CHAPTER

17 UNEMPLOYMENT AND INFLATION

Chapter Outline

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Learning Objectives

- Understand how inflation is defined and the sufficient condition for its persistence.
- Understand the nature of inflation as emanating from a conflict over the distribution of national income.
- Understand the basics of the Quantity Theory of Money and its shortcomings.
- Learn why incomes policies have been proposed to control inflationary spirals.

17.1 Introduction

In this chapter, we will review the concept of inflation and discuss various approaches that seek to explain it. An inflationary process can be understood within a general framework whereby different claimants of real GDP and national income struggle to assert their aspirations. In this sense, we cast inflation within the general distributional struggle or conflict that is characteristic of capitalist economies, between workers seeking to maintain or achieve a higher wage and firms seeking to maintain or raise their profit rate.

We will differentiate between **cost push** and **demand pull** as initiating causes of an inflationary process. The first type has been termed cost push inflation because it originates from the costs of production increasing and pushing up the price level. The second type is termed demand pull, because excess nominal demand (relative to output capacity) initially pushes up the price level.

We then consider the Classical Quantity Theory of Money in more detail. This model asserts that there is a direct relationship between money supply growth and inflation, such that the inflationary process is always due to the central bank allowing this growth rate to be excessive. The Quantity Theory is a central element of Monetarism, which we discuss later in the chapter. We show that the basis of the theory is an accounting identity. However, the theory fails in its attempt to demonstrate causality.

In Chapter 18, we will use the ideas presented here to consider the major theoretical and policy debates within macroeconomics with respect to inflation.

17.2 What is Inflation?

There are misconceptions as to what price inflation actually is. An increase in prices is a necessary but not sufficient condition for an inflationary process to unfold. Thus, a negotiated pay increase for workers, or firms increasing their prices to try to increase profit, or a rise in local prices of imported goods following a depreciation of the exchange rate, may or may not initiate an inflationary process.

> **Inflation is the continuous rise in the price level, so the price level has to be rising for a number of time periods. A one-off price rise is not an inflationary episode.**

If the price level rises by ten per cent every month for example, then we would be observing an inflationary episode. In this case, the inflation rate would be considered stable with the price level rising at a constant rate per period.

If the price level was rising by 10 per cent in month one, then 11 per cent in month two, then 12 per cent in month three and so on, then we would be observing an accelerating inflation rate. Extreme cases of **accelerating** inflation are referred to as **hyperinflation**. There have been few instances of this problem in recorded history, but the Weimar Republic in 1920s' Germany and Zimbabwe at the beginning of the 21st century are notable examples. They were marked by a dramatic contraction of the supply potential of the respective economies prior to the hyperinflation (see Chapter 21 for more on this).

Alternatively, if the price level was rising by ten per cent in month one, nine per cent in month two and so on, then the rate of inflation is falling or **decelerating**. If the price *level* starts to fall, then the growth of the price level is negative and this would be a **deflationary** episode.

REMINDER BOX

You may wish to refresh your understanding of the measurement of the consumer price index (CPI) and the computation of the inflation rate by referring back to Chapter 4, Section 4.8.

We can define a normal price level as being the prices that firms are willing to charge when they are operating at normal capacity and earning a profit rate that satisfies their strategic aspirations. (See the discussion of mark-up pricing in Chapter 16.) However, the economic cycle fluctuates around these normal rates of capacity utilisation and firms not only adjust to the flux and uncertainty of aggregate demand by adjusting output, but in some cases, will vary prices. This is particularly the case during a recession.

When there are very depressed levels of activity, firms might offer discounts in order to increase sales and hence capacity utilisation. Thus, they temporarily suppress their profit margins in order to try to raise their respective market shares when overall demand is falling. As demand conditions become more favourable, firms start withdrawing the discounts and prices return to those levels that offer the desired rate of return at normal rates of capacity utilisation. We do not consider these cyclical adjustments in prices to constitute inflation.

17.3 Inflation as a Conflictual Process

Conflict theory situates the problem of inflation as being intrinsic to the power relations between workers and capital (class conflict), which are mediated by government within a capitalist system. It brings together social, political, and economic considerations in a generalised view of the inflation cycle. This mediation by government

varies over the course of history but in more recent times has been biased towards protecting the interests of capital, particularly financial capital, at the expense of workers' real wage aspirations.

Conflict theory is most closely identified with inflationary processes initiated by cost push. However, it is important to recognise that an inflationary process, whether initiated by the forces of cost push or demand pull, by definition requires 'two to tango', so that an increase in prices is ongoing. Otherwise the change in the level of wages or prices is a one-off event. The nature of the power relations between workers and capital is integral to understanding all inflationary processes.

In product markets, firms have price setting power and set prices by applying a mark-up to costs. Firms seek to achieve target profit rates that satisfy their shareholders or owners, and these are expressed by the size of the mark-up on their unit costs. Unit costs are driven largely by wage costs, productivity movements and raw material prices. Shifts in any of these determinants can generate cost increases, which price setting firms may pass on by raising prices.

