Models and theories in a frictions and wage rigidities labor market

Cristian MARINESCU
Romanian Court of Accounts, Romania
cristianmarinescu@macroeconomie.ro
Dumitru Alexandru BODISLAV
Bucharest University of Economic Studies, Romania
alex.bodislav@ase.ro

Abstract. *Unlike the classic market vision, where demand and supply meet immediately, at no cost, and prices are determined in such a way that demand equals supply, in the real world frictions occur in the searching process, the price offers of one of the parties are considered too high, be it the goods or services market, the real estate market or the labor market, so there are imbalances that vary over time, excess supply or excess demand.*

In this paper we aim to present the main models and theories in a labor market characterized by friction and wage rigidity, starting from contributions in the field of "frictions on search-based markets" by Peter A. Diamond, as well as from works belonging to economists Dale T. Mortensen and Christopher A. Pissarides, who developed and adapted the Diamond model to make it applicable to the labor market, thus resulting in one of the most used models for the analysis of unemployment and wage formation.

Keywords: labor market, wage rigidities.

JEL Classification: J01, J08, J31.

Introduction

Increased competition in the goods and services market, limiting barriers to trade and increased integration of the goods and services market among European economies, a high level of globalization and outsourcing of services, have the effect of creating a more turbulent environment, an environment with high job volatility, with many creations and destructions jobs. When the economic environment becomes turbulent, existing labor market institutions may become dysfunctional and can lead to high unemployment. Wage protection, which is rarely compulsory before firms dismiss their employees, becomes costly, requires high contributions, and will again generate additional costs for businesses.

In the 1990s, the average unemployment rate in Europe remained extremely high, reaching even 10.4% in 1993 (for the EU15), but this was primarily due to the high heterogeneity between the economies of the member countries. In an OECD report from 1994, it is argued that this was the cause of the high level of unemployment, namely "*rigidities of the labor market*". These were the decisive factor behind the high unemployment in Europe, and this new concept began to be accepted among economists (OECD, 1994, pp. 1-55).

Since 2000, unemployment in Europe has been associated with almost constant inflation. This suggests that the current unemployment rate corresponds rather with a high natural rate rather than a deviation from the natural rate. This explains why the European Central Bank focused on inflation. Keeping a constant inflation rate is the equivalent of keeping unemployment around its natural rate; this natural rate can only be reduced by labor market reforms and this is not the responsibility of the Central Bank.

Thus, more and more economists, both adepts of Keynesian and neo-classics theorists, have tried to promote new theories explaining the changes in time of the natural rate, bringing into question "wage rigidities" and "frictions" existing on the labor market.

Defining the concept of "rigidity"

By the term "rigidity" is meant a certain resistance to changes, to amend, to evolutions. Transposed into the economy, the "rigidity" concept can be associated with both economic systems and certain economic variables.

If we are talking about economic systems, rigidity or resilience (as it is called) is generated by the structure of this system and is therefore a structural rigidity, and when we talk about the rigidity of economic variables, we refer to the "discrepancy" between forecasts the dynamics of a certain economic variable and the actual change of that variable. Therefore, the rigidity of a variable occurs when the effective variation of that variable differs from its expected variation.

The most commonly used economic variables that economists take into account when analyzing rigidities in the economy are the prices of goods and services and salaries, so we

can talk about "price rigidity" and "wage rigidity." Both variables, goods and services prices and labor wages can be deflated, process that will results values related to purchasing power.

In the present paper we will address one of the two economic variables, characterized by rigidity, namely the wages of the labor force. "Salary rigidities" means the property of wages to be constant over time, not to change.

The first attempt to explain by theory a change in time of the natural rate belongs to Bruno and Sachs (1985). They argued that an increase in unemployment could be explained by the interaction of shocks with two types of wage rigidities, namely rigidities of the real wage and rigidities of the nominal wage. The difference between the nominal wage and the real wage is due to deflation, so that by deflating the nominal wage with inflation, which actually indicates the purchasing power of the nominal wage, results the concept of real wage.

Therefore, "real wage rigidities" refers to the rate at which real wages are adjusted to changes in the guaranteed real wage, that is, the time at which, at a given unemployment rate, an employee would accept a reduction in the current wage as a result of productivity reductions, and the rigidities of nominal wage refer to the rate at which nominal wage are adjusted to price changes and inflation. Differences between real and nominal rigidities may explain why, despite similar shocks, to a large extent, different countries have experienced different increases in unemployment. A small increase in unemployment may be due to low real rigidities, resulting in a lower increase in the natural rate.

