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# UNIT 15 NOMINAL AND REAL RIGIDITIES

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## 15.0 OBJECTIVES

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After going through this unit you should be in a position to:

- explain the characteristics of New Keynesian Macroeconomics as distinct from the New Classical Macroeconomics;
- distinguish between the two schools in their conclusions about the possibility of booms and busts in the real world;
- distinguish between nominal and real rigidities;
- explain why prices need not be flexible in the real world;
- identify the different kinds of rigidities in the real world goods, credit and labour markets; and
- explain why nominal and real rigidities have macroeconomic consequences like unemployment.

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## 15.1 INTRODUCTION

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The classical theory of the macro economy assumes that the economy is perfectly competitive and that wages and prices are perfectly flexible. It is this characteristic of perfect flexibility of wages and prices that enables the classical economists to conclude that the perfectly competitive economy will always be at full employment irrespective of aggregate demand conditions. According to the classical and, subsequently, the new classical schools, when aggregate demand goes up it is the aggregate price level that increases because the economy is at full employment and the aggregate output cannot increase. On the other hand, when demand falls at the full employment level of output, wages and prices fall in the goods and the labour markets, respectively. The aggregate price level falls and the employment of labour is not affected.

The Keynesians, on the other hand, & postulate rigidity of wages and/or prices. Suppose the economy is at full employment and aggregate demand goes down. The adjustment in the economy happens not through a downward adjustment of wages/ prices, but through a fall in employment and output. It is this different

response of the economy to changes in aggregate demand that is at the basis of the different conclusions that the classical and the Keynesian economists reach about the possibility of the existence of persistent unemployment in the economy. The flexibility *versus* rigidity of prices and wages hence becomes an important theoretical issue in determining whether an economy can exhibit persistent unemployment. In practice, since prices will neither be fully rigid nor perfectly flexible, the issue reduces to the rate of adjustment of wages and prices to changes in aggregate demand

This basic difference between the classical and the Keynesian economists continues to exist between the New Classical and the New Keynesians. In this unit we study how the New Keynesians rationalise the rigidity of prices and wages in a modern economy and how they thereby conclude that an economy will be subjected to booms and busts. We begin by understanding the important differences between the New Classical and the New Keynesian Schools.

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## 15.2 NEW CLASSICAL SCHOOL *VERSUS* NEW KEYNESIAN SCHOOL

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We know that Keynesian economics was propounded as a revolution against the then prevailing orthodoxy of the classical school. In time, however, the Keynesians themselves established orthodoxy. The Keynesians were helped in establishing their own orthodoxy, initially through the neoclassical synthesis of the classical and Keynesian schools involving the IS-LM model, and then through the AS-AD model. You have studied these models in Block 1. This latter synthesis through the AS-AD curves produced a model that had Keynesian properties in the short-run and classical properties in the long run. As aggregate demand falls, the downward rigidities of prices and wages produces unemployment in the short-run, but full employment is restored in the long run as prices and wages adjust slowly. The Keynesian revolution was appropriated within the mainstream through the AS-AD model.

The ideas of rational expectations (see Block 3) and real business cycles (see Block 5) that came up in the 1970s developed into the New Classical School. This School was a revolution against the Keynesian orthodoxy that had by now established itself. It propounded wage-price flexibility in a perfectly competitive setting of optimising individuals so that there was no basis for the existence of Keynesian unemployment even in the short run.

The New Classical ideas, though theoretically elegant and intellectually appealing, flew in the face of empirical realities in a world characterised by periodic booms and busts. The Keynesian ideas, on the other hand, attempted to explain the real world, but did not rely on the tools of mainstream economics like optimisation in the context of individuals who form expectations rationally. We can say that the microeconomic foundations underlying the Keynesian macroeconomics were weak.