On the other hand, the bargaining strength of workers will depend on their capacity to mobilise effectively, which is typically through trade union action. The shift to non-standard employment, which can include zero-hours contracts in some countries, including the UK, along with reduced rates of unionisation in many developed economies has reduced the bargaining power of the union movement. In many instances this has been reinforced by anti-union legislation.

When employers are dealing with workers individually, they have more power than when they are dealing with a single bargaining unit (trade union), which represents all workers in their workplace.

Thus, firms and trade unions have some degree of market power (that is, they can influence prices and wage outcomes). They are both assumed to target an **income share** and use their capacity to influence **nominal prices and wages** in order to extract that target share.

In each period, the economy produces a given output (real GDP) which is shared between the groups with distributional claims in the form of wages, profits, rents, interest, taxes and so on. In the initial discussion below, we assume away the other income claimants and concentrate on the split between wages and profits. Later, we will introduce a change in an exogenous claim in the form of a rise in the price of raw materials.

If the desired output shares of the workers and firms are consistent with the available output produced, then there is no incompatibility and there will be no inflationary pressures. The available output would be distributed each period at the prevailing levels of nominal wages and profits which satisfy the respective claimants. However, if the distributional claims are incompatible, then the aggrieved group(s) would seek redress by seeking wage increases (labour) and/or impose price increases (firms). We continue this analysis in the next section.

Cost push inflation

There has been a long line of authors, including **Michał Kalecki**, a Marxist, who have identified inflation as emerging as a result of **distributional struggle** over the available real income.

The dynamic that drives a cost push inflation is seen to arise from the underlying social relations in the economy. This theory of inflation recognises that the two sides of the labour market are likely to have conflicting aims and seek to fulfil those aims by imposing costs on the other party.

The capacity of workers to realise nominal wage gains is considered to be pro-cyclical. That is, when the economy is operating at **high pressure** (high levels of capacity utilisation) workers are more able to secure money wage gains. This is especially the case if they are organised into coherent trade unions, which function as a countervailing force to the power of employers.

For example, reductions in Marx's **reserve army of unemployed** as the economy approaches full employment give workers more bargaining power. Trade unions are more likely to demand higher money wages. Firms may fear prolonged strikes, which will damage them at a time when profits are high.

To protect their market share they are more likely under these circumstances to concede to the workers' demands, knowing that they can in turn use their price setting power to defend their profits by increasing prices (that is, restore the previous mark-up). This can be described as a **battle of the mark-ups**. At that point there is no

inflation, just one-off increases in money wages and prices and no change to the distribution of national income between wages and profits.

An inflationary process is instigated and perpetuated if the sum of the distributional claims (expressed in nominal terms, money wage demands and mark-ups) remain greater than the available output measured at current prices and neither bargaining party is prepared to concede to the other by ceasing to pursue higher nominal income. Either a **wage-price or price-wage** mechanism can instigate the inflationary process.

Here the concepts of real wage and/or real profit margin resistance become relevant. A wage-price spiral begins with workers pushing for higher real wages, whereas a price-wage spiral refers to a dynamic where firms initiate the bargaining war by trying to push up their real profit margin.

In a high pressure economy, firms may also initiate an inflationary process by trying to increase their profit margins. Workers may attempt to maintain their previous real wage and will thus respond to the higher price level by seeking an increase in nominal wages. If their bargaining power is strong (which from the firm's perspective is usually measured in terms of how much damage the workers can inflict on output and hence profits via industrial action) then they are likely to be successful. If not, they may have to accept the real wage cut imposed on them by the higher price level, which implies that their nominal wages have a reduced capacity to purchase goods and services.

However, if firms are not willing to absorb the squeeze on their profits following the money wage increase, then they will raise prices again and the beginnings of a wage-price spiral occur. If this process continues, then cost push inflation is the result.

The wage-price spiral could develop into a **wage-wage-price spiral** if one section of the workforce seeks to restore relativities after another group of workers succeeds in their nominal wage demands.

The role of government is also implicated. While it is the distributional conflict which initiates the inflationary spiral, government policy has to be compliant for the nascent inflation to persist.

Business firms will typically access credit (for example, overdrafts) to **finance** their working capital needs in advance of realisation of revenue via sales. In an inflationary spiral, as workers seek higher nominal wages, firms will judge whether the costs of industrial action in the form of lost output and sales are higher than the costs of accessing credit to fund the higher wages bill. Typically, the latter option will be cheaper.

If credit conditions become tighter and thus loans become more expensive, then firms will be less able to pay the higher money wages demanded by workers. The impact of the higher interest rates may thus lead to a squeeze on real wages with the consequent negative impact on consumption spending. Firms will also be less willing to invest in new projects given that the cost of funds is higher.

As a consequence, if monetary policy becomes tighter, there will be some point where output growth declines and the workers who are in weaker bargaining positions are laid off. The rising unemployment in turn eventually discourages the workers from continuing to pursue their demand for wage increases and in time the inflationary process would be choked off.