The European labor market is rigid in many ways. The high cost of dismissal, generous unemployment benefits, and strong employee syndication may be the causes of slow adjustments in the labor market. Moreover, the wage negotiation process is seen as a factor that hinders wages from a rapid adjustment, introducing an important level of wage rigidity. Therefore, rigidities and frictions labor market can be crucial to understanding the inertia of the marginal cost of firms and the way in which they set their price.

Theories and models on a labor market characterized by friction and wage rigidity

The "insider – outsider" theory

The "insider-outsider" theory developed by Lindbeck and Snower (1985) is based on the premise that wage negotiation usually takes place between employees or unions and firms, and for this reason unemployed do not participate in wage negotiating process.

Assuming that trade unions only take care of employment prospects of existing employees, they will require salaries to a value that will allow the firm to keep its current employees and not make new hires. But, due to unexpected, unpredictable shocks, employment may sometimes be higher or lower than desired or expected. In other words, employment will follow a "random walk" for a given workforce (existing in the firm), and the same thing will happen with unemployment. Therefore, for a long time there will not be a natural rate

of unemployment to which the economy will recover, unemployment will not return to an earlier particular value, but instead will be influenced by all shocks in the economy (Blanchard, 2005, p. 53).

Theoretically, even if unemployed do not participate in wage negotiation, there are at least two reasons to believe that unemployment will affect or influence income. The first consideration is that, given the possibility for employees themselves to become unemployed at a certain point in time, they will have to deal directly with the labor market situation, for which reason they will pay close attention to how they will set the salary. Second, wages are not unilaterally established by trade unions, but through a bargaining with employers, and the latter may threaten to hire new labor. Thus, the effect that unemployment has on salary can be reduced, but even if unemployed do not participate directly in wage bargaining, there is a high unemployment rate that can cause the economy to return to the natural rate of unemployment.

An important addition to these series of arguments was provided by Richard Layard and Stephen Nickell (1987) who analyzed the effects of high unemployment on human capital, continuing in this respect the argument originally developed by Phelps in 1972. They showed that in European countries, a high unemployment consistently involves a very long period of unemployment, and this long period of high unemployment means that workers lose their skills and their morale decreases, which creates the possibility for unemployed people to become unemployed. Separating the unemployment rate in short-term and long-term unemployment, Layard and Nickell have shown that in the relationship between unemployment and inflation in the Phillips curve, it is actually about short-term rather than long-term unemployment.

Employees protection is probably one of the key factors underpinning long-term unemployment in Europe. The differences in the protection offered to workers seems to be unrelated to the differences in unemployment rates among European countries. High unemployment insurance makes unemployment less painful and may lead to an increase in negotiated wage. Both effects, in turn, involve an increase in the duration of the unemployment balance and consequently an increase in the natural rate.

Institutional changes do not seem to explain the evolution of unemployment rates over time. Although the rise in unemployment was originally due to external shocks rather than to institutions, the differences between today's unemployment and 1960s unemployment can be explained by less "employment-friendly" institutions than 50 years ago (Blanchard, 2005, pp. 1-53).

It has often been demonstrated that the labor market in Europe is rigid in many ways. The high cost of employment, unemployment benefits and strong unionisation of workers are seen as contributing to a high level of unemployment and a slow adjustment of the labor market, therefore a rigid market. Collective wage negotiations are seen as a mechanism that not allow wages to adjust immediately and therefore generates a high level of wage rigidity.

By marginal cost, any change in wages will be felt in persistent inflation. Records from the OECD countries demonstrates a direct relationship between wages and inflation (Christoffel and Linzert, 2006, pp. 1-47).

The endogenous model of job creation and job destruction

The basic model for the balance of unemployment is the endogenous model of job creation and job destruction developed by Mortensen and Pissarides (1994). They propose a model of unemployment that does not take account of wage behavior or evolution, a model in which creating and destructing jobs is an endogenous process, not influenced by external factors. They demonstrated that an incentive aggregate or a shock in the economy directly influence the labor market causes a negative correlation between the creation and destruction jobs while the dissipation shock of economy, that not acting concentrated and direct to the labor market generates a positive correlation between creating and destructing of jobs. The process of job destruction has higher volatility than job creation process. Mortensen and Pissarides have developed an endogenous model of job creation and job destruction that has been embedded in the equilibrium model of unemployment and wage determination. The authors analyzed the implications that the standard equilibrium model of unemployment has on the process of job creation and job destruction and the aggregate behavior of unemployment or job vacancies. It has been analyzed a type of economy where each job is created to produce a single unit of variation from a particular product. Each variation is unique to a job. A key assumption is that the investment is irreversible in the sense that an already created job cannot change its destination, meaning it cannot produce other product than the one for which it was created. Before creating a job, technology is very flexible and the company can choose which product it wants to achieve.

