An Investigation of Wage and Price Rigidity Theories

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Abstract: This paper has considered rigidity theories in new Keynesian macroeconomics school. These rigidities consist of: Nominal wage rigidity, Nominal price rigidity, real price rigidity and real wage rigidity.

Key words: New Keynesian Macroeconomics School, Nominal Rigidity, Real Rigidity

INTRODUCTION

One of the central ideas of the Keynesian theory is that wages and prices are sticky and do not adjust quickly to market-clearing levels. This implies that the economy can be away from its general equilibrium for significant period of time Keynesians believe that the government should act to eliminate – or at least minimize – these periods of low output and high unemployment. Wages and prices rigidity could be consistent with the idea that individuals and firms are economically rational; that is, they do the best they can for themselves when making economic decisions.

RESULTS AND DISCUSSION

1.1. Nominal Wage Rigidity:

In traditional Keynesian models the price level is prevented from falling to restore equilibrium by the failure of money wages (costs) to adjust. The early Keynesian attempts to fortify their theoretical structure concentrated on nominal wage rigidities and the models developed by Fischer (1977) and Taylor (1980) introduced nominal inertia in the form of long-term wage contracts. In developed economies wages are not determined in spot markets but tend to be set for an agreed period in the form of an explicit (or implicit) contract. The existence of these long-term contracts can generate sufficient nominal wage rigidity for monetary policy to regain its effectiveness. It should be noted, however, that neither Fischer nor Phelps and Taylor pretend to have a rigorous micro foundation for their price- and wage-setting assumptions. Instead they take it for granted that there is a ‘revealed preference’ for long-term wage contracts reflecting the perceived disadvantages that accompany too frequent adjustments to wages and prices (for an innovative attempt to explain nominal wage inflexibility, see Laing, 1993).

Fischer (1977) makes the ‘empirically reasonable’ assumption that economic agents negotiate contracts in nominal terms for ‘periods longer than the time it takes the monetary authority to react to changing economic circumstances’. Because the monetary authorities can change the money supply (and hence inflation) more frequently than overlapping labor contracts are renegotiated, monetary policy can have real effects in the short run although it will remain neutral in the long run. In effect, if the monetary authorities can react to nominal demand shocks more quickly than the private sector can renegotiate nominal wages, there is scope for discretionary intervention. The fixed nominal wage gives the monetary authorities a handle on the real wage rate and hence employment and output. The non-neutrality of money in the Fischer model is not due to an unanticipated monetary surprise. Anticipated monetary policy has real effects because it is based on information that only becomes available after the contract has been made.

1.2. Nominal Price Rigidity:

Keynesian models based on nominal wage contracting soon came in for considerable criticism (see Barro, 1977b). Critics pointed out that the existence of such contracts is not explained from solid microeconomic principles.

A further problem relates to the countercyclical path of the real wage in models with nominal wage contracts. In Fischer’s model, a monetary expansion increases employment by lowering the real wage. The stylized facts of the business cycle do not provide strong support for this implication since real wages appear to be mildly procyclical (see Mankiw, 1990). Indeed, it was this issue that persuaded Mankiw (1991) that sticky nominal wage models made little sense. A combination of price-taking firms, neoclassical production technology and sticky nominal wages implies that aggregate demand contractions will be associated with a rise in the real wage, that is, real wages move counter cyclically. As Mankiw notes, if this were the case then recessions would be ‘quite popular’. While many people will be laid off, most people who remain employed will...
enjoy a higher real wage! ‘If high real wages accompanied low employment as the General Theory and my Professors has taught me, then most households would welcome economic downturns’ So ‘it was thinking about the real wage puzzle that originally got me interested in thinking about imperfections in goods markets, and eventually, about monopolistically competitive firms facing menu costs’ (Mankiw, 1991.)

As a result of these and other criticisms, some economists sympathetic to the Keynesian view that business cycles can be caused by fluctuations of aggregate demand switched their attention to nominal rigidities in the goods market, rather than continue with research into nominal wage inertia (Andersen, 1994). Indeed, the term ‘new Keynesian’ emerged in the mid-1980s as a description of those new theories that attempted to provide more solid micro foundations for the phenomenon of nominal price rigidity (see Rotemberg, 1987). From this standpoint, the ‘fundamental new idea behind new Keynesian models is that of imperfect competition’ (Ibid.). This is the crucial innovation which differentiates new Keynesians from Keynes, orthodox Keynesians, monetarists and new classicals.

