STUDENT ECONOMIC REVIEW 2013

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Emmet Kiberd

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Towards a European Labour Market: Combating Long-Term Unemployment and Improving Trade Unions through Increased Migration

Paul Kelly

Institute for International Integration Studies

Best Freshman Essay

Bewitched by Economics

Conor McGlynn

EDITORS AND GENERAL MANAGERS OF THE STUDENT ECONOMIC REVIEW 1987 - 2013

Year	Editor	General Manager
1987 (Vol. I)	John Fingleton	Paddy Waldron
1988 (Vol. II)	Kevin Carey	Finbar McDonnell
1989 (Vol. III)	Jonathan Wright	Joe Dennehy
1990 (Vol. IV)	Philip Lane	C.J. O'Neill
1991 (Vol. V)	Paul O'Connell	Billy Stamo
1992 (Vol. VI)	Alan White	Addo C. Barrows III
1993 (Vol. VII)	Gareth Davis	David Butler
1994 (Vol. VII)	Alan Dunne	Donagh Butler
1995 (Vol. IX)	Feargal Shortall	Myles H. Clarke
1996 (Vol. X)	Geoffrey Gill	Suzanne O'Neill
1997 (Vol. XI)	Sarah Rowell	Carol Newman
1998 (Vol. XII)	Richard Doyle	Charlotte Hess
1999 (Vol. XIII)	Michael McMahon	Niamh McDonagh
2000 (Vol. XIV)	Ana Carrie	Colette Murphy
2001 (Vol. XV)	Ronan Lyons	Charles Larkin
2002 (Vol. XVI)	Ivan McAdam	Janine Boyd O'Connell
2003 (Vol. XVII)	Rowena Gray	Elaine Doyle
2004 (Vol. XVIII)	Denis Tkatchenko	Tara McIndoe
2005 (Vol. XIXI)	Cormac O'Dea	Paul Sammon
2006 (Vol. XX)	Deirdre O'Reilly	Melinda Simonffy
2007 (Vol. XXI)	Niamh Crilly	Charlie Nolan
2008 (Vol. XXII)	Nathalie Ennis	Kieran Curtis
2009 (Vol. XXIII)	Jean Acheson	James Walsh
2010 (Vol. XXIV)	Jason Somerville	Amandine Lobelle
2011 (Vol. XXV)	Robert Farhat	Áine Ní Shúilleabháin
2012 (Vol. XXVI)	Tony O'Connor	Debbie Blair
2013 (Vol. XXVII)	Brian Higgins	Marielle Grigsby-Rocca

Guest Speakers at the Launch of the Student Economic Review 1990 - 2013

Speaker	Organisation	Year
Richard Lipsey	Simon Fraser University	1990 (Vol. IV)
Charles Goodhart	London School of Economics	1991 (Vol. V)
Peter Sinclair	Brasenose College, Oxford	1992 (Vol. VI)
David Greenaway	Nottingham University	1993 (Vol. VII)
Hamish McRae	The Independent, London	1994 (Vol. VII)
John Sutton	London School of Economics	1995 (Vol. IX)
John Martin	OECD	1996 (Vol. X)
Alan Tait	IMF	1997 (Vol. XI)
David O'Sullivan	European Commission	1998 (Vol. XII)
Paula Donovan	World Bank	1999 (Vol. XIII)
Dermot McCarthy	Department of An Taoiseach	2000 (Vol. XIV)
Donal Donovan	IMF	2001 (Vol. XV)
Margaret Doyle	The Economist	2002 (Vol. XVI)
Tom Healy	The Irish Stock Exchange	2003 (Vol. XVII)
Gerry Foley	ITV PLC.	2004 (Vol. XVIII)
John Fingleton	Competition Authority	2005 (Vol. XIXI)
Marius Brulhart	HEC University of Lausanne	2006 (Vol. XX)
Cliff Taylor	Sunday Business Post	2007 (Vol. XXI)
Alan Barrett	ESRI	2008 (Vol. XXII)
Patricia Callan	Small Firms Association	2009 (Vol. XXIII)
Jane Williams	Forfás	2010 (Vol. XXIV)
Tom O'Mahony	Department of Transport	2011 (Vol. XXV)
Kyran McStay	Key Capital Limited	2012 (Vol. XXVI)
Alan Gray	Indecon Economic Consulting Group	2013 (Vol. XXVII)

STUDENT ECONOMIC REVIEW DEBATES 1996 - 2013

Year	Opposition	Topic	Victor
1996	U.C.D.	Third-Level Fees	Trinity
1998	U.C.D.	EMU Withour Britain	Trinity
1999	Oxford	The Euro: The Way Forward?	Oxford
2002	Oxford	Boston or Berlin?	Trinity
2003	Cambridge	The Euro is a Success	Cambridge
2004	U.C.D.	Free Trade and Development	U.C.D.
2005	Oxford	Third World Debt	Trinity
2006	Cambridge	Common Agricultural Policy	Trinity
2007	Oxford	Environmental Responsibility	Trinity
2007	Yale	Boston or Berlin?	Trinity
2008	Harvard	Mass Emigration and Labour	Trinity
2008	Cambridge	Britain's Place in Europe	Cambridge
2009	Yale	Boston or Berlin?	Yale
2009	Oxford	Bank Nationalisation	Trinity
2010	Cambridge	Should Ireland Have Joined the Euro?	Trinity
2010	Harvard	The Decline of U.S. Economic Dominance	Harvard
2011	Oxford	Ireland Owes a Debt of Gratitude to Britain	Oxford
2011	Yale	It's All America's Fault	Trinity
2012	Cambridge	Ireland Should Rejoin the Sterling Area	Trinity
2012	Harvard	The US State Does Not Care for it Sick	Harvard
2013	Oxford	Deserting the Euro	Trinity
2013	Yale	Tax is Theft	Trinity

'The Student Economic Review is the only student-run economics journal that I know of at any university. It has succeeded beyond anyone's wildest expectations when it first came out… As recent events have highlighted, economics is still a young discipline, and the economics profession still has much to learn, but the opportunities and questions are exciting. The Student Economic Review is an unparalleled vehicle for getting students involved in research in economics and related fields.'

Prof. Jonathan Wright
John Jopkins University, formerly Board of Governors US Federal Reservce, SER Editor 1989

'The Student Economic Review gives many student their first opportunity to publish a piece of academic written work. It thus suports and promotes the rigorous analysis, excellence in learning and persuasion that are essential building blocks for future careers and broader intellectual contribution. The collected contributions … constitute an elegant contribution to scholarship and erudition of which Trinity College can be proud.'

John Fingleton,
Chief Executive at the Office of Fair Trading in the UK
SER Editor 1987

'In my 1st year at Trinity, I read the Student Economic Review with awe. There were so many thought-provoking articles, written to such a high calibre. In my ensuing years I tried to emulate the standard the Review set, though not always successfully! This publication is truly a testament to the passion and dedication that Trinity's students and faculty have to economics and to higher learning. It is an honour to get to continue to be involved with the Review as a graduate.'

Aoife Cunningham,
Apache Corporation
SER Finance Manager, 2008

'I feel very lucky to have been part of the SER. It was a unique opportunity to extend and encourage economic thinking outside the lecture hall; and the quality of the essays and debates that resulted was a real testament to the economics department, the talent of the students, and the dedication of the other committee members.'

Jean Acheson,
Economist with the Office for National Statistics (UK)
SER Editor 2009

THE STUDENT ECONOMIC REVIEW

Economic Theory

Monetary Thought

Applied Economics

Economic Policy

Economic Research

WELCOME TO THE REVIEW

On behalf of the entire committee of the 27th edition of The Student Economic Review, I would like to welcome you to this year's edition.

The Review has been in publication since 1987 and has over the years kept a record of the general economic outlook of the time. We are incredibly proud and honoured to have taken part in the promotion of high-level academic discourse among undergraduates in Trinity College through welcoming guests such as Edmund Phelps and Ajai Chopra, hosting debates against Yale and Oxford, and most importantly through the publication of this Review.

The SER has long been a forum for undergraduates to meaningfully contribute to economic thought, with many past contributors to the review now being some of the top players in the field of economics on both a business and academic level. We believe that this year's edition, and the 17 essays we have selected, will live up to the exacting standards of the Review, and in the future expect these authors to achieve greatness in economics and all other pursuits. That being said, nothing we achieved this year would have been possible without the hard work, guidance, and support of this year's committee, sponsors, and contributors.

In particular, the committee would like to extend its gratitude to our President, Professor John O'Hagan, a man who has tirelessly dedicated himself to the success of the Review through the generations of economics students who pass before him. He has been exceptionally generous in donating his time, guidance, and good humour to us as we navigated the path to the publication of the Review and hosting of events. His attention to detail, knowledge of the running process, and constant encouragement kept us focused, and it is safe to say the Review and the events we hosted this year would not have been as successful without his wisdom. The passion he has for economics and the SER is infectious and has been a key driving force behind the success the Review has reached today.

In addition, we'd like to thank the patrons of the Review in the Economics department, Dr. Michael Wycherley, Dr. Carol Newman, and Professor Philip Lane. They offered additional assistance and advice at crucial decision making periods and were a constant source of support at important events throughout the year. Lastly, the committee would like to thank the staff of the Economics department, in particular Colette, who was always willing to take the time to assist with any communications and other tasks when necessary.

We are also eternally grateful to our generous sponsors, without whom the Review could not continue. Firstly, I would like to extend thanks to Mr. Harry Hartford, who has been a long-standing supporter of the Review. His continued support has allowed the Review to thrive and we are eternally grateful for all he has helped us achieve. Next, I would like to thank Mr. Vinay Nair, after whom the debating cup is named. As a past de-

bates convenor for the Review, he began the Oxbridge/Ive League debates that we have come to see as tradition. His generosity has helped to ensure that these debates continue into the future. Thirdly, I would like to thank Mr. Alan Gray, another Trinity graduate who has thought of the SER after his time at Trinity, and whose sponsorship has helped us to host exceptional events and upkeep the standards of the published Review. I would also like to thank Ms. Aoife Cunningham, a recent graduate who previously served as the financial manager of the SER. We are so grateful and humbled that she has continued to think of the Review after her time spent on the committee, and see her continued support as a testament to the impact the Review has on those who engage with it. Lastly, I would like to thank our newest sponsor, Bord na Mona. As they decide to head in a new direction, they understand the need for academic research in securing Ireland's future and we are exceptionally grateful that they have committed to support the Review both this year and into the future.

It has been my great honour to act as general manager of the Student Economic Review this year. Having been told by Professor O'Hagan at lunch, following the selection of this year's committee, that if anything were to go wrong it would fall to me, I felt the weight of the Review on my shoulders. This burden was lifted as soon as I got to know the rest of the committee, all of whom are determined, hardworking and enthusiastic individuals. It has been such a privilege to work with each one of them this year, and I would like to thank them personally for all of the time and effort that they committed to the Review. Their commitment to the success of the publication and event made my job of ensuring that everyone else is doing their job remarkably easy and ensured the success of the Review and all events we hosted.

Over the year we have run a number of successful events, and I would first like to thank Estelle Purcell and Emma Tobin for all of the hard work they put into organizing the debates against Yale and Oxford. It was clear to anyone who was at these lively debates that the standard of speakers was exceptional and the running of the events was seamless; particular compliments to them on the selection of the speakers as Trinity asserted its economic prowess and impressed the judges on both occasions. I would like to thank our workshops convenor, David Schenck, for the work he put into the organization of the schols workshop and the securing of renowned economists to speak to Trinity. Descriptions of all events hosted will follow and I would encourage you to read them as they convey some of the success of this year's committee.

I must also thank Mark Horgan, who kept a close watch on this year's finances, despite the valiant attempts of a few committee members to splurge here and there. Given the hard economic times that we are still working our way out of, he must be commended for securing new sponsorship for the SER for this year and years to come. Kevin O'Reilly, this year's launch manager, wowed us with his organizational ability and persistence even when it seemed like we would never secure a venue for the launch. In addition, we knew

we could trust his refined taste to put together a launch as high caliber as the review itself. On the organizational side of things, I must also compliment Chris Rooke, our production manager. As the review was coming together, Chris impressed us all with his tech skills and the fact that I was never quite sure what he was talking about when discussing formatting, programming and website updating in the proper jargon let me know he had the advanced skills we needed to get the review formatted and to print successfully.

My last thanks go to the editorial team of this years Review, Brian Higgins, Rahul Dewan and David Schenck. I personally witnessed the many hours they spent tucked away in their rooms reading, selecting, and copy editing, and am sure that they have only selected essays that live up to the exacting standards of the Review.

I would like to congratulate all who have had their work selected for inclusion in the Student Economic Review this year and hope you take pride in your hard work and accomplishment.

I would now like to invite you all to read the essays contained in the Review. I am sure that you will be as impressed as we were with the level of intellectual talent currently in Trinity. I hope that you find this years Review to be thought provoking, stimulating and most of all enjoyable!

Marielle Grigsby-Rocca
General Manager, Student Economic Review 2013.

LETTER FROM THE EDITOR

It is my pleasure to welcome you to the 27th Edition of the Student Economic Review. The Review is a wonderful addition to Trinity, allowing undergraduate students to truly engage with and challenge the material they come across in class. In a time when economics has almost become 'pop culture', the Review provides an excellent opportunity for students to grapple with the debates occurring across Ireland and around the world. It is such positive engagement which bodes well for the Review, and for the discipline of economics.

The Review has a long history academic excellence, rewarding critical thinking and clarity of argument. Many of those published in the Review have gone on to shape, change and influence economic theory and policy around the world. We are proud to be a part of this tradition and are confident that this years Review will be as robust and timeless as those issues which have come before it. This year we hoped to create a Review which both engages the reader and rewards writers for their innovative ideas. We hope it is a Review which will be enjoyably read, while challenging the reader to think differently about the issues and ideas tackled. It is accessible and interesting, yet thought provoking.

Our goal to create a stimulating and enlightening Review was greatly helped by the quality of the submissions received, the best of which I will now outline.

The current issue falls into five categories. The first section on Economic Theory is opened by the winner of the Best Senior Freshman Essay Prize. Conor McGlynn provides an insightful analysis into how we derive an 'economic lens' to view the world and our inherent biases in doing so. A highly original essay, it successfully delves into the process of how theory becomes accepted and whether this can ever result in an objective, scientific economics. Following this, we have a range of papers addressing the philosophical nature of Adam Smith's theory of self interest, the importance of education to development and the continued relevance for Fisher's debt-deflation theory.

Since the beginning of the financial crisis, the area of Monetary Thought has been buoyant with lively debate about how best to manage our currencies and monetary policy. The second section adds to this debate with papers addressing why we have central banks, and evaluating their policies of inflation targeting and asset price control. We are also brought a historical paper, which evaluates the modern relevance of 20th Century theorist Major Douglas.

The third section demonstrates the practical relevance of economics in the world. We see the meeting point of economics and law in the discussions of Microsoft's and Ryanair's competition cases, an excellent review of the policies which took Brazil out of hyperinflation, along with an argument for Ryanair's expansion into the African continent.

The fourth section tackles the questions which challenge policy makers on a

daily basis from EU-US free trade to European labour markets and regional policy. The final section demonstrates the curiosity and rigour of students when they grapple with independent research. We have an extension of the use of gravity models in trade – an interesting borrowing of ideas from physics – along with an exceptionally relevant analysis of Irish migration.

I would like to also congratulate Emmet Kiberd, who's paper 'The Price of Appreciation: the Continued Relevance of Fisher's Debt-Deflation Theory' received the Best Overall Essay Prize and Paul Kenny who's paper 'Towards a European Labour Market: Combating Long-Term Unemployment and Improving Trade Unions through Increased Migration' received the Best International Essay Prize. Both are of an exceptionally high academic standard and provide real food for thought to the reader.

At this point I would like to sincerely thank Rahul and David, my fellow members of the Editorial Team, who put in a tremendous amount of work while selecting and editing the submissions. We had a wonderful time discussing the essays and ultimately reached a strong consensus on those selected.

I would also like to thank my fellow members of the committee for being so hardworking in putting together some great workshops and events. In particular, our General Manager, Marielle, was exceptionally helpful during the editing process, ensuring anonymity was kept throughout, while our production manager Chris put in the long hours necessary to get the Review published in time.

To those who submitted, we were delighted by the large number of high quality essays received and we greatly enjoyed reading them all. Our work in compiling the review would be fruitless were it not for the interest, hard work and determination of all those who submitted to the Review.

Final thanks are due to the supporters of the Review from the economics department, Prof. O'Hagan, Dr. Wycherley and Dr. Newman. Your long commitment to this review is greatly appreciated and we thank you for all your help and advice during the entire process.

Finally, I invite you the reader to turn over the page and enjoy the Review. I hope you find it as inspiring and insightful as we did, and that some day the ideas enclosed here will help change your life, and our world, for the better.

Brian Higgins
Editor, Student Economic Review 2013

WORKSHOPS

In the aim to bridge theory with practice, the SER has in parallel to the review organized three workshops during the 2012-2013 academic year. The first of these, the classic "Schols" workshop took place early in Michaelmas term. In association with the Philosophical Society we were thrilled to invite Nobel Laureate Edmund Phelps towards the end of the first term. Lastly IMF Deputy Director and former head of the IMF mission to Ireland during the bail-out years Ajai Chopra came in Hilary term.

"Schols" Workshop

24 October 2012

The SER has become an obvious source of authority for the college community in preparing the Scholarship examination. This workshop is held annually for prospective BESS, PPES and TSM economics scholars. The aim of the workshop is to alleviate the pressure on students by offering advice and guidance on how best to prepare the exams. The particularity of this year's workshop was that both scholars and unsuccessful candidates of the previous scholarship session offered their advice.

The SER's committee was delighted to see so many students in attendance in this year's "Schols" workshop. The breadth and depth of the presented material, as well as the Q&A, made sure that all attendees could find some additional insight to the numerous talks organized by the other college bodies, including the economics department and the student union. In addition to the talk, additional documentation was made available to the students, including last year's business case studies.

Professor Edmund Phelps

16 October 2012

In conjunction with the Philosophical Society, the SER welcomed economist and Nobel Laureate Edmund Phelps to Trinity College. The topic Mr. Phelps chose to address was concerned with the "indigenous innovation of a nation", the ultimate source of prosperity according to the Nobel Prize holder.

The tone of his discussion was strikingly contemporary, citing entrepreneurship and innovation as the driving forces to economic recovery. Edmund Phelps noted that he "probably had far more to learn from Ireland than he has to teach it", calling upon the new generation to bring fresh water to the field of economics.

This workshop offered the student body the very enriching opportunity to refocus itself on the real economy and its creative engine at a time when the Eurozone was on the verge of an implosion.

The SER Committee with Professsor Edmund Phelps

IMF Deputy Director Ajai Chopra

11 March 2013

The third workshop of the year took saw the former head of the IMF mission to Ireland during the bailout years present his take on the macroeconomic state of the Eurozone. In an elaborate and technical presentation, Mr. Chopra explained the absence of economic growth as a result of balance sheet stress in the sovereign, corporate and domestic markets.

Attention was also drawn to the divergence between the core and peripheral countries of the Eurozone, citing notably Spain and Germany as two contrasting examples for economic recovery.

The Q&A session that followed the presentation had Mr. Chopra defend the case for fiscal consolidation as the lesser of several evils, drawing the attention to the long-run implication of unsustainable debt growth, while recognizing the existence of short-run positive fiscal multipliers. Mr. Chopra further called for a banking union as a logical extension to the broader European project.

We wish to sincerely thank Mr. Chopra for the time taken to address the students while operating on a very tight schedule of official meetings with the Irish government and central bank.

Finally, I would like to extend my sincere appreciation to the rest of the SER committee, with whom preparing the workshops has proven exceptionally rewarding. Thanks to Prof. O'Hagan, Dr. Newman and Mr. Wycherley for their input and support, as well as the economics department.

David Schneck
Assistant Editor & Workshops Convenor

The SER Debates

Since their inauguration in 1996 The SER debates have come to be one of the most exciting events in the Trinity calendar. This year's saw Trinity face Oxford and Yale, and proved to be one of the most exciting years yet. Our sincerest gratitude is extended to The University Philosophical Society and their secretary Rosalind Ní Shúilleabháin , with whom we organised these events. We also wish to extend our thanks to The President and Vice-President of the SER, as well as Mr. Vinay Nair without whom these debates would have never come into existence.

Trinity Vs. Oxford

Thursday November 29th

Back (L-R): Steph Bell (Oxford), Clive Ely (Oxford), Christopher Croke (Oxford), Sean Gill (TCD), Rian Derrig (TCD), Dave Byrne(TCD)
Front (L-R): David Nally (Judge), Maria Mileder (Judge), Emma Tobin (Debates Manager), Prof. Patrick Geoghegan (Dean of Undergraduate Studies, Chair), Estelle Purcell (Debates Manager), Hamish McRae (Chair of Judges)

On Thursday the 29th of November Trinity faced an Oxford team composed of some of the world's most distinguished debaters. Steph Bell (World Debating Finalist), Chris Crock (2010 World Debating Champion) and Clive Ely (Winner 2010 Pan-African Universities Debating Championships) represented Oxford University.
The Trinity Team was composed of Rian Derrig (Irish Times Finalist), Dave Byrne (World's Octo Finalist) and Sean Gill (Founder, Trinity Economic Forum).

A distinguished panel of judges adjudicated on the winning team and on the best individual speaker of the night. Hamish McRae of the London Independent chaired the panel alongside David Nally, Managing Editor Current Affairs, RTE; and Maria Mileder, Global Rules Analyst, Paypal Dublin.

Dean of Undergraduate Studies Prof. Patrick Geoghan chaired the meeting, offering his unique, comical and occasionally accurate view of events.

The motion 'This House Believes Ireland Should Desert the Euro' was proposed by Oxford. The Trinity team spoke in opposition. The debate was both lively and thought provoking.

Clive Ely opened the case for Oxford, declaring that an overnight abandonment of the Euro, not just for Ireland, but all Eurozone countries would be in the best interests of Europe. The centrally determined nature of a common currency serves only those states with the most influence while smaller states, such as Ireland are left without a say in their own monetary policy. These smaller states have no control over their domestic economy and exchange rates and instead are left at the mercy of greater powers, ambivalent to their needs.

The counter argument offered by Trinity's first speaker Sean Gill pointed out the impracticality of the model offered by Oxford. The secrecy surrounding a sudden abandonment would cause political uproar and widespread instability. For any abandonment to be affective and practical, it would require months of logistical planning, which, if done in secret, would undermine many, if not all political relationships within the EU. The sudden currency shift would prompt a run on the banks. Austerity, Sean told us, is working. The progress we have made in economic recovery would be lost, and Ireland, like Argentina would be shut out of the not only the credit market, but also from international discourse.

Oxford's next Speaker, Chris Crock attacked Trinity's focus on the short term transaction costs of a currency change. The short term memory of the international market means Ireland would be re-included both fiscally and politically relatively quickly. The benefits from an independent monetary policy would outweigh these short run costs. The Euro is overvalued in an Irish context, and is in turn stagnating and even damaging our growth prospects. The devaluation he believed necessary to rebuild the Irish Economy, in line with the Icelandic model, could occur would we leave the Euro. Staying in the Euro means Ireland is doomed to default.

Trinity's Rian Derrig claimed Oxford was fact picking, using only those examples which benefit their argument while ignoring the greater picture. The political fallout would be immense, and Irelands esteem in the international community deeply harmed. Any hope for economic betterment would be destroyed by this. Furthermore, he served to remind Oxford that Ireland has never had an independent monetary policy, and to the size of our economy would make one unviable. To have a say, as one of twenty seven mem-

ber states, rather than accept the monetary policy of another, such as the UK, is a much greater asset to our economy.

Steph Bell served to close the case convincingly for Oxford. The international community frequently moves on from once off defections, and an abandonment of the eurozone would be no exception. The multiple breaches of the Stability Pact by those very states putting pressure on Ireland to comply with it prove than the union is unfeasible and will not be a success. In tying its faith in with states like Greece, Ireland cannot make the changes it needs to grow. She pointed out that whatever the remedy is for Greece, it will inevitably impact upon us. Ireland, she said, needs a different solution.

The final speaker, Trinity's Dave Byrne pointed out a lack of realism in Oxfords model. "You've given us nothing but rhetoric" he claimed. He pointed out that the only viable alternative to the Euro for Ireland is to peg to the sterling, something Oxford failed to address. The Irish, he said, has a bit of a problem with relying on the English for our welfare. The symbolism of the Euro is greater than simple monetary policy and economics. It denotes wider cooperation and political ties between countries that not 70 years ago were at war. The economic and political benefits of the euro far outweigh any costs it may entail, and while there may be short term costs now, the long term gains will be great.

The crowd were enthralled throughout the debate. After 20 minutes of deliberation Mr. McRae announced Trinity the winners, and Dave Byrne as best speaker, to rapturous applause. He congratulated both sides on an engaging, multifaceted debate which in the end came down to a knife edge. Trinity's victory was the result of its willingness to tackle the wider political elements of the debate.

Trinity Vs. Yale

Thursday, February 7th

The second of the year's debates saw Trinity return to the GMB's Debating Chamber to take on an impressive, if somewhat jet lagged Yale. Trinity welcomed an esteemed Yale team composed of Stacey Chen (Top ten speaker, North American Debating Championships), Max Dovala (Three times finalist, North American Debating Championship), and Andrew Connery(3rd place Winner, North American Debating Championships, two time state champion). History was made in Trinity putting forth its first all-female team of Ruth Keating (Irish Times Finalist), Hannah Cogan (Former Phil Debates Convenor), and Rebecca Keating (Irish Times Finalist).

The debate was judged by Áine Lawlor of RTE's Morning Ireland, Catherine Woods, former Trinity Scholar and current AIB board member, Carmel Crimmins, Senior Financial journalist Reuters, Michael O'Higgins, former Treasurer Historical Society and currently Chair UK Pensions Regulator, and John Kelly, Guggenheim Partners

Back (L-R): Stacey Chen (Yale), Max Dovala (Yale), Ruth Keating (TCD)
Front (L-R): Andrew Connery (Yale), Provost Patrick Prendergast (Chair, TCD), Hannah Cogan (TCD), Rebecca Keating (TCD)

Europe. The meeting was chaired by Trinity's Provost Dr. Patrick Pendergast.

The debate saw Yale proposing the motion that This House Believes Tax is Theft. Ms. Chen opened the case for Yale, which was to focus on the most basic, and fundamental aspect of natural law; consent. This key subject would be the focus of the debate for the night. Taxation is not something to which we openly express consent, nor is it possible for us to avoid. It is enforced, and there is not "opting out". No matter what economic function taxation may play in the modern world it does, in essence, conform to our definition of theft.

Rebecca Keating's reply on behalf of Trinity got straight to the point. We are all part of modern society. In engaging with, and benefitting from this society you "consent to paying the cost this society entails". It is part of the social contract, and is what allows society to function. Without it there would be decay.

To the surprise of the audience Yale's next speaker, Max Dovala, agreed with Ms. Keating. Taxation does allow society to function. Public goods exist and aid society in providing the goods and services we cannot entrust to the private market. Yet, that does not negate the fact that taxation is entirely based upon taking that share of wealth from an individual without their explicit consent. You do not choose the society you are born into, and assuming consent purely because of your place of birth is an absurd concept.

Hannah Cogan was quick to correct Mr. Dovala's assertions. She pointed out a key flaw in Yale's case. The option to opt out of taxation is real, tangible, and a minority of people do avail of it. Communes, anarchists etc. all frequently reject modern society,

taxation included, and thus remove their consent to be taxed. In choosing not to opt out, and continue to avail of public goods and governance people consent to taxation.
Andrew Connery summed up the case of Yale. The tiny minority of people who exist outside of the conventional societal structure do still suffer infringements by the state. They are regulated by the state, and still pay some taxes. Most people are not even aware this is an option, so to assume perfect information in this case is deeply misleading. No matter what the benefits and gains are from taxation, it is nevertheless based on an initial, flawed premise; there is no choice, there is no consent, thus it is theft.

The final speaker of the debate was Ruth Keating for Trinity. She made clear the ambiguities of the Yale team's case. They had conceded that the benefits of taxation shape society, as well as the ability for people to exist external to the state structure. People consent implicitly in accepting and availing of the public goods taxation provides. People can, and do object and refuse to pay certain taxes. They can, and do opt out selectively, and in doing so provide consent elsewhere. Within this framework tax is the farthest thing from theft.

The debaters evoked a wonderful combination of philosophical, political and economic ideas that entertained and informed a diverse audience. Aine Lawlor announced the judge's verdict. Trinity were announced winners of the debate, and Ruth Keating was awarded best Speaker prize.

We were delighted and proud to see an all Trinity sweep at the Student Economic Review Debates!