Thus, a question could be asked to the Keynesians: Why would rational firms not increase product prices when money supply is known to have increased, since economic theory predicts that prices would ultimately increase as a consequence of increase in money supply and rationally formed expectations require the individuals to increase prices? We understand this particular question to a greater extent in Sections 15.3 and 15.4. It suffices to say, for now, that the New Keynesian School emerged in the 1980s as a counter-revolution against the New Classical ideas of the 1970s. The New Keynesians attempted to construct models that were empirically well grounded in the sense that they made more realistic assumptions about the macroeconomic world. Moreover, these models were theoretically elegant in that they explained through models

of rational optimising individuals why firms would not, increase prices in the face of increased money supply. Upward rigidity in prices would prevail in spite of the fact that not increasing prices could, apparently at least, lead to a fall in profits.

You should note two characteristics of the New Keynesian School at this point. The first makes it very different and the second not so different, from the New Classicals:

- i) We have been asking questions like why do firms not change prices. This presumes that the firm have the power not to change prices if they so wish, i.e., they have the power to set prices. Unlike in the New Classical world, the New Keynesian firms are operating in markets with some degree of monopoly power. That is an important difference between the two schools: the New Classicals assume perfect competition and the New Keynesians work in the context of imperfectly competitive markets. We also had this in mind when we said that the New Keynesian models are empirically well grounded.
- ii) Yet when it comes to the use of analytical tools, the New Keynesians are no different from the New Classicals. They build models to show why *optimising, rational* individuals do hold prices fixed when macroeconomic conditions demand that prices be changed. In setting up their counter-revolution, the New Keynesians meet the New Classicals on their home grounds, using the same tools of optimising behaviour of individuals in their models. You must note, in this context, that though we have associated the rational expectations revolution (along with the real business cycle theory) with the New Classical School, there is nothing intrinsic about rationally-formed expectations that make them any closer to the New Classical way of doing things than to the New Keynesian. The New Keynesian models can as much be propelled by individuals who are not only rational in the sense that they optimise, but also in the sense that they form expectations rationally.

**Check Your Progress 1**

- 1) Why is the distinction between flexibility and rigidity of prices important in macroeconomic theory?  
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- 2) Based on your answer to Question 1 above, bring out a few points of distinction between the New Classicals and the New Keynesians.  
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**15.3 NOMINAL RIGIDITIES *VERSUS* REAL RIGIDITIES**

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Before we proceed further we must make an important distinction – that between nominal and real rigidities. In Section 15.2 above, we have been referring to nominal rigidities. Nominal rigidities are said to exist when nominal

prices and wages do not change in the face of conditions that call for their change. As you have seen in earlier units, this will lead to Keynesian unemployment. But unemployment can also come about because of certain real rigidities in the economy. Such rigidities can exist in the goods market, the labour market or even the market for credit.

Thus, as we will see in Unit 18, there could exist reasons why the *real* wage paid in the labour market is higher than the market-clearing wage. This will, of course, lead to unemployment of some of those who are willing to work at a lower (market-clearing) wage. We are not talking here about the nominal wage not changing when it needs to change, but about firms rationally and voluntarily deciding to pay higher real wages to their workforce because they find it to their advantage in some way. We will explain this concept of real rigidities better when we list out all such rigidities in Section 15.5 and the sub-sections therein.

The New Keynesian economists stress both the nominal and real rigidities to explain the presence of booms and bust/ persistent unemployment in the real world. We explain nominal rigidities further in Section 15.4 and then consider real rigidities in greater detail in Section 15.5.

**Check Your Progress 2**

- 1) Distinguish between nominal and real rigidities.

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## 15.4 NOMINAL RIGIDITIES AND MENU COSTS

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In this section we examine a simplified New Keynesian model to understand why rational profit-maximising firms would not want to change prices in the face of macroeconomic conditions that call for such a change, a rise in money supply. For example, a firm would not increase prices in the event of a rise in money supply.