If the process of changing prices were a costless exercise and if the failure to adjust prices involved substantial changes in a firm’s profitability we would certainly expect to observe a high degree of nominal price flexibility. A firm operating under conditions of perfect competition is a price taker, and prices change automatically to clear markets as demand and supply conditions change. Since each firm can sell as much output as it likes at the going market price, a perfectly competitive firm which attempted to charge a price above the market clearing level would have zero sales. There is also no profit incentive to reduce price independently, given that the firm’s demand curve is perfectly elastic at the prevailing market price. Thus in this world of perfect price flexibility it makes no sense to talk of the individual firm having a pricing decision. When firms operate in imperfectly competitive markets a firm’s profits will vary differentially with changes in its own price because its sales will not fall to zero if it marginally increases price. Price reductions by such a firm will increase sales but also result in less revenue per unit sold. In such circumstances any divergence of price from the optimum will only produce ‘second-order’ reductions of profits. Hence the presence of even small costs to price adjustment can generate considerable aggregate nominal price rigidity.

If the presence of menu costs and/or near rational behavior causes nominal price rigidity, shocks to nominal aggregate demand will cause large fluctuations in output and welfare. Since such fluctuations are inefficient, this indicates that stabilization policy is desirable. Obviously if money wages are rigid (because of contracts) the marginal cost curve will be sticky, thus reinforcing the impact of menu costs in producing price rigidities.

1.3. Real Rigidities:

One important criticism of the menu cost literature noted by Ball et al. (1988) is that models with nominal frictions can in theory produce large nominal rigidities but ‘do so for implausible parameter values’. However, Ball and Romer (1990) demonstrated that substantial nominal rigidities can result from a combination of real rigidities and small frictions to nominal adjustment. Indeed, Mankiw and Romer (1991) identify the interaction between nominal and real imperfections as ‘a distinguishing feature of the new Keynesian economies’. If all nominal prices in an economy were completely and instantaneously flexible, a purely nominal shock would leave the real equilibrium of an economy unchanged. As Ball and Romer (1990) note, ‘Real rigidity does not imply nominal rigidity: without an independent source of nominal stickiness prices adjust fully to nominal shocks regardless of the extent of real rigidities.’ However, rigidity of real prices and wages will magnify the non-neutralities which result from small nominal frictions. The importance of this point can be seen by considering the impact of a decline in the money supply. Suppose initially that the presence of menu costs deters firms from reducing their prices in response to this nominal disturbance. With the price level unchanged real output will decline. Each monopolistically competitive firm will find that its demand curve has shifted to the left. Because each firm is producing less output, the effective demand for labour declines (see Abel and Bernanke, 2001). If labour supply is relatively inelastic, the shift of labour demand implied by the decline inoutput will cause a large fall in real wages; that is, the nominal wage rate declines to bring this about (see Ball et al., 1988; Gordon, 1990; D. Romer, 1993). This decline in the real wage rate implies a decline in marginal cost, a decline which will be strongly reinforced if the marginal product of labour rises sharply as the labour input decreases.

Rotemberg and Woodford (1991) suggest that desired mark-ups over marginal cost fall during a boom because it becomes increasingly difficult to maintain oligopolistic collusion; that is, industries become more competitive in periods of high economic activity. During recessions implicit collusion increases, leading to a countercyclical mark-up that acts as a real rigidity, magnifying the impact on nominal rigidity of relatively small menu costs (D. Romer, 2001).

1.4. Other Sources of Real Price Rigidity:

We have already noted that mild sensitivity of marginal cost to variations in output and procyclical elasticity of demand (implying a countercyclical markup) will contribute towards real price rigidity. The new Keynesian literature has also identified several other potential sources of real price rigidity.
Thick market externalities. In the real world buyers and sellers are not brought together without incurring search costs. Consumers must spend time searching the market for the goods they desire and firms advertise in order to attract customers. Workers and employers must also spend time and resources searching the market. When markets are thick during periods of high economic activity it seems plausible that search costs will be lower than is the case in a thin market characterized by a low level of trading activity (see Diamond, 1982). It may also be the case that people are much more willing to participate in thick markets where a lot of trade is taking place and this leads to strategic complementarity; that is, the optimal level of activity of one firm depends on the activity of other firms. If these thick market externalities help to shift the marginal cost curve up in recessions and down in booms, then this will contribute to real price rigidity.

