

# CentrePiece

The Magazine of The Centre for Economic Performance

Volume 6 Issue 2 Summer 2001

Inside this issue: The CEP is rehoused



## Drop outs from work

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# Four into one

**Hugh Stephenson describes the launch of the new LSE economics and social policy Research Centre.**

**T**his issue of CentrePiece celebrates the opening of the LSE's new Research Laboratory. With a £6.5 million grant from the Wellcome/OST/HEFCE Joint Infrastructure Fund, the top two floors of the School's Lionel Robbins Building have been redesigned by Foster & Partners, so that all the LSE research centres concerned with economics and social policy are brought together.

The result is the creation of by far the most impressive single concentration of economics research not only in the UK but in the whole of Europe. The constituents are the Suntory and Toyota International Centres for Economics and Related Disciplines (STICERD), the Centre for Economic Performance (CEP), the Financial Markets Group (FMG) and the Centre for the Analysis of Social Exclusion (CASE).

While still falling far short in terms of numbers or funding of the leading economics research centres at US universities, like those at Harvard or MIT, the new research laboratory represents a unique national and European resource. Well over 200 talented economists, including a high proportion of the country's leading academics, scholars with international reputations from the US, the



Continent and elsewhere, and post-graduate researchers from more than 30 countries will now be working together in easy proximity and enjoying well-designed facilities. The close working relationship between younger researchers and senior staff has created a kind of apprenticeship environment that has produced high quality recruits to the profession.

All the elements now housed in the Research Laboratory share a common philosophy. First, they are rigorous academic research centres, not think tanks. The research they do appears in the form of working papers, discussion papers and articles in refereed journals, which can be downloaded from their respective web sites. In addition, of course, there is a whole range of

conferences, public seminars and lectures and more popular dissemination through the media, including CentrePiece itself.

Second, almost all the research is based on rigorous data analysis, using major longitudinal national and international datasets, or surveys carried out by the Centres themselves. These substantial datasets are held on a secure data server in the Laboratory and include, for example, a range of micro- and macro-datasets from the UK Data Archive, the OECD, the IMF and the NBER in the United States. The result is that the interface between the work done in the individual Centres and the "real world" of policy and executive decisions is evidence-based analysis, unbiased by presumptions or any



particular ideology. As a result, the collective impact on public policy in the UK over the past decade, under both New Labour and the previous Conservative government, has been extraordinary, far greater than anything resulting from economic research at Oxford, Cambridge or the London Business School, for example.

Some random examples of CEP research may serve to support this claim. Research on long-term unemployment patterns in Europe revealed the negative effects of long-term unemployment benefits and the positive effects of active help for the unemployed and so provided the intellectual basis for the whole of the "welfare to work" and New Deal programmes of the Blair government.

Research into workless families inspired the Working Families Tax Credit scheme. Research into the impact of introducing a national minimum wage predicted that, if set at a reasonable level, it would have little effect in reducing jobs and significant positive welfare benefits. Work on the links between skills, especially numeracy, labour productivity and low wages produced evidence of the negative effects of lower skills in the UK and the US in comparison with northern Europe and led to the National Skills Audit. Similarly, FMG research has fed into policy on capital adequacy requirements, transparency in securities dealing and the regulation of market making in an increasingly competitive environment. CASE research with policy implications to which the government has reacted has included analysis of the effects of childhood deprivation and the roots of homelessness.

The impact of this linked group of research centres on public policy has gone beyond the generation of evidence and ideas. To an extent without precedent in the British academic world, senior staff have been active members of a whole range of public bodies. For example, Richard Layard is a consultant to the Department for Education and Employment on welfare to work. No fewer than four LSE academics have been or are members of the Bank of England Monetary Policy Committee (Charles Goodhart, Stephen Nickell, Sushil Wadhvani and Willem Buiters). David Metcalf is a member of the Low Pay Commission and ombudsman for the European Bank for Reconstruction and Development. Danny Quah is a consultant to the Bank of England on monetary analysis and a member of the Treasury's panel of economic advisers. Charles Bean is now Chief Economist at the Bank of England. Tony Venables was last year director of Trade Research at the World Bank. Nick Stern, who originally floated the idea of the Laboratory 10 years ago, is now Chief Economist at

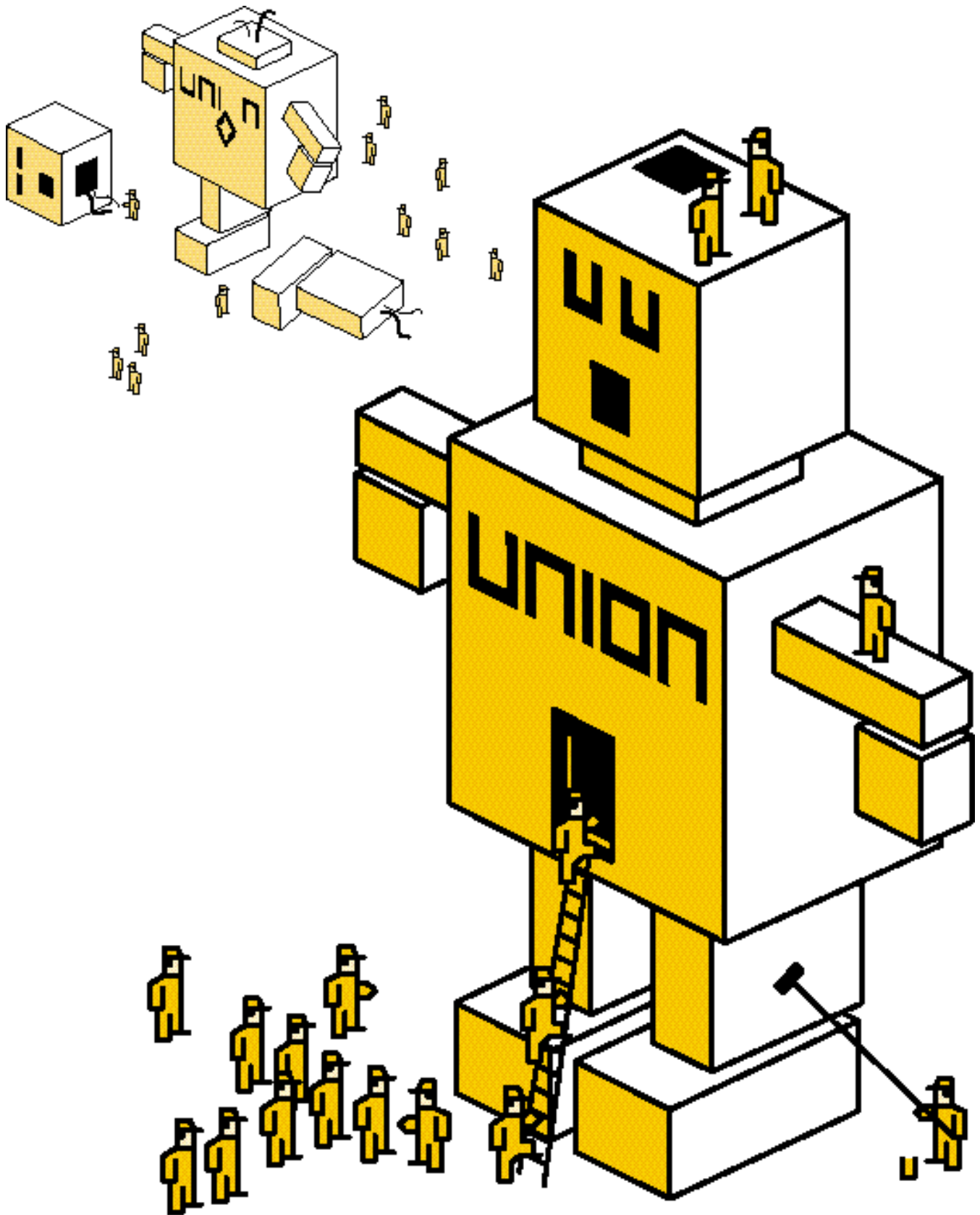
the World Bank. Taken as a whole, the investment by the ESRC and other donors and the LSE itself over the last ten years has produced a remarkable return.

What of future prospects for the new Research Laboratory? There is a general and often justified suspicion when claims are put forward for the potential of synergy. However, in this case there are powerful positive forces at work. The first is critical mass. This is the largest concentration of this kind of talent anywhere outside the US. The second is the range of disciplines involved. The various Centres bring very different perspectives and methods to common issues: economics, finance and capital markets, and social policy.

There has already been some overlap and cooperation between the Centres in their past manifestations. Housed together, they offer the real potential for new and powerful interdisciplinary perspectives on critical issues. A \$1 million joint research programme involving STICERD and FMG into the future of pensions and funded by UBS has already been agreed.

The new joint location has several things going for it. The IT and data base and related support services, already probably the best enjoyed by any economics researchers in the UK, is now shared and has been greatly strengthened. But, above all, there is the location itself. By the Aldwych, directly linked by an elegant high-level Bridge of Sighs to the LSE's economics department, looking out over the Law Courts and equidistant from Whitehall and the City, it is an ideal and easy meeting ground for academics, politicians, senior civil servants, bankers and businessmen, as well as providing the leading UK forum for lectures and seminars by visiting foreign stars, especially from the US.

**Hugh Stephenson** is public affairs consultant to the CEP.



# Turning the tide

Can trade unions in Britain reverse  
20 years of membership decline?

**David Metcalf examine the record and maps a way forward.**

**U**nion membership in Britain actually rose by 100,000 in 1999. This ended two decades of sustained membership losses – the longest, deepest decline in British labour history, involving a cumulative fall of over 5 million members. By the end of the century, 7.3 million employees in Great Britain were union members, equivalent to three employees in every 10. Is this recent rise a mere blip in the unions' continued march to dissolution, or does it augur resurgence?

Membership data alone are a very blunt indicator of unions'

role in industrial relations. The number of workers covered by collective bargaining also matters. The majority of employees (13.6 million, or 57%) are neither union members, nor covered by a collective agreement. Of those 8.5 million employees covered by an agreement, under two thirds (5.4 million) are union members – implying that there are some 3 million free riders, who get the benefits of collective agreements but don't belong to a union.

Looking at the evidence the other way round, nearly a quarter of union members are not covered by a collective agreement (1.6 million out of 7 million). These will include people who retain their membership even though their

employer no longer recognises the union. They also include many teachers and nurses, who are union members but whose pay is set by arbitration by Review Bodies. In other cases, the employer recognises a union for grievance and discipline matters, but not for pay bargaining.

Going hand in hand with the decline in union penetration has been a profound change in the type of mechanisms that provide employees with a voice – a big switch away from representative voice to direct voice. Representative voice occurs via a recognised trade union or works council. Direct voice bypasses these intermediate institutions. Instead, management and employees communicate directly with one another through, for example, team briefings, regular meetings between senior management and the workforce and problem solving groups, such as quality circles. Between 1984 and 1998, the proportion of workplaces with only representative voice arrangements halved, while those relying just on a direct voice nearly trebled. What happened was that unionised workplaces added complementary direct communication systems, while nearly all new workplaces opted for direct communication methods without recognising unions.