These kinds of models owe their existence to the work of the likes of N. Gregory Mankiw (“Small Menu Costs and Large Business Cycles: A Macroeconomic Model of Monopoly”, *Quarterly Journal of Economics*, May 1985); and George A. Akerlof and Janet L. Yellen (“A Near Rational Model of the Business Cycle, With Wage and Price Inertia”, *Quarterly Journal of Economics*, Supplement, 1985). As indicated above, these papers use the analytical tools of the New Classicals to arrive at Keynesian conclusions. As the title of Mankiw’s paper indicates, an important concept in understanding the nominal price rigidity is the concept of ‘menu costs’. We examine the concept, briefly, before we explain the model proper.

### 15.4.1 Menu Costs

Why do firms not change their prices very frequently? Obviously, the costs of changing prices at frequent intervals and in small amounts must be more than the benefits obtained from such a change. Firms prefer to wait before they make price changes in relatively large amounts and in the mean time absorb the losses that they would suffer by not changing prices. This of course presumes that the firms have some monopolistic price setting power and the losses referred to

above include lower profits than would have been possible if prices had been raised, and not necessarily actual out-of-pocket losses.

It is easy to understand this behaviour of monopolistically competitive firms through the example of restaurants competing with each other. The term 'menu costs' immediately becomes meaningful as the costs that would be incurred in changing the menu cards every time there is a change in the prices of items on the menu. These printing costs are surely negligible, but the more important costs are in terms of the loss of customers that a firm would face if it subjects its clientele to the 'irritability' of continuous, small changes in prices.

The concept of menu costs in a modern economy is indeed broad. It is also widely applicable, given the proliferation of automatic dispensers (e.g., coffee machines) and pay telephones that operate on coins. It is easy to imagine the cost that would be incurred by the suppliers if these ubiquitous machines were to be adjusted every time a price change is effected. The firms would rather not change their prices. It is this idea of weighing the costs of changing prices against the benefits obtained from changing prices that is formalised in the Mankiw model that we consider below.

### 15.4.2 Mankiw Model of Nominal Rigidities

There are two related reasons for which firms do not frequently change prices. First, as we saw in the discussion on menu costs, the costs of price changes are not negligible and could exceed the private benefits that can be obtained by the firms in the form of increased profits. More importantly, however, the benefits to be reckoned from price changes are not so much in the private realm, but in the social realm. Price rigidity leads to unemployment, the social costs of which are much higher than the private costs reckoned by the firms in terms of menu costs. The microeconomics-based models by Mankiw, and Akerlof and Yellen clearly show that the private benefits of changing a price can be much smaller than the social benefits if there is substantial monopoly power in the economy.

We follow Dornbusch, Fischer and Startz (2004) in presenting a simplified version of the formal Mankiw model. The model relies on the fact that in monopolistic markets firms face a downward-sloping (less than infinitely elastic) demand curve and can set a price that deviates from the optimum profit-maximising price without a large swing in demand away from the firm. This is not possible in a perfectly competitive market, where every firm faces a horizontal (infinitely elastic) demand curve – a small deviation from the optimal price can in this situation lead to a large swing demand and profits away from the firm. Even if a competitive firm faces the same kind of menu costs as an imperfectly competitive firm, the loss of profits by not changing the price can be big enough to outweigh the menu costs. A competitive firm is not, of course, a price setter.

Not so for the imperfectly competitive firm. Mankiw showed that the potential profits from raising prices could be very small for such firms especially if the elasticity of demand for firm's output is low, i.e., if monopoly power of the firm is high, and if the deviation of the actual price from the optimal profit-maximising price is small. The menu cost could well be higher than the potential profits in such a case and the firm does not change its price. Other firms are likely to be similar and they too leave their prices unchanged, with the result that the nominal price level remains unchanged.

The Keynesian conclusion of an increase in money supply on output rather than on prices follows from this. An increase in money supply, prices remaining unchanged, leads to an increase in real money supply. This leads to an increase in aggregate output, either through a decrease in the rate of interest (*à la*

Keynes) or through a real-balance effect. You should note that there would have been no output effects in a classical model if prices were free to vary. An important difference between the classicals and the Keynesians is hereby established.