Estelle Purcell & Emma Tobin,
SER Debates Managers.

THE UNILATERAL EFFECTS OF THE PROPOSED RYANAIR ACQUISITION OF AER LINGUS

KATE IVORY
Senior Sophister

While there is continuous debate about the optimal policies of central banks, there is rarely a debate about the structure, and indeed the existence, of central banks. In this essay, David Lally boldly questions the necessity of central banks. He continues to ask: if we need them, do they need to be government controlled. His probing questions lead to an interesting rethinking of our monetary systems.

1.0. Introduction

The European Commission must be notified of any proposed concentration (i.e. acquisition, merger) with a community dimension (European Commission, 2004a). One such notification was the Ryanair proposed acquisition of Aer Lingus which occurred on the 24th of July 2012. Ryanair's first Aer Lingus takeover attempt was in 2007. The attempt was blocked by the Commission and this decision was later upheld by the General Court of the European Union. Ryanair notified the Commission of a second attempt to acquire Aer Lingus in 2009, however this was later withdrawn.

This essay examines the current proposed acquisition of Aer Lingus by Ryanair. The Commission's investigation of the proposed concentration will seek to assess whether effective competition is significantly impeded particularly as a result of the formation or strengthening of a dominant position, in the common market or part thereof (European Commission, 2004a). A dominant position is one where the entity has economic strength and can act independently of others in the market; competitors, customers and consumers (European Commission, 2009). Normal constraints in the market are weak and inefficient when applied to the dominant firm. Therefore it's easy for the dominant firm to abuse its position. However this abuse is illegal under Article 102 (ex. 82) (European Commission, 2009). The effects of the acquisition on the competitive environment are a concern in the current Ryanair/Aer Lingus case.

2.0. Competitive Environment

The competitive environment may be decisive in European Commission concentration

investigations. The Guidelines for Horizontal Mergers (European Commission, 2010) outlines two main ways concentrations can affect the competitive environment, non-co-ordinated effects and coordinated effects. Coordinated effects occur when the concentration results in a group of firms being dominant (European Commission, 2010). Due to the high market shares of Ryanair and Aer Lingus and the lack of competitors this is unlikely and so non-coordinated or unilateral effects are more prominent. Unilateral effects are a form of single firm dominance, which occurs when by eliminating competitive constraints a concentrated entity may increase market power and hence be able to increase prices without resorting to coordinated behaviour (European Commission, 2010). Werden et al. (2008) describe horizontal mergers leading to unilateral effects as those that lead to the merged firm charging a higher price, producing a lower output or acting less competitively then they would have premerger. Horner (2006) describes unilateral effects as the capability of post merger undertakings to increase prices due to the elimination of competitive constraints post concentration, and regardless of the pricing decisions of competitors in the market.

Game theory can be used to examine the likelihood of unilateral effects post concentration (Ivaldi et al., 2003). The Cournot model may be used to examine markets with a homogenous product and the Bertrand model markets with differentiated products (Werden, 2008, Werden et al. 2008, Slade 2006). Werden et al. (2008) use the Bertrand model of oligopoly to examine the likelihood of unilateral effects post concentration. Any merger involving differentiated products that doesn't lead to decreased costs will cause unilateral price effects as the merged firm finds it in its own interest to increase prices (Werden et al., 2008). Werden et al.'s (2008) analysis may be applied to the current Ryanair/Aer Lingus takeover bid. Suppose that Ryanair's price is p_R and the vector of competing brands prices is p_{-R}, on certain routes this may simply be Aer Lingus's price due to lack of third party competition. The demand for Ryanair's brand is $D_R(p_R, p_{-R})$, and the cost of producing Ryanair's brand is $C_R(D_R(p_R, p_{-R}))$. Therefore Ryanair's profits may be seen as

$$\Pi_R(p_R, p_{-R},) = p_R D_R(p_R, p_{-R},) - C_R(D_R(p_R, p_{-R},))$$

Nash non-competitive equilibrium describes when each firm is acting according to its best response function. So the necessary conditions for Nash non-cooperative equilibrium are as follows,

$$\frac{\partial \Pi_R(p_R, p_{-R},)}{\partial p_R} = D_R(p_R, p_{-R},) + [p_R - C_R'(D_R(p_R, p_{-R},))]\left[\frac{\partial D_R(p_R, p_{-R},)}{\partial p_R}\right] = 0$$

Denoting the elasticity of demand for Aer Lingus with respect to Ryanair as ε_R and Ryanair's price-cost margin as $m_R = [p_R - C'_R(D_R(p_R, p_{-R},))]/p_R$. The necessary conditions may be written as

$$m_R = \frac{-1}{\varepsilon_{RR}}$$

This is the Lerner (1934) condition for monopoly equilibrium.
Therefore if Ryanair and Aer Lingus merge (p_A representing Aer Lingus's price) then the post concentration necessary conditions for equilibrium are

$$m_R = \frac{-1}{\varepsilon_{RR}} + \frac{m_A\ d_{RA}\ p_R}{p_A}$$

$$m_A = \frac{-1}{\varepsilon_{AA}} + \frac{m_R\ d_{AR}\ p_A}{p_R}$$

Where d_{RA} is the diversion ratio from Ryanair to Aer Lingus, i.e. the ratio of the increase in quantity of Aer Lingus flights sold to the decrease in the quantity of Ryanair flights sold when Ryanair's price is increased slightly. If the brands are substitutes, the final term in the equilibrium conditions is positive. Thus the concentration will increase the price of both products unless it decreases marginal costs, induces entry, or there is a repositioning of the incumbent brands. Unilateral effects occur due to the internalisation of rivalry between merging firms, thus leading them to adjust their actions. (Werden et al., 2008)

Internalisation of rivalry decreases competition, a key element to the unilateral price effects of concentration (European Commission, 2010). Loss of competition enhances the dominant position of the post-concentration entity and may increase the probability of price increases. There are a number of factors which, on their own may not have much effect but together may significantly determine whether unilateral effects are likely post concentration, including; large market shares, closeness of parties as competitors, customers ability to switch and likelihood of new competitors (European Commission, 2010). These factors are now examined in relation to the Ryanair/Aer Lingus case.

2.1 Market Shares

Market shares provide an insight into the competitive importance of the parties and their competitors (European Commission, 2010). In Hoffman-La Roche v Commission it is noted that a persistently high market share may be related to market power (European Commission, 1979). In the Ryanair/Aer Lingus case both firms have a large market shares. Aer Lingus's route overlap analysis (Aer Lingus, 2012) shows that Ryanair and Aer Lingus now overlap on a total 50 routes, an increase of 42.9% since 2007. The number of routes on which Ryanair and Aer Lingus are the sole airlines operating has doubled, from 22 routes to 44 routes (Aer Lingus, 2012). Aer Lingus (2012) also illustrate the combined market shares of the parties on the overlapping routes (based on capacity availability); 90% in Dublin (an increase from 85% in 2007), 100% in Shannon (unchanged); 100% in Cork (an increase from 92% in 2007), and 100% in Knock (Aer Lingus, 2012). These high market shares suggest the concentrated entity will have market power and unilateral price effects are likely. McAfee and Williams (1992) note that mergers creating or involving the largest firm in the market will lead to unilateral price effects.

2.2 Closeness of Competitors

The incentive for the concentrated entity to increase their price post merger is positively correlated with the degree of substitutability between the merging firms' products, making closeness of competition an important aspect in examining unilateral effects (OECD, 2011). Close competitors may act as a competitive constraint. If firms are close competitors, as their product offerings are close substitutes, then a price increase by one party would lead to customers moving to the other party. Thus neither firm will substantially increase their price for fear of losing customers to the rival firm. However if a concentration occurs between two such close competitors then this competitive constraint is eliminated post concentration. Horner (2006) claims that when 2 competitors, who produce close substitutes merge they will act rationally and increase prices recapturing customers who will switch to the previously competing product. In order to examine the closeness of competition in the current Ryanair/ Aer Lingus case the positions of the parties in the market, the business models, and the cost structures are examined.

The market in question here is flights to and from Ireland. In terms of size and market position in Ireland Ryanair and Aer Lingus are in very strong positions. The Commission noted in Air France/KLM merger procedure (European Commission, 2004b) that strong third party competitors can act as competitive constraints in the aviation market and mitigate concerns of decreased competition. Currently Ryanair and Aer Lingus they are the sole operators on 44 routes from Ireland. Even on routes on which there's a third party present Ryanair and Aer Lingus have much larger market shares then the third party and so are still each other's closest competitors. If the acquisition were to take place it is clear that the firm would be dominant and even on the 6 overlapping routes where there is third competitor the competitor would not be strong enough act as a competitive constraint.

Ryanair's main argument against Aer Lingus being its closest competitors is the difference in operating models, Ryanair as a 'no frills' airline and Aer Lingus as a 'mid frills' airline. Although this may have been the case in the past Aer Lingus have shown an increasing tendency towards the 'no frills' model of Ryanair. The operating models are similar as they both offer point-to-point flights, with a unidirectional pricing model for one-way, one-class and non refundable tickets. Both airlines also use their websites for ticket bookings (European Commission, 2007). There are some differences between the parties' business models. However differences are becoming increasingly difficult to view as significant. Gadas et al. (2007) note that the services offered by Aer Lingus for the base fare generally correspond to those offered by Ryanair at the base fare. Gadas et al (2007) maintain that Ryanair and Aer Lingus are each other's closest competitors as competitors on overlapping routes are either 'full line' service or regional airlines.

Prices may also indicate if parties are close competitors. Ryanair claims Aer Lin-

gus's business model is significantly different due to prices differences. Price correlation analysis can be used to determine if products are in the same market and how close substitutes they are, close substitutes prices tend to move together (OECD, 2011). The price correlation analysis conducted by the Commission (European Commission 2007) showed that in 2007 Aer Lingus and Ryanair prices tended to move together, suggesting that they are close competitors and that an increase in the price of one leads increase in the demand of the other. It should be noted that prices may move together due to common cost and demand shocks, this is especially prevalent when there is low price correlation (OECD, 2011). An increase in fuel prices or the European Emissions Trading Scheme are examples of cost shocks in the airline market. Due to the impact of these shocks price correlation is examined in conjunction with other aspects, such as cost structures, to determine closest competitors.

Cost structures may also indicate closeness of competitors. Price, costs and profit margins can illustrate the competitive constraints that merging parties place on each other (OECD, 2011). If a firm is actively constrained by their closest competitor then it is likely that they will try to keep costs low in order to keep profits up and prices competitive. Ryanair claims that the cost structure of Aer Lingus is significantly different that it is not credible that the parties should be each other's closest competitors (European Commission, 2007). However in 2007 the Commission found that although Aer Lingus did have higher costs these costs were lower than many other major airlines in Europe (European Commission, 2007). Therefore Aer Lingus was the closest competitor to Ryanair in terms of cost structure. Aer Lingus have since then focused even more on reducing their costs and note that in the event of a takeover Ryanair would not have the incentive to pass on future cost savings and synergies to customers and so consumer welfare would be harmed by higher prices and fewer travel choices (Aer Lingus, 2012). Consumer welfare is paramount in EU competition policy. In determining closeness of competitors and the likelihood of unilateral price effects the views of customers are taken into account.

2.3 Customers Views and Buyer Power

The main goal of EU competition policy since the Modernisation Regulation is the protection of consumer welfare in the single market, thus concentration cases often take the perceptions of the consumers into account (European Commission, 2004). In the Ryanair/Aer Lingus case in 2007 (European Commission, 2007) it is noted that overall customers consider Ryanair and Aer Lingus as closest competitors.

Consumer surveys may be used to determine diversion ratios and analyse the closeness of competitors (OFT, 2010). Higher diversion ratios, switching among customers, would suggest the parties are closer competitors. The Commission (European Commission, 2007) conducted consumer surveys and examined the results, finding that the majority of customers would switch between Ryanair and Aer Lingus. The Commission found that

when Ryanair and Aer Lingus fly to the same airport more than half of customers considered the other party when determining who to fly with. It was found that even when a third party flew to the same airport customers were significantly more likely to consider one Ryanair or Aer Lingus than the third party airline.

Even where merging firms are closest competitors a significant degree of countervailing buyer power post acquisition would act as a competitive constraint on the post concentration entity. Countervailing buyer power describes the ability of the buyer to resist a price increase. Kirkwood (as in Chen 2008) describes buyer power as the ability of buyers to withhold a benefit from the supplier if a concession is not granted. The number and size distribution of buyers in relation to sellers is a prominent element in determining countervailing buyer power, it affects how firms act in a market and determines whether price increases are plausible and sustainable (Martin, 1994). In this case although there are many customers their distribution is so fragmented that they could not pose a credible constraint on unilateral price effects post concentration (European Commission, 2007). As Aer Lingus and Ryanair are the sole operators on 44 of the routes concerned there is no credible threat of switching, so customers can't withhold a benefit from the supplier. This suggests customers do not possess countervailing buyer power.

2.4 Entry and possible competition

It is clear that the acquisition of Aer Lingus by Ryanair will lead to an elimination of actual competition, however possible entry post concentration might mitigate the threat of unilateral effects. Baumol (1982) notes that even highly concentrated markets such as monopolies may have a competitive outcome if they are contestable. A contestable market is one in which 'hit and run' entry is possible. If a dominant firm is aware that potential entrants who may undercut them they will have the incentive to keep their price at a competitive level in which this is not possible. However contestable markets are conditional on free entry, free exit, and no sunk costs. Hit and run entry is not likely in the case of Ryanair and Aer Lingus, due to the nature of the aviation market in Ireland. Barriers to entry exist in the form of start up costs and sunk costs. Sunk costs are those that a firm could not recoup to the full extent if it left the market, even if the firm managed to sell the capital assets it would be at a substantial loss (Martin, 1994). In this case sunk costs exist, such as the advertising necessary to create sufficient brand awareness of the new entrant on the Irish market. In the 2007 case (European Commission, 2007) it is noted that entry is unlikely due to sunk costs, specifically the high marketing costs of creating sufficient brand recognition at both ends of the routes. The European Commission (2004b) noted that brand prevalence is an important factor in the airline sector. The establishment of bases and attainment of slots are also significant barriers to entry. These barriers to entry prove that the Irish airline market is not subject to hit and run entry and is not contestable under Baumol's (1982) definition. This would suggest that the concentrated entity

will not be constrained by potential entrants and increases the likelihood of unilateral price effects.

3.0 Conclusion

Although the Commission has yet to make its decision on the current Ryanair Aer Lingus acquisition public it has been leaked that it will be blocked (Irish Times, 2013). This essay's analysis of unilateral effects supports this decision. The game theory analysis of a merger between close competitors with differentiated products shows that unilateral price effects are probable. The European Commission note that unilateral price effects are likely when the merging parties have large market shares, are closest competitors, consumers have little buyer power and potential entry or expansion is hampered (European Commission, 2010). The concentrated entity would have a very large market share on many routes making unilateral effects probable. The parties are closest competitors, with highly substitutable product offerings, and more similar price, cost and operating models than other competitors in the market. Thus allowing for the recapture of customers when prices are increased, even when diversion ratios are high. Customers currently display strong switching patterns between the parties, once again suggesting substitutability between the parties. Also post concentration due to lack of third parties there is no credible threat of switching and so customers would not have countervailing buyer power. So a competitive constraint is eliminated by the concentration, increasing the probability of unilateral effects. Another competitive constraint which might mitigate unilateral effects is potential entry. The market is also not contestable under Baumol's definition due to entry barrier and sunk costs. So potential entry is not, timely, likely or sufficient to constrain the firm. So the acquisition would eliminate actual competition between the parties, eliminate countervailing buyer power from consumer switching ability and entry is not likely. This would suggest that the acquisition will increase market power and the ability of the dominant firm to independently increase prices. Therefore unilateral price effects are likely. Unilateral price effects will harm consumer welfare and effective competition will be significantly impeded so the acquisition may be seen as inconsistent with the objectives of European competition policy and should be blocked.

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Inflation and instability: Brazil's Lost Decade and Cardoso's Response

Isabella Di Paolo
Senior Sophister

In the 1990's Brazil suffered a turbulent period of hyperinflation. In this paper, Isabella Di Paolo provides an intriguing explanation of the policies which led to Brazil's crisis, and an evaluation of how the reforms of President Cardoso helped set Brazil on its current growth path.

1. Introduction

The famous joke goes: "Brazil is, and always will be, the Land of the Future". Long struggling to achieve long-term, sustainable growth - despite its abundant resources and immense potential - Brazil has recently seen considerable improvements in both its economic performance and poverty-reduction strategies. The recent consumer boom, experienced as millions filled middle-class ranks, makes it difficult to imagine that just two decades ago inflation was taking over everyday life.1 It was the centre of all policy concerns, caused hour-long queues in front of supermarkets and crushed innumerable hopes and dreams. Today, a decade-long struggle for macroeconomic stability has rendered the daily reality of twenty years ago completely unimaginable to those who have only known recent prosperity (Leitão, 2011).

After an initial taming of the 'Inflation Monster' via the Plano Real, Brazilian policy-makers have demonstrated continuity in their will to reform, as exemplified by the continued adoption of the Inflation Targeting Mechanism and Law of Fiscal Responsibility introduced at the end of the Cardoso administration. As Brazil begins to display difficulties in continuing down the path of rapid growth, (Financial Times, 2013) it is more important than ever to remember the recent past, and to consider the long way the country has come.

The ups and downs in Brazil's inflationary history can help illustrate the importance of monetary policy for the macroeconomic stability and the long-term prospects of any economy. In Brazil, the long struggle for a stable currency was a painful process, which, with the legacy of the Plano Real, appears to have finally come to an end. Although monetary policy is no magic formula for growth, it has certainly helped construct the

solid base on which Brazil was able to take firm steps towards economic and social progress (Leitão, 2011).

This essay will attempt to outline the main characteristics of the inflationary process that hit the Brazilian economy towards the end of the 20th century. In a second part, it will briefly describe the Plano Real, whose long-term effects have vastly been debated. Finally, it will attempt to evaluate if Cardoso's stabilization plan can be considered successful, and emphasise the importance of continuity in economic policy.

Hyperinflation in Brazil: an explanation

In 1989, at the wake of its first democratic presidential elections, Brazil found itself immersed in a profound crisis. High inflation was largely accepted as an inevitable characteristic of the economy: "as old as Brazil itself", it had even financed independence (Leitão, 2011). The young republic faced the difficult task of finding a rapid solution to an immemorial issue: the state-led development project that had begun in the 1930s and culminated with military rule2 had contributed to a soaring public debt and chronic inflation (Brainard &Martinez-Diaz, 2009). By focusing on import-substitution-industrialisation as a way to ensure the country's autonomy, the Brazilian administration had succumbed to a populist approach to economics, 3 which, despite the 'Miracle Growth' years (1968-1974), proved to be unsustainable. In a 2005 report, the World Bank emphasised the need for a stable investment climate in order to engender sustainable growth. In an extensive analysis of the Brazilian case, the growth boom beginning at the end of the 1960s was deemed not miraculous, but simply unsustainable. The closing off to international competition reduced all incentives for domestic, state-sponsored firms: these fell behind in international standards for efficiency and produced lower-quality goods with higher prices. For the military government, the solution was continuing to finance its "development project" through monetary creation. A serious consequence of these import-substitution, protectionist years was not only debt and macroeconomic instability, but also the loss of credibility of the government's commitment to reform (World Development Report, 2005).

This chronically inflationary context - perpetuated by the rigid behaviour of economic agents and the monetary system's "built-in bias towards the expansion of the money supply"4 (Baer, 2005) - was further complicated by external shocks. These included the quintupling of oil prices in 1973-74 and their doubling in 1979; as well as a steep rise of world interest rates in the early 1980s, and the subsequent 1982 debt crisis. As a net oil importer, Brazil attempted to respond to the worsening of it's terms of trade by relying on foreign lending and on printing money to finance government spending (Edwards, 2005). Despite initial success, World Bank economists Nissan and Kiguel (1995) point out that, "Brazil traded short-term gains of growth for a possible long-term stagnation. … The economy became captive of its own inflation-mitigation technology".

Moreover, after the traumatic 1982 debt crisis, inflation spun rapidly out of control. In 1990 alone, it amounted to 2939% (Sachs & Zini, 1996). This disastrous situation was but the final stage of a "long process of high and increasing rates of inflation, in which a final explosion was all but unavoidable" (Kiguel and Liviatan, 1995, p.369).

The economy had become so accustomed to working under extreme inflationary conditions, that it became particularly difficult to put a sharp end to the process. What ensued was the dramatic stagflation of 1987 – 1993 (Ter-Minassian, 2012). As high and volatile inflation rates damaged economic performance, Brazil's poorest were hit the hardest (Singh et al., 2005). It has, in fact, been said that inflation is the "most regressive tax there is"(Luis Alberto Moreno; 2011, p. 41). In what was already one of the world's most unequal countries, poverty peaked at around 42% in 1994, just as Cardoso was taking office (Clements, 1997).

Cardoso and The Plano Real

The Plano Real was introduced in 1994 by the then Finance Minister - and shortly thereafter President - Fernando Henrique Cardoso, famous sociologist and dependency theorist. A few months after taking office, Cardoso's team led by economist Edmar Bacha, presented a new stabilisation plan that sought to avoid previous weaknesses. Unsuccessful attempts that had rapidly followed one another had greatly undermined the political credibility of the responsible administration. These were, in chronological order: Plano Cruzado (March 1986); Plano Cruzado II (November 1986); Plano Bresser (April 1987); Plano Verão (January 1989) and Plano Collor (March 1990).

Cardoso found it politically wise to distance himself from failed attempts that had relied extensively on the use of price and wage freezes, which had culminated in the largely criticised freeze of savings accounts during the Collor Plan. Such measures had proven to only have temporary effects, as they engendered political pressures from affected business interests, and had led to shortages, black markets and economic distortions. In fact, Brazilian inflation has been analysed as hiding an underlying collective action problem: because of a unique set of financial regulations, influential groups such as bankers and upper-income investors were able to reap economic benefits from rising prices, making it difficult for governments to pursue a coherent policy response (Armijo, 1996).

Cardoso's program therefore represented a novel attempt to break inflationary inertia without using wage and price controls: it involved currency reform, broad stabilization of the exchange rate, and a decisive de-indexation of the economy (Ter-Minassian, 2012).

Most importantly, learning from the failures of his predecessors, Cardoso attempted to address inertial and self-perpetuating aspects of Brazilian inflation, while strengthening fiscal accounts through budgetary austerity.

In the first phase, beginning in January 1994, budgetary controls were enhanced through

emergency deficit-cutting measures. Wages, prices, and taxes were then re-dominated in a new unit of account, the URV (Unit of Real Value). Though the URV was a virtual currency, the government encouraged its use on the part of private economic agents - hoping that stable prices would decrease people's inflationary expectations - although transactions continued to occur in Cruzeiros.5 On July 1st, a new currency, the Real, was introduced, and initially pegged to the USD on a nearly one-to-one fixed rate. All URV were to be converted one-for-one into Real prices: one Real equalled 2750 old Cruzeiros Reais, and inflation dropped from the Cruzeiro rate averaging 50.7% per month to around 2% per month (Sachs, 1996).

Moreover, the Plano Real was presented as a comprehensive effort seeking to progressively transform the country's long-term growth prospects. For this purpose it included major structural reforms, many of which were later delayed.6 It mainly featured an increased emphasis on privatisation, on trade liberalisation, and on a reversal of the often inefficient centralising tendencies inherited from colonial rule (Kiguel & Liviatan, 1992). Brazil went from 'isolated giant' pursuing state-led growth, to privatization's 'poster child' in little over a decade.

Moreover, the shifting of responsibilities from federal to state governments, with an emphasis on state autonomy and singularity – particularly relevant in a gigantic country with immense regional disparities – was accompanied by a drive for anti-corruption and pro-transparency measures that culminated in the Fiscal Responsibility Law of 2000 (Ter-Minassian, 2012). Despite the dramatic, though brief, crisis at the turn of the century, what emerged was the image of a 'New Brazil': one that was tackling problems rather than ignoring them, and that had undergone a profound renovation of its political class. This culminated with the 2002 election of a working-class trade union leader Lula who, despite initial concerns, became one of the country's most popular, pragmatic and internationally respected presidents (Edwards, 2010).

The Plano Real: an Evaluation

As can be observed in Figure 1, the Real Plan was initially very successful, with monthly inflation declining from as high as 46.6% in June 1994 to 1.5% two months later (Sáinz & Calcagno, 1999).

	1994	1995	1996	1997	1998	1999
January	42.2	1.4	1.8	1.6	0.9	1.1
February	42.4	1.2	0.8	0.4	0.0	4.4
March	44.8	1.8	0.2	1.2	0.2	2.0
April	42.5	2.3	0.7	0.6	−0.1	0.0
May	41.0	0.4	1.7	0.3	0.2	−0.3
June	46.6	2.6	1.2	0.7	0.3	1.0
July	24.7	2.2	1.1	0.1	−0.4	1.6
August	3.3	1.3	0.0	0.0	−0.2	1.4
September	1.5	−1.1	0.1	0.6	0.0	1.5
October	2.5	0.2	0.2	0.3	0.0	1.9
November	2.5	1.3	0.3	0.8	−0.2	2.5
December	0.6	0.3	0.9	0.7	1.1	1.2

Fig. 1 – Monthly Inflation Rates (1990 – 1999). Source: Edmund Amann, Werner Baer, 2005

As shown in Fig. 2, the sharp decline in inflation experienced from 1995 onwards was accompanied by a sharp decline in poverty rates and a stable, though moderate, resumption of Real GDP growth.7 Economic growth resumed, as stable prices engendered a consumption boom: it was the birth of Brazil's "shopping economy" (Financial Times, 2013).

	1980-1989 average	1990-94 average	1995-98 average	1999-2002 average	2003-08 average	2009	2010	2011
Real GDP growth rate	1.9	1.3	2.5	2.1	4.2	-0.3	7.5	2.7
Real GDP per capita growth rate	0.9	-0.2	0.7	0.4	3.0	-2.0	6.0	n.a.
Consumer price inflation	431.7	1321.3	9.7	8.8	6.1	4.3	5.9	6.5
Unemployment rate	n.a.	7.0	8.1	10.1	9.4	9.1	6.7	6.0
Current account balance (as percent of GDP)	-2.0	0	-2.7	-3.5	0.6	-1.5	-2.2	-2.1
International reserves (e.o.p. ,US$ billions)	9.7	38.8	44.6	37.8	193.8	238.5	288.6	352.1
External debt (e.o.p. , as percent of GDP)	27.8	26.3	26.5	41.8	12.1	12.6	12.3	11.9
Poverty rate	41.2	42.3	34.8	34.9	29.0	22.6	21.4	n.a.
Gini coefficient	0.60	0.60	0.60	0.59	0.57	0.55	0.55	0.54

Fig. 2 – Main Economic and Social Indicators in Brazil (1980 – 2011). Source: Inter-American Development Bank, 2012

The effect of lower inflation on real incomes was notable. Given that the poor and lower-middle class had previously enjoyed limited access to protective mechanisms against the adverse effects of inflation - such as interest-bearing checking accounts and purchases of goods on credit - newly-acquired price stability undoubtedly led to asymmetric gains. With the drop in inflation, low-income groups saw a greater relative increase in their real incomes: some speak of a one-time increase as high as 9% between June 1994 and September 1995. According to a 1997 IMF report, informal sector workers saw their incomes rise by 38.4%, considerably higher than the 18.7% increase experienced by those in the formal sector (Clements, 1997).

Meanwhile, the country appeared to successfully resist contagion from Mexico's Tequila Crisis of 1994. According to Luis Alberto Moreno, president of the Inter-American Development Bank, the macroeconomic adjustment programs of the early 1990s - as well as the rise in commodity prices - are essential in understanding the economic recovery that followed, especially from 2002 onwards (Moreno, 2011).

However, the country proved to still be very vulnerable to external shocks: successive financial turbulences soon put the Real to a test, as a vicious cycle of devaluation, capital flight and debt defaults hit the South American continent (Moreno, 2011).
As previously mentioned, the stability in prices greatly benefitted lower income groups, generating a consumption boom.8 However, their increased indebtedness exposed them to the negative impact of the higher interest rates used by the government to defend its

international position (Baer, 2005). The rise in nonperforming loans put a considerable strain on the banking system. Moreover, the pegging of the currency to the USD resulted in overvaluation, encouraged speculation, reduced competitiveness in exports, and generated a bloated trade deficit. With the Asian crisis of 1997 and the Russian crisis in 1998, there was increasing preoccupation about a possible Brazilian collapse.

