Unemployment, Well-Being and Wage Curves in Eastern Europe

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Summary

The paper studies the labour markets of Eastern Europe. It uses new data on 60,000 randomly sampled workers in the transition economies. To allow a comparison, the paper analyses Western data from the same sources. Three conclusions are reached. First, the microeconometric structure of unemployment regression equations is approximately the same in the nations of Eastern Europe as in the industrialized West. Second, unemployed people in the transition nations are as unhappy, relative to the employed, as those who are jobless in the industrialized Western countries. Such a result sheds doubt on the idea that voluntary or benefit-induced unemployment is worse in the East. Third, estimating a 'wage curve', using pooled data from five East European nations, produces a local unemployment elasticity of pay fairly close to -0.1. This is the figure commonly found for the rest of the OECD, which casts doubt on the argument that wages are inherently less flexible in the East. The broad conclusion from our analysis is that the workings of the labour markets of East and West appear surprisingly similar.

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1. Introduction

This paper studies new data on the labour markets of the transition nations of Eastern Europe. It examines and tries to understand the high levels of unemployment -- especially among youths -- in these nations.

We focus on three questions:

- Do micro-level unemployment equations look different in the East compared to those for the West?

- Is there a sense in which there is a large amount of 'voluntary' unemployment (perhaps because of State benefits) compared to the West?

- Are wages less flexible in the East than the West?

Our answers are potentially surprising: no in each case. The broad conclusion of the paper is that Eastern Europe's labor markets seem to work much like those in the rest of the OECD.

The transition countries number at least twenty three. There are the CIS nations of Armenia, Azerbijan, Belarus, Georgia, Kazakhstan, Kyrgystan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. There are also the CEE nations of Albania, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia. As Table 1 shows, these vary enormously in size, income and composition. The federation of Russia is the largest, Slovenia the richest, and Armenia and Albania the most agricultural.

A later section of the paper will use micro data to calculate its own measures of joblessness in these nations. Before that, it is natural to begin with published statistics. Table 2 reports latest European Bank of Reconstruction and Development (EBRD) figures on some of the major transition economies. With the exception of the Czech Republic, unemployment rates

average around one in ten of the labour force, which is similar to rates found in the OECD countries in the mid-1990s. Early years' data in Table 2 are not necessarily reliable because of the pre-transition lack of officially recognised unemployment in the countries. However, there is reason to think from the Table, and other sources, that unemployment has been growing.

Youth unemployment is a special concern in these nations. However, because it is easy to view joblessness among young people in isolation, one point is worth making at the outset. Consider Figure 1. For a sample of advanced OECD countries, the figure plots the cross-section correlation between the levels of youth unemployment and adult unemployment. The gradient of the line is approximately two -- suggesting that a 1% point rise in adult unemployment is associated on average with a 2% point increase in young people's joblessness. Thus, it might be said, the youth labour market seems to respond in an amplified way to shocks hitting the aggregate labour market. The general pattern from Figure 1 suggests that the two kinds of joblessness are closely tied to one another.

Figure 2 does the same for Eastern Europe. Here the data are derived from micro data (explained in detail later) on Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russia, Romania, Albania, Armenia, Belarus, Slovakia, Georgia, Macedonia, Slovenia, Ukraine, Kazakhstan, Croatia, and East Germany. The gradient in Figure 2 is slightly smaller than for the West (given in Figure 1), at 1.5 rather than 1.8, and the scatter is a little less well-defined. However, as in Figure 1, adult unemployment is a good predictor of youth unemployment.

While this is not surprising, it shows that an analysis of youth unemployment cannot be different in character from an analysis of general unemployment. To understand unemployment among the young, the first question to be asked is what creates unemployment among adults. This message moulds the later sections' analysis. Much of the report looks at adult data (and this has the additional advantage that sample sizes are then larger).

The main data sources are the International Social Survey Programme and the Eurobarometer Surveys (including the East Europe Eurobarometers). These offer an especially valuable statistical resource, because they have been designed to provide comparable information

across many countries, and have now been collected for a longish run of years. An earlier version of this paper (Blanchflower and Oswald, 1997, available upon request) describes the data sets, gives the numbers of observations, and provides mean unemployment rates. Blanchflower and Freeman (1996) use some of the early years of the data in their analysis of Western countries' youth labour markets.

2. What Do Microeconometric Unemployment Equations Look Like?

When random samples of individuals are available, it is possible to examine the correlations between joblessness and other characteristics (such as age and education). Although causal connections are not easily proved, this kind of work paints a useful picture of the unemployed.

It is natural to begin by looking at the patterns in individuals' unemployment experiences in Eastern Europe. To provide a benchmark, Table 3 reports estimated microeconometric unemployment equations for the Western nations plus East Germany. It does so using a randomly selected sample of just under 100,000 men and women from fourteen nations over the 1990s. The nations are listed within Table 3. In this Table, the base or omitted country is the United Kingdom.

What are the patterns in the West?

Table 3 contains microeconometric unemployment regressions. Ordinary least squares estimates are presented for simplicity. It was checked that these give similar quantitative implication to probits, and OLS has the advantage that coefficient estimates are easily understood. Formal probit equations are available from the authors.

The dependent variable in Table 3 measures whether the individual who is being sampled reports themselves as unemployed. The variable can take one of two values. If the person is without work, the value is set to unity. If the person has a job, it is set to zero. Table 3's independent variables are listed vertically in the Table. In the Western economies, the important statistical correlates with unemployment turn out to be:

- having left school at a young age

- being young

- being female

- living in a high unemployment country

- being single, divorced or separated.

These are the qualitative patterns in the data.

      Someone who left school at age 16 would be 3 percentage points less likely to be jobless than a representative person who left at age 14. As can be seen from the Table, the coefficients move fairly smoothly up to the category of "age left school greater than or equal to 22", at which such an individual is 8 percentage points less likely to be unemployed. As usual, education reduces the chance of being without work.

