Unemployment and the NAIRU

Cyclical Unemployment

Many economic models have as a starting point for unemployment that in order to produce Y(=C+I+G+X-M) you will need so many workers (LD)

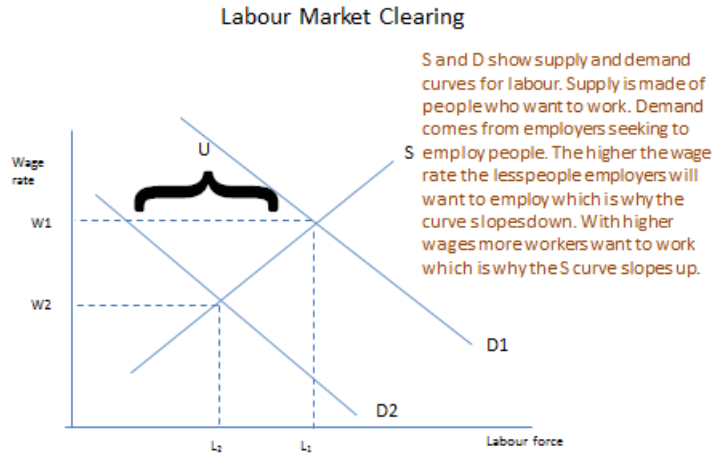
LD=f(Y)

subtract this number of workers from the Labour force (N) and we have the amount of unemployment

U=N-LD

Thus one reason for unemployment is that there may not be enough demand for workers. This is derived from output and both may be expected to vary over the cycle which is why this form of unemployment is called ***cyclical unemployment.***

Policy Cure? Keynesian demand management using expansionary fiscal or monetary policy? Perhaps, but given current government debt problems, expansionary fiscal policy is difficult. It is also problematical in part because of the monetarist view of the world. 'Monetarist' is a relatively loose term to describe a fairly wide range of views. Once more Milton Friedman is a key player (Over the course of the twentieth century many of the leading monetarists have come from the University of Chicago including Lucas and Friedman). Briefly, in a view which has also been termed 'the new classical approach', they believe in the efficiency of markets including the labour market. In particular they believe that basically it will clear, i.e. the demand for labour equals the supply, in the Figure at a wage rate W_1 and a level of labour L_1. Now what would happen if the demand for labour were to fall from D_1 to D_2, would not this lead to unemployment? No the neoclassicals answer, because the wage rate will fall. Yes employment will fall as well but this is because fewer people *want* to work at the new lower equilibrium wage rate [L2 as opposed to L1]. However if wages are 'sticky' [yes that is the word used] and move slowly or even stay at W1 then unemployment will equal U. At the going wage rate W1 - L1 will want to work, but employers will want to employ only L2. The difference are unemployed.



OK, but if demand equals supply surely there should be no unemployment and yet we know that in a modern economy there is never zero unemployment, so how do the neoclassical school explain that one? In several ways. Firstly, they would argue that some people will present themselves as being unemployed for the purpose of collecting unemployment benefit. But in reality all of these are *voluntarily* unemployed. Secondly there will

always be some unemployment through people leaving one job to go to another which suits them better, or leaving firms in declining industries to move to jobs in expanding industries. The time in between jobs is called 'frictional unemployment' of which more later. However, what if there are no jobs for the people in declining industries to go to? This leads us to a concept known as structural unemployment:

Structural unemployment. There are job vacancies and unemployed workers, but the vacancies are for computer software engineers and the unemployed workers are ex-shipbuilders. This is a *skill mismatch*. It may well be related to structural change in the economy which sees some industries expand and others contract. In recent years a separate term has been called technological unemployment, but in reality this is no more than structural unemployment due to skill mismatches. Another example would be where there are vacancies for office workers in London and unemployed office workers in another part of the country. This is a *geographical mismatch*. Again structural changes in the economy may well be to blame for this and in the long-term with the economy in full equilibrium, there would be no structural unemployment. Recently the Warwick economist Andrew Oswald has found a positive association between home ownership and unemployment. The argument is that home ownership makes people less willing to move to another part of the country for jobs. **Policy cure:** increase geographical mobility, i.e. take workers to jobs or attempt to take jobs to workers by e.g. limiting new office development in London, transport policies aimed at improving transport access to the regions, regional development advantages. Retraining, encourage the growth of new firms in regions faced with high structural unemployment.