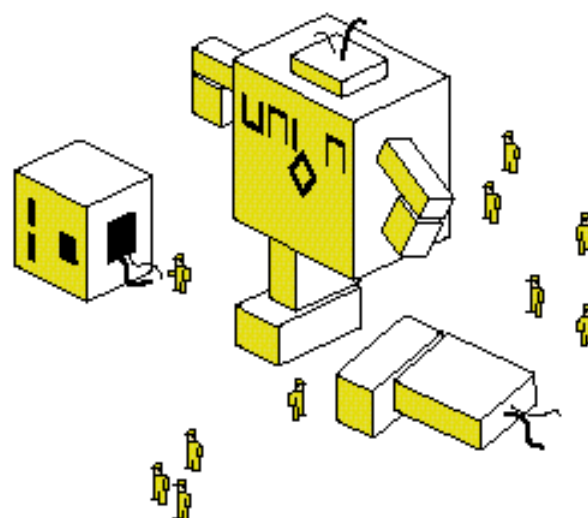
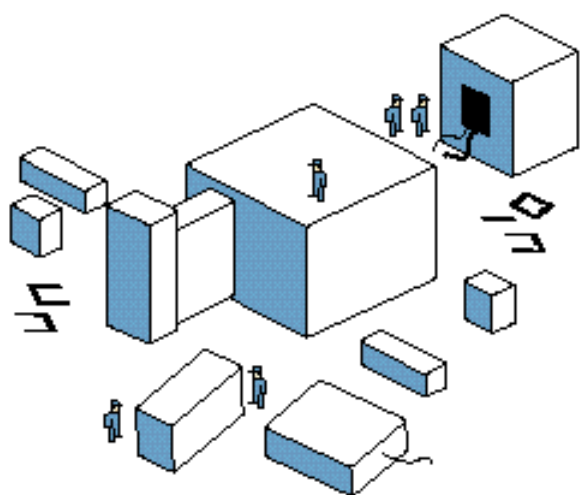
There is no evidence that union activity – causing higher labour costs, for example – results in a higher rate of closures among unionised plants, compared with their non-union counterparts. Between 1984 and 1998, closure rates were virtually identical for both union and non-union workplaces. Nor has management embarked on wholesale derecognition of trade unions – the derecognition rate was around 1% a year between 1984 and 1998. Although derecognition in some national newspapers, TV and docks generated bitter industrial disputes and considerable media interest, it turns out that such management action was quite rare.

Rather, the decline turns on the inability of unions to achieve recognition in newly established workplaces, reflecting Thatcherite views among some managers and the growth of investment from overseas. By 1998 only a quarter of workplaces under 10 years old recognised a trade union, half the corresponding figure for older workplaces. This inability to get much of a foothold in new workplaces is not, as is often asserted, confined to private services. More stunning is the virtual collapse of recognition in newer manufacturing plants. Only 14% of manufacturing workplaces set up after 1980 recognise a union, compared with 50% of those established in 1980 or before.

Similarly, the likelihood of a young worker being a union member has declined over time, both absolutely and compared with older workers. This is partly explained because they work in newer non-union workplaces. In 1998, only 10% of the workforce in workplaces established prior to 1980 was aged under 25, whereas the corresponding figure was 17% for those set up in the 1980s and 1990s.

While recognition in newer workplaces is vital to the long run health of the union movement, we should not lose sight of falling membership levels even where unions are recognised. In 1980, 25% of all employees were in a closed shop, but the legislative onslaught against trade unions in the 1980s meant that by 1990 very few workplaces still had one. If in the 1980s unions lost the support of the State and of managers, in the 1990s they lost the support of many employees, who showed a much reduced propensity to belong to a union, even when encouraged to do so by management.

Whether unions are facing dissolution or can recover will mainly depend on what they do to companies and for



**Management has not embarked on wholesale derecognition of trade unions.**



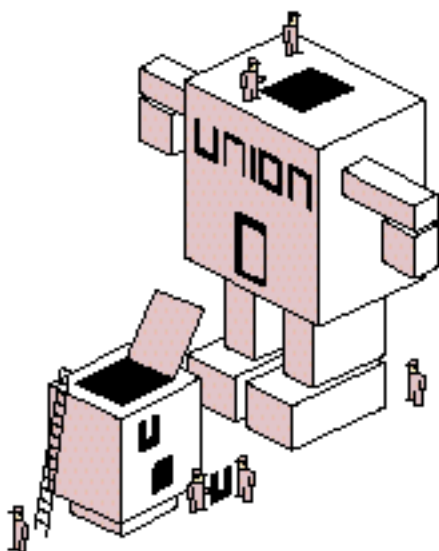
employees. Consider the link between union recognition and the financial performance of the workplace – the “vested interest” impact of unions. Evidence from the 1998 Workplace Employment Relations Survey, covering over 1000 workplaces in the trading sector, shows the following:

**Figure 1** Probability of above average financial performance when union is recognised

whole sample	-8.2%
1-5 competitors	-12.4%
6+ competitors	7.4%

Even after controlling for all sorts of other factors that influence profits – human resource practices, industry, workplace size, etc the likelihood of above average financial performance is 8.2% lower in unionised than in otherwise similar non-union workplaces. But this is far from the whole story. This association is much stronger in monopolistic sectors, defined as being situations where management recognise no more than five competing workplaces. By contrast, where there are many competitors union recognition boosts the likelihood of above average financial performance. Unions should surely make more of this important positive link between recognition and profits in competitive sectors.

The explanation seems to be that unions siphon off some of the excess profits in monopolistic sectors – a transfer from capital to labour. It may also be that management in such sectors is worse – grown feeble and fat due to their monopoly power – and that their preference for a quiet life yields a handsome payoff for unions.



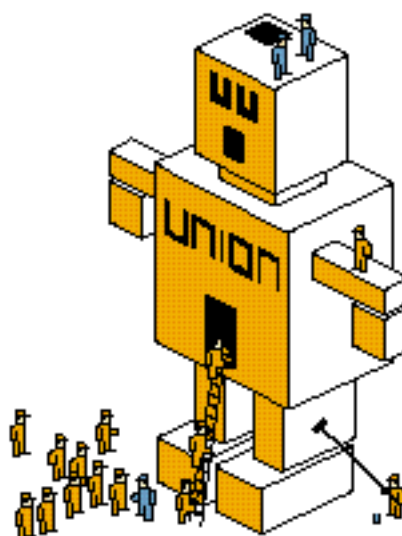
Unions also have a lot to offer employees – they wield a “sword of justice” in the labour market. It is straightforward to calculate what the present wage structure is and what it would look like if there were no unions:

**Figure 2** If there were no union, wage structure would be wider by %

Group	
Male/female	2.6
White/black	1.4
Healthy/health problems	0.6
Non-manual/manual	3.1

If there were no unions, the gender pay gap would be 2.6% wider and the race pay gap 1.4% bigger. These are very substantial effects. They can be put in perspective by a comparison with the impact of the national minimum wage (NMW). Its introduction in 1999 had a specially favourable effect on female pay – two thirds of those affected were women – and it narrowed the gender differential by a bit under 1%. Compare this with unions’ impact: unions compress the gender pay differential by 2.6% – almost treble the impact of the initial NMW.

Union recognition is associated with a much greater likelihood of the workplace having some form of equal opportunity policy and an array of family friendly policies designed to encourage female employment. Women in unionised workplaces are much better off in terms of career opportunities, flexible work arrangements and general support for family responsibilities than their counterparts in non-union workplaces.



Further, a union workplace is a fifth more likely to have an equal opportunities policy on gender than its non-union "twin".

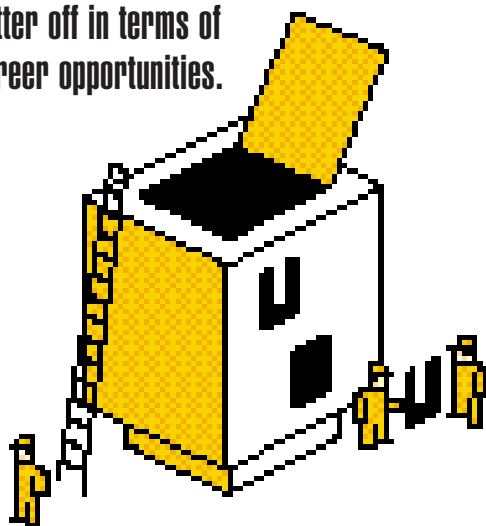
Unions also cut industrial accidents. An accident in this context is where an employee has sustained any one of eight injuries during working hours over the last 12 months, including bone fractures, burns, amputations and any injury that results in immediate hospitalisation for more than 24 hours. Unions tend to organise in workplaces where an accident is more likely to occur, but their presence lowers the rate by a quarter, compared with non-union plants.

How might unions reverse the decline and achieve a sustained rise in their membership levels? Broadly, there are two possible routes to revival. Either employment in unionised sectors of the economy has to grow relative to non-union employment, or unions must engage in more intense organising activity.

Frankly, it is most unlikely that any boost in the aggregate number of jobs in the labour market will occur disproportionately in the unionised sector. While there are plans for a modest rise in the number of police, nurses and teachers, the (highly unionised) public sector will not experience much growth in the next decade. There is also no suggestion of a strong growth in jobs in manufacturing, utilities or transport. It is likely, instead, that the major share of any growth in employment will occur in private services, which at present have a union membership level of under 15%. So disproportionate growth in employment in the union sector is not the route to a restoration of unions' fortunes.

Unions can organise individuals and/or companies. The "sword of justice" effects – lower accident rates, more egalitarian pay structures and promotion of family friendly

**Women in unionised workplaces are much better off in terms of career opportunities.**



policies – could, in principle be used to appeal to the current 3 million free riders.

Greater effort is probably required when the focus is put on the 13.6 million employees (57% of the total) who are neither covered by collective bargaining nor are union members. The TUC Organising Academy is training a cadre of 50 or so young organisers. Evaluation at the Cardiff Business School suggests that the campaigns to which they contribute generated some 18,000 new members in the last two years. Such recruitment is but a small fraction of the 500,000 new members required each year, if – allowing for the normal churning in the labour market – unions are even to maintain their present membership levels.

The 1999 British Social Attitudes survey indicates that 40% of non-union employees in non-union workplaces would join a union, if one was available – an untapped recruitment pool of over 3 million employees who come under the Employment Relations Act, which came into force last year to facilitate union recognition. Such recognition occurs voluntarily, or via the law. Voluntary recognition stems either from true love (cooperation between capital and labour), or a marriage of convenience (a pragmatic second best). The legal route, inevitably associated with adversarial industrial relations, is a shotgun marriage, imposed on a resistant employer by an arm of the State.

Under the legal route, if a union can prove a majority of membership in the bargaining unit, then it gains recognition. If not, a ballot is held in which the union must win 50% + of the votes cast in the ballot and must have at least 40% of the workforce in the bargaining unit voting "yes". It is too early to assess the impact of this legislation, but it is unlikely – by itself – to lead to a resurgence of membership via a flood of new recognition agreements. This is because:

- by simple arithmetic, even if there were to be an election every day involving 500 employees with the unions winning half, this would yield only 50,000 extra employees in newly recognised bargaining units each year;
- the USA has had a similar law for more than half a century, yet less than one worker in 10 in the private sector is a union member;
- statutory recognition procedures in the 1970s only added, directly, 60,000 members to union ranks;
- triggering the law means that the employer is hostile to recognition and consultancy firms are already fuelling such opposition. (One recently went so far as to assert that "UK employers should view a union organisational effort as an economic heart attack".)

Voluntary recognition is an alternative to use of the law.

Some recent genuine partnership agreements – love matches – include those between GB Airways and the AEEU, covering 400 cabin crew, engineers and ground staff, and others at the Inland Revenue, Unisys and Tesco. Such agreements aim to switch the focus of relations between labour and capital away from battling over the size of the slices towards achieving a bigger cake.

Pragmatic recognition – marriages of convenience – may well also suit both parties in certain situations. The employer might, for example, achieve provisions on dispute resolution that would not be available if the union relationship was adversarial. And, from the union viewpoint, recognition imposed on a combative employer might prove a Pyrrhic victory, because with it comes no explicit duty on an employer to bargain in good faith thereafter.

