insight.

Edinburgh University Economics Magazine

THE UNIVERSITY OF EDINBURGH

issue 9 - INDEPENDENCE - winter 2014

The generation game

Ben Cassidy discusses why the elderly may have voted so decisively against independence

page 6

Iraqi Kurdistan's draining problem

Michal Shimonovich explores the consequences of inadequate water supply in Kurdistan's independence aspirations

page 12

Failure to launch

The winner of the Insight Writing Prize, Andrea Schmidtová, explores the boomerang generation and the independence of young adults

page 32

Table of contents:

Ununited Kingdom?

The anxiety of independence
Clara Mascaró
page 4

The generation game
Ben Cassidy
page 6

Living in London's shadow
Harriet Johns
page 7

The economic dividend of fiscal devolution
Andrew Peacock
page 8

seeking sovereignty

Is Spain's patchwork nation set to disintegrate
Max Leslie
page 10

Iraqi Kurdistan's draining problem
Michal Shimonovich
page 12

Lessons from Quebec's "Neverendum"
David Peat
page 14

bright ideas

The Isle of Man: the next gold mine of renewable energy?
Victoria Barthelmess
page 16

The carbon market: slow salvation or false hope?
Abhimanyu Bhargava
page 18

opposing opinions

End of the rule of central banks
William Lindsay
page 20

Independent central bank - good economics!
Riona MacLachlan
page 21

Microcredit: Not quite the solution we had hoped for
Melissa Parlour
page 22

Microfinance: fighting the battle against aid dependency
Emily Rodgers
page 23

50 shades of sanctions
Madara Rudzite
page 24

a macro perspective

A currency union without a cause?
Angus Phimister
page 26

To pay or not to pay
Ruzin Saleem
page 28

a micro perspective

Blessing or burden?
Olivia Nyikos
page 30

Educational reform
Oskar Birol
page 31

Failure to launch
Andrea Schmidtová
page 32

What does an economics degree taste like?
Anna Buchmann
page 34

academic

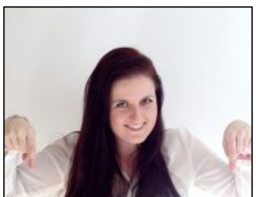
Insight scoop
page 9

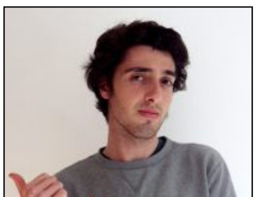
Michèle Belot's insights
Alina Mika
page 29

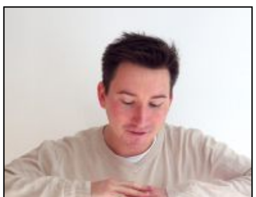
(Un)insightful musings from the Editor-in-Chief

When putting together a magazine about independence, we have come to appreciate that independence is great but fun is more fun when shared. A big thank you to all writers, editors, the Judging Panel, and the pizza delivery guy... What comes before part B?


Alina Mika
Editor-in-Chief

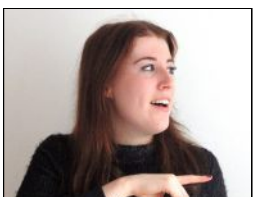

Andrea Schmidtová
Editor and Photo Editor

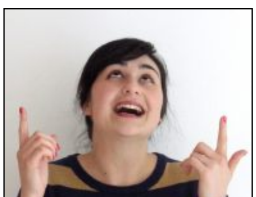

Alex Adler
Editor Extraordinaire

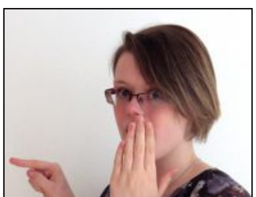

Michael Barr
Editor Extraordinaire


Neha Basu
Editor Extraordinaire


Vainius Glinskis
Editor Extraordinaire


Riona MacLachlan
Editor Extraordinaire


Nadia Napier
Editor Extraordinaire


Emily Rodgers
Editor Extraordinaire

Contact us:
insight.edinburgh@gmail.com

Cover photo:
Dennis Lam Sweden

Special thank you to Christina Napier from the School of Economics

economicssociety
the university of edinburgh


start your career here
Are you bright and ambitious?
Do you relish a challenge?
Do you want to work in a global company that encourages innovation and diversity?
Then consider Citi.
Here at Citi we provide one of the best graduate training programmes in the industry. So whatever your background, you can excel with us!
Whether you're a student in your first or final year, we have a programme for you. Visit our website to learn how to start your career at Citi.
your place is here
/citigradsEMEA
oncampus.citi.com
citi®

The anxiety of independence

Clara Mascaró looks at how the (mis)treatment of uncertainty and risk coloured the independence debate

CRITIQUES OF ORTHODOX economics often point out its inability to take into account "irrational" or emotional aspects of human nature. But the "narrative" of economics and the "facts" that it presents can also feed into these fears and anxieties. The debate prior to the Scottish independence referendum and the use that was made therein of economic data is an example. It showed us that there is a two-way dialogue between economic/statistical facts and fears/anxieties, both on an individual and a collective level. The question of independence, as with many things in life, was bathed in uncertainty about the future. It is in this context that the numerous technical and economic arguments from both sides of the debate were floating, intertwined with ideology and nationalism as well as with feelings of anxiety, fear or hope.

We witnessed a true bombardment of claims and figures about rates of economic growth in an independent Scotland, the implications of independence for employment, the type of economy that would ensue, and whether this would even be viable. There were disagreements over whether an independent Scotland would resemble more a Scandinavian country or Ireland, whether oil would prove to be a fickle friend, or if the new country would be crippled by debt. In this context, many predictions that resembled prophecies were put forward, some more serious and well-informed than others, but all equally assertive.

Slightly dazzled by such a shower of contradictory "facts", it was refreshing to talk to Professor Robert McMaster from Glasgow University and take a step back in order to reflect on how the use of economics in the independence debate embodied a particular attitude towards uncertainty. For him, two things characterised this debate. First, the view of uncertainty as something which is inherently negative, and second; the coupling of uncertainty with fear.

The Laird of Oldham

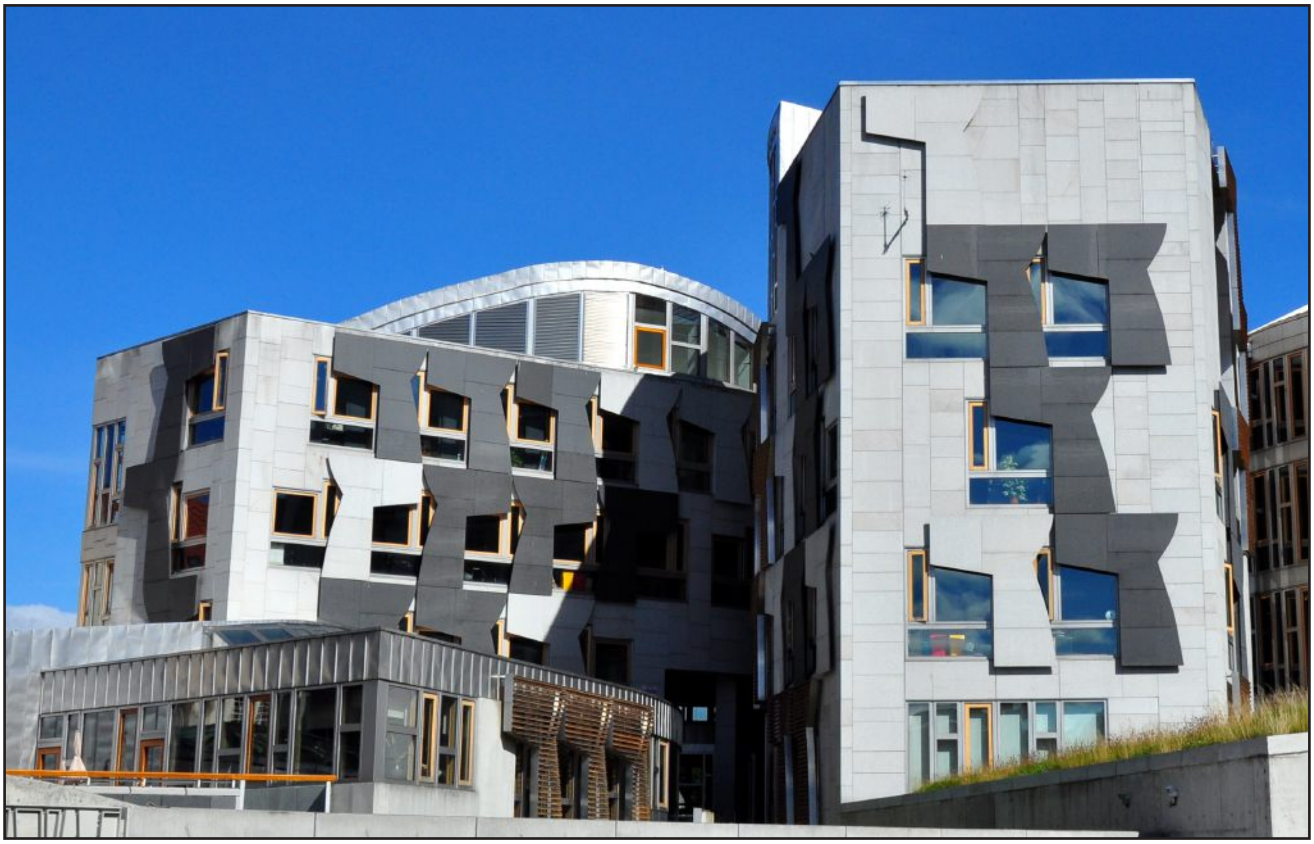
Risk and uncertainty

At this point it may make sense to recall the distinction between uncertainty and risk made by Frank Knight in 1921 and emphasized by Keynes later. While risk is an unknown for which probabilities can be computed, uncertainty is a complete and utter unknown. And while economics has a well-developed body of theory that analyses risk and rational expectations, it struggles to deal adequately with uncertainty, which goes beyond a random path to encompass an infinite number of possible paths that open at any one moment. In the case of the independence debate, what resulted was an attempt from both sides to fill this void (often erroneously called "risk") with a whole battery of "certainties".

This is not to say that there was no place for these questions, naturally. To ignore issues such as the future of the currency, negotiations over EU membership or the splitting up of state assets would have been irresponsible. But a recognition of the essential uncertainty inherent in all of these questions would have allowed the debate to be framed in a different way. For example, given that many of these issues would have been subject to a long period of negotiation, an evaluation of the negotiating power of each side seemed pertinent. Moreover, the terms of the debate sometimes suggested that the British current economic situation could adequately be characterised as "stable" or in equilibrium, which is not exactly true - given a growing housing bubble and falling real wages, amongst other things.

The role of science should be to

xlibber



inform the population and political leaders about the issues faced. However, if the information is only partially true or not well-founded, it might have effects to the contrary. This is what Philip Mirowski referred to as *agnotology*, politically and/or culturally induced doubt or ignorance. As Professor McMaster pointed out, this may have happened to some extent in the Scottish independence debate. With the damnation of uncertainty and the cross-fire of contradictory facts, a large sector of the population was left very confused, and fearful. Of course, much of the blame should fall on the media, which played a key role in simplifying and reproducing any claim that sounded mildly authoritative.

Moving beyond outcomes

If we acknowledge that "an inch ahead lies darkness", questions about processes, rather than simply outcomes, become relevant. These include the principles and norms which we rely upon to guide us through the uncertainty of the future, and which are embodied in institutions. Related to this is the question of how decisions are made and how they are accounted for, and who has power to do what.

There were worries that Scotland's future deficit would lead to austerity measures. Aditya Chakrabortty, for example, wrote: *"forget about devo max; there would be austerity max, thanks to Scotland's budget deficit."* However, there is still debate amongst economists that budget deficits are necessarily terrible. While still constrained by the global economy and public debt markets, an independent Scotland with its own currency could have greater institutional power to pursue expansionary policies if it so decided.

The point is that independence, rather than being about short-term specific policies or combating austerity, implies a true reconfiguration of institutions, norms and principles. It can be characterised as a constitutional moment, a rupture with the present path and the creation of a new institutional framework. This represents not one path, but many possible ones. Which norms and principles would form the new Scottish constitution, and thus steer the country through seas of political and economic uncertainty, would have only been decided upon *after* a yes vote.

There were people who associated this rupture and not-knowing with hope that more "progressive institutions", to use Veblen's notion, would have been created. Indeed, there were many differing visions for an independent Scotland. But these ideas were relegated to a different plane from the "economic" considerations entertained within mainstream media. In most of these debates, institutions seem to have been taken as a given. The result was a debate largely framed in negative terms and which distinguished between the politics and economics of independence, failing to recognise that these go hand in hand.

Ulrich Beck wrote that *"Whereas the utopia of equality contains a wealth of substantial and positive goals of social change, the utopia of the risk society remains peculiarly negative and defensive. Basically, one is no longer concerned with attaining something 'good', but rather with preventing the worst."* The role of science, and economics in particular, should be to inform about risks faced, and also of the opportunities and new paths that uncertainty brings. Economics can and should inspire hope, just as it inspires fear.

RUNNER-UP OF THE INSIGHT WRITING PRIZE - WINTER 2014

The generation game

Ben Cassidy discusses why the elderly may have voted so decisively against independence – and what kind of difference it made

IN THE END, the Indyref didn't prove to be as close as polls and media speculation suggested, with what seemed to be a neck and neck race until polling day on September 18th, resulting in a very comfortable 55% 'No' win. Breaking down this result by age group shows an emphatic support of this result for one group in particular - the 65-plus age band, which saw the vote at 73% against independence.

Pick any academic in the school of social sciences and you'll no doubt get a different rationale for this particular voting pattern. The sociologist may say that the elderly identify strongly with a British cultural identity. A political scientist could highlight the correlation between elderly demographics and Conservative support in the borders. Ask the economist and they would most likely comment on discount rates.

Different Incentives

No, I'm not talking about the 10% off on your haircut. To even the journeyman economics student, the concept of discount rates should be familiar. Individuals present a bias in their preferences towards present consumption over what they can consume in future periods. Whether this be due to impatience, taking into account the probability that the individual may not be alive in the future, or any number of other motivations. In the most general sense, discounting is a tool used by economists to make £1 today more valuable than £1 tomorrow, and more valuable still than £1 twenty years from now.

