1. Introduction

1.1 WHY WORK?

Work is central to one’s life. Through work, one earns a living wage to support a certain lifestyle and, for many, a family as well. It is true that one can tide over a period of unemployment through various means in order to maintain some semblance of a normal quality of life: by drawing down on current assets – the result of accumulation of past savings; by turning to the state for financial support if welfare payments are made in the event of job loss; or by turning to friends, relatives and other community support systems. But that period of unemployment cannot be prolonged. When joblessness becomes a long-term experience, economic hardship generally sets in unless the welfare system provides a cushion indefinitely. So, generally, one needs to hold a job in order to sustain a certain type of consumption activity and to enjoy a circle of social relationships.

But work does not bring only pecuniary rewards. There are many non-pecuniary rewards as well. One’s self-esteem, for example, tends to be very much tied up with one’s ability to tackle the challenges that the workplace throws up. There is a sense of accomplishment that comes from being able to size up a problem and to marshal the available resources to solve the problem. When one’s contribution to solving a problem at work is acknowledged, even if only tacitly, it boosts self-confidence and encourages greater initiative. Even when a particular kind of job is mundane, the worker feels a sense of self-worth from earning the bread he eats. Another benefit of work is that it gives a certain structure to one’s life. Work helps us to organise our time. Many goals that we set are work-related and these serve to give us a sense of purpose as we begin each new day. When we are absorbed in our work, time flies. On the other hand, there is a certain listlessness that accompanies prolonged joblessness. Many meaningful relationships are also developed at our workplace. This is partly due to the fact that the production process in modern enterprises is a collaborative effort requiring teamwork. As we work along with colleagues to achieve common goals and contribute jointly to problem-solving, we develop a social bond and a sense of belonging that are important for our emotional health.

There are external benefits from gainful employment as well, especially
when that is the normal experience of most of the members of a community or country. A child growing up in such a community is motivated to work hard at school, believing that it is a common experience to land a suitably-paid job with the educational qualification he or she attains. In such an environment, parents can teach their children that personal achievement and financial independence can be attained through hard work by personal example or by pointing to other models in the community. When other members of one’s community are largely employed and can afford a broadly similar pattern of consumption, there are also common facilities – a good library, a common garden and so on – that they can share and feel a shared responsibility to protect. In an environment where income disparities are not too large, it is more likely that there will be a healthy respect for property rights and property crimes would be correspondingly lower.

Since work, as just argued, holds such a central position of importance in one’s life, the loss of a job, especially when it leads to long-term unemployment, has severe consequences not only for the worker concerned but also for others. The loss of a regular source of income means that the consumption sets of the worker and his dependents are reduced, perhaps substantially, requiring the forgoing of certain consumption items that it might have been normal to have possessed prior to unemployment. In countries where there are no state-mandated unemployment benefits as is the case in the East Asian economies, workers who lose their jobs draw down their past savings or turn to relatives and friends in order to provide the basic necessities of life such as paying for their children’s education. The enjoyment of various leisure activities such as a holiday abroad would now be deemed to be extravagant. Family members would have to adjust to a lower standard of living.

Initially, when a worker is laid off, there may be a hope that the period of job loss is only temporary. However, as each job application and job interview turn out to be unsuccessful, a mood of pessimism and general boredom set in. Clark and Oswald (1994), in their study of 6000 British workers in 1991, show that mental stress is twice as high among the unemployed as among those who have work. Interestingly, they find that the worst thing about becoming unemployed is not the drop in take-home income; it is the non-pecuniary distress (see Oswald, 1997). Relationships become strained when one is enveloped in a cloud of defeatism. Other family members bear the brunt of the unemployed worker’s frustration and the quality of family relationships generally suffers. This is accentuated by the fact that a deep sense of helplessness sometimes leads to alcoholism, gambling and drug-taking. The health of the unemployed worker also suffers. Research has shown that there is a positive relationship between unemployment and poor health. After controlling for the effects of
smoking and animal fat consumption, both of which increase the risk of heart disease, Brenner (1987) found a positive association between unemployment and increased heart disease mortality in nine industrialised countries between 1954 and 1978 (cited in Kates, Grieff and Hagen, 1990).\(^1\)