      Age also matters. Individuals are least likely to be unemployed in the West if their ages fall within the band of 40 to 49 (this is the omitted category in Table 3, so implicitly is a coefficient of zero compared to the others). The young are much more likely, Table 3 reveals, to be without work. For example, the coefficient on those aged 15-19 is 0.1152. This means that someone in this age-group is eleven and a half percentage points more likely to be unemployed -- holding other things constant -- than someone aged in their forties. By most standards this is a large difference. A strong effect, though smaller, is also discernible for those between 20 and 24. In this case the coefficient is approximately 0.06. The only other point to be noted is that, unsurprisingly, people older than 70 are noticeably less likely than others to be unemployed.

      The other coefficients in Table 3 -- running from Belgium to West Germany -- are the 'pure' country unemployment rates. These dummy variable coefficients allow us to read off the unemployment differences across nations after controlling for personal and compositional variations by country. Although the patterns in these country dummies are broadly the expected ones (so West Germany is low and East Germany high, for example), they are not as pronounced as in raw data. The reason for this is that one part of the 'explanation' for high unemployment in Eire and Spain is the low levels of schooling in those countries.

The year dummies in Table 3 capture the aggregate cyclical movements in unemployment across Europe. Year 1990 is the omitted category.

Married and widowed people (and those living as married) are markedly less likely to be unemployed than others. While it is not easy to know the causal chain, if any, it appears that having a wife or husband is associated in the data with approximately an 8% lower probability of being jobless when compared to an equivalent individual who is single.

Lastly, it is worth noting that the R-squareds on the equations are not high. Only five percent of the variance in people's unemployment experiences is being explained in regressions such as these.

The other main source of data used in the paper is the International Social Survey Programme (ISSP). These are random samples collected each year by a multi-country team of social scientists. Non-European countries are included. Table 4 provides a similar unemployment regression to that used in Table 3. Approximately 45,000 individuals are sampled. Again the data run through the first half of the 1990s. Table 4 has the same kind of implications as Table 3. The countries differ slightly, however. Here the list runs from Australia to West Germany. Married people are six percent less likely to be unemployed, other things held constant. Highly schooled individuals are five percent less likely to be unemployed. There is a tiny positive effect from being male. Age dummies and year dummies work in the way they did in Table 3. Once more, approximately 5% of the variance is being explained.

What are the patterns in the East?

It is of interest now to turn to an East-European sample of people: in Table 5. Once again the equation is an ordinary least squares regression with a one or zero as the dependent variable. There are approximately 30,000 people in the sample, and the R-squared of the equation is slightly greater than 0.07. As before, probit estimation is to be preferred statistically, but makes no substantive difference here.

The first noticeable feature of Table 5 is that in most ways the structure of the unemployment equation is remarkably like that in Western samples. For example, the older

someone is, the higher the likelihood of having work. However, age works in an even more extreme way than before. In Eastern Europe, it seems, risk of unemployment is very much higher among those 15-19, and still markedly high among those 20-24. The extra probability points, compared to someone in their 40s, are respectively nearly 17 percent for ages 15-19 and 8 percent for ages 20-24. These two numbers can be compared with 9 and 7 percent respectively, for example, in Table 4 for the West. There is a small maleness effect in Table 5. Year dummies work strongly, although 1994 is not, in this East European sample, a much better year than 1993. This is another small difference with the West. Schooling has the same pattern as for the Western nations. Married individuals are again less often jobless. The effect is slightly smaller than in the West. Country dummies work in apparently sensible ways. Interestingly, the Russian Federation, according to Table 5, has a less serious underlying unemployment problem than appears from the aggregate figures. In these data, it is similar to the Czech Republic.

Table 6 gives a breakdown for a youth sub-sample taken from a separate Eurobarometer focused specifically on the young in 1990. The general conclusions are like those above. There are also small correlations with the type of person with whom an individual lives. The "after school" variables denote the time elapsed since finishing education, but they are not significantly different from zero.

It is possible to re-do a version using East Eurobarometer surveys rather than ISSP data. This is provided in Table 7. There are 20 nations. Here males are slightly less likely to report themselves as jobless. There is an enormous effect from being young (compared to the base category of people aged in their forties). Those in their teens are 31 percentage points more likely to be without work; people aged 20-24 are nearly 14 points more likely. Old people in this sample have a slightly smaller chance of being unemployed than do those 40-49. Table 7 includes a long set of country dummies. The year dummies again indicate that 1994 was a bad year. Higher education, secondary education, and some secondary education -- all come in with the expected negative signs when compared to the omitted base category of individuals with only elementary education.

Finally, a complete bank of age coefficients was provided in Blanchflower and Oswald (1997). These reflected the output of a large number of regressions -- not reported here but available on request. The coefficient structure between East (the lower group of numbers) and West (the upper two groups) was similar. Perhaps the only sharp difference was that, in both ISSP and East Europe Eurobarometers, a few countries had much larger coefficients than exist for the West Eurobarometer countries.

The picture that emerges from this section is one of an Eastern Europe that looks approximately like the West. Although some of the effects may be slightly larger in the East, the pattern of correlations is similar in the two halves of Europe. The same types of people are unemployed in each half of the continent.

3. Is East European Unemployment Voluntary or Involuntary?

A recent strand of empirical economics has begun to employ data on people's reported well-being. Important early work was done by Easterlin (1974, 1995). The literature includes that by non-economists Andrews and Withey (1976), Campbell, Converse and Rodgers (1976), Cantril (1965), Diener (1984), Argyle (1989), Warr (1987, 1990a,b), Jahoda (1982), Jackson et al (1983), Whelan (1992) and Gallie and Russell (1995). Work by economists includes Ng (1996), Clark et al (1996), Bjorklund (1985), Edin (1988), Gerlach and Stephan (1996), Korpi (1997) and Winkelmann and Winkelmann (1997), Di Tella et al (1996), and Birdi et al (1995). Nussbaum and Sen (1993) is a discussion of the related Human Development Index; Smith (1993) is a critical look at the reliablility of HDI; Crafts (1997) discusses the latest changes to the index.