In response to these fears, in November 1998 the IMF, World Bank and the US government issued a USD 41.5 billion bailout. Once the exchange rate was allowed to float freely, a massive devaluation ensued (Baer, 2005). Despite considerable difficulties, a combination of higher taxes and expenditure cuts resulted in a primary surplus of 3.8%, substantially above the IMF target (Baer, 2005).

The overall balance of the Plan Real years therefore appears to be positive. According to Edwards, "Cardoso… pulled it off. He avoided a new meltdown of the Brazilian economy, stabilized the currency, and prepared the basis for what could be an economic take off" (Edwards, 2010, p.209).

With Lula's election in 2002, continuity in the control of inflation has been one of the main achievements of the Worker's Party administration. In Figure 3, we can observe how the sharp decline in prices achieved in 1994-1995 was followed by continued efforts to control inflation, through the Inflation Targeting Mechanism introduced in July 1999 (Minella et al., 2003).

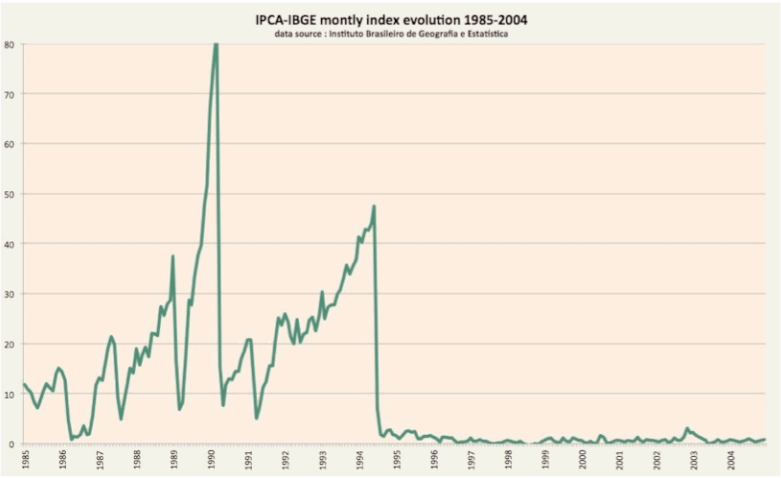

Fig. 3: Consumer Price Index in Brazil (1985-2004). Source: Instituto Brasileiro de Geografia e Estatística.

Lula soon distanced himself from previous positions - having for years been one of the main critics of the Cardoso administration - and demonstrated a rapid understanding of

inflation's asymmetrical impact. In an inflationary environment, it becomes difficult for consumer credit to develop, leaving the poor to live on a day-to-day basis in a strictly cash economy. Their small businesses face great difficulties, and they have limited access to housing because of inflating mortgages. It becomes virtually impossible to have any form of long-term vision. Lula's inflation-controlling policy was accompanied by considerable poverty-reduction and hunger-eradication efforts, particularly in the poorest North-Eastern regions.

As we can observe in Fig. 4, the decline in extreme poverty rates has been both impressive and continuous since the early 1990s, reaching an all-time low in 2006.

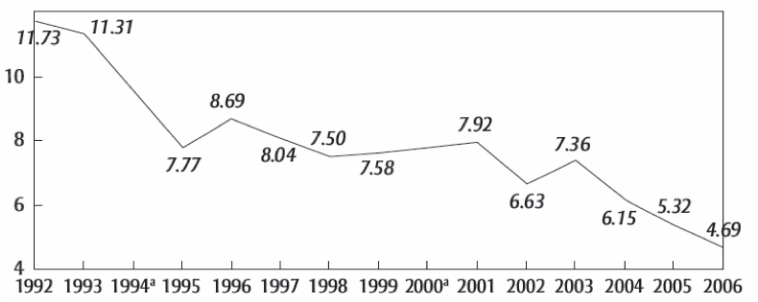

Fig. 4. Evolution of Extreme Poverty in Brazil (1992 – 2006). Source: Brainard, Martinez-Diaz

This was accompanied by a reduction in the country's Gini coefficient from the peak of 0.60 in 1993, to 0.56 in little over a decade (Brainard & Martinez-Diaz, 2009). This level of inequality, however, remains extremely high, especially if compared to the 0.30-0.34 levels observed in Western Europe. Persisting inequality in educational achievement and access to basic services underlies an unequal access to economic opportunities. Considerable challenges remain in terms of designing more effective and well-targeted poverty-reduction strategies addressing structural issues.

Nonetheless, Brazil has undeniably made important steps in the right direction, as was well illustrated by the passage from supermarket-dashes during hyper-inflationary years to the 2003 creation of Bolsa Familia, which allowed an estimated 20 million people's "graduation" from poverty (Brainard & Martinez-Diaz, 2009). This achievement was rendered possible by the economic stability acquired with necessary, albeit painful, stability-seeking reforms inherited from previous governments. If Cardoso's main achievement was currency stabilisation, Lula's was its redistribution (Financial Times, 2013). When greeting the new century, Brazil had finally learned the importance of macroeconomic fundamentals for achieving long-lasting growth (Brainard & Martinez-Diaz, 2009).

Brazil's long struggle against inflation demonstrated that achieving stability is a

complex and protracted process, and that there is no such thing as 'easy growth'. It also showed that governments need not to succumb to populism in order to eradicate social injustice, and that poverty-reduction efforts can accompany an austere economic policy.

Sound Monetary Policy as a Prerequisite for Long-term Growth

If in classical analyses, the origins of hyperinflations are usually external, and the policies required to stop them are quite straightforward (Edwards, 2010). In more recent cases, such as the Brazilian one, rapid price increases were but the final stage of a deteriorating process lasting several decades. Pursuing a coherent policy response was rendered even more complex by the costly necessity of demonstrating a credible regime change.

At the outset of the Plano Real, the gradual introduction of a new currency on the part of a recently elected, technocratic government was perceived as a strong commitment to long-lasting reform. This enabled the government, despite some ups and downs, to begin to address the structural changes that had been constraining the economy for decades. Today, macroeconomic stability constitutes the solid base from which Brazil can continue to face complex structural issues. Challenges include increasing productivity, ameliorating infrastructure, encouraging innovation, and reducing the painful legacy of inequality and violence (Moreno, 2011). However, the long-term view recently displayed by political leaders appears to have left Brazil in an unprecedented favourable position to break away from its long history of economic frustrations.

The future is not all bright, however, as signs of an economic slow-down are a worrying reminder of the reforms that have long been postponed. However, twenty years onwards, the 'inflationary monster' has, at least for the moment, been tamed. Meanwhile, Brazil has become a more socially equitable, stable, and democratic economy - something that not all the other 'Brics' can claim.

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Microsoft: The Tying of Internet Explorer to Windows (2009)

Andrew Winterbotham
Senior Sophister

The combination of economics and law is a powerful one. In this essay, Andrew Winterbotham addresses one of the European Commission's biggest competition cases: Microsoft's abuse of market dominance in the tying of Windows and Internet Explorer. After outlining the case, the paper goes on to present arguments in favour of the European Commission's ruling. Interestingly, Andrew concludes that though the case preserves competition, it does so at the cost of customers.

1. Introduction

European industrial economic policy, in contrast to that of the US, has developed in the structure-conduct-performance paradigm (Martin, 1994). This school of thought argues that the private exercise of monopoly power is a persistent feature of many markets. It argues that this limits the effective functioning of markets, as competition from other firms may be stifled. As such, governments should implement a relatively high-level competition policy, intended to limit strategic behaviour (Martin, 1994). The objective of economic integration within the EU has even further strengthened the need for a high-level competition policy, in order to ensure integration between member states (Martin, 1994). Given the predominance of this school of thought in Europe, the Commission's actions against Microsoft are not at all surprising.

Tying, once legal in the US (Carlton and Perloff, 2005), occurs when the sale of one product is conditioned upon the purchase of another (Carlton and Perloff, 2005).

The tying product in this case would be the operating system (Windows), and the tied product, the web browser (Internet Explorer). Microsoft engaged in pure bundling, where the two products were not offered separately. The 1987 decision in the much publicized Hilti case demonstrates that tying contracts are now among the practices that the Commission considers as abuse of a dominant position (it is not the existence of a dominant position per se that is illegal, but the abuse of that position) (Martin, 1994). An abuse of a dominant position is where an undertaking in that position was used to change the market structure. Specifically, in the Microsoft case, all of the conditions under Article 102 of the TFEU outlined below were met, warranting action against Microsoft (2009 European Commission):

- the tying and tied goods represent two separate products
- the firm under investigation is dominant in the tying product market
- the firm concerned does not give consumers the choice to obtain the products separately
- the tying is likely to foreclose competition

2. Case Summary

The European case against Microsoft for tying Internet Explorer to Windows dates back to December 2007, when Microsoft's competitor, the Norwegian firm Opera Software ASA filed a complaint against Microsoft under Article 7 of Regulation No 1/2003. According to Opera, Microsoft's tying of Internet Explorer to Windows effectively prevented Opera's web browser from competing on the merits with Internet Explorer. The firm also claimed that this strategic action foreclosed competition in the market for web browsers.

Consequently, on January 14 2009, the Commission sent out a Statement of Objections to Microsoft, in which it came to the conclusion that, taking Microsoft's dominant position for client PC operating systems into account, it's tying of Internet Explorer with Windows infringes on Article 102 of the TFEU.

Downloading web browsers from the internet was deemed not to provide a feasible alternative to pre-installation. Consumers were often prevented from switching from Internet Explorer by various barriers including searching, choosing and installing a competing web browser without technical assistance. A consumer survey revealed that about two thirds of Windows users who have Internet Explorer as their main web browser do not download web browsers from the internet or are reluctant to do so. The survey also revealed an information deficit among consumers. For example, 84 percent of Windows users who use Internet Explorer as their main browser never use another browser partly due to an unawareness of other options. Microsoft's strategic tying entrenched Internet Explorer to such an extent that the competitors' actions were rendered almost pointless. For these reasons, the conclusion was reached that as a result of the tying; Microsoft's market share (in web browsers) remains much higher than that of its competitors. In other words, it was concluded that Microsoft was using its market power in operating systems (in which it had a near monopoly) to create a monopoly for itself in the web browser market (known as leveraging).

On October 7 2009, Microsoft submitted commitments, while still disputing the objections raised by the Commission. These commitments can be summarized as follows:

- Microsoft agreed to make available a mechanism in Windows 7 that

enables Original Equipments Manufacturers (OEMs) and users to turn off Internet Explorer
- OEMs would be free to pre-install any web browser as the default, to which Microsoft would not retaliate
- Microsoft agreed to distribute a choice screen software update, where users would be given the opportunity to install a competing web browser. This choice screen would also provide a link explaining how to switch off Internet Explorer
- After a review, the choice screen had to be presented in a more neutral environment, namely not with an Internet Explorer interface. Furthermore, the issue of which competing web browsers were to be displayed was to be determined by usage share, the order of which was chosen by a randomised process.

These commitments were binding for five years in order to provide sufficient time for consumers to become more informed about the web browser market, and were deemed to be sufficient for eliminating the Commission's competition concerns. Therefore, it took the view that a further investigation of the alleged infringements was unnecessary. The Commission was no longer concerned about Microsoft's potential artificial distribution advantage brought about by the tying of Internet Explorer to Windows. It also felt that the enhanced competition brought about by the commitments would substantially weaken the network effects Microsoft gained from its strategic tying. The implementation of these enhanced commitments officially brought the case to an end (2009 European Commission).

3. The Market

3.1. Market Definition

Now that the case has been summarized, we may now analyze various aspects in more detail, starting with the market definition. A market definition specifies the competing products and geographic area in which competition occurs that determines the price for a given product (Carlton and Perloff, 2005). The market definition is often essential in determining the outcome of antitrust cases. However, it should not be the only analysis taken into account, and should not become an ends in itself (Fisher, 2007).

3.2. Relevant Markets

3.2.1. Product Markets

A proper definition of the product dimension of the market should include all those products that are close demand or supply substitutes (Carlton and Perloff, 2005). The former is concerned with a change in consumer demand due to a change in the price of one good

while the latter with the change in firm supply resulting from a change in the price of one good. The relevant product markets in the Microsoft case are the markets for client PC operating systems, in which Microsoft has a dominant position, the extent of which is examined later, and the market for web browsers for client PC operating systems. An operating system is defined as system software which allows the user to interact with and control the basic functions of the PC. The most widely used PC operating systems are Microsoft Windows, Apple's Mac OS X Lion and some distributions of Linux (an open-source/free operating system) such as Ubuntu and Fedora. Web browsers are software products which allow PC users to surf the internet. The most commonly used web browsers would include Microsoft Internet Explorer, Firefox (open-source), Apple's Safari and Google Chrome (open-source).

The Commission reached the conclusion that client PC operating systems and web browsers constitute two separate product markets, on account of the specific characteristics of web browsers and the lack of realistic substitutes. This was a crucial element to the case, because, as previously stated, for tying to be an abuse of one's dominant market position under EU competition law, the tied products must be deemed entirely separate.

3.2.2. Geographic Market

The geographic limit of a market is determined by answering the question of whether an increase in price in one location substantially affects the price in another (Carlton and Perloff, 2005). On that basis, the relevant geographic market for client PC operating systems is world-wide.

3.3. Market Power

A firm is said to enjoy market power if it is profitably able to charge a price above that which would prevail in a highly competitive market (Carlton and Perloff, 2005) i.e. the firm is able to set a price above marginal cost. However, marginal cost is incredibly difficult to measure. An alternative approach is to estimate the price elasticity of the residual demand facing an individual firm (Carlton and Perloff, 2005). This measure summarizes the ability of the firm to exercise market power. This is calculated by subtracting marginal cost (MC) from price (P), and dividing by the price. This is then equal to 1 over the residual elasticity of demand, and is known as the Learner Index.

The above measure for market share is often merely hypothetical because of inadequate or non-existent data. Thus, some economists argue that, after the market has been defined, one may use market share as a proxy for market power, with a higher market share indicating greater market power (Carlton and Perloff, 2005). It is worth pointing out however that market share is a rough measure of market power at best (Fisher, 2007). Furthermore, a small market share may actually be consistent with market power if there are reasons that competitors cannot expand and a large share may simply indicate greater

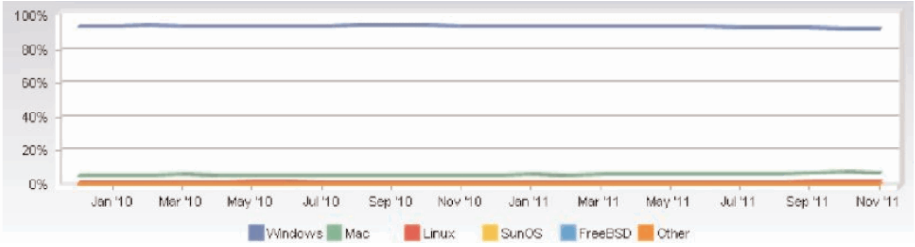
efficiency or product quality on the part of the alleged monopolist (Fisher, 2007). In Europe, an offense is described as an "abuse of a dominant position" where a "dominant position" is characterized in terms of market share (Fisher, 2007). Fisher outlines the problems this may create. Firstly, it assumes that a market can be easily and unambiguously defined and secondly, it may cause some firms to be hesitant to reach a certain threshold of market share, which could lead to inefficiency. It has even been argued that the Commission places an overemphasis on market share and that in this case, the Commission punished Microsoft simply because of its large market share alone, before even investigating whether it abused that position (Robinson, 2010)

We may also compute a concentration ratio, such as the Herfindahl-Hirschman Index (HHI) (Hirschman, 1964). This index would be close to zero when there are a large number of firms: and 1 under monopoly (Ferguson and Ferguson, 1988). Even though competition authorities are currently moving away from this index as a measure of market concentration, it shall be computed nonetheless using data from the 2009 market shares in operating systems, illustrated in Table 1. This was computed using the top four firms in the industry by market share, which is common practice (Shepard, 1997). The result is a figure of 0.88, indicating a very high degree of concentration. Perhaps the Commission was correct to investigate the behaviour of Microsoft, as it certainly had a monopoly in operating systems, and still does, to which it can use to extend its monopoly into web browsers. However, the overall effect of the Commission's decision on the market shares of Microsoft has been minimal, which is illustrated below in Tables 1-4 and Figures 1 - 2.

3.3.1. Operating System Market Shares

As a market share of over 50% is deemed to be significant (Carlton and Perloff, 2005), we may certainly conclude that Microsoft held a dominant position in the market at this time, if not a exercising a monopoly. As the below diagram illustrates, this has changed little in the last two years.

Figure 1: Operating Systems Market Share Trend (December 2009 – December 2011)



(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

Table 1: Operating System Market Shares (December 2009)

Operating System	Total Market Share
Windows	93.75%
Mac	5.20%
Linux	1.03%
FreeBSD	0.01%
SunOS	0.01%

(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

Table 2: Operating System Market Shares (December 2011)

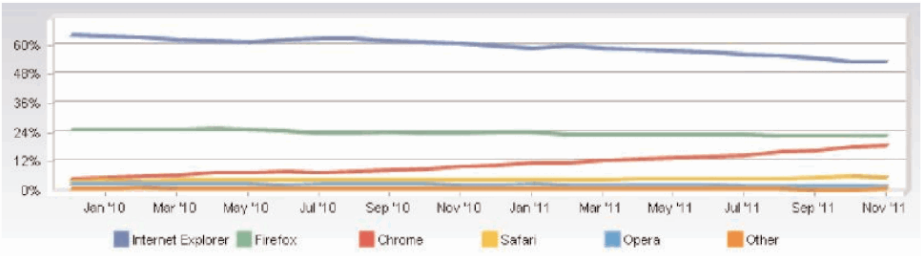
Operating System	Total Market Share
Windows	92.23%
Mac	6.46%
Linux	1.31%
SunOS	0.00%

(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

3.3.2 Browser Market Shares

The fall in market share from 2009 to 2011 most certainly occurred as a result of the rulings, as at the time it was concluded that Microsoft's unusually large market share in web browsers was partly a result of it tying Internet Explorer to Windows. One startling thing to note is the surprising lack of change in the market shares in the industry given the notoriously rapid pace of change and innovation in the technology sector. Microsoft's comparatively lower browser market share may be evidence verifying their defence that people can, and do indeed download free browsers from the web, possibly undermining the Commission's argument (Robinson, 2010).

Figure 2: Browser Market Share Trend (December 2009 - December 2011)



(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

Table 3: Browser Market Shares (December 2009)

Browser	Total Market Share
Microsoft Internet Explorer	63.69%
Firefox	25.02%
Chrome	4.71%
Safari	3.80%
Opera	2.40%
Proprietary or Undetectable	0.23%
Konqueror	0.04%
Flock	0.03%
ACCESS NetFront	0.02%
Mozilla	0.02%
Obigo	0.01%

(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

Table 4: Browser Market Shares (December 2011)

Browser	Total Market Share
Microsoft Internet Explorer	52.64%
Firefox	22.14%
Chrome	18.18%
Safari	5.00%
Opera	1.55%
Proprietary or Undetectable	0.24%
Mozilla	0.09%
Flock	0.03%
ACCESS NetFront	0.01%
Konqueror	0.01%
Obigo	0.01%

(Source: https://marketshare.hitslink.com/operating-system-market-share.aspx)

4. Motivations for Tying

The existing literature on tying/bundling falls into two distinct categories: the price discrimination theory and the leverage theory (Chen, 1997). The former view, which first appeared in literature in 1968 (Stigler, 1968), views tying as a strategy to engage in price discrimination (Chen, 1997). According to the leverage theory, on the other hand, which is quite elegantly described in a 1990 paper, tying is viewed as a strategy that enables a firm with monopoly power in one market to leverage this power to foreclose sales in, and thereby monopolize a second market (Whinston, 1990). Whinston's analyses focus on the fact that tying is used to induce exit in the tied market and may also deter entry by efficient firms (Carlton and Waldman, 1998).

It has been demonstrated that a firm can never gain from (pure) bundling when the secondary market is competitive (i.e. perfect competition) (Schmalensee, 1982). However, the market for web browsers is not perfectly competitive (in fact it can be characterized as an oligopoly) and so Microsoft stood to gain from its strategic tying (Whinston, 1990). Bundling allows firms to differentiate their primary products and thus gain market share in their primary market also (in this case the primary market would be client PC operating systems) (Chen, 1997).

The Commission took the view that Microsoft's actions created artificial incentives for developers and designers to create applications primarily for Internet Explorer.

Thus, Microsoft was attempting to create network externalities. The main reason why Microsoft engaged in tying was possibly to counter the threat posed by the large-scale deployment of web applications, which threatened to make conventional operating systems such as Windows obsolete. This was Microsoft's attempt to foreclose the competing browsers, as no applications written specifically for Internet Explorer would allow users to switch browsers or even the underlying operating system (2009 European Commission).

Microsoft may be let off the hook to a certain extent though. Bill Gates firmly believed that, as a matter of legal principle, a company should have the right to add features to a product even when that product monopolized the market (Allen, 2011). Moreover, when there is little room for competing firms to differentiate their product through advertising or quality choices, tying may be the only strategic option (Chen, 1997). It is also postulated that bundling may create real convenience for consumers (Chen, 1997). This is certainly true in the Microsoft case because, as has been discussed, many users do not even know how to download a web browser. Furthermore, one must have a web browser in order to browse the web to download an alternative one. It would be incredibly tedious for consumers to buy a web browser on a Compact Disk (CD) and then install it manually. It would also be incredibly costly for the firm to produce it on a CD and then ship them to consumers. This relates to one of the economic motivations for tying: there are efficiency gains to be enjoyed. In this case (as well as in the Messenger case), Microsoft's defence was threefold. First, tying enhances efficiency. Second, the Microsoft product is better and better marketed and finally, users could easily download an alternative product (Lee, 2009).

5. Conclusion

This paper was intended to give a broad, objective overview of the Microsoft browser tying case. First of all, the paradigm of European competition law was outlined, followed by a brief summary of the case. Individual aspects of the case and its rulings were then analyzed in greater detail. The market was defined in section three. Then, in section 4, the general motivations for tying were contextualized by analyzing the reason(s) why Microsoft engaged in tying. The result of the case was certainly a resounding victory for the Commission, and, while it was generally objective and should produce desirable results for consumers, several objections have been raised. Microsoft's commitments should lead to increased competition and thus increased choice for consumers. Furthermore, this should reduce prices and increase quality leading to increased consumer surplus. However, one may ask whether the ruling benefits competitors more than consumers. If a browser increases a company's market share, its revenue will obviously increase. This is beneficial for the competitors, but has no effect on consumers. Furthermore, the Commission's analysis merely focuses on 'likely' effects on competition, not on 'actual' effects; the Com-

mission argued that the tying 'was liable' to foreclose competition, but it failed to analyze whether such foreclosure had had the effects described (Robinson, 2010).

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An Examination of Ryanair's Entry into the African Aviation Market

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The African aviation market promises to become one of the more dynamic markets in the coming decades for global airlines. Antony Wolfe examines rigorously the prospects of the African aviation market and assesses the likelihood of a European low-cost airline entry into the market.

Introduction

The Ryanair low-cost business model has been very effective in the European market. The airline cuts inefficiencies by keeping solely one type of aircraft across the fleet, flying point-to-point to small regional airports with quick 25-minute turnarounds. The resulting lower fares have been enhanced by the rise of the internet, which helped by cutting out expensive middlemen combined with minimal marketing. Increased competition in the sector will force airlines to streamline their costs and thereby lead to lower fares as airlines strive to capture market share.

This essay will look at airlines in the African aviation market and investigate the possible entry of Ryanair into the market. A low-cost carrier could provide competitive fares to the rising middle class in Africa, who will have more disposable income to spend on air travel in the future throughout this vast continent. Africa's sheer size and variable terrain makes air travel particularly suitable to the continent. Airline services here are driven by tourism, attracted by the first 2010 FIFA World Cup in South Africa for example, but civil unrest in regions such as Libya and Egypt in recent times will likely harm tourism for years to come. Travelling around the continent is an ordeal, even without factoring in the current poor level of infrastructure, relative to European standards. The key issue addressed in this essay composes of the advantages and disadvantages of Ryanair entering the African air market in the future, focusing solely on passengers. The time period here is very important; without a sizeable amount of investment into African aviation, the entry of Ryanair in the next decade looks unlikely.

Following the introduction, section two will study the current status of the African aviation market, section three will look at problems facing airlines entering the African market and section four will investigate the probability of Ryanair entering the African market. The conclusion sums up the African aviation market's prospects for the future.

Current Status of the African Aviation Market

The principal feature of the African aviation market is that it is in need of major development. While passenger traffic has increased dramatically in recent years "from 31.5 million in 2000 to 56.2 million in 2009" the fact remains that very few African airlines are profitable (Chingosho 2011). In 2010, the worldwide airline industry turned a profit of $16 billion but only $100m was made to African airlines (Chingosho 2011). This is due in part to the fact that Africa has a minuscule amount of air traffic measured in RPK (revenue per passenger per kilometre) in comparison to Europe, where Europe has about 16 times the value of Africa (Chingosho 2011). However what truly drives profit in the sector is not revenue gained per seat per kilometre, but the overall operating margin. The real measure of profitability is "the airline's ability to generate unit revenues which are higher than its unit costs" (Doganis, p. 7). According to Doganis, the majority of loss-making airlines around the world often fail to "match supply and demand adequately" (Doganis, p. 19).

Evidently inefficiencies abound in the market. High cost airlines are "a function of the nature of their operations" where they could cut costs, but in the absence of competition, have no incentive to do so (Doganis, p. 7). African skies are currently full of foreign airlines, especially in former French colonies where "Air France has a de facto monopoly" (Chingosho 2011). Chingosho notes that "the airlines in the North of the continent are the most successful"; which makes sense given their geographical proximity to the European market (Chingosho 2011). Many state-owned airlines such as Air Algérie receive large subsidies to maintain routes which may be beneficial from a social point of view but accrue little revenue, for instance "the provision of services to isolated and small domestic communities" (Doganis, p. 149). The high cost makes these services inefficient. To cut costs further, airlines need to keep only one type of aircraft to save on maintenance and training costs. For example in 1999 "Air Madagascar operated eighteen aircraft of six different types" (Doganis, p. 137). If the market for routes were competitive these practices would prove unsustainable.

There is progress in the market in the form of increased co-operation among African airlines. For instance, Egypt Air now has partnership agreements with 20 other airlines. Further collaboration between airlines is needed to stimulate growth and spread ideas for better practice. Continuing in this vein, AFRAA (African Airlines Association) provides a strong union for African carriers as it "represents 83% of total international traffic carried by all African airlines" (Chingosho 2010). There are economies of scale and other benefits from co-operating and sharing ideas on best practices in safety and other aspects. However, a brain drain out of the continent robs the aviation industry of highly-skilled workers. In addition to pilots and engineers, airlines regularly change CEOs. For instance Cameroon Airlines and Air Zimbabwe had "six CEOs in the period 2001-2007" (Chingosho 2011). This recurring phenomenon is disruptive for sta-

bility and growth.

The large numbers of small airlines in Africa are stumbling blocks to a fully competitive market. The majority are state-owned and thereby protected from competition. This stems from the desire of many nations to have their own flagship carrier and these nations therefore tend to prevent competition to that airline. Guttery condemns these "costly shows of patriotism" (Guttery, p. 1). This is portrayed by AFRAA's list of union members, where the majority of the list seems to be made up of small national airlines (www.afraa.org). In addition, states have varying degrees of taxes, charges and visas that prohibit the free movement of people and goods. Lower fares would be difficult to implement, but, as a starting point, governments should decrease taxes on aviation to encourage demand, as the industry is currently "over-taxed and over-charged" (Wings over Africa, Dec. 2012). In the future, a burgeoning middle class with increasing disposable income could then afford to spend money on airline travel instead of alternatives.

The African market should be competitive according to Baumol's description, where "entry and exit are completely free", where foreign airlines would enter and consumers would benefit from lower fares (Baumol 1982). But Chingosho states that 51.4% of the 660 city-pairs in Africa are served by "less than 5 flights per week" (Chingosho 2010). A solution to monopoly airlines on routes is to provide a Demsetz auction for competition to have "competition for the market where it is not possible in the market" for routes that may not have enough demand to support multiple airlines (Barrett, p. 29). The Yamoussoukro Decision, agreed by 44 African states in 1999, is a step in the right direction towards solving this barrier to competition.

The Yamoussoukro Decision aims to increase co-operation in the African aviation market. Its foundations were set in the Yamoussoukro Declaration of 1988 as it "commits its 44 signatory countries to deregulate air services, and promote regional air markets open to transnational competition" (Schlumberger, 2010). This accord includes the "liberalization of passenger and cargo services" as well as the exchange of fifth-freedom traffic rights, which comprise "the right of an airline from country A to carry revenue traffic between country B and other countries such as C or D on services starting or ending in its home country A" (www.africa-union.org) (Doganis, p. 336). This accord is pivotal to African aviation growth as it would provide competition for routes. However, not all African states are in agreement. The author of the report, Charles Schlumberger, states "ten countries have not signed" despite the World Bank report stating that "liberalized air transport would deliver improved safety, lower fares and increased traffic in Africa" (Schlumberger 2010). The full implementation of the Yamoussoukro Decision across all African countries would undoubtedly take away the clouds that block open skies for the continent.