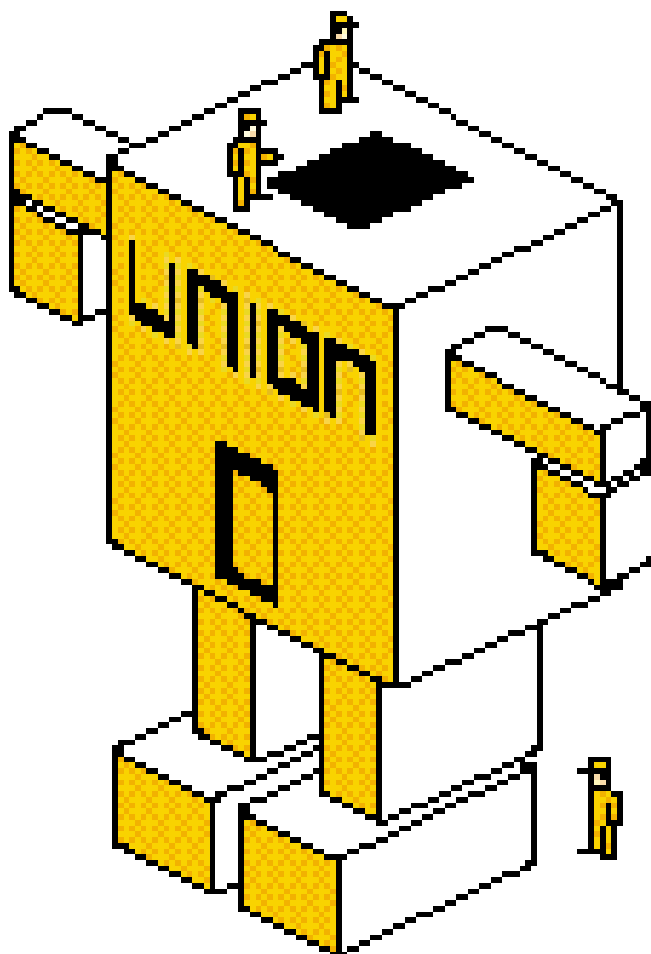
Nearly 800 voluntary agreements – partnerships or marriages of convenience – were signed between 1995 and 2000, bringing some 500,000 new workers under recognition. But the union focus was still on the traditional areas – half these new agreements were in public services or the ex-public sector field, like NHS caterers. A further 50,000 of these new members were in the familiar manufacturing, finance, and transport and communication sectors, leaving just one in six of the newly covered workers in the rest of the private sector.

Unions will hope that this indirect effect of the new recognition law remains strong, promoting an even greater flow of “voluntary” recognitions than in recent years. Although signing up with sufficient employers is vital, unions must also pay greater attention to declining membership levels even where they remain recognised. If unions could retain their existing members and sign up 10% of the 3 million free riders each year their fortunes would be transformed.

**David Metcalf** is Director of the Leverhulme Trust Programme on the Future of Trade Unions in Modern Britain at the CEP and Professor of Industrial Relations at the LSE.

More details of the arguments and evidence in this article are contained in CEP Discussion Paper 493 April 2001, available on request by e-mail to [l.f.cleavelly@lse.ac.uk](mailto:l.f.cleavelly@lse.ac.uk)

**There is no suggestion of strong growth in jobs in manufacturing, utilities or transport.**





# Non-working classes

Britain's new chronic unemployed

**Steadily falling national jobless figures hide a 20-year rise in the number of workless families, in the length of time spent by individuals out of work and in the number of older men dropping out of employment entirely. Richard Dickens, Paul Gregg and Jonathan Wadsworth analyse an urgent problem for the new government's economic policy.**

**B**ritain now has its lowest unemployment rate for 20 years. The employment-to-population rate, even after adjusting for population growth, is only just below the 75% highs experienced in the previous cyclical peaks in 1979 and 1999. Despite this, inflation has been lower than for any sustained period since the 1960s.

However, this good news masks mounting evidence that high levels of worklessness are increasingly concentrated on certain categories of individuals and households, on specific socio-economic groups, and in particular geographic areas. Focusing just on the aggregate unemployment rate overlooks these problems, which have been growing over the past 20 years. In the same way, focusing on the growth in average wages overlooks the

development of wage inequalities that we have not seen in a hundred years.

Taken together, these developments have created the most pressing labour market and social problems now facing the government. The concentration of unemployment on certain individuals and areas has its impact on job opportunities and life chances and the rise in the number of households with no working adult leads to rising child poverty. The policy objective of bringing down the unemployment rate overlooks the unprecedented rate at which people have simply dropped out of the labour market entirely. This is true, in particular, for older and less qualified men. According to the latest Labour Force Survey (LFS), there are now 2.3 million men of working age (not counting students) who are "economically inactive". This figure is

twice that for the registered male unemployed and 20 years ago was only 400,000. Finally, the extent and persistence of low wages and their relationship to job loss is creating a spreading "no-pay-low-pay" syndrome.

The government, like the Bank of England, thinks that we are close to, perhaps even below, the level of unemployment where inflation picks up. So it is trying to reduce inflationary pressure by reducing the concentration of worklessness on certain individuals, groups and communities by various New Deal policies, designed to reduce "mismatch" and to increase the effectiveness of job search for the unemployed. The dominant theory suggests that the more unemployment is concentrated on specific groups the less efficient it is in restraining wage pressures in the economy as a whole.

The implication is that the level of unemployment at which inflation starts to rise is higher than when unemployment is more evenly spread. However, employment mismatch, as measured by area or skill, seems to have contributed little to the rise in unemployment since the 1960s. Greater unemployment differences between regions and, to a lesser extent, skill groups did emerge in the late 1980s, but since then unemployment differentials have returned to something like their historical norms. Table 1 outlines the major variations in unemployment rates observed in 1998. The greatest variation was by ethnic origin, with one third of Bangladeshi and Pakistani men unemployed. Unemployment rates were also relatively high among the young, the less educated and men in general.

Workers move between employment and unemployment relatively infrequently, but even over longer time intervals the bulk of unemployment falls on a minority of individuals. An example drawn from the JUVOS data of administrative unemployment claims serves to clarify this. On a representative day in 1995, 1,270,000 males aged between 22 and 59 were registered as claimant unemployed (approximately 9% of the workforce). During the whole of 1995 approximately twice this number experienced a spell of unemploy-

**Table 1** ILO unemployment rates for selected groups in spring 1998

	All	Men	Women
Age 16-24	12.4	14.0	10.4
Age 25-49	5.2	5.6	4.8
Age 50+	4.9	5.8	3.5
Degree	3.0	3.0	2.9
Higher	4.2	4.5	3.8
Lower	7.1	8.3	5.9
None	12.2	15.6	8.4
White	5.7	6.3	4.9
Black	14.6	15.4	13.7
Indian	9.1	9.1	9.0
Pakistani/Bangladeshi	20.4	19.7	22.3
Other	12.7	14.8	10.1

**There are now 2.3 million men of working age who are economically inactive.**



ment. But just 650,000 (26%) of those ever unemployed in the year accounted for half the total number of days in unemployment. This concentration of unemployment on certain individuals is not very sensitive to the cycle (see Figure 1).

Unemployment is even more concentrated over longer periods of time. Taking a three year period, the number experiencing any unemployment rises to three times that observed on a typical day, but the concentration intensifies, so that only 760,000 men (19% of all those unemployed) accounted for half of all days of unemployment. Evidence from the National Child Development Survey suggests that

**Figure 1** JUVOS longitudinal cohort for males aged 22 to 59. JUVOS is a data base of claimant unemployed records for a 5% sample of the population. Those with fewer than five days unemployment are excluded.

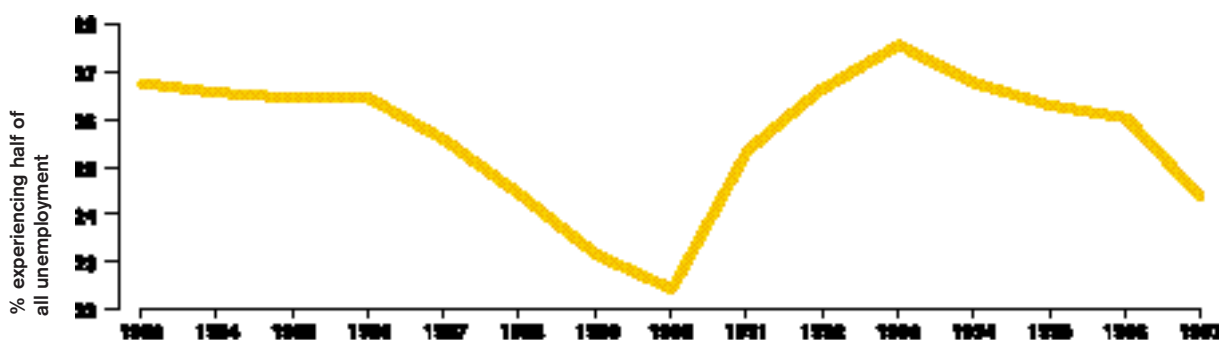
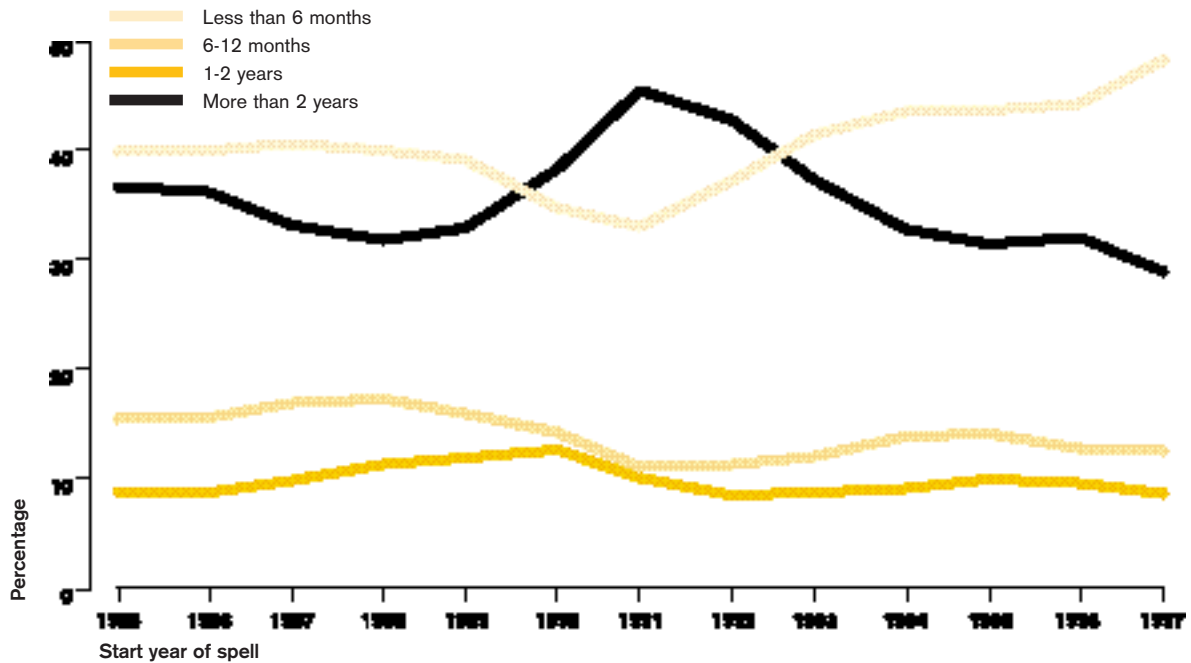


Figure 2 Time since last unemployment spell, males



Note: JUVOS longitudinal cohort; males aged 22 to 59

those with more than one year of unemployment by the age of 23 subsequently experience their fifth period of unemployment between the ages of 24 and 33. By contrast, those who experienced no unemployment by the age of 23 spent under 2% of their time up to age 33 unemployed.

This concentration of unemployment is explained in part by the fact that the probability of getting out of unemployment falls the longer you are unemployed. For most people unemployment is brief, but for the minority who do not leave quickly unemployment becomes prolonged. Inflows into unemployment are now only a fraction above those in the late 1960s, but the duration of unemployment spells is more than double. This decline in exit rates from unemployment appears to be common to most countries, except Sweden. However, the UK has the steepest deterioration in exit rates in Europe. Britain is recording relatively low unemployment rates because of a high overall exit rate, but the deterioration in the chances of leaving unemployment as the unemployment spell lengthens remains one of the steepest in Europe.