Cost push theory thus hypothesises a trade-off between inflation and unemployment.

The alternative policy stance is for the central bank to accommodate the inflationary struggle by leaving its monetary policy settings (interest rates) unchanged. This accommodation would also likely see the fiscal authorities maintaining existing tax rates and spending growth.

The commercial banks would continue to extend loans and in the process create deposits in the accounts of its business clients. The central bank would then ensure that there were sufficient reserves in the banking system to maintain stability in the payments system. The nominal wage-price spiral would thus fuel the demand for more loans with little constraint.

There are also strong alignments between the cost push theory of inflation and Hyman Minsky's financial instability notion (see Chapter 26). Both theories consider that the behavioural dynamics change across the economic cycle. When economic activity is strong, the banks are more willing to extend credit to those who previously had been considered to be marginal borrowers, and are now seen to be more creditworthy because economic conditions have improved. Equally, firms will be more willing to pass on nominal wage demands because it becomes

harder to find labour, and the costs of an industrial dispute in terms of lost sales and profits are high. Workers also have more bargaining power due to the buoyant conditions.

At low levels of economic activity, falling sales and rising unemployment militate against both profit push and wage demands. Also loan delinquency rates tend to be higher and banks become more conservative in their lending practices.

Another example of cost push pressure might come from an increase in the price of a significant imported raw material, such as oil. We will examine this dynamic in the next section.

Keynes also suggested that inflation could arise due to **cost push factors** (also called sellers' inflation). Within the Keynesian tradition, Abba Lerner's *Economics of Employment* (1951) has a coherent discussion of how distributional struggle may lead to a wage-price spiral and generalised inflation as each party seeks to defend their income.

Lerner showed that the dynamic for this wage-price spiral could also result from capital seeking to expand its share of income by pushing up the mark-up on unit costs. Such a strategy could only be successful if workers conceded the real wage cut implied by the higher prices. Firms would be more likely to attempt this strategy when they perceived the bargaining power of workers to be weak, that is, when the unemployment rate was higher. In this way, Lerner recognised that high inflation and high unemployment could co-exist, and thus identified the phenomenon that subsequently became known as **stagflation**.

Raw material price increases

Until now we have been concentrating on workers pursuing nominal wage increases in order to gain higher real wages and/or firms pushing profit margins up to gain a greater profit share of income as the main drivers of an inflationary process.

However, **raw material price shocks** can also trigger cost push inflation. These cost shocks may be imported (for example, an oil-dependent nation might face higher energy prices if world oil prices rise) or domestically sourced (for example, a nation may experience a drought which increases the costs of food crops and impacts on all food processing industries).

TRY IT YOURSELF

Let us consider the example of a situation where there is a price rise for an essential imported resource. The imported resource price shock amounts to a loss of real income for the nation in question. Thus, there is less real income to distribute to domestic claimants.

The question then is who will bear this loss? With less real income being available for distribution domestically, the reactions of the claimants are crucial to the way in which the economy responds to the higher cost of the imports. The loss has to be shared or borne by one of the claimants or the other. What do you think are the strategies available to the various contestant claimants? Which do you think are most likely to be effective?

If, in response to the fall in their profit margins (mark-ups), domestic firms pass on the raw material cost increases in the form of higher prices, then workers would endure a cut in their real wages.

If workers resist this erosion of their real wages and push for higher nominal wage growth, then firms can either accept the squeeze on their profit margins or resist.

The government can employ a number of strategies when faced with this dynamic. It can maintain the existing nominal demand growth, which would be very likely to reinforce the spiral.

Alternatively, it can use a combination of strategies to discipline the inflation process including the tightening of fiscal and monetary policy to create unemployment (the NAIRU strategy), the development of consensual incomes policies and/or the imposition of wage price guidelines (without consensus) (see below).

Ultimately, if the claimants of real income continue to try to pass on the raw material price rise to each other, then it is likely that contractionary government policy will be introduced and unemployment will rise.

A better strategy would be to either change production processes in order to reduce the use of the expensive imported resource, or to find a domestic alternative.

Conflict theory of inflation and inflationary biases

A series of articles in the journal *Marxism Today* in 1974 illustrated the proposition that inflation was the result of a distributional conflict between workers and capital. These articles were written with reference to the early 1970s, when inflation rates rose in many Western economies.

One article by Pat Devine stated that the inflation process was a structural construct embedded in the intrinsic capital labour conflict. He argued that the increased bargaining power of workers (that accompanied the long period of full employment in the post-Second World War period) and the declining productivity growth in the early 1970s imparted a structural bias towards inflation which was manifested in the inflation breakout in the mid-1970s that "ended the golden age."

He further claimed that the prolonged growth of money wages was "unprecedented in the history of capitalism" (Devine, 1974: 80). Capitalists increased prices to maintain profitability and thus countered the attempt to raise real wages.

