

Centre Piece

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Volume 15 Issue 1 Summer 2010

Jobs in the recession
Emissions trading
Passive smoking

Regional trade
Postgrad students
Tackling extreme poverty



Football Economics

Men in black ⚽ Two-footedness ⚽ Economic superstars

CentrePiece

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Editorial

The tax rises and public spending cuts announced in June's emergency budget aim to tackle the greatest challenge for the new government – reducing the budget deficit and stabilising net public debt. But they also risk pushing an economy weakened by the financial crisis and the biggest fall in output since the 1930s back into recession.

It remains to be seen whether the coalition is pursuing excessive austerity, but the fiscal measures mean tighter times ahead for almost everyone. Two areas of public spending, however, are currently set to escape the axe – healthcare and international development. Both have been the focus of recent work by researchers at the Centre for Economic Performance (CEP).

In healthcare, CEP research has found that the policy reforms in the last decade to increase competition among NHS hospitals have raised management quality and improved efficiency and clinical outcomes (a forthcoming study by Zack Cooper and colleagues and a recent paper by CEP's director John Van Reenen).

This research illustrates how policy-makers can get more value for money from the health service instead of rationing care for cancer, lengthening waiting times or cutting staff.

The first article in this *CentrePiece* also suggests opportunities for greater productivity, in this case getting more for less – in terms of poverty reduction – from aid spending. CEP researcher Peter Boone (who is implementing several aid projects aimed at improving children's education and health in extremely poor regions of India and Africa) argues that if the UK's aid budget were spent well, current funding levels would be more than adequate and lower levels not inconceivable.

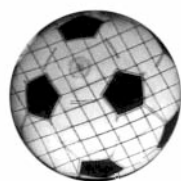
Boone is also a member of the LSE's Future of Finance Group, convened by CEP's founder director Richard Layard and Paul Woolley of the Centre for the Study of Capital Market Dysfunctionality. The group will be presenting its findings at a conference in mid-July on 'The future of finance – and the economic theory that

underpins it'. Reports follow in our next issue.

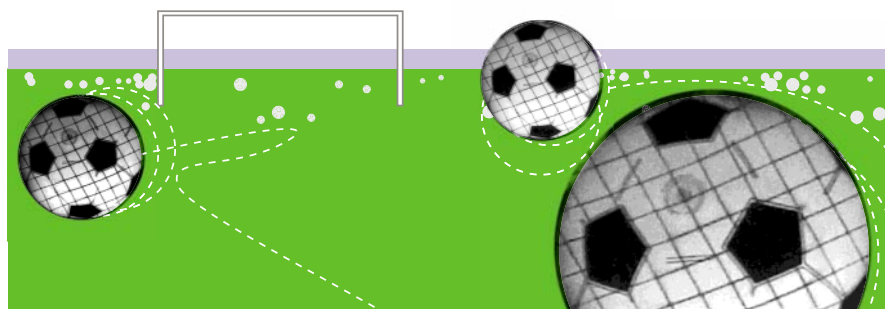
Meanwhile, in this one, we're following the current global obsession with football. Alex Bryson and colleagues report on studies that use the sport as an arena for investigating how people respond to incentives and how labour markets work. And Lant Pritchett and CEP's Martina Viarengo use the World Cup as an analogy for countries' efforts to produce highly skilled individuals through their education systems.

Elsewhere, there are pieces on European responses to climate change, challenges for world trade and the unintended consequences of smoking bans in public places. And we end up back at the recession, and the surprisingly small fall in UK employment to date. The big question is what happens to jobs when the austerity measures take hold.

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page 3
Making the UK's aid
budget work better



page 20
Men in black: the impact
of new contracts on football
referees' performance

Contents

page 3
Making the UK's aid budget work better

Peter Boone argues that if the UK's aid budget were spent well, current funding levels would be more than adequate and lower levels not inconceivable

page 10
Europe's Emissions Trading System:
taxpayers versus the industry lobby

Removing the exemptions in Europe's Emissions Trading System would raise €7 billion annually, according to **Ralf Martin** and colleagues

page 16
Regional trade agreements:
blessing or burden?

Caroline Freund and **Emanuel Ornelas** ask whether we should celebrate or be concerned about the proliferation of regional trade agreements

page 22
Passive smoking: the effect of bans and taxes

Jérôme Adda and **Francesca Cornaglia** evaluate the effect of smoking bans and cigarette taxes on the incidence of passive smoking, particularly among children

page 26
Jobs in the recession

Compared with previous recessions, the fall in employment has been relatively low, at least so far – **Paul Gregg** and **Jonathan Wadsworth** look for an explanation

in brief...

page 8
Producing superstars for
the economic World Cup

Lant Pritchett and **Martina Viarengo** explore how Mexico's education system can produce more high-flyers

page 15
The wage premium of
two-footed footballers

Alex Bryson and colleagues show that the rare ability to use both feet equally well in football commands a large wage premium

page 20
Men in black: the impact
of new contracts on football
referees' performance

Alex Bryson and colleagues investigate the impact of salaried contracts on the performance of Premier League referees

page 25
The educational background
of postgrad students

Stephen Machin and **Richard Murphy** find an imbalance in favour of postgraduates who have been privately educated



All the UK's major parties agree on ring-fencing foreign aid spending at current levels, even while the country's dire financial situation requires sharp cuts to other budgets. **Peter Boone** draws on the evidence on aid effectiveness to argue that our focus should not be on the amount we spend but rather on making aid work better.

Making the UK's aid budget work better

The 2010/11 UK foreign aid budget is £7.8 billion, having risen from £5.5 billion in 2008/09. Every major political party rhetorically backs higher aid levels or, at the very least, maintaining current levels.

Yet opinion polls have registered some concern as to whether aid brings value for taxpayers' money. There are fears that it wastes money, buoys corrupt governments without affecting the poor for whom it was intended or even, in the current economic climate, that it would be far better spent at home. Since this comes from a public that is unimpeachably generous in the aftermath of natural disasters, the scepticism seems reserved for government-administered aid.

Even recipients of aid have expressed a desire for assistance that has been better thought through. Paul Kagame, the president of Rwanda, has argued that donors need not 'just the heart for aid, but the head'.

In this regard, it is refreshing to hear the new international development secretary, Andrew Mitchell, calling for major change in how taxpayers' money

Reforms to make aid work better probably require radical change

will be spent on aid. His plan for a new independent aid watchdog, which will help ensure value for money, could be a major step forward in the fight to end extreme poverty.

But there is a litany of failed hope and promises from our aid industry's past. If the new government is to succeed, they will need to take resolute and sometimes painful measures now, which change the goals and, more importantly, the process of providing aid.

Where UK aid is spent

Today the UK bilateral aid budget is disbursed to a wide range of sectors and projects in over 100 nations. Only a fraction of this money goes to extremely poor regions, and a fraction of that to areas where we have clear scientific evidence that it could help to reduce poverty.

There are numerous studies showing that improved literacy and numeracy give children better opportunities in adulthood. We have also learned that it is possible dramatically to reduce child deaths in extremely poor regions through provision of very basic and inexpensive health services (Bryce et al, 2005). During the last parliament, £4.2 billion, 35% of total bilateral aid, went on health and education.

According to the *Bellagio Child Survival Study Group*, a collection of international experts on public health and the causes of child deaths, the annual UK aid budget would be more than sufficient to prevent six million child deaths each year – thus ending most child mortality. At current costs, the same money could be used to provide annual primary school education to 78 million children in extremely poor regions, who would otherwise grow up illiterate and missing basic maths skills.

But aid is spent on many more dubious, and successful, claimants. During the last parliament, the UK spent £2.6 billion helping build 'government and civil society' and £1.9 billion on 'economic aid', which refers to items such as budget

assistance and infrastructure aimed at supporting the overall economy.

These projects have laudable goals, but there is little evidence to prove how, and whether, they matter to long-term development or poverty eradication. When considered as rivals to projects saving lives or educating children, where we do have strong evidence of need and benefit, they are hard to justify.

When deciding how to invest aid funds, portfolio theories of asset management tell us that when comparing two alternative investments, if one has greater certainty of a similar return to another, we should allocate most or even all funds to the investments where we have greater understanding of returns. If we applied these theories to our aid budget, we would need to reduce radically many categories of programmes today.

The need for rigorous assessment

In fact, however we define our objectives with aid, we quickly face the significant obstacle that current assessment practices leave us with little idea of which projects have worked and which have not.

A typical Department for International Development (DFID) aid project provides funds to a government, or through an NGO, which then administers the project, spends the funds and reports back on outcomes. DFID does operate an internal evaluation group that audits some projects and concludes whether they were successful or not. Results are summarised in DFID reports, for example:

'The successes of aid are visible. Thanks to UK aid from DFID, in recent years three million people have been vaccinated against measles, over 100,000 teachers have been trained, clean water has been provided to almost one million

Maintaining the status quo misses an opportunity – both for taxpayers, who remain sceptical about foreign aid, and for intended recipients

people and 12 million people have been assisted through food security programmes.'

Note the exclusive focus on an accounting of inputs, rather than on impact measured in terms of improvements in health or education or other key outcomes. Input claims can sound impressive, but experience shows that, by themselves, they are not. Teachers participating in training sessions might – but do not necessarily – lead to better-educated children.

Even the poorest regions in Africa typically have some kind of school, and they probably have a teacher assigned to them. But the schools often do not function. The reasons are numerous: teacher salaries are too small or in arrears; there are no books, desks, written materials or classroom visual aids; parents remove their children from school to work and look after siblings; or the teacher simply absconds because there is no effective supervisory system in place.

Meaningful assessment must rest on outcomes not inputs, and for large aid donors, such outcomes should be the

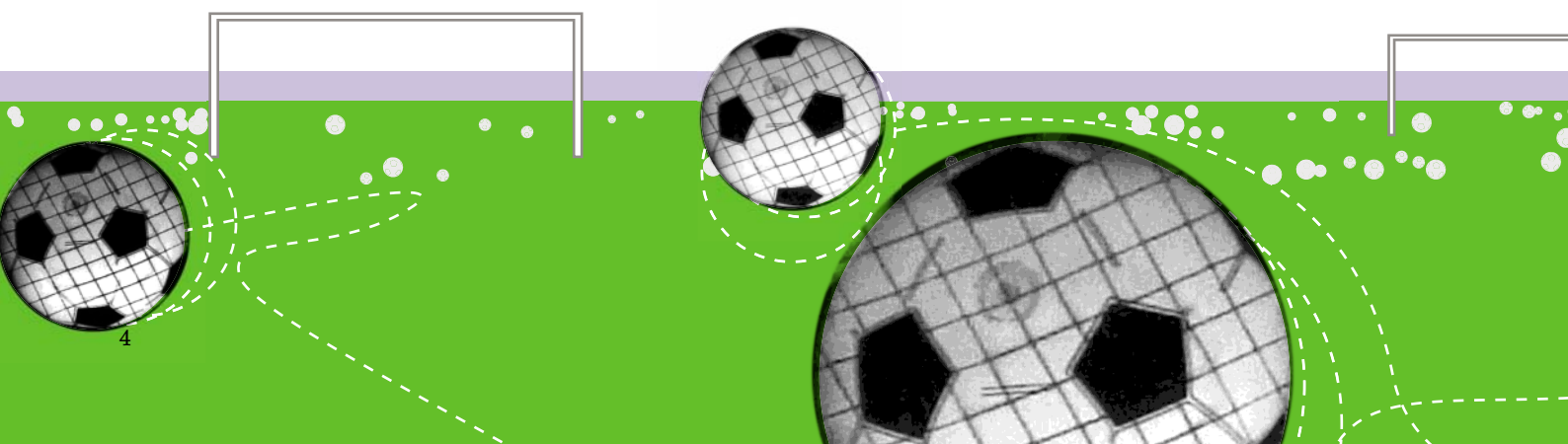
desired goals, not an intermediate step along the way. For example, a reasonable measurement of the value of teacher training should be pupils' subsequent performance in school, rather than a head count of training session participants.

Similarly, the round number of people to whom 'clean water has been provided' or who 'have been assisted through food security' is less interesting and valuable than, for example, any resultant changes in health, measured in disease prevalence, morbidity or mortality. Are the 'one million' and '12 million' lives measurably better or not? We should be asking and answering this question with rigour and specificity.

The DFID assessment points to something else. Specifically, vaccinations are inexpensive, as are rudimentary schools, so the lack of these generally reflects deeper problems. Poor provision of public services invariably indicates that extremely poor people, almost by definition, are politically weak. The best services go to wealthier urban areas: children in these areas grow up wealthier, and they tend to benefit first and foremost from economic growth.