The other important factor leading to heavy concentration is the incidence of repeated unemployment. Those entering unemployment often have a history of past unemployment. Figure 2 shows that of all men starting a spell of unemployment in 1997 half had been unemployed within the previous six months. This repeat incidence has been rising since 1991 and is most common among prime-age men, where unemployment rates are generally low.

Turning next to the geography of joblessness in the UK, it seems that regional unemployment differentials are lower now than they have been for many years. However, broad regional aggregates do not capture the real patterns of geographical divergence in unemployment. There is, and always has been, much greater variation in unemployment within regions than between them. In some regions you get near full employment alongside areas of severe deprivation<sup>1</sup>

The proportion of working-age men not in work varies from 13% to 26% across the ten standard regions. At county level this spread nearly doubles from 8% to 31%. At finer levels of disaggregation this dispersion is greater still, highlighting the plight of many coastal towns and the former coal mining districts alongside major urban areas. Again, Inner London and other major cities have unemployment rates around twice those of the surrounding counties.

However, by far the worst geographical concentrations of joblessness are in our social housing estates. Here unemployment rates of 25% and above are commonplace. These concentrations are undoubtedly not helped by the shrinkage of the social housing sector. The resulting selection of who is housed in these estates and the intensity of deprivation is astounding.

The second major trend in the labour market is the rise in the level of economic inactivity. In analysing this phenomenon, the incorporation of the ILO/OECD search-based measure of unemployment into the government's basket of

<sup>1</sup> For example in October 1990, when the average claimant count unemployment rate for the North-West region was 4.6%, the rate for Macclesfield was 1.6% and for Knowsley 11.7%.

labour market indicators is a welcome improvement. The search-based measure of joblessness makes it relatively easy to analyse whether the unemployment figures adequately capture the true extent of labour market slack and of the social distress caused by lack of work. Over the last 20 years, policy based solely around the unemployment rate has overlooked the sharp decline we can now measure in male labour force participation.

Why this has come about is not entirely clear, but we can say with confidence that economic inactivity among men is highly correlated with labour market conditions, being concentrated among older, less skilled men and among those living in local authority housing. Inactivity is also greatest in areas with the highest unemployment and the lowest employment rates. Male inactivity has risen among all age groups (see Table 2). In absolute terms, the most dramatic increase has been among the over-50s. Some 28% of men over 50 years old (1.3 million) are now economically inactive, compared with less than 7% in 1975. However, it is important to recognise that this problem is not confined to older workers. Around 8% of non-student men under 50 (1 million) are now inactive, compared with fewer than 1% in 1975. Perhaps the most striking incidence of inactivity is among men resident in social housing; of these, 30% are inactive and only 54% in work.

Economic participation rates are also highly correlated with educational attainment. The lower the level of qualifications held, the more likely it is that an individual will be economically inactive. More than 25% of men with no or few formal qualifications are now inactive, three times more than the rate for graduates (8%).

Table 2 also shows that, in the latest recovery, activity rates have continued to fall, whereas in the 1980s upturn they were broadly flat. So for similar employment increases (just over 2% per year), there has been a much larger fall in unemployment in the 1990s.

Table 3 shows how inactivity is negatively correlated with local labour-market conditions. For counties with the lowest employment rate (less than 70%), over one in four less skilled men are inactive. Conversely, for those with employment rates over 78%, male inactivity is half as much. In the latest six years of the present extended recovery, those counties with the lowest employment gains have the worst records for the change in economic activity rates. Again this effect is strongest for less skilled men. However, even in the best-performing areas, male inactivity rates for less skilled men have not fallen much, although female inactivity rates in these areas have indeed fallen markedly. The inability of the recovery to halt the decline in male participation suggests that aggregate labour demand is only a partial explanation of this development. It may be that less skilled men are perceived as being at the very end of the queue of potential labour and so are ignored by employers until the local labour market is very tight indeed. Alternatively, low skilled

**Table 2** Male employment, inactivity, and unemployment by education, housing tenure and age

	Employment/ population %	Labour-force/ population %	Unemployment/ population %
<b>Men</b>			
1984	80.9	91.4	11.5
1990	84.6	91.2	7.2
1993	77.6	88.7	12.5
1999	81.2	87.0	6.6
<b>Men with low qualifications</b>			
1984	73.9	87.3	15.3
1990	79.3	88.3	10.2
1993	70.8	85.4	17.2
1999	73.6	81.7	9.9
<b>Men in council house accommodation</b>			
1984	63.5	84.8	25.1
1990	66.5	82.2	19.2
1993	52.5	77.8	32.5
1999	53.7	69.9	23.1
<b>Men aged 50-64</b>			
1984	70.1	76.9	8.9
1990	70.0	75.9	7.8
1993	63.8	72.5	12.0
1999	68.3	72.4	5.7

**Note:** Table excludes students. Participants on active labour-market programmes are classified as employed.

men may be discouraged from job searching by the low entry wages on offer.

So any policy aimed at dealing with inactivity has to begin by addressing the question why male inactivity has risen most among older, less skilled workers in depressed labour-market areas. If declining workforce participation is largely a voluntary supply-driven issue, we should expect to see higher withdrawal rates among groups with alternative incomes (savings, pensions, etc). This has not happened. The prime reason given for their inactivity by men under 60 is sickness, rather than retirement. All this suggests that a high level of labour demand is a necessary condition for the reduction of inactivity, but the inability of the current upswing to make a significant dent in inactivity rates suggests that it is not a sufficient condition.

This rise in economic activity rates has gone hand in hand with an unprecedented rise in income and wage inequality. This increase followed a period of declining dispersion in the 1970s. Wage inequality has continued to rise through the 1990s, though the scale of the increase has been



**Table 3** County employment patterns and inactivity of less-skilled workers, 1999

Area	Inactivity rate, less-skilled women	Inactivity rate, less-skilled men	Inactivity rate, less-skilled men (age 45+)
< 70 %	39.4	28.0	40.7
70-74 %	35.2	23.3	32.4
74-78 %	31.2	18.0	24.9
> 78 %	26.9	14.8	20.0

4-year rise in area employment rate	4-year change in inactivity rate, less-skilled women	4-year change in inactivity rate, less-skilled men	4-year change in inactivity rate, less-skilled men (age 45+)
< 2 points	-3.5	1.1	1.7
2-3 points	-5.1	-1.1	-1.0
3-4 points	-5.1	-0.6	-0.2
> 4 points	-6.8	-1.9	-1.1

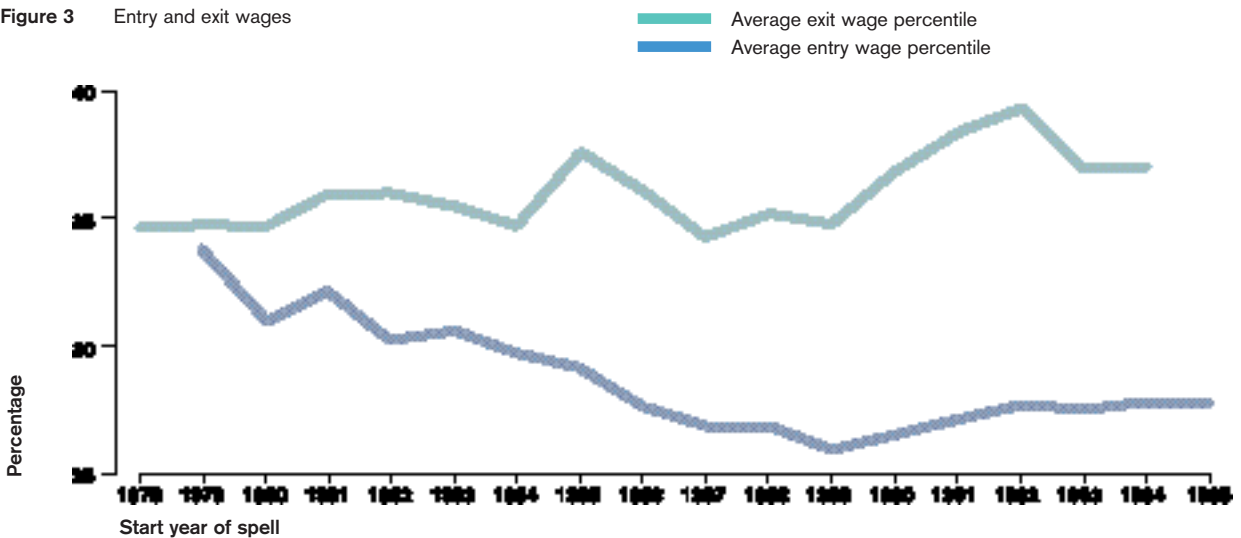
Source: LFS.

somewhat tempered. The marked deterioration in the position of the low paid (bottom decile) relative to the median in Britain is in contrast to most other industrialised countries. (A notable exception here is the US.) Some of this increase in wage dispersion has occurred between different education groups. The return to educational qualifications fell in the 1970s, but increased sharply in the 1980s for both males and females. The increase in the return continued into the 1990s for males, but for females the return to education fell slightly. The large increase in the return to education in the 1980s occurred despite an

**By far the worst concentrations of joblessness are in our social housing estates.**



**Figure 3** Entry and exit wages



Note: Annual earnings from the Lifetime Labour Market Database. Average exit wage percentile is defined as the average percentile in the annual pay distribution in the year  $t$  for those that experience unemployment in year  $t+1$ . Average entry wage percentile is defined as the average percentile in the annual pay distribution in year  $t$  for those that experienced unemployment in year  $t-1$ .

increase in the supply of more highly educated workers. This suggests that demand for more skilled workers was rising faster than the supply.

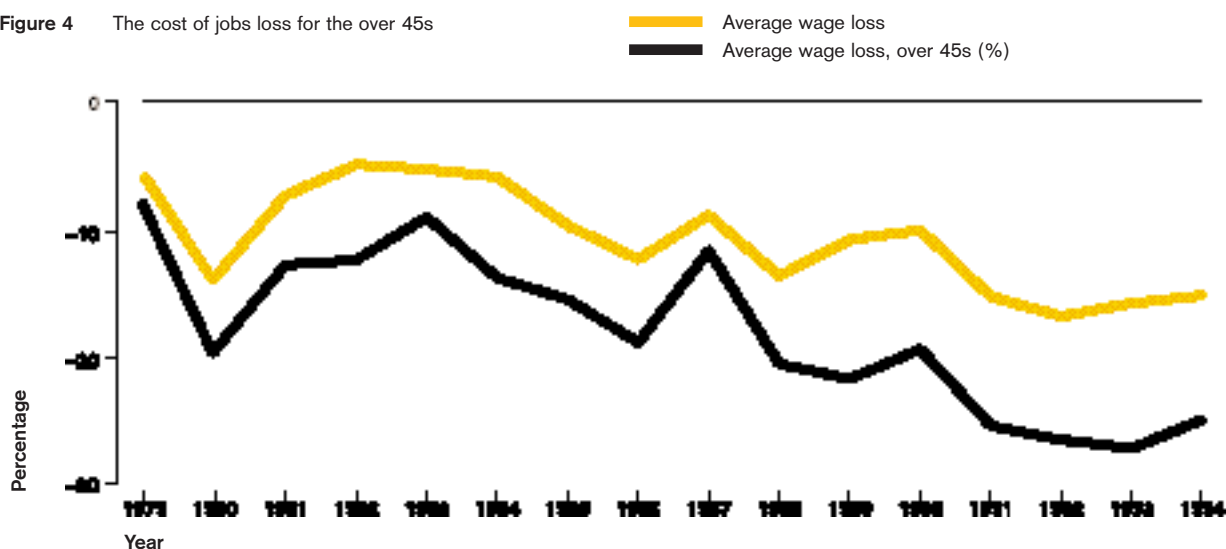
The sharp increase in cross-sectional wage inequality clearly has serious welfare implications. The degree to which this translates into inequality in lifetime earnings will depend on the extent of earnings mobility in Britain. This does not seem to be high. For example, over 48% of males in the bottom decile of the hourly earnings distribution in 1993 were still there in 1994. Many of these low-paid workers drop out of employment, so that only 20% actually move up the distribution scale. Most of those that do progress tend not to move very far, with two thirds of these moving into the next decile, but virtually nobody moving beyond the median. Mobility is somewhat greater when earnings are observed over a longer time period. For example, only 22% of males in the bottom decile in 1989 were still there in 1994. However, again, many have dropped out of employment so that only 30% have actually moved into a higher decile over this five-year period.

