps contains more force with respect to interregional differences in development within countries than international differences between countries. On the other hand, it cannot be dismissed lightly when discussing the development gap in the world economy. In view of the fact that there has been no tendency in the recent past for international per capita income levels to converge (see Chapters 2 and 4), the hypothesis is not refuted by the evidence. In particular, the present international trading and payments position of developing countries does not inspire confidence that the total gains from trade between developed and developing countries are distributed equitably (see Chapters 15 and 16).

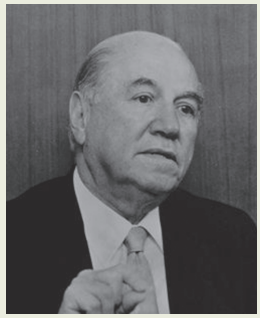
The contribution of the hypothesis of cumulative causation to an understanding of development and underdevelopment is its emphasis on economic and social development as a cumulative phenomenon and, more important, its challenge to static equilibrium theory; that is, that regions or nations that gain an initial advantage may maintain that advantage to the detriment of development elsewhere. At its root is the phenomenon of increasing returns, defined broadly as the accumulation of productive advantages of the type discussed in Chapter 6 relating to how societies progress technologically.

Two models of 'regional' growth rate differences: Prebisch and Kaldor

While the Myrdal model of centre and periphery emphasizes the process of cumulative causation working through increasing returns and competitiveness in favoured regions, other centre–periphery models stress the balance of payments implications of the particular pattern of

production and trade between rich and poor countries, which arise from the fact that industrial goods produced and traded by rich countries have a higher income elasticity of demand than goods produced and traded by poor countries. One of the earliest models, powerful in its simplicity, is that of Raúl Prebisch, well-known Argentinian economist (1901–86).

Raúl Prebisch



Born 1901, Tucuan, Argentina. Died 1986. Argentina's most famous economist; mixed economics and politics on the national and international stage. Architect and first president of the Central Bank of Argentina in his early thirties; first director of the Economic Commission for Latin America, 1948, and first secretary-general of UNCTAD, 1964. 'Father' of Latin American structuralist thinking; worked tirelessly for a fairer deal for poor countries in the world trading system. First to document, with Hans Singer, the historical decline in terms of trade of primary commodities: the Prebisch–Singer thesis.

The Prebisch model[1]

Consider a two-country, two-commodity model in which the advanced centre produces and exports manufactured goods with an **income elasticity of demand**[2] greater than unity, and the backward periphery produces and exports primary commodities with an income elasticity of demand less than unity. Let us suppose that the income elasticity of demand for manufactures (e_m) is 1.3, and the income elasticity of demand for primary commodities (e_p) is 0.8. Assume to start with that the growth rates of income of both centre and periphery are equal to 3%, that is, $g_c = g_p = 3.0$. What will be the growth of exports (x) and imports (m) in the centre and periphery? For the centre, we have:

$$x_c = g_p \times e_m = 3.0 \times 1.3 = 3.9\%$$

$$m_c = g_c \times e_p = 3.0 \times 0.8 = 2.4\%$$

and for the periphery, we have:

$$x_p = g_c \times e_p = 3.0 \times 0.8 = 2.4\%$$

$$m_p = g_p \times e_m = 3.0 \times 1.3 = 3.9\%$$

With imports growing faster than exports in the periphery, this is not a sustainable position, unless the periphery can finance an ever-growing balance of payments deficit on the current account by capital inflows. If it cannot, and balance of payments equilibrium on the current account is a requirement, there must be some adjustment to raise the rate of growth of exports or reduce the rate of growth of imports. Now suppose we rule out the possibility that relative

prices measured in a common currency (or real exchange rate) can change as an adjustment mechanism, the only adjustment mechanism left (barring protection) is a reduction in the periphery's growth rate to reduce the rate of growth of imports in line with the rate of growth of exports. From the model, we can solve for the necessary growth rate of the periphery to keep trade balanced. On the assumptions outlined, we must have $m_p = x_p$ or $g_p e_m = x_p$ and therefore:

$$g_p = \frac{X_p}{e_m} = \frac{2.4}{1.3} = 1.846$$

Thus, the growth rate of the periphery is constrained to 1.846%, compared with 3% in the centre. In these circumstances, both the relative and the absolute gap in income between periphery and centre will widen. Notice, in fact, that since the growth of the periphery's exports is equal to $g_c \times e_p$, we can write the above equation as:

$$g_p = \frac{g_c \times e_p}{e_m}$$

and dividing through by g_c, we reach the interesting result that the relative growth rates of the periphery and centre will equal the ratio of the income elasticity of demand for the two countries' commodities:

$$\frac{g_p}{g_c} = \frac{e_p}{e_m}$$

This result will hold as long as current account equilibrium on the balance of payments is a requirement, and relative price adjustment in international trade is either ruled out as an adjustment mechanism to rectify balance of payments disequilibrium or does not work. To avoid the consequences of this model, Prebisch (1959) argued the case for protection and import substitution, which, in effect, is a policy to reduce e_m, which for the periphery is the propensity to import manufactured goods. We reserve discussion of the relative merits of protection until Chapter 15 on trade policy.

Kaldor's model of regional growth rate differences

It is possible to combine the ideas of Myrdal with the insights of Prebisch in a single model, which focuses on the role of export growth in the development process in an open economy and in which the Prebisch result emerges as a special case if relative prices are fixed and trade is balanced. Kaldor's model (1970) is applicable to regions and open developing economies alike.[3] It takes as its starting point the not unreasonable assumption that the output of an open economy is demand-determined, not supply-constrained, and that it is the long-run growth of autonomous demand that governs the long-run rate of growth of output. The main component of autonomous demand in an open economy is, in turn, demand coming from outside the region; that is, the demand for the region's exports. The model is a variant of **export-base models of development**, which stress the importance of exports as a leading sector. The hypothesis is that once a region obtains a growth advantage, it will tend to sustain it at the expense of other regions because faster growth leads to faster productivity growth (the so-called **Verdoorn effect**, see Chapter 3), which keeps the region

competitive in the export of goods that gave the region its growth advantage in the first place. Success breeds success, and failure breeds failure. In this section, attention will be confined to outlining the model. An examination of the international evidence of the relation between the growth of exports and the growth of output in developing countries will be left until Chapter 15.

Let:

$$g_t = \gamma(x_t) \tag{10.1}$$

where g_t is the rate of growth of output in time t, x_t is the rate of growth of exports in time t, γ is the (constant) elasticity of output with respect to export growth ($= 1$ if exports are a constant proportion of output) and t is time. Apart from the theoretical considerations underlying the specification of equation (10.1), that the rate of growth of the economy as a whole will be governed by the rate of growth of autonomous demand, there are a number of practical considerations that make export demand for highly specialized regions (or countries) extremely important for demand and supply. For most industries in a region, local demand is likely to be trivial compared with the optimum production capacity of the industries. The viability of regional enterprise must largely depend on the strength of demand from outside the region.

There are also a number of important reasons why export demand may be a more potent growth-inducing force than other elements of demand, especially in open, backward areas – regions or countries:

1. Exports allow regional specialization, which may bring dynamic as well as static gains.
2. Exports permit imports, and imports may be important in developing areas that lack the capacity to produce development goods themselves.
3. If the exchange of information and technical knowledge is linked to trade, exporting facilitates the flow of technical knowledge, which can improve the area's supply capacity.

Now let us consider the determinants of export demand and the form of the export demand function. It is conventional to specify exports as a multiplicative (or constant elasticity) function of relative prices measured in a common currency and foreign income. Thus:

$$X_t = \left(\frac{P_{dt}}{P_{ft}}\right)^{\eta} Z_t^{\epsilon} \tag{10.2}$$

where X is the quantity of exports in time t, P_d is the domestic price in time t, P_f is the foreign price measured in domestic currency in time t, Z is foreign income in time t, η is the price elasticity of demand for exports (< 0) and ε is the income elasticity of demand for exports (> 0). Taking logarithms of the variables and differentiating with respect to time gives:

$$x_t = \eta(p_{dt} - p_{ft}) + \varepsilon(z_t) \tag{10.3}$$

where the lower-case letters represent the rates of growth of the variables. The rate of growth of income outside the region (z) and the rate of change of competitors' prices (p_f) may both be taken as exogenous to the region. The rate of growth of domestic (export) prices will be endogenous, however. Let us assume that prices are formed on the basis of a constant 'mark-up' on unit labour costs, so that:

$$P_{dt} = \left(\frac{W}{R}\right)_t (T_t) \tag{10.4}$$

where P_d is the domestic price, W is the level of money wages, R is the average product of labour and T is 1+ percentage mark-up on unit labour costs. From equation (10.4), we can write:

$$p_{dt} = w_t - r_t + \tau_t \tag{10.5}$$

where the lower-case letters stand for the rates of change of the variables.