So how does this relate to the elderly and to Scottish independence? Well, first it is important to understand how attitudes to discounting differ by age group. The young, with most of their years still ahead of them, should tend to discount less and save more, to build a capital stock for the life ahead of them. The elderly on the other hand should discount quite highly, given that they face a much shorter lifespan, and should dis-save and increase consumption in their twilight years. This is ratified by the Permanent Income Hypothesis and data on savings behaviour, and is essentially what a pension program attempts to facilitate.

To see how this relates to the referendum, keep in mind one of the key arguments against independence: the economic uncertainty of an independent Scotland. Many experts in the media predicted economic volatility in the short run following secession from the union, with many corporations threatening to move their operations south of the border should a yes vote have won. This could have led to theoretical declines in real income, at least in the immediate aftermath. When discounting future incomes, young voters would internalize the long run as well as the short run changes in real income, whereas the elderly would discount so heavily that any long run changes would have a near-zero economic value. This makes intuitive sense, since they would likely not expect to even be alive in the 10 - 20 years following.

A drop in the ocean

While this is an elegant theory, it may not matter much to the overall result. While it is true that the elderly voted 'No' more strongly than any other demographic group, almost every age band voted the same way, besides the 24-39 age band with a 55% yes majority. Although the proportion of those aged 65 + has been growing in Scotland, they make 16.8% of the electorate. Even when you remove the elderly vote from the polls, the No vote still comes out on top, though less convincingly. While the theory on discount rates may have some value to this discussion, it hardly paints the whole picture on such a dynamic issue. Regardless, the stylized fact that 'old people don't care about the future' remains a focal point of the grumblings of many embittered 'Yes' voters.

Myself included.

Matt Buck

Living in London's shadow

Harriet Johns explores the case of London as an independent city state

SINCE 2008 the majority of the UK has been gripped by one of the worst recessions the country has ever seen, house prices have fallen drastically and businesses have been closing left, right and centre. London however has been the exception. It has been like a magnet during the financial crisis attracting new businesses, investment and talent to the capital. According to the Office of National Statistics (ONS) the population of London grew by 108,000 in the last year to reach around 8.4 million, this doesn't include the thousands of people who travel 100 miles everyday in order to work in the city.

Workers in London are merely taking advantage of agglomeration economics - the theory that firms work more productively in close proximity to one another. This explains why the Capital is thriving to such a great extent, with specialist areas such as Canary Wharf and silicon round-a-bout all popping up in the Capital. Close proximity here creates collaboration, increased competition and overall creates far more productive workers. As seen in the ONS figures where each worker in London contributes 70% more to GDP than any other worker in the UK.

With London thriving and the rest of the UK just pulling itself out of a deep and dark recession a huge gap has appeared between London and "the rest." This gap has posed the question about whether London should become an independent state. When Londoners were asked this exact question in a survey carried out by Censuswide, 1/5 responded saying they would like to see this. This comes as no surprise seeing as they have a GDP of a similar size to Sweden or Iran and one twice the size of Singapore, an already successful city state. From a fiscal and monetary policy point of view an independent London would allow higher interest rates to combat the current uncontrollable inflation and higher taxes to fund public spending projects that will expand the city further. Currently this just isn't feasible without causing problems for the rest of the country.

Connecting cities

The HS2 rail link, the government's latest supply side policy which will cost £50 billion. Tax payers across the country will be funding this service which Londoners will be predominantly benefitting from. In fact, the main issue with transport in the UK is not connecting cities with London it's the connections between the cities themselves. For example the HS2 enables you to travel from Manchester to London in an hour, in the same time you could go from Manchester to Leeds, which is only 1/5th of the distance. Admittedly the government has now announced the HS3 plan that would half the journey time from Manchester to Leeds but this isn't expected until 2030, arguably too little too late. The majority of transport links it seems are built to feed more people into the capital, whereas fast connections between cities such as Bristol and Southampton are lacking. This situation could be avoided with an independent London, as they would have to fund their own public sector projects where as the rest of the UK could decide how it wanted to spend its own money and which policies it wanted to prioritize. In the same way that London is seen as the financial hub, other economic hubs in manufacturing for example could be achieved across the country.

Maurice

The real problem?

However I'm not sure the actual argument here is for an independent London, but actually just for devolved power to different regions. The City Growth Commission has published a variety of reports on how devolving power will allow local governments to make more responsive decisions, based on local issues in a way that the central government will never be able to achieve. In fact I think the main issue here is the government's "one size fits all" policies that really just benefit London at the expense of the "rest". What is clear though is that "the rest" need to step out of the shadows.

The economic dividend of fiscal devolution

Andrew Peacock explores the potential benefits of granting greater fiscal powers to the UK's major cities

calflier001

THE DEINDUSTRIALISATION of Britain has created imbalances within the United Kingdom's economy. Whitehall's efforts to redistribute funds derived from London and the South East's economic might has exacerbated the interregional productivity gap. Britain's major cities, once hubs of innovation and activity, underperform in terms of GDP per capita when compared to metropolises of similar sizes elsewhere in Western Europe. For example, Manchester's GDP per head of £18500 is dwarfed by Munich's £38000 per person. Now there is a growing number of proponents arguing that greater fiscal autonomy for the UK's most populous cities would provide a boon to economic growth.

The case for mightier metropolises

The City Growth Commission has presented new research which reveals that the UK has the most centralised system of public finances of any large developed country, with only 1.7% of taxation attributable to subnational government. The commission argues that economic growth is restricted by a discontinuity between local needs and national level policy making. As such, it recommends the devolution of powers concerning borrowing arrangements and tax-raising to Britain's largest 20 cities.

An even more radical proposition comes from the ResPublica think-tank. The report blames the relative decline of UK cities on low tax yields and a high reliance of central funding. Furthermore, it places particular concern over the ever-widening productivity gap. ResPublica focuses on the case of Greater Manchester, which has a population surpassing that of Northern Ireland, and a GDP higher than that of Wales, holds significant potential. The proposed 'Devo Max-Devo Manc' solution to lagging income levels would see Manchester gain fiscal independence from Westminster within five years.

The latent English devolution movement has been reinvigorated by the Scottish independence referendum. The Core Cities UK campaign unites the leaders of Sheffield, Liverpool, Bristol and Birmingham, amongst other cities, to demand greater independence from central government. In a letter to William Hague, the economic argument for city-empowerment was put forth. According to the campaign's research, devolving enhanced fiscal powers to the eight largest English cities could add an economy the size of Denmark to the United Kingdom. Jim O'Neill, former Goldman Sachs economist and chairman of the Commission, augments this case. Prior to the Scottish referendum he stated that what happens in Britain's largest 20 cities "will be more important for UK economic growth" than the result of the referendum.

Mood swing

The case of the north east of England demonstrates how dramatically opinions on the issue have changed. A decade ago the region soundly rejected the possibility of a devolved assembly, with the 'No' campaign claiming 77.9% of the vote. Yet now, in this area hit hardest by the Great Recession, and where the Great Stagnation looms most ominously, there is an ever growing appetite to mirror the political debate recently held north of the border. That every significant north eastern newspaper recently joined an alliance of northern publishers to demand Scottish-style devolution is testament to this.

The campaign to gift cities with greater autonomy has started to gain traction across the three main political parties, with both George Osborne and shadow business secretary Chuka Umunna praising the benefits of increased decentralisation. However, promises of increased funding for local enterprise partnerships (LEPs) from the Conservatives and Labour are meek in comparison to the propositions discussed. The political discourse generated by the Scottish independence referendum has generated hope that through increased autonomy for cities, prosperity can be generated and enjoyed throughout the United Kingdom.

Insight scoop

Find out more about researchers and lecturers breaking economic grounds at 31 Buccleuch Place

Sean Brocklebank

Senior Teaching Fellow

Main interests: Natural Hazards, Teaching, Behavioural Economics
Place of origin: Toronto, Canada

Academic background: I did my undergrad at the University of Toronto, followed by a bit of wandering that left me in Edinburgh working what was probably the least work-intensive job in the world (in practice, I read books all day) for a year or so before coming to the University of Edinburgh to get an MSc and PhD in Economics.
Current research: I'm working with some geologists to build a cost-benefit case for someone (not sure who yet) to cough up a few hundred million for a series of very accurate geo-monitoring satellites which can be used to predict volcanoes, earthquakes, mudslides, etc. I am also experimenting with ways to get students to work harder and learn more.
Hobbies: Like many people, my main hobby for 2014 was arguing about the referendum, but now that that's over I'll fall back on my old favourites, like reading about and looking at architecture (on the reading side, I particularly recommend "The Making of Classical Edinburgh" written in the 1960s by A. J. Youngson, who was at the time a Professor of Economics right here at Edinburgh University).

Philipp Kircher

Professor of Economics

Main interests: Macroeconomics of the Labour Market, Microeconomic Theory
Place of origin: Germany

Academic background: After obtaining a Ph.D. from the University of Bonn, Germany, I started as an assistant professor at the University of Pennsylvania, US. I came to the UK in 2009 and held positions at Oxford and the London School of Economics before joining Edinburgh in 2012.
Current research: I am interested in how the labour market functions. One particular concern of mine is how firms compete to attract workers and how workers search for jobs. Currently we are carrying out an investigation where we ask jobseekers to search on our self-created job search engine to get a better understanding of which job search methods work best. My second concern is how macroeconomics can move beyond its focus on unemployment to consider more broadly how well workers are matched (a university graduate who drives a cab might not use his skills as well as one who works in a bank, even though both have a job).
Hobbies: Since coming to Scotland I really enjoy hiking. Otherwise I like to aimlessly walk through the city or to lie in the sun in a hammock with a nice book.

Steven Dieterle

Lecturer of Economics

Main interests: Economics of Education, Labour Economics, Applied Econometrics
Place of origin: Ohio, USA

Academic background: I completed my PhD in Economics at Michigan State University in 2012 where my dissertation focused on the relationship between teacher labour markets and student outcomes. Upon completing my PhD, I took up my current post here in Edinburgh.
Current research: Currently, I am working on several projects in the Economic of Education. One such project focuses on the role physical building infrastructure investments may play on student achievement with a focus on how such investments may attract teachers of varying quality. I am also working on a few applied econometric theory papers aimed at understanding the sensitivity of commonly used econometric techniques.
Hobbies: In my free time I enjoy jogging all around Edinburgh to (try to) stay fit. I also consider myself an amateur foodie, so I like to explore new cafes and restaurants.

Robert Zymek

Lecturer of Economics

Main interests: International Trade, Macroeconomics
Place of origin: Bochum, Germany

Academic background: After passing my A-Levels at an English school in Kent, I studied Economics at King's College, Cambridge. From Cambridge, I went to Universitat Pompeu Fabra in Barcelona where I received a PhD in September 2011. The Edinburgh School of Economics was kind enough to offer me my first job around that time.
Current resarch: As part of my PhD, I analysed the effect of China's liberalisation on the growth of world trade since 1980. My current research takes a longer view and explores the main macroeconomic determinants of world trade growth from 1870 to the present day. I am also interested in understanding how international capital flows facilitate international trade, and vice versa.
Hobbies: I like going swimming to keep fit. I also enjoy comparing varieties of Scotland's favourite liquid export, and dabbling in applied game theory (i.e. playing board games).

Is Spain's patchwork nation set to disintegrate?

Max Leslie evaluates why the Spanish quilt is tearing at the seams

WITH THE RISE in fervour surrounding the recent Scottish referendum, Catalans have become even more emboldened to fight for their nationalist 'rights'. The vote itself has highlighted contrasts between Westminster and Madrid, exposing the supposed intransigence of the Spanish government whilst leading some to claim that Catalans are being denied their chance to speak out. It would be an incomplete view to claim that the recent economic crisis, the worst experienced for over a generation, was the entire cause of such desires for independence (it is not simply economic motivations that churn the blood of proud revolutionaries). But rather, during a time of tentative economic recovery, the quest for liberation from some of Spain's major economic 'limbs' could leave her without a leg to stand on.

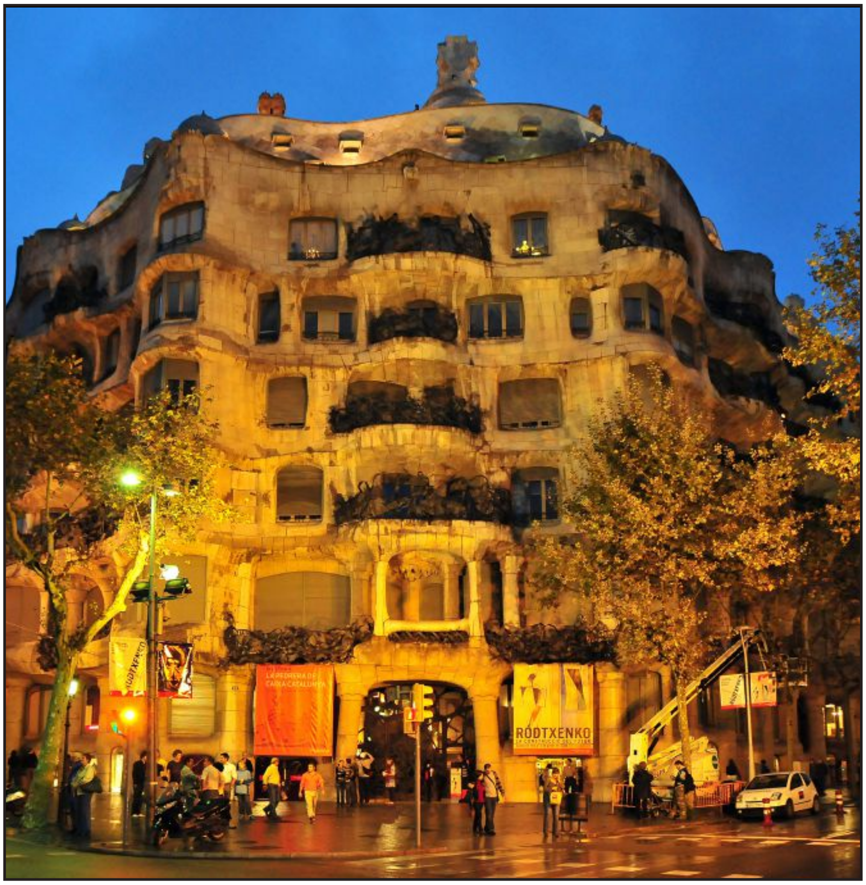
Is Catalonia simply a sun-drenched Scotland? Think again.