Problems Facing Entrants to the African Market

The unease of doing business in Africa is seen as a barrier to trade for firms. A report by Barclays Bank Ireland titled Trade with Africa found that "respondents were wary of the continent as a business partner" with regards to corruption and a lack of infrastructure (Business World article, November 2012). Also, conflicts abound between or within states and future conflicts would almost certainly impact on revenues in regions affected by civil unrest. However, "62% believe opportunities will develop positively over the next decade" which embodies an opportunity for Ryanair to enter (Business World, Nov. 2012).

Fuel price increases have reduced profits across the industry. In 2011 the cost of fuel represented "29% of operating costs" (Chingosho 2011). This signifies an opportunity for Ryanair, who could possibly benefit from economies of scale from their existing operations in Europe. Ryanair would likely have a higher number of newer aircraft than African airlines, aircraft which don't guzzle as much fuel as older models. This drive for efficiency has not yet reached Africa, where industry margins were just "0.7%" in 2011, meaning any inefficiency will impact heavily on profit (Chingosho 2010).

A lack of infrastructure in Africa harms any drives for efficiency and also means there are problems of hub airport dominance, which Barrett calls "the most important obstacle to contestability" (Barrett, p. 23). A huge investment in infrastructure would be needed to build regional airports which the majority of African states would be unwilling to countenance. An additional setback includes the large amount of existing infrastructure and airspace that is normally reserved for military use. This problem is not just limited to Africa: for instance in 1989, there was an "average extra journey length of 10 per cent in Europe because of military zones" (Barrett, p. 37). A possible solution would be to auction the airspace to ensure this limited resource goes to the highest bidder, as Barrett states, "airspace is now scarce, and a system of property rights is appropriate" (Barrett, p. 37).

Safety stems from this lack of infrastructure and remains a priority for improvement in Africa. The safety standards of African domestic airlines are compromised, showing that the African "accident rate is more than 12 times higher" than the European equivalent (Schlumberger, 2010). In addition, "more than 25% are on the EU blacklist which continues to grow, with no country in Africa ever having been removed from the blacklist" (Wings over Africa, Dec. 2012). Perhaps the entry of non-African airlines could help show the best practices in safety standards drawn from their economies of scale. Other possible solutions include better marketing and increased safety training for employees. Nevertheless, this poor safety image begs the question: if African airlines and airports are deemed to not be safe, why would Ryanair or other carriers enter? These airlines are not going to invest in those facilities themselves. To at-

tract foreign airlines, there needs to be a huge amount of investment in the aviation sector in Africa, which unfortunately does not seem likely to happen in the next decade.

The Likelihood of Ryanair's Entry

There are great prospects for air travel growth in Africa. Ryanair could provide low-cost air travel as the continent's "rapidly expanding middle class increasingly need goods and services which cannot be catered for domestically providing a golden opportunity for Irish businesses" (Business World, Nov. 2012). The cost structure of a low-cost carrier like Ryanair is different to the majority of African commercial airlines. According to Doganis, the main outlay of low-cost airlines are spent on direct costs such as "flight operations, maintenance and depreciation" that tend to exceed "60% of total operating costs" (Doganis, p. 87) but the airlines save a lot of resources in indirect costs including "ground expenses, passenger services and promotion" (Doganis, p. 88). Ryanair also have a relatively low marketing budget compared to other major European airlines, proving the airline does not waste resources inefficiently on advertising.

The opening of provincial airports could allow Ryanair to cut costs further. Following a successful cost-benefit analysis appraisal, potential projects could demonstrate that the time savings gained would offset the cost of the initial investment. For instance, in the Irish case, in 1989 Knock airport gained a huge increase in passengers and "generated time savings for the 170,000 passengers [...] to the value of £4.6 million" (Barrett, p. 36). An airport benefits the wider economy in the surrounding area, as the increased economic activity creates jobs and drives commercial growth. Schemes such as duty-free shopping entice consumers to spend in that country.

However Africa covers a lot more land mass than Europe. Domestic regional air services within some countries in Africa would include larger distances than Ryanair currently flies within Europe. The impact on fuel costs would hamper the company's ability to provide low fares. Nonetheless, certain countries within Africa could be used as strategic stopovers or hubs for refuelling due to the long distances. For example, Ryanair could use Morocco, where the airline has already established operations. Of course, the market may not need Ryanair if the market for charter airlines were to develop. In Europe's case, the increase in tourism prompted the increased supply of charter "which attained over 40 per cent of the passenger market within the region" (Barrett, p. 4). According to the Cascade Studies, these charter airlines charged much lower fares than the incumbents, finding that "actual charter fares were between 32 and 37 per cent of the scheduled airline fares" (Barrett, p. 4). If Ryanair chose not to enter, then perhaps charter airlines could meet the demand.

Ryanair would not be the first low-cost airline to enter the African market. Fastjet, built on the model of Easyjet in Europe, will commence flights "from Dar es Salaam in Tanzania at the end of the month for prices starting at $20" (Guardian Weekly,

Nov. 2012). Bureaucracy means that progress is slow, but the Fastjet CEO Ed Winter (formerly of Easyjet) "has outlined a rough sequence for the markets which Fastjet plans to enter using the air operator's certificates of Fly540" (Air Transport World, Nov. 2012). Should the airline prove a success, it would send a clear signal to African governments, who would wish to facilitate more start-ups like Fastjet.

Conclusion: Future Prospects

There is huge market potential in Africa. Many airlines compete on routes out of Africa; therefore, it follows that the "best opportunities for growth and expansion for African airlines lie in the under-served African regional and domestic markets" that suits Ryanair's short-haul point-to-point model (Chingosho 2010). However, there are many challenges that would prevent Ryanair from entering in the near future. Africa spans a much larger area than Europe and there are big question marks over infrastructure and safety within the sector. The current conflict in Mali represents an example of the political fragility of many African states.

Over time, the aviation sector will develop and in the medium term it is possible to see the entry of Ryanair into the African market. Due to the size of the continent, Ryanair would initially enter only a portion of the African market, for instance expanding services from their existing operations in Morocco solely across North Africa, instead of taking on the entire continent. They could then develop their routes across the continent over time.

The foundations laid by the Yamoussoukro Decision will open up the African skies for more domestic start-ups like Fastjet. Airlines will streamline costs to cut fares in competition for the market share of the rising African middle class. Small national airlines will either fold or merge to survive in the competitive market. There are still barriers to competition to overcome. The continent-wide removal, or at least reduction, of barriers to the movement of goods and people, such as tariffs and visas, would undoubtedly stimulate the market for air travel for firms and consumer alike. Regardless, Africa's potential ensures the prospects for its future are bright.

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EU REGIONAL POLICY AND LOCATION EFFECT: CONTRADICTIONS AND COSTS

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Is there a dissonance between the objective of the European Union and the effect of its policy? Jamie Wilson takes a closer look at the process of location and agglomeration, whereby the production of goods and services locates itself where comparative advantage arises. The paper will then examine the costs of the EU regional policy, and outline the imbedded contradiction.

Introduction

The 1957 Treaty of Rome set out the famous 'Four Freedoms' for citizens of the European Economic Community (European Commission, 1957). However, only in recent times have the free movement of goods, people, services and capital actually, by in large, been properly implemented. What these fully enforced freedoms give us, is not only an extra set of lovely sounding rights for EU citizens, but also, it frees up the movement of economic activity within Europe. What the EU and economists alike are interested in, regarding this free movement, is where this economic activity occurs. What this essay will explore, is the role that regional policy plays with regard to location effects and how the policy costs the EU and contradicts its objections. In dealing with this we must begin with the facts of economic location within the union. Next, in order to gain a better understanding of location effect itself, we will need to examine the economic process of 'Agglomeration'. We will then look at what regional policy actually entails. With this covered, we will be able to critically assess regional policy in terms of the location of economic activity in Europe and what the policy means for the EU itself.

The Facts

When looking at the facts of location effect in the EU we concentrate on two key aspects: national differences and regional differences of economic activity. Beginning with national differences, in 2011, member states ranged from 45% to 274% of the 'EU27' GDP per capita average, with Bulgaria being the low extreme and Luxembourg being the high extreme (Eurostat, 2012). Taking out the extremes, there are still huge disparities between

member states incomes. There has however, been some narrowing of national differences, most notably amongst the 'EU15' whose incomes have converged to their own 'EU15' average. The aforementioned Luxembourg, is the only member state that is diverging quite sharply from member state averages, as it over doubles next in line Netherland's 131% of EU average income.

Interestingly, when we look at the differences between incomes in terms of regions within states and regions within the EU as a whole, we actually see income disparity becoming more pronounced. Take the North West of Europe – West Germany, North-East France, South-East England and the Benelux countries. This area takes up around 1/7 of EU land mass but now houses a third of its population and half of its economic activity (Baldwin and Wyplosz 2012). It follows that out of the fifteen countries below the EU average GDP per capita in 2011, all were in the southern and eastern regions of the EU. There are also wide regional income differences within member states, with the United Kingdom being a good example of this. The only areas above the national income average are greater London and the area just south of London. The increased economic activity in these areas seems to be somewhat 'balanced' by significant reduction of incomes in regions such as Scotland and North-East England who have both fallen below national average. This leaves 10 out of 12 regions within the UK actually being below national average income.

Having looked at the figures, averages and percentages we have some clear facts about location effect in the EU: Income differences between EU states are vast with some member states being significantly richer than others. These differences are however narrowing slightly, particularly within the 'EU15'. With regards to regions, economic activity is becoming more and more concentrated, both in the EU as a whole and within individual member states. With these facts dealt with, we can now delve into the 'behind the scenes' of location effect in the EU by looking at Agglomeration.

Agglomeration

The key process we need to examine when looking at location effect in the EU is agglomeration. This is best explained with a simple example. Let's take an economy with two regions: 'The North' and 'The South'. The southern region experiences, for whatever reason an injection of economic activity while the North receives none. With increased activity in the South, more jobs become available there, increasing the purchasing power of the region and enticing people from the North to work in the South. With an increased population, more services are required, further jobs are created and more wealth is accumulated in the there. Firms are attracted to the south because locating there means they are closely located to other suppliers and firms and more importantly, closer to a bigger population. There are a large number of these knock on effects that could be explained but what is important to understand is that the increased activity in one region, be it a new

firm or an expansion of a particular sector means that people, firms and money are attracted to the area, and once attracted there, it makes the region even more appealing, this is agglomoration (O'Flahety, 2005). In a European context the area which experiences the increased economic activity could be considered to be the north east. This, at least partly explains why it contains so much of the EU population.

Regional Policy

Now we can begin to discuss regional policy. Over a third of the EU budget between 2007 and 2013 was spent on regional policy, a total of 347 billion (European Commission, 2012). Some of the goals of the policy include: 'Reducing regional inequalities …due to many things, including: longstanding handicaps imposed by geographic remoteness, more recent social economic change and the legacy of formerly centrally-planned economic systems' (European Commission 2007) .The funding comes through from three different sources; The European Regional Development Fund (ERDF), The European Social Fund (ESF) and the Cohesion Fund. The specific objectives of these funds are 'European Territorial Co-Operation', 'Regional Competitiveness and Employment' and 'Convergence', respectively. Over 80% of total regional policy is spent on the 'Convergence' objective and in order to attain particular levels of funding, a region must have a particular level of income compared to the EU average (European Commission, 2007a, 2009). What's key to understanding the regional policy is that with the use of terms such as 'cohesion' 'longstanding handicaps' and 'Territorial Co-operation' it's quite clear that there is a huge amount of politics going on behind the scenes. From the bigger picture of what direction the Policy is moving, to why Luton received funding over 'equally depressed' Torbay, Regional Policy is tied to the hip with the battles in power that go on between EU member states (The Economist 1999; Financial Times 2010). If we take out the political terms of regional policy, it's pretty easily explained. Essentially the policy is a redistribution of wealth in the effort to make poorer regions in the EU become more prosperous. The simple explanation makes it clear why politics is so entrenched in regional policy, as due to the scale of the funds (a third of the total EU budget), regions which receive a significant chunk of money could potentially see their area go from bust to boom. This makes receiving funds become extremely significant for politicians whose regions are potential recipients.

It is important that the separate aspects that have been discussed; 'the facts', the ins-and-outs of agglomeration and EU regional policy be dealt with separately. Once there is an understanding of these alone, we can bring them together in order to help us look more closely at the role regional policy plays.

Contradictions

Firstly, we must take a step back from regional policy and take a look at the fundamentals

of the EU. We were recently reminded of the actual aim of the Treaty of Rome, when the EU won the 2012 Nobel Peace Prize and Europe turned from 'the Continent of War' to 'the Continent of Peace' (The Guardian, 2012). It is often easy to forget that the main motivation behind the EU was in fact to foster better relationships between member states and to avoid further armed conflict. What is interesting is how European leaders believed they could achieve peace. It was perceived that the best way for Europe to improve relations between its states was essentially through a fairly simple economic process: deregulation. What the treaty of Rome created was a single market for member states and all that the 'Four Freedoms' were, was deregulations in the goods, worker, service and capital markets. The idea was, that by freeing up the market and removing restraints on economic activity between states trade would be encouraged and this would lead to increased prosperity which in turn would hopefully would ease tensions (particularly between France and Germany). The 'Common Market' today is still the foundation of the EU; without it, it is be hard to imagine that the other political links tying the union together would remain. The role that regional policy plays compared to the common market is particularly interesting. The whole premise of the common market is to try to take away as many instruments that interfere with the marketplace as possible. What regional policy does is go back into the market with money raised from taxes and attempts to promote economic activity in particular regions within the EU. Interestingly, what it essentially does is actually interfere with economic activity in the common market. Regional policy, which takes up a third of the EU budget, actually contradicts the whole basis of the common market, which attempts to reduce institutional interference in economic activity. We can further expand on this contradiction by looking at regional policy and agglomeration.

Let's go back to our simple example on agglomeration with the two region economy of the 'north' and the 'south'. By looking at regional policy we could say that by encouraging economic activity in the poorer regions of the EU, the policy is actually discouraging agglomeration, that is, we are encouraging people and business to go or stay in the 'north' instead of moving to the 'south'. Here, we can bring back the four freedoms which were part of the deregulations for the common market. What these freedoms did was essentially free up where economic activity decided to locate itself. If we think about this a little more, we can see that by fully implementing these freedoms, agglomeration can now take place not only within individual member states, but on an EU wide level. This means that the 'north' and 'south' regions now become regions of the EU as a whole. The common market amplifies the process of agglomeration and it is as if regional policy actually attempts to undo some of the work which is created by the very foundation of the EU. Not only can people move around in their own countries but now people from areas such as Southern Italy, Eastern Germany and the CEEC's can get up and go to the prosperous north- east and the other large EU cities. What regional policy does is by investing in these poorer regions mentioned, it tries its best to keep these people where

they are. In essence, the nature of regional policy, whether intentional or not, means that EU wide agglomeration, cannot take full effect. The inconsistency here is that we once again have EU regional policy working against the deregulated Common Market. So why does the EU have such a conflicting policy?

Social Benefits

So far we have looked at regional policy and agglomeration from purely from an economic perspective. What we haven't taken into account is the social benefits which the policy brings and the potential social cost of Agglomeration. The fact of the matter is, the EU is a political organisation, so it must take into account the social challenges its member states face. This idea of the social side of the EU is exemplified by its Social Charter which outlines various freedoms and rights for citizens (Council of Europe 1996). So taking the social aspect into account our argument on how Regional Policy is inconsistent with the Common Market comes under some scrutiny. Why does it matter if regional policy interferes with the common market and works against the agglomeration process? Surely it's better to interfere with the market than have people who live in a particular areas move thousands of miles away to acquire employment? If we were to let agglomeration take further effect by letting go of regional policy we probably would face potential social costs. Regions which are seen as unfavourable could see increased levels of emigration to the richer areas of the EU. Essentially this would see these poorer areas go from bad to worse. This type of emigration has been associated with large declines in young people, the degradation of infrastructure, rising levels of crime and a demoralised atmosphere among those citizens who remain (Fesar and Sweeney, 1999). All this adds up to, unfavourable regions becoming even more unfavourable to the extent where going back to prosperity is a hugely difficult task. This is why regional policy intervenes, so as stop regions degenerating to the brink of no return and this is seen by many, as a crucial element of the EU so we can avoid these costs on our society. However, apart from the policy having a contradictory nature, what does regional policy actually cost us?

Social Costs

Big cities are the result of agglomeration and the two generally come hand in hand. According to Harvard professor and economist Ed Glaeser, cities actually make us: "Richer, Smarter, Greener, Healthier and Happier". Through data that he has collected for his book "The Triumph of the City", Glaeser points out how cities perform much better than other parts of the economy (Glaeser, 2011). This supports the idea of the Common Market and non-intervention as we need only to look as far back to our own facts on the EU to prove this right, with the North-East region homing the EU's largest cities and half of the total EU economic activity. Also it is clear to see that other high performing areas outside the region are big cities too (eg. Berlin, Madrid and the Northern Italian cities (Nordre-

gio,2009)). As we previously discussed however, agglomeration also brings about social costs, so what do we gain in social terms from cities? Interestingly, Glaeser particularly focuses on a key social issue which the EU spends billion and billion trying to solve: the environment. For example, Glaeser found that a single family detached house uses on average 83% more electricity than urban apartments do. This is a significant figure and maybe even surprising to some as cities are usually associated with billowing smoke and traffic jams. The reduced emissions by city dwellers (which are actually 40% less than even those living in the suburbs) can be partly explained by the lower use of automobiles, as public transport and walking replacing the need for cars. Glaser also highlights other social benefits from cities which might be surprising. He found that city inhabitants are actually healthier than other parts of the population, especially with regard to younger age groups. In addition, according to Glaeser, living in cities actually increases overall happiness of individuals and it is cities that drive innovation. Although Glaeser is strictly talking about cities, we can certainly apply some of the benefits that a city brings to agglomeration as a whole, as both are inextricably linked. As regional policy fights against agglomeration, the EU actually limits the growth of its biggest cites, which although has its social motivations, costs Europe not only in economic terms but socially as well.

Conclusion

So, what can we conclude about regional policy? It would be a bit naive to completely discredit the role which Regional Policy plays. Regional policy has and will help numerous regions across the EU become attractive places for people to live and invest. There is no doubt about what we gain socially from regional policy, but are we sacrificing more than we think? From what we know about the process of agglomeration, once the single market was fully implemented in the EU it became clear that this would affect the location of economic activity in the region. The point is that regional policy attempts to stifle the location effect that is brought about by the single market. This leaves EU policies actually working against themselves which in terms of consistency and efficiency, is not desirable. By taking the point of view of Regional Policy, Agglomeration is seen as a negative, but as we have discussed, we can actually benefit from this economic process. Cities not only benefit us economically but they also have the potential to play a significant part in solving climate change and other social problems. So maybe a better conclusion to come to regarding regional policy is how we view its price tag. It turns out that the 347 billion Euro spent on the policy, a third of the EU budget, is only its face value. Hidden behind this figure, there are significant contradictions and costs which EU citizens pay for.

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IS A US-EU FREE TRADE AGREEMENT DESIRABLE?

CLÍONA NIC DHOMHNAILL
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If there is consensus among economists, it is around the positive benefits of trade. In this paper, Clíona Nic Dhomhnaill challenges this consensus. The essay presents the economic benefits of the EU and the US signing a Free Trade Agreement before highlighting the possible detrimental effects of such an agreement on the rest of global trade. The essay concludes by strongly questioning if such an agreement will have an overall positive impact, or if it will rather serve to undermine the progress of global free trade.

Introduction

Recent dialogue emanating from both sides of the Atlantic has indicated that a free trade agreement between the United States and the European Union is a significant possibility, backed up by genuine political will. There has been widespread praise for this development, which is justified by the potential stimulus to GDP it will provide; and on the surface, this appears to be a positive step for the global economy and for the discipline of economics. However, a closer inspection indicates that this may not be as reformative as it seems, primarily because bilateral trade agreements imply discrimination against non-member countries. This essay aims to show that there are compelling disadvantages to such arrangements by discussing the static effects of free trade agreements (FTAs), i.e. trade creation and diversion, and the dynamic effects, i.e. their impact on multilateral trade negotiations and the Doha Round. Before this, the motivations for creating a transatlantic free trade area (TAFTA) will be examined. Finally, some of the political issues that arise where FTAs are concerned will be discussed, although without losing sight of the question of whether TAFTA is economically desirable. The purpose of the essay is not to discuss whether we should have free trade, but rather to objectively examine whether free trade between individual nations is conducive to the ultimate, widely proclaimed goal of global free trade. As Schott (1989) points out, each FTA is very different and it is difficult to generalize the conclusions on the value of FTAs, thus this essay will attempt to apply these arguments to the US-EU case.

Why a Free Trade Agreement and why now?

The post-war years were marked by endeavours to reduce tariffs and encourage interna-

tional trade, in particular through the signing of the General Agreement on Tariffs and Trade (GATT). Since the 1980s however, there has been a significant shift away from the multilateral trade negotiations, now conducted by the WTO, towards bilateral free trade agreements. This has been driven by the softening of the US stance on bilateralism in what Bhagwati (1991) has coined the "Second Regionalism", spearheaded by the US FTAs with Canada and Mexico.

After years of vague suggestions of improving the economic relationship between the EU and US, a transatlantic summit in November 2011 finally yielded definitive progress on the issue. The establishment of a High Level Working Group on Jobs and Growth was announced, tasked with delivering a report on a potential Free Trade Agreement between the US and EU. After some delay, the report was published in February 2013, providing an emphatic endorsement of a proposal which would include agreements on trade, investment, regulatory issues and the "development of global rules".

The superficial logic behind a deal is obvious: the EU and US are each other's largest trading partners and together account for almost one third of global trade flows (European Commission, 2012). The political will for creating an FTA is apparent, with the European Commission stating that it is a "key priority" to negotiate new FTAs in order to open further market opportunities for European firms (European Commission memo 2012) and US Secretary of State Hillary Clinton indicating the United States' desire to progress beyond most favoured nation status with the EU (Clinton 2012). The fundamental motivation (as far as has been publicly disclosed) is to take advantage of the stimulus to GDP that an FTA would bring, which the ECORYS study (2009) commissioned by the European Commission has estimated at €122bn for the EU and €41bn for the US. This is even more significant now, against the backdrop of US sequestration and the European sovereign debt crisis, than it was when the proposal first came to public attention in the 1990s. Further fiscal stimulus is scarcely an option given the already high debt levels on both sides of the Atlantic; therefore a boost to GDP through trade would be greatly desirable. If ever there were a time for TAFTA, it is now.

On a multilateral level, there has been a distinct lack of progress towards liberalising trade. The World Trade Organization (WTO) initiated the current round of negotiations, the Doha Round, in 2001, and talks have stalled in recent years, with little indication that the impasse will be broken anytime soon. Baldwin and Jaimovich (2012) refer to the "slow multilateralism" that has characterised the development of world trade. The question this essay aims to answer is whether the Doha Round, and multilateralism in general, will be negatively impacted by a US-EU FTA. The logic is that bilateral agreements violate the WTO's most favoured nation principle, by which all WTO member countries should abide.

Theoretical Background

To begin the analysis, we shall first define preferential and free trade agreements. Preferential trade areas include free trade areas, customs unions and common markets. A free trade area is defined as a group of countries with free trade between them, but retaining independent systems on trade with non-members (Black, Hashimzade & Myles, 2009). The most common form of preferential trade agreement (PTA) is a free trade agreement (FTA) (Bhagwati, 2008), and it is FTAs that this essay will focus on. Bhagwati (2008) postulates that we should habitually refer to FTAs as PTAs, so as to indicate that the emphasis of FTAs is on preferential treatment and not on free trade ideals. In comparison, the core principle of multilateral trade liberalization, i.e. WTO talks, is that no country is left out or discriminated against. Thus FTAs and multilateralism are inconsistent with each other.

Secondly, the theoretical justification for free trade agreements shall be examined. Bilateral trade relations create a prisoner's dilemma scenario. If countries do not have any kind of cooperation agreement, the Nash equilibrium of the payoff matrix will be that both countries impose tariffs which are a suboptimal outcome for both and reduce global welfare (Feenstra and Taylor, 2008). This is to avoid a situation whereby the other country imposes a tariff while the home country does not, causing a term of trade loss and leaving the home country even worse off. A PTA facilitates a movement towards the optimal solution to the payoff matrix, whereby neither country imposes a tariff and global welfare is maximised (within our simplified model). It does so by providing a platform upon which countries can build the level of trust necessary to facilitate cooperation and prevent tariff wars.

The controversial issue with PTAs is that there are actually two opposing forces at work, trade creation and trade diversion, as first pointed out by Jacob Viner (1950). Trade creation is the increase in trade due to the removal of tariffs and non-tariff barriers, while trade diversion is the mechanism by which imports and exports are not allocated in the most efficient way possible as tariffs distort the world market and encourage trade with a specific country. If this country is not the most efficient producer of a good, importing its goods is diverting trade away from its efficient allocation and global welfare is reduced. If trade diversion outweighs creation, then the overall welfare effect of PTAs is negative and they should be avoided, before the effects on multilateralism are even considered.

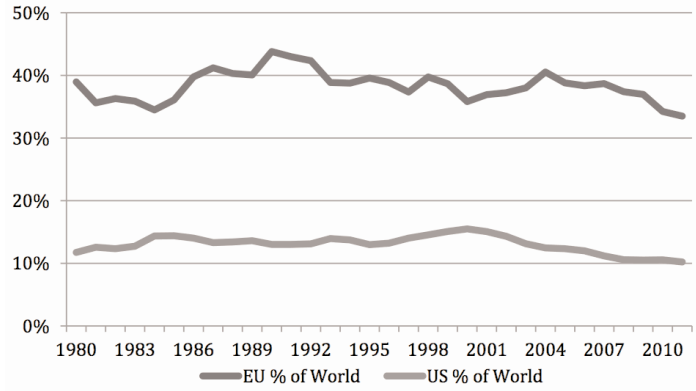
Would Trade Creation Outweigh Trade Diversion?

Wonnacott and Lutz (1989) claimed that trade creation will exceed diversion if the two countries involved are "natural trading partners". A glance at the data does suggest that this condition holds in the US-EU case - they are each other's largest trading partners, with the US accounting for 13.8% of the EU's overall trade and the EU accounting for 17.8% of US trade (European Commission, 2012). This implies that trade creation should

be high and hence justify the creation of TAFTA (at least under static conditions of analysis). However, Bhagwati (2008) warns against using this as the only measure as such figures could be inflated by previous preferential treatments, in this case for example initially low tariffs within the western world. Medvedev (2010) performs a regression of the impact of PTAs on trade flows between the member countries and concludes that North-North PTAs do not have a statistically significant impact on trade, which reinforces the view that TAFTA would not lead to significant enough trade creation to justify its conception.

Rolf Langhammer (2008) offers a different perspective from which to assess trade creation. He plots the progression of US and EU shares in each other's and in world manufacturing trade over time and concludes that the decline in both since 1980, caused by the rise of manufacturing in developing countries, implies that trade diverting potential is higher today than it was, say, in 1980. Figure 1 provides data updated to 2011 on this, clearly indicating that the trend has continued, so it can be inferred that a US-EU FTA at this point would have even greater scope to divert trade from its most efficient sources and recipients. This method, while a useful heuristic, doesn't give any indication of the starting point level of trade diversion to which it is relative, thus is somewhat limited. Bhagwati (2008) also points out that if there is intense competition in an industry, even the removal of very low tariffs can cause trade diversion, as demand will be highly sensitive to the price changes caused by tariff reductions. This is particularly relevant in the US-EU case, where tariffs are already relatively low, with the average applied tariff at 4.8% in the US and 6.7% in the EU (Erixon & Brandt, 2011). Although a definitive conclusion cannot be ascertained, the overwhelming evidence appears to suggest that trade diversion would be higher; hence TAFTA would not be desirable.