So if we simply provide more funds to government budgets, and provide specific inputs such as the items listed above, what makes us think that these have led to better conditions for the extremely poor?

In short, to make aid more effective, we need better evidence on what works and what doesn't, and a focus on end goals instead of inputs. We should ask DFID to set precise goals for outcomes, such as improving the school performance of children in specific rural villages or reducing mortality rates in specified regions or raising income opportunities. They can decide how that is best done,



but we should never lose sight of the end goal and always make sure we can measure it.

Only when goals are set clearly and outcomes of projects are measured rigorously against these goals will we have meaningful data to begin to understand the impact of what we are doing. It is encouraging that DFID is increasingly focusing on measuring effectiveness, as are other agencies. But there is clearly far to go in making an evidence-based approach the exclusive or default one.

Evidence on aid effectiveness

These problems of aid allocation are not unique to the UK. In fact, despite over five decades of large international aid programmes, it is very difficult to find evidence that foreign aid has achieved much in terms of reducing global poverty.

The nations that have achieved the most poverty reduction over the last two or three decades – India and China – received very little aid relative to their size. Cross-country studies have repeatedly shown that nations that received substantial aid fared no better at growing or reducing indicators of extreme poverty than nations that received little aid (Boone, 1996; Easterly et al, 2004).

We can point to specific successes: the global coverage of vaccines and the eradication of smallpox are great achievements. But these require little money, and they hardly justify the \$100 billion plus global aid budgets, let alone the UK's £7.8 billion annual aid budgets. As DFID itself reports, despite five decades of spending and efforts: 'over one billion people, most of them in sub-Saharan Africa and South Asia, still live and die in appalling conditions.'

One study concludes that aid

A major expenditure review is needed: new non-emergency aid projects should be halted until it is completed

ineffectiveness might be due to the deleterious impact of aid on exchange rates (Rajan and Subramanian, 2005). As with Dutch disease (where increased revenues from natural resources drive up a nation's exchange rate), large foreign inflows drive up domestic wages and prices, so pricing nations out of export markets. Others have argued that aid generates rent-seeking and corruption, which are harmful to growth.

These explanations need careful study, but they do not prevent well thought out aid from providing benefits. For example, aid that serves to improve the productivity of employees or increases the overall ability of a population and nation to compete might be channelled in ways that avoid or offset corruption and competitiveness issues.

Aid for extremely poor regions

During the next few decades, it is very likely that many poor nations will continue to grow more rapidly than rich nations. Resource-rich Africa will grow much wealthier as India

and China add what the International Monetary Fund describes as the equivalent of one new Europe to global GDP over the coming decade.

The growing wealth of many regions in Africa and Asia should lead to important changes in how aid is allocated. Throughout the world, there will be 'pockets of poverty', where extreme poverty persists even when economies are improving. These will be found in nations with civil war or regional instability, and in areas where ethnically distinct or politically weak populations can be ignored by national governments.

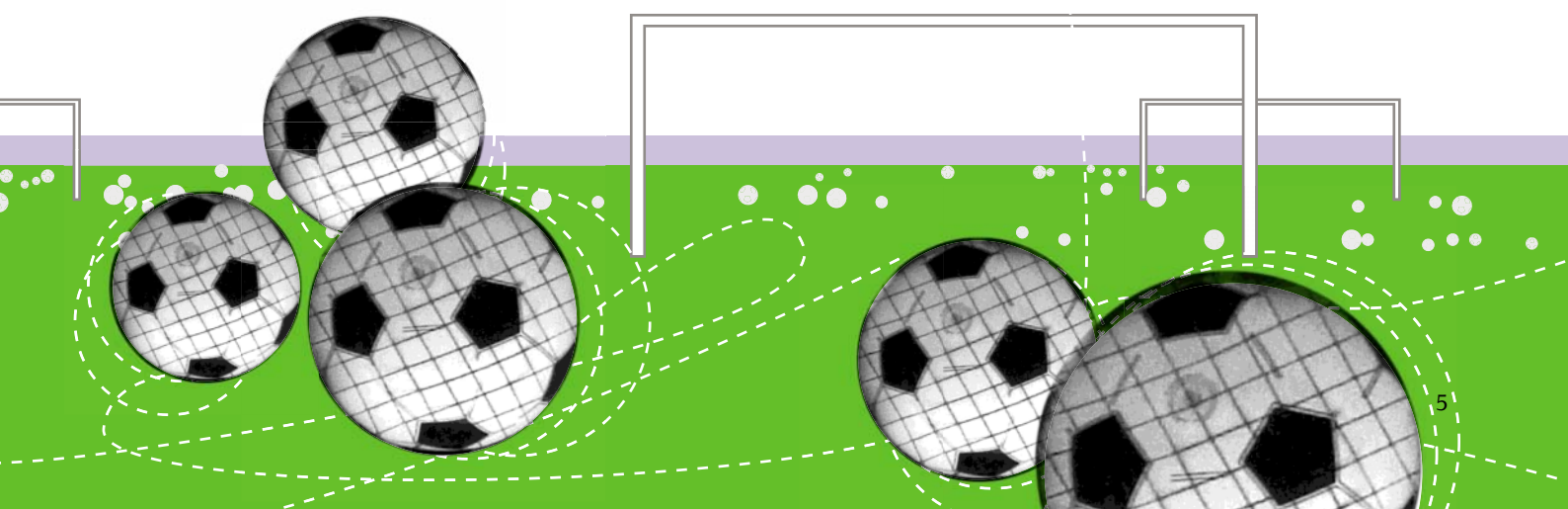
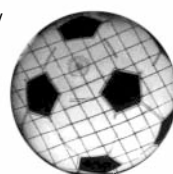
Residents of these enduring pockets of poverty will stand to gain the most from aid. Two reasonable goals, with existing good evidence backing their value, would aim to make sure that the next generation of children can grow up educated, and the communities live with decent, basic healthcare.

This would mean mapping out the regions where we think poverty will persist, and orienting aid, for example, towards 'permitting the 10 million people in these communities to access basic health and education.' Or we could work on income-generating programmes to help residents of these regions out of extreme poverty.

The approach could be a package of measures combining steps to achieve specific outcomes that can be quantified and hence measured, for example: income levels, numeracy/literacy test scores, disease incidence, mortality rates, etc. The key is to make clear goals and measurable outcomes our mantra.

Lessons from medical science

In the early days of modern medicine, practitioners used



traditional and experimental treatments without the benefit of testing and the data it generates, which could have determined which treatments actually worked, which had no effect and which were actually harmful. Similarly, today in our aid budgets, we have a plethora of 'treatments', most of which sound promising. But for most of them, there have been no serious evaluations and we thus have no idea what actually works.

Over the past century, techniques were honed to understand the real (as opposed to merely apparent) effects of medical treatments in both surrogate and human populations. There has been some attempt to apply these approaches by economists and others interested in the impact of specific 'treatments' used as aid. The Poverty Action Lab at MIT has led the implementation of such techniques in economics.

For an aid programme, it can be simple to introduce rigorous measurement similar to that used in the field of medicine. We first define our goals as specifically and clearly as possible. Then we design a programme that allows us to measure the effect of the activities we undertake to reach the goal.

The third essential element is an independent, objective monitoring team responsible for measuring outcomes. If the same rigour in measuring effectiveness of drugs and healthcare had been applied to the aid industry, we would surely know much more about what works and what doesn't today.

There is a case for these methods adopted from medical drug trials to be used not only for research, but also for measuring the impact of aid projects in progress when it is feasible. The logic of this is simple: while in the private sector we can measure outcome by profits, with

If aid were spent well, current funding levels would be more than adequate and lower levels not inconceivable

foreign aid we need to find alternative means of rigorously assessing outcomes.

Based on our own experimental work, we believe it is both feasible and highly valuable to introduce such techniques – or techniques developed by economists and epidemiologists which are nearly as rigorous – to understand better whether individual projects actually succeed.

Measuring outcomes, not counting inputs

Together with the London School of Hygiene and Tropical Medicine and the UK-based charity Effective Intervention, CEP has embarked on several aid projects in India and Africa that aim to improve children's education and health in extremely poor regions. In each case we pick major outcome goals – such as reducing child mortality rates or raising child literacy rates – and then work with local partners, clinicians, other relevant experts and medical statisticians to design projects that will achieve these goals at reasonable cost.

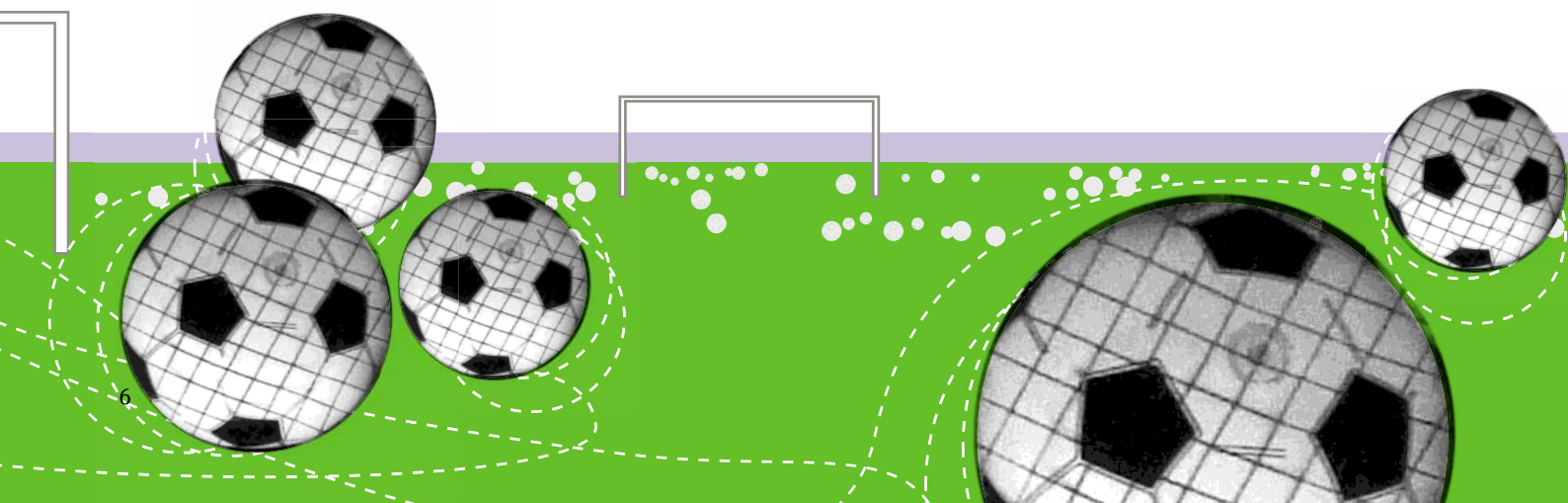
These projects are not research – our goal is to improve education and health in

a manner that can be expanded across much larger populations – but they have been designed like medical trials: we have randomised the initial allocation of services to villages so that we can compare outcomes across treatment and control villages during the initial stages of the project, before expanding if it is successful.

Randomisation across communities as we roll out programmes, so that some receive project assistance earlier than others, allows us to isolate the effect of our aid project so it is not confused with the effects of other changes that may be affecting the region. We have also created independent monitoring teams, which regularly visit households to collect information on child mortality and test children's outcomes for literacy and numeracy. This gives us a detailed understanding of what is working and what is not.

Today our projects employ 1,300 people in India and Africa, and we are providing services to approximately 500,000 people. On a monthly basis, we provide antenatal care to 8,000 women, and we provide drugs and basic services to 1,500 sick children. During this year, we will be testing 15,000 children in India and Africa for literacy and numeracy, as part of a programme to understand current levels and aim for improvements.

We could list many more figures, but they do not tell us anything about success. Our experience has made us fully aware of all the pitfalls of counting mere inputs. In our health projects in West Africa, we still find alarmingly high numbers of child deaths. This is despite intensive training both for parents on diseases that cause child deaths and for village health workers on how to treat simple diseases, plus free provision of medicines and twice monthly visits by trained nurses.



We cannot honestly claim to have achieved much at this stage. We are still waiting for our independent research team to assess results and comparisons with control villages. But it is already clear that the intensive nature of disease, and the isolation of these communities, means that more needs to be done, probably over many years, to reach our objective of lowering the level of child mortality.

Our education projects have also begun to yield critical information about how to design aid if the objective is to raise educational levels. We are completing a national survey of literacy and numeracy in remote regions of Guinea-Bissau ahead of a major project to improve these indicators.

The preliminary data are showing us that while schools exist on paper, they simply do not function. We find the same in tribal regions of India where we work: enrolment ratios are very high, but children do not attend and therefore do not learn. A whole generation of children is growing up illiterate and innumerate.