When the Spanish Prime Minister, Mariano Rajoy, was questioned whether the topic of Catalan independence had entered into his discussions with David Cameron during a recent visit to London ahead of the Scottish Referendum, his response was abrupt. Rajoy stated that Scotland and Catalonia are "absolutely and totally different" and any such comparisons would prove fruitless and misleading. For once Catalans actually agreed with him. Catalonia covers an area half the size of Scotland but can boast a population of 7.5 million (50% larger than Scotland's 5 million population). More importantly, Catalonia is an industrial powerhouse, accounting for roughly 20% of the country's GDP (£161 billion), whereas Scotland constitutes less than 10% of the UK's total GDP (£130 billion).

Politically too, whilst Scotland is recognised as a nation within the United Kingdom, Catalonia is currently defined as 1 of 17 *comunidades autónomas* (autonomous communities) under the Spanish Constitution of 1978. The Constitution itself arises from the political repression and violent persecution executed during the Francoist era (1939-1975) and highlights yet another stark contrast. For whilst the nations of Great Britain cooperated in the fighting of Europe's greatest international conflicts, Spain experienced internal turmoil. The fascist government's troops executed

SBA73

Ramon Duran



4,000 Catalans including Generalitat President, Lluís Companys i Jover, in addition to imprisoning 30,000 more. Thus, the memories of many Catalans are not those of peaceful coexistence but bitter conflict. Today too, whilst the Gaelic language has lost considerable ground in everyday use, an estimated 9 million individuals speak Catalan (all of whom reside along the eastern coastline of Spain – concentrated in Catalonia itself) and its presence in the education and business culture of the region is ever-growing.

Would transition spell destruction and the end to *El Clásico*?

What has been wrongly assumed is that Catalonia's current success provides conclusive evidence that independence is economically viable. But the costs and risks involved in casting oneself adrift in the global economy could mean that an independent Catalonia may not be quite the utopia envisaged by many strong advocates.

The most pressing concern for an independent Catalonia would be EU membership, which would most likely take several years to negotiate. In the meantime, trade relations with Spain (accounting for over half of the region's export market) would be damaged and so too the rest of the EU with tariffs now enforceable. Not to mention the subsequent disinvestment, evacuation of businesses and higher borrowing costs incurred as well. Thus, although a strong European geographical position with key trade routes via land, sea and air is one of the many attributes touted by the separatists, these advantages may be offset by the rise in unemployment and fall in tax revenue incurred by such a dramatic transition. Besides, this view excludes the other trappings of independence that would otherwise be provided by the Spanish government (such as the armed forces) and even basic concerns as to whether Catalonia would be allowed to use the Euro as its currency. On a more benign note, some also fear independence would result in Barcelona's ejection from the lucrative Spanish football league (La Liga) and an end to regular *El Clásico* matches against arch-rival, Real Madrid.

Such a move could perhaps be even more destructive for Spain as a whole. The Basque Country, another *comunidad autónoma*, also calls for independence similarly based on its separate cultural and historic identity. Being a highly industrialised region with its own language and, importantly, the highest GDP per capita in Spain (40% greater than that of the European Union and 33% higher than Spain's average), the economic crisis surrounding a potentially widespread disbanding and Balkanisation of the Spanish nation-state may prove irreparable.

¿Un futuro incierto?

Few solid conclusions can be made in such a dynamic debate. Recent developments have led the Constitutional Court on Tuesday 4th November to ban the planned referendum for an indefinite period of time. Indeed Spanish Prime Minister Mariano Rajoy is determined to uphold the Constitution of 1978, which states that no region can unilaterally make decisions which impact Spain as a whole. Nevertheless, the Catalonian President, Artur Mas, is equally determined and has pressed forward by claiming that the vote shall still take place on 9th November, but it will hold only symbolic significance as merely a "consultation of citizens". Such backtracking may or may not lead to a disintegration of the political dimension of the separatist movement, although economic uncertainty persists. The 'No' vote from Scotland might not have dampened the spirit of hard-line separatists (many of whom claim a "rigging" or misinformation fed to Scottish voters), but survival of the Union means there is neither a blue-print nor example which Catalonia may follow if independence is achieved. Such a move is a 'stab-in-the-dark' once more.

Despite winter's advance, it seems there is no sign of the heat from Catalonian discontent diminishing. There are certain to be many more twists in this tale and let it be clear that the desire for greater economic and political autonomy is not a new phenomenon. However, with the Spanish economy on its knees, such a fragmentation may pose entirely new threats to Spain's continued existence. Is this Spain's last stand? One can only wait to find out.

RUNNER-UP OF THE INSIGHT WRITING PRIZE - WINTER 2014

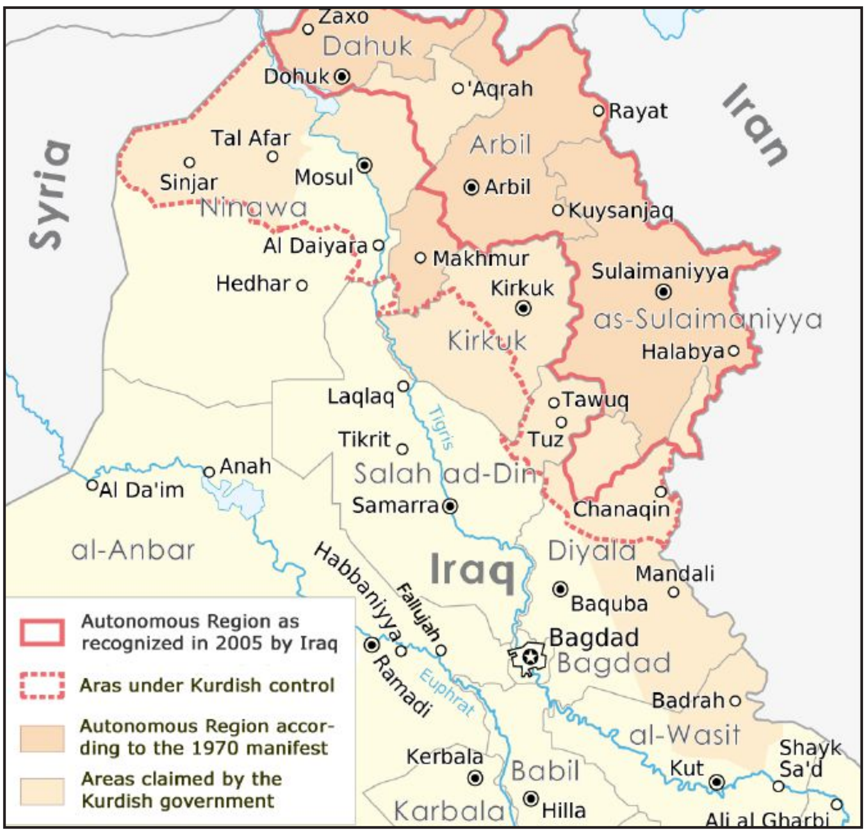
Iraqi Kurdistan's draining problem

Michal Shimonovich explores the consequences of inadequate water supply in Iraqi Kurdistan

THE UNITED STATES' policy regarding Iraqi Kurdistan has put up major hurdles for the region's chances of becoming the world's 194th state. The United States continues to support a united Iraq in the hopes that history will judge its involvement in the country kindly. But Kurdish fighters, the *peshmerga* - "those who confront death" - have proven a more capable and reliable partner in the region against the threat of the Islamic States (ISIS) than the Iraqi army. The recent conflict affecting Syria, Iraq and neighbouring nations has marked a slight shift in U.S. policy after it provided minimal military assistance to the *peshmerga*. However, the US is indicating that its policy has not changed, even though there is growing support from the US and other western countries as Iraqi Kurdistan asserts its position in the region. This has encouraged many legislators who believe that independence is on the horizon.

The semiautonomous state of affairs

The semiautonomous Iraqi Kurdistan lies in northern Iraq and is becoming a preferred ally in the region for western countries, partly because of its progressive policies. It has since made strides to defend human rights, fight government corruption and enforce gender equality; a 30% female quota in the Kurdish Parliament has been met, compared with the 20% of women elected to the British Parliament.



Maximilian Dörrbecker

It also has a military protecting various foreign interests in the region. The Kurdish Regional Government (KRG) is leveraging the *peshmerga*'s military victories, particularly in the city of Kirkuk, along with growing western support to bargain for equal power with the Iraqi government in Baghdad.

The historically contentious relationship with Baghdad has led to the capital withholding 17% of Iraq's GDP that had been due to go to the KRG. Baghdad believes that it should receive a greater cut from Iraqi Kurdistan's oil revenues. Additionally Erbil, the capital of Iraqi Kurdistan, is demanding that 17% and a long overdue referendum to let the oil rich and Kurdish populated city of Kirkuk vote to join Kurdistan. However, if by December Baghdad and Erbil don't resolve these issues, Kurdish officials promise that Kurdistan will go forward with its bid for independence, and take the 45 billion barrels in oil reserves it reportedly has with it and leave.

How useful is Kurdistan's oil?

Much is said about Kurdistan's oil and for good reason; if it voted to join Iraqi Kurdistan, Kirkuk's resources would add 9 billion barrels of oil to their already substantial reserves. And when the city was taken by Kurdish forces this summer there was certainly cause to celebrate, with the Organization of the Petroleum Exporting Countries' (OPEC) global price benchmark of crude standing at $108.68 a barrel on July 1st.

The profit Kurdistan stands to make from its oil reserves are undeniable; the KRG projects that the present 200,000 barrels exported a day will to rise to 500,000 by the end of this

RUNNER-UP OF THE INSIGHT WRITING PRIZE - WINTER 2014

year. To avoid the dependence on one sector that plague many oil-rich states, the KRG has outlined reinvestment projects that support other industries and prevent the state from depending on oil sales or foreign investments to support Iraqi Kurdistan's 5.5 million citizens. The KRG hopes that long term diversified economic growth will reveal the potential of the Kurdistan Region of Iraq. The benefits of these untapped resources, particularly in a bid for independence, have been corroborated by foreign investors and consultant groups.

But the world's largest minority without a state just needs to look to its eastern neighbour, Iran, to see the limitations of oil. On October 9th, prices dropped to below $90 per barrel for the first time in two years. Saudi Arabia's push for lower prices to compete with the rising popularity of low price shale coming from the US threatens other members of the OPEC who require higher oil prices to balance government budgets, such as Iran. As a developing state, Iraqi Kurdistan would arguably face the same problems, putting itself at odds with the powerful Saudi oil minister as Iran has, creating a potential diplomatic conflict were it to become independent.

Just how much leverage an independent Kurdistan would have in OPEC remains to be seen, as does its ability to further industries outside the oil industry. But while the world anxiously follows the *peshmerga*'s defence against ISIS and talks between Baghdad and Erbil, Kurdistan would do well to address its other valuable liquid: water.

Water is denser than oil

In 2009 it was estimated that droughts, neglect and conflict had destroyed 83% of Iraqi Kurdistan's water canals – *karez* in Arabic. It is even worse in the southern region where dams in Syria and Turkey devastate the water supply to the Kurdistan region.

Climate change is drying up the few remaining aqueducts, and pollution has led to poor sanitation, threatening the 373 to 400 litres per capita per day (lpcd) of water consumed in urban areas and 237 to 292 lpcd in rural regions.

The oil industry perpetuates the burden on the water supply through increased groundwater drilling to sustain its activities. Water drilling isn't monitored or restricted, leaving the potential long-term environmental damages at the discretion of industries that will still have a high demand for groundwater. These damages also have the potential to destabilize agriculture in the region.

Part of the problem is that the KRG bears the burden of the water supply at $300 million per year, or 8.5% of the GDP. This is not likely to change as presently tariffs on water usage are at about $1 per month. Tariffs covered 3% of the annual maintenance and operation expenses in 2011, and are too low to incentivize any water conservation.

The humanitarian crisis also drains the water supply, as refugees that have fled ISIS from other regions in Iraq and Syria settle into Kurdistan. According to reports there are now about 1.4 million refugees fleeing into the region, more than a fifth of the population of Kurdistan. The Duhok Province is home to 89% of the refugees, who cost $1 million per week to feed and house and are putting a dent on its already strained water supply.

Can Iraqi Kurdistan avoid a drought?

The United Nations Development Programme (UNDP) undertook a Socio-Economic Infrastructure Needs Assessment (SEINA) at the request of the Ministry of Planning in Kurdistan. It concluded that Iraqi Kurdistan has more to lose from scarce and polluted water than any other challenge it faces in other sectors, including health care and transport.

The UNDP suggested in the 2012 report that about $3 billion should be invested between 2013 and 2020 to improve the water supply and sanitation. Iraqi Kurdistan's Ministry of Agriculture and Water Resources claims that in 2013 the government spent over $19 million on irrigation, water administration and dam rehabilitation projects. It is unclear what steps were taken to target water contamination and supply. Publicising that information would certainly assert Iraqi Kurdistan as not simply an opportunity for foreign investors and a strong military ally but as a state capable and willing to successfully govern independently.

United Nations Educational, Scientific and Cultural Organization (UNESCO) successfully restored the *karez* water systems in the northern village Shekh Mamudian, and its concluding report suggested that restoration can be done cheaply and without causing more damage. The KRG has not publicised any attempts to replicate the restoration in other areas.

Wait before cashing those oil checks

It won't be relevant to independence how Iraqi Kurdistan reinvests its profits from oil sales or if it can hold its own against the OPEC heavyweights if the water supply runs out or becomes too contaminated for use. And it won't matter how well the *peshmerga* are defending their borders or caring for the millions of displaced refugees if they don't have enough water to drink. Iraqi Kurdistan should now take its momentous success to address its water supply issues so its other achievements don't get washed away.

Jan Seft

lvv@ldzenl

Lessons from Quebec's "Neverendum"

David Peat explores the economic cost that Quebec has paid by shying away from a final decision on independence

QUEBEC'S PEOPLE HAVE long been enamoured with the idea of separating from Canada, but so far have remained squeamish about the uncertainties that lie waiting for them should they ever decide to actually take the plunge. Quebecois politicians have come to the realisation that the best way to drum up support for independence is in fact to avoid talking about it as much as possible. They've also learned to avoid mentioning any jagged details that might puncture the dream, like a fixed date for a new referendum, and instead stick to painting an abstract picture of a sovereign Quebec somewhere off on the horizon. But during two referendums so far, that picture has come close to becoming a reality. And in early 2014, the then governing *Parti Québécois* (PQ) vowed that if re-elected, it would call a third referendum "when it is deemed appropriate". Even this vague commitment proved to be too much: the PQ lost the election decisively.

But a subject that has mostly escaped attention is the cost that this indecision has brought: for almost 35 years since the first referendum, the spectre of leaving Canada has hung over the province's business environment and weighed down its economy, leaving difficult choices ahead, regardless of the path Quebec chooses in the end.