It is also evident that those stuck on low pay are also much more likely to leave employment than those on higher pay. Research has shown that employees paid below £3.50 an hour (in April 1997 prices) were three times more likely to be out of work a year later than those paid above £3.50 an

hour. Unemployment also affects future earnings. Figure 3 (previous page) shows the typical points in the (annual) earnings distribution for men both leaving and entering employment. Men who lose jobs are more likely to be low paid, with the average "exit wage" (in 1995) close to the 37th percentile. In addition, the average "exit" percentile has risen slightly since the late 1970s. The "entry wage" into employment is lower still, with the average at about the 27th percentile in 1995. Moreover, this entry percentile has fallen sharply since the late 1970s. In fact, weekly entry wages after a spell out of work have barely risen in real terms over the last 20 years. Since the entry wage gap has increased over a long time, it is not being driven by the cyclical behaviour of the economy, nor by stricter treatment of the claimant unemployed. It is more likely that the explanations are linked to the same factors underlying growing wage inequality.

This suggests that the cost of job loss may have increased. Research has found that the wage penalty after a spell of unemployment increased by about 70% between the early 1980s and the 1990s. This earnings loss is larger for older workers and the more highly skilled. Figure 4 shows that the (annual) wage decline an individual faces after job loss has grown from 7% to 17% over the last 20 years. For workers over the age of 45, the wage fall has increased from around 12% to 26%.

Figure 4 The cost of jobs loss for the over 45s



Note: Annual earnings from the Lifetime Labour Markets Database. Job loss is defined as the percentage difference in the average wage between  $t+1$  and  $t-1$  for those that experience unemployment in year  $t$  and those that stay continuously in employment in year  $t$ .

The next crucial step is to link individual employment and earnings patterns to household poverty and inequality, particularly in relation to children. Worklessness has traditionally been studied in terms of the individual, while poverty and income inequality are conventionally measured at the household level. Only recently has the employment status of the household been highlighted as an important area for investigation.

Over the last 30 years, the rise in the number of workless households has been striking, especially for households containing children. Table 4 shows that 17% were workless in spring 1999 (just over one in six). These households contained 4 million adults and 2.6 million children (13% and 8% per cent of the respective populations). These proportions are roughly three times those found in the 1970s and four times those of the late 1960s. Not surprisingly, these workless households are generally also poor. In 1996, some 70% of workless households were poor (i.e. had less than half the mean income), rising to 90% in households with children present. In many cases, worklessness is not a temporary state. In 60% of workless households, no resident adult had worked in the previous three years.

This extended worklessness is also evident in households with children. As with economic inactivity, a disconcerting feature is that 48% of households with working-age

members in social housing were workless in 1999, compared with 8% of households in owner-occupied accommodation.

The rise in the proportion of workless households can be analysed in terms of the contributions from changes in aggregate employment, in family structure and in the distribution of the available work across households. To do this we take a prediction of whether a household is workless, based on a random distribution of work among adults and compare this with the actual patterns observed. So, if (as in 1999) 24% of working-age people (excluding students) were out of work and if this joblessness was evenly distributed across households, then we would expect to observe 24% of single-adult households and 6% of two-adult

**The sharp increase in wage inequalities clearly has serious welfare implications.**



**Table 4** Workless households

	Workless households (working age)		Households where all adults work		Working age adults in workless households		Children in workless households		Employment rate
<b>FES</b>	000s %		000s %		000s %		000s %		
<b>1968</b>	540	4.0	7,150	52.8	800	2.6	520	4.0	76.3
<b>1975</b>	870	6.2	7,800	55.5	1,330	4.4	990	7.2	77.7
<b>1981</b>	1,530	10.6	7,800	55.4	2,540	8.1	1,730	13.2	73.1
<b>1985</b>	2,370	15.7	8,030	53.6	3,730	11.6	2,090	16.9	70.8
<b>1990</b>	2,180	13.3	10,340	63.1	3,200	9.6	1,890	15.6	76.7
<b>1995</b>	2,870	16.7	10,470	61.2	4,110	12.6	2,400	18.3	75.1
<b>1996</b>	2,990	17.4	10,570	61.5	4,330	13.2	2,560	19.6	75.7
<b>LFS</b>	000s %		000s %		000s %		000s %		
<b>1975</b>	900	6.5	7,880	56.7	1,230	4.3	–	–	76.8
<b>1981</b>	1,570	10.9	7,480	52.1	2,360	7.8	–	–	72.9
<b>1985</b>	2,470	16.1	8,100	52.8	3,690	11.7	–	–	71.6
<b>1990</b>	2,280	14.1	9,840	60.7	3,140	9.8	2,280	14.5	76.9
<b>1995</b>	3,300	19.1	10,420	60.4	4,480	14.1	2,880	20.4	73.9
<b>1999</b>	3,080	17.4	11,320	64.0	4,130	12.7	2,620	18.4	76.4

**Table 5** Decomposition of the Workless Household Rate in Britain between 1977 and 1999 (LFS)

	Workless household rate (1)	Predicted rate (2)	Predicted holding employment rate as in 1977	Predicted holding family structure as in 1977	Polarization (1) – (2)
<b>1977</b>	8.2	8.5	8.5	8.5	-0.3
<b>1990</b>	14.1	9.0	9.2	8.3	5.1
<b>1999</b>	17.4	11.1	11.2	8.5	6.3
	Change in the workless household rate	Change in the predicted rate (A)	Change due to family structure (B)	Change due to employment (C)	Change in polarization
<b>1977-99</b>	9.2	2.6	2.6	0.1	6.6
<b>1977-90</b>	5.9	0.5	0.7	-0.2	5.4
<b>1990-99</b>	3.3	2.1	1.8	0.3	1.2

**Note:** 'Predicted' is based on a household's probability of being workless if work were randomly distributed across the working-age population.

households to be without work. The extent to which the actual rate deviates from the predicted rate can be taken as a measure of polarisation of work across households.

In 1977 the predicted rates almost exactly matched the actual rates, implying no substantial polarisation of work. The overall workless household rate has risen by 9 percentage points since then, but the employment rate has not declined over this period and, therefore, has not

contributed to the change. The move towards more single-adult households explains about one third of the total rise since the 1970s (Table 5), but the majority of the explanation lies with how work is shared out across households. The trends in the distribution of work by gender, age, and skill group account for about a third of the observed polarisation. The rest follows from the fact that female employment has generally risen only in

**Figure 5** Workless household rate across countries for households with children (OECD, 1996)



households where a partner is already in work, while men are more likely to have dropped out of work, if they are single or their partner does not work.

When comparing the distribution of work across households in Britain with other countries, two things stand out. Polarization of work across households was greater in UK than in all other developed countries studied in 1996. In other words, the UK has substantially more workless households with children than any other developed nation (see Figure 5).

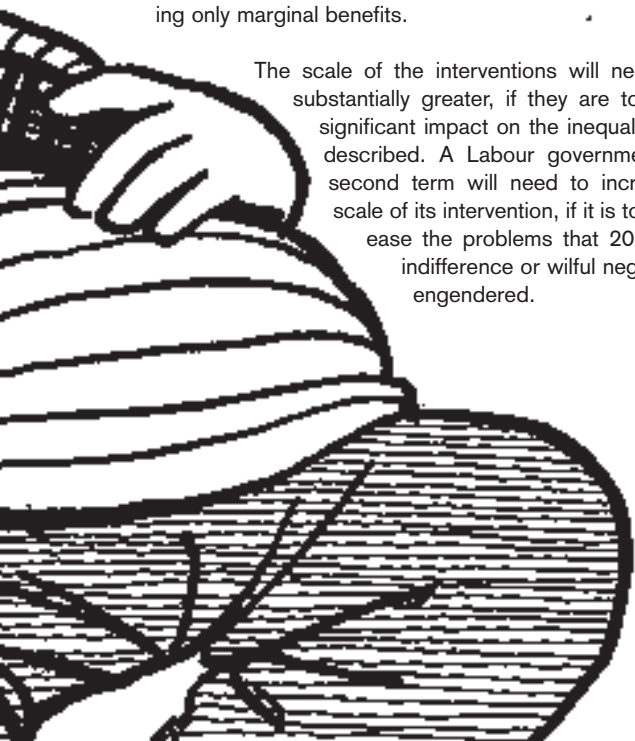
With nearly one child in five growing up in a workless household, 90% of which are poor, it is not surprising that child poverty is high and has risen so fast in Britain. Around one child in three now lives in a relatively poor household and, as a result, child poverty is much higher than in other European Union countries. Over the last 10 years, children have replaced pensioners as the group with the highest incidence of poverty in the UK. The case for policy intervention is made more pressing by recent literature, which suggests that childhood deprivation reduces educational attainment and future earnings and increases the risk of youth unemployment and early pregnancy.

In facing the problems outlined in this article, the government has produced a stream of welcome policy initiatives. These have included New Deal programmes for youth education and training, for adults, for lone parents, and for the sick and disabled; the National Minimum Wage; the Working Family Tax Credit; the Child Care Tax Credit; and a commitment to eliminate child poverty over 20 years.

However, the limitation of this range of policy responses is also clear. The scale of the intervention so far has been modest, particularly in the field of unemployment itself. The total level of spending on New Deal projects is not high, relative even to the programmes of previous Conservative governments. Many of the initiative taken have been in the form of pilot studies and short, low-cost schemes producing only marginal benefits.

The scale of the interventions will need to be substantially greater, if they are to make a significant impact on the inequalities here described. A Labour government in its second term will need to increase the scale of its intervention, if it is to begin to ease the problems that 20 years of indifference or wilful neglect have engendered.

**The UK has substantially more workless households with children than any other developed nation.**



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# TRIPping through the Third World

Who gains from intellectual property protection?

**Against the background of recent publicity about drug companies' legal battles in South Africa, Louise Keely looks at the pros and cons of the laws that developing countries are required to enact to regulate intellectual property.**

**P**rotection of intellectual property rights in developing countries is becoming an increasingly live issue. While the economic effects of such protection are still not clearly understood, these countries are pressing ahead with legislation as they seek to implement the GATT's 1994 Trade-Related Intellectual Property Agreement (TRIPs).

The central issue is clear. Companies (mostly from the developed countries) that rely heavily on intellectual property protection resent the flagrant copying of their products and the resulting loss in profit. Developing countries resent the transfer of profits to foreign companies and the large loss of consumer welfare resulting from higher prices. So, how should developing countries design and legislate for their future intellectual property systems?

Existing economic research highlights the tensions between the static and the dynamic effects of intellectual property protection in developing countries. Its conclusion is that stronger intellectual property protection does not always enhance welfare, even in developed countries. Nor does

empirical evidence reveal any very close link between the enforcement of strong intellectual property laws and overall innovative activity. It indicates that, at least in the short term, the negative welfare effects of the TRIPs Agreement in developing countries is not all that damaging. In the longer term, welfare benefits, especially via enhanced domestic innovative activity, are a real possibility, even under a relatively weak implementation of TRIPs. However, domestic innovation in developing countries is affected by much else besides intellectual property law.

Two main themes emerge from this literature. The first is that strengthening intellectual property protection is not necessarily good for developing countries, for developed countries, or even for the companies relying on it. A blind push towards stronger intellectual property laws ignores social welfare considerations and the subtle economic tensions that are inherent in the process of intellectual property protection. Even on the economic level, the situation is not clear. The incentive to innovate provided by intellectual property protection must be balanced against the interests both of consumers, who will be paying extra for protected products, and of innovators, who will make future

R&D investment decisions on the basis of expected return, which may be decreased by increased protection for previous innovations.