In Guinea-Bissau, the communities very much want functioning schools, frequently pooling resources to build a mud-brick schoolroom and pay a teacher's salary. Virtually nothing more is provided by a central government that prefers to devote over 30% of its budget to the military. Despite being one of the poorest regions of the world, very little aid money reaches Guinea-Bissau and when it does the impact is just too small to make any difference.

Making aid more effective

We've argued that there is good reason to think that aid can achieve a lot to reduce extreme poverty, and the amounts that we currently spend are more than enough to make major inroads.

Half of DFID's bilateral aid budget is spent in areas where there is little evidence that it will do much to reduce poverty

But today there is not enough evidence to convince sceptical observers that aid money achieves what it ought to, and evidence from the past generally suggests the bulk of our aid money has failed to do much to achieve poverty reduction. This is a failure that both taxpayers and the intended recipients need to see change.

The new government has an opportunity, as President Kagame suggests, to apply hard-headed thinking so as to make aid more effective. We believe the following policies would make sense with this goal in mind:

■ A multidisciplinary group should be formed to determine what our goals for aid should be for the next decade and what specific evidence we have on how we can achieve those goals. To demonstrate the renewed focus on making aid work and using taxpayers' money only when we can be confident it is spent well, all new non-emergency aid projects should be halted while this process is underway.

■ We must set clear goals and select and design aid projects around them. Such goals could be lofty – such as reducing

extreme poverty in a region of 10 million people – but they need to be specific enough to measure and monitor. During the design stages of all aid projects, we should plan how we will measure and monitor the effects of what we do in the most rigorous manner feasible from the start.

■ We need to generate an objective mentality among our project staff, especially the evaluation departments. These need to look forward to learning both the positive conclusions, and the negative conclusions, that rigorous measurement will teach us.

Peter Boone is a research associate in CEP's globalisation programme and chairman of Effective Intervention (<http://www.effint.org>), a charity based in the UK.

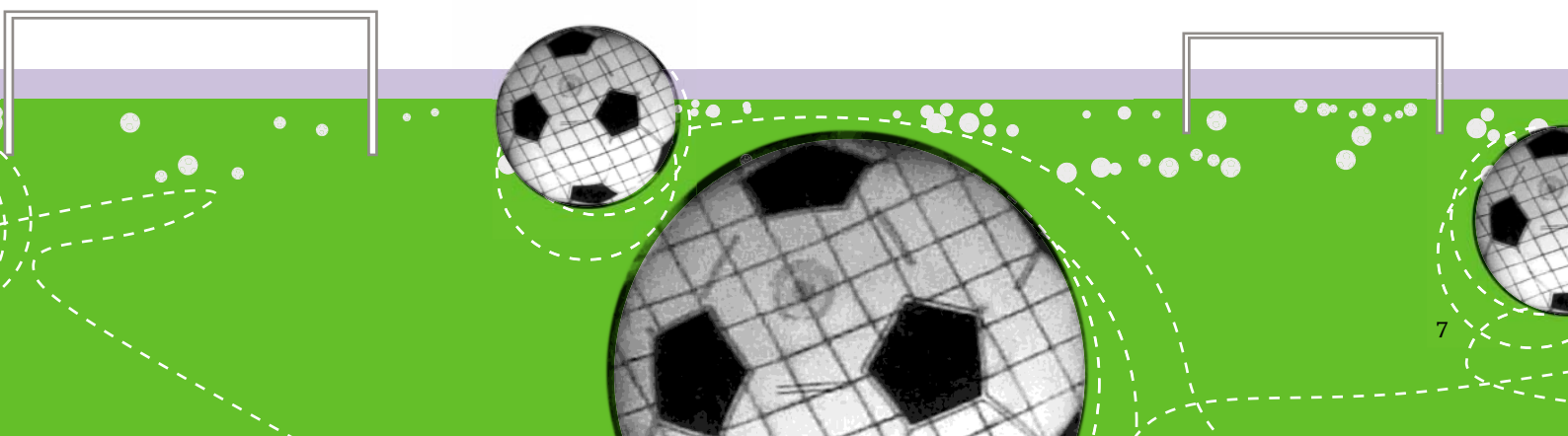
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in brief...

Producing superstars for the economic World Cup

Most countries' education policies make raising average student performance their priority. Yet just as in the football World Cup, the quality of the top performers is the key to competing successfully at the global level. **Lant Pritchett** and **Martina Viarengo** explore this challenge in the particular context of policy-making in Mexico.

Like many emerging economies, Mexico faces the challenge of how to position itself to compete more effectively in international markets. A key issue is the quality of the skills of the labour force – and in increasingly knowledge-based economies, it is not just the skills of the typical worker that matter, but also the skills of the most highly skilled.

It is not always appropriate to make comparisons between economic 'competition' and athletic 'competition', since a country can make every citizen richer (a good thing!) and still fall down the international rankings if other countries do the same but more quickly. We still think that the football World Cup is a useful metaphor in this case because:

■ First, in the World Cup, global competitiveness matters as it stacks players of different countries up against each other on a level playing field. While victory in any given league is relative, players can be the best in a local league without being very good.

■ Second, in the World Cup, it is not the average quality

of the players that matters: it is the very upper tail – the best of the best. The quality of the players in the upper tail depends not just on the average of the distribution, but also on how it is shaped – for example, whether it is skewed towards higher performers.

■ Third, simple mathematics suggests that the absolute quality of the players depends in part on the size of the pool from which they are drawn.

Every boy in Mexico believes that they are in the running to be picked for the World Cup (known there as the *Mundial*). But can the same be said for the economic World Cup: does every child really believe they have a shot at rising to be the best of the best economically?

Internationally comparable measures, such as the OECD's Program for International Student Assessment (PISA), indicate that Mexico's educational performance is below that of many other OECD countries. What has been less explored is the consequence of that for the *absolute* number of *very highly skilled*.

Image: Ron Fu

Competing in the
knowledge-based
global economy
requires encouraging
better performance
among the top
performers



Our research examines how many students Mexico produces per year above the 'high international benchmark' of the PISA in mathematics. (The benchmark is related to the score of 625 and above, where the OECD average is equal to 500 and the standard deviation is equal to 100.) We find that out of a cohort of roughly two million 15-year-old students, Mexico produces only between 3,500 and 6,000 students per year above the benchmark.

The comparable number for the United States, where the educational performance of high school students is widely lamented, is a quarter of a million. In South Korea (a country whose population is half the size of Mexico's), it is 125,000. And even India, which in general has a much lower average performance, produces over 100,000 high performance mathematics students per year. The issue is not about mathematics *per se*: similar findings are likely to hold in other subjects.

By comparing differences in performance at the very top, we also find that the top Mexican students lag behind: they achieve a level that is only middling in better performing countries. Moreover, only a very small number of students are ready to go into higher education and compete globally. Rankings of universities indicate that the low quality of Mexican secondary schools is not overcome at higher levels of education.

We then review the effect of some of Mexico's traditional education policies, such as *Carrera Magisterial*, a performance-based pay bonus for teachers introduced in 1992 to modernise primary schooling. The reform replaced the five-year seniority teacher pay scale with a new pay structure weighted by improvements in students' performance (which represented 20% of the total weight). It also allowed principals to receive awards based on their schools' overall performance

Empirically, a small positive but statistically insignificant effect has been found on students' average performance. This may be partly due to the weak incentives faced by teachers and the significant role played by unions in determining the final teachers' pay improvements

We relate the effect of these policies to the distribution of test scores in Mexico. We observe that even in the 'best-case scenario', policies that appear to have a considerable effect on students' achievement would lead to a modest gain in the average score, and only to a small increase in the number of global high performers.

What new policies should be pursued to position Mexico to compete internationally? We identify three areas:

■ First, the focus should be on encouraging better performance among the top performers. To be able to produce high-end 'ideas', Mexico must be able to compete with leading countries like the United States and

It is not just the skills of the typical worker that matter, but also the skills of the most highly skilled



Israel. The country needs a critical mass of people of high ability to produce ideas and innovate.

■ Second, there needs to be an emphasis on broadening the base of talent across socio-economic groups. Mexican education is currently stratified by income and ability to pay rather than by talent and ability to learn. The country must stop recruiting from a narrow base; instead, it should actively identify and encourage academic excellence among those who are not currently well off.

■ Third, creating a conducive environment for entrepreneurship so that new ideas can flourish should be a priority. If institutions do not encourage private initiative, social mobility and productive activities, talented people will choose occupations that do not face competition and which are often socially unproductive.

There may be many benefits to traditional policies that focus on improving the average quality of the educational system. But our research suggests that they are unlikely to make Mexico competitive in the knowledge-based global economy.

Instead, what is needed is a combined focus on expanding educational opportunities for all and encouraging the upper tail of top performers. Many other countries could no doubt learn from this challenge of producing superstars for the economic World Cup.

This article summarises 'Producing Superstars for the Economic Mundial: The Mexican Predicament with Quality of Education' by Lant Pritchett and Martina Viarengo, chapter 2.5 in *The Mexico Competitiveness Report 2009*, edited by Ricardo Hausmann, Emilio Lozoya Austin and Irene Mia and published by the World Economic Forum (http://www.weforum.org/pdf/Mexico/MCR_2009.pdf).

Lant Pritchett is professor of the practice of international development at the Harvard Kennedy School. **Martina Viarengo** is a research officer in CEP's education and skills programme.

The European Commission plans to tighten the greenhouse gas emissions targets in the Emissions Trading System. **Ralf Martin** and colleagues examine the likely impact on affected businesses, and conclude that industry is exploiting concerns about competitiveness to obtain free emission permits according to criteria that are too lax.

Europe's emissions trading scheme:

taxpayers versus the industry lobby

The European Commission is currently finalising the design of the third trading phase of the European Union's (EU) Emissions Trading System (ETS), which will begin in January 2013 and last until 2020. A key concern will be any potentially negative effects on the competitiveness of affected businesses. But the Commission's stated objective is to

increase the share of emission permits that are auctioned rather than allocated for free to 'vulnerable' industries.

Without doubt, increasing the amount of auctioned permits would improve the system's fairness. The current practice of allocating free permits on the basis of past emissions effectively rewards businesses that have been lagging behind in reducing emissions.

Auctioning permits also provides additional revenue for governments to pay for research and development (R&D) and infrastructure investments required for the transition to a low-carbon economy. The auction revenue could further be used to compensate people on low incomes in the event that carbon pricing has regressive distributional effects or simply to help balance strained government budgets.



Where the Emission Trading System is going wrong

The proposed design of the third phase of the ETS includes criteria to determine which industrial sectors should continue to receive free permits. Under these criteria, 147 sectors – more than half of the 258 manufacturing sectors under consideration – will be eligible for free permits, despite the fact that not all of these sectors include firms that are regulated by the ETS.

This follows pressure from industry groups claiming that more stringent carbon pricing will provoke job losses and cause carbon-intensive production to relocate outside the EU – a process referred to as ‘carbon leakage’.

Our research asks whether the proposed criteria for exemption from auctioning are appropriate. Do they capture the risk of downsizing or plant closure? And what are the implications in terms of job losses, carbon leakage and emissions?

Our analysis is based on data from almost 800 interviews with managers in manufacturing plants – both members and non-members of the ETS – in six EU countries (Belgium, France, Germany, Hungary, Poland and the UK).

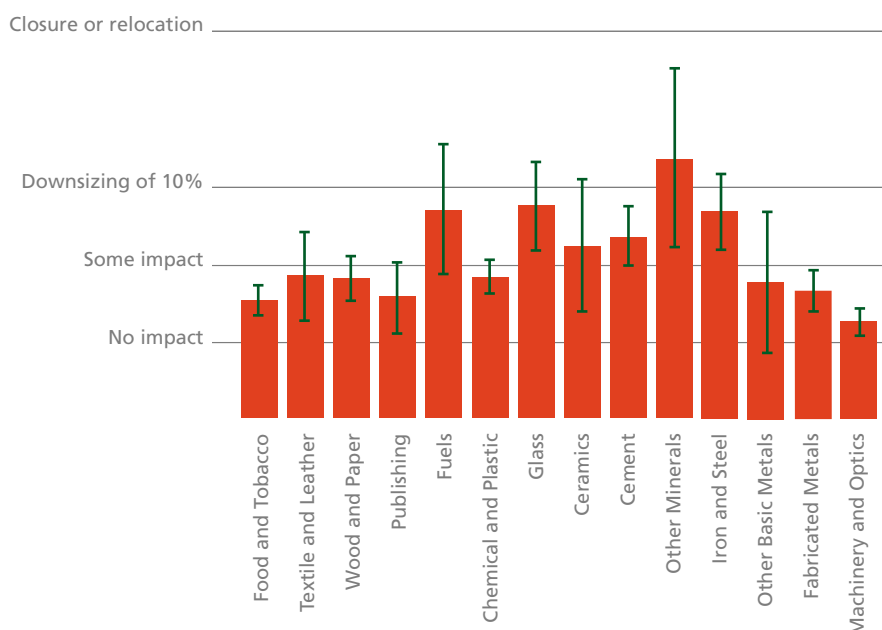
Each firm is rated on a scale from 1 to 5 as to the likelihood and degree of downsizing in response to future climate policy, with a score of 1 corresponding to no expected response and a score of 5 indicating a high likelihood that the firm will close down or relocate. The results of the analysis are as follows:

First, a complete relocation in response to carbon pricing is highly unlikely.