Large, oligopolistic firms with price setting power engaged in non-price competition (for example, product quality). These firms, however, were interdependent because their market shares were sensitive to their pricing strategies. When a firm was faced with nominal wage demands, its management knew that its rivals would face similar pressure and that their competitive positions would not depend on the absolute price level while the government continued to ensure that effective demand was sufficient to maintain full employment. On the other hand, a firm could lose market share if it increased prices while other firms maintained lower prices. As a result, firms had little incentive to resist the wage demands of their workers and strong incentives to protect their profits by passing on the demands in the form of higher prices.

This structural depiction of inflation as being embedded in the class dynamics of capital and labour, both of which had increased capacity to set prices and defend their real shares of income, implicates Keynesian-style approaches to full employment.

There was also an international component to the structural theory. It was argued that the Bretton Woods system (see Chapter 9) imparted deflationary forces on economies that were experiencing strong domestic demand growth. As national income rose and imports increased, central banks were obliged to tighten monetary policy to maintain the agreed exchange rate parity and the constraints on monetary growth acted to choke off incompatible claims on the available income.

However, when the Bretton Woods system of convertible currencies and fixed exchange rates collapsed in 1971, the structural biases towards inflation came to the fore with floating exchange rates.

Devine (1974: 86) argued that:

> *floating exchange rates have been used as an additional weapon available to the state. Given domestic inflation, floating rates provide a degree of flexibility in dealing with the resultant pressure on the external payments position. However, if a float is to be effective in stabilising a payments imbalance it is likely to involve lower real incomes at home. If a reduction in real wages (or their rate of growth) is not acquiesced in there will then be additional pressure for higher money wages and if this cannot be contained the rate of inflation will increase and there will be further depreciation.*

The structuralist view also noted that the mid-1970s crisis, which marked the end of the Keynesian period, was not only marked by rising inflation but also by an ongoing profit squeeze due to declining productivity growth and increasing external competition for market share. The profit squeeze led to firms reducing their rate of investment (which reduced aggregate demand growth), which combined with harsh contractions in monetary and fiscal policy, created the stagflation that bedevilled the world in the second half of the 1970s.

The resolution to the **structural bias** proposed by economists depended on their ideological persuasion. On the one hand, those who identified themselves as Keynesians proposed incomes policies (which we shall explore in more detail later in this chapter) as a way of mediating the distributional struggle and achieving nominal income claims that were compatible with the available output.

On the other hand, the emerging Monetarists considered the problem to be an abuse of market power by the trade unions and this motivated demands for policymakers to legislate to reduce the bargaining power of workers. The rising unemployment was also not opposed by capital because it was seen as a vehicle for undermining the capacity of the trade unions to make wage demands.

From the mid-1970s, the combined weight of persistently high unemployment and increased policy attacks on trade unions in many advanced nations reduced the inflation spiral as workers were unable to pursue real wages growth, and productivity growth outstripped real wages growth. As a result, there was a substantial redistribution of income towards profits during this period.

The rise of Thatcherism in the UK and Reaganomics in the USA exemplified the increasing dominance of the Monetarist view in the 1980s.

Demand pull inflation

While economists distinguish between cost push and demand pull inflation, the demarcation between the two types of inflation is not as clear cut as one might think.

Demand pull inflation refers to the situation where prices start accelerating continuously because nominal aggregate demand growth outstrips the capacity of the economy to respond by expanding real output.

We have learned from the national accounts that aggregate demand is always equal to GDP, which is the market value of final goods and services produced in some period. We represent that as the product of total real output (Y) and the general price level (P), that is, PY. It is clear that if there is growth in nominal spending (that is, GDP) that cannot be met by an increase in output (Y) then the general price level (P) has to rise.

The dominant view of inflation in the 1960s was based on Keynes' notion of an inflation gap, which he outlined in his 1940 pamphlet, *How to Pay for the War: A Radical Plan for the Chancellor of the Exchequer*.

In the *General Theory* (1936), Keynes had developed the notion of effective demand to help understand how an equilibrium corresponding to less than full employment could arise in a monetary economy. He now wanted to show how there would be a transition to a fully employed economy during wartime.

With the onset of the Second World War, large-scale spending programmes were implemented as part of the war effort. Keynes argued that as employment rose, rising household incomes would drive up consumer spending, which would cause inflation to accelerate even if money wage rates were constant.

While Keynes' plan was devised in the context of wartime spending when faced by tight supply constraints (that is, a restricted ability to expand output), the concept of the inflationary gap has been generalised to describe situations of excess demand where aggregate demand is growing faster than the aggregate supply capacity can absorb it.

Keynes defined the inflationary gap as an excess of planned expenditure over the available output at pre-inflation or base prices. The pre-inflation benchmark output was that corresponding to the full utilisation of capacity. Thus, if an economy could meet the growth in nominal expected demand by rapidly expanding the capacity to produce goods and services, an inflationary gap would not open.

This idea was distilled into the **demand pull theory of inflation**. Once full employment was reached, then nominal demand growth beyond that level would be inflationary.