Customer markets. The distinction between auction and customer markets has been developed by Okun (1975, 1981). The crucial characteristic of a customer market is a low frequency of search relative to the frequency of purchase (McDonald, 1992). Most products are sold through a process of shopping and, providing the costs of searching the market are non-trivial, the buyer will always have imperfect (limited) information concerning the lowest price in the marketplace. Because of the search costs associated with the shopping process, sellers have some monopoly power even though there may be a large number of firms in the market, each selling a similar product. Since a large number of customers make repetitive purchases it is in the interests of any firm to discourage its customers from searching the market in order to find a better deal. Firms are therefore discouraged from frequently changing their prices, a practice which will provide an incentive for customers to look elsewhere. Whereas an increase in price will be noticed immediately by customers, a decrease in price will produce a much smaller initial response as it takes time for this new information to reach the buyers at other firms. This difference in the response rates of customers to price increases and decreases, and the desire of a firm to hold on to its regular customers, will tend to produce relative price stickiness (see Phelps, 1985, for an excellent discussion of customer markets).

Price rigidity and the input–output table. Gordon (1981, 1990) has drawn attention to the complexity of decision making in a world where, typically, thousands of firms buy thousands of components containing thousands of ingredients from numerous other firms, many of which may reside overseas. ‘Once decentralization and multiplicity of supplier–producer relationships are recognized, no single firm can perform an action that would eliminate the aggregate business cycle’ (Gordon, 1981.) Because a firm is linked to thousands of other firms via a complex input–output table, it is impossible for it to know the identity of all the other agents linked together in the web of supplier–producer relationships. Because of this complexity there is no certainty that marginal revenue and marginal cost will move in tandem following an aggregate demand shock. There is no certainty for an individual firm that, following a decline in aggregate demand, its marginal cost will move in proportion to the decline in demand for its products. Many of its suppliers may be firms in other countries facing different aggregate demand conditions. To reduce price in these circumstances is more likely to produce bankruptcy for the particular firm than it is to contribute to the elimination of the business cycle because a typical firm will be subject to both local and aggregate demand shocks as well as local and aggregate cost shocks.

Capital market imperfections. An important obstacle to firms seeking external finance is the problem of asymmetric information between borrowers and lenders; that is, borrowers are much better informed about the viability and quality of their investment projects than lenders. One consequence of this will be that external finance will be more expensive to a firm than internal finance. During booms when firms are making higher profits there are more internal funds to finance various projects. Hence during recessions the cost of finance rises as the result of a greater reliance on external sources. If the cost of capital is countercyclical, this too will tend to make a firm’s costs rise during a recession (see Bernanke and Gertler, 1989; D. Romer, 1993).

Judging quality by price. Stiglitz (1987) has emphasized another reason why firms may be reluctant to reduce price when faced with a decline in demand. In markets where customers have imperfect information about the characteristics of the products which they wish to buy, the price may be used as a quality signal. By lowering price a firm runs the risk that its customers (or potential customers) may interpret this action as a signal indicating a deterioration of quality. Having examined several potential sources of real rigidity in the product market, we will now turn to real rigidities in the labour market. If real wages are rigid in the face of demand disturbances, this substantially reduces a firm’s incentive to vary its price as a response to such disturbances.

1.5. Real Wage Rigidity:

Keynesian economists are also concerned to explain the persistently high levels of unemployment that have been a major feature of the labour markets of the major industrial countries since the early 1970s and particularly in Europe during the 1980s. In a new Keynesian world, where price makers predominate, an equilibrium real wage can emerge which differs from the market-clearing real wage. Stiglitz (1987) defines a market equilibrium as ‘a state where no agents have an incentive to change their behaviour’ and in new Keynesian models of real wage rigidity equilibrium may not be characterized by market clearing; that is, demand equals supply. Models involving real wage rigidity are capable of generating involuntary
unemployment in long-run equilibrium, in contrast to new classical models where, with everyone on their labour supply function, unemployment in equilibrium is a voluntary phenomenon. New Keynesian explanations of real wage rigidity fall into three main groups: (i) implicit contract theories; (ii) efficiency wage theories; and (iii) insider–outsider theories.