As Dornbusch, Fischer and Startz (2004, p. 566) put it about the papers of Mankiw, and Akerlof and Yellen:

This work provides a rigorous microeconomic justification for nominal price stickiness. Since New Classical economists attack the rigour of the underpinnings of Keynesian models, such justification is a key piece of Keynesian response to rational expectations and real business cycle models. Not everyone agrees on the empirical significance of the formulation by Mankiw and by Akerlof and Yellen, but the work is certainly a mile stone in the New Keynesian counterrevolution.

**Check Your Progress 3**

- 1) What are menu costs?  
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- 2) How can the concept of menu costs be used to rationalise nominal price rigidities?  
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**15.5 REAL RIGIDITIES**

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As we brought out in Section 15.3, the New Keynesian economists rely both on nominal and real rigidities to arrive at their conclusion that nominal changes in money supply have real, and not merely nominal, effects on the economy. As we indicated in Section 15.4, an increase in money supply can lead to a rise in the aggregate output and not in the price level. The flip side of this is, of course, that a fall in the money supply can lead to a fall in output and an increase in unemployment.

There is, however, a view that introducing price-setting in imperfectly competitive markets and menu costs into an economy is however not enough to generate substantial nominal rigidity at the micro level. Further, as per this view, menu costs can have important macroeconomic effects only in the presence of real instead of nominal, rigidities. This is so because it can be shown that for realistic values of elasticity of labour supply and elasticity of output demand, price-setting firms have strong incentives to change price when aggregate demand changes even by incurring menu costs required for changing nominal prices. Thus if the elasticity of demand for a firm’s output is high, say 5, and the elasticity of labour supply is low, say 0.1, then Romer (2001) shows that, for a 3 per cent fall in output, the increase in profits by changing the price is about one-fourth of the revenue. This clearly suggests that firms will be ready to bear even up to one-fourth of the revenue as menu costs needed for changing the prices, if the elasticity of output demand is high and the elasticity of labour

supply is low. If these elasticity values are realistic, then the existence of menu costs for changing prices cannot be used as a rationale for nominal price rigidity and consequent unemployment. Some other factors have to be invoked to explain the constancy of nominal prices, in the face of, e.g., changes in money supply.

The other factors that have been invoked have to do with the characteristics of the goods, labour and credit markets. These markets differ in important ways from the competitive model. In particular, the goods and labour markets appear to be such that shifts in demand translate into a smaller variation in prices and a larger variation in quantities than would be predicted in a competitive set-up. In the goods market, for example, shifts in demand for goods, in an imperfectly competitive set-up, are not accompanied by changes in mark-ups but by changes in output. Again, in the labour market, shifts in the demand for labour lead to large changes in employment and small changes in real wages. Here we are referring the rigidity in real prices in relation to quantities. Such rigidities occurring because of specific characteristics of the goods, labour and credit markets are referred to as real rigidities.

The argument in Section 15.4 was based on nominal rigidities in the price level. In this section we look at real rigidities in the goods, credit and labour markets to examine how these can translate into less than full employment output. The characteristics of the labour market that produce unemployment are examined in further details in Unit 18.

### 15.5.1 Real Rigidities in the Goods Market

The most important factor associated with real rigidity in the goods market is the existence of imperfect competition. Imperfect competition enables producers to be price-setters and generates rigidity in real prices in relation to quantities.

Under imperfect competition price is set, not equal to marginal cost, but as a mark-up over cost. The mark-up covers fixed costs of production including profits. One of the important propositions of the New Keynesian economics is that the mark-up behaves in a countercyclical fashion, i.e., it decreases during booms and increases over the downward phase of a business cycle. It is these countercyclical movements of the mark-up that produce rigidity in prices of goods. An increase in aggregate demand translates, not into an increase in prices, but into an increase in quantities of goods produced, and thereby of employment.