Thus inflation would tend to increase when unemployment fell (see Chapter 18 for an analysis of the Phillips curve which posits this type of relationship). The theory claimed that as nominal demand growth pushes the unemployment rate towards its irreducible minimum (frictional unemployment), wage and price inflation would start to rise. In other words, an inflationary gap would be created by the emergence of excess aggregate demand.

There are several factors present in the real world that attenuate these demand effects on the inflation rate. First, firms incur extensive costs when they change prices, which leads to a 'catalogue' (or 'menu') approach whereby firms will forecast their expected costs over some future period and set prices according to their desired return. They then signal those prices in their catalogues and advertising to consumers and stand ready to supply whatever is demanded at that price (up to exhaustion of capacity). In other words, they do not frequently alter their prices to reflect changing demand conditions. Only periodically will firms typically revise their price catalogues.

Second, trust and reliability are important in economic transactions. For example, firms seek to build relationships with their customers that will ensure product loyalty. In this context, firms will not wish to vary prices after they have been communicated to consumers.

Third, firms also resist cutting prices when demand falls because they want to avoid so-called adverse selection problems, whereby they gain a reputation only as a bargain price supplier. Firms value 'repeat sales' and thus want to foster consumer goodwill.

Circumstances change somewhat when the economy approaches full productive capacity. Then the mix between output growth and price rises becomes more likely to be biased toward price rises (depending on the bottlenecks in specific areas of productive activity). At full capacity, GDP can only grow via inflation (that is, nominal values increase only). At this point the inflationary gap is breached.

When the US government prosecuted the Vietnam War effort in the 1960s, the inflation rate began to rise. In the late 1960s and early 1970s, the demand pull pressures of the spending associated with the war effort combined with sharp rises in oil prices following the formation of the Organisation of Petroleum Exporting Countries cartel (OPEC). OPEC's oil prices quadrupled in 1973 and generated huge cost shocks to oil-dependent economies such as the US and Japan.

Cost push and demand pull inflation: a summary

Cost push inflation requires certain aggregate demand conditions for it to be sustained. In this regard, it is hard to differentiate between an inflationary process which was initiated from supply side pressures from one that was initiated by demand side pressures.

For example, an imported raw material shock means that a nation's real income that is available for distribution to domestic claimants is lower. This will not be inflationary unless it triggers an ongoing distributional conflict as domestic claimants (workers and capital) try to pass on the real loss to each other.

However, that conflict needs 'oxygen' in the form of ongoing economic activity in sectors where the spiral is robust. In that sense, the conditions that will lead to an accelerating inflation – high levels of economic activity – will also sustain an inflationary spiral emanating from the demand side.

17.4 The Quantity Theory of Money

As we saw in Chapter 11, the Classical theory of employment is based on the view that the real variables in the economy – output, productivity, real wages, and employment – are determined by the equilibrium outcome in the labour market.

> **By way of summary, the real wage is determined exclusively by labour demand and labour supply, which also determine the real level of economic activity at any point in time.**

Say's Law, which follows from the loanable funds doctrine (see Chapter 11), is then invoked to assume away any problems in matching aggregate demand with this supply of goods and services. Under this doctrine saving and investment will always be brought into balance by movements in the interest rate, which is construed as being the price of today's consumption relative to future consumption. Thus two relative prices – the real wage in the labour market and the real interest rate in the loans market – ensure that full employment occurs (with zero involuntary unemployment).

This separation between the explanation for the determination of the real economic outcomes and the theory of the general price level is referred to as the **classical dichotomy**, for obvious reasons. The later Classical

economists believed that if the supply of money is doubled, for example, there would be no impact on the real performance of the economy. All that would happen is that the price level would double.

The classical dichotomy that emerged in the 19th century stands in contradistinction to the earlier ideas developed by economists such as David Hume that there is a trade-off between unemployment and inflation that could be manipulated (in policy terms) by the central bank varying the money supply (Hume, 1752).

It is of no surprise that the Classical employment model relies in part on the notion of a dichotomy for its conclusions. Its origins were based on a barter model in which there is an absence of money and owner-producers trade real products. Clearly, this conception of an economy has no application to the monetary economy we live in.

Classical monetary theory was only intended to explain the level and change in the general price level. The main attention of the Classical economists was in trying to understand the supply of output and the accumulation of productive capital (and hence economic growth).

The theory of the general price level that emerged from the Classical dichotomy was called the **Quantity Theory of Money**, which was outlined in Chapter 11. The theory had its origins in the work of French economists in the 16th century, in particular, Jean Bodin.

Why would we be interested in something a French economist conceived in the 16th century? The answer is that just as the main ideas of Classical employment theory still resonate in the public debate (for example, the denial that mass unemployment is the result of a deficiency of aggregate demand), the theory of inflation that arises from the Quantity Theory of Money is still influential. Indeed, it forms the core of what became known as **Monetarism** in the 1970s.