Among the principal manufacturing industries we sampled, none of the ‘average’ firms are at risk of relocation or closure (see Figure 1). There is only one sector (Other Minerals) out of 14 where the average score is slightly above 3, implying downsizing by at least 10% of employment or output. In no case does the 95% confidence band include the maximum score of 5 (closure).

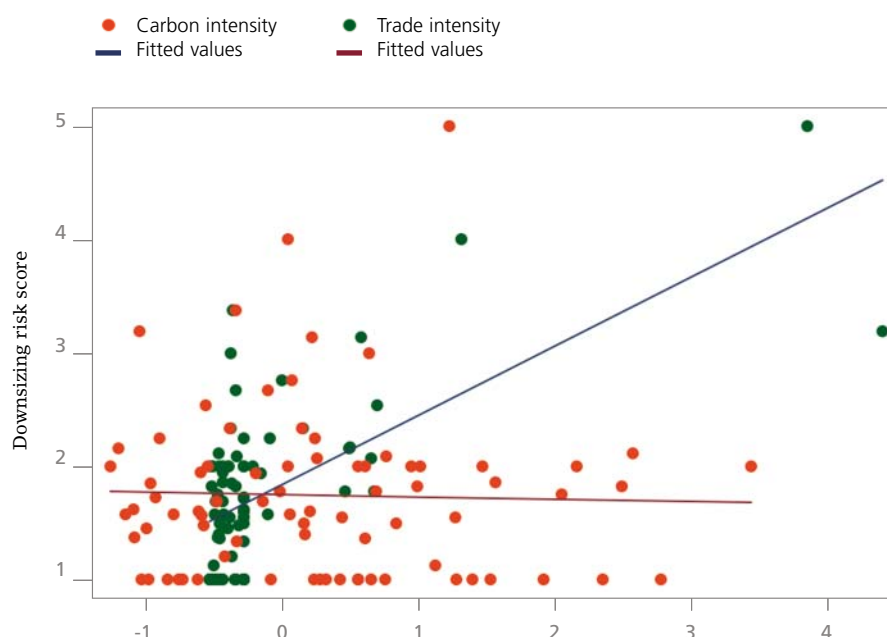
The Emissions Trading System is accommodating the interests of the industry lobby too generously at the expense of European taxpayers

Figure 1:
Average risk of downsizing due to more stringent carbon policy'



Notes: The bars show the sector-level average score measuring the risk of downsizing as a consequence of climate policy. The lines represent the confidence bands, calculated at the 95% level.

Figure 2:
Correlation between downsizing risk and intensity measures



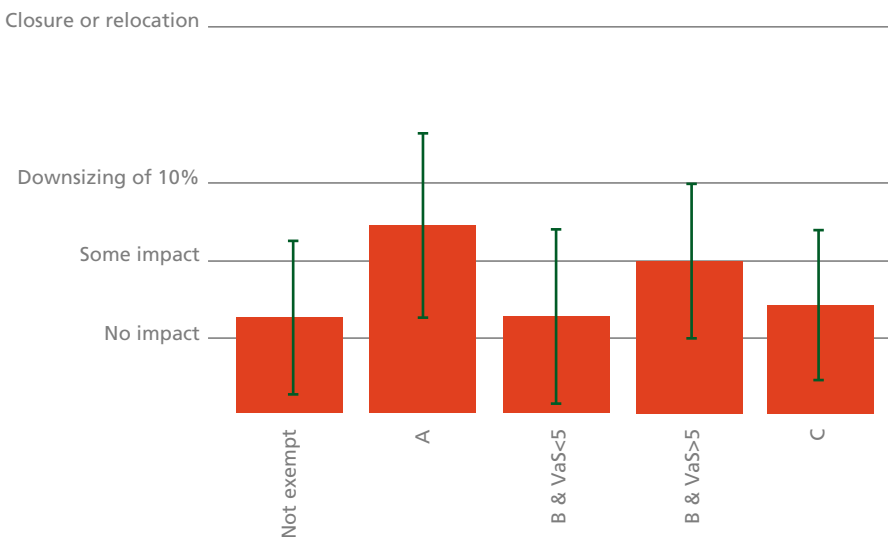
Notes: Each three-digit industry is represented by one green and one red point. The horizontal axis measures for red points normalised carbon intensity (VaS) and for green points normalised trade intensity (TI). The vertical axis measures the downsizing risk score derived from the interviews with managers. The two lines represent the fitted values for each set of points.

Figure 3:
Value at stake and trade intensity of sectors
in the interview sample



Notes: The figure plots the position of the sectors included in our interview sample in terms of the two criteria proposed for exempting sectors from auctioning of permits. The size of the circles is proportional to the number of firms in a given four-digit industry (NACE 1.1 classification). The rectangles A, B and C represent the three sets of eligible sectors defined by the Commission's thresholds for the two criteria. The solid lines show mean trade and carbon intensities, and the dotted lines represent the respective employment-weighted means.

Figure 4:
Impact measures across 'at risk' groups



Notes: The bars represent, for each set of firms as described on the horizontal axis, the average score measuring the risk of downsizing as a consequence of climate policy. The lines represent the confidence bands, calculated at the 95% level.



Most industry sectors entitled to free emission permits would not close or relocate outside of the EU if they had to pay for permits

Second, the Commission's assessment criteria are flawed.

The Commission bases its assessment of sectors at risk of carbon leakage on two statistics – the carbon intensity (which is measured as the amount of carbon a sector emits divided by its value added; what is usually referred to as Value at Stake, VaS); and the trade intensity (TI), which the Commission defines as the value of imports and exports to non-EU countries over the total market size of the sector within the EU.

We examine how well these statistics capture downsizing risk by correlating them with our score. Plotting sectoral carbon and trade intensities against downsizing risk scores reveals that carbon intensity is strongly correlated with downsizing risk, but trade intensity is not (see Figure 2).

Using the trade intensity criterion to determine which sectors should be exempt from auctioning is therefore likely to result in exemptions for firms that are not at all at risk of downsizing or carbon leakage. Free permit allocation in this instance is simply a transfer of taxpayers' money to industry without any additional social benefit – this money should be reclaimed.

Third, up to 88% of manufacturing sector emissions are exempt from regulation under the proposed thresholds for the ETS.

The thresholds proposed by the Commission implicitly define three groups of exempted sectors, depicted as the rectangles A, B and C in Figure 3. Strikingly, group B contains a particularly heterogeneous group of industries.

There are a large number of industries with very low carbon intensity as well as a few sectors with moderate carbon intensity. We thus further subdivide this group by carbon intensity and analyse the following four subgroups:

- Group A with carbon intensity (VaS) greater than 30%.
- Group B with moderate carbon intensity, depicted as Group B & VaS>5%. This group has trade intensity (TI) greater than 30% and carbon intensity between 5% and 30%.
- Group B with high trade intensity (>30%) but low carbon intensity (<5%), depicted by Group B & VaS<5%.
- Group C with moderate trade and carbon intensity (5%<VaS<30% and 10%<TI<30%).

Figure 4 plots the average downsizing risk and associated 95% confidence bands for these groups. Only carbon-intensive firms (Group A) and the more carbon-intensive among the trade-intensive firms (Group B & VaS>5%) are at high risk of outsourcing a significant part of their production – but even then the downsizing is only around 10%.

revenue for European governments of at least €7 billion annually.

Changing criteria moving forward

We find no evidence that the trade intensity criterion reliably measures the risk of downsizing or closure across sectors. The Commission should therefore replace this criterion in the longer run with one that more accurately reflects a sector's vulnerability to carbon leakage.

The trade intensity measure potentially misses an important aspect that determines vulnerability – namely 'locational specificity'. The more strongly a firm benefits from factors that are specific to the EU – such as the skill set of the workforce, agglomeration economies, the stability of institutions, etc. – the less likely it is to shift production abroad in response to EU climate change policy. Nevertheless, more research into the measurement of locational specificity is needed before this concept can be implemented.

Conclusion

Despite many design improvements, there is a concern that even in the third phase of the ETS, the Commission is

This article summarises 'Still Time to Reclaim the European Union Emissions Trading System for the Taxpayer', a CEP policy briefing by Ralf Martin, Mirabelle Muûls and Ulrich Wagner (<http://cep.lse.ac.uk/pubs/download/pa010.pdf>).

Ralf Martin is a research economist at CEP. **Mirabelle Muûls** is a research associate in CEP's globalisation programme and at the Grantham Institute for Climate Change at Imperial College London. **Ulrich Wagner** is at Universidad Carlos III de Madrid and is a research associate in CEP's productivity and innovation programme.

Further reading

Barry Anderson, Jörg Leib, Ralf Martin, Marty McGuigan, Mirabelle Muûls, Laure de Preux and Ulrich Wagner (2010) 'Climate Change Policy and Business in Europe – Evidence from Interviewing Managers', forthcoming CEP Discussion Paper.

Removing the exemptions in the Emissions Trading System would raise €7 billion annually



How to save €7 billion

If the Commission's exemption criteria were to exclude only these two groups (A and B & VaS>5%) from permit auctioning, the amount of permits auctioned would increase considerably without aggravating the overall risk of job losses and carbon leakage.

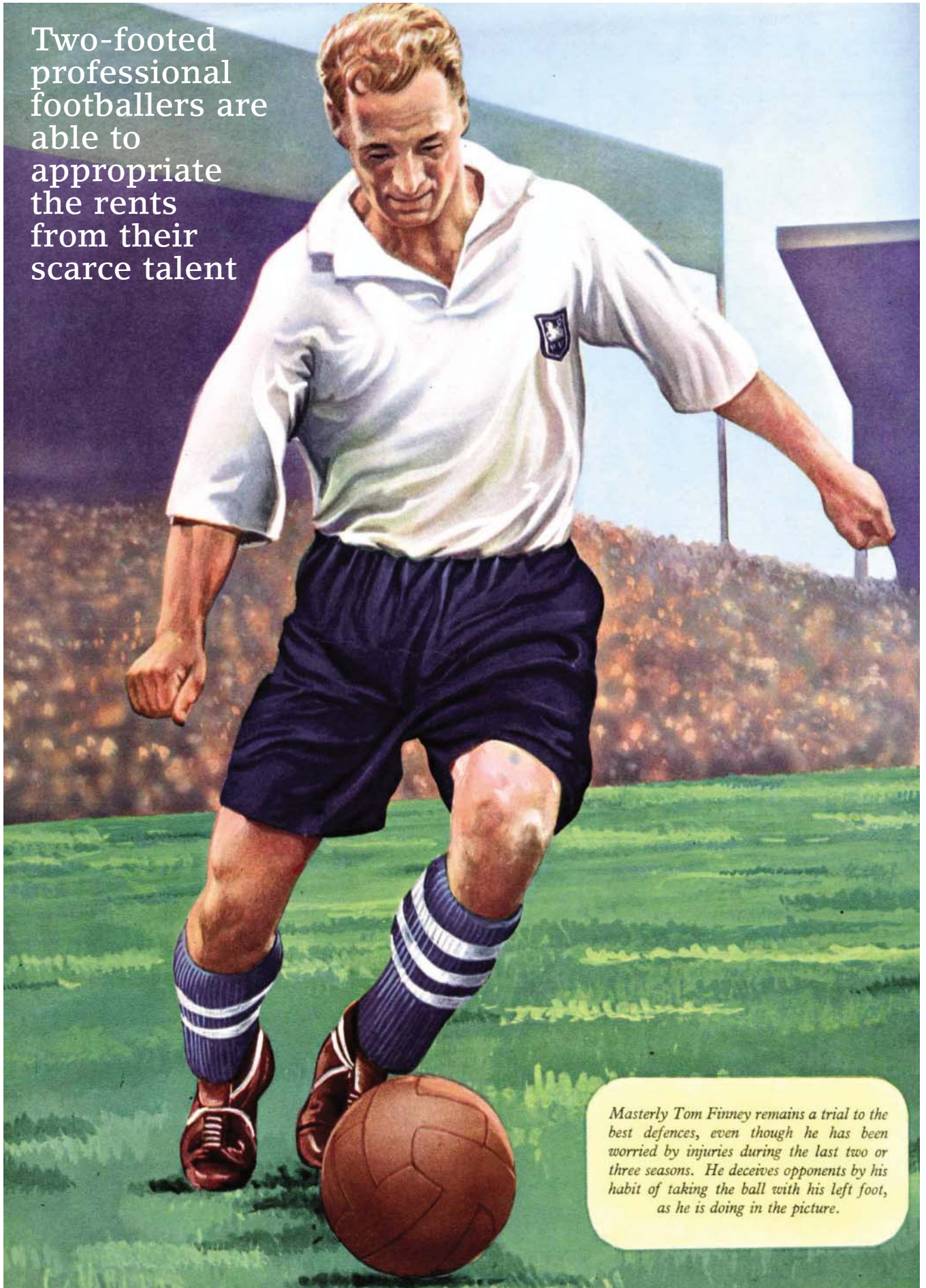
This could be achieved by modifying the thresholds for the third phase of EU emissions trading as follows. Only sectors with a carbon intensity higher than 30% or sectors with both trade intensity greater than 10% and carbon intensity of more than 5% should be granted an exemption. This modification would revoke the exemptions currently envisaged for Groups C and B & VaS<5%. By a conservative estimate, this would provide additional

accommodating the interests of the industry lobby too generously – at the expense of European taxpayers.