Wide negative shocks lead to job destruction or losses, but the decision to choose when a job is to be destructed belongs to the companies. Job creation depends on the information available to potential employers. In practice, it is considered that both new and existing firms can generate new jobs. Most new jobs created over an economic cycle belong to existing businesses. Existing firms have better information on the profitability of different product ranges within the sector where they operate, and therefore we can assume that these companies will create more productive jobs than existing ones, which is why the authors state that "newly created jobs are the most profitable in the market (Mortensen and Pissarides, 1994, p. 398).

Each firm has a job that can be in one of the following situations: "busy and productive" or "vacant and looking for workers". Jobs that are not actively producing or not looking for workers are destructed.

Following the literature, the authors say that job creation occurs when a job vacancy meets with a worker and the job becomes productive; just opening a vacancy job cannot say that there is a job creation process, but we can only relate to a vacancy job creation process. In order to be able to talk about a new jobs creating process, it is necessary that those new vacancies created jobs must become productive, namely engaged.

Regarding to job destruction, this happens when a job already engaged leaves the market. Workers may similarly be unemployed and looking for a job or can be employed and productive.

The conclusion reached by the authors regarding to the dynamics of job creation and job destruction is that because of labor productivity changes at random, it was discovered that the anticipation of change occurring cyclic in economy can reduce the cyclicality of job creation and the short-term response to the various economic shocks of job destruction will increase the cyclicality of job destruction.

Studies in the US economy have shown that the flow of job creation and job destruction coexists in all phases of an economic cycle (Blanchard and Diamond, 1990, pp. 85-143).

Shimer (2005) considers that the Mortensen-Pissarides unemployment equilibrium model explains less than 10% of the volatility of vacancies jobs and of US unemployment when fluctuations are influenced by productivity shocks. Shimer argues that the fluctuations in the unemployment rate are primarily determined by changes in the job search rate and by the transition rate from vacancy to engaged more than the job loss rate.

An addition to the Mortensen and Pissarides endogenous model of job creation and job destruction was brought by Nagypal (2004). He studied the motivation behind the choices that companies make when choosing to hire a worker or an unemployed person arguing that employing an already existing worker may generate large fluctuations in vacancy rates. Nagypal also considers that the transition from one job to another has a significant role in the labor market because firms prefer to hire workers who already have a job because, when a worker is already employed is willing to accept another job, this is a sign that the worker really wants that new job, unlike a person who is not occupied and who can accept that job due to lack of alternative and temporary, that person is still looking for a better job. Given that replacing one employee with another is costly and a worker can not be forced to bear the cost of replacement when deciding to leave, the firms will always prefer to hire people who are already employed and who accept the new job considering it better than the existing one and not just as an alternative until he finds a better one, as would an unoccupied person.

Mortensen and Nagypal (2007) expanded the standard equilibrium model of unemployment developed by Mortensen and Pissarides, considering that wages are the result of the strategic negotiation between the employee and the firm, also the elasticity of the employment function and the opportunity cost of a job have reasonable values. This modified model may explain, according to the authors, almost two-thirds of the volatility of vacancies. They argue that a flexible salary is not the main issue of the model, but Shimer's results are due in particular to the following causes:
- A relatively low estimate of the job vacancy elasticity in terms of vacancies.
- A big difference between labor productivity and the opportunity cost of a job.
- Extremely strong response to the search rate for a salary job.

The authors also argue that the opportunity cost of employment is not only influenced by unemployment benefits and by the amount of time lost, but also depends on the cost of employing and training workers.

The standard equilibrium model of unemployment is designed to take into account the fact that a certain amount of time is needed for a worker to find a job. As a consequence of these emerging frictions, the authors of the original model (Mortensen-Pissarides) consider that both the employer and the workers bear a cost until the vacancy becomes occupied, namely the cost of looking for the right job (supported by the worker) and the cost of looking for the right worker (supported by the firm) (Mortensen and Nagypal, 2007, p. 328).