The model becomes 'circular and cumulative' by specifying the growth of labour productivity (r) as partly a function of the growth output itself (Verdoorn's law). If the function is linear, we may write:

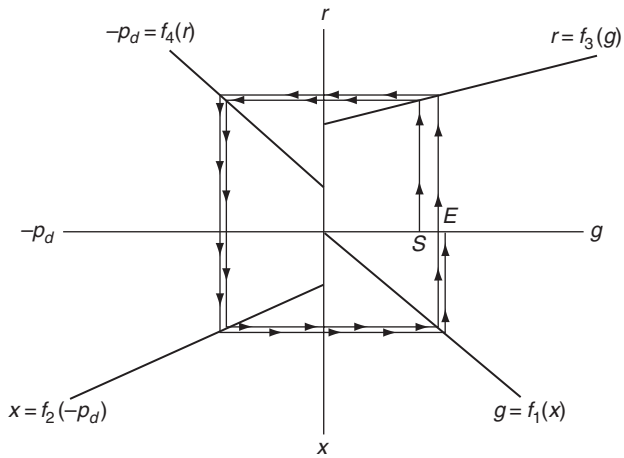
$$r_t = r_{at} + \lambda g_t \tag{10.6}$$

where r_{at} is the rate of autonomous productivity growth at time t, and λ is the Verdoorn coefficient (> 0). Equation (10.6) provides the link between exports and growth via productivity growth and prices. Fast export growth leads to fast output growth, and fast output growth leads to fast export growth by making goods more competitive. Combining equations (10.1), (10.3), (10.5) and (10.6) to obtain an expression for the equilibrium growth rate gives:

$$g_t = \frac{\gamma[\eta(w_t - r_{at} + \tau_t - p_{ft}) + \epsilon(z_t)]}{1 + \gamma\eta\lambda} \tag{10.7}$$

Remembering that $\eta < 0$, the growth rate is shown to vary positively with r_a, z, ε, p_f, z and γ, and negatively with w and τ. The effect of η is ambiguous since it appears in both the numerator and the denominator of the equation. It is clear that it is the assumed dependence of productivity growth on the growth of output that gives rise to the possibility that once a region obtains a growth advantage, it will keep it. Suppose, for example, that a region obtains an advantage in the production of goods with a high income elasticity of demand (ε), which causes its growth rate to rise above that of another region. Through the so-called 'Verdoorn effect', productivity growth will be higher, the rate of change of prices lower (other things being the same) and the rate of growth of exports (and hence the rate of growth of output) higher and so on. Moreover, the fact that the region with the initial advantage will obtain a competitive advantage in the produc-

Figure 10.3 Convergent–divergent growth



tion of goods with a high income elasticity of demand will mean that it will be difficult for other regions to establish the same activities. This is the essence of the theory of cumulative causation, of divergence between 'centre' and 'periphery' and between industrial (developed) and agricultural (developing) regions (countries). Figure 10.3 illustrates the model graphically.

The distance of each of the linear functions from the origin reflects factors affecting each variable other than the variable specified in the functional relation. From the initial condition, *S*, the growth rate is shown converging to its equilibrium value *E*, as determined in equation (10.7).[4] The link that the Verdoorn relation provides between exports and growth via productivity and prices, and its sustaining influence, is clearly seen. And the greater the dependence of productivity growth on the growth of output (that is, the higher λ), the higher the equilibrium growth rate will be and the greater the divergence between regional growth rates for given differences between regions in the other variables and parameters.

An important implication of the model we have developed is that an autonomous shock will not be sufficient to raise a lagging region's growth rate *permanently* unless the autonomous shock favourably affects the parameters and variables of the model, or is a sustained shock. On these grounds, the relevance of policies of devaluation in a national context, or wage subsidies in a regional context, for improving a region's growth rate may be called into question. What is likely to be required is **structural change**, in particular structural change to improve the demand characteristics of exports. It is recognition of this point that accounts, among other things, for the emphasis placed by developing countries on industrialization and the restructuring of world trade to provide their manufactured goods with easier access to world markets (see Chapter 15).