Why do mark-ups behave in a countercyclical manner? Several reasons have been postulated:

- i) Higher level of economic activity during booms reduces the importance of costs of acquiring and disseminating information and thus makes markets more competitive. This has been referred to in the literature as “thick-market” effects.
- ii) It has been suggested that increased profits created by greater economic activity make it difficult for oligopolists to maintain collusion – incentives are generated to break away from oligopolistic structures. This puts downward pressures on mark-ups.
- iii) It has also been suggested that mark-up is countercyclical because marginal costs are pro-cyclical. Marginal costs are considered to be pro-cyclical because overtime paid to workers is highly pro-cyclical and hence expensive to firms. This, however, begs the question about why prices are rigid in the goods market. The argument here seems to be that, because prices are rigid, the mark-up is compressed as marginal costs rise. We have been attempting

to explain the rigidity of prices by postulating that mark-ups fall over booms *in spite of* costs rising (and not *because of* increase in costs) for reasons independent of the rise in costs.

When price rigidities exist in imperfectly competitive goods markets, the impact of increase (decrease) in aggregate demand is borne by quantities leading to an increase (decrease) in aggregate output and employment.

### 15.5.2 Real Rigidities in the Credit Market

You have seen in Section 15.5.1 how imperfections in the goods markets enable firms to set prices so as to generate price rigidities, e.g., because of countercyclical mark-ups used in setting the prices oligopolistically. You know that such price rigidities have macroeconomic consequences, e.g., changes in aggregate demand influence output and employment rather than prices. Imperfections in the credit market too similarly have macroeconomic consequences. The imperfections in the credit market which have macroeconomic consequences are broadly classified as rigidities in the credit market. In this sub-section we examine some of the macroeconomic consequences of these credit-market rigidities.

Imperfections arise in the credit market primarily because of asymmetric information between lenders and borrowers. Borrowers are better informed than the lenders about the quality of their investment projects and even the probability of success of the projects. It has been shown that these type of information asymmetries can have important microeconomic consequences like equilibrium credit rationing, need for financial intermediation, and need for government intervention.

But, more importantly for us, credit market imperfections such as information asymmetries have macroeconomic consequences. It has been shown that in the monetary policy transmission mechanism

- i) credit channel is more important than money supply channel, and
- ii) credit-rationing is more important than rise in interest rate in the implementation of a restrictive monetary policy.

Thus when a restrictive monetary policy reduces reserve money, i.e., the quantity of bank reserves, the ability of the banks to lend is affected. The shortfall in credit is not necessarily made up by other lenders, given the imperfections in the credit market in the form of information asymmetries between lenders and borrowers. Banks are actually in a better position than many of the other lenders to overcome the adverse effects of information asymmetries through their role of a financial intermediary. Thus, the transmission mechanism operates largely through availability of loans. The process of credit rationing that takes place when loans are curtailed become more important in reducing aggregate demand than the process initiated by an increase in the rate of interest through the reduction of money supply.

Given this importance of credit markets, credit-market imperfections can propagate and magnify the effects of real disturbances. Shocks that act initially to reduce output or to redistribute wealth from borrowers to lenders cause credit markets to function less efficiency which leads to a further decline in output through the credit channel. It has been shown that disturbances that would have mild effects with Walrasian credit markets (e.g., with no asymmetries of information between lenders and borrowers) can cause a financial collapse in the presence of such imperfections because of the magnification effects.

### 15.5.3 Real Rigidities in the Labour Market

New Keynesian theories of the labour market help in explaining the existence of involuntary unemployment. The theories also attempt to explain why changes in

aggregate demand lead to larger changes in employment and relatively smaller changes in the real wage in the labour market. One of the reasons postulated for the existence of unemployment in the labour market is that firms voluntarily pay higher real wages, as compared to the market-clearing wage, to the workers on their rolls with a view to increasing their efficiency and/ or with a view to providing them the incentives not to shirk work in a situation where the effort level of the workers cannot be perfectly monitored. The imperfections caused thereby in the labour market lead to unemployment. We will consider efficiency wage model postulated in New Keynesian theories of unemployment in greater details in the next unit (Unit 18).