Implicit contract models. The original implicit (non-union) contract models were provided by Bailey (1974), D.F. Gordon (1974) and Azariadis (1975). Following the development of the natural rate hypothesis (Friedman, 1968a; Phelps, 1968), economists devoted more attention to modelling labour market behaviour as the outcome of maximizing behaviour. The main contribution of the ‘new’ microeconomics literature (Phelps et al., 1970) was to explain why the natural rate of unemployment was positive. However, there appears to be much less turnover in the labour market than search theory implies. Furthermore, wages frequently diverge from marginal productivities. Implicit contract theory seeks to understand what it is that forms the ‘economic glue’ that keeps workers and firms together in long-term relationships since such arrangements, rather than the Walrasian auctioneer, dominate the labour market. Because firms seek to maintain the loyalty of their workforce they find it necessary to enter into unwritten (implicit) understandings with their workers. This ‘invisible handshake’ provides each worker with assurances concerning the terms of the working relationship under a variety of working circumstances. The models of Bailey, Gordon and Azariadis examine the consequences of optimal labour contracts established between risk-neutral firms and risk-averse workers. In these circumstances the wage rate not only represents payment for labour services but also serves as an insurance against the risk of variable income in the face of shocks. A constant real wage smooths the individual worker’s consumption stream and firms provide this ‘insurance’ since they are in a better position than workers to weather economic fluctuations, given their better access to capital and insurance markets. Because firms provide stable wages over time, workers, for their part, accept a real wage which is lower on average than the highly varying rates that would be dictated by market forces.

A major problem with this approach is that it predicts work sharing rather than lay-offs when the economic climate deteriorates. The theory also fails to explain why the firm does not pay lower wages to new recruits. In attempting to remedy these and other weaknesses of this explanation of real wage rigidity, new Keynesian economists have developed efficiency wage and insider–outsider models of wage inertia (see Manning, 1995).

Efficiency wage models. Any acceptable account of involuntary unemployment must explain why unemployed workers are unable to bid down wages to a level that will generate full employment. Efficiency wage theories suggest that it is not in a firm’s interest to lower real wages because the productivity (effort or efficiency) of workers is not independent of the wage, rather real wages and worker effort are interdependent, at least over some meaningful range. Efficiency wage theory, described by Gordon (1990) as the ‘rage of the 80s’, is surveyed by Yellen (1984), Akerlof and Yellen (1986), Katz (1986, 1988), Haley (1990), and Weiss (1991); see also Akerlof (1979, 2002), and Stiglitz (2002).

Solow (1979) provides the basic structure of efficiency wage models. In Solow’s model, wage stickiness is in the employer’s interest because wage cutting would lower productivity and raise costs. Because the wage enters a firm’s short-run production function in a labour-augmenting way, a cost minimizing firm will favour real wage rigidity. This can be demonstrated as follows (see Yellen, 1984; Katz, 1988).

The idea that worker productivity and real wages might be positively related over some range was clearly recognized by Alfred Marshall, who observed that ‘highly paid labour is generally efficient and therefore not dear labour’ (Marshall, 1920). Much later, the efficiency wage idea reappeared in the literature relating to developing economies (Leibenstein, 1957; Bardhan, 1993). In this context higher wages increase the physical well-being of workers through higher nutrition, and by reducing malnourishment higher real wages improve labour efficiency. In the developed-country context, where most workers have adequate nutrition, a different rationale is needed. The modern efficiency wage theories which have been put forward relate in general to the issues of selection and incentives and four categories of efficiency wage theory can be identified: (i) the adverse selection model (for example, Weiss, 1980); (ii) the labour turnover model (for example, Salop, 1979); (iii) the shirking model (for example, Shapiro and Stiglitz, 1984); and (iv) the fairness model (for example, Akerlof, 1982). We will examine each of these in turn. The reader should note that the papers referred to above (i–iv) are all collected in Akerlof and Yellen (1986).