Note that it is also a property of the model that if relative prices measured in a common currency do not change (that is, $p_{dt} - p_{ft} = 0$), then export growth is determined solely by income growth outside the region or country, and equation (10.7) would reduce to:

$$g_t = \gamma\varepsilon(z_t) \tag{10.8}$$

and if balanced trade is a requirement so that the growth of imports (m) is equal to the growth of exports ($m = x$), we have:

$$g_t\pi = \varepsilon(z_t) \tag{10.9}$$

where π is the income elasticity of demand for imports.

Thus, with relative prices fixed, the growth elasticity with respect to exports (γ) in equation (10.1) must equal the reciprocal of the income elasticity of demand for imports (π) in a balanced trade model such as Prebisch's. Again, we end up with the simple rule that one country's growth rate (g) relative to that of others (z) depends on the ratio of the income elasticity of demand for the country's exports relative to its imports (or the other country's exports in a two-country model), that is, from equation (10.9):

$$\frac{g_t}{z_t} = \frac{\varepsilon}{\pi} \tag{10.10}$$

At the country level, there is substantial empirical support for this simple growth rule, which is discussed more fully in Chapter 16 in connection with the balance of payments and economic development. This growth rule is also known in the literature as **Thirlwall's**

Nicholas Kaldor

Born 1908, Budapest, Hungary. Died 1986. Lecturer and Reader at the London School of Economics 1931–49; then a Fellow of King's College, Cambridge from 1950 and Professor of Economics from 1966. Economic adviser to three British chancellors of the exchequer between 1964 and 1979; tax adviser to many developing countries. Joint architect with Joan Robinson, Richard Kahn and Luigi Pasinetti of post-Keynesian growth and distribution theory, and strong critic of neoclassical equilibrium economics. Famous for his sectoral approach to explaining why growth rates differ between countries. Given a peerage in 1974 as Baron Kaldor of Newham in the city of Cambridge.

law, and **Krugman's 45-degree rule**, after Thirlwall first showed how well the model fitted the growth experience of many countries in the postwar years, and Paul Krugman (1989) showed independently that relative price changes have not been an efficient balance of payments adjustment mechanism and that countries' growth rates relative to others have been equiproportional to the ratio of the income elasticities of demand for imports and exports.[5]

The new economic geography

The **new economic geography**, pioneered by Krugman (1991, 1995, 1998), who received the Nobel Prize in Economics for his contribution, is also an attempt to explain the geographic pattern of economic development between countries, and between regions within countries, in terms of **centripetal forces**, which lead to industrial concentration, and **centrifugal forces**, which lead to industrial dispersal. In this sense, there is an affinity with the cumulative causation model of Myrdal, but in the new economic geography, distance and transport costs play a key role.

There is always a tug of war between centripetal forces, which promote geographic concentration of activities, and centrifugal forces, which oppose it. The centripetal forces, acting as magnets for activity, are mainly the different types of external economies associated with the size of markets and linkages between activities, labour market externalities (pools of skilled labour) and pure externalities such as knowledge spillovers. The centrifugal forces, resisting concentration, are factors such as the immobility of factors of production, high rents in concentrated areas, and pure external diseconomies, such as congestion costs.

Within this framework, the emergence of a 'centre' and 'periphery', and shifts in the geographic pattern of development, can be explained in terms of the changing balance between the pull of the market on the one hand and transport costs on the other. As in the Myrdal model, consider first two identical regions. If transport costs are very high, each region will be more or less self-sufficient. Activity will be widely dispersed serving local markets because it is too costly to transport inputs and outputs elsewhere.

Now suppose that transport costs start to fall. It becomes more economical for some regions to supply the needs of others. Those regions with some small initial advantage, as a result of geography or historical accident, will tend to capitalize on that advantage, exporting to the less favoured region and driving out business. Activity becomes concentrated in a core (or centre), leaving a run-down

'periphery' with only agricultural and service-type activities. A small initial difference between regions leads to a much larger difference in outcomes through the forces of cumulative causation based on external economies associated particularly with market size (**agglomeration economies**). At the regional level, Italy is a good case study. When the railway was introduced and transport costs fell, this made it possible for the factories of northern Italy to supply the needs of less competitive southern Italy, causing the heavy concentration of industrial activity in the north and deindustrialization of the south.