Another addition to the standard equilibrium model of unemployment developed by Mortensen and Pissarides is the research by Tim Kane. Kane's analysis comes to contradict some of the conclusions of the model conceived by Mortensen and Pissarides, arguing that in fact, the creation of new jobs is mainly driven by new firms. The reasoning is the study he conducted on the US economy. between 1977 and 2005, where it found that most new jobs were created by new firms and not by the existing ones, concluding that there is no net job growth without newly firms appearing on market.

As we have seen in the Mortensen and Pissarides model, most new jobs created over an economic cycle belong to existing businesses. In his study, Tim Kane talks about the importance of a "startup" of a company in creating or destructing jobs. Starting from the US sports slogan that "winning is not everything, but it's the only thing you have to do", Kane says that "starting to create jobs is not enough, it's the only thing that needs to be done". It is very clear to everyone that companies, irrespective of their size, are in a permanent and simultaneous process of job creation and job destruction (Kane, 2010, p. 2).

The equilibrium model of unemployment based on the labor market frictions

Another model approaching the balance of unemployment is Garibaldi and Wasmer model (2005). This model takes into account the labor market frictions, considering the labor force to be endogenous, and the decision to participate in the labor market is different depending on the intention of the workers to enter or leave the labor market. This model also investigates the effects of wage tax and unemployment benefits on employees' decision to enter/exit the labor market. The authors believe that taxes reduce labor market entry and increase outflows, while unemployment benefits, at a certain rate of job creation, increase labor market entry and have unknown effects on outcomes.

Most economic studies have looked at factors that influence labor supply only on a labor market without friction, and worker participation in the labor market is often defined by a neoclassical job function. From a macroeconomic perspective, very little is known about the interactions between the decision to enter the labor market of workers and the motivation of companies to create jobs. In order to better understand the functioning of a

labor market imperfect with an endogenous job offer, Garibaldi and Wasmer present three situations of the macroeconomic model of a labor market where the following decisions of the agents are endogenous:

- the firm's decision to create jobs;
- job destruction by workers/firms;
- the worker's decision to enter/exit on the labor market.

The approach is based on the idea that people spend much of their time both on the labor market and at home. The issue of time allocation has been extensively dealt with in the literature, considering that the choice a person in a household can do is: rest or relaxation, domestic activities or the labor market.

The model proposed by Garibaldi and Wasmer is to set the limit on how an individual's time is allocated between domestic work and work on an imperfect labor market. In today's world, individuals can opt for work in their own household, which means low productivity, or they can choose paid work on the labor market, which however involves a cost due to existing frictions. The authors show how job search costs influence the decision to participate in the labor market and make the decision to enter the market different from the decision to leave the market when the labor market is characterized by important frictions and makes the decisions coincides when labor market frictions disappear.

The differences between the two decisions arise because of already employed workers who are kept by firms at the workplace, because giving up on them involves irreversible loss of search costs when there is friction in the labor market. The effects of retention of workers do not exist in the absence of friction.

According to some authors, the flows between activity and inactivity (occupation/vacancy) are influenced by macroeconomic changes (in productivity or unemployment) and for this reason they can be considered cyclical or cyclic flows (Burdett and Mortensen, 1978, Pissarides, 1990). Contrary to this idea, Garibaldi and Wasmer (2005) consider that their theory based on both macroeconomic factors and individual factors (households) is able to take into account the permanent and structural flows, taking place on the labor market even when the conditions macroeconomic indicators remain unchanged.

This means that the labor market flows also occur in the absence of external, exogenous shocks related to productivity and the unemployment rate, which in fact have endogenous causes, related to the decision of individuals on the allocation of free time between rest (relaxation), work in own household or paid work on the labor market.

Conclusion

A microeconomic approach based on labor market flows has become the dominant paradigm for modern macroeconomic theories about unemployment and labor market dynamics. Such approaches are encountered in the studies of several economists including:

Haltiwanger (1995); Davis et al., (1996), Davis and Haltiwanger (1999), Mortensen and Pissarides (1999) or Hall (1999).

In practice, the process of employment is more complex because the flow of workers and the workforce take place simultaneously. Davis, Haltiwanger and Schuh (1996) and Bleakley, Ferris and Fuhrer (1999) showed that there is an almost constant correlation among some types of flows, but the link between them is not one to one. As a rule, when a job becomes unoccupied, it tends to generate a flow of workers that usually leads to an increase in unemployment. Also, when jobs become busy, this process generates new flows of workers, which usually reduce unemployment. Even in this regard, the link between the shocks on the labor market is not one-to-one, meaning that employment and unemployment are not necessarily correlated.