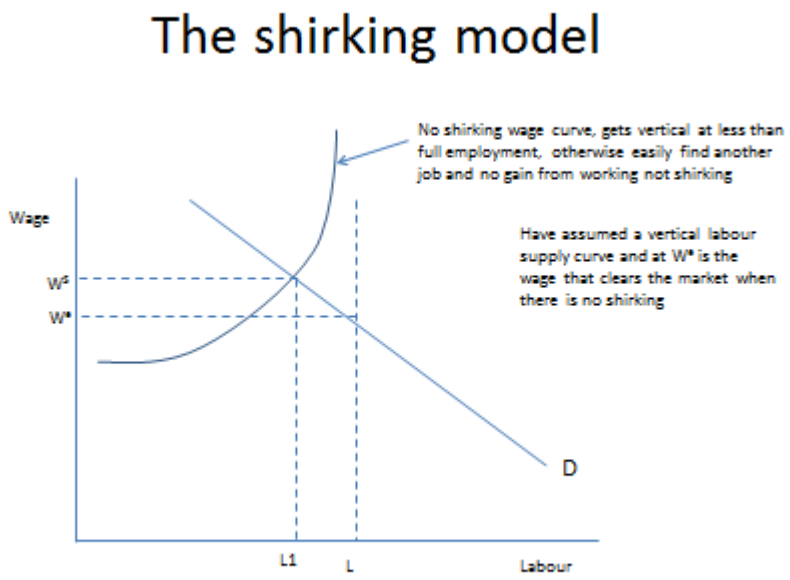
Frictional unemployment As we have seen even with no cyclical nor structural employment, there would still be some unemployment as workers switch jobs and also workers enter and leave the labour force. It takes time to obtain new workers. Exactly how much time depends upon informational aspects of the job market and also how keen workers are to accept unemployment. This in turn is related to the 'replacement ratio' (RR, the ratio of benefits to pay when in work). An increase in the replacement ratio will probably reduce the incentive for workers to accept any job offer and to continue searching for a better job. It will therefore increase unemployment. But of course the families will suffer and possibly too it would be more efficient for someone to wait slightly more for a job which better fits their skill set.

Is this all there is to the new classical story? Not exactly, even after allowing for people who are voluntarily unemployment, for structural and frictional unemployment there still often appears to be some unemployment which we cannot explain. This may be because wages are ***'sticky'***, e.g. in the Figure slow to move from W_1 to W_2 and restoring equilibrium in the labour market. What can cause wages to be sticky in this manner? There are a variety of possibilities: (i) over-powerful trade unions who prevent wages from falling for the benefit of their members in work (even though it means that there are other workers who suffer from being without a job because of this), (ii) ***implicit contract theory***, briefly workers dislike risk, whilst firms are less risk averse. A very simple example: the risk averse worker is willing to say to the firm, I know that in good times I could get 300 Euros a week, and in bad times only 250 Euros. I know too that on average there are as many good ti`mes as bad times. Because I am risk averse I am willing to be paid 270 Euros in good times and bad. The firm bears the risk, but on average *should* save on its wage bill. There is an 'implicit' contract between firm and worker which prevents wages falling in a recession and clearing the market. (iii) thirdly we look at the ***efficiency wage*** hypothesis.

Efficiency wage theories suggest that there may be negative incentive effects of low wages. The basic assumption is that workers' productivities depend positively on their wages. If wages are lowered, their productivity may fall. Firms may then find it profitable to pay wages in excess of market clearing. Employers may be quite reluctant to cut wages, even in the presence of an excess supply of labour, since reducing wages may actually lower productivity more and the firm will lose more than it gains. This may be because of increased effort level and reduced 'shirking' by employees, lower turnover costs, a higher-quality labour force; and improved morale, more easily facilitated teamwork, and greater feelings of loyalty by workers to the firm.