Figure 1: EU and US Shares in World Manufacturing Trade, 1980-2011

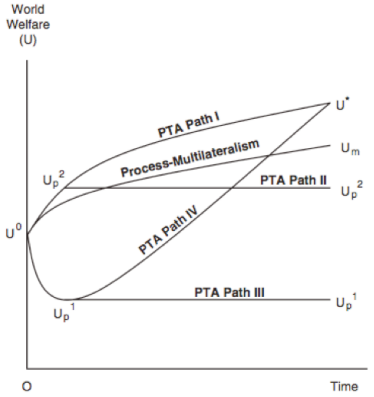


Source: WTO Statistics

The Dynamic Implications of FTAs

More important to this essay are the long-term effects of preferential trade agreements, specifically the effect they have on multilateral trade negotiations. The dynamic argument in favour of a FTA is that non-member countries will be incentivised to join, to the point where the enlargement ultimately leads to genuine free trade (Baldwin, 1993). In this case, the final outcome is the same as that of successful multilateral negotiations thus if this theory holds, PTAs help rather than hinder multilateralism. In fact, as Bhagwati (2008) shows with Figure 2, global welfare could in fact reach absolutely higher levels, i.e. U*, through PTA-derived free trade.

Figure 2: Welfare Effects of PTAs versus Multilateralism



Source: Bhagwati, 2008, p.106

The question is thus which path is more likely - whether FTAs are a stumbling block or a stepping stone to global free trade (Bhagwati, 2008). Although some studies argue that multilateral agreements are not desirable, in particular Andrew Rose (2004), who argues that joining the WTO does not cause a significant increase in trade flows, it shall be assumed here that membership of the WTO increases trade. There are a number of factors that indicate that FTAs are detrimental to the multilateral ideal, and this essay will examine some of the most prevalent. The core issue, which leads to many other problems, is that FTAs are proliferating. Baldwin (1993) introduced the concept of the 'domino effect', whereby idiosyncratic preferential trade agreements are multiplied by a domino effect, incentivising other countries to request to join them, and ultimately leading to a new equilibrium consisting of larger regional trading blocs. Baldwin & Jaimovich (2012, p.4) further this argument by proving the statistical significance of 'contagion', defined as when "a government, which initially opposes a particular trade agreement, changes its mind due to a trade agreement signed by other nations". Contagion operates through a channel

whereby the trade diverting effects of FTAs cause declines in the present value of firms' profits in non-member countries, leading governments to then seek FTAs as a defensive reaction. Their results also show that the more FTAs a country has, the greater the likelihood of it signing further new FTAs.

The evidence indicates that we cannot simply evaluate TAFTA as an individual arrangement, as it is likely to further encourage the spread of FTAs across the globe, creating an intricate web of heterogeneous trade agreements and patterns. This web is complicated not just by the many distinct agreements each nation has with other states, but also by the contrasting rules of origin and heterogeneous regulations in each treaty and country respectively. The High Level Working Group's interim report (2012) on TAFTA foresees this problem and claims any treaty would seek to develop rules which could also be applicable to multilateral agreements in future, and makes specific reference to "aspects of labour and environment". This implies that positive externalities could be derived which would simplify and possibly accelerate WTO negotiations by providing a framework that will have been tested by two leading trade nations. However, Krugman (1997) argues that countries should simply be left to choose their own standards and regulations as there is no economic foundation to the logic of such harmonization; the benefit of one country imposing certain standards is independent of whether other countries do the same or not. Therefore it can be argued that the TAFTA rules will not make a meaningful contribution to the likelihood of global free trade emerging, and in fact they could have a negative impact if the loss of utility derived from the reduced freedom of choice is taken into consideration.

Patterson (1988, p.354) claims this complex, "overlapping set of subsystems" created when FTAs proliferate leads to mistrust among nations. This undermines the entire logic of FTAs as described earlier, as the mechanism through which FTAs lead countries to a more desirable outcome than the Nash equilibrium in the payoff matrix of trade is the creation of trust between nations by signing a trade treaty. If FTAs cannot assure nations they are receiving the most favourable treatment from their partners, and in fact create further uncertainty, the incentive to engage in trade negotiations is greatly reduced. This could also create political tensions, which would reduce the likelihood of multilateral talks succeeding.

A general equilibrium analysis is undertaken by Melatos and Woodland (2007) to investigate which trade outcomes end up in the core allocation, i.e. are Pareto efficient and cannot be blocked by any coalition of agents, who in this case assumes the form of other trade outcomes, i.e. free trade, unilateralism or PTAs. They discover that global free trade is in the core allocation if countries are similar in terms of preferences and endowments, but the more dissimilar the countries' preferences or endowments are, the more likely that FTAs will "block" free trade and prove to be a stumbling block to multilateral trade liberalization. This leads us to infer that if the US and EU possess very similar

consumer preferences and endowments, global free trade will be in the core and TAFTA should not represent a stumbling block to the Doha Round. This is not implausible; although given the diversity within the EU itself is not guaranteed. To come to more definitive conclusions, data on the elasticity of substitution and the current factor content of trade in the US and EU would have to be collected.

The Political Economy Element of Free Trade Agreements

The political economy implications of FTAs are vast; this essay will examine selected key issues. An agreement of the nature of TAFTA, involving two hegemonic powers, would be quite unheard of in the modern era. In this sense, TAFTA doesn't follow the standard logic of FTAs as described by Baldwin and Jaimovich (2012), by which FTAs are generally formed for defensive purposes to reduce the discrimination imposed on them by other FTAs. The impact of TAFTA on the global distribution of political power could therefore be unexpectedly high.

In a speech on 9th November 2012, European Commissioner for Trade Karel de Gucht admitted his concern that the US presidential election campaign largely neglected the issue of the US relationship with Europe (2012), implying that the EU feels the US is the dominant power in their bilateral relations. This is reminiscent of Bhagwati's (2008) claim that one of the key reasons developing nations seek PTAs with hegemons is that they desire to keep the hegemon's interest in the region alive, particularly in terms of security. The estimates of the GDP effects of TAFTA reinforce the idea that the EU stands to benefit more, due the expectation that the EU would gain more from cheaper imports (ECORYS, 2009). If there are asymmetric incentives across the blocs, negotiations could be biased and remove focus from achieving the most economically efficient outcome.

We must allow for the possibility that the public perception of free trade could be transformed by TAFTA- if two of the world's largest trading areas show openness to complete trade liberalization, the political taboo surrounding free trade and the affinity with protectionism could finally be broken. Economists may have a chance to win over politicians who have ignored their calls for multilateral liberalization of barriers to trade. The reverse side of this possibility is that the third-party non-members disadvantaged by TAFTA, in particular China, could revolt against the idea of free trade. If the political balance between North and South were damaged, the Doha Round and future WTO negotiations could be significantly damaged.

Conclusion

It is by no means widely accepted in the discipline of economics that preferential trade agreements are inherently detrimental to the global economy; however there is significant evidence to suggest that widespread acceptance of the benefits of a US-EU Free Trade Agreement is questionable. It has been shown that, when evaluated on a static basis, FTAs

could be beneficial if trade creation is greater than trade diversion, although this appears unlikely to be true for TAFTA. Once the dynamic effects on multilateral trade negotiations and the political implications are considered, however, it is clear that FTAs are undesirable, and TAFTA is no exception. The resources of the respective politicians and institutions could be better utilised if directed towards reigniting and completing the Doha Round of WTO talks. Taking political economy into account provides no definitive stand either for or against TAFTA, thus not affecting our conclusion. This analysis could be furthered with data on the specific industries that would most be affected by TAFTA, e.g. agriculture or computers, which would help identify the winners and losers and thus the potential opposition from lobbyists and how to compensate them. There are still political hurdles to overcome, but the likelihood of TAFTA being realized is ever increasing, and so the issue of how to incentivise multilateral trade liberalization in the presence of a functioning transatlantic free trade agreement may soon become more pressing.

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Towards a European Labour Market: Combating Long-Term Unemployment and Improving Trade Unions through Increased Migration

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Junior Sophister

Should we sacrifice social benefits in the name of greater efficiency or accept that the laws of demand and supply lead to a satisfactory labour market? In this paper, Paul Kelly makes a case for regulation within the EU labour market while highlighting the inefficiencies which come with it. He concludes by showing what the EU can learn from the Anglo Saxon model, and in doing so how it can improve equity and reduce levels of long term unemployment.

Introduction

The market for labour is unique. Whilst the normal rules of supply and demand still apply to it, these rules are severely distorted by problems of asymmetric power and information. As a result, economic considerations of efficiency are often forced to yield to social considerations of equity, resulting in labour regulations which distort the operation of the labour market. Nowhere can this be seen more clearly than in the EU's labour market, where "countries have long attached more weight to social protection than to economic efficiency" (Baldwin and Wyplosz, 2012: 215).

Despite this, although the European labour market is unified in terms of its advanced social welfare system, critical differences remain across member states labour markets. Two of the most crucial issues in labour relations throughout the EU remain the role of trade unions in an increasingly integrated Europe, and managing the rising tide of long-term unemployment (LTU). Because these issues are largely tackled by individual member states, there is a lack of awareness of the fact that the most equitable solutions to these issues lie at the EU level. Only by increasing EU integration and migration can member states hope to tackle these problems, as it is this that can increase the efficiency of the European labour market; removing the spectre of LTU and assisting trade unions to act at a

European level.

Thus far, however, the impact of European integration on European employment has been severely limited, due to indirect and direct barriers to migration. Although increased integration through the free movement of goods and capital has boosted employment throughout Europe, it is only when the remaining restrictions on migration are removed that the true benefits of European integration will appear.

The Operation of the European Labour Market and the Necessity of Labour Laws

The operation of the European labour market is similar to the operation of labour markets everywhere, in that it functions through the laws of supply and demand. According to economic theory, if there are no distortions in this market there should be no involuntary unemployment in Europe, even in a recession (Baldwin and Wyplosz, 2012). This is not to say that there would not be unemployment. This unemployment would, however, be voluntary. People would choose not to work because wages would be considered too low, rather than being unable to work because there are no jobs available. If market distortions such as minimum wage laws, limits on dismissals, minimum working conditions and unemployment benefits are introduced, however, this dynamic is interrupted and involuntary unemployment occurs. As this is considered worse than voluntary unemployment, it is argued that there should be as little interference in the labour market as possible.

Even after a brief examination of this argument, however, flaws emerge. Clearly, what might be assumed to be 'voluntary unemployment' can be, in effect, involuntary, as the wages paid for the jobs available may be too low for an individual to survive on. This shows the necessity of minimum wages and other laws regulating labour. Indeed, in the absence of these laws, employers may gain a disproportionate amount of market power over employees in the negotiation of wages. Coupled with the severe information asymmetries that abound in the labour market, this would make it impossible for employees to judicially evaluate different job options. It is for these reasons that these market distortions are permitted both within the European labour market and labour markets everywhere. In the words of Freeman (2004: 35) 'EU labour markets suck compared to the perfect Invisible Hand of economic theory. But so does the US labour market.' In all labour markets, some degree of economic efficiency is sacrificed for social considerations. What is unique about the EU's labour market is the greater weight these considerations are given compared to its peers in the US or elsewhere. Given the diversity of the European labour market, this is one of its few unifying characteristics. In contrast, the challenges posed by trade unions and LTU are tackled in a variety of diverse ways throughout the EU.

The Effect of Trade Unions

Trade unions play a crucial role in EU labour markets as they provide a check on the excessive market power of firms. Despite this, the strength of trade unions varies across Europe. Whilst Nordic, Continental and Mediterranean trade unions exercise a great deal of market power, trade unions within countries which follow the Anglo-Saxon model do not, except within the public sector. Despite this diversity, the EU remains far more unionised than its international counterparts, with union membership twice the size of the US (Booth et al, 2001). This allows EU trade unions to affect the operation of the European labour market far more than their American counterparts affect the US labour market. This is assisted by the fact that EU integration has not produced a goods market which even approaches the ideal type of perfect competition, but is due to the emergence of the oligopolistic competition produced by large multinational firms. In the words of Booth et al (2001: 86), 'more trade should not be confused with more competitive trade.' This has allowed for the continued existence of a market surplus, which firms have shared with unions. Although such a surplus has resulted in a decrease in efficiency in the goods market, trade unions have improved efficiency in the labour market. This can be seen in collective bargaining which has decreased wage negotiation costs and in decreased turnover costs. This has resulted in the empirical finding 'that highly coordinated wage bargaining promotes real wages moderation and low unemployment' (Booth et al, 2001: 152). This effect, however, has only occurred in Continental and Nordic countries, both Anglo-Saxon and Mediterranean countries have failed to harness the efficiency effects trade unions can have on a country's labour market.

A final characteristic of trade unions is their support for increased welfare benefits. Trade unions consistently seek increased welfare benefits so as to improve their power in wage negotiations. , this can lead to LTU as it decreases the incentive to work. This is a problem throughout Europe as, even before the recession, it was recognised that 'European unemployment is mainly a problem of long-term unemployment' (Boeri et al, 2000: 2).

The Effect of LTU

LTU is a severe problem within any labour market as it can produce hysteresis effects which decrease the human capital of the unemployed. This means that they are less valuable to the economy even when they do regain employment. LTU can also cause inflation as, as employers face work shortages, prices rise (Boeri et al, 2000). In addition to this, the long-term unemployed are often considered unemployable and so do not affect wages within the labour market, meaning that involuntary unemployment grows. This further encourages the growth of the black economy, which can exploit workers and harm the efficiency of the economy as a whole. As a result 'long-term unemployment is the worst form of unemployment for those who experience it, and it is also the most inefficient'

(Boeri et al, 2000: 9).

Solutions to this problem must tackle both the supply and demand side of the labour market. From the supply side, as shown by the success of countries following the Nordic model such as Sweden, active labour market policies are essential. These ensure that individuals are offered either training or a job whilst receiving benefits. They also ensure that these benefits can be cut if these offers are refused and that unemployment benefits are not too high so as to harm incentives to work. While countries following the Nordic model have perfected this balance, other European models are still struggling, although there is some significant steps being made within some Continental economies, such as Germany (Kluve et al, 2010: 3).

On the demand side, it is crucial that recruitment subsidies are offered to employers who employ the long-term unemployed, as this can remedy the destructive effects LTU has on human capital and ensures the long-term unemployed re-enter the labour market. An oft-cited solution on the demand side is also to allow for early retirement, thus increasing the amount of vacant jobs the long-term unemployed can compete for. This, however, only decreases the amount of individuals in the labour force which negatively impacts job growth, as it harms innovation by removing the most experienced workers from the labour force, restricting the ability of firms to produce economies of scale, and decreasing the amount of labour they can employ. Empirically, this can be seen in Table 1: countries with faster labour force growth rates have faster employment growth rates (Boeri et al, 2000).

Table 1

Country	Percentage Labour Force Growth 1960-1997	Percentage Employment Growth 1960-1997
Italy	8%	-1%
Sweden	15%	7%
Finland	20%	5%
Belgium	15%	7%
United Kingdom	19%	17%
Greece	20%	18%
Austria	23%	21%
France	30%	19%
Denmark	36%	36%
Ireland	37%	35%
Portugal	45%	38%
Switzerland	44%	40%
Germany	50%	38%
Japan	51%	49%
Netherlands	53%	58%
Norway	59%	58%
Luxembourg	79%	75%
USA	90%	97%
Australia	101%	86%
Iceland	103%	96%
New Zealand	105%	95.5%
Canada	131%	137%

As is evident from this table, this correlation is not spurious. Although it might be assumed the correlation is due to both factors having a common response to economic growth, this thesis is disproved by the fact countries with similar growth rates during this period, such as the USA and the UK, have wildly diverging labour force growth rates, and hence employment growth. Clearly this shows that restricting the growth of the labour force is detrimental for LTU and unemployment in general. This is even clearer when we examine the beneficial effects of migration on growth.

The Effect of Migration and Integration

Integration has hugely affected EU labour markets as it has allowed the free movement of goods and capital, and this has led to greater competition for wages. This is because 'through goods markets, national labour markets indirectly compete against each other' (Baldwin and Wyplosz, 2012: 217). However, although this flattened the demand curve in Europe, wages did not decline as this curve simultaneously shifted up due to an increase in efficiency brought about by the increase in competition. As a result, European integration has increased employment and wages within the EU. Increased intra-EU migration could have similar benefits as it would increase allocative efficiency and could increase the size of the labour force within a given country, both of which promote job growth. These benefits are especially clear, given that 73% of EU migrants are skilled or semi-skilled workers and would thus complement existing workforces (Baldwin and Wyplosz, 2012).

The effect of migration, however, has been severely limited within the EU. Despite the free movement of labour, only 20% of immigration in the EU is intra-EU migration, and most of this is short-term (Guardia and Pichelmann, 2006). This has limited any effect on the EU labour market. This is despite the hugely beneficial consequences of increased migration, with some estimates arguing that a removal of all restrictions worldwide could double world GDP (Hamilton and Whalley, 1984, cited in Hatton, 2007). Clearly, an increase in intra-EU migration would be beneficial for all EU countries, however this has been prevented by a variety of direct and indirect restrictions.

The largest direct barrier to intra-EU migration is a lack of coordination of social policies. Unemployment benefit for EU migrants only lasts for three months in the country they have migrated to, meaning the fear of not being able to find employment within these three months can severely restrict EU migration (Baldwin and Wyplosz, 2012). Even within some EU countries this can also restrict migration, as can be seen in southern Italy, where unemployment benefits for young workers are conditional on remaining in the family home (Boeri et al, 2000). In addition to this, the age when an individual can begin receiving pension benefits varies across the EU. This can provide a disincentive to work in a country with a higher pension age, as an individual will not receive the benefits for

the years worked in this country until the higher age is reached. Indirect restrictions such as language barriers, a loss of social networks and a lack of recognition of qualifications in some professions also severely restricts migration.

Conclusion

In conclusion, European labour markets are not exempt from the laws of supply and demand. The effect of excessive welfare benefits, trade unions and LTU can, in part, explain the inefficient operation of the European labour market as they all distort these laws. Despite this, however, welfare benefits and trade union action can be designed so as to improve the efficiency of the labour market and LTU can be resolved if this occurs. Efforts to do this can clearly be seen in countries which follow the Continental and Nordic models, in the form of Active Labour Market policies. In contrast, Anglo-Saxon countries have already gained this efficiency at the price of a decline in equity (Sapir, 2006). Mediterranean countries remain the only markets in Europe which have yet to reform their welfare benefits and trade unions into a manner which can effectively tackle unemployment, especially LTU. In all European regions, however, migration can play a key role in fighting unemployment, but its effect on European labour markets has been blunted by a variety of direct and indirect restrictions on the free movement of labour. A common social policy and language training initiatives could hugely improve this situation and could produce a market which we could truly call a European labour market.

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Net Migration to Ireland Versus the Rest of Europe

John Kirby
Senior Sophister

Large migration in and our of Ireland has been a defining characteristic of Ireland's labour force and economy over the last number of decades. In this paper, John Kirby attempts to demonstrate the uniqueness of Ireland's migration by comparing it to the rest of Europe. The results should prove thought provoking for Irish citizens and policymakers alike.

1. Introduction

> "It was a free choice of lifestyle… And there are a lot of families like that… It's not being driven by unemployment at home, it's driven by a desire to see another part of the world and live there."
>
> Michael Noonan, 20th Jan 2012

These comments made by the Irish Minister for Finance early last year about young Irish emigrants have sparked fierce debate in the public domain about the swathes of people leaving Ireland at the moment and their reasons for leaving. Equally as interesting is the immigration Ireland saw in the late 1990's and early 2000's, and whether this occurred due to the social or economic climate in Ireland at the time. This paper examines the uniqueness of net migration flows in Ireland compared to the rest of Europe over a fifteen year period, 1995-2009. My main focus is on the differential between the effects of economic and social conditions on Irish net migration and other EU countries.

Background and Literature Review

Net Migration is generally accepted to be determined by the relative strength of "push" and "pull" factors. "Push" factors make emigration from the domestic country more attractive while "pull" factor incentivise immigration into the domestic country (see (Dorigo & Tobler, 1983).

The majority of works on migration have been focussed on time series analysis of an individual country over time (Tabuchi, 1985) or country cross-sections (Dreher & Poutvaara, 2005). To date, studies on Irish migration in particular have previously been time series analyses. Very little work has been in the area of how the migration patterns

of Ireland appear unique compared to the rest of the EU. Geary and Ó Gráda's paper centers on net migration between Ireland and the UK in the years 1953-1983 and surprisingly find that unemployment differences between the two countries are not statistically significant, reinforcing the minister's assertion. (Geary & Ó Gráda, 1987) . Strielkowski and O'Donoghue, on the other hand consider inward, outward and net migration flows in both Ireland and the Czech Republic over the period 1982-2002 and conduct a comparison of the two countries. They find that the outward migrations from Ireland were dependent on the internal economic factors to less of an extent that those in the case of the Czech Republic (Strielkowski & O'Donoghue, 2006). They point to UK "pull" factors as a reason for this. This paper was greatly influenced by these works and by Mayda (2008) and Mitchell & Pain (2003) who take advantage of both time series and cross-country variation to "test the robustness and validity of earlier papers". These papers suggest using a variety of economic, social and geographical factors to explain net migration.

Empirical Approach

With only fifteen years per country in the data set, it is not possible to include all the possible explanatory variables other researchers have used in previous studies. Nevertheless, three key economic and social independent variables are employed to explain net migration rates in Eqn. 1:

Model:
Eqn. 1:

$$nemig_{it} = \alpha_0 + \beta_1 nomgdppecap_{it} + \beta_2 une + \beta_3 suc\_rate + \beta_4 IreGDP + \beta_5 Ireune + \beta_6 Iresuc + C_t + \alpha_i + \varepsilon_{it}$$

- where u_{it} (the composite error term) $= \alpha_i + \varepsilon_{it}$
- Dependant Variable: Rate of net migration: the ratio of net migration (the difference between immigration to and emigration from a given area) during the year to the average population in that year. The value is expressed per 1,000 inhabitants.
- Independent Variables:
  - X_1: Nominal Gross Domestic Product per capita at US $ PPP.
  - X_2: Average annual rate of Unemployment
  - X_3: Suicide Rate: Crude annual death by intentional self-harm rate per 100,000 inhabitants
  - X_4, X_5, X_6: Ireland-specific dummies.

Explanations and Expectations

I would expect a positive relationship between nominal GDP per capita and net migration. As a country becomes richer, economic "pull" factors become stronger and net migration increases (as immigration increases and emigration decreases). A review of the literature

confirms an overwhelming positive correlation and statistical significance. One would expect Ireland's net migration to be influenced even more so by income changes as Ireland has been noted for its high degree of labour mobility (Strielkowski & O'Donoghue, 2006).

I would expect a negative relationship between the unemployment rate and net migration. A rise in unemployment is expected to increase economic "push" factors and therefore decrease net migration (increase emigration and decrease immigration). The hypothesis put forward by the minister is that Irish unemployment will not be statistically significant from the rest of Europe. My personal expectation is a more sharply negative reaction to unemployment than the rest of Europe for the mobility reasons previously outlined.

My major innovation in this study is to introduce suicide rates as a proxy variable for the social conditions of a country. It is extremely difficult to gauge the mood of a country or the social cohesion throughout and other studies have attempted to use the lagged migrant stock to take into account that migrants will follow "friends and family" to replicate "home" social conditions. Unfortunately, as described in Mitchell & Pain (2003), this is subject to a considerable degree of measurement error. I have chosen a measure of mental health in the state because of the availability of data and the improvements in measurement error in the past twenty years across Europe (see Walsh & Walsh, 2010). A negative relationship is expected between the rate of suicide and net migration rates in a country. A rise in the rate of suicide results in stronger social "push" factor and a fall in net migration. If the minister is correct, we expect social factors to have an additional effect on Irish net migration.

Panel Data

I have chosen to use panel data to approach my research question as it enables me to control for all unobservable time-invariant factors which overcome the omitted variable bias. As I am using data across countries, unobserved heterogeneity may be an issue. For example, the culture and mindset of a nation is almost impossible to quantify and control for and therefore remains in that αi part of the composite error term (uit); so $(uit \mid xit) \neq 0$ and the zero conditional mean assumption is violated and Ordinary Least Squares (OLS) Estimation results in biased and inconsistent estimates. I therefore apply the fixed effect, within transformation; the data are time-demeaned and the unobserved part αi is removed (shown in Eqn. 2). This allows us to look at the effect of X on Y by analyzing the variation of X and Y over time within each individual country. Furthermore, I include a dummy variable Ct that controls for differences in net migration over time.

Eqn. 2:

$$(\text{nemig}_{it} - \overline{netmig}_i) = \alpha_0 + \beta_1(\text{nomgdppecap}_{it} - \overline{nomgdppecap}_i) + \beta_2(\text{une}_{it} - \overline{une}_i) + \beta_3(\text{suc\_rate}_{it} - \overline{suc\_rate}_i) + \beta_4(\text{IreGDP}_{it} - \overline{IreGDP}_i) + \beta_5(\text{Ireune}_{it} - \overline{Ireune}_i) + \beta_6(\text{Iresuc}_{it} - \overline{Iresuc}_i) + (C_t - \bar{C}) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

Empirical Results

Table 2. Fixed Effects Regression Model: Net Migration

VARIABLES	netmig
Une	-0.424**
	(0.201)
nomgdppecap	0.000163**
	(6.75e-05)
suc_rate	0.0395
	(0.165)
IreGDP	-0.000344***
	(5.77e-05)
Ireune	-1.156***
	(0.245)
Iresuc	-0.473*
	(0.252)
_Iyear_1996	-0.570
	(0.448)
_Iyear_1997	-1.069**
	(0.511)
_Iyear_1998	-1.444*
	(0.713)
_Iyear_1999	-0.520
	(0.914)
_Iyear_2000	-1.270
	(1.075)
_Iyear_2001	-2.183
	(1.740)
_Iyear_2002	0.231
	(1.328)
_Iyear_2003	0.444
	(1.371)
_Iyear_2004	0.375
	(1.418)
_Iyear_2005	0.368
	(1.398)
_Iyear_2006	-0.692
	(1.499)
_Iyear_2007	-0.768
	(1.694)
_Iyear_2008	-1.577
	(1.816)
_Iyear_2009	-1.597
	(1.543)
Constant	3.749
	(2.464)
Observations	345
Number of ctry	28
R-squared	0.286

Starting with the most surprising result obtained (Eqn. 3), an increase in nominal Gross Domestic Product appears to have a statistically significant (at the 5% level) negative net

migration effect on Ireland i.e. a €1000 increase in nominal GDP per capita (at US$PPP) will increase the rate of net emigration by 0.3 per 1000 inhabitants. The effect on the rate of net migration on Europe as a whole is expected: an increase in income will increase the rate of net immigration.

Eqn. 3:

$$\frac{\partial netmig}{\partial nomgdppecap} = +0.000163 - (0.000344\text{IreGDP})$$

To explain this we must look to Strielkowski & O'Donoghue (2006) who obtained a similar outcome and pointed to the "pull" effects of the UK as a unique factor. Ireland and the UK don't behave like the rest of Europe in that migration flows similarly to that of a regional zone. If Irish income per head is rising but UK "pull" factors are also increasing, migration may not behave as predicted.

Additionally, Gross Domestic Product may be an incorrect measure of Irish incomes. The actual income remaining with Irish residents is the GNP and it differs from GDP by the net amount of incomes sent to or received from abroad. The Irish case is unique in Europe as the amount belonging to persons abroad has exceeded the amount received from abroad. This is mainly due to the profits of foreign-owned companies and our GNP is, therefore, less than our GDP (CSO, 2012). GDP figures were used due to the lack of reliable data available for GNP in the EU.

For unemployment, the results are as I expected. There is a statistically significant negative relationship between the rate of unemployment in a country and it's net migration. This effect is far more pronounced in the Irish case.

Eqn. 4

$$\frac{\partial netmig}{\partial une} = -0.424 - (1.156\text{Ireune})$$

A 1% increase in unemployment raises the Irish net emigration rate by 1.58 per 1000 inhabitants. The effect is considerably sharper in Ireland compared with the rest of the EU. This highlights the possibility that migrants into and out of Ireland are relatively more mobile and largely motivated by employment possibilities.

The regression model used found social conditions be be statistically insignificant in determining rates of net migration. These results must be interpreted with caution for the following reasons:

- Suicide Rates may not be an accurate proxy for the social conditions of a country. My innovation may be a poor representation of the "happiness" of country's inhabitants.

- There may still be measurement error in the number of suicides per year due to underreporting. This could lead to inconsistency in all estimators (Woolridge, 2009).
- The R-Squared attained of 0.286 implies that 28.6% of the variation in net migration rates across countries is explained by the model.
- The F-test confirms that at least one of the variables used in this regression is significant (Prob>F=0.000).