The conclusion of economists that wealth or long-term wealth is also gained from trade, comes from the standard model Heckscher-Olin-Samuelson, which assumes that production factors are homogeneous distributed across the economy and there is no impediment to their mobility, and employment is constant. Referring to the influence of trade on employment, Baldwin (1995, pp. 13-14) mentioned in his study that "the effects on employment due to changes in international trade were not significant among OECD countries, but have produced considerable effects only in certain sectors of activity".

Responding to Blinder's idea, some authors such as Davison, Martin, and Matusz (1999) have reconsidered Heckscher-Olin-Samuelson's predictions by adding that unemployment can arise as a result of labor displaced by trade and must look for another work in another sector of activity. Their main conclusion is that unemployment is rising in large countries with surplus capital that they can invest in and which increase trade with small countries with a relatively high labor force, for which workers in large countries can see a reduction in their level of well-being.

"Full employment conditions are needed to validate standard proposals in trade theory. The high unemployment rate brings up many of these proposals. Both the positive prediction of trade theory and its normative prescriptions may be wrong." (Blinder, 1988, p. 11). This statement did not lead Blinder to support the idea of barriers to free trade, but concluded that a vigorous full employment policy is needed so that redundant workers are quickly re-hired. In Blinder's view, there is a huge difference among economists in supporting this theory that free trade brings added wealth and the opinion of those who radically oppose free trade.

Klein, Schuh and Trier explain why they considered workflows in their analysis of the effects that international factors have on employment by the fact that changes in real exchange rates and trade liberalization directly affect labor demand, because it affects the creation or destruction of jobs. These factors can indirectly affect the flow of workers. For example, job destruction caused by international factors may reduce employment if workers, whose jobs are destructed, become unemployed or leave the labor market

permanently and will not reduce employment if workers move to another job (Klein et al., 2002, p. 7).

The labor market approach, in terms of flows, highlights that key changes in net employment minimize the size of gross labor market flows and this means that even when employment remains unchanged, international factors can produce significant adjustment costs in the process of job creation or job destruction (Klein et al., 2002, p. 9).

The first analysis of job flows and international factors belongs to the authors Davis, Haltiwanger and Schuh. They said: *"Surprisingly, the data show that there is no consistent relationship between the size of gross jobs and international trade. The only point that can be drawn from the analysis of empirical data suggesting the influence of international trade on job security is a high rate of gross job destruction among sectors of activity where international trade has a significant share. In the balance, the evidence does not confirm the view that a large exposure to the external trade of a sector of activity implicitly has the effect of reducing job security"* (Davis et al., 1996, pp. 48-49).

Other authors who have studied empirically the implications of external factors on employment are Davidson and Matusz (2001). They argued that companies must pay compensatory salary differences associated with the rate of workforce flows and jobs. Those companies that have low job destruction rates and high rates of new job creation will pay low wages and therefore will have an extra advantage in foreign trade.

Another important research (Shimer, 2005, pp. 493-507) deals with the balance of unemployment through employment rates, job loss and job transition rates from one job to another in the United States in the period 1948-2004. Shimer has developed a model where unemployed workers are looking for a job and those who are already employed are looking for a better job. The authors found that the finding job rate and the transition from one job to another rate are pro-cyclical and the rate of job loss is heavily acyclic. The author also found that an increase in the finding jobs rate and in the losing jobs rate makes the transition rate from one job to another also increase (Shimer, 2005, p. 493).

Davis, Haltiwanger and Schuh, based on empirical evidence developed by Davis and Haltiwanger (1990 and 1992), concluded that the US production sector indicates that "the job destruction significantly increase during a recession while the job creation is declining slightly" (Davis et al., 1996, p. 34).

Blanchard and Diamond have come to the same conclusion: "The magnitude of the volatility of outflows on the labor market is higher than that of labor market entry flows. In turn, this determines a greater amplitude of the fluctuations in job destruction than in job creation" (Blanchard and Diamond, 1990, p. 87).

References

Baldwin, R., 1995. The Effect of Trade and Foreign Direct Investment on Employment and Relative Wages, *NBER Working Paper,* No. 5037, February.

Bentivogli, C. and Pagano, P., 1999. Trade, Job Destruction and Job Creation in European Manufacturing, *Open Economies Review,* No. 78, pp. 165-184.