When joblessness is concentrated in a particular geographical area, there could be adverse community effects as well, extending beyond the family. These manifest themselves in higher crime rates and a preponderance of drug-related problems and prostitution. The plight of children in such an environment in South-east Asia has been highlighted recently in the wake of the Asian financial crisis. Piriyarangsan (1999) reports on the findings of a study on the poor and the unemployed in Thailand done by the Northeast Development Association. One finding is that as a result of the increased incidence of joblessness brought about by the economic crisis in 1997, children were found to be at greater risk of committing drug-related crimes and of being subject to sexual abuse.

### 1.2 A GENERAL-EQUILIBRIUM MODEL OF JOBLESSNESS

The economist can contribute to our understanding of joblessness – how it is determined and what factors influence the amount – by developing a macroeconomic model of unemployment. In this book, we adopt a particular approach to the general-equilibrium determination of the natural rate of unemployment. The basic idea goes back to Phelps (1968), where an incentive-wage (or efficiency-wage) story is used to generate a labour-market equilibrium locus exhibiting job rationing under correct expectations. Using some notations, suppose that \( W \) is the log of nominal wage being set, \( W_{-1} \) is the log of nominal wage set last period, \( W^e \) is the expected wage, and \( \phi(u) \) is a function of the unemployment rate, \( u \). Then, we can write the Phillips curve as:

\[
W - W_{-1} = \phi(u) + W^e - W_{-1}.
\]

Under correct expectations, where \( W = W^e \), we have a value of \( u \), denoted \( u^* \), that makes the function \( \phi(u) \) equal to zero. This value, \( u^* \), is in general non-zero and we call it the natural rate of unemployment.

The original Phelps (1968) paper generated the \( \phi(u) \) function by drawing upon a quitting or labour-turnover story in a monetary setting. Salop (1979) did away with the monetary complications and worked instead with a non-monetary model of the natural rate of unemployment. In that model, newly hired employees receive firm-specific training, which is a form
of investment undertaken by the firms. However, these trained employees are prone to quit to find employment elsewhere for pecuniary and non-pecuniary reasons. In order to combat quitting, each firm reasons that up to a point an increase in its own wage, given wages expected elsewhere, can lower the quit rate sufficiently to make the saving on training of replacements cover the higher cost. Since all firms think likewise, no firm will actually create a wage premium over its competitors in a symmetric equilibrium scenario. Instead, the economy-wide wage is bid up above the level that corresponds to market-clearing thus resulting in unemployment. A feature of the unemployment thus generated is that it is involuntary in the sense that identical workers who are unemployed cannot go to the firm and promise to work for it at a lower than prevailing wage. The firm would reckon that at the lower wage the apparently similar worker offers to work, his quit propensity would be higher. That could not be an optimal trade-off for the firm since it had already chosen the wage to reach an optimum on its wage-quitting opportunity locus.

In more familiar terms, the choice of the optimal wage by firms under correct expectations leads to a wage curve that is upward-sloping in the employment rate–real wage plane. At the optimum, the cost saving per employee from raising the real wage by one unit is exactly equal to one. In the convenient case of a constant marginal training cost, say \( T \), this cost saving is equal to \( T \) multiplied by the marginal decline in the quit propensity. This condition pins down a unique size of the real wage differential, which, following Calvo (1979), we can write as \( w - w^e \), where \( w^e \) is the real wage expected elsewhere. If we approximate \( w^e \) by \( (1 - u)w \), that is, the wage offered elsewhere adjusted by the probability of obtaining a job (proxied by the employment rate), it is immediately clear that as the employment rate rises (or unemployment rate declines) the real wage must rise to generate the optimal wage differential. Thus we obtain a positively-sloped wage curve.

General equilibrium in the stationary state with a zero rate of time discount is obtained by positing a downward-sloping labour demand curve that is juxtaposed against the upward-sloping wage curve. A tighter labour market induces higher quits, which makes the wage that the firm can afford to pay fall. In the constant-returns-to-scale case with no capital, this fact alone is enough to generate a downward-sloping labour demand curve.