As we have learned already from this textbook, economics is a contested discipline and different schools of thought advance conflicting policy frameworks. Monetarism and its more modern expressions form one such school of thought in macroeconomics and rely on the Quantity Theory of Money for their inflation theory.

We will also see that the crude theory of inflation that emerges from the Quantity Theory of Money has intuitive appeal and is not very different to what we might expect the average layperson to believe: that growth in the money supply causes the value of money to decline (that is, causes inflation).

The Quantity Theory of Money was very influential in the 19th century. The theory begins with what was known as the **equation of exchange**, which is an accounting identity. We write the equation as:

$$(17.1) \quad M_s V \equiv PY$$

You are familiar with the terms on the right-hand side. PY is the nominal value of total output (which is simply the definition of nominal GDP in the national accounts) given that P is the price level and Y is real output.

M_s is the quantity of money in circulation (the money supply, say M2 which was defined in Chapter 10), which is a stock (so many dollars at a point in time). V is called the income velocity of circulation, and is the average number of times the stock of money turns over in the generation of aggregate income.

There is no theoretical content in the Equation (17.1) as it stands, since it is an identity. We thus need to introduce some behavioural elements in order to use Equation (17.1) as a theory of the general price level.

BOX 17.1 VELOCITY EXAMPLE

To understand velocity, we can consider the following example of an imaginary and simple economy. Assume the total stock of money is $100, which is held by the two people that make up this economy. In the current period (say a year), Person A buys goods and services from Person B for $100. In turn, Person B buys goods and services from Person A for $100.

The total transactions equal $200 yet there is only $100 (money stock) in the economy. Thus each dollar must be used twice over the course of the year. So the velocity in this economy is two.

The velocity of circulation converts the stock of money into a flow of monetary spending and renders the left-hand side of Equation (17.1) commensurate with the right-hand side.

In this regard, it is important to see the Quantity Theory of Money and Say's Law as being mutually reinforcing planks of the Classical theory. Say's Law was proposed to justify the presumption that full employment output would be continuously supplied and sold, which meant that the Quantity Theory of Money would ensure that changes in the stock of money would only impact on the price level.

As Keynes observed, price level changes do not necessarily correlate with changes in the money supply, and this led to his rejection of the Quantity Theory of Money. Another way of stating this is that the velocity of money need not be fixed, and real output need not tend to the full employment level.

In turn, Keynes' understanding of how the price level could change without a change in the money supply was informed by his rejection of Say's Law. He recognised that total employment is determined by effective demand and that a capitalist monetary economy could experience deficient effective demand.

However, the Classical theorists considered that a flexible real wage would ensure that full employment is attained, at least as a normal state where competition prevails and there are no artificial real wage rigidities imposed. As a result, they considered Y to be fixed at the **full employment output level**.

Additionally, they considered V to be constant given that it is determined by customs and payment habits. For example, people are paid on a weekly or a fortnightly basis and shop say, once a week for their needs.

Equation (17.2) depicts the resulting causality that defines the Quantity Theory of Money as an explanation of the general price level. The horizontal bars above the V and Y indicate that they are assumed to be constant. It follows that changes in M_s will directly and only impact on P.

$$(17.2) \quad M_s \bar{V} \equiv P\bar{Y}$$

$$\therefore M_s \rightarrow P$$

To understand this theory more deeply it is important to note that the Classical economists considered the role of money to be confined to acting as a medium of exchange to free people from the tyranny of the necessity of a double coincidence of wants under the barter system. In other words, money would overcome the problem of a farmer who had carrots to offer but wanted some plumbing done, and could not find a plumber desiring any carrots, for example.

Money is thus seen as the means of lubricating the exchange of goods and services. There is no other reason why a person would wish to hold it under this limited conception of money.

The underlying view is that if individuals found they had more money than in the past, then they would try to spend it. Logically, it follows that they consider a rising stock of money to be associated with the growth in aggregate demand (spending).

As Equation (17.2) shows, monetary growth (and the assumed extra spending) would directly lead to price rises because the economy is already assumed to be producing at its maximum productive capacity and the habits underpinning velocity are stable.

For now you should note two empirical facts. First, capitalist economies are rarely at full employment. Since economies typically operate with spare productive capacity and often with high rates of unemployment, it is hard to maintain the view that there is no scope for firms to expand real output when there is an increase in nominal aggregate demand.

Thus, if there is an increase in availability of credit and borrowers use the deposits that are created by the loans to purchase goods and services, firms with excess capacity are likely to respond by raising real output to maintain market share rather than raising prices.

Second, the empirical behaviour of the velocity of circulation demonstrates that the assumption that it is constant is implausible. Figure 17.1 uses data provided by the US Federal Reserve Bank of St. Louis and shows the velocity of circulation, which is constructed as the ratio of nominal GDP to the M2 measure of the money supply.

The US Federal Reserve Bank of St. Louis defines this measure "as the rate of turnover in the money supply—that is, the number of times one dollar is used to purchase final goods and services included in GDP" (2016).

The evidence does not support the claims of the Quantity Theory of Money. No simple proportionate relationship exists between rises in the money supply and rises in the general price level.