An important question is that of whether unemployment in Eastern Europe approximates better to 'involuntary' or 'voluntary'. The answer to such a question has policy implications, but until recently it had proved hard to design a test. Well-being data – though economists still have much to learn about their strengths and weaknesses – appear to offer an opportunity. Most of the new research in this field (Oswald 1997 provides a brief overview) suggests that the worst thing about losing one's job is not the drop in take-home income. It is the non-pecuniary distress. To

put this differently, most regression results imply that an enormous amount of extra income would be required to compensate people for having no work.

Eurobarometer data show that the unemployed feel much less satisfied with life[1], and indicate that the relative distress from unemployment does not appear to be trending downwards through the years (the 'unhappiness gap' is not secularly shrinking). In passing, this might be thought to raise doubts about the oft-expressed view that an increasingly generous welfare state is somehow at the root of Europe's economic problems. A review of psychologists' earlier work is available in Warr et al (1988). The upshot of all this evidence is that in Western data unemployed people are very unhappy.

While economists are surely right to be wary of subjective well-being statistics, it now well known that there are systematic patterns in micro data on people's subjective well-being. If one takes a random sample of people, and estimates a well-being regression equation of form 'reported well-being = f(personal characteristics)', the results tend to be the same across different periods, different countries, and even different measures of well-being. Reported happiness is high among those who are married, on high income, women, whites, the well-educated, the self-employed, the retired, and those looking after the home. Happiness is apparently U-shaped in age (minimizing around the 30s). Blanchflower and Freeman (1998) compare reported well-being levels in early micro data for East and West. They show that levels appear much lower among individuals who live in Eastern Europe.

The results described in this section stem principally from an examination of coefficients in cross-section equations. However, a number of the correlations, particularly the link between unhappiness and unemployment, have been verified in panel data.

Results for East and West

Consider Table 8, which estimates a happiness equation as an attempt to provide an answer to the question "how bad is it to be unemployed?" The short answer is very bad indeed.

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[1] Longitudinal studies by psychologists and economists have demonstrated that this is not merely because unhappy people have trouble finding jobs. See, for example, Winkelmann and Winkelmann (1998) using the German Socieoeconomic Panel.

To see why, it is necessary to have a feel for what is going on in the Table. Table 8 shows that both young people and the old say they are rather content with their lives. Hence reported happiness is roughly U-shaped in age. Schooling works quite smoothly in the equation: life satisfaction rises with it. There are important reported happiness differences between countries (see the range of country dummies), but some of this may be an illusion caused by language differences and the difficulty of exact translation of words like happiness.

What matters especially for this paper, however, is Table 8's size and sign on the coefficient for being unemployed. At approximately -0.14, it is the largest in absolute size on any personal characteristic, and has a t-statistic of more than 11. This suggests that being without work is apparently one of the worst things that can happen to one (among the variables on which there are data here). The coefficients in Table 8 suggest that life generally is less pleasant in the East (witness the large negative dummies on Hungary, East Germany, Poland, Russia, and Slovenia).

In Table 9, quantitative estimates are given for the unpleasantness of unemployment by country. Once again, only simple statistical methods are used (an ordered logit, for example, gives similar findings). The individual regressions, one for each nation, are not reported. The coefficients reported in the Table are those on the unemployment variable in a micro-level life satisfaction equation -- in Panel (a) of Table 9. Panel (b) of Table 9 is similar. It includes numbers for unemployment coefficients in happiness equations rather than life satisfaction equations. The coefficients on unemployment in a happiness equation are:

East Germany -0.15

Hungary -0.10

Poland -0.12

Russia -0.13

Slovenia -0.14.

What is interesting about these is that they are close to the mean value for all Western and Eastern countries combined, namely, -0.14 (see the foot of Table 9). This means that the lower reported

well-being induced by unemployment is similar in size in Eastern Europe and Western Europe. There is no special evidence of voluntary unemployment in these data. Joblessness is associated with markedly low well-being. Once again, the two sets of labour markets -- West and East -- appear to function in the same way.

Because the task of measuring well-being is a difficult and relatively unconventional one, the paper's results cannot be accepted uncritically. It might, for example, be argued that interview responses to happiness and satisfaction questions do not mean anything reliable. There is no wholly convincing way to dispose of such objections: as in any area of social science it is prudent to view the paper's punchlines cautiously. Nevertheless, a simple reply to such critics would be that these kinds of statistics are probably the only ones available to us if we wish to measure well-being, and that, at the very least, they raise doubts about routine beliefs. Moreover, counter-arguments to the methodological criticisms have been produced many times. It is known in the psychological and medical literatures that objective economic events are correlated with happiness scores and with suicide (and para-suicide).

Perhaps the best reason to take seriously this section's statistical work is that psychologists themselves make extensive use of reported well-being data. It seems possible that economists should also do so.

4. Is Wage Flexibility Lower in Eastern Europe?

The next natural issue is the question of whether East European unemployment might be the result of unusually inflexible wages. To explore this, a series of 'wage curves' are estimated. The analysis examines whether wage equations should include a regressor for the area unemployment rate.