But there is still a window of opportunity for European governments to improve the design of the ETS while raising additional income of €7 billion annually.

Rather than providing an unspecific subsidy for industry, this money could be earmarked to finance investments and R&D crucial for the transition to a low-carbon economy. It could equally be used to mitigate the possibly regressive effects of higher carbon prices on low-income groups. Finally, it could help to balance strained government budgets in the wake of the financial crisis.

Two-footed
professional
footballers are
able to
appropriate
the rents
from their
scarce talent



Masterly Tom Finney remains a trial to the best defences, even though he has been worried by injuries during the last two or three seasons. He deceives opponents by his habit of taking the ball with his left foot, as he is doing in the picture.

in brief...

The wage premium of two-footed footballers

The study of football – the clubs, the players, the managers, the referees – is telling us more and more about the operation of labour markets and incentives. Here, **Alex Bryson** and colleagues show that two-footedness – the rare ability to use both feet equally well to pass, tackle and shoot – commands a large wage premium.

There is widespread public concern that some workers – chiefly senior executives in ‘bailed out’ banks – are reaping huge financial rewards for what appears to be very poor performance. The retort is that these highly paid executives are simply being paid their market worth and that attempts to pay them less could lead to lack of motivation and increased likelihood that the best will leave for better opportunities elsewhere.

The debate is familiar to those with knowledge of sports economics. Some professional sports in the United States, notably American football and ice hockey, have team payrolls that are heavily regulated in a salary cap arrangement. As yet it is not wholly clear what the impact of these rules and regulations is on incentives, individual performance and team performance.

In Europe, where there is a long tradition of not interfering in professional athletes’ wages, earnings can be very substantial. Professional footballers in particular earn considerable amounts of money in the form of endorsements and sponsorship, but also from their wages. If you ask supporters whether the players in their team deserve what they earn, some will say nobody deserves to earn £x more than the person in the street (the argument levelled at bankers, traders and the like), but most will say: ‘it all depends on how they perform on the field’.

There’s the rub. How do we really know whether players receive a wage that is equivalent to their marginal productivity? We may know what they have been doing on the pitch – how many passes they made, how many goals they scored, how many appearances they made – and this clearly helps. But we have more than that: a variable that really identifies a rare talent that teams are very likely to pay for. That is two-footedness.

Two-footedness is the ability to use both feet equally well to pass, tackle and shoot. Unsurprisingly, this versatility is strongly related to player performance. Furthermore, it is a fairly unusual talent – only around one sixth of players in the top five European leagues are two-footed.

It seems that two-footedness can be taught. Indeed, Tom Finney, a famous English forward of the 1950s who taught himself to use both feet, is cited as the inspiration for an institution set up in the UK in 2004, which claims

to be ‘the first and original soccer school that concentrates solely on improving the other foot’.

But this training of two-footedness is something that can only be properly developed at an early age in the formative years of a player’s career, and it is difficult to instil in today’s established professional players. Hence, we can treat footedness as a pre-determined specialist ability that is capable of generating a return.

Does this talent translate into wages? The answer is ‘yes’. There is a raw premium of over 60% relative to right-footed players, which falls to around 40% controlling for demographic characteristics, position in the team and the team’s ability to pay players. It falls by half to around 20% when controlling for other performance measures, but remains at around 20% with all these controls. And it remains large even within teams.

This is strong evidence of a clear link between performance and wages among professional football players. But is there anything in it for teams? Are they able to appropriate any of the returns to employing two-footed players? In an efficient labour market, where players are free to move (as they have been since the Bosman ruling in the European Court of Justice in 1995), players should be able to hold onto their hard-earned cash.

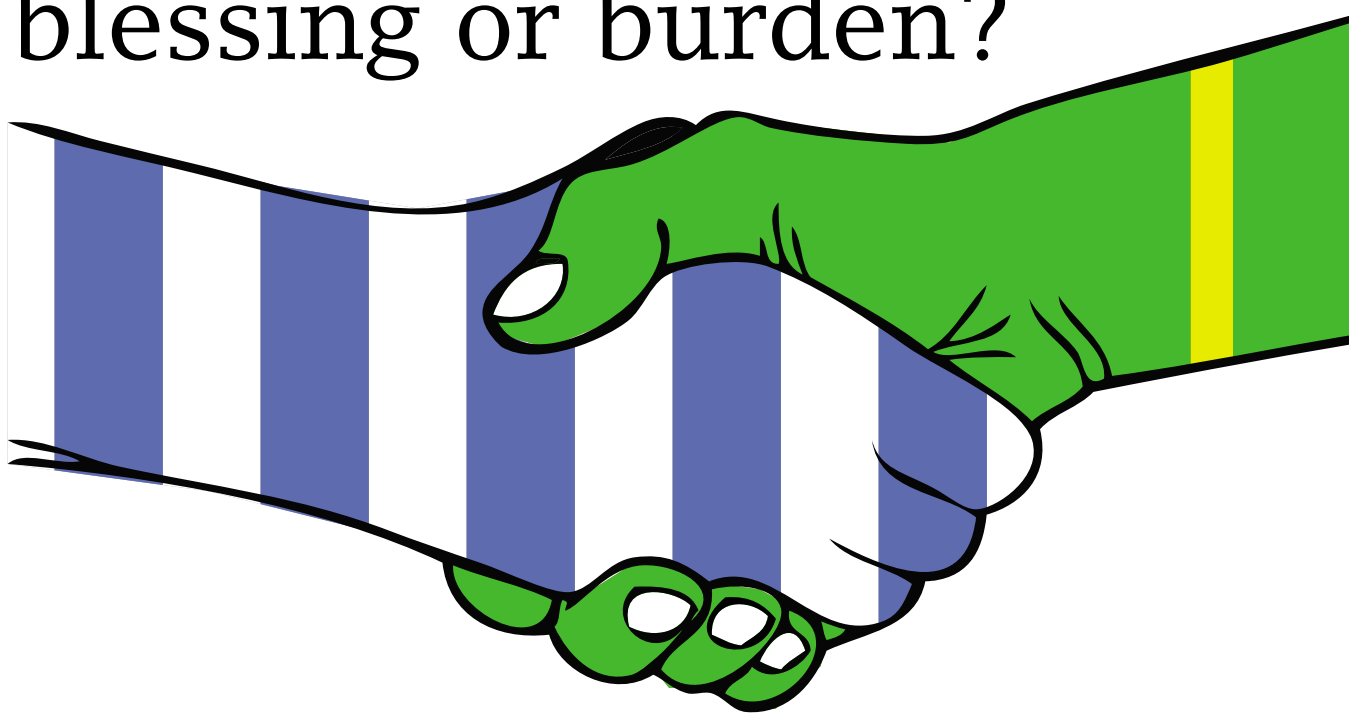
Our empirical evidence seems to confirm this. Having controlled for other relevant factors, such as total payroll, the proportion of two-footed players in a team does not significantly affect the number of points the team gets at the end of the season. It seems that two-footed players are able to appropriate the rents from their scarce talent.

This article summarises ‘The Returns to Scarce Talent: Footedness and Player Remuneration in European Soccer’ by Alex Bryson, Bernd Frick and Rob Simmons, CEP Discussion Paper No. 948 (<http://cep.lse.ac.uk/pubs/download/dp0948.pdf>).

Alex Bryson of the National Institute of Economic and Social Research is a visiting research fellow in CEP’s labour markets programme. **Bernd Frick** is at the University of Paderborn. **Rob Simmons** is at Lancaster University Management School.

There has been a proliferation of regional trade agreements around the world since the early 1990s. In a survey of the latest theoretical and empirical research on regionalism, **Caroline Freund** and **Emanuel Ornelas** ask whether we should celebrate or be concerned about this trend.

Regional trade agreements: blessing or burden?



In December 2009, a Ministerial meeting was concluded at the World Trade Organisation (WTO). The headlines typically read something like 'Ministers reaffirm the need and their desire to conclude the Doha Round by the end of next year'. For many observers, this was a case of *déjà vu*: since the current round of multilateral trade negotiations began in 2001, there have been numerous promises that it would be concluded in the 'near term'

Regionalism has become and will probably remain the preferred form of reciprocal liberalisation for most countries

and time and again, those expectations have been frustrated.

The main concern with the seemingly endless delay in achieving a new agreement is that such a failure could

lead to a protectionist backlash. Like riding a bike, the argument goes, if you don't move forward, you fall over.

Fears of a retreat to protectionism became particularly intense after the onset of the financial crisis – if the road gets bumpier, then you really have to push forward to avoid falling. As it turns out, there has been only a very limited retreat towards protectionism, even though the WTO bike has not been moving forward.

Still, even if the lack of progress in multilateral talks does not imply a retreat, many observers remain worried. After all, if there are gains to be shared with further liberalisation, we should make sure we don't waste the opportunity.

While this view is correct, it must be noted that lack of progress in the multilateral arena does not imply that the world is not becoming more integrated. In fact, governments across the globe are as active as ever in negotiating new trade agreements. The difference is that the agreements are not multilateral but 'regional'.

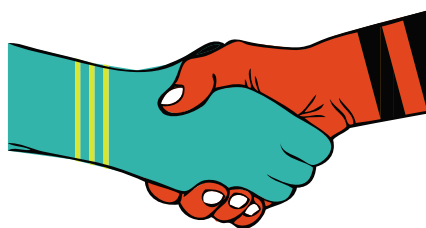
In 2009, for example, 25 new regional trade agreements (RTAs) were notified to the WTO. The agreements include developed as well as developing countries, and involve countries from most parts of the world. In fact, they are not always regional, increasingly encompassing members from different continents.

The new agreements bring the total number of RTAs in force to nearly 300. In the same period, the WTO also received notification of 14 other RTAs that are currently being negotiated or about to enter into force. The WTO estimates that there are around 100 other agreements currently at this stage (WTO, 2009).

Should we celebrate the expansion of RTAs, or should we be concerned with this trend, which seems to be only accelerating since it took off in the early 1990s? In a survey of the theoretical and empirical literature on regionalism, we conclude that although countries should approach regionalism with care, to date RTAs have been more of a blessing than a burden for the multilateral trading system.

Assessing the impact of RTAs

To understand the impact of RTAs, it is important first to recognise that they are intrinsically different from both multilateral liberalisation (under the aegis of the WTO) and unilateral liberalisation. In both of those cases, countries lower trade barriers on all sources of imports of a good by exactly the same extent.



To date,
regionalism has
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trading system



In contrast, under an RTA, tariffs fall on imports from the other members of the agreement, but they need not change on imports from non-members. As a result, RTAs imply both trade liberalisation and trade discrimination. Whereas there is a near-consensus among economists that the former is desirable, that is not true for the latter.

Trade liberalisation within a trading bloc tends to be beneficial when it promotes a shift of resources from inefficient domestic suppliers to more efficient producers within the region. Economists call this phenomenon 'trade creation'.

Conversely, a trading bloc is likely to be harmful if it generates a shift of resources from efficient external producers to inefficient producers within the region. This is a consequence of trade discrimination, which economists call 'trade diversion'.

In principle, either trade creation or trade diversion can prevail within an RTA. There are theoretical arguments that support the primacy of each effect under similar circumstances. Thus, in the end, which effect dominates is an empirical matter.