The periphery, however, will tend to have low production costs, particularly low wage costs because of high unemployment and underemployment. At some point, if transport costs fall even more, it may become economical to shift production from the centre to the periphery because low production costs now outweigh the cost of transport to the market. This is one important reason why, in recent years, there has been a major shift of the world's manufacturing base from the core of Europe and North America to the periphery of Southeast Asia.

This set of ideas outlined above helps to explain the historical evolution of divisions between regions and countries of the world, which can spontaneously emerge with better communications, and then go into reverse when transport costs fall even lower (Krugman and Venables, 1995). It is not, however, an equilibrium world; it is an ever-changing world in which economic development in some regions or countries may be precluded altogether.

The World Bank's (2009) *World Development Report 2009: Reshaping Economic Geography* is devoted to this topic and argues that even though in the present circumstances of the world economy, economic growth will be unbalanced (leading to divergence), development can still be inclusive but governments must promote integration through spatially connective infrastructure, spatially targeted incentives and appropriate institutions. The disadvantaged regions (countries) are those that are too small to reap internal and external economies of scale and to attract investment in labour-intensive manufacturing specializing in some part of the productive chain.

Attempts have been made to quantify the impact of distance and transport costs on the level and growth of per capita income of countries across the world, as well as the effect of other geographic variables (e.g. Gallup et al., 1998). Looking at a map of the world by income, two striking relationships are apparent:

1. Countries located close to the sea have higher per capita incomes (PCY) than landlocked countries.
2. Countries located in the tropics are poorer than countries outside the tropics.
3. A third fact (although not visible) is that the coastal, temperate regions of the northern hemisphere have the highest income per square kilometre (km) of land (i.e. PCY $\times$ population density).

The regions of North America, Western Europe (and parts of East Asia) that lie within 100 km of the sea contain 13% of the world's population and produce 32% of the world's output of goods and services. The explanation lies in the factors discussed above. Regions near the sea have lower transport costs so they can benefit from greater trade and specialization, and the greater densities of population lead to agglomeration economies and increasing returns. Today, the fastest-growing developing countries have based their growth on labour-intensive manufactured exports located in coastal regions.

Gallup et al. (1998) run regressions across a large sample of countries of the level and growth of PCY against several geographic variables, including:

- the percentage of land in the tropics
- the proportion of the population within 100 km of the coast
- the minimum distance of a country to one of three core 'regions' (New York, Rotterdam and Tokyo)
- the incidence of malaria

- transport costs of a country, measured (imperfectly) as the difference between the cost of imports free on board and their cost including insurance and freight charges.

The level of PCY is found to be negatively related to location in the tropics, malaria, distance and transport costs; and positively related to the proportion of the population close to the sea. The growth of income (holding other variables constant such as education, trade openness) is shown to be 0.9 percentage points (p.p.) less in tropical countries than non-tropical countries; 1.2 p.p. less in countries severely affected by malaria; and 1.0 p.p. less in landlocked countries compared with coastal countries. Distance also significantly reduces growth if the trade openness variable is excluded from the equations.

Given these findings, it is hardly surprising that Africa has some of the poorest and most stagnant economies in the world. Geography is stacked against it.

Theories of dependence and unequal exchange

Apart from the ideas of circular and cumulative causation and balance of payments constrained growth, there are also a number of theories and models in the Marxist tradition (many originating from Latin America and France) concerned with **dependency**, **exploitation** and **unequal exchange**. These theories attempt to explain the perpetuation and widening of the differences between centre and periphery, and may be regarded as complementary to, and an integral part of, the mechanisms we have been discussing. For example, part of the dependency and unequal exchange relation is related to the characteristics of trade; but there are many other important dimensions to the argument:

- the dependence of the periphery on foreign capital and the expropriation of the surplus by the centre
- the dependence on foreign technology
- terms of trade deterioration
- mechanisms that reduce real wages in developing countries to below what they would otherwise be
- various sociocultural aspects of neocolonialism that thwart the drive for independence and self-reliance.