**Check Your Progress 4**

- 1) Why do real rigidities occur in the following markets?
  - i) Goods market
  - ii) Labour market
  - iii) Credit market

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**15.6 LET US SUM UP**

The distinction between the Classical and the Keynesian school revolves around their assumption about flexibility/ rigidity of wage and prices. The Classics assumed prices to be flexible and thereby postulated full employment of resources, whereas the Keynesians assumed wage/ price rigidity and thereby rationalised the existence of persistent unemployment. This distinction between the Classics and the Keynesians continues between the New Classics and the New Keynesians.

The New Keynesian theory largely rationalises existence of unemployment through the existence of nominal and real rigidities. Nominal rigidities refer to the inflexibility of nominal wages and prices. Real rigidities refer to imperfections in the goods, credit and labour markets which lead to the relative prices and real wages being different from what would be predicted by a competitive Walrasian model.

Mankiw builds up a model to show why nominal rigidity exists and why it could lead to large macroeconomic consequences like aggregate unemployment. The concept used in showing this is that of menu costs – the costs incurred in changing prices in a situation where the firm has a price-setting power. Such costs are large in relation to incremental profits obtained by changing the price especially when the elasticity of demand is low and the deviation of the actual price from the profit-maximising optimal price is not too high. The nominal price rigidity that follows leads to unemployment.

Macroeconomic consequences like unemployment also follow from imperfections in the goods, credit and labour markets. Such imperfections are referred to as real rigidities. In the labour market they occur because, for example, the real wage paid is higher than the market clearing wage for reasons that will be dealt with in details in Unit 18. In the goods market, the real rigidity follows from, e.g., countercyclical mark-ups used by price-setting firms, whereas in the credit market the imperfections occur basically because of information asymmetries.

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## 15.7 KEY WORDS

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**Countercyclical behaviour of the Mark-up:** The behaviour whereby the price mark-up ratio decreases during the upward phase of a business cycle and increases during the downward phase.

**Efficiency wage:** A wage higher than the market-clearing wage voluntarily paid by firms to their workers to increase their efficiency and to prevent them from shirking.

**Information asymmetry (in the credit market):** A situation wherein borrowers have more information than the lenders about the characteristics of their investment projects. This generates inefficiencies in the credit market that leads to credit-rationing and may call for government intervention.

**Mark-up:** Ratio of price to marginal cost  $\left(\frac{P}{MC}\right)$

**Menu cost:** A small fixed cost of changing a nominal price. The name comes from the costs incurred by restaurants to print new menu cards when nominal prices increase.

**Microeconomic Foundations of Keynesian Economics:** Derivation of macroeconomic relationships and results of Keynesian economics by postulating optimising behaviour by rational individuals.

**Nominal price rigidity:** The state of prices not changing as much as they would have changed in money terms under competitive conditions.

**Real rigidity:** The state wherein relative prices in the goods market and real wages in the labour market do not change as much as would be expected under competitive conditions. Quantities change more than prices in response to, e.g., changes in aggregate demand. This happens because of certain imperfections of the markets concerned.

**Transmission mechanism:** The mechanism through which monetary policy-induced changes affect the economy in general and output and employment in particular.

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## 15.8 SOME USEFUL BOOKS

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Blanchard, O.J. and S. Fischer, 2000, *Lectures on Macroeconomics*, Prentice-Hall of India, New Delhi

Dornbusch, R., S. Fischer and R. Startz, 2004, *Macroeconomics*, Ninth Edition, Tata McGraw-Hill, New Delhi. See Chapter 20, Section 6

Romer, D., 2001, *Advanced Macroeconomics*, Second Edition, McGraw-Hill International, New Delhi

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## 15.9 ANSWERS/ HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

- 1) The distinction between flexibility and rigidity of prices is important because the assumption of flexibility leads to the classical conclusion of full employment, whereas the assumption of rigidity leads to the Keynesian conclusion of existence of persistent unemployment. The two assumptions give us two different ways of looking at macroeconomic phenomenon.