The glory days

In the post war years till the 1970s, Montreal and Toronto were the economic powerhouses of Canada. The PQ would follow its first electoral victory in 1976 with the introduction of tough restrictions on the use of the English language and later the announcement of a first referendum on separation, planned for 1980. Though the referendum failed by a 20 point margin, it was enough to spook Quebec's boardrooms: the period saw a corporate exodus from the province (including the Bank of Montreal, which has been based in Toronto ever since). In the two years that followed the referendum, Quebec's unemployment rate would grow to become three percentage points higher than that of Canada as a whole, the widest the gap has ever been in recent history.

But the dream of independence lingered on, and in 1995, the moderate Lucien Bouchard, whose soft stance on independence reassured the majority of Quebecers who did not espouse the views of the hard-line sovereigntist camp, would this time bring the province within a single percentage point of breaking away. That the second referendum could be so close sent shock waves through the business community. The Fraser Institute, a think tank, estimates that between 1990 and 2011 the number of Canada's 500 largest companies that were headquartered in Montreal dropped from 96 to just 75. This corporate flight would have elicited few tears from the leadership of the PQ, who have never quite been ones to worry about the fate of big business.

But worry they should: Quebec's progressive taxation system means that its tax burden falls disproportionately on high-income earners, and is therefore much more sensitive to the departure of lucrative jobs associated with large corporate HQs.

Using tax data from 2012, an individual earning $100,000 a year will pay the highest combined tax rate in the country if they live in Quebec. Unfortunately, Quebec is now left with a shortage of such individuals. As of 2012, the share of Quebec's population who earn over $100,000 a year stands at just 3.6%, lagging far behind the 5% rate for Canada as a whole.

Joined at the hip

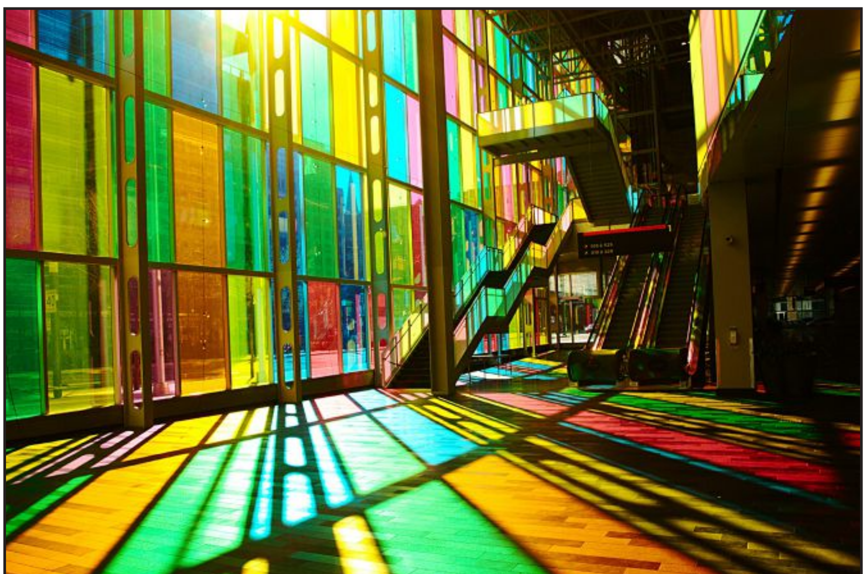
Quebec's economy has in many ways become too reliant on the rest of Canada to separate. Its provincial debt already stands at 54% of GDP, the highest in Canada (this doesn't count its implied share of the national debt, should it separate). Unfortunately, much of that past spending was on budget items that are unlikely to lay a foundation for future economic growth. A study by HEC Montreal found that since the first referendum, provincial social services spending per individual rose by 25.6% in Quebec compared to a growth of just 13.9% in Canada as a whole. Meanwhile, the province has neglected much needed infrastructure investments. In a gloomy report by the Boston Consulting Group about Montreal's business climate, senior corporate leaders used the words "terrible", "shameful" and "[like an] abandoned city" to describe its infrastructure. In the short term, an independent Quebec would be left with few options to boost its economic competitiveness.

Thanks to a scheme under which the federal government transfers funds to "have not" provinces with sub-par economies, Quebec's poor economic performance has thus far been cushioned by equalization payments that will amount to $9.2 billion in the fiscal year of 2014-2015. Since the payments are funded by the federal budget, which pools tax income from all provinces, it is difficult to pinpoint exactly how much benefit Quebec derives on a net basis from equalizations. However, the share of the federal budget spent on equalization payments (6%) could be multiplied by Quebec's tax contribution to federal coffers (just under 20% of total revenues) to arrive at an estimate of $3.1 billion paid into the equalization program by the province for the coming fiscal year. Since Quebec is set to receive $9.2 billion in equalization payments, this estimate would imply a net inflow for Quebec of $6.1 billion in 2014-2015, meaning separation would instantly rob the province of a chunk of its annual revenues.

All this is not to suggest that Quebecers should have to reject independence. Though, by Quebec's current state of financial affairs, separation would undoubtedly bring short term economic hardship, Quebec's long-term prospects as a country are impossible to predict. The province has its own distinct language and culture, which have indeed been diluted by the sea of Anglophones that it currently shares a country with, and the value of preserving their unique identity may very well be worth the economic price to Quebec's people, if that's what they chose. But they must make a choice. By endlessly flirting with independence without ever coming to a final decision, the province's economy will continue to be dragged down by the weight of uncertainty.

For a hint at whether Quebec might be ready to make final decision on the matter, one could look to the most recent federal elections in 2011. For much of the past two decades the federalist Liberal Party has been stuck in second place in the province, struggling to wrest seats away from the avidly separatist *Bloc Quebecois.* During the most recent election, the Bloc was nearly annihilated, with its seat count cut down to less than 10% of its former total. The Liberals, however, also saw their precious 14 seats in the province reduced to 7, with the leaders of both parties defeated in their own ridings. In their place, the New Democratic Party (NDP) surged from a single seat in Quebec to 59, which was made even more astonishing because the party lacks a clear policy on the independence issue. The party's late leader, Jack Layton, had waffled over the years between a half-hearted defense of federalism and vague statements of support for the *indépendantistes*. So how could the Quebecois shun both, the clear choice for independence presented by the Bloc and the certainty of the Liberal's federalism, and instead opt for such ambiguity about their future? A recent interview may offer a grain of insight into their mindset:

"Do we have to be absolutely independentist? I'd be afraid of anyone who calls themselves absolutely independentist" said Lucien Bouchard, the moderate Quebecois politician who during the 1995 referendum advocated for 'soft independence', "that's someone I'd fear enormously". The neverendum, it seems, is set to continue.



Emmanuel Milou

The Isle of Man: the next gold mine of renewable energy?

Victoria Barthelmess considers the Isle of Man's prospects of becoming energy independent

Statkraft

THE ISLE OF Man is a small self-governing British-Crown dependency situated in the heart of the Irish Sea, half way between England and Ireland. The Isle of Man possesses great wind resources, which along with its shallow waters and proximity to the UK make the Island an ideal site for offshore wind/wave/tidal energy production and export. Dr. Ken Milne, senior manager of energy policy for the Isle of Man Government, is leading a new energy approach, focusing more on energy independence to transform the Isle of Man into an energy net export nation.

Current Energy Sector

The Isle of Man's current energy sector is is energy dependent. Roughly 90% of the energy is provided through a 75MW combined cycle gas turbine (CCGT) which uses natural gas, imported via a subsea pipeline. However, since 2004 there has been a small step towards energy independence, with roughly 10% of energy needs generated through the waste power plant.

20 years ago the Isle of Man relinquished its share of the UK's oil and gas revenue in return for a territorial limit of 12 nautical miles around the Island. What was then believed to be a foolish decision has now developed into a prospective gold mine, paving the way for energy independence and energy net export. With 87% of its territory being offshore, the Isle of Man has the potential to be "generating thousands of megawatts of renewable energy to feed into the UK National Grid" according to Dr. Milne.

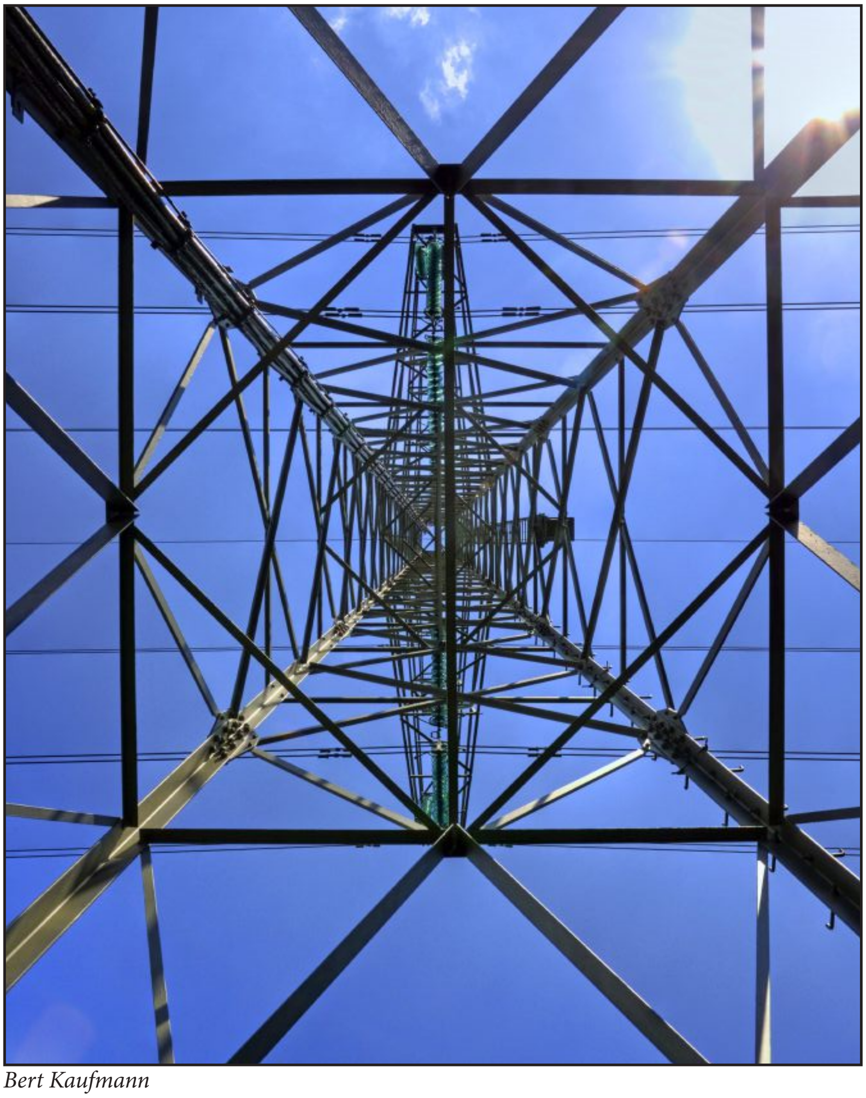
A Greener Future for the Isle of Man

A multitude of economic benefits arise from a movement towards energy independence, such as becoming less dependent on the instability of oil prices. Oil shocks, like the one experienced in 2005 with a sharp increase followed by a sudden price drop in 2008, can be partially responsible for recessions. However, the benefits of energy independence go beyond oil prices. Through becoming an energy independent nation, a new industry is introduced. Both direct and indirect jobs are created, allowing the money spent on energy production to be circulated back into the economy. For instance the Isle of Man's plans of installing a 500MW offshore wind farm creates around 110 jobs solely during the operations and maintenance phase. Furthermore, a plethora of indirect jobs are created, for example, the hotel industry could see around £6.3 million injected into it over the two and a half years of construction alone! Considering the Isle of Man's zero percent corporate tax regime, setting up operational and maintenance bases for renewables on the Isle of Man (rather than the UK) becomes highly attractive. Already established sectors such as finance, insurance, and professional service sectors are therefore also likely to boom. If financing of the offshore wind farm is performed on the Isle of Man, around £100 million/year could be raised through interest, due diligence, reserve accounts, and bank fees.

Since the energy production potential greatly exceeds the need for consumption, the Isle of Man has the opportunity to become a net energy exporter. Additionally, as the Isle of Man lies outside the EU, it can help EU member states reach their clean energy targets. Due to ambiguity in the EU's Renewable Energy Directive, member states can get a two-year extension to meet their 2020 targets if they have signed deals to import renewable energy from countries outside the European Economic Area (EEA). Dr. Milne states: *"by 2020 the island has the potential to export 10 times as much low-carbon electricity to the UK as the entire island consumes in one year"*. Such exports could generate large government revenues. In addition to the revenue from leasing the seabed (around £5 million /year), the Isle of Man Government could collect up to £37.7 million /year in VAT revenue.

Overcoming the Waves of Obstacles

Even though the Isle of Man is currently energy dependent, the Island has the possibility to utilize its ideal location and shallow waters for future energy net export. To accentuate the value of energy independence, one should consider the opposite: inability to escape energy dependency. The Faroe Islands are situated in the Norwegian Sea, roughly halfway between Iceland and Scotland. While the Isle of Man already has the necessary infrastructure in place, it would cost the Faroe Islands over £500 million to install sub-sea cables connecting it to its closest neighbour, Scotland. Thus energy net export is not an option. Instead, according to Jørgen Niclasen from Faroe Islands Minister of Finance, 65% of energy consumption is satisfied through imported fossil fuels, forcing the nation to spend a majority of its GDP simply on meeting the country's electricity needs. Unlike the Isle of Man, the Faroe Islands are surrounded by deep water, making the instalment of offshore wind farms less viable. This is due to lack of advanced deep water technology and high costs. Ergo, while the Isle of Man is making elaborate plans about instalment of renewables, the Faroe Islands are still struggling to decide which investments could reduce the high costs of energy. Energy dependency is thus a deciding factor in the wealth and possible future success of a nation.



Bert Kaufmann

Negative Externalities of Offshore Renewables

Lastly it is important to consider how negative externalities of offshore renewables can impact the economic development. Location of marinas and recreational fishing zones can be affected by offshore renewables. In addition, some environmental factors such as the disruption of sea bird colonies and protected species have to be accounted for. Around the Isle of Man there is special concern due to the relatively large population of basking sharks – a highly endangered species. A potential decline in the marinas and basking shark populations could in the long run negatively influence the Isle of Man's tourism, which is currently a key sector of total GDP. So, before construction can begin, environmental surveys should be undertaken to evaluate any negative effect a wind farm may have. Such surveys - although useful - will have a negative economic impact, increasing the costs and timing of the project, which will need to be accounted for.