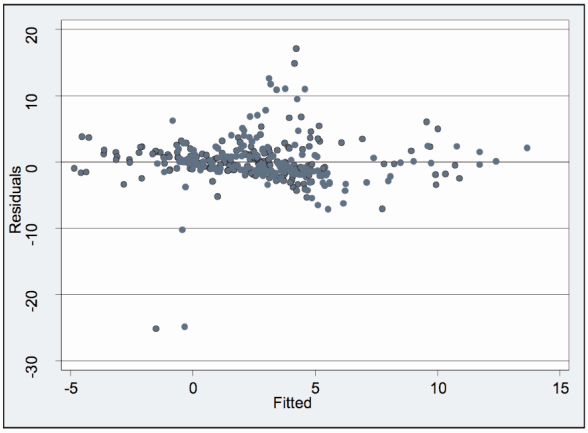
The regression output suggests that Ireland is unique in its migration flows but not because of social factors. Irish migration appears to be different due to its acute reaction to economic conditions. The flippant remarks of the minister suggested an ambivalence of Irish migrants to such factors. This study underlines the importance of economic policy decisions in Ireland and at EU level and its effect on net migration.

Diagnostic Checks and Testing

Heteroskedasticity

Initially, the Pooled OLS regression model was tested for heteroscedasticity i.e. test that the variance of the unobservable error (uit) conditional on the explanatory variables is not constant (Woolridge, 2009).

Graph. 1



If the model is well-fitted, there should be no pattern to the residuals plotted against the fitted values. From analysis of Graph 1, the middle section is not particularly scattered, implying that the variances are not homogenous.

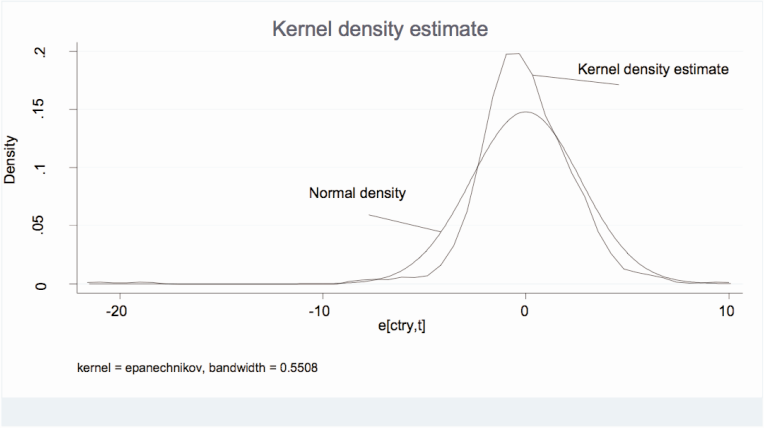
To add further confirmation the Breusch-Pagan / Cook-Weisberg test was con-

ducted for heteroskedasticity. The p-value (Prob > chi2 = 0.0183) suggests that the variance is not homogeneous and heteroskedasticity could be an issue in the model.

Of course these models assume normality of distribution and should thus be treated with caution.

Normality

Graph 2: Distribution of Errors



Graph 2 shows that although not perfectly normally distributed, the errors appear at least close to the normal distribution for a relatively small sample size.

Serial Correlation

According to the Gauss-Markov Theorem: Conditional on X, the errors in two different time periods must be uncorrelated: Corr(ut,us ¦ X) = 0, for all t≠s (Woolridge, 2009) for OLS estimates to be the Best Linear Unbiased Estimates.

To test for this, the Wooldridge test for autocorrelation in panel data was employed. We cannot reject the Null hypothesis of no first order autocorrelation at the 5% level in this case as the Prob > F = 0.1895. Nevertheless, this by no means implies that autocorrelation is not a serious issue in the model.

Fixed Effects (FE) or Random Effects (RE)?

To decide which model to use the Hausmann Test was run and the null hypothesis could not be rejected at the 5% level i.e. the difference in coefficients may not be systematic and so either model may be used (as Prob>chi2 = 0.9742).

FE was used as it allows for correlation between the unobserved effect and the

explanatory variables whereas RE requires these to be uncorrelated.

Time fixed effects

Finally I ran a test to see if time fixed effects are needed when running a FE model.

A joint test was run to see if the dummies for all years are equal to 0; if they are then no time fixed effects are needed. The null hypothesis is rejected as Prob > F=0.0045 and time dummies should be included.

Corrections

To correct for these issues, the fixed effects model was used (including time dummy variables) and clustering by country: controlling for correlation within groups. This also controls for the effect of autocorrelation and should improve the robustness of our estimates.

Possible Extensions

Following from the work of Mitchell & Pain (2003), it may be useful to use incomes relative to some source or destination group with which the country receives immigrants or emigrate to e.g. in Ireland's case relative to the EU-25, the UK or Australia.

They also raise the possibility of a dynamic effect model of migration where migration at time t depends on migration at time t-1. I sought to capture this "following friends and family" effect using the independent variable "the proportion of 15-24 year olds in the country" but the results didn't make sense using a static model and I had to exclude this variable. Perhaps future studies could use a dynamic model such as an approach based on the use of autoregressive distributed lag (ARDL) that is appropriate for the examination of long-run relationships regardless of the time series properties of the individual regressors (Mitchell & Pain, 2003).

Additionally, the experience of using nominal GDP per capita encourages a proposal to use GNP in future studies if reliable data is available. Geary & Ó Gráda, (1987) also highlight the possibility of taking the tax system in the country into account when comparing economic circumstances across countries (again, depending on the availability of reliable data).

Summary & Conclusions

The central goal of this study was to discover whether net migration rates in Ireland were affected differently by changes in economic and social factors to other European countries. To achieve this I used panel data from Ireland and twenty seven other European countries over the period 1995-2009. Fixed Effects were applied and country and time dummy variables included, in order to gain an insight into the differentials among European countries. Consequently, the major result obtained was that unemployment in Ireland does have a unique effect on Irish net migration. Irish migration reacted much more

strongly to changes in unemployment than across Europe. Income had an unexpected opposing effect in Ireland as to that held in Europe as a whole. This study found no significance for the social factors that were allegedly driving net migration, uniquely in Ireland. Of course this may be due to the proxy of "suicide rates" per 1000 population annually for social conditions. This study should serve to remind policy makers in Ireland of their influence on net migration.

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DOES ENTERING OR LEAVING A CURRENCY UNION AFFECT BILATERAL TRADE?

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Economics, with its reliance on mathematics, has often considered itself the 'physics' of the social sciences. In this paper, Tony O'Connor goes one step further, using the theory of gravity to help explain international trade. Interestingly the evidence suggests that currency unions, between smaller and poorer countries at least, have little effect on bilateral trade.

1. Introduction

The objective of this paper is to examine how entering or leaving a currency union affects bilateral trade. This question is of interest to policymakers, some of whom were recently asking the question as to what the effects of a country leaving the eurozone would be.

Specifically, we seek to examine the claim of Glick and Rose (2001) and others, who state that there are large benefits to trade of entering a currency zone. In this task, we use the Poisson pseudo-maximum likelihood estimator, which Silva and Tenreyro (2006) demonstrated to be consistent when applied to the gravity model, while controlling for those biases identified by Anderson and Wincoop (2003) and Baldwin and Taglioni (2006).

Using these methods, the paper finds little evidence for the claim that entering or leaving a currency union affects trade in any way between two countries. This finding is robust to many econometric techniques.

1.1. Literature Review

This core finding of this paper, that entering or leaving a currency union has no impact upon bilateral trade, is in contrast to the findings of Glick and Rose (2001), who found that a pair of countries who began to use the same currency enjoyed a near doubling of bilateral trade. Likewise, they found that countries who left a currency zone, or ceased sharing a currency, suffered falls in bilateral trade, that were significant economically and statistically.

They support this finding with concrete evidence, using the example of countries

that departed from the pound sterling. Of this group, which included Ireland, New Zealand, The Gambia, Malawi, Sierra Leone, Tanzania, Uganda and Zambia, only Ireland did not experience long-term negative effects on bilateral trade (Glick and Rose, 2001). Frankel and Rose (2002) corroborate this finding with econometric evidence that when two countries begin to share a currency, trade increases by a factor of three to four. They further highlight a tendency for this effect to increase over time, specifically between the 1970's and the 1990's. However, both these findings are reliant upon currency unions featuring poor and small nations (Micco et al., 2003). There is thus doubt over whether it would apply to large advanced economies, such as those in the Eurozone.

In line with this, when Micco et al. (2003) use post-1999 data relating to European countries, they also find a small but positive statistically significant effect on bilateral trade, in the range four to sixteen percent.

Similarly, other researchers using matching techniques have found the effect of currency unions on trade to be 65 percent and 13 percent (Persson, 2001), while some such as Silva and Tenreyro (2010) even found them to be close to zero.

2 Empirical Approach

To estimate the determinants of bilateral trade, and thus the effect of currency unions, a gravity model for trade will be estimated. Such a model attempts to explain the volume of bilateral trade between two countries, as a function of the economic size of the two countries, their distance from each other, the size of their respective populations, and a range of other control variables. A crude interpretation of the model would be to say that two very small countries, on opposite sides of the world, will have little trade between each other; conversely, two large countries, quite close, would trade far more. The relationship is expressed in functional form as follows:

$$T_{ij}=G\ \frac{M_i M_j}{D_{ij}} \tag{1}$$

Where T_{ij} is the volume trade flow from country i to country j, M is the economic "mass", or GDP, of each country, D is the distance between them, and G is a constant. Variations of this model are used to explain the effects of economic integration agreements, currency unions, immigrant shocks and other measures of trade costs on bilateral trade flows, as can be seen in Baier and Bergstrand (2009) and Rose et al. (2000).

Of course, trade does not follow physical laws. For example, while the amount of gravitational force between two objects can never be zero, we see that trade between some very small and very distant countries, is literally zero (Silva and Tenreyro, 2006). In econometric applications, this stochastic model of trade thus adopts the form:

$$F_{ij}=G(\ \frac{M_i^{\beta_1} M_j^{\beta_2}}{D_{ij}^{\beta_3}})\eta_{ij} \tag{2}$$

Which in log-linearised form gives us:

$$ln(F_{ij})=\beta_0+\beta_1 ln(M_i)+\beta_2 ln(M_j)-\beta_3 ln(D_{ij})+\varepsilon_{ij} \quad (3)$$

Unfortunately, specification (3) suffers from a number of problems. Firstly, it suffers from heteroskedasticity. As the volume of trade between two nation's increases, we expect the variation in trade to also increase. Indeed, when we tested a naive OLS regression on (3), it failed both the Breusch-Pagan and White tests for heteroskedasticity. Thus, all of the regressions outlined in subsequent tables will report standard errors that are robust to heteroskedasticity.

2.1. First Bias: Omitted Variable Bias

2.1.1. Source

Aside from the heteroskedasticity issues mentioned, Anderson and Wincoop (2003) proved that the traditional gravity model suffers keenly from omitted variable bias, and does not have a theoretical foundation. As a result, comparative statics analysis is inappropriate. This occurs due to the omission of so-called multilateral resistance terms, which denotes the average barrier to trade between a given nation and its trade partners (Anderson and Wincoop, 2003). Omission of these terms causes numerous analytical inaccuracies; one example is that we are blind to the fact that a given increase in a given trade barrier reduces size-adjusted trade between small countries less than in larger countries (Anderson and Wincoop, 2003).

2.1.2. Consequences

Failure to control for this bias has pernicious effects on the currency prediction. Concretely, as we would expect trade barriers to be low between countries who share a currency, we can say that the omitted multilateral resistance term is correlated with the currency coefficient. Thus, failure to control for the unobserved, but time-invariant, trade barriers will result in us overestimating the impact of a common currency (Baldwin and Taglioni, 2006). This prediction is also verified in the below regressions.

2.1.3. Solution

As elucidated by Silva and Tenreyro (2006), we can augment the traditional gravity equation with fixed effects between the importer and exporter (using country-pairwise, time-invariant dummy variables), resulting in:

$$T_{ij}=\alpha_0 Y_i^{\alpha_1} Y_j^{\alpha_2} D_{ij}^{\alpha_3} e^{\theta_i} e^{\theta_j} \quad (4)$$

Where, according to the microfounded Anderson-van Wincoop Model, and represent

fixed effects. The Hausman test, which can test whether we should control for random or fixed effects (Wooldridge, 2009), verified the theoretical case that fixed effects is more appropriate. In addition, theory predicts that both the and terms equal one, leading to an overall elasticity on the product of GDP equal to one. This latter prediction will be useful when comparing the derived regressions to the theory.

2.2 Second Bias: Deflation Bias

A second bias arises when all trade values are deflated according to the U.S. aggregate price index (Baldwin and Taglioni, 2006). As Baldwin and Taglioni (2006) noted, there are global trends in inflation, and failing to control for this would lead to bias through spurious correlations. They suggest using a time dummy to correct this deflation procedure, resulting in each bilateral trade flow being deflated by the same amount.

2.3 Regression Models

To highlight and control for the above biases, all models will be estimated with robust errors. We will then include models which will control for the deflation bias (through the introduction of time dummies) and fixed effects, individually and together.

In addition, we will use OLS, Poisson and Negative Binomial regressions, all while controlling for the above biases. Both OLS and Poisson regressions of the gravity equation feature prominently in the literature. For example, Poisson regression was applied to cross-sectional data in a paper by Silva and Tenreyro (2006), and they found that it was consistent in the presence of heteroskedasticity, unlike OLS.

As can be seen in Figure 1, the absolute value of trade seems to follow a type of Poisson or Pareto distribution. However, tests reject the null hypothesis that a Poisson regression fits the data. This may arise from the fact that in a Poisson distribution, the mean is equal to the variance. However, if we examine the trade variable, we see that the variance is far greater than the mean, by a factor of nearly 38 million. Fortunately, as all that is needed for Poisson pseudo-maximum likelihood to be consistent is that the condition holds. Thus, the data need not be Poisson, and we can still estimate the Poisson regressions (Silva and Tenreyro, 2006). Out of interest though, we will control for this overdispersion in the data by estimating some negative binomial regressions.

3. Dataset

A large cross country panel data set will be used, which includes 33,903 bilateral trade observations from 186 countries for 5 years (1970, 1975, 1980, 1985, and 1990). A list of the variables that will be used is provided in Table 1. It was used in the paper One Money, One Market: The Effect of Common Currencies on Trade, by Rose et al. (2000). The data is available on www.cepr.org/data, and was primarily drawn from the World Trade Database.

Figure 1: Distribution of Logged Trade and Trade in Dollars

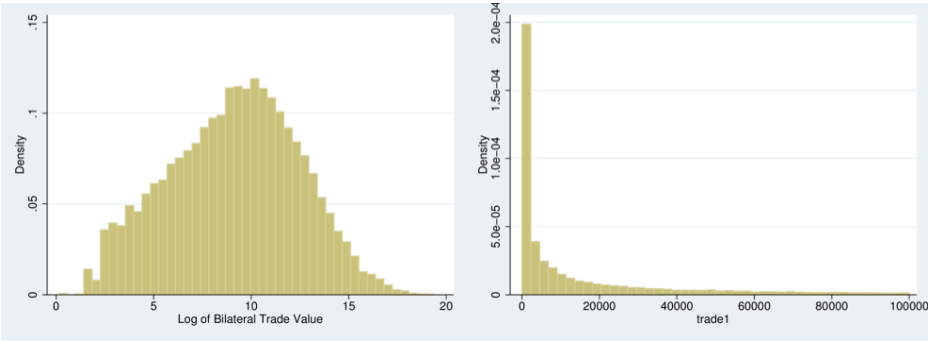

Table 1: A List of Independent Variables

Name	Label
trade	Real Value of Bilateral Trade in U.S. Dollars
lvalue	Log of Bilateral Trade Value
ldist	Log of Distance
lrgdp	Product of (log) Real GDP
lrgdppc	Product of (log) Real GDP per capitas
lpop	Product of (log) Population
cu	1 for Common Currency 0 otherwise
regional	1 for Regional TA Members 0 otherwise
colonial	1 if the two countries share(d) a colonial link 0 otherwise
comlang	1 for Common Language
border	1 for Common Land Border (Contiguity)
comcol	1 if a Common Colonizer shared 0 otherwise
gdpd	(Log of) GDP disparity

Interestingly, in Table 2 we see that 1 percent of the sample consists of bilateral trade flows in the presence of a shared currency. This implies that we have around 339 samples of common currency trade flows, with which we can estimate the impact of a common currency upon trade flows.

Table 2: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
trade	594891.62	4745337.664	1.141	257499792	33903
lvalue	9.104	3.33	0.132	19.367	33903
ldist	8.177	0.817	2.967	9.422	30515
lrgdp	34.376	2.748	20.026	43.526	26608
lpop	17.979	2.692	5.841	27.593	28016
lrgdppc	16.228	1.372	11.728	20.805	26635
cu	0.01	0.098	0	1	33903
regional	0.017	0.128	0	1	33903
colonial	0.012	0.108	0	1	33903
comlang	0.121	0.326	0	1	33903
border	0.022	0.146	0	1	33903
comcol	0.076	0.265	0	1	33903
gdpd	1.175	0.152	1	2.322	26608
remote	0.001	0.001	0	0.052	26633
island	0.473	0.612	0	2	33903

4. Empirical Results

4.1. Testing the Model Specification

4.1.1. Heteroskedasticity

Firstly, the main problems faced by all gravity models are severe heteroskedasticity, as has been well noted by Silva and Tenreyro (2006). Indeed, when we tested our model for it, it failed both the Breusch-Pagan and White tests. All regression models one to ten are thus run, such that the errors are robust to hetroskedasticity. Due to the five-year gap between observations, autocorrelation was deemed not to be a problem.

4.1.2. Fixed Effects or Random Effects?

As mentioned earlier, the theory and literature indicates that gravity models should be run controlled for fixed effects. We tested this assumption on our data set, using the Hausman Specification Test. Under both OLS and Poisson regression, we rejected the null hypothesis that the difference on the error terms was not systematic, which implies that were we to estimate random effects, then the estimators would be inconsistent (Wooldridge, 2010). Thus, we control for fixed effects only.

4.1.3. Multicollinearity

We also tested for multicollinearity by analysing the variance inflation factors of the independent variables. We set a threshold of 10, implying that if the variance inflation factor of a variable exceeded 10, we would exclude that variable. However, all variables exhibited a variance inflation factor of less than 5. Thus, we concluded that multicollinearity is not a problem for these models.

4.1.4. Omitted Nonlinear Variables

We tested all our models with a heteroskedasticity-robust Ramsey RESET test. This test tells us if any non-linear combination of our variables, not presently in the model, have predictive power (Wooldridge, 2009). An example of a nonlinear combination would be or. A significant p-value thus implies that there are relevant explanatory variables omitted from our model. Of the 10 regressions we estimated, we found that three of them 'passed' the RESET test (p-values exceeded 0.05), indicating that we had not omitted relevant nonlinear variables. Of the models that passed, one was an OLS estimation controlled for the deflation bias (Model No. 2), one was a Robust Poisson (Model No. 4), and the last was a Poisson controlled for both the deflation bias and multilateral resistance (Model No. 6).

4.2. Are our regressions reliable?

It would certainly seem so. There are four pieces of evidence in favour of this series of regressions. Firstly, the GDP coefficient is usually quite close to unity, as is predicted by the literature (Baldwin and Taglioni, 2006). Secondly, we see that the coefficient on population is also correct; as can be seen in regressions seven and eight, a negative coefficient on population implies a positive coefficient on GDP per capita. The implication of a positive coefficient on GDP per capita implies that as the GDP per capita of a nation rises; it begins to demand more sophisticated goods, which can only be provided for from abroad. This finding is also present in the literature (Baldwin and Taglioni, 2006).

In addition, we see that when we control for the deflation bias and the multilateral resistance terms, the coefficients change in the correct pattern. For example, having stated that nations in a common currency zone tend to experience less multilateral re-

sistance, Baldwin and Taglioni (2006) hypothesised that controlling for multilateral resistance would reduce the coefficient on the currency zone dummy. This is exactly the effect we see in our three sets of regressions, where the coefficient on currency sharing declines as we control for variables which should, in theory, be correlated with it. This verifies Anderson-van Wincoop's hypothesis that failing to control for these terms introduces omitted variable bias.

Finally, we validate Silva and Tenreyro (2006)'s findings that OLS overestimates the impact of colonial ties, and bilateral trade agreements. These effects can be seen as we move from the OLS estimates, to the Poisson estimates, to the negative binomial estimates. The point estimates are not usually directly comparable, but as the models in this case are log-log for the OLS and level-log for the Poisson, we can meaningfully compare them after exponentiating them). The coefficient drops from 2.138 under OLS (implying a trade boost of having a colonial link in the order of 848 percent), to 0.687 under Poisson (implying a 198 percent increase 'only').

Lastly, we see that the coefficients on the common language and island variables are positive and significant across most regressions, which again accords well with logic. Island nations tend to trade more as they would usually be quite small, and thus would need varied supplies from overseas. Their smaller nature also implies that they will be more open, as there exists a negative relationship between a country's GDP and its level of openness, measured by total trade divided by total GDP (Silva and Tenreyro, 2006).

4.3. Inference

All three of the models that pass the RESET test imply that the effect of entering or leaving a currency zone on bilateral trade is insignificant from zero at the 1 percent significance level.

Furthermore, of the models that are fully controlled for the biases outlined in Section Three, we see that two of them pass the RESET test, with the fully controlled negative binomial regression (Model No. 10) failing said test. Although the latter regression fails the RESET test, it implies no significant impact of a shared currency on bilateral trade at the 1 percent level. This is in line with the finding of Silva and Tenreyro (2010). At the 5 percent level, however, Model No. 10 predicts a significant impact of trade, although it is relatively small, as it implies leaving a currency zone would result in an eventual 19.8 percent fall in bilateral trade. It should also be noted that the relatively small effect it predicts on trade is similar to that identified by researchers such as Micco et al. (2003).

4.4. Can we conclude that common currencies have no impact upon trade?

From all of the above regressions, it is clear that a common currency has an insignificant impact upon trade. However, our regressions are only as good as the data they are run

upon. As we use the same dataset as that used by Rose, over the same time period, the regressions are subject to the flaw that the currency union effect, proved on our regressions, only applies to small and poor countries. For example, a Probit probability model executed by the author implies that the probability of two countries forming a currency union was negatively related to both GDP and total bilateral trade. This implication that smaller countries are more likely to form currency unions verifies the criticism of the dataset. Thus, one should be very hesitant to use the findings of these regressions to judge the impact upon a large, wealthy country of leaving a currency zone.

5. Possible Extensions

Firstly, all the country pairs for which bilateral trade approximates zero have been excluded from this dataset. In some cases, this could lead to inconsistency of the estimators, as 'rounding down errors' are more likely to happen for smaller, distant countries, thereby resulting in the probability of this rounding down depending on the value of the covariates (Silva and Tenreyro, 2006). Thus, to enhance the accuracy of the estimators and reduce bias, it may be wise to leave the zeros in the dataset. Such zeros pose no problem for Poisson regression, at any rate.

Secondly, we could reconstitute the lvalue variable. It may be the case that this variable is simply the log of the average of the bilateral trade flows, rather than the average of the logs. As Baldwin and Taglioni (2006) proved, this leads to serious bias, especially so in the case where bilateral trade is greatly imbalanced, as is the case with North-South trade flows.

Thirdly, to expand our predictions to larger, wealthier countries, we could try to include recent data regarding the expansion of the eurozone, and its effects upon bilateral trade. This would allow us to extend our predictions to such countries.

Lastly, it may be the case that some of the variables included in the above regressions were endogenous. For example, regional trade agreements may be endogenous as countries would only opt into trade agreements with countries they already trade extensively with, or with those whom they forecast increasing trade into the future (Baier and Bergstrand, 2007). In this case, one could use instrumental variables, and reevaluate the model.

6. Conclusion

In this paper, we sought to quantify the impact upon a nation of leaving a currency zone. We found the impact to be insignificantly different from zero, implying that there would be no adverse impact on bilateral trade should a country leave a currency zone, such as the Eurozone. However, our assessment is constrained by the small country nature of the dataset, and thus one should take any policy recommendations with a healthy dose of skepticism.

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AN ANALYSIS OF ADAM SMITH'S THEORY OF SELF-INTEREST THROUGH THE MECHANISMS OF THE PHILOSOPHY OF SCIENCE

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Adam Smith's fundamental theory of self interest if widely used as the foundation for modern economic argument and theory. In this stimulating paper, Cian McCarthy deals with the philosophical underpinnings of self interest and derives conclusions which could fundamentally change our conception about corporations profit maximization.

Introduction

> "It is not from the benevolence of the butcher, the brewer or the baker, that we expect our dinner, but from their regard to their own self-interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages"
> (Smith, 2008: 22)

This famous theory by Adam Smith, and the purported consequences of this feature of humanity; that the pursuit of self-interest by individuals will generate a "harmonious outcome for economic society" (Murphy, 2009: 122), has led Adam Smith to be considered the father of Capitalist or free-market economics (Fry, 1991). Smith's argument is that, even though it is not done intentionally, when individuals act out of their own self-interest they are being guided by an "invisible hand" which results in them promoting the interest of the society as a whole. In truth, even though this theory is commonly attributed to Smith, the sentiment is more properly accredited to Pierre de Boisguilbert (Murphy, 2009). However, for the purposes of this essay, the source of the theory isn't as important as its virtue as a scientific theory, and the consequences that it has on modern economics.

In this essay I plan to analyse Smith's theory of human self-interest using the demarcation principle of the famous Philosopher of Science Karl Popper. The scientific value of Smith's theory is important as one of the main results of the demarcation of a theory between being scientific, or non-scientific, is its ability to predict future events (Salmon,

1998). And as economics has become a science that has become more and more about expectations and predicting human behaviour (Friedman, 2004) I would consider it very important for Smith's theory that it is regarded as scientific, and not merely pseudo-scientific. I will then argue why it is a mistake to accept this theory and apply it to bigger institutions, namely corporations.

The Scientific Validity of Smith's Theory

In their comprehensive anthology, Martin Curd and J.A. Cover introduce the demarcation criteria as the characteristics that a "field of study must possess in order to qualify it as genuine science" (Curd & Cover, 1998). A.F. Chalmers suggests that the popular conception of what distinguishes science from non-science, or pseudoscience, is "[that which is] derived from the facts" (Chalmers, 1999). Curd and Cover argue that science is confirmed by the facts, and observations, and without observational confirmation, science would be epistemologically useless. The view of induction as a "logic of discovery" has been largely forsaken, many still view it as a justifiable method of confirming a theory, and their belief is that the more observations that confirm a theory (as long as there are no observations that contradict it), the more probably it is to be true, making it a science (Curd and Cover, 1999). This principle could be feasibly applied to Smith's theory of self-interest. One can look at any economic (or possibly even social) transaction between two individuals and say that, in that particular case both individuals were acting purely out of self-interest and self-love. Now, one could consider the case where a baker gives bread away for free to a hungry peasant; doesn't this refute Smith's theory? In this case it could be argued that the baker may seem to be acting out of pure benevolence, but in fact it is really the case that he's still acting out of self-interest; perhaps he gives away free bread to gain a favourable reputation within the community so that others are more likely to support his business, or perhaps he gives free bread so that the peasant will owe him a favour and he has the full intention in recalling that debt in the future, or that he might get into heaven, etc. Therefore, it seems that Smith's theory is practically flawless by this criterion of a scientific theory, as it is seemingly impossible to find an observation that disproves it.

But Karl Popper believes that the formation of general theories from specific instances is not justified. In The Problem of Induction, Popper claims that "the various difficulties of inductive logic…are insurmountable" (Popper, 1959). One difficulty to which he is referring is that there is no logical way of concluding that any sum of observations leads to a general rule. But more importantly for him, he saw many theories that are supported by a wide range of facts, but noticed that these theories, such as Freud's psychoanalysis and Adler's individual psychology, failed to actually explain anything because they ruled out nothing (Popper, 1963). His example that refuted Adler's theory was presented in his essay "Science: Conjectures and Refutations" in which he presented the scenario of

a man seeing a young child drowning. Popper argued that Adler's theory that men are compelled by their sense of inferiority would explain any actions that the man would take, making it a completely redundant theory (Popper, 1963). Weak, non-scientific theories for Popper are ones for which there is no instance or possible observation that would refute the theory; they are not falsifiable. In contrast, a theory that is falsifiable would be Einstein's theory of relativity; there is a specific possible event that could occur that would lead followers of Einstein's theory to abandon it, and this for Popper was the necessary criterion to make it scientific. Chalmers points out that if a theory is unfalsifiable then the world can have any properties or behave in any way and the theory would still stand, which clearly means that it has no epistemological value (Chalmers, 1999). It now seems quite clear that Smith's theory of self-interest falls under the "unfalsifiable" branch. I argue that his theory, like Adler's, may seem to explain everything, but in fact explains nothing. No matter what the actions of individuals are, you could twist it to find a way of arguing that both actors are merely acting out of self-interest; it could actually rule out the place for any benevolence in our society. For that reason, it follows that Smith's theory also has no predictive powers. If all individuals, and therefore society, can act in any way, and Smith's theory still stands, then it has absolutely no power in predicting what could happen in a given transaction.