Unfortunately, estimating trade creation and trade diversion is no easy task. It requires knowledge of the counterfactual: what would have happened to trade if there were no trade agreement? As this is unknown, assumptions must be made.

A variety of approaches have been employed. While results inevitably vary depending on the methodology employed (as well as the time period, the trading bloc in question and the level of aggregation in the data), at least two general messages arise from the large set of studies investigating trade creation and trade diversion in RTAs around the world:

- First, trade creation tends to be the norm in RTAs – and trade diversion is the exception.
- Second, when trade diversion is observed, its magnitudes are normally relatively small.

Trade creation versus trade diversion

Why is there such a dominance of trade creation over trade diversion? The answer is in two parts. First, governments seem to be choosing their RTA partners well. For example, variables that suggest greater gains from a bilateral RTA (such as proximity between the members, a similarity in their GDPs and a large difference in their factor endowments) are also sharp predictors of whether the two countries actually have a common RTA (Baier and Bergstrand, 2004).

Second, when countries form an RTA, their governments not only lower tariffs vis-à-vis their RTA partners, as they are supposed to do; they also bring down the trade barriers on imports from countries outside the bloc. This is not part of the agreement, so governments liberalise externally because they choose to do so – and without any type of reciprocity from the favoured non-members of the bloc.

There is increasing evidence of external trade liberalisation following an RTA, especially in developing countries. (See, for example, Estevadeordal et al, 2008, for an analysis of how Latin American countries changed their import tariffs on non-members after forming or expanding their trade ties during the 1990s.) The lower external tariffs provide a double blessing: they imply that RTAs are responsible for more trade liberalisation than they mandate (amplifying trade creation) and for less trade discrimination than might be expected (limiting trade diversion).

At first, it may seem odd that governments, pressured by special interests as they are virtually everywhere, would voluntarily lower their external tariffs without any compensation from the favoured countries. But it does make sense.

Suppose that domestic special interest groups pressure the government and induce it to set relatively high tariffs, which allow the domestic industry to maintain high prices and enjoy a large market share. If subsequently the country enters into a RTA, export-oriented firms



Regional trade agreements generally seem to amplify trade creation and limit trade diversion



benefit (and support the agreement) because of the better access to foreign markets, whereas purely domestic firms suffer from the tougher competition from the RTA partners.

But this also weakens the domestic firms' stance on protection against non-members. The reason is that the free access to the domestic market enjoyed by the partners' exporters under the RTA lowers the market share of the domestic industry. As a result, the RTA makes any price increase generated by a higher tariff less valuable for the domestic industry: now whenever the government attempts to help domestic producers through higher external tariffs, the partners' producers absorb part of that surplus.

In other words, the RTA creates 'leakage' in the trade policy redistributive channel. External protection also becomes more costly, because of the trade diversion that accompanies the RTA. As a result, external tariffs tend to fall after the formation of an RTA both because the economic marginal cost of external protection rises and because the political-economy marginal gain from external protection falls.

For developing countries, empirical research supports this rationale because trade preferences tend to lead to lower external tariffs. Results for the United States and the European Union (EU), however, indicate that they are less likely to reduce external tariffs on goods where preferences are offered (see Limao, 2006). But since the tariffs of both the United States and the EU are very low to start with, and cannot be raised because of their WTO commitments, there is not much room for change anyway.

Are RTAs welcome?

The benign view that trade creation dominates trade diversion does not imply that RTAs are necessarily welcome. In fact, some commentators argue that the multilateral negotiations at the WTO are stuck because RTAs are spreading. Their basic argument suggests that governments' resources are scarce, so if officials are busy negotiating bilateral

agreements, they will be unable to focus on more evolving multilateral negotiations.

Others put forward more elaborate arguments. For example, it is possible that RTAs may create rents to some groups. Once well entrenched, these groups may be able to block further liberalisation initiatives that would destroy such rents.

On the other hand, there are arguments indicating that the opposite may be true. A simple one is that negotiating RTAs helps officials to develop the expertise and the frameworks to implement international trade agreements, and these could be useful at subsequent WTO negotiations. Moreover, RTAs also destroy rents in parts of

relevant) from bad (empirically inconsequential) theories.

Hence, to the extent that we can measure, the increasing wave of regionalism has been largely beneficial to the world trading system. Most empirical analyses indicate that trade creation, not trade diversion, is the norm, both because governments choose well when forming RTAs and because they adjust other trade policies to moderate the distortions from discrimination.

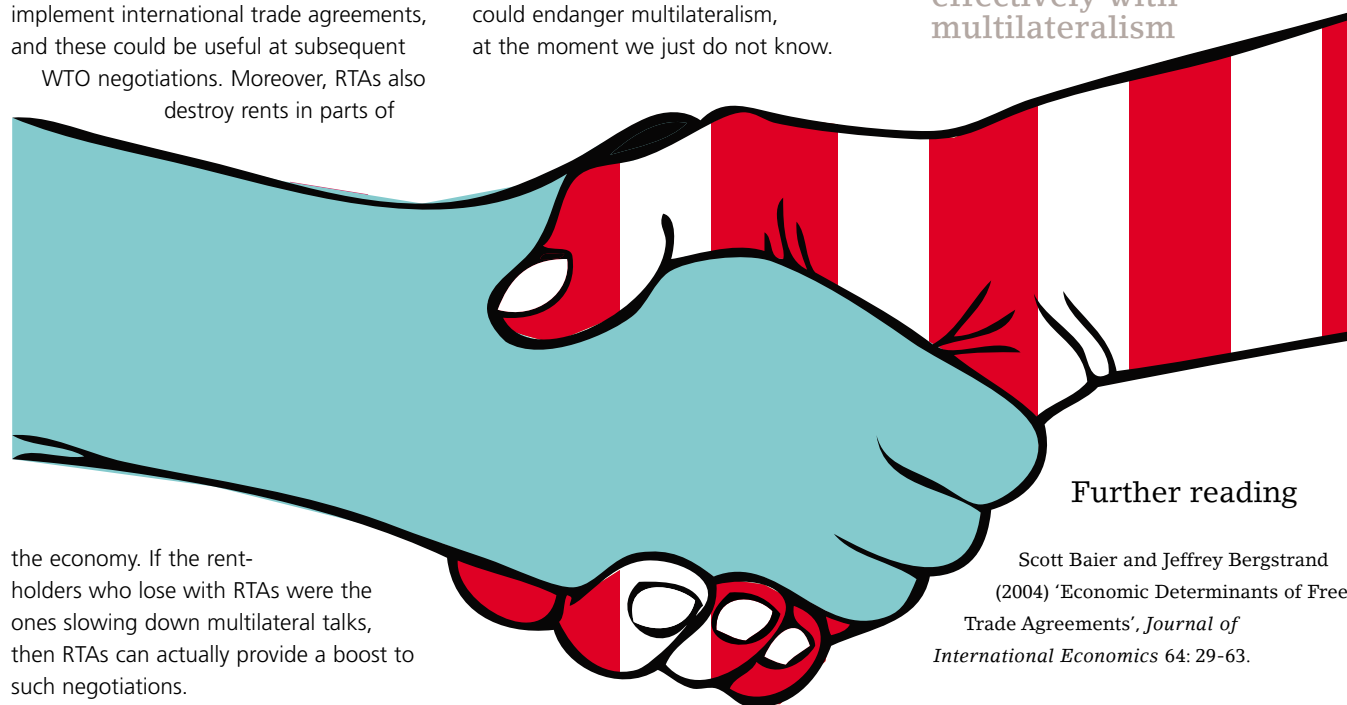
Although it is possible that regionalism could endanger multilateralism, at the moment we just do not know.

This article summarises 'Regional Trade Agreements' by Caroline Freund and Emanuel Ornelas, CEP Discussion Paper No. 961 (<http://cep.lse.ac.uk/pubs/download/dp0961.pdf>) and forthcoming in the *Annual Review of Economics* 2: 139-67 (September 2010).

Caroline Freund is at the World Bank.

Emanuel Ornelas is a reader in LSE's management department and a research associate in CEP's globalisation programme.

With regionalism here to stay, economists should focus on ways of integrating it more effectively with multilateralism



the economy. If the rent-holders who lose with RTAs were the ones slowing down multilateral talks, then RTAs can actually provide a boost to such negotiations.

These and related arguments constitute an intellectually engaging debate, but which of them dominate? When faced with opposing theoretical results, the solution is typically to scrutinise the divergent predictions empirically. The problem here is that the nature of the question – whether regionalism helps or hinders multilateralism – does not lend itself easily to testing.

Simply put, at any point in time we observe a single realisation of WTO negotiations. Would they have been any faster, or easier, had there been fewer (or more) RTAs? This is a very difficult question. Consequently, to date empirical scrutiny has not been able to help us distinguish good (that is, empirically

Since regionalism has become and will probably remain the preferred form of reciprocal liberalisation for most countries, no matter what we economists say, henceforth we should focus on ways to integrate regionalism with multilateralism more effectively.

Further reading

Scott Baier and Jeffrey Bergstrand (2004) 'Economic Determinants of Free Trade Agreements', *Journal of International Economics* 64: 29-63.

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in brief...

Men in black: the impact of new contracts on football referees' performance

In the 2001/02 English football season, referees of Premier League matches were paid a salary for the first time. **Alex Bryson** and colleagues investigate the impact on their performance.

Until the introduction of salary contracts in the early 2000s, all referees in English professional football were paid a match fee for each game they officiated. The change was introduced to 'professionalise' the top tier of refereeing.

The new contracts offered greater income security to referees. Under the match fee system, referees could be dropped from the list of officials immediately following a poor performance, whereas the salary contracts were initially renewable after two years (and subsequently renewable annually).

The salaries also offered considerably more money than match fees. In return, salaried referees were required to attend fortnightly off-the-job training sessions to improve their fitness and ability to make the right decisions on the pitch.

The introduction of salary contracts was motivated by the huge growth in revenues resulting from lucrative television deals and by the increasing scrutiny of referees' decisions in the media and among fans. The employer – the Professional Game Match Officials Board – was intent on driving up standards through salary contracts.

Economic theory suggests that the employer could be doing the right thing. A classic review of research on incentives and worker performance notes that when a worker is paid a salary, 'despite the fact that there is no immediate relation between pay and performance, he is

likely to have incentives to exert effort because good performance will improve future contracts. Such reputational concerns imply that effort exertion can occur without explicit pay-for-performance contracts' (Prendergast, 1999).

The introduction of high paying contracts could also have a second impact, attracting better quality workers. Theory suggests that the result will be some 'sorting' of workers, in which better ones seek out the salary contracts and less able workers remain on match fees or leave the occupation entirely.

Our research takes advantage of the fact that when salary contracts were introduced, referees officiating in the Championship – the second tier of English professional football – continued to be paid match fees. This gives us a 'natural experiment', in which some workers move to salary contracts and others continue to be paid under the old system.

By comparing the relative performance of referees in the Premier League and Championship in the pre-salary period with their relative performance in the post-salary period (a method known as difference-in-differences), we can estimate the impact of the salary contracts.

This approach would be problematic if Premier League referees remained in the top tier throughout and thus obtained salaries, while Championship officials remained

The number of
yellow and red
cards referees
issue in a game is
a good measure of
their performance



on match fees in the second tier throughout. But this is not what happened. All referees in both divisions became eligible for the new contracts, and some referees officiated in both divisions at various points.

There are two other concerns that might affect our ability to draw inferences about the impact of salaries on referees' performance. The first is the possibility that other changes occurred at the same time as the switch to salaries, which may have had different effects on the performance of referees in the Premier League compared with the Championship. But our analysis suggests that this is not the case.

The second concern is that the employer offered the salary contracts to the most able referees so that the contract is simply an indicator of a more able referee. We are able to deal with this problem by controlling for referee 'fixed effects'.

Our data are virtually all the matches played in the top two divisions of English football in the 12 seasons between 1997/98 and 2008/09 (we have data for 11,169 of the 11,184 matches). They include all 168 referees officiating at these games over the period. Our measure of referees' performance is the number of yellow and red cards that they issue in a game.

Yellow cards are issued as a warning to a player when he has broken the rules, either by fouling an opponent, handling the ball or for showing dissent. A red card is shown if the player commits a second offence worthy of a yellow card. Red cards can also be shown for a particularly egregious first offence, such as violent conduct or a foul that directly prevents a goal-scoring opportunity. Red cards lead to the player being sent off and suspended from subsequent games.

Issuing many cards is often a sign that the referee has lost control of the game. Good referees are able to deal with most incidents without brandishing cards by communicating firmly with players from the outset. Indeed, there is anecdotal evidence that Premier League

officials hoped that the introduction of salary contracts would improve communication between referees and players. Other studies have shown a high negative correlation between the number of cards awarded and subjective assessments of referees' performance by expert panels (Frick et al, 2008).