Following in their Wake

During this worldwide debate concerning energy independence, the Isle of Man embraces an energy policy which is paving the way for a future of energy independence. The planned development of an offshore wind farm at the beginning of next year marks the first step. Increasing support for wave and tidal projects marks the next phase. In the midst of all this, jobs are created, already established industries see an expansion of business, and the government revenue has the potential to surge. There are many similarly endowed islands around the world which should strongly consider the economic stimulation that arises from investing in energy independence through renewables.

The carbon market: slow salvation or false hope?

Abhimanyu Bhargava explores the progress and future of Carbon Markets, in particular the EU Emissions Trading Scheme

FOR DECADES SCIENTISTS have heralded the looming escalation of man-made climate change. Alarming facts and figures point towards a potential Armageddon for which we only have ourselves to blame. Alien invasions, devastating meteors, and incurable diseases aside, it is widely acknowledged that anthropogenic Global Warming is the planet's most imminent threat.

The Kyoto protocol (1997) was a preliminary step to combat this issue and gave birth to a notion hailed as a powerful way to reduce emissions, extending the incentive to mitigate into the private sector – a cap-and-trade system, which effectively creates a carbon market. As of now, the 46 carbon markets that have sprung up or are planned world-wide, and an UN-overseen international carbon offsetting market called the Clean Development Mechanism (CDM), work towards this global aim to slash CO2 production. The CDM provides developed countries and their firms the opportunity to mitigate carbon emissions produced by developing countries, as their marginal cost of abatement is smaller. However, have these instruments actually helped? CO2 emissions per year are the highest ever recorded, projected to swell to roughly 10.15 billion metric tonnes, growing by 2.5% from 2013 levels. The 2013 levels rose 2.3% from 2012, proving that not even the year-on-year growth of carbon emissions is falling. On top of that, the world's largest carbon market, the European Union Emissions Trading Scheme (EU ETS), has found itself in dire straits and the CDM's market for Certified Emission Reductions (CERs) has also collapsed. What has gone wrong with the ETS? Are carbon markets truly the way forward?

Eric Fisher

The EU ETS: Crash and Burn?

At the time of writing, the European Union is agreeing to set the 2030 target to reduce CO2 emissions by 40% from 1990 levels. This aim, unrealistic for some, prompts debate over whether the once-global-model of a successful carbon market, the EU ETS, is sufficient enough to help countries meet the goal. Prices have plummeted from a €30 high in 2008 to an ominous €6 currently. The fluctuating price levels in any carbon market can be partially explained by the fact that they have a completely inelastic supply curve, with the amounts being fixed by the governments every year. This implies that the price is entirely driven by demand, specifically the demand for energy. The 2008/2009 Financial Crisis lowered the demand for energy, therefore the demand for carbon credits also dropped drastically. However, this doesn't explain why prices remain low, years after the crisis. Central here is a core criticism of a cap-and-trade system- the inflexibility of monitoring emission limits and setting allocations to firms. The ETS suffers from a massive oversupply, approximately 2.1 billion tonnes of carbon caused by the recession. The EU, who limit emissions from more than 11,000 heavy energy-using installations in power generation, the manufacturing industry and more recently the EU aviation industry, are unable to quickly limit the ill-effects of the oversupply. Whether this is due to lobbying from firms, the large scale of the project, indecisiveness in reform choice, or quite simply bureaucratic bickering, the carbon market and progress of CO2 mitigation suffers.

The Carbon Market's Achilles Heel– Weak Administration

The main argument against cap-and-trade carbon markets is therefore its lack of transparency. Thus, many such as Rex Tillerson, CEO of Exxonmobil, have called for a more straightforward carbon tax or fee that does not overcomplicate the issue at hand, 'a more direct, more transparent and more effective approach.' However, the advantages of using cap-and-trade over a tax include an increased private-sector incentive for R&D in emissions mitigation and further job creation. Most importantly, carbon caps set a clear limit for emission reductions, whereas taxes estimate how much emissions will fall by. Overall, a general trend is emerging. The problems that with carbon markets, highlighted by the failures of the EU ETS, stem from a lack of regulation and weak administration. These are areas that can be improved. Rather than scrapping the whole notion of carbon markets because of the mistakes of the EU ETS, the world must learn from them to further improve the relatively new, ground-breaking concept of a carbon market. Eventually, reform has been taken as the EU ETS earlier this year opted for 'backloading', delaying the auctioning of carbon credits to later in the decade, thereby restricting the supply and aiming to push the market back in equilibrium. From the 8 new carbon markets that emerged in 2013 (California Cap-and-Trade Program, Québec Cap-and-Trade System, Kazakhstan Emissions Trading Scheme, and five Chinese pilot emissions trading schemes) California has learnt the lesson of the EU ETS and has implemented price ceilings and price floors to avoid uncontrollable price movements. To be fair, the EU has more than compensated for their Kyoto target of reducing emissions by 8% of 1990s levels by 2012. The EU-15 who signed the protocol had their emissions at 15.1% below 1990 levels. At the very least, EU ETS, though at the moment a nightmare for investors, has fulfilled its primary aim of reducing emissions. Carbon markets work beautifully in theory and with strong control and efficient management, which is bound to get stronger as the need for climate control increases. As such, there is no reason why they should not work in application.

Forecasting the Future

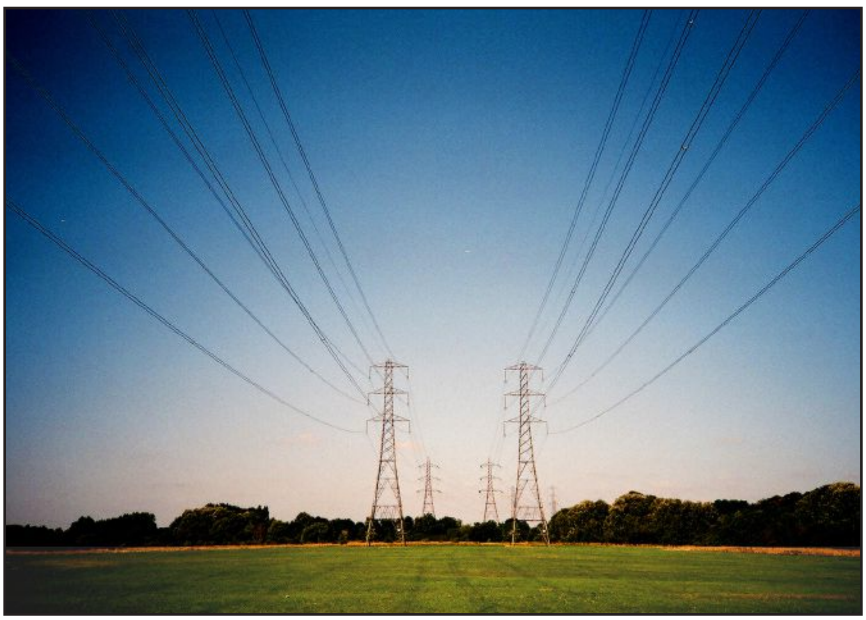
Procrastination, they say is human nature. However most can see the inevitability of climate change preventions. *"It's just a matter of political will"*, says Luca Taschini, environmental economist at LSE. *"All the analysis shows it has to be done sooner rather than later"*. The failure to pass the Lieberman-Warner Climate Security Act, which would have created an American cap-and-trade carbon market in 2008, should be taken as simply stalling the inevitable as perhaps the time wasn't right then.

However, environmental change has been a point of contention between Republicans and Democrats, and coupled with the power that lobbyists have over legislation has slowed progress in this field to an appalling rate. Managerial problems for climate change prevention are thus ever-present, occurring before a course of action is made, as well as after. Though a nation-wide system failed to be implemented in the US, carbon pricing systems are now in operation in sub-national jurisdictions of the US, and it is only a matter of time until the US as a whole introduces a cap-and-trade system. China's pilot carbon market in selective states has kicked off to a roaring start, making China the world's second largest carbon market, covering 1.115 billion tonnes, second only to the EU ETS's 2.084 billion tonnes. However, the EU ETS will soon be dwarfed as China looks towards starting its national carbon market in 2016.

Despite the slow response to climate change, the future of carbon markets is set. More and more carbon markets will appear around the world. Developing nations will soon follow China's model with their own versions of carbon markets, and we are going to see a rise in global transaction volumes. A parallel problem to increasing the number of carbon markets is carbon leakage as polluters might move to a market with a lower price of carbon. Yet again, this can be prevented by efficient administration. All that is left is ensuring that the markets are handled vigilantly with a strong administrative system, so mistakes from the past are not repeated.

Tightening the Screws

This article has attempted to shift the blame of mismanagement in implementing CO2 emission restrictions entirely to the administration. Despite being easy in nature to do so, it should also be noted that to facilitate this, change has to also come from the bottom up. Citizens have to play an active role in raising awareness as well as pressuring governments for change and the necessity of environmental reform, thereby creating the need for efficiency in the administration. The sad fact is that though the idea of a carbon market is a splendid tool, all nations are going to need various instruments to limit carbon emissions to the allowed levels. Carbon markets will play a huge role but so will carbon taxes, advances in renewable energy and overall behavioural changes. The carbon market *can* be our slow salvation, but in order for it to be efficient we need a strong and robust administration that realizes the importance of strict regulation, because that is what we, the public, demand of them.



Nick Page

End the rule of central banks

William Lindsay argues that central banks around the world should be constitutionally paralysed from performing many of their current roles

Sherman Geronimo-Tan

THERE ARE MANY reasons why central banks are flawed. From creating issues of moral hazard in the commercial banks (by acting as an irresponsible lenders of last resort) to artificially manipulating short term interest rates, these institutions cause unnecessary harm to our economy, and no longer serve a legitimate economic function.

In general, monopolies in economics are deemed as unwanted, and there is no case here to make an exception. Our financial system, and many in the developed western world are centrally planned and is flagrantly the very antithesis of a free market, yet many of the problems central banks create are blamed on the capitalist model. Central banks are no longer required for our economic prosperity and we should seek out our own independence from them, thereby ending government profligacy.

According to certain schools of economic thought, central banks are often responsible for creating artificial credit fuelled binges via low interest rates and flooding the market with excess liquidity leading to malinvestment and speculative bubbles. It encourages unhealthy and short-term spending sprees which are based on high consumer and business leverage levels, which many wouldn't have dreamt of under stable market conditions. Some economists argue that a reticent Fed was a major cause of both the Great Depression and the Great Recession. The problem is that bankers are giving their best estimates over the data they are given. They will never do a better job at setting short term interest rates than a free market; it's simply impossible.

Legalised counterfeiters for 'out of pocket' governments

Since 1970, the value of the US dollar has depreciated over 83%, and many other central banks have an even worse track record with their respective currencies. The government's method of measuring inflation has been changed over 20 times since the late 1970's, meaning that the real rate of inflation actually stands around the ten percent per year. Central banks are not guardians of their fiat currency, they are simply sophisticated and legalised counterfeiters for out of pocket governments. They've been allowed to get away with generating these extortionate rates of inflation to help eat away at sovereign debt by maintaining low bond yields, all the while our purchasing power and our savings have been eroded as prices outstrip income. Some inflation is good for the economy; however, these institutions are taking a hammer to the fine clockwork of the free market, and it is having consequences for all of us. Monetary policy and the actions of central banks can also be linked to helping the unequal distribution of income and wealth. Increasing inflation levels and boosting asset class prices such as equities via QE help to divert money from the poor to the rich. This is because when the money supply is fed into the economy, the mechanism used results in an unequal distribution of income due to expanding the value of assets such as equity, and creating sticky upward wage growth in the lower income bracket. Central banks are very attractive entities to the political classes. It helps to alleviate debt via inflation, issues cheap credit and raises revenues via seigniorage, all of which help to 'balance the fiscal books'.

Who will safeguard our national currency?

Freidrich Hayek was perhaps the most famous academic to speak out against the harmful impact of central institutions "*If we want free enterprise and a market economy to survive, we have no choice but to replace the government currency monopoly and national currency systems by free competition between private banks of issue.*" The process of technological innovation has proposed a practical solution for provision of a currency without the need for a central bank. The emergence of virtual online currencies such as bitcoin and others are testing the boundaries of what a currency can be. They are internationally used, free from the power of any central or international federal power, and are easily traded with low transaction costs. It overcomes the problems associated with a return to the gold standard, via the process of mining; the encrypted process of currency issuance. These currencies are the future, and the basis for which financial independence and freedom can be achieved without central banks, and can help create a culture among the commercial banks of lending discipline.

As Clemenceau stated *"money is much too serious a matter to be left to central bankers."*

Independent central banks – good economics!

Riona MacLachlan explores why central bank independence was a point of interest in the course of the Brazilian Presidential election.

LIKE THE RECENT World Cup in Brazil, the Brazilian Presidential election has had many dramas. One controversial topic of debate in the election was central bank independence. The incumbent President Dilma Rousseff argued that central bank independence would lead to financial instability; Marina Silva, the Socialist party candidate, disagreed with this, and advocated central bank independence as a key reform which she promised to implement if elected. Even though Marina Silva was knocked out of the race after trailing behind Rousseff and probusiness candidate Aecio Neves in the first round, the independence of the Brazilian central bank is still an important issue for the winner, Dilma Rousseff, to be concerned with.

Economic independence

One advantage of an independent central bank is its neutrality. There is a tendency for governments to implement policies that would make them popular in the next general election. One mechanism governments could use to massage economic growth could be through reducing interest rates, which would increase spending, leading to economic growth. This would be construed positively by voters, who would therefore vote to keep this party in power. However, this may not be the best policy to implement in terms of long term economic stability, given the likely inflationary consequences of lower interest rates. With an independent central bank in place, short term political considerations could be ignored, and in its place priority could be given to what would be best for the economy in the long term. For a country that is dogged by allegations of corruption, Brazil could benefit from fewer scandalous headlines that detail how political ambitions have been put before the health of the economy through the manipulation of central bank policy.

In addition, an independent central bank would eliminate the time inconsistency problem, which arises from a misalignment of incentives of a government across time periods. By placing the management of monetary policy in the hands of an independent agent such as an independent Brazilian central bank, the ability of the Brazilian government to take hasty decisions creating shocks to the economy is greatly reduced.