The second theme is that the TRIPs Agreement is not unequivocally bad news for the developing countries. It allows substantial room for them to design and implement their own systems of protection. The transition from being just technology importers to also being technology producers will take time and the economic impact of the agreement on developing countries is not yet clear. So variations in the legislation being introduced by developing countries will help in figuring out which regimes seem to work best for all concerned. On the other hand, as we have seen in the European Union, variations between countries in intellectual property regimes can, of themselves, create problems.

The basic objective of intellectual property protection, according to the TRIPs Agreement, is the dissemination of knowledge. This is enshrined in its Article 7:

*Intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.*

All intellectual property protection that is implemented in signatory countries as a result should be consistent with the spirit of this Article 7.

The Agreement is to be interpreted as a set of *minimum* standards. Countries are allowed to introduce intellectual property protection beyond that stipulated by the Agreement (Article 1:1). This setting of a lower bound is, therefore, likely to work as a force in the direction of a harmonisation of intellectual property laws. It remains to be seen whether such harmonisation increases welfare.

Part I of the Agreement (which contains Article 7) sets out general provisions for

**The TRIPs Agreement was signed in 1994 as a result of the Uruguay Round of multilateral negotiations of the General Agreement on Tariffs and Trade (GATT). It requires all signatory countries to bring in a level of intellectual property protection comparable with that of most North American and European Union countries. It allows for the enforcement of its terms via the World Trade Organization (WTO).**

intellectual property protection. Signatories are allowed some scope to tailor their intellectual property laws to their own economic and legal needs (Article 1:1, 8:1,2). However, there are requirements that other nations' individuals and companies must be treated on a par with their domestic counterparts (Article 3) and the usual "most-favored-nation" principles treatment must be followed (Article 4).

Part II of the agreement sets out the required legislation for protecting intellectual property, including Copyrights, Trademarks, Geographical Indications, Industrial Designs, Patents, Layout-Designs of Integrated Circuits and Undisclosed Information (Trade Secrets). In general, these provisions are to be consistent with past multilateral agreements, such as the Paris and Berne Conventions. An additional section of Part II is devoted to describing conditions under which anti-competitive licensing practices, designed to prevent the dissemination of technology, may be restricted (Article 40).

One of the important elements of the TRIPs Agreement, distinguishing it from other multilateral intellectual property agreements, is the inclusion of enforcement requirements (Part III) and an explicit disputes procedure (Part V). These give the agreement its teeth, for countries are required not only to pass intellectual property laws covering the area summarised, but also to enforce them. If countries are perceived not to be enforcing laws in line with the TRIPs Agreement, then the dispute settlement mechanism of the World Trade Organization (WTO) can be triggered. The enforcement procedures are set out in significant detail in order to ensure that laws implemented under the TRIPs Agreement are effective.

It should be noted that there are special transitional arrangements for developing and least-developed countries. Developing countries are given an extra four years (Article 64) and least-developed countries an extra 10 years (Article 65). Both groups of countries have the right to ask for technical and financial assistance from developed countries (Article 66).

Comprehensive as the agreement aims to be, there are areas of intellectual

**A blind push towards stronger intellectual property laws ignores social welfare considerations.**





property policy on which it says nothing explicit. These are areas where further negotiations and disputes are likely to occur. They are also areas where developing countries can make choices about what type of intellectual property laws to pass and how to enforce them.

The elements where there is still substantial room for choice can be divided into three broad categories. The first concerns established forms of intellectual property that are only partly described by the TRIPs Agreement. The second is areas of still evolving intellectual property law, only partly laid out by the TRIPs Agreement. The third is laws that fall outside the confines of intellectual property law, but impact upon it.

For example, several elements of patent design are not covered by in the TRIPs Agreement. (Some of these elements also apply to the other areas of intellectual property protection.) Perhaps the most frequently raised is the breadth of the patent. Economists define breadth in this context in terms of the least similar invention that could still be considered an infringement of the patent. Comparisons of this breadth between countries or over time can be made using, for example, the volume of litigation involved, or the number of claims per patent granted. A similar element is the "height" of a patent, a notion describing the degree of novelty required by a new invention. These concepts are not discussed in the TRIPs Agreement.

The agreement is also silent on the timing of disclosure of a protected invention. In Europe, disclosure takes place 18 months after an application is filed, while in the United States disclosure occurs when the application is granted. Europe and the United States also differ in their policies on who is granted a patent where more than one application is filed. In Europe, the patent goes to the first one to file. In the United States, a "first to invent" rule applies. Finally, European patent systems include a renewal system, under which patent holders regularly pay increasing fees in order to maintain a patent, while no such system existed in the United States until 1982.

In enforcing intellectual property laws, each country has its own judicial system, legal traditions and precedents. Enforcement also relies on the private sector to bring cases, since the judicial system does not actively seek out infringements. This inevitably means that there will continue to be national differences in intellectual

property protection regimes and the effectiveness with which they are imposed.

It is also possible under the agreement to claim exemption from intellectual property protection in several areas: by appealing to fair use or public interest (Articles 13, 17, 24, 27:2, 27:3, 30, and 37); by fulfillment of conditions for compulsory licensing of patents (Article 31); and by exhaustion (Article 6). The exemptions for each type of intellectual property protection are qualified by the interests of the right holder and, in the case of patents, allowed only for certain narrow purposes such as "to protect public order or morality" (Article 27:2). For example, compulsory licensing of trademarks is explicitly disallowed (Article 21).

The issue of exhaustion of intellectual property protection (where, for example, a drug is imported by a firm other than the patent owner) is explicitly excluded from disputes procedures under the TRIPs Agreement (Article 6). This exclusion opens up the possibility that rightholders' profits could be diminished by competition through parallel importation. The strength of Article 6 is diminished by Article 28, which explicitly protects patent holders against the importation of a violating product. However, Article 28 makes this article subject to Article 6.

The second area of ambiguity in the TRIPs Agreement is that of protection for certain technologies. There are four clear types of technologies that do not fit immediately into any of the existing intellectual property formats: protection for biological products and processes such as plant varieties; software; databases; and traditional knowledge. The debate about the best way of protecting these technologies is going on in both developed and developing countries. Protection for commercial innovations involving biological products and processes is a contentious issue, for it raises not only questions of reward for invention but also of ethics and biodiversity. The TRIPs Agreement allows plants and animals to be excluded from patentability. However, plant varieties must be protected by either a patent, or a sui generis system, or some combination of the two. Review of this paragraph (Article 27:3b) is to begin four years after the agreement comes into force.

Computer programs are explicitly covered under copyright protection in the TRIPs Agreement (Article 10). However, debate and litigation as to whether computer programs are



**There are areas of policy on which the agreement says nothing explicit.**

better protected under copyrights, patents, or some *sui generis* system has been going on for several years. In the United States, some software is patentable. Since copyright protects only the expression of ideas, software is subject to much closer imitation than is the case under patents or, presumably, would be under some hybrid system. Databases are going to be covered by *sui generis* systems in the United States and Europe, which may well prove more effective than copyright protection. Under TRIPs, no specific protection is required, except to the extent to which databases are found to fall under copyright protection.

The third type of emerging technology is that of traditional knowledge. Unlike the other two, this type of technology is not new in itself but is fast gaining recognition as a legitimate and protectable form of intellectual property. Traditional knowledge includes sacred images or art forms, medical information, and agricultural techniques and products. Its protection is not easy either under copyright (who is the author?), or patents (is the invention novel or a technical advance?). There is concern that traditional knowledge is being either changed slightly or taken up by commercial interests for profit, with no reward going to the creators of this knowledge (or their descendants). This has led to calls for the creation of a system of protection for it. Such a system might be based on the idea of communal rights over particular knowledge, or involve the appointment of a community representative to be responsible for its use. Obviously, this is an area of particular interest to developing countries and their citizens.

Given that developing countries do not, generally, have a significant innovative capacity, they clearly have to concern themselves with the effects of the introduction of systems to protect intellectual property on their own social welfare. These effects follow two main avenues, one more immediate than the other. First, developing countries are users of innovations, both as consumers of goods embodying them and as firms imitating innovated goods and processes. The introduction of intellectual property law may have an impact on the price and variety of goods available in a developed country. Second, they also must try to determine whether and how intellectual property protection will assist in obtaining the longer run objective of developing an innovative capacity for themselves.

Here the possible disadvantages for

**There is concern that traditional knowledge is being taken up by commercial interests for profit.**

developing countries of the TRIPs Agreement may, in summary, include:

- deadweight loss from the introduction of monopoly power
- transfer of profits from domestic consumers to foreign firms
- displacement of domestic firms that rely on imitation
- administration costs of applying intellectual property laws.

The possible pros of the TRIPs Agreement include:

- increase of foreign direct investment, with capital accumulation's knock-on effects on demand and supply
- creation of an incentive structure to develop a domestic innovative capacity (assuming that resource allocation should optimally go towards innovation), leading to a wider variety of available products without an imitation lag
- creation of an incentive structure for foreign and domestic firms to direct and increase technological change toward developing country needs
- increase of technology dissemination via trade and foreign direct investment, allowing the development of innovation capacity via learning-to-learn
- elimination of relatively inefficient market structures that imitate goods embodying intellectual property
- bringing intellectual property disputes into a multilateral framework, thus avoiding bilateral disputes
- allowing developing countries to force multilateral institutions (including the WIPO and WTO) to focus on their particular intellectual property needs.

These varied effects of an intellectual property protection system can helpfully be looked at in terms of short-run (or static) and longer run (or dynamic) effects. The static effects are largely negative, while the dynamic effects have the potential to be positive and to outweigh the static effects.

Some economists and lawyers have focused strongly on the negative static supply-side effects of introducing a strong intellectual property system into developing countries, as well as the direct implementation and administration costs of running patent systems. They object to the transfer of monopoly profits from developing countries to the intellectual property owner both on grounds of domestic welfare in devel-



oping countries and because of the distributional consequences of such a transfer.

There are two particular reasons to justify this focus on the immediate, rather than the long-term, effects of this process.

First, these negative effects will be felt by consumers in developing countries which can ill afford further economic inefficiency and loss of national income. Second, the possible long-term positive effects are not certain. For instance, even if the increased availability of better quality products is a potential long-term benefit, without the income to purchase such products the market for them will not exist. Existing evidence relating to intellectual property protection in the context of past trade and foreign direct investment (FDI) suggests that developing countries usually suffer a decrease of social welfare.

Theoretical discussion about the dynamic (positive) economic impact of intellectual property laws on developing countries has not been extensive. Most of the models dealing with this question are quite stylised, involving a two-country world in which one innovates and either exports its goods or invests in the other country, while the second is a technology importer (via trade or FDI). However, even these models capture many of the main issues and quite clear and intuitive results do come out of them. Ultimately, empirical evidence will be needed to determine the effects on developing countries. Some empirical evidence exists, and is considered below, but conclusive results are lacking. More research is needed, particularly on the potential dynamic effects of all intellectual property protection.

Static models may not capture many of the possible benefits of intellectual property protection via trade and FDI, particularly technology spillovers and a possible push towards a domestic innovative capacity. Dynamic general equilibrium models serve to point out how intellectual property protection might indeed be beneficial to developing countries. If the levels of technology spillovers via trade are positively correlated with the level of intellectual property protection, then developing countries may choose stronger intellectual property protection.

There exists another related argument for developing countries to strengthen intellectual property protection. While one effect of weak intellectual property

protection may be to lower the incentive to do R&D in developed countries, another may be to induce developed country firms to invest in other ways to prevent imitation of their innovations. Firms in developed country, therefore, will have to use resources to protect their innovations and developing country firms will have to use resources to imitate. The introduction of some intellectual property protection can reallocate resources away from these activities to the welfare improvement of all. However, empirical evidence, indicating that increased patent protection leads to increased imitation costs, may not be consistent with this argument.