There are three comments that can be made about the basic model of the endogenous natural rate model just sketched. Firstly, the model, in focusing on the stationary state, does not give adequate attention to the role played by the real interest rate. This shortcoming is corrected to some extent in Hoon and Phelps (1992), which provides a more complete analysis of the intertemporal problem solved by the firm. A whole book-length
treatment has now been supplied by Phelps (1994), which puts the real rate of interest at centre stage in the analysis of the long swings of economic activity.

Secondly, the quitting or labour-turnover story is not the only one that generates a wage curve that is serviceable for a general-equilibrium analysis of equilibrium unemployment. A rather parallel story comes from the shirking or supervision perspective. In this model, supervision of workers is costly and there is an upper bound on the type of punishment that can be meted out on workers for substandard performance. A worker who is caught shirking on the job can be suspended or fired but typically imprisonment or cash fines are not feasible. The firm instead uses wages as an incentive device. In this model, market clearing cannot be an equilibrium since workers would then face zero cost from being caught shirking and losing their job – they will simply be rehired in another firm. There would be rampant shirking at full employment. As in the quitting story, each firm raises its wage above the market-clearing level. In a symmetric equilibrium, no firm succeeds in creating a relative wage improvement. Instead, equilibrium unemployment results. A fully micro-theoretic model of the shirking story is provided by Shapiro and Stiglitz (1984), which supplies us with a wage curve that is also called a no-shirking constraint.

Yet another approach to the modelling of the labour market, providing a wage curve, rests on the bargaining power of workers (see Mortensen and Pissarides, 1998). This power comes from the fact that it is costly for the firm to find replacement for workers who decide to leave. The amount of bargaining power a worker has depends on the attributes of the job. Apart from job characteristics, however, labour-market conditions have an effect on workers’ bargaining power. The firm will find it more difficult to find a suitable replacement when the labour market is tight, at a low rate of unemployment. This in turn will increase the bargaining power of employed workers, who will then be able to secure higher wages. It is much easier to find good replacements when the unemployment rate is high. In this situation employed workers have less bargaining power, and they may be forced to settle for lower wages. Such an argument leads, once again, to the existence of an upward-sloping wage-setting curve in the employment rate–real wage plane.

Thirdly, notice that the labour demand curve is derived from a one-good aggregative model under the assumption of perfect competition. In fact, a much richer specification of product market conditions can give rise to a demand–wage relation that we can juxtapose against the wage curve. This includes the consideration of multi-sectors and the possibility of imperfect competition in the product market. Thus, we open for consideration a much wider set of factors – the relative price structure, the size of the
market, and the degree of product-market competition, for example – that can affect the determination of the natural rate of unemployment.

In short, there is now a model of the equilibrium rate of unemployment involving product-market equilibrium and labour-market equilibrium. Our objective in this book is to use this model to study the role that trade plays in jointly determining the equilibrium amount of joblessness and workers’ remunerations. In doing so, we abstract from the short-run movements of the unemployment rate arising from expectational disequilibrium, and focus instead exclusively on the movements of the equilibrium rate of unemployment and real prices.

It should be pointed out, however, that although prolonged unemployment is an important source of poverty in many societies, and has many other negative consequences for both the affected workers as well as their families, the inability to earn more than a very low wage is thought to be another important source of poverty and is at the centre of both academic and policy interest in the advanced economies, especially in the USA. Two sorts of models emphasise the determination of absolute and relative pay levels of low-wage workers in a general-equilibrium framework. The first sort of model generates a wage premium between identical workers employed in two different sectors – a primary sector and a secondary sector – within a dual labour market set-up. The other sort of model introduces workers with different skill levels. In the simplest set-up, there are only two types of workers – high-skilled and low-skilled workers. The wage premium between the two types of workers is endogenously determined.