Confidence in the economy would increase with an independent central bank. This is much needed in the case of Brazil, where investor and consumer confidence have fallen, mainly due to the recent recession. This increase in confidence of consumers and investors would lead, respectively, to more spending and investment, which would boost economic growth and increase employment levels in Brazil.

Justin Kilner

Political independence

An independent central bank offers not only economic but also political independence which could strengthen the whole political system. It could be argued that this is much needed in Brazil given that confidence in the political system amongst ordinary Brazilians has been greatly reduced in the wake of the recent Petrobras scandal, which has seen both Neves and Rousseff implicated in allegations of illegal donations to their campaigns. Independent central bankers don't need to look for votes, or campaign finance.

Governments are ultimately motivated by the desire to maintain power and can sometimes be blindsided by that ambition when it comes to monetary policy making. For the long term economic health of Brazil, the desire to spend money should in some way be separated from the power to create money, which could be placed in the hands of an independent central bank. Even though Marina Silva was a loser in the election, her stance on the question of central bank independence could turn out to be a 'winner' for Brazil if the successful candidate, Rousseff, were to adopt her defeated opponent's position on this crucial aspect of monetary policy - maybe bad politics, but certainly good economics!

Microcredit: Not quite the solution we had hoped for

Melissa Parlour explores microcredit and its real impact on the lives of the poor

MICROCREDIT, OR LOANS of small amounts to impoverished people in the developing world, began as a method to give people vital access to capital where there hadn't been access before. Soon after its major launch in the late 1970s with the Grameen Bank in Bangladesh, it became economics' greatest hope for eradicating global poverty. Its popularity grew along with the hopes for microcredit's future, with the founder of the Grameen Bank, Muhammad Yunus, claiming that poverty would be eradicated within this generation. These expectations however are far from being met almost 40 years later, and recent data suggests that microcredit isn't as successful as many were expecting.

High hopes, lackluster results

The ideology behind microcredit is that with the money from a loan, people in the developing world are better able to invest in entrepreneurial ideas and develop small businesses, which will in turn grow the local economy and create jobs. However, the data suggests that this has not yet been the case. In a study by two MIT economists: Abhijit Banerjee and Esther Duflo, the evidence of economic growth in areas with access to microcredit was not significantly different from those without access. Additionally other measures of development such as improvements in health, education, and women's empowerment showed no significant changes over a two-year period, suggesting that microcredit isn't having the vastly positive impacts that many are claiming it does or can have.

Are we really helping the poor?

Microcredit institutions such as the Grameen Bank have arguably provided positive impacts for the individuals they work with. Many are able to better provide for their families and put their children through schooling with the assistance of a loan. However, the overall trends suggest that this is not as widespread as we may hope.

While many microcredit institutions are well intentioned, there has been a notable spread of overzealous and unregulated lending by microcredit firms seeking to make a profit off the poor. They charge high interest rates on loans that many are not able to pay, forcing them into debt, which in extreme cases, has resulted in black-market sales of organs in Bangladesh, and a string of suicides in India. Data regarding loan recovery rates does not take into account what the loan had been used for, as many find that the indebted are taking out loans to cover previous loans, not for economy-building entrepreneurial activity.

The silver bullet

Microcredit has developed as an internationally recognized idea to solve global poverty because it was to be self-sustaining growth. It was to replace the idea of 'hand-outs' and instead be an educational tool to encourage saving and investment in the local community. The world however has been searching for a silver bullet for global poverty that doesn't exist and we would be foolish to think that there could be a simple solution to a problem so complex.

Given the hype and academic focus on microcredit, many other solutions, as well as the origin of poverty, have been overlooked and development has suffered. In rural Bangladesh for example the feudal economic structures will not change with simple loans to the most impoverished, instead efforts would be better focused on boosting agricultural productivity. While a loan may help with this, education and skill development could be more efficient at resolving the key issues of the problem and push rural Bangladesh out of poverty, however the focus remains on microcredit in many of these rural areas of Bangladesh.

United Nations photo

Giant problems, small solutions

With one billion people living on less than $1.25 a day, the line of absolute poverty, it is clear that global poverty exists and needs to be addressed; however recognizing a solution is not as straightforward. As microcredit is examined as a possible force in expanding the opportunities of the poor in developing nations, it has not shown the positive trends towards being a global solution that many hoped it would. Instead, to help reduce global poverty, the approach needs to be tailored to the individual impoverished communities and the needs of the people there.

Microfinance: fighting the batle against aid dependency

Emily Rodgers explores the potential of microfinance programmes as development tools

COMBATTING THE POVERTY seen in developing countries is often thought of as one of the biggest challenges the world faces today. Currently, the richest 85 people in the world are worth more than the poorest 3.5 billion and with this gap only set to increase into the future, something must be done. It has long been thought that aid is the way to combat this: however, is aid pulling the poor out of poverty or pushing them further in?

Why has aid promoted dependency?

Whilst the idea of giving money to help the poorest in the world in times of need is morally sound, the implications it may have on development could be worse than doing nothing. Each year, approximately $184 billion is given in aid to various developing countries. However, many developing countries, particularly in Africa, are experiencing increasing poverty and stagnating economic growth.

Many argue that aid is not the answer to building the economies of developing nations. Herman Chinery-Hesse, a Ghanaian software developer, says "*I know of no country where foreigners came in and developed it, I know about countries that developed on trade, innovation and business.*" He highlights that for the poor to help themselves, they should be encouraged to build their own livelihoods in order to provide for themselves in the future.

How can microfinance help?

Microfinance is an extension of the microcredit model. It is a system of giving small loanes of around $100 to people with small businesses to help with expansion, while offering an array of financial services and business advice. Their businesses do not have to be fully formed shops, in most cases they are just small, family-run market stalls.

The idea behind giving such small loans is that they do not saddle the borrowers with large, unrepayable debts but still provide enough to give their businesses a boost. The borrowers are expected to repay with interest and so they have the incentive to use the loan wisely and ensure their investment succeeds, which may not necessarily be the case with aid hand-outs, as they could just go back and get more when needed. Also, the aim is that the programmes will become self-funding, after the initial capital input. This is highlighted by economist Benjamin Gilman: *"Microfinance institutions not only reduce poverty but they also reduce dependency and enhance self-worth. This is an investment not a hand out."*

Potential problems

The main issue faced by microfinance institutions is outreach: it is estimated they only reach around 1% of the world's poorest households. In addition, many critics say that in order for microfinance to be truly successful, a basic level of education and infrastructure is needed, which is not present in the majority of developing countries: this leads people to describe it as an inefficient investment as they are selected based on poverty level, not business ability. However, this is easily combatable through coupling microfinance programmes with infrastructure development projects.

Currently, it is the case that no microfinance programme has survived without heavy subsidisation from either governments or charities. Although, using the Subsidy Dependence Index to measure the reliance on subsidies, there has been a decrease over time in the proportion of microfinance funding that has come from subsidies. Between 2005 and 2006, Nawaz (2010) found that of 179 microfinance programmes, 139 were subsidy dependent and this fell to 122.

The true benefits of microfinance are still unclear as it is a policy still very much in development. However, it promotes a change in attitudes from dependency on aid to self-sufficiency, which is the way in which poverty should be approached henceforth.

mhobl

Firdaus Omar

50 shades of sanctions

Madara Rudzite examines the tangled European relationships following the EU-Russia sanctions.

A COUPLE OF WEEKS ago the mayor of the Latvian capital Riga called his work trip to Moscow as one "looking for blessing" for Latvian products to return to Russian shelves. Responding to the Western sanctions on Russian banks, arms embargo and embargo on hi-tech oil-production machinery, Russia has recently put a complete food embargo on the EU, the US, Canada, Australia and Norway. In contrast to the abstract 'barring of banks from foreign capital' or the halting of specific technological exports imposed by the West, the trade war is now visibly seen by consumers in Russia and elsewhere.

Even though political commentators try to reassure the public in the West that the sanctions hurt Russia more than they hurt 'us', it is useful to break down the international trade in terms of production as well as country-specific production. Given Europe's energy dependency on Russia as well as varying trading patterns among the countries, sanctions disproportionately affect some EU member states. This is not quite what the EU needs having learnt the lesson about disparities in economic growth, eventually contributing to the Eurozone crisis.

No more rose-tinted glasses for Europe

On the one hand, numbers clearly suggest that Russia is losing more: according to The Economist, the four largest Russian banks have around $15 billion in bonds in foreign currency maturing in next three years. Unable to access foreign capital markets, these banks put themselves in danger and upset investors - foreign loans have decreased for 68% from $25 billion in the first half of 2013 to only $7.9 billion in 2014. However, the City, despite having fears of these shocks, will not be greatly affected, as, according to the Guardian, only 1% of its earnings come from Russia. Similarly, even though The Committee on Eastern European Economic Relations in Germany has already warned of 25,000 job losses if no alternative markets are found, only 1% of German exports go to Russia. This is crucial, as Germany is the main hi-tech technology producer in Europe and thus directly affected by the sanctions.

Still, things have not improved much since the imposition of the sanctions this July, as less and less concessions are made towards Russia. The measures now include Russia's largest bank Sberbank and the state-owned Gazprom. Even though the arms embargo didn't prohibit France from carrying out its controversial plan to sell Mistral warships to Russia, it has temporarily suspended the deal. Germany's industrial output fell for 4% in Q3 2014, raising concerns in Europe about the wider impact on the market. With weak peace efforts in Eastern Ukraine, it is naive to assume that Europe won't be affected in the medium-term, especially with 1/3 of gas consumed coming from Russia and a half of it flowing through Ukraine.

Don't plough your own furrow

This is when country specifics come into play. Not all European countries find it easy to absorb the trade shocks. Ukraine is wary of the upcoming winter, as Russia has suspended its gas supplies since June, and a recent breakthrough agreement with provisional prices seems as fragile as the ceasefire in Eastern Ukraine. Hungary recently halted gas supplies to Ukraine, sparking criticism from the EU and reflecting internal disputes on how Russia should be dealt with.

Another perspective is visible in the Baltic States, all of which are currently 100% gas-dependent on Russia (this will soon change, as Lithuania is currently building its first liquid natural gas terminal) and where sanctions hit the economies harder. Lithuania has the highest percentage of food exportsaffected by the Russian embargo, 0.9%. This bares resemblance to the recent "milk wars", when Russia halted milk imports from Lithuania in 2013 in response to its EU presidency at the time when the Eastern Partnership Treaty dragged Ukraine into its present conflict. The three deeply integrated Baltic economies now struggle to reallocate resources, agricultural factor demand falls and the Baltic market is flooded with under-priced production, prompting fear of a long term exit from the market.

More than the output statistics, market confidence in the European periphery is deeply affected when internal politics are dominated by fear of a threat to countries that have only recently escaped from the communist regimes. In Latvia, for instance, producers have recently submitted a petition for tax holidays for the affected firms, and the government is planning to suspend commercial and income tax for these, along with providing debt guarantees and creating new institutions that would help with trade re-allocation.

Tristam Sparks

More importantly, plans for domestic production awareness campaigns to help domestic producers might help the market in the short run, but in the long run reflect each country's willingness to develop domestic markets rather than wider economic efficiency through trade.

In this context, Hungary's decision to halt gas supplies to Ukraine reflects the classic Prisoner's Dilemma. Politics is just a game where individual countries with individual priorities tend to distrust each other and free-ride. This results in a second-best equilibrium of personal interests with all agents worse off relative to the Pareto Optimal equilibrium, which in this case would be social equilibrium through free trade. To prevent this, individual countries should be assisted to absorb the shocks in order to disincentivize free-riding. The question is, whether the EU, who were already facing internal disagreements on common policy even before the new Commission took office (foreign affairs chief Federica Mogherini and her controversial pro-Kremlin remarks being the prime example), can bring its members together to reinforce the ideals of an open market.

What's next?

In the wider context Europe must decide whether it only cares that it may be doing better than Russia or by how much more it does - and how can it help out the members that don't have as balanced trade and thus are more likely to be affected. Europe should also remember that the founding of the EU is based on trade - the single force that could end centuries of inter-country wars on the European soil. Harvard Business Review analyst Andrea Ovans argues that, even though trade war is better than actual war, in the long run peaceful relations can only be sustained if there are mutual business interests. She quotes Clinton White House pollster Nicolas Checa's article: "*As people liked to say, no two countries with McDonald's had ever gone to war with each other.*"

Neither trade war, nor actual war, can ever be the right choice. While Europe is struggling to get back on the path of peace with Russia, it should also try to make peace within the continent. We should, after all, be united in diversity.

A currency union without a cause?

Angus Phimister looks at whether or not Eurozone countries underestimated the value of an independent currency

Charles Clegg

THE FOUNDING OF the euro at the signing of the Maastricht treaty in 1992 can be seen as a defining moment in the Eurozone project. Yet in the wake of the Eurozone crisis, and with the prospect of another Eurozone recession increasingly likely, the question remains as to whether or not a common currency was a suitable solution for an area as economically diverse as Europe. Key to answering this question is the idea of the value of an independent currency; how did the lack of an independent currency and monetary policy affect the choices available to Eurozone countries during the crisis, and how did this affect their recovery?

Built to last?

The logic behind the formation of the euro is multifaceted, and arguably contains more political than economic reasoning. In terms of the economics, the central motivation is that price stability eliminates exchange rate risk and thus encourages trade amongst members. This logic is held up by empirical evidence which points to a positive effect of common currencies on trade. The problem of such an arrangement however is clearly demonstrated in the currency trilemma; joining a currency union whilst maintaining capital mobility necessarily means forgoing an independent monetary policy.

Countries within the currency union rely entirely on the central monetary authority, in this case the European Central Bank (ECB), to determine monetary policy for the entire Eurozone. Thus it is of considerable importance that different parts of the union face symmetric macroeconomic shocks, meaning that ideal monetary policy across the union is advantageous for all. This idea, along with the things such as capital and labour mobility, form the basis of the optimal currency hypothesis, from which the suitability of common currency areas can be assessed. Problems arise in the case where such shocks are *asymmetric*, affecting different parts of the union in different ways, as was the case in the Eurozone post 2008. This asymmetry can create a situation where the monetary policy that is counter cyclical in one part of the union is pro-cyclical elsewhere.

The foundation of a crisis

The problems associated with such a monetary arrangement were to become abundantly clear to the Eurozone. Prior to 2008 periphery Eurozone countries, notably southern Europe and Ireland, enjoyed large capital inflows from core Eurozone countries and inflation consistently above the Eurozone average. This combination of price growth differentials and capital inflows caused nominal wage growth larger than productivity growth. This situation was exacerbated by abnormally low wage growth in core countries (notably Germany), thus making periphery countries increasingly uncompetitive relative to the core.