We find improvements in the performance of referees among those who moved onto salary contracts relative to those who do not. The salaried referees issued an average of half a card less per game. This is a reduction of around one sixth since, on average in our data, referees show three cards per game.

The finding is robust to controls for referee fixed effects, which indicates that the result is not driven by salary contracts being awarded to better referees, although this does account for part of the effect. Nor is it sensitive to workers sorting into or out of the profession. Thus it appears that one can improve officiating at football games by using good personnel economics.

This article summarises 'Do Salaried Workers Perform Better than Piece Rate Workers?' by Alex Bryson, Babatunde Buraimo and Rob Simmons, a forthcoming CEP Discussion Paper.

Alex Bryson of the National Institute of Economic and Social Research is a visiting research fellow in CEP's labour markets programme. **Babatunde Buraimo** is at the University of Central Lancashire. **Rob Simmons** is at Lancaster University Management School.

Further reading

Bernd Frick, Oliver Gürtler and Joachim Prinz (2008) 'Men in Black: Monitoring and Performance of German Soccer Referees', in Helmut Dietl et al (eds) *Soccer: Economics of a Passion*, Hofmann.

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Performance improved among salaried referees: on average, they issued half a card less per game



Smoking bans have been widely introduced in recent years in an effort to reduce non-smokers' exposure to tobacco smoke. **Jérôme Adda** and **Francesca Cornaglia** evaluate the effect of these restrictions – and of taxes on cigarettes – on the incidence of passive smoking and, in particular, their unintended consequences for children.

Passive smoking: the effect of bans and taxes

A substantial body of medical research has demonstrated the dangers of exposure to environmental tobacco smoke. Passive smoking has been linked to a number of serious illnesses, such as lung cancer and heart disease in adults. And it particularly affects the health of young children and babies, causing asthma, bronchitis and sudden infant death syndrome. In the United States, the Environmental Protection Agency estimates that exposure to smoke causes about 200,000 lower respiratory tract infections in young children each year, resulting in 10,000 hospitalisations.

Public intervention uses two instruments to try to discourage smoking: directly, by limiting or banning smoking in public places; and indirectly, by raising taxes on cigarettes. Economic evaluations of the impact of these policies have mainly focused on the latter. For example, our research has shown that taxes reduce the number of cigarettes smoked, but smokers compensate by smoking each cigarette more intensively (Adda and Cornaglia, 2006).

Few studies have considered the effect of bans, and those that do focus on the impact on smokers. One example shows

that workplace bans decrease the prevalence of smoking among those who work (Evans et al, 1999). But there is hardly any evidence on the effectiveness of either raising taxes or restricting smoking in reducing exposure to tobacco smoke among non-smokers.

Public debate on the effectiveness of different measures has intensified, and policies to ban smoking are often justified on the grounds of protecting non-smokers rather than smokers. But there is to our knowledge no study evaluating the response of passive smoking to the growing set of regulations and clean air legislation passed in the last decade or to changes in excise taxes.

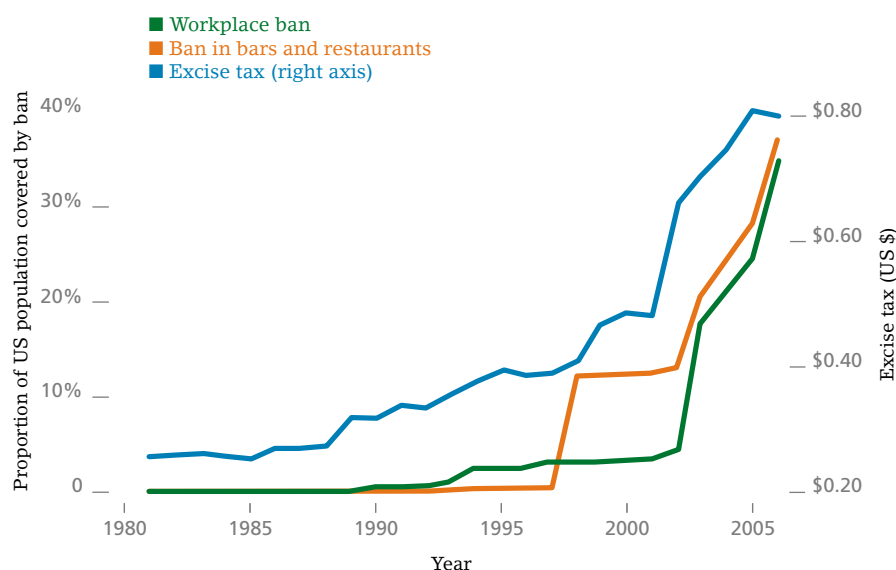
The emergence of smoking bans

Just as in the UK, widespread smoking bans and smoking restrictions are a relatively novel phenomenon in the United States. Some attempts to ban smoking and the sale of cigarettes were made during Prohibition in the 1920s, when 15 states banned cigarette sales. But these laws were repealed by the end of that decade.

Half a century later, as research progressively made clear the effect of tobacco smoke, support for smoking bans



Figure 1:
Bans and excise taxes by year (US average)



in public places has steadily risen. The proportion of individuals supporting a total ban in restaurants increased from 20% in 1985 to 54% in 2005. And local authorities and governments have come under pressure from anti-tobacco groups and the general public to limit the exposure of non-smokers and generally to discourage smoking.

The first smoking bans to be introduced in the United States were in place in Minnesota in the mid-1970s. They required restaurants to have a non-smoking section, while exempting bars. During the 1970s and the 1980s, smoking bans were progressively imposed, usually by requiring separate areas for smokers and non-smokers, as in airlines in 1973.

During the 1990s, US smoking bans became more stringent, with the imposition of total bans in workplaces, public places, restaurants and bars. These were pioneered by municipalities and counties, mainly in California in the early 1990s. The first states to impose such a ban were California and Utah with 100% smoke-free restaurants in 1995.

The impact of bans on passive smokers

Our research uses data on smoking bans obtained from the American Non

Smokers' Rights Foundation, which collected the date of introduction of smoking bans and whether these were introduced at city, county or state level. We merge these data with information on state level excise taxes. Figure 1 plots the time trend of these policies at the national level.

Excise taxes have risen from around 30 cents per pack in the late 1980s to more than 80 cents in 2006, with a sharp rise from 2001 onwards. Hardly any bans were in place before the mid-1990s. But in 2006, about 40% of the population was living in an area with a smoking ban in workplaces or with smoking bans in bars and restaurants.

We have a direct measure of passive smoking, which has not previously been used in economic research. The concentration of cotinine (a chemical naturally derived from nicotine) in blood, saliva or urine samples is a good marker of exposure to environmental smoke (Jarvis et al, 2000). Using this indicator, we can evaluate the effect of bans and taxes on smokers and non-smokers and, in particular, their unintended consequences for children.

Analysing the effect of smoking regulation on smoking, time use and passive smoking, we show that smoking

Children who share a house with smokers suffer particularly adversely from smoking bans

bans can have two distinct effects on non-smokers' exposure to tobacco smoke: they decrease exposure in public places but can lead to a perverse increase in exposure by displacing smoking towards private areas.

We find that during the last two decades, bans in workplaces, bars and restaurants have led to a relative *increase* in the exposure of non-smokers, particularly those who share a household with smokers.

We hypothesise that such bans displace smoking to places where non-smokers are more exposed. To support these findings, we provide evidence of the

Smoking bans in workplaces, bars and restaurants have led to a relative increase in the exposure of non-smokers

effect of bans on smoking behaviour and how individuals spend their time in various locations.

We show that there is no clear evidence that smoking bans have a causal effect either on the prevalence of smoking or on smoking cessation and attempted quits. Using time use data, we show evidence of a displacement of smokers away from bars and restaurants when smoke-free laws are passed. The evidence therefore supports the hypothesis of a displacement of smokers to places shared with non-smokers, such as watching TV with the children, who then get more exposure to tobacco smoke.

In contrast, we find that changes in tobacco taxes have a significant effect of reducing exposure to environmental smoke. The effect is particularly sizable for children who are exposed to their parents' smoke. This suggests that excise taxes are an efficient tool to curb passive smoking as smokers cut down on cigarettes smoked in the company of non-smokers, especially children.

The value of bans for reducing passive smoking

Our results question the usefulness of bans in reducing smoking exposure for non-smokers. More precisely, we show that policies aimed at reducing exposure to tobacco smoke induce changes in behaviour, which can offset these policies.

It is therefore of crucial importance to understand how smoking behaviour is affected by regulations. To date, economic research has not gone far enough in studying smoking behaviour to be able to evaluate their effect on non-smokers. It is not enough to show that smokers react to prices or taxes. Information on which particular cigarette is cut down during the day, where smokers smoke and with whom are also relevant.

There are complex interactions at play and considerable variation in their effects across socio-economic groups. Using a biomarker such as cotinine concentrations is a very direct way of evaluating the overall effect of interventions and the induced changes in behaviour.

On the policy side, it is clearly important when designing public policies aimed at reducing tobacco exposure of non-smokers to distinguish between the different public places where bans are introduced. Displacing smoking towards

places where non-smokers spend time is particularly inefficient.

The displacement may also increase health disparities across socio-economic groups and in particular among children, a vulnerable group with little choice to avoid contamination. Children are particularly prone to tobacco-related diseases, and poor health in childhood has lasting consequences not only for future health but also for the accumulation of human capital.

Governments in many countries are under pressure to limit passive smoking. Some pressure groups can be very vocal about these issues and suggest bold and radical reforms. Their point of view is laudable but too simplistic in the sense that they do not take account of how public policies can generate perverse incentives and effects. Our study provides insights on how to design optimal policies to curb passive smoking.

This article summarises 'The Effect of Bans and Taxes on Passive Smoking' by Jérôme Adda and Francesca Cornaglia, CEP Discussion Paper No. 950 (<http://cep.lse.ac.uk/pubs/download/dp0950.pdf>).

Jérôme Adda is at the European University Institute, Florence, and the Institute for Fiscal Studies. **Francesca Cornaglia** is a research associate in CEP's labour markets and wellbeing programmes and a lecturer at Queen Mary University of London.

Further reading

Jérôme Adda and Francesca Cornaglia (2006) 'Taxes, Cigarette Consumption and Smoking Intensity', *American Economic Review* 96(4): 1013-28.

William Evans, Matthew Farrelly and Edward Montgomery (1999) 'Do Workplace Smoking Bans Reduce Smoking?', *American Economic Review* 89(4): 728-47.

Martin Jarvis et al (2000) 'Children's Exposure to Passive Smoking in England since the 1980s: Cotinine Evidence from Population Surveys', *British Medical Journal* 321: 343-45.



Excise taxes
lead smokers to
cut down
smoking in the
company of
non-smokers,
especially
children

in brief...

The educational background of postgrad students

Has the boom in postgraduate courses in the UK over recent years had a negative impact on intergenerational mobility? Research by **Stephen Machin** and **Richard Murphy** suggests that there is a small but significant imbalance in favour of undergraduates who have been privately educated.

Students who went to independent schools are more likely to study for a postgraduate degree than students who went to state schools, according to our research, which has been commissioned by the Sutton Trust. This is despite the fact that students from state schools of the same class and background are more likely to get a good university degree than similar students who come from independent schools.

Our study, which is feeding into the government's review of postgraduate education, finds that the number of postgraduates studying in the UK increased by 48% from 129,700 in 1995 to 248,400 in 2008. Over the same period, the proportion of postgraduates from overseas has increased from 30% to 55%. Full- and part-time postgraduates pay at least £2.75 billion in university fees a year.

One in six (17%) of those studying six months after graduation were educated privately as compared with 14% of undergraduate students and 7% of school pupils. Nearly a third (30%) were from higher managerial or professional families as compared with 27% of undergraduates and 13% of the population as a whole.

More than two thirds (68%) of independent school educated university students obtained a first or upper second class degree (the usual requirements for pursuing a postgraduate course) in 2008 compared with 64% of state educated students.

But comparing like-for-like students (those studying the same degree subject and from the same university, ethnic group and family background), those educated at independent schools were 4% less likely to achieve a first or upper second class degree than otherwise similar students educated in state schools.

Our survey also finds that postgraduates with a masters

degree earn on average £1.75 million over their lifetimes, while postgraduates who complete a doctorate earn on average £1.9 million – 15% and 23% more respectively than a university graduate with £1.5 million in average lifetime earnings. The average starting salary for a UK postgraduate was £24,000 in 2008 compared with the average starting salary for a UK undergraduate of £19,500.