1.3 WHY TRADE?

Once we have a model of the equilibrium rate of unemployment, we want to know what the economic factors are that determine the amount of joblessness and wages that prevail in a country. Trade is clearly one major shock that would have an effect on an economy’s structure of relative commodity prices unless the country is so large that total exports and imports are a negligible share of its gross domestic product. (This statement should be qualified. As we show in a model in Chapter 5, even when no trade flows actually occur, the increased product–market competition in an integrated world economy affects the wage that firms can afford to pay and consequently affects the natural rate.) Since trade affects the structure of relative prices in an economy – whether relative commodity prices or wages relative to product prices – an analysis using a model of the natural rate would show that the amount of joblessness as well as workers’ pay are both jointly affected by international trade.
It should not escape the reader’s attention that this is not the traditional view of unemployment determination in the international economics literature. The development of the field of international economics has proceeded very much along the micro/macro divide with pure trade theory studying the determination of relative prices and real factor rewards under full employment and open-economy macroeconomics studying, among other things, the determination of unemployment. Open-economy macroeconomics, however, treats the natural rate of unemployment as invariant and exogenous and so its focus is on cyclical unemployment – deviations from the natural rate. In pure trade theory, trade among nations, even though it affects real factor rewards through changing relative prices and enlarging the effective size of the market, has ultimately no effect on jobs. Since nations benefit from trade through changing the composition of the products it consumes and produces, there might be frictional unemployment resulting from a re-allocation of factors across sectors. In the medium to long term, however, the amount of joblessness is presumed, in standard trade theory, to be unaffected as workers displaced from a shrinking sector find employment in an expanding sector. The framework we develop, however, leads us to the conclusion that quite apart from frictional unemployment, there is a structural unemployment that is affected by trade. The framework also allows for the shocks typically studied in pure trade theory – policy shocks, technological shocks, terms of trade shocks and so on – to have an effect on aggregate equilibrium unemployment. It is plausible that over the medium to long term, such shocks in the global economy have large effects on structural unemployment and thereby have greater welfare significance than the shocks that are typically analysed in open-economy macroeconomics, which only produce cyclical movements of unemployment around an invariant natural rate.

The view that we need a theory of how international trade affects the natural rate of unemployment endogenously is fortified by the experience of the East Asian economies of Hong Kong, Singapore, South Korea and Taiwan, which turned to trade as part of their development efforts in the sixties. Despite the recent economic crisis that saw the unemployment rates in some of these countries go up sharply, it should be pointed out that the average decadal unemployment rates of the East Asian Newly Industrialising Countries (NICs) since the sixties actually underwent a steady decline. Data compiled by Fields (1984) show Singapore’s unemployment rate decline from 9.1 per cent in 1965 (the year it gained independence) to 3.5 per cent in 1980, South Korea’s unemployment rate decline from 8.2 per cent in 1963 to 4.1 per cent in 1981 and Taiwan’s unemployment rate decline from 6.3 per cent in 1955 to 1.3 per cent in 1981. At the same time, real wages have increased by three to four times over this period.
We would like to be able to interpret the steady decline of average joblessness together with a steady rise in real wages in these countries within the framework of a natural rate model and, in particular, will examine the Singapore experience in some detail in Chapter 2.

The basic approach of this book can be illustrated with a simple Ricardian model with two goods, \( X \) and \( Y \). Let the wage curve be represented by

\[
\frac{w}{p_x^\alpha p_y^{1-\alpha}} = h(1-u;z); \ h_{1-u} > 0,
\]

where the left-hand side of the equation gives the real consumption wage (the worker being assumed to have a Cobb–Douglas utility function with \( \alpha \) the share of the budget going to good \( X \) and \( 1 - \alpha \) the share going to good \( Y \)) and the right-hand side gives a function of the rate of employment (that is, one minus the rate of unemployment). The symbol \( z \) represents other factors that affect the wage curve. Note that it is the real consumption wage – what the wage can buy in terms of goods consumed – that matters to a worker, and that can be re-expressed as \( (w/p_x)(p_x/p_y)^{1-\alpha} \). In a closed economy with the Ricardian structure, both goods are produced. The zero-profit condition gives rise to

\[
w = \frac{p_x}{a_x} = \frac{p_y}{a_y},
\]

where \( a_x \) and \( a_y \) are the unit labour input requirements in sectors \( X \) and \( Y \), respectively. Equating the demand wage to the supply wage, we can derive a labour–market equilibrium locus relating the relative price, \( p_x/p_y \), to the rate of employment, \( 1-u \):

\[
a_x^{-1} \left( \frac{p_x}{p_y} \right)^{1-\alpha} = h(1-u;z).
\]

This is shown as the positively-sloped schedule in Figure 1.1.