In the adverse selection model, firms that offer higher wages will attract the best workers. Because the labour market is populated by heterogeneous individuals, firms have imperfect information about the productivity characteristics of job applicants; the labour market is an excellent example of a market where asymmetric information predominates. When there is asymmetric information one party to a transaction has more information than the other party. In this case workers have more information about their own abilities, honesty and commitment than employers before they are hired and will attempt to send signals to potential employers that convey information about their qualities, such as educational qualifications, previous employment record and current wage if employed (see Spence, 1974, for a discussion of job market signalling). Because of the non-trivial hiring and firing costs firms prefer not to hire workers and then find they need to fire those with low productivity. The firm may also need to invest considerable resources in training new employees...
before it becomes clear that they are not up to scratch. One way of avoiding this problem is for the firm to send a signal to the labour market in the form of offers of high wages. In the model presented by Weiss (1980) the wage offered by a firm influences both the number and quality of job applicants. If workers’ abilities are closely connected to their reservation wage, then higher wage offers will attract the most productive job applicants and any applicant who offers to work for less than the efficiency wage will be regarded as a potential ‘lemon’. Firms will also be reluctant to lower wage rates even if faced with an excess supply of labour wishing to work at the prevailing wage offer because this would in all likelihood induce the most productive workers to quit voluntarily. As a result of these influences an underemployment equilibrium is attained. To avoid adverse selection problems firms will attempt to introduce screening devices, but these measures involve costs, as will the continuous monitoring of workers after they have been appointed.

The labour turnover model. A second reason why firms may offer an efficiency wage in excess of the market-clearing wage is to reduce costly labour turnover. This approach received inspiration from the pioneering work of Phelps (1968) and Phelps et al. (1970) in the development of explanations of the natural rate of unemployment and search behaviour. The idea here is that workers’ willingness to quit a job will be significantly reduced if a firm pays above the going rate. With quitting rates a decreasing function of the real wage, firms have an incentive to pay an efficiency wage to reduce costly labour turnover. In the model developed by Salop (1979), labour market equilibrium entails involuntary unemployment since all firms need to raise their wages to deter workers from quitting. In situations where unemployment increases, the wage premium necessary to deter labour turnover will fall.

The shirking model. In most occupations labour contracts are incomplete, which allows workers to exercise discretion with respect to their effort levels. Because contracts cannot specify every aspect of a worker’s performance and duties there is ‘effort discretion’ (see Leibenstein, 1979, for a similar approach). Since the collection of information relating to the productivity of individual workers and the continual monitoring of workers is very costly to the firm, the payment of an efficiency wage in excess of the market-clearing equilibrium wage can act as an incentive which will deter the worker from shirking. Such behaviour may be particularly difficult to detect and monitor when teamwork characterizes the workplace. The possibility that workers may vary their effort is a further example of the type of problem that can arise when there is an informational asymmetry present. Workers know more about their effort levels than do their employers. This asymmetry creates a ‘principal–agent’ problem. An agency relationship develops whenever there is a relationship between economic actors and the welfare of one person depends on the actions of the other party; that is, when the welfare of the principal is influenced by the action (or inaction) of the agent. In the labour market case the principal is the owner of an enterprise and the managers and other workers are the agents. One way of reducing the problem of shirking in this context is to pay an efficiency wage. The threat of dismissal is not an effective deterrent in a labour market where workers can quickly find a new job at the same wage rate. However, if a firm pays a wage in excess of that available elsewhere, or if there is unemployment, workers have an incentive not to shirk, since there is now a real cost to being fired and shirking becomes more risky for each worker. In the Shapiro–Stiglitz (1984) model, the payment of an efficiency wage acts as a disincentive to shirking, and involuntary unemployment in equilibrium is an outcome of the problems firms face when monitoring is imperfect: ‘With imperfect monitoring and full employment workers will choose to shirk.’ By being paid more than the going rate, workers now face a real penalty if they are caught shirking. But, as Shapiro and Stiglitz (1984) note, ‘if it pays one firm to raise its wage it will pay all firms to raise their wages’. Since a rise in the general level of real wages raises unemployment, even if all firms pay the same efficiency wage, workers again have an incentive not to shirk because if caught they will now face the possibility of prolonged unemployment. The ‘reserve army’ of the unemployed act as a disincentive device.

The fairness model. In recent years several economists have examined the adverse effects of ‘unfair wages’ and wage cuts on worker effort via the impact such cuts will have on the morale of the workforce. Sociological models stress such factors as the importance of wage relativities, status, relative deprivation, loyalty, trust and equity. In a series of papers, Akerlof (1982, 1984) and Akerlof and Yellen (1987, 1988, 1990) responded to Solow’s (1979, 1980) ‘piece of home-made sociology’ and developed models where feelings about equity and fairness act as a deterrent to firms to offer too low wages in the labour market. Thurow (1983), Blinder (1988a) and Solow (1990) have also indicated that this socioeconomic line of enquiry could prove fruitful as an explanation of persistent unemployment.