Comparing students with the same characteristics (and averaging over the years 2004/06/08), those educated in independent schools are 1.2 percentage points more likely to carry on to

postgraduate education than their state-educated counterparts. This difference is small but it is statistically significant. It is also present despite the fact that university students educated at independent schools are slightly less likely to achieve a first or upper second class degree than otherwise similar students educated in state schools.

We also find that three quarters (76%) of independent school pupils who went to university (in the years 2004-08), graduated from a leading research university, compared with four in ten (39%) state school pupils who went to university.



One in every six postgraduate students went to an independent school

This article summarises 'The Social Composition and Future Earnings of Postgraduates', the interim report of a research project commissioned by the Sutton Trust and being undertaken by Stephen Machin and Richard Murphy (www.suttontrust.com/reports/Sutton_Trust_Postgraduate_report_01032010.pdf).

Stephen Machin is CEP's research director and professor of economics at University College London. **Richard Murphy** is a research economist in CEP's education and skills programme.

The recession of 2008-09 inflicted a larger cumulative loss of UK output than any of the previous post-war recessions, yet there has been a relatively low loss of employment, at least so far. **Paul Gregg** and **Jonathan Wadsworth** look for an explanation.



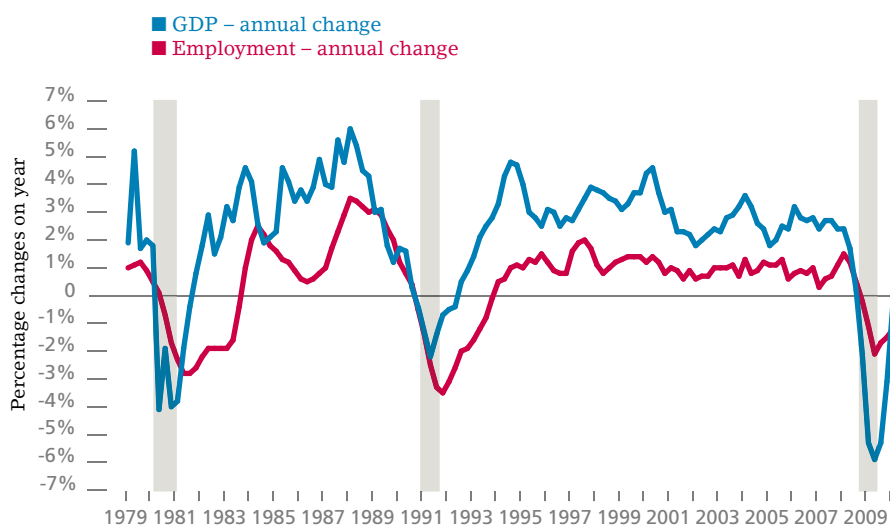
Jobs in the recession

After 15 years of near continuous job growth, the UK's employment rate in the middle of 2008 stood at around 75% of the working age population, a rate broadly in line with previous employment peaks in 1968, 1978 and 1989. The UK had also experienced 12 years of near continuous decline in unemployment after 1993, following the double digit rates of the early 1980s and the early 1990s.

Despite the predictions of some, the introduction of the minimum wage in 1999 appears to have had little effect on employment over the last decade. In 2005, the unemployment rate fell below 5% for the first time since the 1970s and hovered around this rate for the next three years. Then in 2008, the UK entered what was to be its worst recession since the Second World War in terms of lost output.

During the latest recession, GDP fell by

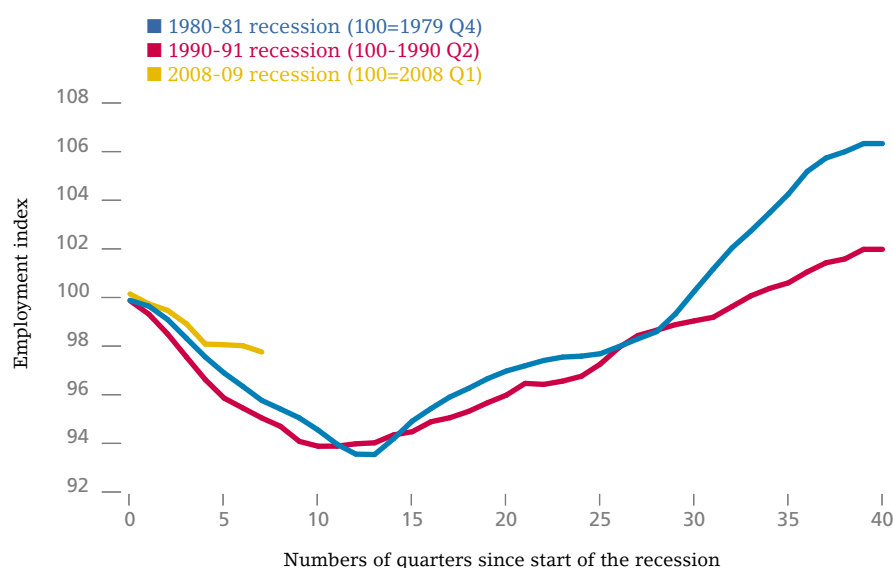
Figure 1:
Annual change in UK employment and GDP,
1979-2009



Source: Labour Force Survey, Office for National Statistics.

Figure 2:

Employment levels from the start of the recession for the 1980s, 1990s and 2008-09 recessions



Source: Office for National Statistics.

Index at start of recession = 100 for 1979 Q4, 1990 Q2 and 2008 Q1 respectively.

over 6%, which is worse than in the recessions of the 1980s or 1990s (see Figure 1). What's more, with six quarters of falling output, this recession was both longer and deeper than the previous two. In the 1980s recession, the percentage decline in employment was broadly in line with the percentage fall in GDP. In the 1990s recession, the relative fall in the employment rate was somewhat larger than the percentage decline in GDP.

Moreover, in the previous two recessions, the fall in employment was only halted 12 to 14 quarters after the onset of recession (see Figure 2). Employment then also remained below its pre-recession levels for 18 months or so after the recovery in output started. Typically GDP growth of 2% or higher seems to be needed before employment starts to rise again (or unemployment starts to fall).

But the latest recession was strikingly different. While the fall in GDP was markedly worse than in past recessions, the loss of employment was much smaller – roughly 3% of the initial level – and the period over which employment fell was much shorter than in the past.

The number of UK jobs saved so far relative to what might be expected by the drop in GDP amounts to roughly one

million. How has this happened?

The first point to consider is how widespread this pattern has been across countries and whether it is related to their institutional differences.

Table 1 shows that France and Canada

Table 1:

The percentage change in GDP and unemployment across selected countries over the recession

	Percentage change in GDP 2008 Q1-2009 Q2	Percentage point change in unemployment 2008 Q1-2009 Q4
Countries with small unemployment rise relative to fall in GDP		
UK	-5.9%	2.7
Sweden	-6.1%	2.9
Countries with small unemployment rise relative to GDP and with employment subsidies		
Italy	-6.5%	1.8
Germany	-6.3%	-0.1
Netherlands	-5.85%	1.2
Japan	-7.1%	1.3
Countries with similar sized unemployment rise and GDP falls		
France	-3.1%	2.4
Countries with larger unemployment rises than GDP falls		
United States	-3.5%	5.0
Spain	-4.3%	9.7
Ireland	-9.6%	8.2
Countries with little or no GDP fall		
Australia	+1.5%	1.5

This recession represents the first serious test of the UK's active labour market policies



have escaped relatively lightly from the recession with around a 3% fall in GDP and a similar rise in unemployment, in line with past norms. In the United States, Spain and Ireland, the rise in unemployment exceeded the fall in output.

But there are a large number of countries with smaller than expected employment falls. Some of them adopted a deliberate strategy to encourage short-time working rather than lose jobs. In Germany, the government has supported a policy of short-time working, and similar employment subsidy schemes are operating in Italy, the Netherlands and

Japan. The UK is one of a smaller number of countries to have experienced relatively small employment losses without a deliberate government-funded strategy of fewer working hours.

Does this mean that employment in the UK has benefited from its putative flexible labour market? The evidence does not support this view. The countries with low employment loss are not those regarded as having flexible labour markets. The United States is held to be the prime example of the flexible model and Ireland is also a relatively less regulated country, and both countries experienced large falls in employment. Spain has strong labour protection but also has a large share of temporary jobs, which are weakly protected and have proved to be vulnerable in the downturn.

In contrast, Sweden, Italy, Germany and the Netherlands have relatively high levels of employment protection and relatively good employment records over the recession. In short, there appears to be little relationship between a country's supposed degree of labour market flexibility and employment losses in this recession.

So what explains the UK outcome? It seems that the answer consists of several elements. First, policy-makers were better prepared this time round. After all, there had been two severe recessions well within the memory of most adults over the age of 30. The understandings that were gained undoubtedly helped frame a policy response in the latest downturn, allied with a greater willingness to intervene than in the past.

This recession was notable in that, unlike the previous two recessions, it was not exacerbated by a deliberate policy of fiscal and monetary tightening to squeeze demand out of the system to get inflation down. Instead, unemployment rose because of an old-fashioned collapse in demand following the bursting of a financial bubble.

Moreover, this time round there has been a deliberate larger and more rapid loosening of fiscal and monetary policy to try to offset the fall in demand. Policy-makers did the right thing in saving the banks, cutting interest rates and inducing fiscal and monetary stimuli, which have all helped to maintain demand and firms' cash flow.

Workers also did the right thing in



There is no relationship between a country's degree of labour market flexibility and employment losses in this recession

accepting lower nominal wage growth which kept firms' costs down and reduced the need to cut costs through layoffs. At the same time, real take-home pay was sustained by cuts in interest rates and VAT and this may have maintained consumer demand. And firms did the right thing in, wherever possible, holding onto valuable labour in the face of the pressure on profits and the severe nature of the crisis.

Employers entered the recession in good financial shape and this has also helped avoid the level of job shedding that occurs when firms get into deep financial trouble. But the recession means that firms have under-used labour at the moment and this will allow them to grow without the need to hire much in the short to medium term. And if demand continues to be weak, then job shedding is likely to continue on a slow but sustained basis.

This recession represents the first serious test of the active labour market policies that have been put in place since 1996. Increased conditionality on welfare claimants to take active steps to secure work, packages of support services for job search available to those claiming benefits and use of outside providers to deliver

these services rather than Job Centres are all innovations aimed at keeping individuals in the labour market and maintaining search effectiveness.

Reforms that increased the financial returns to working relative to not working – the minimum wage and in-work tax credits – should also help continue to make work pay through a downturn, when job prospects may not be as good as when the economy is doing well.

The signs are that unemployment also has not risen as much as many expected. This is to be welcomed, though the ability of the new policies to withstand a build up of long-term unemployment that has in the past followed in the wake of a recession is still to be tested.

The cost has been huge for the public finances and in terms of productivity and this will affect cost competitiveness going forward. There are also serious jobless concentrations among more marginal groups that 15 years of sustained growth did little to remedy. For some groups, there has been a ratchet upwards in joblessness from the 1980s onwards and this will need to be addressed when the economy recovers.

Yet overall, it seems that the labour market has performed better than expected. Whether this generally good news will be sustained as the focus shifts to cuts in public spending and employers begin to assess their longer-term employment needs is less clear. Employment took eight to nine years to get back to pre-recession levels after the last two recessions. This time it might be less if a second wave of job shedding is avoided.

This article summarises 'The UK Labour Market and the 2008-2009 Recession' by Paul Gregg and Jonathan Wadsworth, CEP Discussion Paper No. 950 (<http://cep.lse.ac.uk/pubs/download/occasional/op025.pdf>). An extended version of the paper will appear in *The Labour Market in Winter: The State of Working Britain*, a book to be published by Oxford University Press later this year.

Paul Gregg is a professor of economics at the Centre for Market and Public Organisation at the University of Bristol. **Jonathan Wadsworth** is a professor of economics at Royal Holloway, University of London. Both are senior research fellows in CEP's labour markets programme.

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FORTHCOMING PUBLICATION

CEP is pleased to announce
the latest volume in
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The third volume of the series – *The Labour Market in Winter: The State of Working Britain 2010* edited by Paul Gregg and Jonathan Wadsworth – will be published in November 2010 by Oxford University Press.

The latest volume provides an overview of key issues concerning the performance of the labour market and policy, with the focus this time around on the latest recession and its aftermath. The intention is to be an indispensable reference source on contemporary labour market developments in the UK, which will be of lasting use to academics, students, practitioners and policy-makers.

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- Employment and unemployment trends in the downturn
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Details of the previous volumes – *The State of Working Britain* edited by Paul Gregg and Jonathan Wadsworth and *The Labour Market Under New Labour: The State of Working Britain* edited by Richard Dickens, Paul Gregg and Jonathan Wadsworth can be found at:

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