Pioneer Marxist writers in this tradition include Theotonio dos Santos, Paul Baran, Gunder Frank, Samir Amin and Arghiri Emmanuel. It should be emphasized at the outset that dependency theory cannot easily be tested empirically; rather, it is designed to provide a framework of ideas to accommodate the many aspects and features of the functioning of the world capitalist economy and the many types of dominance and dependency.

Dos Santos (1970) defines dependence thus:

> by dependence we mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected. [The relation is such that] some countries (the dominant ones) can expand and can be self-sustaining, while others (the dependent ones) can do this only as a reflection of expansion, which can have either a positive or a negative effect on their intermediate development.

Unequal development must be seen as an integral part of the world capitalist system. Inequality is inevitable because development of some parts of the system occurs at the expense of others. The monopoly power over trade that is exercised by the centre leads to the transfer of the economic surplus from the dependent countries to the centre, and financial relations that are based

on loans and the export of capital by the centre ultimately lead to reverse flows and strengthen the position of the dominant country in the dependent country.

Different forms of dependence can be distinguished, as they have evolved historically:

1. C**olonial dependence**, based on trade and the exploitation of natural resources.
2. **Financial–industrial dependence**, which consolidated itself at the end of the nineteenth century and has geared the economic structure of dependent nations to the needs of the centre.
3. **Technological–industrial dependence**, a new type of dependence that emerged from 1945 based on multinational corporations, which began to invest in industries geared to the internal market of developing countries.

Dos Santos (1970) argues that each of these forms of dependence has so conditioned the internal structure of peripheral countries, that this itself has become part of the dependency relation; for example, the highly dualistic structure, the income inequality and conspicuous consumption of the wealthy classes, a dependency mentality and the ingrained habit of seeking outside help, and the unholy alliance between the domestic ruling elite and foreign interests all conspire to impede internal development. Thus, dos Santos (1973) maintains that dependency is not simply an external phenomenon; it also has to do with the supportive power groups within the poor countries themselves who find the status quo profitable:

> if dependency defines the internal situation and is structurally linked to it, a country cannot break out of it simply by isolating herself from external influence; such action would simply provoke chaos in a society which is of its essence dependent. The only solution therefore would be to change its internal structure; a course which necessarily leads to confrontation with the existing international structure.

Baran (1957), Frank (1967) and Amin (1974) focus their attention more squarely on the traditional Marxist mechanisms by which capitalism in general, and international capitalism in particular, aid the rich in exploiting the poor. Emphasis is placed on the expropriation and transfer of the surplus produced by labour to the owners of capital, which operates at different levels. Think of a cone, the base of which represents the rural poor producing a surplus from their labours in the fields or down the mines. This surplus is first siphoned off by those in the provincial towns, by small employers and merchants. In turn, the wealth of these towns is sapped by the capital cities, and finally, part of this wealth is siphoned away by foreign investors, who repatriate it to the apex of the cone – the rich world. The multinational corporations are seen as the modern instrument for the expropriation of surplus value. Neo-Marxists allow for a residue of surplus, but argue that if it is reinvested in the periphery or left in the hands of local elites, it will not be used appropriately for development purposes. As in dos Santos's model, the system hinges on the collaboration of the governing elite who live in the capital city, who think like, and identify with, their ex-colonial masters. So, poor countries, despite formal political independence, remain locked into an old system of economic dependence that perpetuates underdevelopment.

For Frank (1967), like dos Santos, underdevelopment is a natural outcome of the world capitalist system since the development of some countries inevitably means the distorted development or underdevelopment of others. Development itself perpetuates underdevelopment, a process that Frank has called **the development of underdevelopment**. Frank sees the origins of the process in colonization, which started as a form of economic exploitation and has distorted the economic structure of developing countries ever since. Developing countries were forced into the position of being suppliers of raw materials to industrial countries, thus effectively blocking industrial development in the primary producing countries themselves. The whole export orientation and foreign dominance of

these countries has limited the growth of the domestic market and the establishment of basic national industries for widespread development throughout the whole economy. The international, national and local capitalist systems alike generate economic development for the few and underdevelopment for the many. The solution would appear to be nothing short of social and political revolution.