- 2) The New Classicals assume price flexibility and hence perfect competition, whereas the New Keynesians assume price-setting power for firms in the context of imperfect competition. There is no distinction, though in the analytical tools of the two schools: both use optimisation models peopled by rational individuals.

### Check Your Progress 2

- 1) Nominal rigidities exist when prices in money terms do not change as much as they would under competitive conditions. Real rigidities, on the other hand, refer to certain imperfections in the goods, labour and credit markets which prevent relative prices and real wages from changing as much as they would under Walrasian conditions.

### Check Your Progress 3

- 1) Menu costs are costs incurred by price-setting firms in changing the price that they charge. Such costs can be quite high in absolute terms if, for example, price changes require costly adjustments to automatic dispensing machines.
- 2) Even if menu costs are not high in absolute terms they may turn out to be higher in relation to the private benefit that would be obtained in terms of increased profits by changing the price.
- 3) The distinction between private and social benefits becomes important in the context of the Mankiw model because, under certain conditions defined by, *inter alia*, the elasticity of demand, not much of private benefits are obtained by a price-setting firm in terms of higher profits by changing the price. If menu costs are higher than these private benefits, the firms do not change the price. The price rigidity that this entails leads to unemployment. If only the price had been changed the social benefit obtained by way of reduction in unemployment would perhaps be higher than the menu costs.

### Check Your Progress 4

- 1) Real rigidities occur in goods market because, in an imperfectly competitive set-up, firms do not change prices – they accept instead a change in the mark-up that they charge to fix the price. In credit markets, rigidities occur ultimately because of the existence of imperfections in the form of information asymmetries – borrowers being more informed of their investment projects than lenders. Rigidities exist in the labour market in as much as real wages paid are higher than the market-clearing wage. This could happen because of efficiency wage considerations.

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# UNIT 16 NEW KEYNESIAN THEORIES OF UNEMPLOYMENT

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## Structure

- 16.0 Objectives
- 16.1 Introduction
- 16.2 Keynesian and New-Keynesian Theories of Unemployment and the Behaviour of Real Wages
- 16.3 Efficiency-Wage Theories of Unemployment
- 16.4 Efficiency-Wage Model: An Example
  - 16.4.1 Specification of the Model
  - 16.4.2 Solution of the Model
  - 16.4.3 Implications of the Model Solution
  - 16.4.4 Possible Extensions of the Model
- 16.5 Contracting and Insider-Outsider Models of Unemployment
- 16.6 Let Us Sum Up
- 16.7 Key Words
- 16.8 Some Useful Books
- 16.9 Answers/ Hints to Check Your Progress Exercises

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## 16.0 OBJECTIVES

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After going through this unit you should be in a position to:

- explain clearly what is meant by non-Walrasian features of the labour market;
- appreciate that, empirically, real wages behave moderately pro-cyclically;
- explain some reasons why efficiency of workers could increase when firms pay higher than market-clearing wages;
- develop an efficiency-wage model and examine its solution;
- indicate the directions for extending the efficiency wage model;
- explain why real wage rigidity and unemployment can emerge because of contracting; and
- find out the implications to unemployment of the existence of employed workers (insiders) along with unemployed workers (outsiders).

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## 16.1 INTRODUCTION

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In this unit we consider in detail some New Keynesian theories of unemployment. These theories are essentially non-Walrasian theories of unemployment. This means that the observed phenomenon of unemployment is not brushed aside as the working out of unimportant frictions as workers move between jobs; or even as involuntary unemployment of workers who are ready to work only at a higher wage than that which is available on the market. You have already looked at the difference between Walrasian and non-Walrasian theories of unemployment in Section 14.2 of Unit 14 where we considered an unemployed worker, who claimed to be identical to a firm's current workers, and who offered to work for the firm at a marginally lower wage than the one the firm is currently paying its workers. At this stage, you are advised to revise the four possible responses of the firm that were considered in Section 14.2. The