Wage Curves in the West

The empirical chapters in the 1994 book The Wage Curve had no results for Eastern Europe. They were based upon information on approximately three and a half million people in a dozen developed nations. The size of sample varied greatly from one country to another. The years sampled also varied. For the United States, for example, the analysis drew upon the Current

Population Surveys from 1963 to 1990. This provided a sample of approximately one and a half million American workers. Some completed their interview survey sheets in the 1960s; others did so a quarter of a century later. A similarly large sample was available for South Korea. This country's Occupational Wage Surveys of 1971, 1983 and 1986 offered us information on approximately 1.4 million employees. At the other end of the spectrum, the book also reported results for countries like Switzerland and Norway. The data were from the International Social Survey Programme, and came from the late 1980s. In this case the samples were of less than three thousand people in each country.

The Blanchflower-Oswald book found a downward-sloping convex curve in wage/unemployment space. A worker who is employed in an area of high unemployment earns less than an identical individual who works in a region with low joblessness. The nature of the relationship appears to be the same in different countries. The wage curve in the United States is very similar to the wage curves in, for example, Britain, Canada and Norway. As a crude characterization of the data, the wage curve in the countries that have been studied to date is described by the formula

$$\ln w = -0.1 \ln U + \text{other terms}$$

where ln w is the log of the wage, ln U is the log of unemployment in the worker's area, and the other terms in the equation are control variables for further characteristics of the worker and his or her sector. The equation, which seems to hold in each country, implies that the unemployment elasticity of pay is -0.1. A hypothetical doubling of unemployment is then associated with a drop in pay of ten per cent (that is, a fall of one tenth).

Such equations serve another purpose. When treated in the way just described, the data provide a method for the calculation of an index of wage rigidity or inflexibility. The concept of wage "stickiness" has long been central to much of macroeconomics. It has proved harder, however, to agree on a measure of wage inflexibility. The analysis developed here can be seen as offering such a measure. The responsiveness of workers' remuneration to the state of the labor market is captured by the coefficient on log unemployment in an equation for log earnings.

Why does a wage curve exist? The competitive-market model gives an unconvincing rationalization for it, because high wages should be associated with higher unemployment (as workers are priced out of jobs). Hence non-competitive accounts of the labor market have to be considered. In a bargaining model, a high degree of joblessness in the surrounding labor market might be expected to reduce the ability of workers to claim a large share of the surplus to be divided. Non-economists probably think such an idea too obvious to be worth pondering, but economists are required to outline the mechanism at work. A possible story is that outside unemployment frightens workers. This is because if something goes wrong, and the bargaining reaches permanent impasse, the individual workers involved will need to obtain other jobs. Finding jobs is likely to be harder when the local labor market is depressed. Therefore, although some details of the process here remain cloudy, rising joblessness might be thought to spawn declining levels of pay.

Another way to provide an intellectual rationale for the wage curve is by appealing to efficiency wage theory. This approach is instrinsically non-union, so it is potentially suitable for economies that are more like the US's than Sweden's. The well-known characteristic of efficiency wage analysis is that firms set pay in an environment where the wage influences productivity. Shapiro and Stiglitz (1984) is an archetypal case. In equilibrium, firms try to maximize profits, and workers choose how hard to work. If the costs of shirking at work are low, employees put in little effort. The outside rate of unemployment plays a role, because it determines the ease with which a sacked worker can get another job. In a highly depressed labor market, employees are frightened of losing their jobs, and so put in high effort even if pay is comparatively low. Put differently, a marginal rise in unemployment leads to a corresponding marginal fall in the level of wages. The reason is that firms can reduce pay slightly while maintaining a motivated workforce. Unemployment is a discipline device: when it is high the generosity of workers' remuneration can be low. Hence there is an efficiency wage interpretation of the pattern.

Wage Curves in the East

There has been little attempt in the published literature to estimate micro-data wage curves for Eastern Europe. One exception is Kollo's chapter 3 in Enterprise Restructuring and Unemployment in Models of Transition (undated), edited by Simon Commander. He uses data for Hungary and concludes, after estimating Mincer-style equations, that in 1989 the unemployment elasticity of pay was -0.05 and in 1992 it was -0.15. Another is a new paper by Pannenberg and Schwarze (1998), who find some evidence for an East German wage curve.

This section of the paper assembles new data and attempts to estimate the unemployment elasticity of pay in the transition economies. In doing such work, two questions seem of particular interest. First, does any kind of wage curve exist in the emerging labour markets of Eastern Europe? In other words, in microeconometric wage or earnings equations, does the local rate of unemployment enter with a negative coefficient? If so, is the elasticity similar to the -0.1 found by Blanchflower and Oswald (1994) and others for the advanced economies of the West? The figure of –0.1 also has been derived in certain developing countries (Kingdon and Knight 1998, Hoddinott 1996), and there is perhaps a sense in which transition economies are developing nations.

Newly available ISSP data allow these questions to be explored. Table 10 sets out the estimation. Data from five countries are pooled -- covering the period 1990 to 1995 -- both because there are otherwise relatively few observations and to explore the consequence of allowing for country fixed effects. The countries are Poland, Hungary, the Czech Republic, Bulgaria, and East Germany.

The number of worker observations in the entire sample of Table 10 is approximately 19,000. For data reasons, four countries have been dropped from the East European sample of ISSP countries. First, data for Latvia and Slovakia are available for only a single year, so they could not be used in the panel of countries studied in Table 10. In fact, there is evidence of wage curves in the simple cross-sections for these nations, but the results are omitted here. Second, data for Russia and Slovenia are available for a number of years, so in principle they could be included. However, the cell sizes for numbers of unemployed persons by region were too small to

allow reliable measures of area unemployment rates. We explored the data for these two countries, but the results were unstable. For these reasons, the analysis here looks at five nations. When more data are available on the other transition countries, it will be interesting to see if the same results hold.

In Table 10, the dependent variable is the logarithm of worker earnings defined at various levels. The key independent variable is the logarithm of the area unemployment rate. This is measured at a disaggregated level (as in the wage curve work on developed countries). To obtain the unemployment information, the ISSP data were themselves used to compute jobless totals for every area. This data set has information on 48 regions in total.