Assuming that workers have identical Cobb–Douglas tastes, product–market equilibrium requires that

\[
\frac{p_x}{p_y} = \frac{a_x}{a_y}.
\]

We show this as a horizontal line in Figure 1.1. The intersection of the labour–market equilibrium locus and the product–market equilibrium locus gives the unique natural rate of unemployment.

Consider the effect of trade. Suppose, for simplicity, that under trade this is a small open economy that takes the world relative price, \( (p_x/p_y)' \), as given. If, without loss of generality, \( (p_x/p_y)' > (a_x/a_y) \), the country becomes
a net exporter of good $X$ and completely specialises in producing good $X$. In Figure 1.1, the line giving the world relative price lies above the autarkic relative price, with the result that the natural rate of unemployment declines as a result of trade. In terms of the production possibilities frontier diagram shown in Figure 1.2, we see that trade not only expands the consumption possibilities set (the conventional result) but it also shifts out the production possibilities frontier itself.

In the Ricardian model, the essential mechanism through which participation in international trade leads to a decline in the natural rate of unemployment, and consequently to an outward shift of the production possibilities frontier, is the increase in the stake of holding a job as the constant real product wage (that is, the wage in terms of the export good) earned by an employed worker now translates into a higher real consumption wage. The higher real consumption wage is obtained as the result of trade based upon comparative advantage, which ensures that the import good can be bought from abroad at a lower relative price than in autarky. As workers value their jobs more under trade, the incentive wage that firms are required to pay is equated to the demand wage that firms can afford to pay at a lower equilibrium rate of unemployment. In a two-country world where trade leads to complete specialisation, workers in both countries enjoy higher real purchasing power under trade despite the fact that their real product wages remain constant given the constant marginal (and
average) labour productivities. So the natural rate of unemployment declines in both countries.

The effect of trade on the natural rate of unemployment is, however, different in the Heckscher–Ohlin model where trade is based upon differences in relative factor endowments. In that model, the real product wage both in terms of the export good as well as the import good is increased under trade if the country is relatively labour abundant but is decreased if the country is relatively capital abundant. Consequently, regardless of how the worker divides his expenditure between the export and the import good, the real consumption wage is raised by international trade in the former but lowered in the latter. As work incentives are strengthened in the labour abundant country, trade lowers its natural rate; however, trade weakens work incentives in the capital abundant country, which therefore suffers a rise in its natural rate of unemployment.

In the Ricardian and Heckscher–Ohlin models, international trade affects work incentives through changing the relative goods price, lowering the natural rate in both participating economies in the former model but raising the natural rate in the capital abundant country in the latter model. With perfectly competitive goods markets, changes in the natural rate of unemployment brought about by trade are linked directly to changes in the relative goods price. Work in the trade area since the late seventies, however, suggests that international trade at a fundamental level enlarges the effec-
tive size of the market and increases the degree of product–market competition even in the absence of relative goods price changes. The larger market size has a positive effect on the consumption-based measure of a worker’s real factor reward through two channels: by increasing the range of the varieties of differentiated consumer products; and by increasing labour productivity, and hence, the real demand wage through having access to a wider range of intermediate inputs. By increasing the degree of product–market competition, the price–marginal cost mark-up is reduced, which translates once again into an increase in the real demand wage. In a set-up which abstracts from movements in the relative goods price, an enlarged market size and increased competition under trade lead unambiguously to a rise in the consumption-based measure of a worker’s real wage in all participating economies. This increases a worker’s stake in holding on to a job and consequently expands equilibrium employment in every trading nation.