Unequal exchange

The theory of unequal exchange owes its name to Arghiri Emmanuel (1972). Exchange is unequal between rich and poor countries because wages are lower in poor countries, and lower than if the rate of profit in poor countries was not as high as in rich countries. In other words, exchange is unequal in relation to a situation where wages would be equalized: 'Inequality of wages as such, all other things being equal, is alone the cause of the inequality of exchange' (Emmanuel, 1972). Let us illustrate the model diagrammatically and show its affinity with the ideas of those who stress the terms of trade as the main mechanism through which the gains from exchange are unequally distributed. Let us take two countries and call them 'centre' (c) and 'periphery' (p). Assume that prices in the two countries are based on a percentage mark-up (r) on unit labour costs, so that:

$$P_c = w_c\left(\frac{L}{O}\right)_c\left(1 + r_c\right)$$

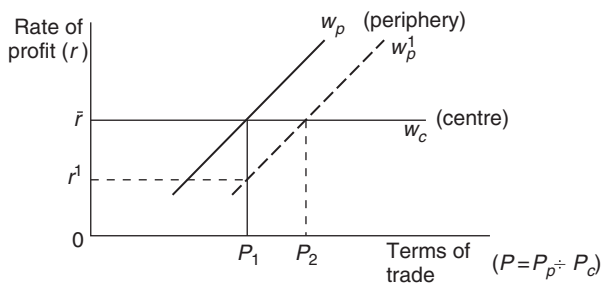
and:

$$P_p = w_p\left(\frac{L}{O}\right)_p\left(1 + r_p\right)$$

where w is the money wage rate, and wL/O is wage costs per unit of output. Now assume that for institutional reasons $w_c > w_p$ and that the mark-up or rate of profit equalizes between the two countries. The theory of unequal exchange says that because of this, the terms of trade will be worse for the periphery than if wages in the periphery were higher and the rate of profit lower. This can be illustrated diagrammatically, taking the price of the centre's goods as the *numéraire*, so that $P_c = 1$ (see Figure 10.4).

In the centre, the given rate of profit ($\bar{r}$) and wage rate (w_c) give a constant price (P_c), which acts as *numéraire* (hence the horizontal line, w_c). In the periphery, at a given wage (w_p), there is a positive relation

Figure 10.4 The theory of unequal exchange



between the rate of profit and terms of trade (P), given by the upward-sloping line w_p. The equilibrium terms of trade is given at P_1. An increase in periphery wages shifts the periphery curve rightwards to w_p^1, giving a new terms of trade, P_2, at the same rate of profit. Unequal exchange is measured as the difference between the actual terms of trade (P_1) and what it would be if wages were higher in the periphery and the rate of profit was lower at r[1]. The 'explanation' of unequal exchange is unequal wage rates.

The model does not get us very far, however, without understanding why there are wage differences between centre and periphery. In Emmanuel's model, the wage differences are institutionally determined outside the model, whereas in practice, there are many factors that impinge on wage differences within the model itself that need consideration. Moreover, money wage differences may not be the only factor leading to unequal exchange. If money wage differences between centre and periphery reflect differences in labour productivity, the terms of trade between periphery and centre will not be nearly as bad as suggested by money wage differences alone. Indeed, if differences in money wages are exactly matched by differences in productivity, there will be no difference in money wage costs per unit of output and no difference in relative prices 'caused' by differences in money wages. There can still be unequal exchange in the Emmanuel sense by virtue of the way Emmanuel (1972) defines the concept, but if the cause of low wages is low productivity, it is not a simple institutional matter to raise them.[6]

On the other side of the coin, if there is no good reason why the rate of profit should equalize between the two countries, a higher rate of profit in the centre could be an independent source of unequal exchange between centre and periphery, and also an explanation of why wages are depressed in the periphery. If account is taken of the characteristics of the goods produced by the centre and periphery – manufactured goods in the centre subject to decreasing costs, and primary commodities in the periphery subject to increasing costs – we can predict that oligopolistic structures will develop in the centre, while competitive structures will prevail in the periphery, with a tendency, therefore, for the rate of profit to be higher in the centre. The lower rate of profit in the periphery, and the attempt by capitalists to keep up the rate of profit in the face of competition, leads to the depression of wages in classic Marxist style.