As well as having the log of unemployment as an independent variable, the regressions include the age and age squared of the respondent, a dummy variable for whether the respondent was male or female, four education dummies, 48 region-dummies (for the different countries' areas), and year-dummies. Hence the regressions effectively estimate regional panels in which there are controls for both region fixed effects and year effects. While the structure of Table 10's regression equations is simpler than is used in the richer and more reliable micro data sets of the West, it seems likely that the essence of wage-curve estimation is captured.

The results for the East are like those found in the industrialised Western nations. In the first column of Table 10, for example, the estimated unemployment elasticity for Eastern Europe is approximately -0.04 with a t-statistic of 3.56. This result is qualitatively reminiscent of those found elswhere in the world, but quantitatively smaller. However, the years at the beginning of the decade were ones in which socialism had barely finished. As is visible in Table 10, the later years in the transition countries see the wage curve's elasticity approach the –0.1 of nations like the US, Canada and UK. In the third column of Table 10, the unemployment elasticity of pay is approximately –0.09. This implies that a doubling of local unemployment would be associated with a 9 percent fall in the level of pay.

Age and age squared enter Table 10's first column in the sensible and expected way. Earnings rise over the early decades of working life, and then, averaging across the whole sample,

peak in a person's mid-40s. As is true in Western wage equations, a dummy for male enters with a large and positive coefficient. Here there is a male premium of more than 30%.

Except for the change in the unemployment elasticity, the alteration of sample years from 90-95 to 91-91 to 92-95 makes relatively little difference to the coefficients on age and male. The annual number of observations is greater for the later years, so the loss of information from discarding 1990 and then 1991 is not too great. Because the dependent variable is at the microeconomic level while the unemployment regressor is at a regional level, the standard errors here have been adjusted down to allow for common group components.

There does appear, therefore, to be some evidence in the transition economies for a downward-sloping function linking pay to the area rate of unemployment, and the estimated effect is of similar size to the -0.1 found elsewhere in the world. The structure of East Europe's wage curve is apparently like that of other nations.

5. Conclusions

This paper studies the labour markets of the transition nations of Eastern Europe. Microeconomic data are used -- drawing upon the latest Eurobarometer and ISSP Surveys – on approximately 60,000 randomly sampled workers in the transition economies. Equivalent Western data are analysed and compared with those from the East. An underlying theme in the paper is that to understand youth unemployment it is necessary to understand the adult unemployment rate.

The analysis produces three results.

1. The microeconometric structure of unemployment regression equations appears to be approximately the same in the nations of Eastern Europe as in the industrialized West. Variables like education and age, for example, enter unemployment equations in similar ways in the two halves of Europe.

2. The degree of wage flexibility is apparently approximately the same in the transition nations as in Western OECD countries. Estimation of an East European 'wage curve' -- done by pooling

micro data from five transition nations -- produces a local unemployment elasticity of close to -0.1. This is the figure commonly found for the advanced nations.

3. Unemployed people in transition countries seem to be as unhappy, relative to the employed, as those who are jobless in the industrialized countries. This result emerges from the estimation of (reported) well-being equations. Such a finding casts doubt on the idea that high levels of state benefits are causing unusual amounts of voluntary unemployment in the East. Moreover, in both Western and Eastern Europe, the coefficient on unemployment is approximately the largest, in absolute size, in a microeconometric well-being equation.

The broad conclusion from our analysis is that the workings of the labour markets of East and West appear to be similar. It would be unwise to view the paper's results as more than exploratory: much remains to be understood about the transition countries. Nevertheless, if our conclusions withstand further scrutiny, it will mean there is nothing distinct about Eastern Europe's high level of joblessness. There is only one unemployment problem – Europe's.

Figure 1

**The Cross-Country Relationship Between Adult Unemployment and Youth Unemployment
in the OECD Economies in the 1990s**

$$y = -3.6289\text{e-}2 + 1.8231x \quad R^2 = 0.861$$

The countries covered here are Canada, Switzerland, Japan, Sweden, Norway, France, Australia,
USA, Netherlands, UK, West Germany, Belgium, Denmark, Finland, Luxembourg, New Zealand,
Ireland, Italy, Spain, Portugal. Youth unemployment covers those 15-24. Both kinds of
unemployment rates are standardized OECD figures for 1993.