Another reason for introducing intellectual property protection is to provide incentive for developed country firms to choose innovations that are better suited to developing countries' preferences. If developing and developed country consumers have different preferences for a variety of goods and no effective intellectual property protection system is in place, then innovating firms have less incentive to produce those goods preferred by developing country consumers. Of course, the relative size and purchasing power of markets in the two regions is also an obviously important factor as to whether firms will choose to direct innovations at developing country markets.

The introduction of technology spillovers via trade and FDI can influence the social welfare impact of intellectual property protection. This effect may come from four sources: the effect on the terms of trade, the effect on the variety of goods available, the location of goods manufacturing, and R&D investment over time. Existing results indicate that the strengthening of intellectual property rights will usually be detrimental to developing countries, with or without FDI, when developing countries are purely imitators of developed country technologies and the direction of technological change and imitation costs are not subject to change. If a developing country were to develop an innovative capacity as a result, then the picture could be reversed.



**Louise Keely** is a Research Associate at the CEP and Assistant Professor at the University of Wisconsin. This article is based on her paper, "Pathway from Poverty? Intellectual Property and Developing Countries", CEP Special Report April 2000.

# Distance still matters



**ACTIVITY  
CONCENTRATION**

**Anthony Venables looks at claims that IT has changed the rules of economic geography.**

**N**ew communications and information technologies (ICT) are slashing the cost of new communications networks. This offers, particularly to developing countries, the prospect of better provision of education, health care and a host of other services.

Some writers have gone further. In the words of Frances Cairncross

*To allow communications to work their magic, poor countries will need sound regulations, open markets, and, above all, widely available education. Where these are available, countries with good communications will be indistinguishable. They will all have access to services of world class quality. They will be able to join a world club of traders, electronically linked, and to operate as though geography has no meaning. The equality of access will be one of the great prizes of the death of distance.<sup>1</sup>*

<sup>1</sup> *The death of distance, 2.0: how the communications revolution will change our lives* Harvard Business School Press 2001.

This view of the effects of ICT is misleading. New technologies will certainly have an effect on the costs of “distance”, but it will be mixed and complex. Some activities can be digitised and supplied from a distance, but most cannot. Geography determines a firm’s profitability not only via ease of access to markets, but also via access to a variety of related activities.

For example, you find dense local networks of suppliers of specialised goods and services for industry. Local labour markets develop with specialist skills. Firms benefit from being close to research centres and from the knowledge spillovers that derive from clusters of like activity. Finally, it is often easier to manage and monitor activity in an established location, where firms acquire knowledge and can benchmark their performance locally.

How does technology change these “clustering” forces? Some will be weakened by ICT. For example, proximity may come to matter less for the flow of knowledge between firms and for the supply of business services. But other clustering forces – such as those arising from labour market skills – are likely to be unaffected. Some activities will no longer need to be close to consumers and will go in search of lower cost locations, but low costs also depend on wages, social infrastructures and access to the benefits of a cluster of related activities. Consequently, some activities may move to lower wage countries, while others become more deeply entrenched in high wage economies.

Previous communications revolutions provide an illustration. The transport revolutions of the 19th century did not lead to the dispersion of economic activity, but to its concentration in relatively few countries and, within those countries, in large and often highly specialised cities. Lower transport costs reduced the value of proximity to consumers, but they were supplied from urban centres where production exploited the advantages of returns to scale and agglomeration externalities. So, too, with ICT, we may see changes in the geography of the world economy, but not changes towards the “integrated equilibrium” view of the death of distance.

The fact is that geography still matters greatly for many economic transactions. Trade, investment and knowledge

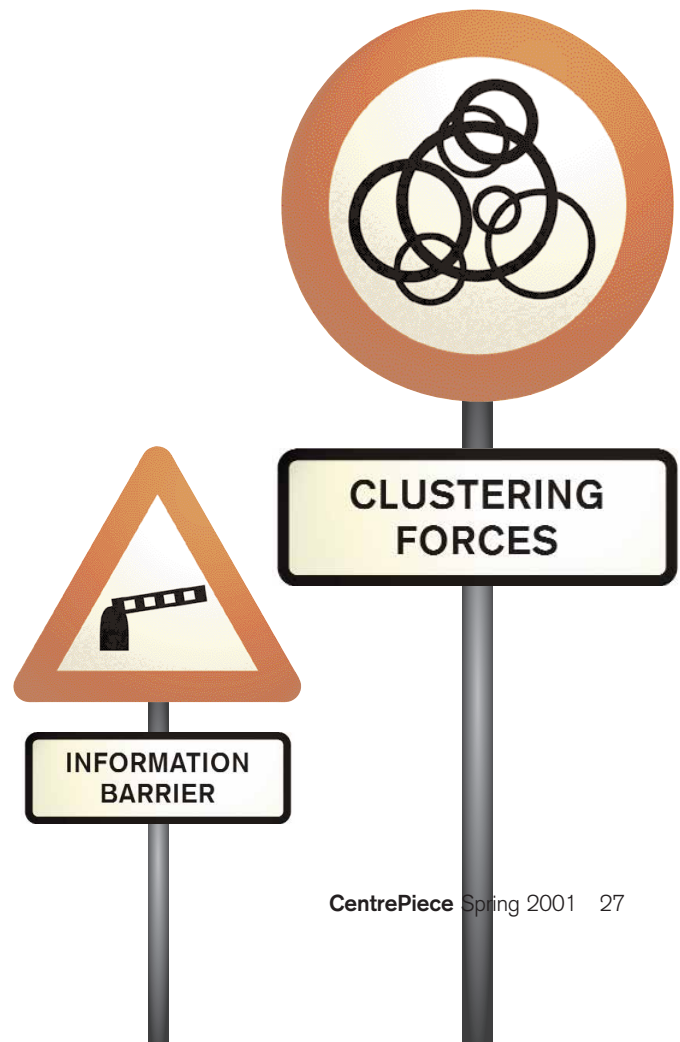
transfers are overwhelmingly local transactions, which fall off sharply with distance. The standard framework for quantifying the effect of distance on economic interactions is the gravity model, which relates interactions between a pair of countries to their economic “mass” and to a measure of the cost of the interaction between them.

Extensive data permits the gravity trade model to be estimated on the bilateral trade flows of one hundred or more countries. Studies find that the elasticity of trade flows with respect to distance is between -0.9 and -1.5. The decline in trade volumes implied by this relationship is very steep. Table 1 shows trade volumes at different distances. Relative to their value at 1,000 km, by 4,000 km volumes are down by 82% and by 8,000 km down by 93%. Table 1 shows the results when similar methodologies have been used to study other economic interactions. Portes and Ray study cross-border equity holdings.<sup>2</sup> Their baseline specification gave an elasticity of transactions with respect to distance of -0.85. The table shows the results of other similar studies into the effect of distance on flows of foreign direct investment (FDI) and technology.

If distance matters for a whole range of economic interaction, how might it feed into the distribution of income across countries? A number of mechanisms might be at work, including the effects of investment and technology flows.

**Table 1** Economic interactions and distance  
Flows relative to their magnitude at 1000km

	Trade	Equity flows	FDI	Technology
	0 = -1.25	0 = -0.85	0 = -0.42	
1000km	1	1	1	1
2000km	0.42	0.55	0.75	0.65
4000km	0.18	0.31	0.56	0.28
8000km	0.07	0.17	0.41	0.05



<sup>2</sup> Portes, R and Rey, H, *The Determinants of Cross-Border Equity Flows*, CEPR Discussion Paper No 2225, 1999.

But, to illustrate effects, let us here take just the way in which trade flows can generate international income gradients. Taking data for 101 countries, Steve Redding and I have shown a strong positive relationship between a country's access to foreign markets and per capita income.<sup>9</sup> There are outliers, such as Australia, New Zealand, Japan, the US and Japan. The sheer population mass of the US and Japan means that domestic market and supplier access are extremely important relative to foreign access. But, for the rest of the sample, the relationship holds within regions as well as between them. Thus, there is a European wage gradient lying from the core countries down through Spain and Portugal to Greece. And there is an East European gradient, lying below the West European, indicating that these countries have a lower per capita income than their location alone would explain.

Of course, we are not claiming that geography is the only cause of cross-country variations in income. Other research has suggested that, as might be expected, endowments of hydrocarbons per capita, the proportion of land lying within the tropics, former socialist rule, involvement in external wars and the prevalence of malaria are also powerful determinants. Indeed, together with foreign market access, this group of factors seems to explain about two thirds of total cross-country variation in per capita income. However, in the context of this debate, the point is that distance does

**Trade, investment  
and knowledge transfer  
are overwhelmingly  
local transactions.**



still matter greatly as a determinant of per capita income.

We need to look at the ways in which ICT might impact on the elements of transaction cost involved in distance. Let us consider the case of a firm considering from where to source its supplies, or where to locate its own production. Distance affects four main elements. First, any sort of trade involves finding a trading partner, a process of search and matching. Second, the supply chain or the direct investment has to be managed. Third, inputs and outputs have to be transported. Finally, distance involves the costs linked to time in transit.

Clearly, a major reason why transactions fall off with distance is that we know less about potential trades with people far off than about potential trades with our neighbours. Relatively little is known about the magnitude of this information barrier, but the new technologies – the Internet in particular – can significantly reduce search and matching costs. From my desktop, a search engine produces “about 10,300” matches for the search string “garment+export+china+ltd” and the first 10, at least, are trading houses or Chinese firms offering supply.

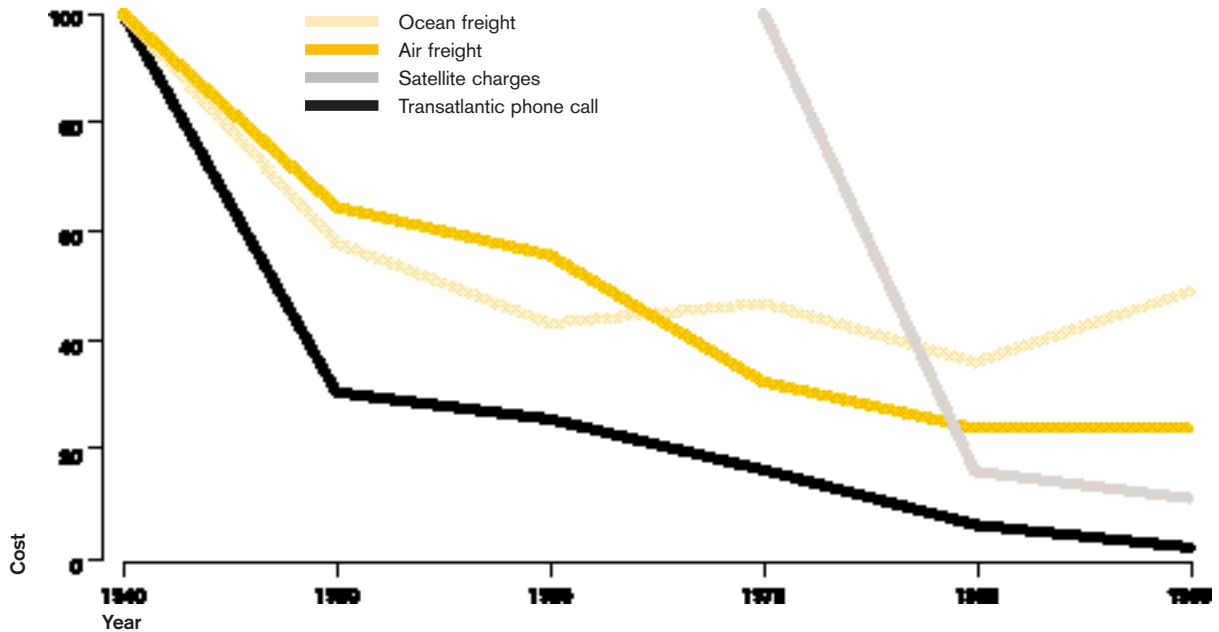
Most research in this area has been national, rather than international, in focus. For example, in the US automobile market in 1999 more than 40% of buyers used the Internet to find price and model information, though only 3% of sales were made this way. This example makes the point, which many domestic dotcom companies have discovered to their cost and which is even more true in an international context, that the Internet is excellent for acquiring information, but that information is a necessary and not a sufficient condition for completing a trade.