Summary

- Disparities in living standards between countries of the world cannot be explained by initial (God-given) differences in factor endowments (natural resources) between countries. Through time, the process of growth has generated its own factor endowments favouring some countries more than others.
- Geographic differences in living standards between countries and between regions within countries are referred to as 'geographic dualism'.
- Within most developing countries, there are other forms of dualism. There is 'social dualism' between how individuals behave and how markets function in the rural subsistence sector on the one hand and the modern capitalist sector on the other. There is 'technological dualism', relating to differences in the level of technology and differences in techniques of production between the rural and modern sectors of the economy.
- Orthodox theory argues that when economic and social differences arise between sectors or regions, forces will come into play to narrow the differences. That is the equilibrium story.
- Myrdal's theory of circular and cumulative causation is a challenge to static equilibrium theory. In particular, in the case of geographic dualism, he argues that the process of labour migration, capital movements and trade tend to widen regional and country differences in income and welfare, by benefiting the already prosperous regions at the expense of the poorer regions.

- Structural differences between regions and between countries play a big part in the process of cumulative causation. The basis of Prebisch's centre–periphery model is that the periphery specializes in primary products with unfavourable demand characteristics in world markets and declining terms of trade, while the centre specializes in higher value-added industrial and service activities.
- The export-led growth model of Kaldor has cumulative features, which shows how once a region or country gets an advantage in the production and export of particular goods with favourable characteristics, it will sustain it through the impact that growth has on induced productivity growth and competitiveness (Verdoorn's law).
- The new economic geography pioneered by Krugman shows how centripetal forces (which work towards the spatial concentration of industrial activities) and centrifugal forces (which work towards dispersal) depend on the balance between transport costs of importing inputs and exporting output on the one hand, and increasing returns to geographic specialization (agglomeration economies) on the other.
- The dependence of poor countries on the rich is another explanation given for divisions in the world economy. Dependency theorists focus on various forms of exploitation of poor countries by rich ones: in the old days by colonialism, and today by industrial and financial imperialism. Multinational corporations are criticized for siphoning off profits from the periphery to the centre, and the world's banking system is attacked for serving the needs of global finance rather than global development. Trade can also lead to unequal exchange through a deterioration in the terms of trade between primary commodities and industrial goods.

Chapter 10 Discussion questions

1. What do you understand by the terms 'technological dualism', 'social dualism' and 'geographic dualism'?
2. Is dualism avoidable in the development process?
3. In what ways might dualism impede the functioning of the total economy?
4. In what senses is Myrdal's theory of circular and cumulative causation a challenge to static equilibrium theory?
5. What are the mechanisms through which the process of circular and cumulative causation work?
6. If backward regions suffer 'backwash' effects from regions of expansion, would they be better off as sovereign states?
7. What is the so-called 'Verdoorn effect' and what is its importance in the process of circular and cumulative causation?
8. What do the centre–periphery (or North–South) models by Prebisch, Dixon and Thirlwall, and Kaldor all have in common?
9. How does distance, and transport costs, affect the geographical pattern of economic development?
10. What are the various 'Marxist' explanations of the divergence between rich and poor countries?
11. What do you understand by the theory of unequal exchange?

Notes

1. First hinted at in Prebisch (1950) and developed in Prebisch (1959).
2. The income elasticity of demand for goods measures the proportionate change in demand for a good with respect to a proportionate change in income, holding other things constant.
3. The model is discussed more fully in Dixon and Thirlwall (1975) and Thirlwall (2014).
4. Under certain circumstances, the growth rate may not converge to its equilibrium level. This depends on the behaviour of the model out of equilibrium. See Dixon and Thirlwall (1975).
5. Krugman, however, reverses the direction of causation. In the model presented here, it is differences in income elasticities that determine differences in growth rates, while in Krugman, it is unexplained differences in growth rates that cause divergences in income elasticities. For a comprehensive review and discussion of the models, see McCombie and Thirlwall (1994, 2004) and Soukiakis and Cerqueira (2012).
6. Within this framework, movements in the terms of trade can be seen as the outcome of differences in the movement of productivity on the one hand and whether money wage changes fully match productivity changes on the other. If money wage increases fail to match productivity increases in the periphery, for example, so that real wages do not rise as fast as productivity, whereas they do in the centre, there will be a steady deterioration in the terms of trade of the periphery. This is the essence of the Prebisch argument (see Chapter 15).