

Chris Pissarides, Nobel laureate

The 2010 Nobel Prize in Economics was awarded to CEP's Chris Pissarides, jointly with Peter Diamond and Dale Mortensen, 'for their analysis of markets with search frictions'. As **Barbara Petrongolo** explains, their research has deeply enhanced our understanding of how labour markets work and how policy-makers should respond.



Most market transactions are characterised by various forms of imperfections or 'frictions'. The importance of these frictions in driving market outcomes is a key issue for understanding such diverse markets as those for a job, a house and a spouse.

While a given market may have buyers and sellers who can in principle agree on a price, this may be insufficient for immediate trade to take place. Both buyers and sellers may need to invest in a costly and time-consuming process of search to locate and assess matching partners, and they eventually need to agree to enter a transaction rather than wait for better trading opportunities.

Search theory – for which Chris Pissarides, Dale Mortensen and Peter Diamond have been honoured with the 2010 Nobel Prize in Economics – provides a versatile framework for understanding market outcomes in a variety of situations in which trade is complex. One key lesson of the theory is that with search frictions, not all markets will clear at all points in time – some buyers and/or sellers remain unmatched.

Another important implication of search theory is that when access to information is costly and trade opportunities are infrequent, not all traders may trade at the same market price, leading to dispersion in prices. Finally, market outcomes may be inefficient if individuals engage in 'too much' or 'too little' search, in which case policy intervention may improve on what can be achieved through markets alone.

Although economists have long been aware of the importance of frictions (see, for example, Hicks, 1932), these frictions were not brought into formal models until the work of the three Nobel laureates and a few other

researchers in the 1970s. Since then, they have generated an incredibly large and ever growing literature, addressing the role of frictions in many 'real world' markets.

In the labour market, frictions are used to explain the existence of unemployment and wage inequality. In business cycle models, they are used to explain the amplification of the response of employment to aggregate shocks. In monetary models, they are used to explain the existence of money. In the housing market, they are used to explain residential choices and fluctuations in house prices. And in the marriage market, they are used to explain dating, marriage, fertility and divorce behaviour.

By far the most influential application of search theory has been to the labour market, and it has led to the development of what is now recognised as the leading model of 'equilibrium unemployment'. This is the area in which Chris Pissarides, former director of CEP's macroeconomics programme, made his main contributions to search theory. His seminal work on the functioning of labour markets with frictions appeared in a number of articles in the late 1970s and 1980s, and was later organised in a unified framework in a book that has become a key reference in modern labour market analysis (Pissarides, 1990).

The central idea is that trade in the labour market is uncoordinated, time-consuming and costly for both firms and workers. Workers need to spend time and resources to find suitable job opportunities; and firms need to spend time and resources to locate and screen job applicants. While the idea that trade in the labour market is complex is widely accepted these days, when search models of unemployment were first developed, they

implied a clear break with the perfectly competitive view of equilibrium in the labour market, which hinges on frictionless trade.

In a perfectly competitive labour market firms and workers meet costlessly and trade at a single wage, and any excess labour supply is absorbed instantaneously through a fall in the equilibrium wage. Most economists would argue that the functioning of the labour market is far more complex than this. In particular, the competitive model fails to explain such stylised facts as persistent unemployment, wage differentials among otherwise similar workers and the co-existence of unemployed workers and job vacancies.

By introducing realistic frictions, the search approach has developed an elegant framework that allows us to explain key stylised facts about the labour market and ultimately think about unemployment and wages in a new light. For example, a direct consequence of frictions is that as markets typically do not clear, unemployed workers and job vacancies may co-exist, even within very narrowly defined labour market segments.

In particular, unemployment persists in equilibrium because before all unemployed workers find new jobs, some of the existing jobs come to an end, providing a new inflow into unemployment. This suggests that after an adverse economic shock, it takes time to bring back unemployment to the pre-shock level. So recovery after a recession may be slow, even once new job opportunities start to emerge.

An important implication of job search frictions is that existing jobs produce 'rents'. This means that if an employer and a worker are separated for reasons outside their control, at least one (and often both) of them is worse off. Rents give employers some degree of market power over their employees, which means that unlike in the perfectly competitive model, small wage cuts do not induce all employees to quit their jobs, simply because better paid jobs elsewhere in the economy are hard to find. As a corollary, workers of similar quality may be paid different wages if employed in different firms.

Search models have also been used to understand how aggregate shocks are transmitted to the labour market via the response of job creation and job destruction, and how shocks drive cyclical fluctuations in unemployment. Chris Pissarides has made the two key contributions in this area.

The first is his seminal search-theoretic analysis of the dynamics of unemployment, vacancies and real wages (Pissarides, 1985), which illustrates the asymmetric behaviour of unemployment following positive and negative shocks. He shows that the rise in unemployment in a recession will be faster than its fall in an expansionary phase, because while an adverse shock

results in an immediate increase in job separations, a positive shock only leads to a gradual fall in unemployment because the hiring process is time-consuming.

The second key contribution is his most famous article, written jointly with Dale Mortensen (Mortensen and Pissarides, 1994). This work illustrates how firms respond to shocks to aggregate productivity in making their decisions about creating new jobs and ending existing job matches – and thus produce cyclical fluctuations in job flows and unemployment.

The core theoretical work on labour markets with search frictions has been accompanied by a number of contributions focusing on policy analysis and empirical evidence. It has become common practice in the literature to adopt a search framework to analyse the impact of unemployment compensation, hiring and firing costs, minimum wages, and taxes on unemployment and the wage distribution. Empirical work has addressed the implications of search models for individual labour market transitions, aggregate job and worker flows, unemployment dynamics and the wage distribution.

The work of Chris Pissarides and his fellow Nobel laureates has deeply influenced the view of modern labour markets of both academics and policy-makers and has stimulated several continuing streams of work at CEP. As many countries are facing the consequences of the most severe recession of the post-war era, the latest Nobel Prize is an award to research on fundamental economic issues that are both at the core of the wellbeing of society at large and very high on the policy agenda of the moment.

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Further reading

John Hicks (1932) *The Theory of Wages*, Macmillan

Dale Mortensen and Chris Pissarides (1994) 'Job Creation and Job Destruction in the Theory of Unemployment', *Review of Economic Studies* 61: 397-415

Chris Pissarides (1985) 'Short-run Equilibrium Dynamics of Unemployment, Vacancies, and Real Wages', *American Economic Review* 75: 676-90

Chris Pissarides (1990) *Equilibrium Unemployment Theory*, Blackwell