A version of the efficiency wage model is linked to shirking

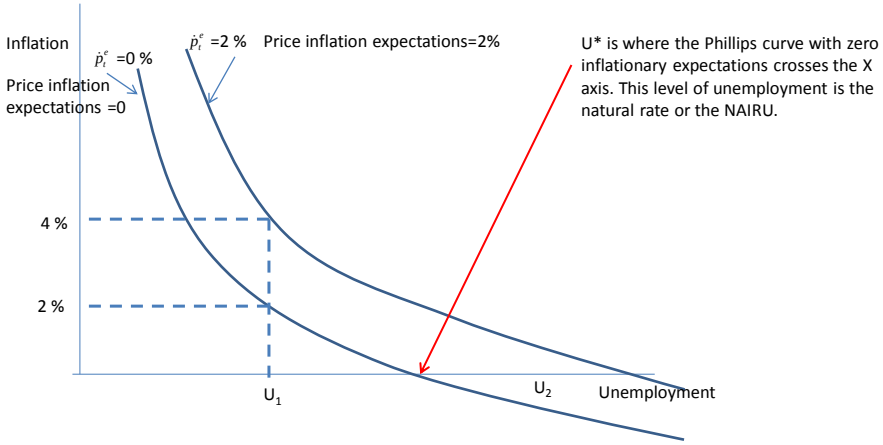
The shirking model ias linked to the assumption that it is not always possible to costlessly observe employees's effort. In the Shapiro and Stiglitz model, workers either work or shirk, and if they shirk they have a certain probability of being caught, with the penalty of being fired. Thus the payment of a wage in excess of market-clearing may provide employees with cost-effective incentives to work rather than shirk. Since all firms do this the market wage itself is pushed up, and the result is that wages are raised above market-clearing, creating unemployment. This creates a low, or no income alternative which makes job loss costly, and serves as a worker discipline device. Unemployed workers cannot bid for jobs by offering to work at lower wages, since if hired, it would be in the worker's interest to shirk on the job, and has no credible way of promising not to do so.



NAIRU - the Non Accelerating Inflation Rate of Unemployment

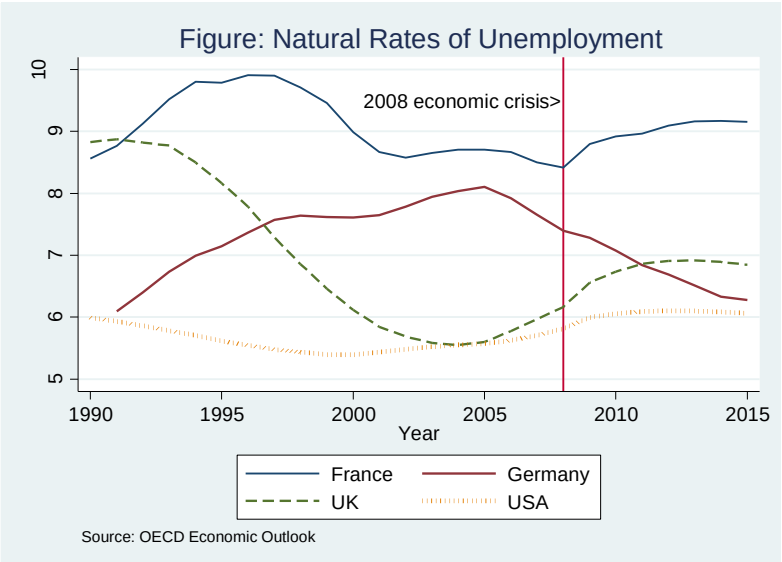
(A concept associated with the name of Steve Nickell. the Oxford University economist, but is **very similar** to a much earlier concept known as the natural rate of unemployment attributed to Friedman and Phelps). We made the point earlier that according to the Philips curve inflation will depend upon the level of unemployment. Let us look at the Figure below. We start with a situation where people have zero expectations of inflation. A level of unemployment of U_1 will then lead to a rate of inflation of 2%. Regardless of the theory of expectation formation we have, if this level of unemployment is sustained people will come to expect 2% inflation. In this case the level of inflation associated with U_1 will now become 4% (2% because of the basic Philips curve + 2% inflationary expectations). let is suppose unemployment continues to remain at U_1, people will then come to expect inflation to equal 4% and once they do inflation will increase to 6%. When will this stop? When will inflation stop increasing? As long as unemployment remains at U_1 inflation will increase without limit. The reverse argument holds for U_2, i.e. we will get steadily falling prices, deflation or negative inflation. Only at U* will inflation be stable, neither increasing or decreasing. This is the NAIRU.