When both relative factor endowment differences and the enjoyment of product diversity resulting from a larger effective market size form the basis for international trade, and when trade increases product–market competition in an imperfectly competitive setting, it is possible that trade will lower the natural rate in the capital abundant country as well, despite the job-depressing effect of the relative price movement it faces. To capture the various channels through which trade affects the natural rate of unemployment, it is useful to depict the general equilibrium in the Marshallian employment rate–real wage plane, where the natural rate is obtained at the intersection of a positively-sloped wage-setting curve and a horizontal real demand–wage relation. We represent the real supply wage, more generally, as

\[
\left( \frac{w}{p_x} \right)^s = h \left( 1 - u; \frac{p_x}{p_y}, z \right),
\]

and the real demand–wage relation as

\[
\left( \frac{w}{p_x} \right)^d = g \left( \frac{p_x}{p_y}, 1 + \mu, n_m \right).
\]

The real supply wage increases as the labour market tightens (unemployment rate falls) and the cost of being caught shirking decreases. Alternatively, as the unemployment rate falls, the bargaining position of the firm weakens and workers are emboldened to ask for higher wages. For a given wage in terms of good $X$, a rise in the relative goods price, $p_x/p_y$, translates into a higher real consumption wage. This makes workers value their jobs more and so be willing to accept a lower product wage at any rate of unemployment without shirking. Alternatively, the bargaining position of the
firm strengthens and they are able to force on workers a lower supply wage in terms of good $X$. In other words, an increase in $p_x/p_y$ shifts the wage-setting curve in Figure 1.3 to the right. In Chapter 6, workers are assumed to have a ‘love for variety’ utility function. Consequently, when the number of monopolistically competitive consumption goods is increased, workers value their jobs more as any given expenditure level can now be divided over a wider range of goods, which raises utility. We now include in $z$ the range of differentiated consumption goods. When that increases, the wage-setting curve shifts right.

The real demand wage increases with an increase in the relative goods price, $p_x/p_y$, if good $X$ is relatively labour-intensive but is inversely related to $p_x/p_y$ if good $X$ is relatively capital-intensive under Heckscher–Ohlin assumptions. It decreases when there is an increase in the size of the price-marginal cost mark-up, $1 + \mu$, which in the simple model of Chapter 5, is simply inversely related to the number of oligopolistically competitive firms. Greater international product–market competition implies a fall in the mark-up, which raises the real demand wage. Finally, in the model of Chapter 6, labour productivity is increased when the range of monopolistically competitive intermediate goods represented by $n_m$ is increased. Thus an increase in $n_m$ raises the real demand wage. Figure 1.3 is a useful diagram for thinking through how international trade affects the natural rate of unemployment in each trading nation.

**Figure 1.3 Marshallian employment rate–real wage diagram**
If we believe that the integration of an economy into the global goods market represents a major economic shock, the analysis presented in this book leads us to predict that trade has an influence on both the natural rate as well as the real factor rewards structure. Consequently, when an economy moves from autarky to free trade, the welfare effects of trade may be greater than what traditional trade theory with an exogenous natural rate would predict. The ability of Singaporean workers to buy a wide range of consumption goods with their pay had positive work incentive effects, and the ability of firms to buy a wide range of intermediate inputs raised the real demand wage that firms could afford to pay. Both channels acted to lower the natural rate. Moreover, in the sixties and early seventies, Singapore, as well as the other East Asian economies, relied on exporting labour-intensive products such as textiles, garments and simple assembly-line electronics into the world market, which added to labour demand and further reduced the natural rate. These channels may now play important roles in alleviating the unemployment problem of the newly-emerging economies, provided the international trading system remains open.