This trend could not continue indefinitely. Once the 2008 financial crisis descended and the sovereign debt crisis emerged, this relative lack of competitiveness required correction. One reasonable policy approach to alleviating this crisis would be through large monetary expansion and, if one was feeling particularly Keynesian, a significant dose of fiscal stimulus. With a floating exchange rate such a course of action would lead to depreciation, thus making the economy relatively more competitive without lowering nominal prices. Constrained by the one size fits all monetary policy of the ECB however, Eurozone countries were left with no option but internal devaluation. Internal devaluation and the austerity associated with it have made the recessions in the periphery both longer and more painful than they need to have been. The problems accompanying internal devaluation are numerous. One of the major issues arises from the fact that prices are not fully flexible in reality. Downward nominal wage rigidity (or 'downward wage stickiness') for example, severely hinders a country's ability to internally devalue. As workers are unwilling to accept nominal wage cuts, equilibrium cannot be reached and unemployment increases further than would be expected. In the case of the Eurozone this compounded the pressure on government finances, reducing tax receipts whilst increasing welfare payments.

This problem is amplified by the ECB's unwillingness to accept higher inflation. Higher average inflation would allow employers to reduce real wages without the need for nominal wage cuts, helping to eliminate any unnecessary increase in unemployment. By holding their own inflation levels below the average, periphery countries could then reasonably and relatively painlessly regain competitiveness. Influenced heavily by the Deutsche Bundesbank, the ECB has so far been unwilling or unable to increase inflation, much to the detriment of periphery countries attempting devaluation.

Learning from Gold

Given the difficulties that many Eurozone countries have found themselves in, the question remains whether or not such an event should have been foreseen by policy makers. The example of the gold standard and the fallout from the Great Depression offers such an insight.

The gold standard, whilst not exactly analogous to the Eurozone, can offer some useful comparisons. All currencies on the gold standard had to be fully redeemable to a fixed amount of gold, and therefore were fixed relative to each other. This arrangement in essence fixed money supply to gold production. By letting money supply growth be determined by the efficacy of gold mines in any particular year, countries in the gold standard, just like individual Eurozone countries, forwent their ability to tailor monetary policy to economic circumstance.

Due to this lack of monetary autonomy, gold standard countries in the wake of the Great Depression faced the same dilemma as Europe's periphery did in the Eurozone crisis. Unable to devalue their currencies to encourage growth through increased competitiveness, gold standard countries were faced with the choice of either breaking the peg to gold or internal devaluation. The comparison between countries that made either of these choices is illuminating. Figure 1 shows an index of industrial production in gold block countries over the course of the great depression.

On the 19th September 1931 speculative attacks on the pound forced the Bank of England to abandon the gold standard. Freed from gold standard constraints, the bank dramatically lowered interest rates (short term real interest rates falling from 9% to 0.6% by 1933), providing monetary stimulus. The positive effect of this stimulus was a key factor in determining the strength of the UK recovery. By contrast in countries which delayed devaluation, such as France, economies spent years being forced through the deflationary wringer, stifling growth and delaying recovery.

Whilst the Eurozone as a whole clearly has much greater control over overall monetary policy than gold standard countries had, the gold standard demonstrates the potential benefits of a monetary policy *tailored to economic circumstance.*

The Future of the Euro

Given the inherent tensions that exist within the Eurozone, and in the light of a deteriorating macroeconomic outlook for the Eurozone as a whole, the future form of the euro is an increasingly pressing question. Whilst the break up the euro in the short term remains unlikely, reforms are required in order to give the euro a sustainable future. It seems prudent that reforms should focus on making the Eurozone fit better to our definition of an optimal currency area; increasing labor and capital mobility and banking integration. Moves by the ECB to introduce quantitative easing can be seen as a step in this direction. How successful these reforms will be in reducing the systemic problems of the Eurozone remains to be seen.

MPD01605

To pay or not to pay?

Ruzin Saleem examines why countries repay their debt

MOST OF US are familiar with the general argument regurgitated by financial pundits against defaulting on sovereign debt: credit ratings. Defaulting on sovereign debt is likely to have a catastrophic effect on the country's credit rating. Credit ratings, however, are not seen as a reliable standard anymore. Investigations post-recession revealed that credit rating agencies (CRAs) gave triple-A "money safe" ratings to securitized mortgages known as mortgage backed securities and collateralized debt objectives based on risky "non-prime" or "sub-prime" mortgages. The Financial Crisis Inquiry Commission set up in the US to investigate the causes of the 2008 financial crisis concluded that the failures of the big three rating agencies were "essential cogs in the wheel of financial destruction" and "key enablers of the financial meltdown". The validity of sovereign credit ratings given by the CRAs is questionable considering their involvement in "ratings laundering". Thus countries fearing a credit rating downgrade does not seem to be a very good argument against default.

Other persuasive arguments against default include damage to a country's long term reputation, exclusion from international capital markets, trade sanctions and on rare occasion: military pressure (When Venezuela defaulted on its sovereign debt in 1902, German, British and Italian gunboats blockaded the country's ports until the government paid up). However, these arguments stand embarrassingly at odds with the fact that serial defaulters such as Argentina have been allowed to access international capital markets after a short while. Research also finds that the increase in risk premia for past defaulters is too small to suggest a disincentive to default i.e. the cost of financing does not steeply increase for countries with default histories on re-entry into capital markets. Though Argentina faced an extremely painful economic crisis post default, the country rebounded and was growing at 8 to 9 percent within a year with strong gross bond sales. As The Economist put it: *"Capital markets appear to have a remarkably short memory"*. Investors returned to Argentinian shores at the first sight of higher returns. Argentinians were also fortunate enough to not face trade sanctions or military pressure. Although Argentina had a painful recovery, she recovered nonetheless. Her example begs the question: Why do countries continue to repay their debt?

Cost of Default

A more persuasive argument is that countries with substantial holdings of government debt by domestic financial institutions will continue to service their debt as a default would leave domestic banks insolvent, halt domestic financial transactions and cripple domestic activity. On the other hand, countries with underdeveloped financial markets or those with sovereign debt mostly held by external lenders have a low cost of default and should default on their debt. It is then imperative to examine why countries with low costs of default continue to borrow and service their debt.

Political Myopia

One theory is that governments are myopic i.e. they fail to internalise the long run cost of repaying the debt. Governments are more likely to care about the short term because of political mortality: they are elected for a temporary and fixed period of time. In order to gain public favour and remain in power, governments will maximise spending to pursue populist policies such as an increase in income transfers to keep the electorate happy. Governments will continue to roll over debt i.e. they will continue to borrow more as long as cash inflows from borrowing allow them to service interest payments on accumulated debt in addition to financing extra spending. In the short run, governments have an incentive to borrow. In the same vein, governments are also faced with a substantial disincentive to default. A default would shut down the money spigot and debt renegotiations might continue through the rest of their elected time in power. Importantly, it would halt spending that could affect government services which would prove deeply unpopular with the electorate. While the current government incurs the costs of default, both political and economic, they would see very little in the way of benefits as these are more likely to accrue to future governments.

Robert Scoble

Michèle Belot’s insights

Alina Mika talks to Michèle Belot, a researcher in Behavioural Economics at the University of Edinburgh about behavioural economics and the importance of passionate curiosity

What is your educational background and how did you end up at the University of Edinburgh?
I’m originally from Belgium and that’s where I did most of my undergraduate studies. I studied Economics, Political Sciences and Sociology, but in my second year I switched to pure Economics. In the last year of my degree I went to the Netherlands where I stayed to complete my PhD. Afterwards, I worked for two years in a policy research institute in the Netherlands. Exactly ten years ago I went back to academia; first I went to Essex, then Oxford, and two years ago I came to Edinburgh.

What exactly is your research focused on?
I specialise in Behavioural Economics, which tries to understand how people make decisions. It is based on a lot of empirical and experimental evidence, which shows that when people make choices they do not always behave like standard models would predict. What we try to do is find out whether there are systematic ways in which people behave, and whether we can model them to make predictions about the average person. My recent work is based on health behaviours: trying to understand why people smoke, eat junk food and drink too much. What seems to happen is that people make various plans to stop these behaviours, but they seem unable to commit to a more healthy life. What we’re trying to understand is where it’s all going wrong.

And where is it going wrong?
(Laughing) That’s what I’m trying to understand! One hypothesis, which has received a lot of support, is that people are time inconsistent. They seem to plan to eat a burger today and start a diet tomorrow, but then when tomorrow comes they change their mind. This is not something we can rationalise in traditional economic models, but more recently people have come up with models which are powerful in explaining people’s real-life decisions, not only relating to health but also saving behaviour, etc. But this of course is only one way of explaining it.

What have been your own experiences with research in this area?
We found that even in this area “competition” works as a strong incentive. We have conducted experiments with children and tried to encourage them to eat healthy food. We set up different incentive schemes: one was based on individual behaviour and another on competition. We found that competition was a much more powerful and long-lasting incentive to eat healthy food and we did not necessarily expect this! We thought that competition may have been stronger because of its social component, as opposed to individualised reward systems.

Many Economics students in the fourth year of their undergraduate degree are trying to decide whether they should keep studying or get a job. What advice can you give those students?
First of all, when thinking about the different directions one can take, I think it is really important that people discover and follow their passions. In the current economic climate we hear a lot about youth unemployment. What worries me is that young people will seek safe options and do things they don’t really like. And in order to push a society forward, we need people with passions and ideas. Second of all, when it comes to choosing between pursuing further studies versus beginning a career: I think one’s personality has a lot to do with it. If you’re creative and entrepreneurial,

you might flourish in the self-employed academic field. If you work in academia it is likely that the line between personal life and academia will become a bit blurred because you’re always thinking about what you’re working on. Of course, this also applies to the professional world, but what I have found is that initially, in the professional world, you tend to be in a position where you are told what is expected from you. Of course it is wonderful for other people who prefer being given a clear structure of their work day, have specific tasks and not having to worry about coming up with new ideas.

What passions do you have outside of academia?
I am the perfect example of the blurred line issue I mentioned earlier. I’m passionate about food and health. I very much like hiking, healthy cooking; I’m a vegan, actually! I want to be healthy and make other people healthy, so it’s not a coincidence that I steered my research in that direction.

Blessing or burden?

Olivia Nyikos explores the extent of women's independence in light of China's economic transition and political changes

DURING THE 20TH century several changes came to pass in China that affected the social situation of women. The Cultural Revolution, economic restructuring and state policies influenced the independence and mobility amongst Chinese women. Even though the economy began to develop, gender and class played a crucial role in the stratifying process and how a woman's position in society improved. In China's case economic growth and transition was strongly connected to political transformations, and the transformation of values that lead to the betterment and independence of women in China

Changing policy periods

Before the Cultural Revolution the period of early childhood and schooling in a woman's life was determined, and the position they could fill in 'the social pyramid' later on depended on it. As a result of limited access to education and a traditional preference for boys, some women started out at a major disadvantage when entering the labor market during the period of women's liberalisation.

During the Cultural Revolution, which ended with Mao Zedong's death in 1976, class took precedence. For many families this meant the men of the family being imprisoned for political reasons and the women working 18 hours a day to ensure minimum living conditions for their children. Only a low level of education was provided at this time, which hindered children from lower classes' ability to progress. Throughout this period, women were absorbed into the Party' Central Committee as a result of their powerful kinship connections; this demonstrates that class sometimes took precedence over gender in some circumstances.

There was also a sharp line drawn that separated the cities and the countryside. People from urban areas were sent to the countryside for 're-education', whereas in reality, some saw it as easing the pressure of urban unemployment. A new labor regime developed that fostered segmentation and division of work. Women, whether from the countryside or the city, had experienced segregation, however peasant women's work opportunities in the urban labor market were worse in most cases.

Modern marginalisation

The economic restructuring from 1985 to 1995 saw China witness a vivid social transformation. During this transformational period, gender segregation showed itself as a real frustration. Women faced many forms of it but occupational, horizontal and vertical segregation were most common. The result was almost the same. In occupational segregation, one could speak about two separate labor forces which were not in competition with each other as the work of a woman was often presumed inferior. In horizontal segregation male and female workers took different types of work, heavy and light industry, respectively: however women were often considered technically and physically incompetent, thus they were rarely given the opportunity to be in higher managing positions. Few women received the required education for being in leading positions, due to the elitist nature of the time, and this led to the absence of women in managerial positions, which is the main pattern of vertical segregation. During the restructuring when market reforms took place on a large scale, women became more vulnerable to redundancy and unemployment and were seen as an obstacle to China's modernisation: the cost of China's economic reforms fell most heavily upon women.

Past and present

The introduction of industrialisation and large scale employment amongst women formed the basis of social change and provided opportunities for them to step out of traditional domestic roles. In the past one hundred years there have been major advances for women in China, both in terms of their position in society and their economic independence. Whilst there are many women in China who have made it to the top and are successful entrepreneurs, there are still women who do not have the opportunity to experience these changes, due to the still evident class system. The leveling of traditional hierarchies and the subsequent economic liberalisation had its effect: an emergence of female mobility and increasing opportunities.

Robert Scoble

Educational reform

Oskar Birol considers the expansion of independently run schools and the implications of allowing profits in education

AFTER 30 YEARS of ceaseless tinkering with education by the government, the Conservative - Liberal Democratic coalition decided to set the secondary schools free from local authorities. They hoped to reverse a trend of stagnant student performance many blame on social inequality and lack of discipline. The sweeping changes were passed in 2010, which briskly accelerated the advancement of academies in England. These free, non-selective institutes are inspired by the success of the Swedish independent school system and American charter schools. Characterised by being publicly funded and independently run, they have a greater autonomy over their teaching curriculum, staffing and budgets. In four years, a whopping 60% of all secondary schools in England have converted into academies. Supporters argue that in a less regulated market succesful schools expand meanwhile under-performing ones close. Furthermore, previous education secretary Michael Gove claims that prior reform attempts by the Labour Party have failed because their excessive bureaucracy stifled innovation. Left wingers and unionists denounce the movement as a sly first step towards privatising education and thus an attack on the very existence of free, state comprehensive education.

The 2010 act diverged from the Swedish and American models by prohibiting profits among academy trusts; the registered organisations running the schools. It was then a well-received decision due to the widespread stigma against private companies extracting gains from a public pool of resources. However, the downside of this ruling is weaker competition because only a handful of organisations are willing to set up schools without the prospect of financial gains.