Many economists share Akerlof’s concerns and are critical of models where the labour market is modelled in much the same way as a commodity or financial market. The flexible price–auction model employed by new classical economists does not seem to resemble observed labour market behaviour. There are fundamental differences between labour inputs and other nonhuman inputs into the production process:
1. Workers have preferences and feelings; machines and raw materials do not.
2. Workers need to be motivated; machines do not.
3. The productivity of a machine is reasonably well known before purchase, so that problems of asymmetric information relating to quality are much less significant.
4. Workers can strike and ‘break down’ because of ill health (stress and so on); machines can break down but never strike for higher pay or more holidays.
5. The human capital assets of a firm are more illiquid and risky than its capital assets.
6. Workers normally require training; machines do not.
7. Human capital cannot be separated from its owner; non-human capital can.
8. Workers’ utility functions are interdependent, not independent.

Because of these crucial differences, worker productivity is a discretionary variable; the effort or output of a worker is not given in advance and fixed for the future, irrespective of changes which take place in working conditions (see also Leibenstein, 1979). A machine does not get angry when its price fluctuates, nor does it feel upset if it is switched off. In contrast, workers are not indifferent to their price, nor are they unmoved by becoming unemployed against their will. For these and other reasons, the notion of fairness would seem to be an important factor in determining outcomes in the labour market. As Solow (1990) has argued, ‘The most elementary reason for thinking that the concept of fairness, and beliefs about what is fair and what is not, play an important part in labour market behaviour is that we talk about them all the time.’ The words ‘fair’ and ‘unfair’ have even been used by neoclassical economists at university departmental meetings! The first formal model to bring in sociological elements as an explanation of efficiency wages was the seminal paper by Akerlof (1982), where issues relating to fairness lie at the centre of the argument. According to Akerlof, the willing cooperation of workers is something that must usually be obtained by the firm because labour contracts are incomplete and teamwork is frequently the norm. The essence of Akerlof’s gift exchange model is neatly summed up in the phrase ‘A fair day’s work for a fair day’s pay’. Everyday observation suggests that people have an innate psychological need to feel fairly treated, otherwise their morale is adversely affected. In Akerlof’s model, workers’ effort is a positive function of their morale and a major influence on their morale is the remuneration they receive for a given work standard which is regarded as the norm. If a firm pays its workers a wage above the going market rate, workers will respond by raising their group work norms, providing the firm with a gift of higher productivity in exchange for the higher wage.

Sociological efficiency wage models. Solow (1981), drawing on these kinds of concepts, argued that wage rigidity may be at least partly due to social conventions and principles of appropriate behaviour, which are not entirely individualistic in origin. Akerlof (1982) provided the first explicitly sociological model leading to the efficiency wage hypothesis. Using a variety of evidence from sociological studies, Akerlof argues that worker effort depends on the work norms of the relevant reference group. In Akerlof’s partial gift exchange model, the firm can raise group work norms and average effort by paying workers a gift of wages in excess of the minimum required, in return for effort above the minimum required. The sociological model can explain phenomena inexplicable on neoclassical terms, such as why firms do not fire workers who turn out to be less productive; why piece rates are so little used even where quite feasible; and why firms set work standards exceeded by most workers. A possible criticism is that workers do not necessarily view high wages as gifts, but as merely fair (particularly since typically 80% or more of workers consider themselves to be in the top quarter of productivity), in which case they will not reciprocate with high effort. Akerlof and Yellen (1990), responding to these criticisms and building on work from psychology, sociology, and personnel management, introduce “the fair wage-effort hypothesis”, which states that workers form a notion of the fair wage, and if the actual wage is lower, withdraw effort in proportion, so that, depending on the wage-effort elasticity and the costs to the firm of shirking, the fair wage may form a key part of the wage bargain. This provides an explanation of persistent evidence of consistent wage differentials across industries (eg Slichter 1950; Dickens and Katz 1986; Krueger and Summers 1988): if firms must pay high wages to some groups of workers – perhaps because they are in short supply or for other efficiency-wage reasons such as shirking – then demands for fairness will lead to a compression of the pay scale, and wages for other groups within the firm will be higher than in other industries or firms.

The union threat model is one of several explanations for industry wage differentials. This Keynesian economics model looks at the role of unions in wage determination. The degree in which union wages exceed non-union member wages is known as union wage premium and some firms seek to prevent unionization in the first instances. Varying costs of union avoidance across sectors will lead some firms to offer supracompetitive wages as pay premiums to workers in exchange for their avoiding unionization. Under the union threat model (Dickens 1986), the ease with which an industry can defeat a union drive has a negative relationship with its wage differential. In other words, inter-industry wage variability should be low where the threat of unionization is low.