Figure 2

**The Cross-country Relationship Between Adult Unemployment and Youth Unemployment
in Eastern Europe in the 1990s**

y = 9.3248 + 1.4980x   R^2 = 0.493

x-axis: Total adult unemployment (%)
y-axis: Total youth unemployment (%)
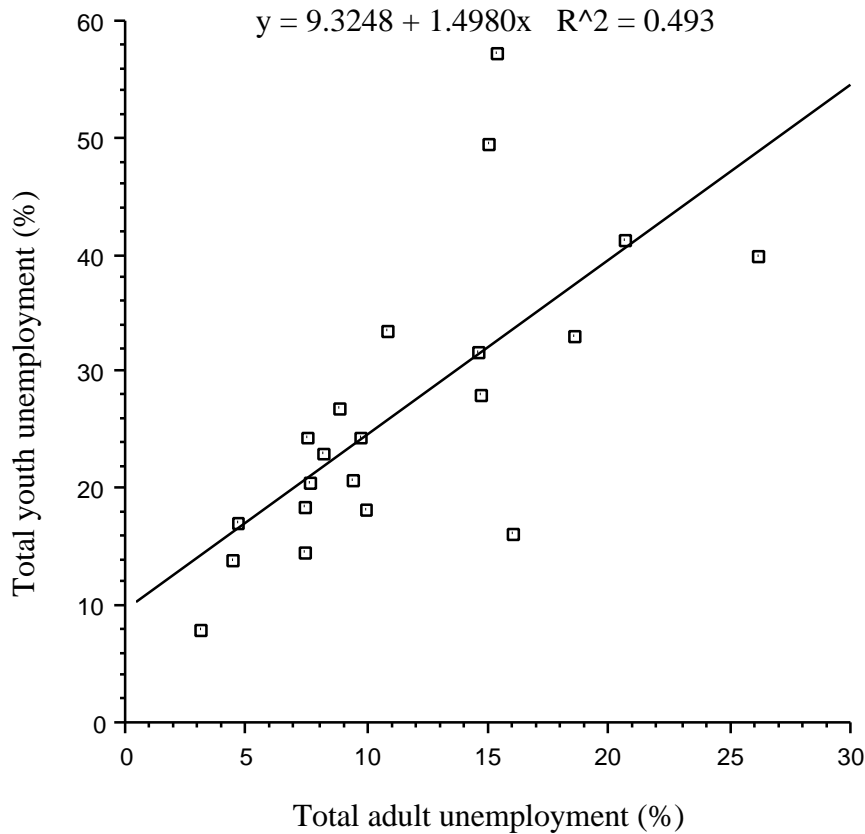
The countries covered here are Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russia, Romania, Alania, Armenia, Belarus, Slovakia, Georgia, Macedonia, Slovenia, Ukraine, Kazakhstan, Croatia and East Germany. The data are derived from the micro data used in the paper, and are averages for the early 1990s. The two outliers above the fitted line are Macedonia and Bulgaria; the one below is East Germany.

Table 1

The Characteristics of the Transition Economies in the Early 1990s

CEE Countries	*Pop* *(million)*	*GDP/head* *(PPP$ c.1993)*	*% Agriculture*
Albania	13	1000	56
Bulgaria	9	4100	13
Czech Republic	10	7500	6
Estonia	2	6300	11
Hungary	10	6050	7
Latvia	3	5000	24
Lithuania	4	3100	18
Poland	39	5000	7
Romania	23	2800	21
Slovak Republic	56	300	6
Slovenia	2	10600	5

CIS Countries			
Armenia	4	2000	55
Azerbaijan	7	2200	39
Belarus	10	6250	23
Georgia	5	1750	46
Kazkhstan	17	4800	39
Kyrgystan	4	2800	43
Moldova	4	2900	42
Russia	148	5050	13
Tajikistan	6	2000	33
Turkmenistan	4	3950	17
Ukraine	52	4450	16
Uzbekistan	23	2600	39

Sources: EBRD, HDR, 1995.

Table 2

Recent % Unemployment Rates for Selected Transition Economies

Year	Bulgaria	Czec Rep	Hungary	Poland
1989	na	0.0	0.3	0.1
1990	1.5	0.8	1.9	6.1
1991	11.5	4.1	7.5	11.8
1992	15.6	2.6	12.3	13.6
1993	16.4	3.5	12.1	15.7
1994	12.8	3.2	10.4	16.0
1995	10.5	2.9	10.4	14.9
1996e	12.5	3.5	10.5	na

Year	Romania	Russia	Slovak R.	Slovenia
1989	na	na	0.0	na
1990	na	0.0	1.5	na
1991	3.0	0.1	11.8	na
1992	8.1	0.8	10.3	11.0
1993	10.2	5.5	14.4	na
1994	11.0	7.1	14.8	na
1995	8.9	8.2	13.1	15.0
1996e	6.1	9.3	12.8	na

NB. (i) Russian figure here is "open" unemployment. (ii) Separate figures for Albania show unemployment rates of 20% in 1995 and 27% in 1992, and for Ukraine 1.2% in 1996, and for Kazakhstan 3.5% in 1996.

Source: The Economics of Transition, May 1997, and EBRD Transition Report.

Table 3. **Unemployment Equation (OLS): 1990-1995**.
(Dependent variable=1 if unemployed 0 if employed)

	Coefficient	t-statistic
Male	-.0288	14.21
Age left school = 15	-.0151	3.69
Age left school = 16	-.0332	8.78
Age left school = 17	-.0503	11.46
Age left school = 18	-.0616	15.75
Age left school = 19	-.0606	12.67
Age left school = 20	-.0748	14.94
Age left school = 21	-.0847	15.61
Age left school >= 22	-.0818	22.22
Still at school	-.0536	4.20
Age 15-19	.1152	19.30
Age 20-24	.0645	15.92
Age 25-29	.0347	9.91
Age 30-39	.0112	4.02
Age 50-59	.0217	6.66
Age 60-69	.0056	1.08
Age >=70	-.0444	3.69
Belgium	.0166	3.44
Denmark	.0229	4.76
East Germany	.0769	17.16
Eire	.0195	3.95
France	-.0223	4.68
Greece	-.0337	6.69
Italy	-.0254	5.04
Luxembourg	-.0947	14.58
Netherlands	-.0281	5.68
Norway	-.0222	3.92
Portugal	-.0809	15.96
Spain	.0020	0.39
West Germany	-.0864	18.54
1991 dummy	.0219	5.98
1992 dummy	.0321	10.05
1993 dummy	.0456	12.56
1994 dummy	.0420	11.82
1995 dummy	.0067	1.44
Married	-.0784	27.95
Living as married	-.0495	10.90
Divorced	.0073	1.36
Separated	.0028	0.32
Widowed	-.0517	6.71
Constant	.1897	32.08
N	99410	

F(40, 99369)	144.34
R-squared	.0549
Adj R-squared	.0545
Root MSE	.30891

Notes: excluded categories UK, single, age 40-49, 14 years of schooling and under.
Unemployment here means reporting oneself as unemployed.
Source: Eurobarometer surveys, 1990-1995