Figure 17.1 Velocity of M2 money stock, US, 1950–2015

Source: Authors' own. Data from US Treasury via US Federal Reserve Bank of St Louis. Shaded areas indicate US recessions.

17.5 Incomes Policies

Governments facing a wage-price spiral have from time to time considered the use of so-called **incomes policies** if they were reluctant to introduce a sharp contraction in the economy, which might otherwise discipline the combatants in the distributional struggle.

Incomes policies in general, are measures that are aimed to control the rate at which wages and prices rise, as the economy moves toward, or is at full employment. Progressive economists often advocate their use to rein in cost pressures and avoid the need to reduce overall spending, which creates higher involuntary unemployment.

Incomes policies have been introduced in various forms at various times in a number of countries as a way of reducing supply side cost pressures and allowing employment to stay at a higher level. For example, in 1962, the US government introduced wage price guideposts, which allowed for an average rate of nominal wage increase equal to the average annual rate of productivity growth in the overall economy. This means that per-unit labour costs of production remained constant. Other nominal incomes, including profits, were also to be tied to this rule.

Taken together, it was considered that this rule would stabilise the growth in nominal incomes (and directly link real income growth to productivity growth), thereby reducing any inflationary pressures associated with the maintenance of full employment. Its application would thus distribute productivity gains across all income earners and thus reduce the distributional conflict, which might otherwise instigate a wage-price spiral. However, a problem with the rule is that workers in above-average productivity growth sectors are undercompensated, and workers in below-average sectors are overcompensated. Also, workers would be unable to pursue money wage increases in response to profit pushes by firms.

For a time, the guidelines seemed to work. But as US government expenditure grew as a result of the Vietnam War effort and unemployment fell below four per cent, wage increases began to exceed average productivity

growth. By 1966, the guidelines provided no discipline on the growth of nominal incomes in the US. It was clear that the US government was unable to compel employers to follow the guideposts in the wage bargaining process.

Despite the failure of the wage price guideposts, the Republican administration under Nixon reintroduced an incomes policy in 1971. Initially, this was in the form of a 90-day freeze on wages and other nominal incomes. Later, compulsory growth guidelines were set for wages and prices growth.

In 1973, the government introduced yet another freeze on prices, followed by sector-by-sector price rises in line with cost increases with a freeze on profit margins, so workers were exposed to rising prices of oil and food. The experiment ended in April 1974. It was considered a success when it was in place, but when the controls were eliminated, prices and wages began to rise again, although wage and price pressures coming from the demand side were subdued.

The problem was ongoing pressure from the cost (supply) side, in particular from energy and food (largely grains) prices, which led to higher price inflation. Workers were unable to secure money wage increases in line with price inflation, which contributed to the divergence between real wage growth and productivity growth.

On the other hand, in the UK and Australia, the institutional structures that made economies more susceptible to distributional conflict in the late 1960s and early 1970s also made the operation of incomes policies difficult. Highly-concentrated industries, with large firms exercising significant price setting power, were interacting with strong trade unions. These firms were in a strong position to pass on wage demands in the form of higher prices, and governments were reluctant, or unable constitutionally, to mandate strict wage price controls in normal times.

However, incomes policies have worked more effectively in some European nations, for example, Austria and the Scandinavian countries. These nations have long records of collective bargaining and are more attuned to tripartite negotiations than the English-speaking nations. A good example of a successful incomes policy approach, where wages and prices growth were driven by productivity growth in certain sectors, is the so-called **Scandinavian Model** (SM) of inflation (see Box 17.2). This approach to wage setting was developed in Sweden and attempted to marry notions of fairness, the effectiveness of centralised wage bargaining and international competitiveness.

By the late 1970s, incomes policies lost favour in most countries as a result of the rising dominance of Monetarism, which eschewed institutional solutions to distributional conflict in favour of market-based approaches involving higher unemployment.

The Monetarist approach in many advanced nations combined the use of persistently high unemployment with policies designed to reduce the bargaining power of workers. This reduced inflationary pressures because workers were unable to pursue real wages growth and as a result productivity growth outstripped real wages growth. This led to a substantial redistribution of income towards profits during this period. The rise of Thatcherism in the UK exemplified the increasing dominance of the Monetarist view in the 1980s.

In Chapter 19, we will introduce the concept of employment and unemployment **buffer stocks** in a macroeconomy and analyse how they can be manipulated by policy to maintain price stability.

BOX 17.2 THE SCANDINAVIAN MODEL (SM) OF INFLATION

This model, which was originally developed for fixed exchange rates, dichotomises the economy into a competitive sector (C sector) and a sheltered sector (S sector). The C sector produces products which are traded on world markets, and its prices follow the general movements in world prices. The C sector serves as the leader in wage settlements. The S sector does not trade its goods externally.