Both outsourcing and foreign direct investment, in their different ways, involve a fragmentation of the structure of a firm, as production is split geographically or organisationally. This fragmentation potentially offers the benefit of being able to move particular stages of the production process to the lowest cost locations. However, it also creates formidable management challenges. Product specification and other information have to be transferred; production schedules and quality standards have to be monitored. Does ICT reduce the costs involved?

To the extent that information is “codifiable”, the answer is likely to be yes. In mass production of standardised products, design can be relatively easily codified; the production process is routine; daily, or hourly, production runs can be reported; and quality data can be monitored. Dell Computers offers a classic example of the use of new technologies to outsource, getting components from suppliers at short notice. However, it is instructive that Dell's business practices have not been widely emulated. They make PCs, which are almost entirely assembled from standard parts, available from many sources, without the need to order special components in advance. Consumer

<sup>9</sup> Redding, S and Venables, A.J., *Economic Geography and International Inequality*, CEPR Discussion Paper No. 2568, revised version at <http://econ.lse.ac.uk/staff/ajv/winc.pdf>

Figure 1 Transportation versus communication costs, 1940-1990



Source: Baldwin and Martin (1999)

**Information is a necessary and not a sufficient condition for completing a trade.**



customisation of PCs is within narrow limits: speed and memory, but not colour and trim.

In many other activities the pertinent information cannot be codified so easily. One reason for this is inherent complexity. For example, frequent design changes and a process of ongoing product design and improvement require a level of interaction that – to date – can only be achieved by face-to-face contact.

A second reason is that contracts are incomplete, with people on either side of the contract (or people in different positions with a single firm) having their own objectives. It is typically expensive or impossible to ensure that their incentives can be shaped to be compatible with meeting the objectives of the firm.

While ICT may reduce the costs of monitoring in this area, it seems unlikely that these contract problems can be solved by technological fix. It is true, on the one hand, that in recent years there has been a dramatic increase in the outsourcing activities of specialist suppliers, suggesting that the difficulties in writing contracts and monitoring performance have been reduced. On the other hand, a number of empirical studies point to the continuing importance of face-to-face contact. The evidence on business travel suggests that, as electronic communications have increased, so too has business travel. New technologies allow dispersion of activities that only require “conversational” transactions, but also increase the complexity of production and design processes and so increase

**Table 2** Exports of telecommunications equipment, final and parts  
Number of countries classified by per capita income and share of telecoms in exports.

Telecoms as % country's exports	1983-85			1995-97		
	Low income	Mid income	High income	Low income	Mid income	High income
<3.33%	36	9	14	32	7	11
3.3% – 6.6%	1	1	3	3	4	5
6.6% – 10%	0	2	1	1	1	2
>10%	0	0	1	1	0	1
Share of countries in all telecoms exports	0.051	0.117	0.83	0.191	0.112	0.697

the proportion of activities that require “handshake” communication.

There remain the costs of transporting inputs and outputs. How large are these costs and how might ITC reduce them? There are wide differences in transport costs across commodities and across countries. Thus in 1999, for the US, freight expenditure was only 3.8% of the value of imports, but the equivalent numbers for Brazil and Paraguay were 7.3% and 13.3% respectively. These values incorporate the fact that most trade is with countries that are close and in goods with relative low transport costs. Taking transport costs unweighted by trade volumes, the numbers are much higher. Thus the median cif/fob ratio for all country “pairs” for which data is available is 1.28, implying transport and insurance costs of 28%. Across commodities, an unweighted average of freight rates is typically two to three times higher than the trade weighted average.

How are transport costs changing over time? Figure 1 shows the evolution of the costs of ocean shipping, airfreight and transmission of digitised information. There are three main points to notice. First, the cost of sea transport declined during the 1940s and 1950s, but has not trended down since then, though there have been substantial fluctuations largely because of oil price movements. This may seem surprising, given the technical progress in shipping, but this has been no faster than the average in the rest of the economy.

Second, the cost of airfreight fell faster and continued to fall for a longer period, but also bottomed out from the 1980s onwards. Third, the cost of transmitting digitised information has experienced the most dramatic fall and can now be regarded as being close to zero. In terms of investigating international inequalities, therefore, the important question is: what share of world expenditure is now “weightless” and can be digitised and transmitted at close to zero cost?

There are numerous examples of activities that have been digitised and relocated, such as airline ticketing services and the backroom operations of banks, or detailed architectural “shop drawings”. But, if we look sectorally to try to get a quantitative estimate of this outsourcing, the numbers

look rather small. Figures are available for US household consumption of ICT-based products and services. By 1998, 50% of Americans already had a PC and 30% were regular Internet users. But total consumption of ICT-based products and services, including voice telephony, was only 2.4% of consumer expenditure. The OECD estimates that all software and computer-related services accounted for 2.7% of US GDP in 1996 and only half that in the other OECD countries studied. Software products and computer services, according to the OECD, together accounted for just 0.8% of US exports in 1996.

Although it is difficult to quantify the share of the economy that is, or is likely to become, weightless, one fundamental point can be made. As activities are codified and digitised, not only can they then be moved costlessly through space, but they are typically also subject to very large productivity increases and price reductions. Thus, the effect of ICT on, say, airline ticketing, has been primarily to replace labour with computer equipment and only secondarily to cause the remaining workers to be employed in India, rather than in the US or Europe. This suggests that, even if more activities become weightless, the share of world expenditure and employment attributable to these activities will remain small – perhaps as little as a few per cent of world GDP.

With shipping, another major element is the cost of time in transit. The importance of these costs is highlighted in recent work<sup>4</sup> by D. Hummels analysing data on some 25 million observations of shipments into the US over 25 years, some by air and some by sea. Given data on the costs of each mode and shipping times from different countries, he was able to estimate the implicit value of time saved by using air transport. The numbers are quite large.

The cost of an extra day's travel for imports as a whole was around 0.3% of the value shipped. For manufacturing sectors, that went up to 0.5%. These costs are around 30 times the interest charge on the value of the goods. One implication is that transport costs have fallen much more through time than is suggested by looking at freight charges alone. Between 1950 and 1998, the share of US imports going by air freight rose from zero to 30%, while containerisation roughly doubled the speed of ocean shipping. This

<sup>4</sup> See D. Hummels, *Time As a Trade Barrier*, mimeo Purdue University, 2000.



produced a reduction of 26 in the average number of shipping days, equivalent to a shipping cost reduction worth 12 to 13% of the value of goods traded.

Given the magnitude of these costs, how might a timesaving technology influence the location of production? Take, for example, a firm selling a fashion-sensitive product. Under old retail stock control technology it was impossible to detect consumer response to this season's fashions until after it was too late to change production for this season. All stock had to be produced in advance and a proportion had to be discounted. With the new technology, the firm can learn about fashion changes instantly. However, production and shipping take time and the season is limited, so the shorter the time taken getting in the new products to meet the changed fashion, the lower the proportion of the season during which the firm has to discount what it sells. Thus a supply of trained workers and the ability to meet rapid delivery times would be a reason for having production close at hand, instead of producing in a low-wage economy. Other such examples could arise in intermediate goods supply, where new technology might make it easier to detect faults and the supplier would then want to move production closer to cut delivery times, so that fewer faulty items were in the delivery chain.

Firms may also relocate their production because of the direct complementarity between technology and distance in

determining journey time. If the total time taken by production and shipping depends on activities that happen in parallel, then reducing the time taken in information transmission increases the relative value of saving even more time by making a marginal reduction in shipping distance. Again, in this case, the improvement in technology encourages activity to move closer to the centre.

Evidence of such a phenomenon comes from the study of "just in time" techniques, where new technologies have allowed much improved stock control and ordering. A study of the US automobile industry by T.H. Klier, published in 1999 by the Chicago Federal Reserve<sup>5</sup>, found that 70 to 80% of suppliers were located within one day's drive of assembly plants, even though suppliers were serving several different assembly plants. He also found evidence that the concentration of suppliers around assembly plants had increased since 1980, a finding consistent with the introduction of just-in-time production methods.

The leader in such methods has been Toyota, whose independent suppliers are on average only 59 miles from its assembly plants to which they make eight deliveries a day. By contrast, General Motors' suppliers in North America are an average of 427 miles away from the plants they serve and make fewer than two deliveries a day. As a result, Toyota and its suppliers maintain inventories that are only 25% those of General Motors (*Fortune*, 8 December 1997.)

## Toyota and its suppliers maintain inventories that are only 25% those of General Motors.



<sup>5</sup> [http://www.chicagofed.org/publications/economicperspectives/1999/ep1Q99\\_2.pdf](http://www.chicagofed.org/publications/economicperspectives/1999/ep1Q99_2.pdf)

ICT will, of course, change the costs of distance in quite different ways for different types of activity. For many, where it is difficult to codify information or write complete contracts and where rapid response to changing circumstances is important, face-to-face contact and proximity to markets will remain important. For these activities, there is yet another reason why their concentration might increase.

It derives from the possibility of spatially separating some of what they do from the routine parts of their supply process. For example, suppose that financial services require both "front room" operations (which tend to cluster) and "back room" operations (which are intensive in medium-skilled labour and office space requirements). If both operations have to be together, then the overall clustering force might be quite weak: firms that are not in London, Tokyo or New York lose out on the benefits of being in a cluster, but have those of cheaper labour and office space. But, if back room operations can be separated, then the agglomeration forces on front room operations become overwhelming. Financial services – in some ways a prime example of a "weightless" activity – are in fact enormously concentrated in a few centres, with no prospect of ICT causing their dissolution.

What, then, will happen to the more routine and codifiable activities? One possibility is that they will spread more evenly, bringing modest increases in labour demand to many countries. An alternative is that relocation takes these industries to relative few countries. This is what we would expect to see, if these activities themselves have a propensity to cluster. This propensity may be weak; but, when such activities leave established centres in search of lower wage locations, one that already has some similar activities will look more attractive than one that has none.

As a consequence, some countries will experience a rapid increase in labour demand and wages, while others remain essentially untouched by the process. New technologies change the pattern of inequalities in the world economy, but do not decrease them uniformly.

This model is broadly in line with what we know about some recent sectoral relocations. For example, much software production has left the US, but to concentrate largely in Ireland and Bangalore. At a broader level, there has been growth in production networks with components production outsourced, but again concentrated in a few lower-wage countries.

The growth in production networks has produced a substantial increase in trade in components, amounting now to perhaps 30% of total world trade. However, this growth of vertical specialisation and its associated trade is heavily concentrated in a few countries that neighbour existing centres in Asia, Europe and America.

An example of this growth and concentration is illustrated in Table 2, which shows exports of telecommunications equipment. The 68 countries in the sample are divided according to their initial (1983-85) per capita incomes. The table gives the number of countries in each income group, classified according to the share of telecoms in their exports. It shows that the share of low income countries rose from 5% to 19% between the early 1980s and the late 1990s.

The point to note is the skewness of this distribution. Telecoms equipment production and trade has become very important for just a few low income countries (for one of them it accounts for more than 10% of its total exports, for another between 6.6 and 10%), but for the majority it remains unimportant. This pattern is repeated in other sectors generally, with the same set of countries being the main exporters.

Speculating about the implications of new technology is a notoriously risky activity, but it seems clear that they will not mean the "death of distance". Their contribution to economic development will be important, but will come primarily from allowing individuals greater access to knowledge, education and basic services – not through rewriting the rules of economic geography.

**The cost of transmitting digitised information can now be regarded as being close to zero.**



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**Anthony Venables** is Research Director of the CEP and Professor of Economics at the LSE. This article is based on a paper prepared for the World Bank Annual Bank Conference on Development Economics, Washington May 2001. (<http://econ.lse.ac.uk/staff/ajv/tvabcde.pdf>)

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