Table 4. **Unemployment Equation (OLS): 1990-1994 - non-Eastern Europe**

	Coefficient	t-statistic
Age 15-19	.0865	8.67
Age 20-24	.0692	13.59
Age 25-29	.0233	5.44
Age 30-39	.0080	2.44
Age 50-59	.0047	1.22
Age 60-69	.0017	0.28
Age >=70	-.0016	0.13
Male	.0074	3.01
1991 dummy	.0022	0.48
1992 dummy	.0073	1.56
1993 dummy	.0099	2.17
1994 dumy	.0023	0.55
11 years schooling	-.0056	1.32
12 years schooling	-.0300	7.69
>=13 years schooling	-.0481	15.57
Married	-.0583	16.86
Widowed	-.0213	2.39
Divorced/Separated	.0074	1.34
Australia	-.0848	14.96
Austria	-.0684	8.82
Canada	-.0677	9.23
Eire	.0165	2.20
Israel	-.0078	1.28
Italy	-.0598	9.08
Japan	-.0944	12.15
Netherlands	-.0402	6.16
New Zealand	-.0423	6.96
Norway	-.0530	9.40
Philippines	-.0384	6.32
Spain	.0805	10.88
Sweden	-.0240	2.42
USA	-.0646	11.79
West Germany	-.0841	16.42
Constant	.1567	23.93
N	44943	
F(33, 44909)	83.68	
R-squared	.0579	
Adj R-squared	.0572	
Root MSE	.25379	

Notes: excluded categories: 10 years of schooling or less, UK, single, 1990, age 40-49.
Source: ISSP, 1990-1994

Table 5. **Unemployment Equation (OLS): 1990-1994 - Eastern Europe**

	Coefficient	t-statistic
Age 15-19	.1660	11.50
Age 20-24	.0806	10.22
Age 25-29	.0269	4.21
Age 30-39	.0157	3.27
Age 50-59	.0040	0.67
Age 60-69	.0064	0.48
Age >=70	-.0022	0.06
Male	-.0102	2.73
1991 dummy	.0650	7.07
1992 dummy	.1000	10.86
1993 dummy	.1189	12.86
1994 dummy	.1042	11.28
11 years schooling	-.0299	5.00
12 years schooling	-.0548	9.98
>=13 years schooling	-.0637	13.29
Married	-.0332	5.48
Widowed	-.0323	2.47
Divorced/Separated	.0060	0.68
Hungary	.0700	10.299
Czech Republic	-.1225	14.887
Slovenia	-.0602	8.424
Poland	-.0296	4.287
Bulgaria	.0208	2.510
Russia	-.1339	21.003
Constant	.1130	10.380
N	23999	
F(24, 23974)	80.89	
R-squared	.0749	
Adj R-squared	.0740	
Root MSE	.2847	

Notes: excluded categories: 10 years of schooling or less, East Germany, single, 1990, age 40-49.

Source: ISSP, 1990-1994

Table 6. **Unemployment Equation (OLS) for the Young (ages 15-24): 1990**.
(Dependent variable=1 if unemployed 0 if employed)

	Coefficient	t-statistic
Immediately after school	.00136	1.001
1 year after school	-.00166	0.798
2 years after school	-.00027	0.220
3 years after school	.00049	0.409
4 years after school	.00081	0.405
later than 4 years after school	-.00067	0.452
Belgium	.08484	3.035
Denmark	-.03842	1.327
East Germany	-.09063	4.082
Eire	.1153	4.649
France	-.0177	0.686
Greece	.08637	3.370
Italy	.09550	3.326
Luxembourg	-.14146	3.875
Netherlands	-.09640	3.514
Portugal	-.04257	1.788
Spain	.03519	1.359
West Germany	-.09882	3.953
Age 16	-.03697	0.691
Age 17	-.05025	1.014
Age 18	-.05927	1.214
Age 19	-.04094	0.840
Age 20	-.05136	1.076
Age 21	-.0588	1.239
Age 22	-.06673	1.389
Age 23	-.08566	1.781
Age 24	-.09165	1.915
Living alone	.01659	0.770
Life with wife/husband	-.0067	0.325
Live with girl/boy friend	.03391	1.633
Living in shared accomodation	.02008	0.680
Male	-.03742	3.293
Constant	.23882	4.948
N	3968	
F(32, 3935)	6.57	
R-squared	.0507	
Adj R-squared	.0430	
Root MSE	.35147	

Notes: excluded categories; age 15, UK, still at school, living with parents

Table 7. **Unemployment Equation (OLS) for Eastern Europe: 1990-1995.**
(Dependent variable=1 if unemployed 0 if employed)

	Coefficient	t-statistic
Male	-.0148	4.28
Age 15-19	.3075	31.04
Age 20-24	.1351	20.88
Age 25-29	.0782	13.23
Age 30-39	.0252	5.42
Age 50-59	-.0098	1.74
Age 60-69	-.0591	5.72
Age >=70	-.0324	1.34
Albania	-.0854	8.58
Armenia	.0735	6.81
Belarus	-.1425	13.87
Croatia	-.1085	7.15
Czech Republic	-.1686	16.33
Estonia	-.0855	8.90
Georgia	-.0407	3.40
Hungary	-.0306	2.79
Kazachstan	-.0076	0.50
Latvia	-.0666	6.65
Lithuani	-.0961	9.40
Macedonia	-.0124	1.06
Moldova	-.1304	9.18
Poland	-.0703	5.98
Romania	-.1297	13.58
Russia	-.1096	10.69
Slovakia	-.1202	9.95
Slovenia	-.1326	11.51
Ukraine	-.1121	11.09
1992 dummy	.0496	8.40
1993 dummy	.0617	8.41
1995 dummy	.1056	17.67
Some sec educ - not completed	-.0430	6.35
Secondary - graduated	-.0753	12.74
Higher education	-.1208	18.29
Constant	.1836	18.29

N	33259
F(33, 33225)	111.99
R-squared	.1001
Adj R-squared	.0992
Root MSE	.31404

Notes: excluded categories Bulgaria, age 40-49, up to elementary education.
Source: East-Europe Eurobarometers.