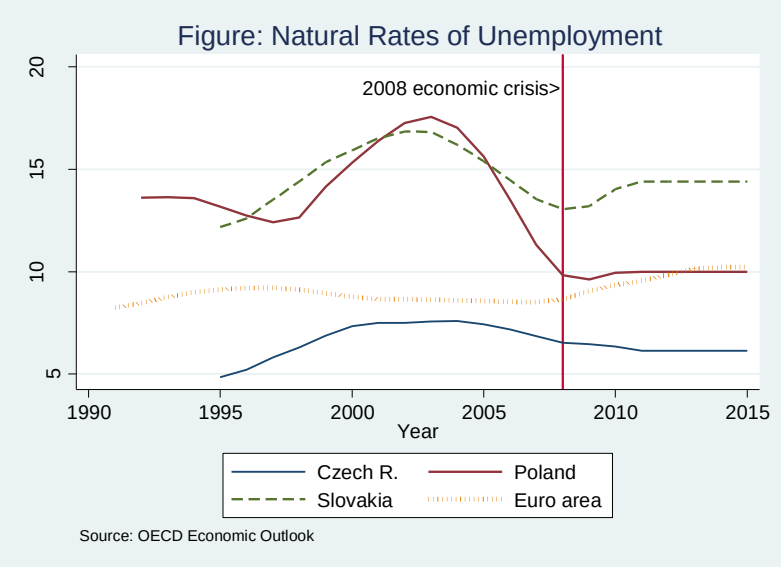
Expectations augmented Phillips curve



Estimates of the NAIRU

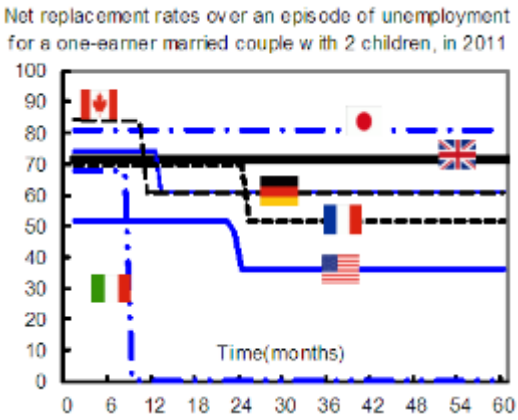
Below we present estimates of the NAIRU in various countries. Note in the UK it was falling until about 2004 and then started rising again. One of the reasons it fell may be the labour government's *Welfare to Work* and *Making Work Pay* policies which were designed to actively assist the unemployed to look for work and to provide them with incentives to find work. Other reasons for variations in the NAIRU include the replacement ratio. We turn to this shortly. But first note the impact of the 2008 crisis on most countries, apart from Germany where the clear downward trend was relatively uninterrupted. This impact is particularly noticeable for the Euroarea, France and Slovakia. Thee natural rate in Slovakia is high and has been high since the country came into being, much higher than the Czech Republic. There were signs that is was moving to the Eurozone average but the crisis stopped this progress in Slovakia.





Source for the data: http://stats.oecd.org/Index.aspx?DataSetCode=EO93_INTERNET#

http://www.oecd.org/els/benefitsandwagesoecdindicators.htm



Estimated replacement ratios for selected countries.

	2001	2002	2005	2006	2007	2008	2009	2011
OECD countries								
Austria	52	52	52	52	52	52	52	52
Czech Republic	19	19	20	20	20	21	20	21
France	55	55	50	49	49	49	49	49
Germany	61	61	45	46	45	44	45	41
Greece	35	27	21	21	21	22	23	23
Japan	23	23	23	23	23	23	23	23
Korea	21	21	20	20	20	20	20	20
Netherlands	56	58	39	41	38	38	38	38

New Zealand	49	48	47	47	46	46	44	43
Norway	71	71	72	72	72	38	38	38
Poland	23	23	23	23	22	22	22	22
Portugal	49	49	48	48	54	54	55	53
Slovak Republic	22	22	21	21	21	22	21	22
Spain	42	42	42	42	42	42	41	42
United Kingdom	30	30	29	29	29	29	29	29
United States	21	21	21	21	21	27	31	33

Source: http://www.oecd.org/els/benefitsandwagesoecdindicators.htm

The above data shows the replacement ratios in the EU tend to be substantially higher than in countries such as Korea and until recently the USA. They have increased sharply in the USA since Obama came to power. In Germany they have fallen substantially since 2001, bring Germany much closer to global competitors. This is also the case for the Netherlands. But in much of old Europe, such as Austria and France, this part of the labour market is globally uncompetitive. In Slovakia this is not the case and the replacement ratio is only marginally greater than the Czech Republic and hence this factor cannot satisfactorily explain Slovakia's high natural rate.