There is another channel through which international trade can affect the natural rate, based upon the recent findings of Coe, Helpman and Hoffmaister (1997) (see also Bayoumi, Coe and Helpman, 1996) that increased international trade by a nation allows it to enjoy substantial international R&D spillovers. The basic idea is that through foreign trade, and also through foreign investment, a nation is able to learn from its trading partners’ production methods, product design, organisational methods and product market conditions. In addition, trade flows provide a channel for follower-countries to copy foreign technologies in leader-countries and to adapt them for domestic use. According to this hypothesis, the decision of the East Asian economies to integrate with the world trading system in the sixties combined with the fact that they were then far behind the world knowledge frontier made it possible for these countries to experience significant technological catch-up. In this view, total factor productivity improvements occurred rapidly along with physical and human capital accumulation in the East Asian economies. Indeed, if we accept the Nelson–Phelps (1966) view that increased education enables economic agents to learn new technologies, the fact that human capital accumulation occurred at a tremendous pace in the East Asian economies particularly equipped them to learn from their trading partners. The high productivity growth experienced by these small open economies, at given world interest rates, prompted firms to raise labour demand. With wages pulled up relative to wealth, wage pressures were also reduced. The result was a steady decline of the equilibrium rate of unemployment.

We want a trade model exhibiting an endogenous natural rate for
another reason. In conventional trade models exhibiting an exogenous natural rate, we are apt to conclude that there is little basis for arguing that protectionism, even when practised on a large scale, as occurred in the interwar years when international trade collapsed, cannot lead to massive joblessness. This is, for example, the view expressed by Krugman (1994a, pp. 123–4):

Although most policymakers in Washington are convinced that protectionism is a bad thing, few of them have any clear idea why. In popular arguments against protectionism, the usual warning is that protectionism threatens our jobs – the Smoot–Hawley tariff of 1931, we are told, caused the Depression, and history can repeat itself.

Although protectionism is [emphasis in original] usually a bad thing, it is worth pointing out that it isn’t as bad as all that. Protectionism does not cost our economy jobs, any more than the trade deficit does: US employment is essentially determined by supply, not demand. The claim that protectionism caused the Depression is nonsense; the claim that future protectionism will lead to a repeat performance is equally nonsensical.

The real harm done by protectionism is much more modest and mundane: It reduces the efficiency of the world economy. To the extent that countries limit each other’s exports, they block the mutually beneficial process by which nations specialize in producing goods for which their knowledge and resources are particularly well fitted. They also fragment markets, preventing firms and industries from realizing economies of scale. A protectionist country is usually less productive and thus poorer than it would have been under free trade; a protectionist world economy almost always so . . .

The perspective developed in this book suggests a channel through which protectionism can, indeed, lead to a world-wide collapse in output and rise in unemployment as occurred in the interwar years. While the cause of the Great Depression in the United States is unlikely to be due to the implementation of the Smoot–Hawley tariffs, trade being such a small share of US GDP in 1929, the setting up of tariff barriers by the largest economy in the world at the time and the accompanying retaliatory trade barriers put up by the other economies led to a collapse of world trade. In the framework developed here, the fragmentation of markets and the removal of the gains from trade must shift upwards the wage curve and downwards the aggregate labour demand curve, with the end result that the collapse of world trade must be accompanied by a rise in equilibrium unemployment. Such a perspective does away with any role for Keynesian effective demand but relies on real supply-side factors to understand the link between trade and the volume of joblessness. Within this framework, we can not only ask how protectionist policies affect jobs and wages in the economies of trading partners, but also study the effects of a number of other shocks in the contemporary world economy on the medium- to long-term unemployment
and wage performance of nations. What are the effects on wages and joblessness in the developed economies that follow from the integration of labour-abundant economies? What are the effects of technical catch-up in East Asia on the rest of the world?

1.4 ORGANISATION OF THE BOOK

In Chapter 2, we provide an account of the evolution of wages and unemployment of the Singapore economy over the past four decades. We document that over this period, there has been a fairly steady decline in the unemployment rate, interrupted only by the sharp rise in unemployment during the mid-eighties recession, and the real wage saw a larger than three-fold increase. We interpret the decadal decline in Singapore’s unemployment rate as primarily a story of the downward shift of its natural rate of unemployment.