The Ramifications of This Analysis

So the next question is, why does it matter that Smith's theory isn't entirely scientific? Let's say that Smith was wrong about the ultimate motivations for individuals in transactions and that it was in fact a strong balance between self-interest and benevolence, but because Smith's theory is unfalsifiable, we will never be able to prove that. This case wouldn't necessarily rule out the invisible hand consequent on Smith's overall theory, as it still could be true that in a laissez-faire system of economy, where individuals act with a motives that are based on many different factors other than self-interest, that society will benefit as a whole.

However, the true problem with Smith's theory being viewed as true and scientific is when the actors in the transactions aren't necessarily being viewed as individuals any more, but also being applied to businesses and corporations. If Smith was correct, and that by acting purely out of self-interest individuals would end up benefiting society, in other words that "private self-interest is a public virtue" (Murphy, 2009), then logically that causal relationship would work when individual corporations are the players in the transaction. Now, there are many ways of a human fulfilling their self-interest that are not directly derived from the acquisition of short-term (or even long-term) profits, such as forming a loving relationship, gaining accession into heaven etc. that may be the reason that they act in a certain way in a transaction, as shown earlier. However, legally a corporation's success is measured by one factor alone: profit. This is true to such a level that it

is the legal obligation of corporations to make short-term profits for their shareholders (Bakan, 2004).

The problem for Smith in this case is that I think he would agree with me that there is a danger in transferring his theory from applying to people to applying to corporations as well. He warns of the problem of Moral Hazard in The Wealth of the Nations, by arguing that managers of corporations cannot be trusted with other people's money, and that if this happened, "negligence and profusion" would result (Smith, 2008). However, a series of legal cases in the United States in the following century led to the corporation being viewed by law as a legal person, with many of the same abilities to take part in economic activity as humans, such as ability to own property and other companies, being able to sue or be sued, being a party in a contract etc. (Bakan, 2004). The capitalist mindset that is so strongly influenced by Smith's theory now creates a system whereby corporations are legally required to make profits. In an interview with author Joel Bakan, Milton Friedman makes a clear link between Smith's theory of self-interest, and the legal requirement of corporations to work for no other end than to make money for its shareholders. He says that it's a "moral imperative" that CEO's on act to make profit, as opposed to taking part in benevolent actions such as charity or caring for the environment (Bakan, 2004).

If Smith's theory was both falsifiable, and unfalsified (i.e. scientific and sound) then I would agree with Friedman that the best thing for a corporation to do would be to only act within their own self-interest, which for a corporation can only mean attempting to maximize short, and possibly medium, term profits. But as I showed earlier, the problem is that Smith's theory is not scientific, so applying human motivations to corporations doesn't work, as we don't truly know what those human motivations are. The whole legal system that corporations should only attempt to maximize profits is based on a theory of motivation that is unsound. The laissez-faire economic system could make sense in the days that Smith wrote The Wealth of the Nations, as corporations had been effectively banned in England for over 50 years after the Bubble Act of 1720 (Bakan, 2004), and the main players in the economy may not have been acting out of pure self-interest as Smith purported, but a mixture of self-interest as well as an explicit interest in the welfare of other individuals and society as a whole. But now, as Smith himself even warned, problems created by Moral Hazard mean that the adoption of the theory of self-interest to the corporation as an individual is flawed.

Conclusion

Although he may not have wanted it to happen, and most likely did not foresee the changes that would occur in the following century as to the legal position granted to corporations in terms of corporate personhood, Smith's pseudo-scientific theory has been manipulated, albeit logically, by the law and by economists such as Milton Friedman, to apply to non-

human players in the market. This self-interest has led to corporations doing a lot of good for society, by creating jobs, investing in the community, fulfilling demand etc. but arguably a lot of bad as well. The emergence of sweatshops and other forms of labour exploitation in the third world is an example of undesirable outcomes that have occurred from the corporations receiving an unacceptable amount of legal leniency in the name of profit maximization for shareholders. Society is encouraging, and even requiring, corporations to act in a certain way, the justification of which resting on the scientifically dubious theory of Adam Smith. By assuming that benevolence does not play a part in any economic interactions between human individuals, we now require that it does not for any interactions involving corporations, a requirement which could have horrible consequences for the environment and our economy if Smith was wrong.

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BEWITCHED BY ECONOMICS

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Is economics scientific? As economic reasoning is applied to all areas of modern life, Conor McGlynn tackles the question of how we form economic reasoning, and asks if it is as reliable as the natural sciences. The paper unveils the significant biases in the formation and acceptance of economic theory and poses questions which strike hard at the core of the subjects fundamentals.

Introduction

'When we view the world without the economic lens, we see questions but not answers. The lens provides answers by enabling us to focus on the unseen structures that shape our world' (Parkin et al., 2008: xxxv). This is the version of economics endorsed by an introductory undergraduate economics textbook. The economics lens is, presumably, a metaphor for economic theories and laws. By applying these theories and laws to the world, previously undetected aspects of it become apparent to us. Economics is a science, the 'science of choice', and by using its scientific methods, we gain privileged access to the world as it really operates. The question I wish to ask in this essay is: Is this version of economics justified? Economics and economic reasoning increasingly encroach on all aspects of life. This is assumed to be a good thing; it is assumed that by using the "economic lens" we can improve the welfare of society. The story of economics is that of progress. It is this picture that I shall investigate.

I

It is supposed that economics gives a true account of real features of the world. Whether it is the mechanics of supply and demand or the mathematics of the Keynesian multiplier, there is a correspondence of these terms with actual occurrences. Economic facts are true pieces of information about the world, while economic theories give a coherent account of these facts. Theories can be applied to many different situations, and can tell us something about each situation. Indeed, this is one of the hallmarks of a good theory. The IS-LM model doesn't tell us how short-run equilibrium between goods and financial markets is reached in just one economy; it tells us how this equilibrium is reached in all economies. If we encounter a situation where our theory doesn't hold, then evidently the theory is defective in some way. In this case, we can either modify our theory or we can discard the theory and replace it with a better one. The development of general equilibrium models is an example of how a theory can be modified over time to accommodate a wider range

of facts and scenarios. Under this view of economics, facts are static while theories undergo change. This alteration of theories represents improvement; as they adapt, theories approach more closely the true state of affairs, and give a more and more accurate description of reality.

This view of economics can easily be seen to be too naive. Practical results are never as neat as the theory that is supposed to describe them. The simple view, of theory following in a straightforward manner from the facts, also does not stand up to scrutiny; which facts are seen as relevant and important is dependent on the underlying theory. Nevertheless, most economists would subscribe to something like the above description. While they are not perfect mirrors of reality, economic theories give good approximations of the facts. Progress in economics consists of replacing old theories with better ones that give more accurate approximations.

When we say that a theory gives an approximation of reality, we mean that the theory is in some sense objectively valid, or at least approximates thereto. Economic theories are not concerned with subjective opinions and prejudices. However, this assumption is not unproblematic. Often the subject-matter of economics is itself subjective; preferences and utility levels are highly particular to each individual. This is often bypassed by saying that people's preferences may be revealed through their behaviour and habits. Even allowing for this sort of subjectivity, however, the formation of theories is also not as objective as is commonly assumed. The creation of a theory is, of necessity, a subjective event; an intuition or insight on the part of the researcher, which is only later turned into something that may be called objective. The manner in which a theory is formulated will be influence by a range of subjective factors, such as the past experience, cultural background and personal beliefs of the theorist. Even once a theory has been formulated it must then pass the scrutiny of other economists before it is accepted as economics. This often means a reviewer or editor of an academic economics journal. Vincent Tarascio describes some of the subjective factors involved in the selection process for economics journals:

> 'The reviewer compares the author's 'subjective' state of knowledge with his own. If the author has included all relevant material pertaining to the subject-matter, then he is judged to have demonstrated an adequate grasp of the literature, from the reviewer's subjective point of view…Then there is the matter of novelty: Are the results or methods used new or interesting? Finally, another important and often overlooked factor is the tone and style of the paper. All these considerations involve judgements on the part of the reviewer, reflecting his own subjective state of knowledge, and tastes.'
> (1997: 6)

Clearly, the creation and introduction of new theories in economics is a process with many subjective elements.

II

In spite of the very many subjective aspects of the formation and selection of economic theories, economists may still want to maintain that their laws and theories are properly rational and objective. They might do this by distinguishing between a 'context of discovery' and a 'context of justification'. While the discovery of economic theories is highly subjective, they can, it is supposed, still be justified objectively. There are principles and standards against which all economic theories can be measured, and through which we can determine the relative merits of competing theories. However, the question then arises of how we choose and justify these standards for judging theories. Such standards do exist since we are able to meaningfully talk about good theories and bad theories. These standards are also widely accepted. Economics textbooks and journals are quite consistent in what they include and exclude. There is also wide agreement amongst economists on how we should judge theories, even if there are occasional disagreements over specific theories. But on what basis are such standards adopted? Are the standards themselves, and not just the theories they measure, open to revision? There is no hard and fast answer to the first question. The adoption of a set of standards and values, or paradigm (Kuhn, 1996), by a community of researchers happens for a number of disparate sociological and psychological reasons. It depends, for example, on which factors individual researchers give more weight to, as well as on dominant trends within major institutions, especially universities. To a certain extent, the adoption of a paradigm to guide research is non-rational. Thomas Kuhn, who introduced the concept into the philosophy of science, describes the taking on of a paradigm, or the move from one paradigm to another, as similar to a gestalt switch or a religious conversion. The standards and values must be sufficiently useful, and in at least some instances more effective than the alternatives – otherwise they wouldn't be adopted in the first place – but there are no purely logical reasons to prefer them over another set of standards and values. Therefore, instead of being a strictly objective measure of the justification for theories and laws, the standards and principles of economics are themselves, to some degree at least, both arbitrary and subjective.

What about the question of whether the standards and principles of economics are open to revision? An answer to this question has been suggested by the above discussion. There is not one historical set of criteria for judging the merit of economic theories. Those operating in different paradigms will have different criteria for what counts as justification of a theory. Since there are no common grounds of comparison for two paradigms, a theory formed in one paradigm is 'incommensurable' with one formed in another (Kuhn, 1996: 149). Economists can only judge theories from the point of view of their own paradigm, with their own particular assumptions and prejudices. There is no criterion

of justification that can judge from outside history, no matter how abstract; it will always be historical in practice. When we study, for example, classical economics, it is necessary that we view it with a whole array of hidden assumptions about economics; assumptions which may never have been in the minds of the classical economists. Michel Foucault realised the problem of applying the theoretical assumptions intrinsic to one system of thought as if they also applied to a completely different system. Even the words we use will have connotations for us that were never present to those who originally formulated the theory:

> 'The ground and object of 'economy' in the Classical age, is that of wealth. It is useless to apply to it questions deriving from a different type of economics – one organised around production or work, for example; useless also to analyse its various concepts (even, and above all, if their names have been perpetuated in succeeding ages with somewhat analogous meanings), without taking into account the system from which they draw their positivity.'
> (1970: 180)

In any given period, in any community of practitioners, there is always a set of values and practices that underpins all work in the discipline: 'only one episteme [system of thought] that defines the conditions of possibility of all knowledge, whether expressed in theory or silently invested in practice' (Foucault, 1970: 183). These values and practices – the standards the community judges by – change over time. These changes come about for a variety of often irrational reasons. The context of justification, like the context of discovery, is, therefore, a highly subjective process; the standards of justification used, rather than being universal and timeless, are relative and open to change.

III

A final way in which economists might defend the objectivity of their discipline is through an appeal to the quantitative, as opposed to qualitative, nature of their research. Economists deal with numbers, hard facts which are not open to change or revision, that are not paradigm-dependent, and which can be applied just as well to the study of economics in the Classical era as to contemporary economics. The objectivity of this approach can be seen by the increasingly mathematized methods of economics as, for example, in the rise of econometrics. Quantitative methods are, it is supposed, absolute and not relative. This is a view that the philosopher Paul Feyerabend takes issue with. He claims that the purported objectivity of the quantitative approach comes from a confusion of abstract numbers with the numerical values we apply to objects:

nomics too seriously or too literally. As Hansel and Gretel tells us, it's a good idea not to go walking in the woods alone. It's also a good idea not to talk to strangers. This does not, however, mean we should believe there's a witch in the forest.

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THE PRICE OF APPRECIATION: THE CONTINUED RELEVANCE OF FISHER'S DEBT-DEFLATION THEORY

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With the recent crisis, the threat of deflation has returned to developed economies. In this essay, Emmet Kiberd examines Fisher's theory of debt-deflation and demonstrates its shortcomings by updating it with Japan's recent history of deflation. Despite it's modern inapplicability, Emmet demonstrates Fisher's impact on modern theory including his influence on the Fed's policy in recent years.

Introduction

In mid-October 1929, just days before Black Tuesday and its unprecedented stock market crash, Irving Fisher made the infamous declaration that:

> "Stock prices have reached what looks like a permanently high plateau". (Economist, 2009)

Ever a man of strong opinions[1], in the ensuing weeks Fisher lost not only his entire fortune but also his credibility and reputation in the academic community. His subsequent ideas were given little consideration as policymakers embraced the work of John Maynard Keynes, another economist whose personal stock portfolio had collapsed in the crash, albeit less publicly (Nasar, 2011). Nonetheless, Fisher, whom James Tobin (2008) describes as "the greatest economist America has produced", was no less prolific during the Great Depression, penning his debt-deflation theory in 1933, as a succinct version of the content of his 1932 book Booms and Depressions. In recent years, with the return of deflation as a credible threat to advanced economies (or as a reality in the case of Japan, among others), there has been a resurgence of interest in the effects of combined debt and deflation, so that Fisher's theory is returning to prominence.

The aims of this paper are twofold: to objectively assess the relevance of the debt

1 Fisher was "an inveterate crusader" on anything and everything (Tobin, 2008), constantly promoting his beliefs in healthy living, vegetarianism and Prohibition. The darker side of his beliefs included his interest in eugenics and his adherence to a brand of medical pseudo-science that ultimately led to his daughter's death after an unnecessary medical procedure in 1919 (Nasar, 2011).

deflation theory in explaining actual deflationary slumps, and to examine the influence of Fisher's theory on later economic thought, both in academic and policymaking circles. Section 2 looks at specific deflationary episodes, with brief reference to the Great Depression and a more detailed analysis of Japan's "Lost Two Decades" and other recent deflations. In Section 3, we evaluate the development of debt deflation and the ideas contained in the theory, since its publication. The role of the theory in central bank policy is explored.

Debt Deflation in Action

"The Dollar Disease"

Fisher's 1932 book, Booms and Depressions, in which he first expounded his debt-deflation theory, represents an effort to understand the economic mire in which the United States had found itself at that time: in the previous year, one of the worst on record, US nominal GDP had contracted by 27% (Friedman and Schwartz, 1990: 301).

The debt-deflation theory is laid out as a "chain of consequences in nine links", shown below in italics (Fisher, 1933: 342): starting from a situation of widespread "over-indebtedness", debtors begin liquidating their debts through distress selling. This settlement of loans causes a contraction of deposit currency, i.e. a fall in the money supply, accompanied by a fall in the "velocity of circulation"; this, in turn, results in deflation, a fall in the price level. In the absence of central bank action to uphold the price level, the net worth of firms falls, causing bankruptcies and a similar decrease in profits. Loss-making companies act rationally by reducing output, trade and employment. These reductions and the aforementioned losses to firms precipitate a loss of confidence, which leads to further slowdown in the velocity of circulation via hoarding. All of the above factors create disturbances in interest rates: nominal rates fall, while real rates rise[2]. Fisher's suggested solution to break the vicious cycle of debt deflation was to reinflate the price level to the point at which debt contracts had been agreed on originally[3].

In spite of the theory's creation based on the Great Depression, however, evidence of debt deflation in the 1930s remains patchy. Fisher's own estimates show that while 20% of all debts had been liquidated by March, 1933, the 75% appreciation of the currency over that period left debtors with a real burden 40% larger than when they began distress sales (Fisher, 1933, p. 346). Nevertheless, he fails to provide any evidence of a self-perpetuating cycle of debt liquidation and mounting deflation. Bernanke and James (1990) cannot pin down its presence, although they postulate that it may be present

2 This can be seen from another of Fisher's contributions, the Fisher equation. Since $r = i - \pi$, and i cannot fall below zero, under sustained deflation ($\pi < 0$) the real interest rate, r, must rise.

3 Of course, assuming debt contracts were continuously being created from 1929 to 1933; reflation to one arbitrary price level can never serve the best interests of every creditor and debtor. Fisher rather conveniently decides that a reflation "halfway back to 1929" would be suitable (Fisher, 2009: 125).

in the part of deflation's effect on output that is not explained by their model. They posit that the fact that around half of all non-financial borrowers (also excluding major corporations) were in default, and the inclusion of "various forms of debt adjustment and relief" in the New Deal, suggest the presence of debt deflation.

Japan's "Great Recession"

The most frequently cited example of deflation in recent decades, Japan underwent a prolonged period of deflation from 1999 to 2005; using the GDP deflator as a measurement, its inflation rate was negative for the entire period from 1999 to 2008 (Posen, 2010: 29). The Japanese economy came into this period overburdened with nonperforming loans after a huge crash in asset prices (Ito and Mishkin, 2006: 138) and growth remained sluggish for several years. Opinions are divided as to whether debt deflation played a role in exacerbating what Koo (2009) calls "Japan's Great Recession".

Ito and Mishkin (2006: 160) formulate an interesting theoretical basis for the effects of debt deflation on financial intermediation in Japan that closely parallels the "financial accelerator" of Bernanke et al. (1996). They view falling asset prices as an erosion of borrowers' collateral, which makes both adverse selection (because the lenders' losses in case of default are higher now in real terms) and moral hazard (because the borrowers now have less to lose in the case of default) more likely. In this case, deflation, via the balance sheets of borrowers, could act as a significant obstacle to the allocation of resources in the economy to their most efficient use.

Kobayashi (2003) creates a model "to formalize debt deflation", starting with an insolvent banking system and analysing the welfare effects of various policy responses. This model tells us that unlimited liquidity support and a government guarantee on deposits, so-called "policies of temporization", lead to an equilibrium of nominal interest rates at the zero lower bound and mild deflation (similar to the situation in Japan in the early 2000s). Kobayashi blames the Japanese government for doing just this, leaving the economy to stagnate as it postponed bank recapitalisation.

In their recent paper, Fukuda and Yamada (2012) use various regression techniques to establish a significant negative relationship between inflation and the real interest rate in Japan between 1996 and the end of 2008. This suggests that deflation increased the real interest rate in Japan, presumably suppressing output in the process. Posen (2010) takes a more nuanced view, stating that while deflation has been bad for Japanese growth, making it more expensive in real terms for the government to service its debts, "it has not been a disaster".

Bordo and Filardo (2005), however, are more sceptical of deflation as a cause of economic stagnation in Japan. In their highly detailed study of deflation, they generalise that "deflation is more likely to be a symptom rather than the underlying cause of economic difficulties" and they consider banking system issues, which impacted the monetary trans-

mission mechanism, to be more important in the Japanese case.

Koo and the Balance-Sheet Recession

The most complete and convincing argument made against debt deflation in the Japanese case is Richard Koo's theory of balance-sheet recessions, which he lays out in Koo (2009).

Koo's theory begins as Fisher's does, with a collapse in asset prices leaving a debt overhang in the economy, particularly on the balance sheets of companies. With their cash flows still moving as before, these firms rationally switch from an objective of profit maximisation to one of debt minimisation (Koo, 2009: 181-2). After this shift, firms become unwilling to make new investments while they still have debts to pay down, so that the banking system suffers from a lack of borrowers and real demand falls as household savings are caught in the banking system. This fall in demand and contraction of deposit money can lead to asset price deflation, which acts as a feedback loop encouraging more urgent debt reduction from firms.

There are obvious parallels between the two theories: the inclusion of the effect of further deflation on debt reduction follows Fisher's line of reasoning almost exactly. Both theories look at the effect on the macroeconomy of the balance sheet distortions that individuals are left with after an asset bubble bursts. Fisher even acknowledges, at the opening of Booms and Depressions, that firm behaviour can be crucially different in times of economic tumult:

> "A Depression is a condition in which business becomes unprofitable. It might well be called The Private Profits disease."
> (Fisher, 2009: 3)

Koo's theory feels almost like an update on Fisher's, incorporating as it does the now prominent Keynesian framework of output determined by aggregate demand, as well as the recommendation of Keynesian fiscal stimulus. Koo has the advantage of hindsight in formulating a theory that can explain crucial aspects behind both the Great Depression and the Japanese recession, benefiting from this extra data on a modern era crisis.

Koo's balanced critical assessment of Fisher's debt-deflation theory not only elucidates the difference between the two, but exposes a couple of flaws in the older model. Firstly, Koo distinguishes between deflation in Fisher's theory (a key propagation mechanism without which the economic slump would be far milder) and in his own theory (where deflation "is very much a result, and not a cause, of recession" (Koo, 2009: 181)). This point is supported by Bordo and Filardo's (2005) finding that historical episodes of deflation can be classified as good (precipitated by high productivity growth and coinciding with economic growth), bad (a result of the economy seizing up) and, rarely, ugly (severe deflation negatively impacting on growth, as in the 1930s). Since Fisher's model requires

deflation to be at the centre of the propagation mechanism, it could only be applied to the 'ugly' class of deflationary episode.

This is confirmed by Koo's further analysis of Fisher's propagation mechanism and the model's unstable equilibrium so colourfully described in the original Econometrica article as a boat that, when rocking, tends eventually to capsize. For the deflationary spiral to take effect, the rate of deflation must exceed the rate of debt liquidation. However, we are told that markets are subject to distress selling. It is reasonable to expect debts to decrease by more than 10% per annum in a fire sale; in this case a historically exceptional rate of deflation would be required to precipitate a downward slide. In a world where the Gold Standard no longer applies, this kind of future eventuality is unlikely: monetary policy would have to be utterly inept to create such severe deflation.

In support of the latter point, the consensus of research into the only other recent episode of sustained deflation in a developed economy, that of Hong Kong from 1999 to 2005, is that the debt-deflation theory did not apply (Bordo and Filardo, 2005; Fukuda and Yamada, 2012). This deflation resulted from the interaction of external, regional shocks and Hong Kong's maintaining a dollar peg on its currency.

Fisher's Legacy

Irving Fisher undoubtedly left us with a wealth of knowledge, opinion and innovation, from a mathematical formulation of the equation of exchange to a hydraulic price-determination computer constructed for his 1892 doctoral dissertation (Dimand, 1995). The legacy of the debt-deflation model lies not in applicability, but in its[4] influence on later economic thought.

First and foremost, it was a pivotal step in the progression of Monetarist thought. As one of the earliest proponents of a monetary cause of the Great Depression, Fisher charted a path that would soon be followed by the underappreciated Clark Warburton and more famously by Friedman and Schwartz in their landmark 1963 book (Cargill, 1979).

Secondly, he drew attention to the relevance of micro-level balance sheets to the macroeconomy, laying the groundwork for a rich strand of literature in the 1980s and '90s. This literature grew from Bernanke's (1983) paper introducing the idea of disruptions in the flow of credit aggravating the macroeconomic outcomes of the Great Depression. This idea was later formalised as the "financial accelerator" (Bernanke et al., 1996), a concept vital to our understanding of how asset bubbles form: procyclical asset price inflation leaves borrowers with more collateral in good times, meaning they can increase their leverage and investment. This feeds back into asset prices in a positive feedback loop.

Finally, a subtler but no less important legacy of the debt-deflation theory is its

4 Eggertsson and Krugman (2012) is an interesting, recent effort to incorporate much of this balance sheet theory into a New Keynesian macro model.

influence on monetary policy, at the Federal Reserve and elsewhere. This came primarily through Ben Bernanke, first as Governor and then as Chairman of the Federal Reserve. In a famous speech (Bernanke, 2002) he raised the spectre of deflation that was haunting the US and laid out the Fed's willingness to strongly fight deflation. This stance was cemented by the expansionary policy of the following year, which some think responsible for the ensuing mortgage bubble and crash. Bernanke (2010) later defended these decisions, citing the need at the time to avoid ending up in deflation with near-zero interest rates. It is likely that Bernanke's work on the subject of deflation made him more deflation-averse than the average central banker. Tcherneva (2010) also posits that Bernanke's study of Japan's prolonged deflation heavily informed his policy actions in late-2008 and 2009.

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INVESTING IN EDUCATION IS THE MOST EFFICIENT WAY TO REDUCE POVERTY

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In this essay, Emma Tobin tackles the question as to whether investing in education is the most effective way to tackle poverty. The first half of the essay presents arguments for the importance of education and the costs that devalue education in LDC's. It then focuses on women's education and its importance to society as a whole. She concludes by highlighting the importance of investing in education while simultaneously doing so in other areas.

Introduction

The attainment of education, one of the major goals of development economics, is also a driving force behind such development. The backbone of many development and aid programs hinges on investment in education (Todaro, 2011). But is this the most efficient means of reducing poverty?

It is estimated that roughly one fifth of the world survives on under a dollar a day (Khan, 2001). While it is estimated by that some 600 million people have been elevated out of poverty in the last 20 years, over a billion people are still classified as impoverished.

The inability and struggle to pull oneself out of poverty is referred to as the poverty trap. An income gives an individual the economic power necessary to satisfy their basic needs (Schultz, 1999). But the condition of poverty impedes ones productivity, and thus they cannot earn the income necessary to overcome these conditions (Todaro, 2011). People become trapped in a bad equilibrium.

In this essay I will argue that solitary investment in education is insufficient to truly reduce poverty. I will make the case that joint investment, with a focus on education, is more effective than unilateral investment. Further to this I will emphasise why a policy focus on bridging the gender gap will garner maximum returns. While the returns on educations can be great, its efficiency is contingent on numerous other endogenous factors and is subject to multiple limitations.

Why Education?

Many of the programmes and initiatives aimed at reducing poverty have had a singular focus on education in recent years.

The concept of equality of opportunity drives much of this investment. Structural

inequality in many lesser-developed countries can be extremely pronounced (Houle, 2009). This inequality often translates into a lack of access to the education, healthcare, and technologies that could help lift communities out of poverty (Todaro, 2011). Education grants an individual the knowledge necessary to overcome such inequalities. It is far more efficient to have direct investment in human capital, rather than invest in programs that may be corrupted by this (Psacharopolous, 2004). The benefits of education are particularly pronounced in these lesser-developed economies and its pursuit is universally supported as one of the key steps needed to combat poverty.

The majority of LDCs economies are based around the traditional sectors, which is proven to have the highest rate of returns from growth, resulting in less inequality and less poverty (Mitchell, 2012); the more volatile the state of technology within a country, the greater the returns on education. Human capital and labour act as the main productive assets. This makes education a prime investment for technological poor countries, and the most efficient means to overcome the initial challenges of poverty reduction (Psacharopolous, 2004).

Multiple schemes have been tested as a means of reducing poverty including the provision of technology, the freeing up of credit, microcredit initiatives, health programmes, agricultural programmes etc. Education is a key facet to all of these schemes and is imperative to their respective success. It forms the backbone upon which many other investments are made, as proven by the high correlation between education and development (Jameel, 2009).

Taken on its own, education is the process that gives an individual the knowledge and skills necessary to become maximally productive (Schultz, 1999). Skills such as reading and writing increase ones capabilities to accumulate and adapt to new information, facilitating innovation (Todaro, 2011). In turn there are increases in an individuals' employability, entrepreneurial skills, and widens their future opportunities as the demand for skilled labour increases (Khan, 2001).

The spill over effects of education have been proven to affect both immediate family and community (Psacharopolous, 1991). In Uganda, on average, a one-year increase in education of a neighbouring farmer was associated with a 4.3% rise in output locally (Psacharopoulous, 2004). The net result is that a singular investment in education garners a multitude of returns.

The short, medium and long-term effects of increases in education are substantive and relatively efficient when compared to the initial input.

The attainment of education increases an individual's productivity and contribution to the labour force. It is the equivalent of investment in physical capital, but with initially higher returns (Schultz, 1999) (Psacharopolous, 2004). The average rate of return on a year of schooling is 10%. In moving from an uneducated to an educated workforce, the economy has the ability to expand beyond subsistence levels.

But education alone is insufficient to stimulate development. Education and health are two mutually reinforcing factors (Miguel and Kremer, 2004). Both are important objectives of development, but also key components of growth (Schultz, 1999). Similar to the poverty trap, improvements in health can result in increases in educational attainment, and vice verse. But, improvements in health and education do not automatically garner higher incomes due to structural problems and labour market failures (Khan, 2001). Thus policy needs to be structured in such a way that is caters to the individual context of the region in question, with joint investment in health and education, as well as other necessary considerations.