Other factors include the ease with which workers can be fired or hired, etc. On the whole in France, Finland and Germany it appears more difficult to fire workers than the other countries. In many cases the USA and China are outliers. See for more information as well as below:

http://www.doingbusiness.org/data/exploretopics/employing-workers

The above website summarises labour market conditions. Selected indicators for selected countries are summarised below.

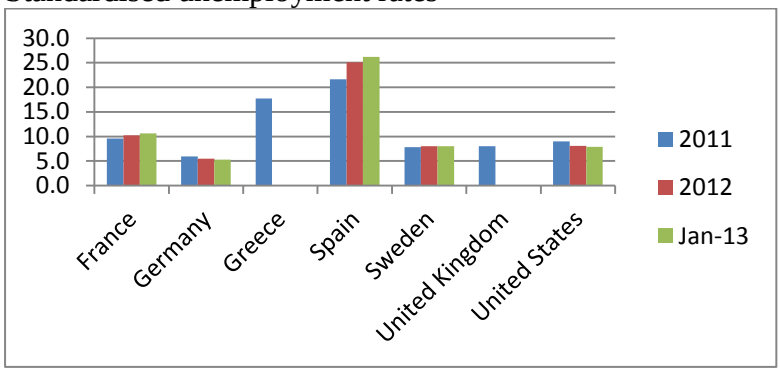
	Maximum length of fixed-term contracts, including renewals (months)	Ratio of minimum wage to value added per worker	Premium for night work (% of hourly pay) in case of continuous operations	Premium for work on weekly rest day (% of hourly pay) in case of continuous operations	Paid annual leave for a worker with 1 year of tenure (in working days)	Notice period for redundancy dismissal (for a worker with 1 year of tenure, in salary weeks)	Severance pay for redundancy dismissal (average for workers with 1, 5 and 10 years of tenure, in salary weeks)
Austria	**No limit**	**0.12**	**17%**	**100%**	25	**2**	**0**
Czech Republic	108	0.2	10%	10%	20	**8.7**	**11.6**
Slovak Republic	24	0.23	20%	0%	25	**8.7**	**7.2**
France	18	0.14	0%	0%	30	**4.3**	**4.6**
Korea, Rep.	**24**	**0.28**	50%	50%	15	**4.3**	**23.1**
Singapore	No limit	0	0%	100%	7	**1**	**0**
United States	No limit	0.2	0%	0%	0	**0**	**0**
China	No limit	0.37	39%	100%	5	**4.3**	**23.1**
Bulgaria	36	0.24	3%	0%	20	4.3	3.2
Hong Kong	No limit	0	0%	0%	7	4.3	1.4

Within Europe some countries have generous labour market provisions in some areas but less so in others. The real contrast lies with the countries outside Europe, not so much Korea, but Hong Kong, USA and Singapore. For example severance pay – money paid when one loses a job in a lump sum form, is 0 in the United States and Singapore and 1.4 weeks of salary in Hong Kong. In Slovakia it is 7.2 weeks of salary. In many respects mainland China, which used to be highly competitive, seems to be less so. The same is true for Korea. Could these countries be losing their competitive advantage. Does Korea intend to compete on the basis of its quality of infrastructure and workforce skills? Looking at these figures one can understand the frequent calls for reforms of Europe's labour markets. By this is meant make it easy for firms to hire works and in a downswing fire them? [If firms are worried they may not be able to fire workers in a downswing, they will be reluctant to hire them in the first place]. But such reforms, which may in the global marketplace be inevitable, come at a cost as worker's rights do protect workers and their families.

Unemployment: the Reality

In every country, the official measure of unemployment, which is based on counting claimants for unemployment-related benefit, underestimates 'true unemployment' because some of those ineligible for benefit are searching for a job and thus 'unemployed'. Standardized measures based on surveys are available and allow a better comparison between countries. What is it for Slovakia?

Standardised unemployment rates



http://www.oecd-ilibrary.org/economics/harmonised-unemployment-rates_2074384x-table6