The basic Ricardian model of trade with an endogenous natural rate developed in Chapter 3 gives a first pass at the problem of how trade affects the equilibrium amount of joblessness. The main insight we obtain here is that under trade, workers have an increased stake in job-holding as the real consumption wage is increased. Consequently, an integration into the world economy leads to a lowering of the natural rate of unemployment for all participating economies except for the large country whose relative price is unaffected by trade. For the large country, trade has no influence on its natural rate. Some basic economic shocks are also studied in an integrated two-country Ricardian world economy. In such a world, trade wars lead to a reduction in economic welfare as trade volume shrinks and equilibrium unemployment rises for all the countries engaged in economic warfare. More generous unemployment benefits supported by higher payroll taxes lead to higher unemployment in the policy-active country as firms there face higher after-tax wage costs of hiring an additional worker, and employees enjoy increased fall-back incomes in the event that they lose their jobs. This has the consequence of exporting a slump to the rest of the world through a deterioration in the latter’s terms of trade. A level increase in worker productivity in the export sector of the home country must benefit its trading partner by raising foreigners’ welfare through raising their employment prospects and their real consumption wages although it is theoretically possible that the country experiencing the productivity improvement may actually face a rise in unemployment and suffer a decline in real incomes. An expansion of one country’s labour force lowers unemployment in the rest of the world but raises joblessness in the expanding country. Labour standards naturally rise as incomes are raised through
trade, and employment prospects improve. In turn, the higher labour stand-
ards raise the value of job-holding, further expanding aggregate employ-
ment.

The Heckscher–Ohlin model with an endogenous natural rate developed
in Chapter 4 presents a very different vision of how trade affects jobs and
wages. Here it is shown how trade leads to a rise in the natural rate of unem-
ployment in the capital abundant country although it must lead to a decline
in the natural rate in the labour abundant country. In theory, the capital
abundant country can overall suffer a welfare decline under trade. There
are, however, two other forces that can strengthen the basic message of the
Ricardian model – that all trading partners can gain from trade. These are
the pro-competitive effects of trade explored in Chapter 5, and the scale
effects of trade explored in Chapter 6. When these two effects are incorpo-
rated into a relative factor-endowment differences model, it is possible that
all trading countries, including the capital abundant country, experience a
decline in joblessness as well as an increase in real consumption wages
under trade.

Two sorts of models emphasise the determination of absolute and rela-
tive pay levels of low-wage workers in a general-equilibrium framework. In
Chapter 7, we explore a model which generates a wage premium between
identical workers employed in two different sectors – a primary sector and
a secondary sector – within a dual labour market set-up. A key result we
obtain here is that integration among industrial economies dominated by
intra-industry trade leads to the expansion of high-wage premium jobs
along with a narrowing of the wage gap in all participating economies. This
stands on its head the popular supposition that globalisation widens the
wage gap. Then Chapter 8 explores a model where there are two types of
workers – high-skilled and low-skilled workers. The wage premium between
the two types of workers is endogenously determined. We show that trade
can raise the real returns to both factors of production when scale econo-
 mies are sufficiently important.

Chapter 9 introduces wealth in a neoclassical model of perfect informa-
tion to derive results about the influence of intertemporal trade and capital
mobility on wages and labour force participation. One result we obtain is
that higher growth in open economies leads to higher labour force partici-
pation, a fact observed about the East Asian economies. We also discuss the
role of wealth in determining the natural rate, and explore the influence that
trade has on jobs through the beneficial effects of international R&D spill-
overs. Finally, Chapter 10 explores a classical model of trade whose struc-
ture is drawn from Ricardo’s Essay on Profits. We show that under free
trade, the relatively land abundant country experiences a decline in its
growth rate – correspondingly, a decline in the rate at which employment
grows. When we introduce an intermediate goods sector that produces a variety of fertilizer inputs, giving rise in effect to increasing returns to scale, we show that intra-industry trade allows all participating countries to experience a rise in the rate of employment expansion. Chapter 11 concludes with a synthesis of some of the major themes of the book.

NOTES

1. Sen (1999) stresses the loss of freedom and capability associated with long-term unemployment. He argues: ‘[U]nemployment is not merely a deficiency of income that can be made up through transfers by the state (at heavy fiscal cost that can itself be a very serious burden); it is also a source of far-reaching debilitating effects on individual freedom, initiative, and skills. Among its manifold effects, unemployment contributes to the “social exclusion” of some groups, and it leads to losses of self-reliance, self-confidence and psychological and physical health.’ (p. 21)