Table 8. **Happiness Regression (OLS): 1991**
(dependent variable=1 if fairly or very happy; 0 if not at all or not very happy)

Question. If you were to consider your life in general these days,
how happy or unhappy would you say you are, on the whole?
(Please tick one box only) 4. Very happy 3. Fairly happy 2. Not very happy 1. Not at all happy

	Coefficient	t-statistic
Male	-.0165	3.39
Age15-19	.1011	6.49
Age20-24	.0653	6.29
Age25-29	.0230	2.54
Age30-39	.0096	1.33
Age50-59	-.0041	0.51
Age60-69	.0291	3.12
Age>=70	.0935	7.91
Married	.0798	10.85
Widowed	-.0857	7.16
Divorced/separated	-.0834	7.15
Unemployed	-.1356	11.46
Out of the labor force	-.0389	6.05
Years of schooling	.0078	10.19
Australia	-.0271	2.39
Austria	.0008	0.06
East Germany	-.1420	11.58
Eire	.0090	0.65
Hungary	-.3023	21.74
Israel	-.1515	10.52
Italy	-.1584	11.09
Netherlands	-.0012	0.10
New Zealand	-.0525	3.83
Norway	-.0604	4.82
Philippines	-.0948	7.06
Poland	-.1753	12.56
Russia	-.2451	23.00
Slovenia	-.3158	27.97
USA	-.0132	1.05
West Germany	-.0351	2.77
Constant	.8089	52.58

N	23793
F(30, 23867)	109.13
R-squared	0.1211
Adj R-squared	0.1200

Root MSE   .35507

Notes: excluded categories; age 40-49 years; UK; single and employed.
Source: ISSP (1991)

Table 9. **Unemployment Coefficients by Country: Estimates from Life Satisfaction and Happiness Regressions 1990-1995**

	Unemployment coefficient	% satisfied with life		N
		Employed	Unemployed	
a) Eurobarometers (1990-1995)				
Belgium	-.15	89	73	14199
Denmark	-.08	98	90	13870
East Germany	-.34	78	44	14600
Eire	-.24	89	63	13924
France	-.16	74	58	13937
Greece	-.09	54	49	13883
Italy	-.20	80	62	14423
Luxembourg	-.16	95	78	6616
Netherlands	-.17	96	79	14090
Norway	-.16	96	81	7982
Portugal	-.20	72	54	13817
Spain	-.21	76	56	13887
United Kingdom	-.20	89	68	18728
West Germany	-.34	89	55	14281
All	-.20	84	63	188237

Note: each coefficient derived from a separate equation for each nation. N refers to the total number of observations on the life satisfaction variable.

	Unemployment coefficient	% happy		N
		Employed	Unemployed	
b) International Social Survey Programme (1991)				
Australia	-.11	92	81	2153
Austria	-.11	93	81	984
East Germany	-.15	80	65	1485
Eire	-.17	95	77	1002
Hungary	-.01*	69	69	1000
Israel	-.23	83	60	941
Italy	-.08	79	69	983
Netherlands	-.04*	95	88	1635
New Zealand	-.14	91	76	1056
Norway	-.09	90	83	1506
Philippines	-.16	85	73	1200

	Unemployment coefficient	Employed	Unemployed	N
Poland	-.12	79	63	1063
Russia	-.13	73	62	2964
Slovenia	-.14	65	49	2070
USA	-.09	93	82	1358
All	-.14	84	70	24836

Note: each coefficient derived from a separate equation for each nation. N refers to the total number of observations on the life satisfaction variable.

c) Eurobarometers for the Young (1990)

		% satisfied		
	Unemployment coefficient	Employed	Unemployed	N
Belgium	-.23	96	72	590
Denmark	.03*	97	100	612
East Germany	-.36	84	48	654
Eire	-.26	91	64	598
France	-.39	90	51	595
Greece	-.14	80	68	604
Italy	-.12	84	72	604
Luxembourg	-.37	96	50	197
Netherlands	-.12	99	87	579
Portugal	-.11	80	69	588
Spain	-.08	87	76	598
West Germany	-.36	91	53	598
All	-.21	89	68	7633

Note: each coefficient derived from a separate equation for each nation. N refers to the total number of observations on the life satisfaction variable.

The table also reports, in its right-hand columns, the numbers of people describing themselves as happy or satisfied.

Table 10. **East European Wage Curves, 1990-1995 (Bulgaria, Czech Republic, East Germany, Hungary and Poland)**

	1990-1995	**1991-1995**	**1992-1995**
Log regional unemployment rate	-.0419 (3.56)	-.0634 (5.86)	-.0900 (7.55)
Age	.0374 (16.11	.0385 (15.99)	.0405 (14.78)
Age squared	-.0004 (16.39)	-.0005 (16.26)	-.0005 (15.52)
Male	.3158 (29.32)	.3101 (26.43)	.3057 (24.78)
Constant	6.8519 (100.7)	7.9000 (135.0)	7.4162 (116.2)
N	19339	17752	15192
F	163.2	170.94	172.02
R^2	.7403	.7276	.7144
$\bar{R}^2$	.7395	.7267	.7134
Root MSE	.5434	.5523	.5438

Source: ISSP.
Notes: All equations include 48 country-specific region dummies and five year-dummies. Dependent variable is the log of earnings (variously defined). The t-statistics have been adjusted for common components in the residuals.

Unweighted numbers of observations as follows.

Country	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**Total**		
Bulgaria	0	0	1070	917	978	466	3431		
Czech Republic	0	0	975	0	742	498	2215		
Hungary	817	945	1087	1039	1358	486	5732		
Poland	0	564	814	764	737	727	3606		
GDR	770	1051	756	461	988	381	4407		
Total	1587	2560	4702	3181	4803	2558	19391		

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