Blanchard, O., 2005. European Unemployment. The evolution of facts and ideas, *NBER, Working Paper* 11750/nov. 2005, pp. 1-53.

Blanchard, O. and Diamond, P., 1990. The cyclical behavior of gross flows of workers in the US, *Brookings Papers on Economic Activity*, No. 2, pp. 85-143.

Blanchard, O. and Gali, J., 2005. Real wage rigidities and the New Keynesian Model, *Federal Reserve Bank of Boston*, *Working papers,* No. 05-14, pp. 1-26.

Blanchard, O. and Summers, L., 1986. *Hysteresis and the European unemployment problem*, NBER Macroeconomics Annual, No. 1, pp. 15-78, in Fischer, S. (Ed.), MIT Press.

Blinder, A., 1988. The Challenge of High Unemployment, *American Economic Review*, 78 (2), pp. 1-15.

Bruno, M. and Sachs, J., 1985. *The Economics of Worldwide Stagflation*, Basil Blackwell, Oxford

Burdett, K. and Mortensen, D., 1998. Wage Differentials, Employer size and unemployment, *International Economic Review*, Vol. 39, Issue 2, may, pp. 257-273.

Christoffel, K. and Linzert, T., 2006. The role of real rigidity and labor market frictions for unemployment and inflation dinamics, Deutche Bundesbank, Discussion Paper, series 1: Economic Studies, No. 11, pp. 1-47.

Davidson, C., Martin, L. and Matusz, S., 1999. Trade and Search Generated Unemployment, *Journal of International Economics*, 48 (2), pp. 271-299.

Gali, J. and Gertler, M., 1999. Inflation dynamics: A structural econometric analysis, *Journal of Monetary Economics*, No. 44, pp. 195-222.

Garibaldi, P. and Wasmer, E., 2005. Equilibrium search unemployment, endogenous participation and labour market flows, *Journal of the European Economic Association* (2005-06) Vol. 3, pp. 851-882.

Goldberg, L., Tracy, J. and Aronson, S., 1999. Exchange Rates and Employment Instability: Evidence from Matched CPS Data, *American Economic Review*: Papers and Proceedings.

Gregory, R., 1986. Wages Policy and Unemployment in Australia, *Economica,* 53:210(S), pp. 53-74.

Hall, R., 1999. *Labor Market Frictions and Employment Fluctuations.* In Taylor, J. and Woodford, M. (eds.) *Handbook of Macroeconomics,* Vol. 1B, Amsterdam, New York and Oxford: Elsevier Science, North Holland, pp. 1137-1171.

Kane, T., 2010. The importance of startups in job creation and job destruction, *Kauffman Foundation Research Series: Firm formation and economic growth*, pp. 1-8.

Keynes, J.M., 2010. *Teoria generală a ocupării forţei de muncă şi a banilor*, Publica, Bucharest.

Klein, M., Schuh, S. and Triest, R., 2002. Job Creation, job destruction and international competition: a literature review, *Federal Reserve Bank of Boston*, Working Papers, No. 2-7.

Layard, R. and Nickell, S., 1987. *The labour market. The Performance of the British Economy*, Clarendon Press, Oxford.

Lindbeck, A. and Snower, D., 1985. Wage Setting, Unemployment, and Insider-Outsider Relations, *American Economic Review*, Vol. 76, No. 2, pp. 235-39.

Mortensen, D. and Nagypal, E., 2007. More on unemployment and vacancy fluctuations, *Review of Economic Dynamics,* No. 10, pp. 327-347.

Mortensen, D. and Pissarides, C., 1994. Job creation and job destruction in the theory of unemployment, *The Review Economic Studies*, Vol. 61, No. 3, pp. 397-415.

OECD, 2004. *Employment Outlook*, OECD, New York.

Robert, G., 1997. The Time-Varying NAIRU and Its Implications for Economic Policy, *Journal of Economic Perspectives,* vol. 11(1), pp. 11-32.

Shapiro, C. and Stiglitz, J., 1984. Equilibrium Unemployment as a Worker Discipline Device*, American Economic Review*, 74 (3), pp. 433-444.

Shimer, R., 2005. The cyclicality of hires, separations and job to job transitions, *Federal Reserve Bank*, july/august, 87 (4), pp. 493-507.

Trigari, A., 2004. Equilibrium, unemployment, job flows and inflation dynamics, *European Central Bank*, *Working paper,* No. 304/February.