Insider–outsider models. Why don’t unemployed workers offer to work for lower wages than those currently paid to employed workers? If they did so, wages would be bid down and employment would increase. There appears to be an unwritten eleventh commandment: ‘Thou shalt not permit job theft by underbidding and stealing the jobs of thy comrades.’ The insider–outsider theory also attempts to explain why wage rigidity persists in the face of involuntary unemployment (see Ball, 1990, and Sanfey, 1995 for reviews). The insider–outsider approach to real wage rigidity was developed during the 1980s in a series of contributions by Lindbeck.
and Snower (1985, 1986, 1988a, 1988b). In this model the insiders are the incumbent employees and the outsiders are the unemployed workers. Whereas in efficiency wage models it is firms that decide to pay a wage higher than the market-clearing wage, in the insider–outsider approach the focus shifts to the power of the insiders who at least partially determine wage and employment decisions. No direct effects of wages on productivity are assumed.

Where does the insider power come from? According to Lindbeck and Snower, insider power arises as a result of turnover costs (Vetter and Andersen, 1994). These include hiring and firing costs such as those associated with costs of searching the labour market, advertising and screening, negotiating conditions of employment, mandatory severance pay and litigation costs. Other important costs are production-related and arise from the need to train new employees. In addition to these well-known turnover costs, Lindbeck and Snower (1988a) also emphasize a more novel form of cost – the insider’s ability and incentive to cooperate with or harass new workers coming from the ranks of the outsiders. If insiders feel that their position is threatened by outsiders, they can refuse to cooperate with and train new workers, as well as make life at work thoroughly unpleasant. By raising the disutility of work, this causes the outsiders’ reservation wage to rise, making it less attractive for the firm to employ them. To the extent that cooperation and harassment activities lie within the control of workers, they can have a significant influence on turnover costs by their own behaviour.

Because firms with high rates of turnover offer both a lack of job security and few opportunities for advancement, workers have little or no incentive to build reputations with their employers. Low motivation damages productivity and this represents yet another cost of high labour turnover. Because it is costly to exchange a firm’s current employees for unemployed outsiders, the insiders have leverage which they can use to extract a share of the economic rent generated by turnover costs (the firm has an incentive to pay something to avoid costly turnover). Lindbeck and Snower assume that workers have sufficient bargaining power to extract some of this rent during wage negotiations. Although unions are not necessary for insider power, they enhance it with their ability to threaten strikes and work-to-rule forms of non-cooperation (For a discussion of union bargaining models and unemployment, see McDonald and Solow, 1981; Nickell, 1990; Layard et al., 1991.)

Although the insider–outsider theory was originally put forward as an explanation of involuntary unemployment, it also generates some other important predictions (see Lindbeck and Snower, 1988b). First, insider–outsider theory implies that pronounced aggregate shocks which shift the demand for labour may have persistent effects on wages, employment and unemployment. In countries with large labour turnover costs and powerful unions, this ‘effect persistence’ will be significant. Second, in cases where the shocks are mild, firms with high turnover costs have an incentive to hoard labour, and this reduces employment variability. Third, the insider–outsider model can provide a rationale for many features associated with dual labour markets. Fourth, this model has implications for the composition of unemployment. Lindbeck and Snower (1988b) argue that ‘unemployment rates will be comparatively high for people with comparatively little stability in their work records’. This offers an explanation for the relatively high unemployment rates which are frequently typical among the young, the female population and various minority groups. While the insider–outsider theory and efficiency wage theories provide different explanations of involuntary unemployment, they are not incompatible but complementary models, since the amount of involuntary unemployment ‘may depend on what firms are willing to give and what workers are able to get’ (Lindbeck and Snower, 1985).

**Conclusion:**

New Keynesian school of macroeconomics sought to revive the previous influence of Keynesian policy prescriptions by grounding the theory in more solid microfoundations and explicit models of individual maximizing behavior. As a consequence, the New Keynesians adopted many of the methodological tools of the New Classicals, but extended these models to include "Keynesian" features such as sticky prices and other frictions. This paper has surveyed the most important of rigidity theories in New Kenesian School. These rigidities are causes for involuntary unemployment and money non neutrality in short run.

**REFERENCES**