Under fixed exchange rates, the C sector maintains price competitiveness if the growth in money wages in its sector is equal to the rate of change in its labour productivity (assumed to be superior to S sector productivity) plus the growth in prices of foreign goods. Under this condition, price inflation in the C sector is equal to the foreign inflation rate. The wage norm established in the C sector spills over into wages growth throughout the economy.

The S sector inflation rate thus equals the wage norm less its own productivity growth rate. Hence, aggregate price inflation is equal to the world inflation rate plus the difference between the productivity growth rates in the C and S sectors weighted by the S sector share in total output. The domestic inflation rate can be higher than the rate of growth in foreign prices without damaging competitiveness as long as the rate of C sector inflation is less than or equal to the world inflation rate.

In equilibrium, nominal labour costs in the C sector will grow at a rate equal to the norm (the sum of the growth in world prices and the C sector productivity). Where non-wage costs are positive (taxes, social security and other benefits extracted from the employers) and possibly growing, the requirement is that per-unit variable costs grow at the rate of world prices. The long-run tendency is for nominal wages to absorb the room provided. However, in the short run, labour costs can diverge from the permitted growth path. This disequilibrium must emanate from domestic factors.

The main features of the SM can be summarised as follows:

- The domestic currency price of C sector output is exogenously determined by world market prices and the exchange rate.
- The surplus available for distribution between profits and wages in the C sector is thus determined by the world inflation rate, the exchange rate and the productivity performance of industries in the C sector.
- The wage outcome in the C sector flows on to the S sector industries either by design (solidarity) or through competition.
- The price of output in the S sector is determined (usually by a mark-up) by the unit labour costs in that sector. The wage outcome in the C sector and the productivity performance in the S sector determine the change in unit labour costs.

An incomes policy would establish wage guidelines, which would set national wages growth according to trends in world prices (adjusted for exchange rate changes) and productivity in the C sector. This would help to maintain a stable level of profits in the C sector. Whether this was an equilibrium level depends on the distribution of factor shares prevailing at the time the guidelines were first applied.

Clearly, the outcomes could be different from those suggested by the model if a short-run adjustment in factor shares was required. Once a normal share of profits was achieved, the guidelines could be enforced to maintain this distribution.

A major criticism of the SM as a general theory of inflation is that it ignores the demand side. Uncoordinated collective bargaining and/or significant growth in non-wage components of labour costs may push costs above the permitted path. Where domestic pressures create divergences from the equilibrium path of nominal wage and costs, there is some rationale for pursuing a consensus-based incomes policy.

By minimising domestic cost fluctuations faced by the exposed sector, an incomes policy could reduce the possibility of a C sector profit squeeze, help maintain C sector competitiveness, and avoid employment losses. Significant contributions to the general cost level and hence prices, can originate from the actions of government. Payroll taxation and various government charges may in fact be more detrimental to the exposed sector than increased wage demands from the labour market.

Although the SM was originally developed for fixed exchange rates, it can accommodate flexible exchange rates. Exchange rate movements can compensate for world price changes and local price rises. The domestic price level can be completely insulated from the world inflation rate if the exchange rate continuously appreciates (at a rate equal to the sum of the world inflation rate and C sector productivity growth).

Similarly, if local price rises occur, a stable domestic inflation rate can still be maintained if a corresponding decrease in C sector prices occurs. An appreciating exchange rate discounts the foreign price in domestic currency terms.

What about terms of trade changes? Terms of trade changes, which in the SM justify wage rises, also (in practice) stimulate sympathetic exchange rate changes. This combination locks the economy into an uncompetitive bind because of the relative fixity of nominal wages. Unless the exchange rate depreciates far enough to offset both the price fall and the wage rise, profitability in the C sector will be squeezed.

Policy makers (particularly in Sweden) considered it appropriate to ameliorate this problem through an incomes policy. Such a policy could be designed to prevent destabilising wage movements in response to terms of trade improvements. In other words, wage bargaining, which is consistent with the mechanisms defined by the SM, may be detrimental to both the domestic inflation target and the competitiveness of the C sector and may need to be supplemented by a formal incomes policy to restore or retain consistency.

Conclusion

This chapter is designed to provide an introduction to the concept of inflation, to highlight that it arises due to the conflictual nature of the capitalist system and that ongoing inflation requires that the major combatants (firms and workers) continue to pursue increases in their nominal incomes. The initiating conditions for an inflationary process can be conceptualised in terms of cost push and demand pull, but in practice it is hard to distinguish between them when an outbreak of higher inflation occurs.

We reviewed the Quantity Theory of Money which is based on an identity. When behavioural assumptions are introduced, the theory implies that a simple proportionate relationship exists between increases in the money supply and rises in the general price level. However, no such relationship has been found so, even if it were possible to control the money supply, there would not be a systematic impact on inflation.

Incomes policies were examined, in particular the Scandinavian Model (SM) of inflation. It was noted that they have largely gone out of favour and countries have tended to rely on the use of unemployment as a buffer stock, that is, to rely on higher unemployment to address an inflation rate which is considered to be too high, irrespective of the initial drivers of the inflationary process.

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