Self-governance

School minister Nick Gibbs believes the reformation renews teachers' morale and confidence as they no longer struggle with ever demanding bureaucratic requirements. Long-term research from the think tank The Institute for Evaluation of Labour Market and Education Policy in Sweden indicates positive effects of independent schools in terms of a 2% higher tertiary school enrolment and improved standardised test results. Moreover, promising early findings by The London School of Economics show that the more autonomy English academies have, the greater they outperform conventional schools. Policies can be more succinctly applied as they do not have to be generalised to a wider district, resulting in more efficient schools. Yet academies remain for the most part an infant project so it will be a few years before the real long-term effects in England can be measured.

The critical feature of this initiative is whether or not chains of academies will thrive. Ideally, an entrepreneurial trust establishes a set of new schools and possibly converts old ones to form a chain as to benefit from shared staff and expertise; utilising economies of scale. This is where the big advantages may lie, and some 10% of academies are already part of a chain. However, initial results have been mixed. Labour's shadow education secretary Tristram Hunt identifies the difficulties as a consequence of inadequate oversight of academy chains and said *"problems are not being spotted early enough"*. The government would benefit from giving the appointed school watchdog Ofsted more explicit authority to investigate academy chains and pinpoint opportunities for improvement.

Henry Zo Raktondramanana

Non-profiters profiting

Back in 2008 when asked whether profits in education should be banned, the director of Sweden's Independent Schools Association responded that it would not matter in practise. Trusts seeking to earn money would diversify themselves into non-profit schools and a profit-making body supplying services such as teaching materials and consultancy. This prediction proved accurate as the largest academy chain in England, AET, was accused of 'privatisation by stealth' last month over plans to outsource all non-teaching positions to its new partner: PwC.

Explicitly allowing profits would incentivise the establishment of more schools, resulting in greater variety and competition. Rivalry for students in Sweden has shown to cause higher grades. This has the occasional drawback of closed, outcompeted schools, but it also leaves room for better schools to expand. Ultimately everything comes down to the controversial risk of allowing investors to jeopardise children's future to profit from money intended for students' education, even if this would generally lead to better results. Considering the upcoming general election next year the current coalition will wisely be content with current legislation.

WINNER OF THE INSIGHT WRITING PRIZE - WINTER 2014

Failure to launch

Andrea Schmidtová explores the so-called boomerang generation, young adults giving up their freshly acquired independence and returning home to live with their parents

ACCORDING TO THE Office for National Statistics, 3.3 million British young adults aged 20 to 34 currently live with their parents, constituting 26% of the cohort size, a number that has increased by a fourth over the past two decades. The United States reports a similar pattern with a 20% and rising proportion of youngsters still (or again) under their parents' roof. Is this a blip in the data, part of a long term trend, result of the current economic situation or something else altogether?

Economic factors

Surely, every teenager has dreamt of spreading their wings and flying out of their nests as soon as they become economically independent and can afford their own place, whether that is by renting, flat shares with friends and colleagues, or taking out a mortgage. These options have, however, become less attainable compared to the generation of their parents due to a number of reasons.

First of all, the recent financial crisis and subsequent austerity measures have left the labour market under significant stress, doubling the youth unemployment figures. Whereas the employment rate remained relatively stable for the older generations, it fell by 4 percentage points among the youth. Being unable to afford their own place constrains young professionals to a particular geographical location and limits their mobility in terms of job search, which further worsens the problem of youth unemployment and creates inefficiencies in the labour market.

Additionally, Generation Y (individuals born in and after the 1980s) has also taken the hit in terms of income levels, which have plunged 13% for the under-30s as opposed to a 7% decrease for the rest of the workers. Even though the costs of living aren't rising as fast as before the recession, it is not hard to prove that it currently takes significantly longer to save up for a deposit or a mortgage down-payment. In fact, the ratio of house prices to average earnings has increased from 5.7 to 7.7 over the past 25 years and the same pattern is observed for rental property.

It must also not be forgotten that the financial crisis brought about a wave of credit crunch, with financial institutions unwilling to lend to risky individuals, who already owe an average of £30-40k in student loans. In support of these findings, the data show that the average age of a renter has decreased from 32 to 29 and that of a first time buyer has shot up from 23 to 37 since the 1960s. These figures show that young professionals have switched from buying property to renting first, as compared to their parents.

In this regard, young people moving back in with their parents instead of renting expensive flats seem to be rational economic decision makers. By sacrificing short term utility derived from independence, they are able to significantly increase their disposable incomes by avoiding housing costs altogether (dependent on the financing arrangements with their parents), which translates into higher savings over the long term, allowing them to become house owners later on, or alternatively, to found their own businesses to improve

Julie Falk

WINNER OF THE INSIGHT WRITING PRIZE - WINTER 2014

Natasha Mileshina

their financial situation.

Social shift

The discussed economic impacts of the recent recession on the incidence of the Boomerang generation go a long way towards explaining the phenomenon over the past couple of years. However, the data indicates that the proportion of young professionals living with their parents has been increasing steadily since the 1950s, although amplified by the business cycle, thereby indicating a long-term trend as opposed to a reaction to the recent shock.

One of the obvious explanations of a persistent trend would be the fact that the process of settling down, marriage and founding of a family is getting pushed back to later stages in life. Although it is difficult to determine the actual direction of the causality, one might argue that the record numbers of young people enrolling in tertiary education and graduating from universities stand behind this phenomenon. As a result, the necessity of independent housing decreases.

However, the analysis may not end here. Some academics propose that the boomerang effect is not a temporary shift in preferences but a permanent life stage. When we look at the very definition of what constitutes a child, we might be shocked to find out how much the boundaries have shifted over the course of not so distant history. A century ago, children were considered as equal members of the family who were expected to work all day along with the adults, whether that was in the household or out in the fields. As the economy industrialised, the youngest members of families became more likely to be spared of hard work and allowed to obtain more education. Along with outlawing child labour, teenagers have begun to be viewed as old children as opposed to young adults. Consequently, it could be argued that it will become a social norm for 20-somethings to stay living with their parents until it becomes economically rational to become independent, blurring the boundary of adulthood even further.

Family matters

Finally, there is an aspect to this story which is unlikely to be captured by figures and trends; the impact that such a behavioural shift has on families and relationships. Surely, the independence and freedom lost does not only affect the Boomerang generation, but also the parents, who expected some relief from responsibilities after accomplishing the mission to raise their children.

As Generation X (individuals born between the 1960s and 1980s) grows older and nears retirement, they may find it desirable to downsize their living space and thus cut their accommodation-related spending. Naturally, they would have to scrap those plans in case of the unexpected return of a child. At first glance, this may seem to have an adverse effect on the parental finances. However, depending on the overall arrangements of sharing costs of living and chores, such co-habitation may actually be beneficial for both parties. Indeed, according to the 2012 study by Pew Research Center, almost a half of the "boomerangers" pay rent and 89% help their parents with expenses. The paper claims that overall parental satisfaction with the quality of life remains unaffected, with the apparent decrease in comfort levels made up by better family ties and time spent together.

All in all, it seems that the Boomerang generation is not a temporary outlier and is here to stay. However, before we all end up on our parents' doorsteps a day after graduation, using the argument of an inevitable socio-economic shift to justify the reliance on the Bank of Mum and Dad, let's at least give the sweet taste of independence a try.

What does an economics degree taste like?

Anna Buchmann argues the case for more pluralism in teaching so that students can gain a greater overview of the different flavors of economic theories

IF YOU HAVE been an economics student for three years, and only realize now that the title of The Quarterly Journal of Austrian Economics does not refer to its place of publication but to a school of thought, then it seems safe to say that your understanding of economics is far from sufficient. In the light of the current criticism of economics teachings at universities, this is not an exclusive case. Students around the globe have come together to pledge for economic pluralism, and the world of policymakers and academia seems increasingly receptive to their ideas.

The debate about the scope of economic theory in teaching and public discussion is not a new phenomenon. In 1992 the Foundation for European Economic Development (FEED) openly showed concern about the direction that economics as a science was taking. In their plea, which was signed by 44 leading economists, the charity called for "a new spirit of pluralism in economics, involving critical conversation and tolerant communication between different approaches".

After the Great Recession, similar movements sprung up all over the world; the most recent one being organized by students themselves. In an open letter, the International Student Initiative for Pluralism in Economics (ISIPE) criticizes the "narrowing of the curriculum" and the "lack of intellectual diversity" in teaching. They demand that the economics curriculum taught at universities should include theoretical, methodological and interdisciplinary pluralism in order to "create a space in which solutions to society's problems can be generated."

A similar standpoint is taken by leading economist and best-selling author Ha-Joon Chang. In his new book, Economics: The User's Guide, he explains the need to extend teaching beyond the neoclassical framework. Chang uses an analogy of different flavors of ice cream and economic theories to capture the reader's attention. Imagine that your whole academic life, you've been thinking that there is only one flavor of ice cream, standard vanilla, whilst there are actually at least 9 or 10 different flavors to indulge in!


Ksung

When there is only one flavor of ice cream: standard vanilla

Keeping up the sweet metaphor of ice cream, neoclassical economics would be the standard vanilla flavor. As the mainstream model, this framework focuses on price determination in markets through forces of supply and demand, combined with the notion of representative agents facing a maximization problem. This short summary already brings the main problems of neoclassical economic models to the surface: Are all agents really the same? Does the market always work perfectly in determining the price? Do consumers/firms always want to maximize consumption/production?

Whilst some of these issues are used as arguments for government intervention, others are merely referred to as shortcomings of the model, without many alternative explanations being offered. For example, the Solow growth model identifies technological progress as a determinant of economic growth. However, this variable is assumed to be exogenous and thus not explained. Textbook economics also explores endogenous growth models, wherein knowledge spillovers create increasing returns to inputs and thus growth. Nonetheless, the current empirical data seems less supportive of this textbook view. This leaves us with the impression that some problems and complexities of the real world are assumed away when it comes to standard modeling.

This does not mean that modeling should be abandoned completely. Very broadly speaking, economics tries to explain and understand the functioning of the world, how people interact with each other and the environment. Since the world is too complex to be fully understood at all times, models are a useful way of clarifying the thought process. By making assumptions about people's behavior and the working of the market, economists are able to single out effects and thus make predictions and policy recommendations. However, when models are presented as the 'be all and end all' to an economic problem, teaching facilitates the evolution towards a monocultural economic science. Instead, it needs to be stressed that all theories are partial and the right choice depends on the context and the question asked.

Spicing up vanilla with some chocolate

Returning to the above example of exogenous technological growth, in order to complement the Solow growth model, students could be encouraged to look into the teachings of the Schumpetarian/Evolutionary approach. Joseph Schumpeter stresses the role of the entrepreneur as the facilitator of innovation, and thus growth. This is only one of the possible explanations for the process of technological growth. Furthermore, if one is interested in the questions of how firms start and grow, mainstream economics will prove to provide an insufficient answer, since the representative firm is simply assumed to exist. In contrast, the Schumpetarian/Evolutionary approach points out that, because of uncertainty, the entrepreneur uses the firm as a vehicle to test value creating conjectures.

This possible complementarity of theories, and their context dependency can also be seen in the data. In his book, Chang presents the example of Singapore. On the one hand, the government has been pursuing free trade policies and a welcoming attitude towards foreign investors. On the other hand, 90% of the land is owned by the government, and 22% of GDP is produced by state owned enterprise (compared to 9% worldwide average). Singapore, therefore, represents a case where extreme capitalism is combined with extreme socialism. This is a scenario that no economic theory by itself can explain.

What if there are nine flavors of ice cream?

Being restricted to only one flavor of ice cream greatly affects life satisfaction and happiness. Similarly, one economic theory greatly limits understand of the mechanisms at work. Students should be taught not what to think, but how to think. In this sense, it is important to expose the fresh, new minds to as many theories as possible from the very beginning. Steps towards achieving a heterodox approach have been taken by the CoreEcon Project, which included the publication of "The Economy." This publication is an undergraduate textbook that focuses on providing students with a more thorough view of economic history and alternative views. The text is available for free online, and has been adopted by several universities around the world. Recently, however, "The Economy" has been criticized for still not including many varying economic theories and perspectives.

In order to be independent thinkers, students must be able to pick the theory or paradigm they believe is most applicable. The freedom to choose and the independence of thought should be the focus of postcrisis teaching of economics. Increased discussion and contrasting views are needed to make the best choices for the future, whether it is academic research or policy making. In the end, all students need to be encouraged to go beyond the teachings, do their own research, and ask themselves the question: What is my favorite flavor of ice cream?

	Classical	Neoclassical	Schumpeterian	Austrian	Marxist
The economy is made up of...	classes	individuals	no particular view	individuals	classes
Individuals are...	selfish and rational	selfish and rational	no strong view, but emphasis on non-rational enterpreneurship	selfish but layered (rational only becase of an acceptance of tradition)	selfish and rational, except for workers fighting for socialism
The world is...	certain ('iron laws')	certain with calculable risks	no strong view	complex and uncertain	certain ('laws of motion')
The most important domain of the economy is...	production	exchange and consmption	production	exchange	production
Economies change through...	capital accumulation (investment)	individual choices	technological innovation	individual choices, but rooted in tradition	class struggle, capital accumulation and technological progress
Policy	free market	free market or interventionist, depending on the economist	ambiguous, capitalism is doomed to atrophy, anyway	free market	socialist revolution and central planning

Adapted from: Ha-Joon Chang, Economics: A User's Guide, A Pelican Introduction, 2014

THE TIMES TOP 100 GRADUATE EMPLOYERS
EMPLOYER OF THE YEAR

The experience stays with you

Layo at PwC's More London office

Assurance
Actuarial
Consulting
Deals
PwC Legal
Tax
Technology

All degree subjects

Voted employer of choice by students in The Times Top 100 Graduate Employers survey for eleven years running.

Opportunities with the UK's number one graduate employer

Offices across the UK » Join spring, summer or autumn

Your career is just that; yours. You choose it. You live it. You make it happen. To get the best from it, you need the best opportunities. That's why opportunities are at the heart of a career with us. Opportunities to grow as an individual, to build lasting relationships and make an impact in a place where people, quality and value mean everything. For Science graduate Layo, that meant exploring the business world on our Tax Summer Internship – and like many of our talented interns, she was offered a job with us at the end. Now she works on major tax projects, helping the employees of some of the world's biggest companies manage their complex tax affairs. Join PwC – we're focused on helping you reach your full potential.

Take the opportunity of a lifetime

www.pwc.com/uk/careers

www.facebook.com/PwCCareersUK

pwc

Diverse people make us stronger