Limitations and Policy Considerations

The structure of an investment programme should be considered as, if not more important than the monetary value of the investment itself. Policies that are either ill conceived or the rough equivalent to "throwing money at a problem" have been proven to ill effective at tackling poverty. Such policies are rampant in resource rich "rentier states", who despite high GDP's, struggle to elevate poverty (Ross, 2001). The way in which money is invested is therefore of the utmost importance.

Simply making education and schooling compulsory has little social returns; it does not ensure quality education and is rarely enforced (Acemoglu, 1999). Thus we are left with the need to increase self-motivated learning and the use of incentives.

First and foremost, we must consider the costs and benefits of education. While the long-term benefits of an education can be significant, these are useless if the cost of education reduces living standards and chances of survival today, particularly if a family is living at subsistence level. While a child may benefit from an education in the future, they lack the agency to make the decision to go to school now. The cost of education is born by the parents (Kremer, 2003).

Assuming the parents are risk averse, they will only send their children to school if they see it as a fair gamble, or as having a high probability of returns. But the risk of education is great given the opportunity costs it entails. Asymmetric information means parents may be ignorant of the full benefits of education and the insurance it can provide in future years. Moreover, the cost of education may be too much to bear in the current period. While the child's future earnings may increase with each additional year of education, in present value it is discounted in line with the cost it will entail (Todaro, 2011).

A lack of access to credit means there is no deferral of payment and the costs are to be fully covered in the present (Khan, 2001). Investment will only occur when Marginal Benefit is greater than or equal to Marginal Cost (Mitchell, 2012).

Five main costs, direct and indirect, detract from the value for education.

Firstly, the child may be earning important income for the family. Child labour is an unfortunate reality, but a necessity for many families to live above subsistence level

(Schultz, 1999). Secondly, there are costs associated with going to school -uniforms, travel, opportunity cost etc - which the family cannot bear (Kremer, 2003). Third, in the case of female education, investing in education may have no benefit to the family if culture dictates she cannot work, is to be married off, or the family will have to pay a substantial dowry upon her marriage (Psacharoplous, 1991). In North Sudan a female is expected to enter into seclusion after marriage or her 18th birthday, and therefore is not seen as a viable investment to family members. All of these contribute to an equilibrium in which the cost of education and the risk it bears is too great for individual level investment to occur. State level investment solely in education becomes inefficient and will not alter the individual's equilibrium unless steps are taken to increase benefits relative to cost.

State programmes geared towards negating these costs have had some success. The INPRES school construction scheme in Indonesia was deliberately geared towards regions with low enrolment, and saw an increase in number attending school, but with no real increase in relative productivity (Duflo, 2002). Schools in Kenya provided free uniforms, textbooks and even free breakfast with mixed results. The provision of free uniforms proved so popular class sizes doubled, but with a lack of real improvement in test scores. Textbooks proved an ill investment as students lacked the ability to understand them. The provision of a meal however proved most effective (Kremer, 2003). Not only does the promise of a meal a day create motivation among students to attend school, but it massively detracts from the cost of school to the parents, as it reduced their burden of costs on food provision. These incentive structures served to shift the equilibrium towards education, but with varying levels of efficiency relative to cost at a national level.

Fourthly, we consider the impact of health (inclusive of nutrition). The health of a child determines not only whether or not they attend school, but their attentiveness while there (Jameel, 2009). If a child suffers from illness the opportunity cost of schooling may be compounded if they are too unwell to concentrate. Furthermore, high levels of absenteeism in schools are often due to sickness. Future returns may be impeded if a health problem goes untreated and leads to a debilitating lifelong affliction (eg. Polio, Glaucoma) (Todaro, 2011). Miguel and Kremer's work on de-worming in schools is a testament to the huge impact illness has on education, and the massive returns that can be gained from investing in cheap medical treatments. At a cost of $3.50 approx per school 70% of children in 60 schools were treated for parasitic worms – a common ailment in the developing world. Participation increased by 7%, a 25% reduction in absenteeism and was proven to have spill over effects onto untreated and control schools due to a reduction in contagion within the community and region (Miguel and Kremer, 2004). These hugely efficient returns only serve to emphasis the benefit of joint investments.

Lastly we consider the quality of the education provided. If teachers are frequently absent, students do not receive returns on their investment (Jameel, 2009). The opportunity cost of possible income earned may be greater than a below par level of

schooling. Parents may be discouraged from the pursuit of current and future education is they see no tangible benefits today (Jameel, 2009). In India, Duflo (2010) found that children in grades 2-5 had poor literacy and numeracy skills with 65% unable to read a basic paragraph and 50% unable to perform rudimentary arithmetic. This was equated to the high level of teacher absences, with the consequence of children also being frequently absent. An incentive program was then implemented in private schools. Additional pay above a base line level became conditional on the teacher being present for each extra day over 20, with proof of attendance taken in the form of a photograph. Absenteeism fell in the treatment schools from 40% to 21% among teachers and students test scores increased by 0.17 standard deviations (Duflo et. al, 2010). The low cost nature of the programme earned statistically significant returns and thus can be classified as efficient.

Policy makers must be aware that incentives or compensations are necessary provisions in order to re-establish the market in favour of schooling. Otherwise the investment may be wasteful and inefficient.

Even when education is attained and health is good, there could be systematic market failures that prevent individuals earning returns. While the private returns on education may be great, the social returns are frequently less so (Psacharpoulous, 2004). Faulty credit markets can prevent a knowledgeable person from perusing entrepreneurial ventures, or investing in new technologies which otherwise would have increased their productivity and earnings (Khan, 2001). A failing labour market may not be able to provide employment for those in possession of high skill levels, or even jobs beyond the traditional sectors. Even if employment is attained, individuals may be underemployed, human capital wasted, and full returns lost.

Physical capital often doesn't adjust to faster growth in human capital (Duflo, 2010). Urban migration or even emigration may occur, leaving the targeted impoverished area without any tangible returns (Todaro, 2011). This may result in little to no returns on the initial investment being seen, it's efficiency negated by a failure to address structural problems elsewhere.

The benefits of allowing for all these considerations can be measured in the success and failure of various development targeted investments.

Progresa/Opportunidas in Mexico can be viewed as a fully efficient investment programme in education. Cash payments were made to mothers with under the strict conditions that children were kept in school, they engaged in health education programmes in the pre-existing facilities, and children were vaccinated and received frequent checkups (Rawlings, 2005). The results were encouraging, with a 23% reduction in illness among children and high school attendance compare to the control groups. The programme itself is very low cost, only accounting for 0.4% of Mexico's expenditure. Part of the programme's success was its focus on joint investments – empowering the mother, the child's attainment of education, and health provisions. It is estimated that the pro-

gramme now makes up, and has contributed to 25% of the rural poor's income. The success was such that the programme has been expanded and continued through successive governments (Todaro, 2011).

The Gender Gap and Maximum Returns

As outlined above, there is no singular investment strategy that will reduce poverty in a wholly efficient manner. There is widespread endogeneity between all of the mentioned factors, and countless unobserved variables of untold influence on any investment outcome. While there is much discussion about the best means of structuring investments, there is less ambiguity surrounding the most efficient demographic to target with these investments.

The highest returns on development investments are frequently seen among women. Inclusive of home work and economic work, women engage in productivity far more than men (Psacharopolous, 1991). On average, women receive higher returns on their schooling- 9.8 to men's 8.7. This is particularly true at secondary level (Pscharpolous, 2004).

But, as stated previously, women are particularly vulnerable to poverty (Schultz, 1999). They are often viewed as second to the men in the family and as a result are often left without the skills necessary to support themselves independently. Sen estimates some 100million women are "missing" due to poverty each year, either through sex selected abortion, premature and a disproportional number of deaths in their infancy and childhood, and early death in adulthood or becoming "unaccounted for " (Qian, 2006). A lack economic power hugely reduces a woman's agency over her own life. This is particularly problematic when we consider the mother is often the primary care giver to numerous dependents, children and grandparents alike (Schultz, 1991).

This lack of full access to health care and education means the mother can be ignorant of basic health practices, unable to leverage decision making power, and thus the children too may fall into ill health and not gain a full education. If female daughters are then denied access to education for the reason mentioned earlier, this cycle is perpetuated (Schultz, 1999). In effect females are considered luxury goods, meaning investments will not be made in their benefits during periods of financial duress. Yet this is exactly when investment should remain equal between the sexes (Psacharopolous, 1991). Simply put the returns on education for females far outweigh those for males.

The long-term benefits from female education are huge. Women are more prone to HIV/AIDS, and if untreated this can spread to a foetus. Wholly preventable through education on safe practices and condom use, this disease decimates the age group that would otherwise be contributing to productivity and growth (Todaro, 2011). Furthermore mother to child transfer means HIV can be propagated throughout generations. Educating women and providing them with a source of income has positive results for both mother

and child. Mothers have been proven to put a higher value on education and so, when granted decision making power their child has a higher probability of school attendance.

A disturbing result was drawn by Qian is her analysis of agricultural production in China. In the tea regions where women earned income, increases in female income were followed by increases in the survival rate for girls. Conversely in the orchard regions where men earned the bulk of the income, it was found that increases in male income actually decreased the girl's chances of survival (Qian, 2006).

Yet tangible returns on investments in female education have been seen and are having massive impacts on the composition and reduction of poverty globally. Falling fertility rates are contributed to female education about contraception, which will have great consequences. Lower population growth means a reduction in resource demands and a greater share of endowments for all. It also results in better childcare and lower infant mortality rates, increasing the standard of living (Schultz, 1999). Increasing labour market participation increases female control over decision making, resulting in better health outcomes for children, especially females (Psacharopolous, 1991). The social returns on female education are thus greater than male returns.

Conclusion

Many of the policies examined above are contingent on the correct functioning of other sectors. A functional education sector is useless without a competent, available and affordable health system. Multiple market failures can counteract an otherwise well structured investment strategy. Thus policies need to be tailored to the individual context of the affected area.

We have implicitly assumed throughout this essay that development and a reduction in poverty are desirable to the states affected, when in reality this may not be the case. Development and education are often cited as key triggers in democratisation (Houle, 2009). Hence we see many authoritarian regimes use poverty as a means of repression, providing just enough support to retain a healthy support base while suppressing the opposition. This is reaffirmed with multiple studies finding correlation between these variables (Houle, 2009). Education and development are thus often unsupported by the political institutions within a state or not run efficiently. IGO's and NGO's (if permitted to enter and work) often must function unilaterally, and inefficiently.

While it is difficult to establish true causality between education, growth and poverty reduction due to endogeneity problems, the empirical observations of returns are enough to justify investment. Because of the multiple correlations that exist, joint investment policies are needed in order to have a maximally efficient investment. No single policy has been proven universally effective. Investing in education can be an efficient means of reducing poverty, but that is contingent on how well it is tailored to its specific context.

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SHOULD CENTRAL BANKS BURST ASSET PRICE BUBBLES?

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The collapse of Ireland's housing market exemplifies the devastating impact which asset price bubbles can have on the economy. In this essay, Andrew Winterbotham strongly argues that it is insufficient to 'clean up' asset price bubbles after they have occurred. If we are to learn from the events of the past number of years, this essay makes it clear that central banks must incorporate asset prices in their inflation targeting frameworks.

1. Introduction

The link between monetary policy and asset prices[1] and what exact role the central bank should play in this regard has been of perennial interest to economists. The collapse of US house prices and the ensuing financial crisis and global re- cession has served but to only increase the attention this issue has received.

Many believe that monetary policy should be used to directly deal with asset price bubbles. Namely, they advocate that the central bank should raise interest rates to deflate such bubbles. Since periods of explosive growth in asset prices have often preceded financial crises and contractions in economic activity, as Kindleberger (2000) famously attests, some economists argue that by defusing asset price booms, monetary policy can limit the adverse impact of financial instability on economic activity.

Yet this idea is highly controversial, as many others believe that monetary policy should not be directed towards such ends. Namely, they believe that inflation targeting should achieve both monetary and financial stability. Proponents of this argument believe that, in the absence of inflation in goods and services no, or minimal, restrictive monetary policy action is warranted during the formation and growth of a bubble. Rather, they believe the correct action to be a speedy response to ease policy once the bubble has burst, to reduce the potential loss of output and employment. This has been dubbed the 'lean' versus 'clean' debate.

Which stance is more appropriate? To answer this question, we critically examine

1 To be clear, by asset prices we mean the price of something bought to generate income or to sell later on for a profit. Examples are physical assets such as housing, and financial assets such as shares, bonds, foreign exchange and other financial instruments.

both sides of the debate and bring the recent financial crisis to bear on this discussion. First it is necessary to examine the impact of monetary policy on asset prices and the effect of asset prices on the real economy. Conceptual issues surrounding the theoretical basis for the existence of asset price bubbles and the effects of bubbles bursting are then discussed.[2]

In this paper it is argued that the central bank should play a greater role in preempting asset price bubbles, a tenet to which the financial crisis and the ensuing global recession gives greater credence to. Given the impact of financial markets on the real economy, this necessarily has important implications for all market participants; not only central banks and governments, but also investors and households alike.

2. The Impact of Monetary Policy on Asset Prices and the Economy

2.1. Transmission Mechanisms

The interrelations between interest rates and asset prices is no new idea; it has been argued that it can be seen in Locke (1824) an embryonic view of these interrelations (Vickers, 1968).

By affecting risk-free rates[3], the central bank can change a wide array of asset prices, since all of these are related to the risk-free rate, and this, in return, has an impact on the real economy. For instance, we may recall the basic dividend discount formula: $P = \sum \frac{D_t}{(1+r_t+\rho)^t}$, where P is the stock price, r is the riskless rate, ρ is the risk premium, and D_t is the dividend in period t. The central bank affects r_t, and a fall in the risk-free rate therefore raises stock prices. Also, by preventing a recession, lower rates might increase profits and therefore expectations of Dt. In addition, the risk premium may fall. As a result, stock prices rise.

Equivalently, we may think of any asset pricing model (e.g. the CCAPM), which

2 We believe these to be both requisite and useful exercises. They are necessary in the sense that they allow us to ascertain whether there even exists a prime facie case for employing monetary policy as a tool to deal with asset price bubbles. They would also be of great interest for policymakers and financial market participants. Having reliable estimates of the reaction of asset prices to the policy instrument is a critical step in formulating effective policy decisions. Furthermore, having accurate estimates of the responsiveness of asset prices to monetary policy should facilitate investors in making prudent investment and risk management decisions.

3 The central bank ultimately has control over short–run nominal rates. Say it wants to reduce interest rates. The central bank would buys bonds from banks with printed money. Banks now have increased reserves, and so they are willing to lend to each at a lower interest rate (called the federal funds or inter-bank lending rate). Banks will then pass on this interest rate reduction to consumers. This is believed to only be effective in the short–run, as in the short–run we assume price stickiness on account of both nominal and real rigidities. These are New–Keynesian micro–founded rationalizations for price stickiness.

predicts $r_i = r_f + \rho$, where r_i is the expected return on a stock and ρ is the model's predicted risk premium. Thus a fall in the risk-free rate, r, causes a fall in the stock's return, r_i. However, the price of the stock rises, as returns and prices are inversely related. In reality, prices will have risen in expectation beforehand though, if the move was expected. Conversely, a fall in interest rates will result in an increase in bond prices, due to the inverse relation between the yield of a bond and its price.

Does the theory hold up in the empirical evidence? It would certainly seem so. For instance, Fama and French (1989) find that the term spread and dividend yield are predictors of future asset returns. Similarly, Thorbecke (1997) finds that monetary policy expansions increase contemporaneous stock returns using a multi–factor model. A more recent strand of research uses vector autoregressions in order to overcome the endogeneity problem (interest rates have an impact on asset prices, yet asset prices can also have an effect on interest rates) in estimating the effect of monetary policy on asset prices. For example, Rigobon et al. (2004) find that an increase in short-term interest rates results in a decline in stock prices. They find a statistically significant, albeit small effect; for example they find that an unanticipated 25-basis point increase in the short- term interest rate results in a mere 1.7% decline in the S&P 500 index.

These asset price changes then have an impact on the real economy. For example, asset prices can have so-called 'wealth' effects, in that an increase in their value may cause individuals to consume more, causing aggregate consump- tion to increase. To see this, consider the following result derived from basic intertemporal analysis:

$$C_1 = C_2 = \frac{A + Y_1 + Y_2}{2} \tag{1}$$

Where A represents Assets, C_t represents consumption in period t and Y_t income in period *t*.

From (1) above, we can see that an increase in the value of the consumer's assets (this could be the value of their home or stock portfolio say), results in an increase in spending i.e. consumption, therefore having an effect on the real economy and in the last decade, changes in asset prices have indeed had large impacts on consumption.[4] Similarly, higher stock/house prices raise the value of one's portfolio and lifetime wealth. By the permanent income hypothesis, this raises consumption a small bit every period.

Thus, we know that there is at least a prima facie case for asset prices af- fecting

4 For ease of exposition, this analysis is somewhat oversimplified in that we are assuming the interest rate to be equal to zero. Furthermore, we are assuming β, the discount factor, to be equal to 1. In other words, the individual, contrary to standard finance theory, values the present and the future equally. However, the results are the same when we relax these some- what unrealistic assumptions. Alternatively, one may view C_2 and Y_2 as present discounted values.

the economy, but can the wealth effect be observed? Poterba (2000) for example argues that the rising stock market most definitely contributed to ris- ing consumer spending in the 1990s. However, the evidence suggests that these wealth effects are smaller than we expect, perhaps due to consumption smooth- ing implied by the permanent income hypothesis. For instance, his estimates suggest that a $1 increase in share values raise consumption in the next quar- ter by a mere 2 cents, while an analogous increase in non-stock market wealth raises next-quarter consumption by 1.4 cents. In addition, Christina Romer (1990) argues that consumption declines as a result of increased uncertainty in the financial markets. She also argues that there was a significant negative relationship between stock market variability and the production of consumer durables in the prewar era. This reflects the fact that the worst economic down- turns are almost always proceeded by a collapse in asset price bubbles.

Changes in asset prices have lots of other indirect effects. For example, higher stock prices lower the cost of capital since they make it cheaper for a firm to raise equity. Namely, by issuing shares, the firm now makes more revenue. In turn, this increases investment; this is essentially the well known Tobins Q theory in action. For the same reason, a rise in house prices stimulates housing production. The transmission mechanisms that have the largest impact on the real economy however are the balance sheet and lending effects, to which we now turn.

2.1.1. Balance Sheet Effects

Most firms depend on banks rather than stock issuance for financing. As a result, they are dependent on bank's willingness to lend. When interest rates fall, firm's profits typically rise (due to greater aggregate demand). Also, if firms are on adjustable loans, their debt payments fall, again raising profits. These increases in cash flow improve their balance sheets, so they can offer more collateral to banks, raising bank's willingness to lend. Also, greater collateral reduces the risk of moral hazard (i.e. the fear firms might use funds recklessly and default) since firms now lose more under default. Again, this increases the bank's willingness to lend. The idea that banks make more loans in good economic times– leading to further good times–is what is called a "financial accelerator", which is built into the standard models which we shall examine later.

Woodford however, in his recent Jackson hole speech argued that there is (fairly) perfect substitutability between assets, which would mean that Fed pur- chases of assets cannot easily change their relative prices. In contrast to Wood- ford, the Fed's stated view is that Quantitative Easing (QE) can still change asset prices through portfolio balance sheet effects.

2.1.2. The Lending Channel

This is somewhat different from the interest rate channel, since it represents a response

on the supply side, as opposed to the demand side. With cheaper access to reserves in a monetary expansion, banks will be able and willing to lend more, which in turn leads to more investment. Banks will now lend more if they have more capital/reserves themselves. Conversely, if banks suffer losses from default, they will lend less. Small firms rarely issue equity and so are heavily reliant on bank lending and, consequently, are especially affected by banking problems.

A collapse of banks disrupts these transmission mechanisms and will thus reduce overall lending in the economy. This is exactly what occurred after the collapse of US house prices in 2007, leading to what the media calls the "credit crunch". Accordingly, Rajan et al. (2011) argue that central banks can reduce financial fragility by raising rates in normal times to offset their propensity to reduce rates in adverse times.

3. Bubbles

3.1. A Cursory Definition

Stiglitz (1990) provides a useful definition of bubbles, along with an explanation of how they occur. If the expectations of investors change in such a way that they believe they will be able to sell an asset for a higher price in the future than they had been expecting, then the current price of the asset will rise. Many formal definitions of what a bubble is exist, but the basic intuition is relatively straightforward: if the reason that the price is high today is only because investors believe that the selling price will be high tomorrow–when "fundamental" factors do not seem to justify such a price–then a bubble exists. In this sense "crowd psychology" may influence asset prices (Blanchard and Watson, 1983). Conversely, under the assumptions of rational expectations and behavior, asset prices will fully reflect their fundamentals. However, Blanchard and Watson (1982), among others have, in theory, identified situations where bubbles can still occur under these assumptions.

Kindleberger (2000, p.54) asserts that "speculative manias gather speed through expansion of money and credit or perhaps, in some cases, get started because of an initial expansion of money and credit". It would appear that the boom and subsequent collapse of equity prices in 1929 in the US, equity prices in Japan in the 1990s and housing prices in the US in 2007 were all fuelled by this dramatic increase in credit. Taking the last example, it has been argued that low interest rates raised house prices by making mortgages cheaper and thereby increasing demand.

3.2. Definitional Problems: Bubbles and Fundamental Value

Firstly, there is disagreement over the very existence of bubbles. Those who subscribe to the Efficient Markets Hypothesis (henceforth EMH) necessarily believe that bubbles cannot occur. An informal and perhaps oversimplified definition of the EMH is that it asserts that asset prices fully reflect all known information and hence fully represent the "funda-

mental" value of said asset. In other words, the value of the asset has to be just equal to the discounted value of the stream of returns it generates (Stiglitz, 1990).

According to the logic of neoclassical finance that undergirds the EMH, the mispricings of a bubble cannot occur for the following three reasons: (i) investors invest and trade in the capital markets in a rational manner; (ii) any irrational trades are random and cancel each other out; and (iii) arbitrage corrects any remaining irrational trading not cancelled out (Gerding, 2007). Behavioral finance however repudiates all of these assertions.[5]

Second, the consensus view on what we may consider examples of bubbles has been critiqued. Garber (1990) argues that the Dutch tulipmania (1634-37), the Mississippi Bubble (1719-20), and the closely-connected South Sea Bubble (1720) should not be considered as bubbles, in that they can be explained by fundamental forces.[6]

Third, bubbles are notoriously difficult to identify, both ex ante and ex poste. This is due to the fact that it is almost impossible to quantify what we mean by "fundamentals". The problem of determining the fundamental value of an asset has three parts: first, the problem of estimating the returns received over time (the rent on the land, the dividends on the stock); second, the problem of estimating the terminal value the asset will have at the end of the period; and third, the problem of deciding upon the discount rates to be used for translating future returns into current values (Stiglitz, 1990). Furthermore, fundamental values may be inherently flawed on account of them being based on historical data, as past data may not be an appropriate indicator of current and future prospects.[7] This could not be summarised better than byAlan Greenspan when he says "there is a fundamental problem with market intervention to prick a bubble. It presumes

5 The EMH was once one of the few hypotheses in the field of economics that enjoyed almost universal acceptance. However, in recent decades, there has been an emerging literature questioning its validity. The main argument that undermines the EMH is that there is no such thing as perfect arbitrage, as proved by Grossman and Stiglitz (1980). Similarly, Shleifer (2003) argues that as long as individuals are risk averse, a bubble may persist for a very long period of time, even if arbitragers recognize the existence of the bubble and believe that it will eventually disappear. Said author also proves that arbitrage is not in fact riskless, which dramatically reduces the effect of arbitrage in eliminating price anomalies. For a useful and lucid review of the behavioral finance literature that undermines the EMH, the reader is referred to Chapter 1 of Shleifer (2003).

6 For an example of the consensus view in the literature, see and Krugman (1986). For an interesting narrative of the Dutch tulipmania and a convincing repudiation of this critique, see Goldgar (2007) and Mackay (2003[1841]). The repudiation of this critique is based on the fact that the price rise of Dutch tulips fully match all the criteria for bubbles set out by Kindleberger (2000). Furthermore, Garber fails to provide any rational explanation for the twenty-fold increase in tulip-bulb prices during January of 1637, followed by an even larger decline in prices in February of that same year (Malkiel, 2010).

7 For a formal, mathematical exposition of the inherent difficulties, see Cogley (1999).

that you know more than the market."[8] This perceived difficulty in identifying bubbles is one of the main arguments against central bank intervention to address them. However, it is worth noting that several authors, e.g. Roubibi (2006), have argued that bubbles can in fact be identified *before* they burst.

3.3. Overemphasis on Bubbles

One cannot look past the fact that all of the major downturns have been asso- ciated with booms and subsequent collapses in asset prices. The fact is, asset price swings do occur and asset prices have become far more volatile since the great moderation, and, whether they represent a bubble or not, it is essential to mitigate the effect this will have on the real economy. Borio et al., among others, provide evidence of this increased volatility. They document the emergence of major boom-bust cycles in the prices of equity and real estate in a number of industrialized countries during the 1980s. Notable examples include the United States, Japan, the United Kingdom, the Netherlands, Sweden, and Finland. All of these led to detractions in economic activity, consistent with the assertions made above.

The title necessarily assumes that we believe asset price bubbles to exist however. Perhaps the essay title is a bit provocative then. A somewhat less dramatic title maybe something which addresses the role of the central bank in ensuring financial stability. A distinction between booms and bubbles is therefore necessary. In reference to the Dutch tulipmania, Dash (2001) writes:

> "Similar booms–by which economists mean exceptionally rapid rises in prices–and bubbles (booms in which a commodity's price quite outstrips what it is actually worth to anyone other than a speculator) have occurred all over the world throughout the last four hundred years."

This view of bubbles asserts that bubbles simply represent price rises which are irrational. Even if the Central Bank cannot determine if a price rise repre- sents a bubble, there always remains the probability that a collapse may occur. Given the adverse impacts on the economy of such a "tail event" occurring, accordingly, the Central Bank should take the necessary steps to prevent said event from occurring. This refers to the "lean against the wind" argument for dealing with bubbles or asset price booms, which we advocate.

3.4. Some Models

We henceforth assume that bubbles do indeed exist. However, as previously explained, their not existing does not a fortiori imply the irrelevance of mone- tary policy in dealing with asset price swings. In this section we present some stylized models of asset price

[8] Quoted in the New York Times, November 15, 1998.

bubbles found in the literature.

Batini et al. (2000) examine the effects of a bubble in the foreign exchange market, defined as an exogenous process that temporarily shifts the exchange rate away from the value implied by fundamentals. The bubble process is anal- ogous to Bernanke and Gertler's (1999) specification of an asset price bubble, which remains the seminal paper in this area to which, in order to provide an accurate comparison, all responses follow the same modelling process. Examples of such papers are that by Cecchetti et al. (2000), Filardo (2000) and Goodhart et al. (2002). In the Bernanke–Gertler papers, the asset price subject to a bubble is a stock price, whereas Batini et al. examine a bubble in the exchange rate. An example of what is believed to have been an exchange rate bubble is the appreciation of the US dollar from 1980 to 1985, which, it has been argued, was excessive relative to underlying fundamentals (Evans, 1986).

Batini et al. (2000) denote the bubble as zt, which is modelled as follows:

(2)
$$z_t = \rho_z Z_{t-1} + e_{zt}, \rho_z$$

$$\begin{gathered}\text{where } e_{zt} = 0, t = 0, ..., t_{BUB-1};\\ e_{zt} = 0.01, t = t_{BUB};\\ e_{zt} = 0, t_{BUB} < t < t_{BUB+n};\\ e_{zt} - (\rho_z^n e_{zt}, t_{BUB+n});\\ e_{zt} = 0, t > t_{BUB+n}.\end{gathered}$$

Specification (2) implies that when there is a bubble, the state vector contains an explosive time series process and includes a heteroskedastic process (the e_{zt} sequence). The length of the bubble is specified in the same manner as Bernanke and Gertler (1999), in that the termination point of the bubble is stochastic.

The central bank can attempt to offset the effect of the bubble or prevent it from occurring, by moving R_t (the interest rate) to affect the exchange rate, which is driven by both fundamentals and the bubble. Whether such offsetting action–in the form of a response of monetary policy to movements in this case the exchange rate, but it could also represent stock or bond prices say is desirable, is what we wish to determine.

While this specification of the bubble process is in line with Bernanke and Gertler (1999), it does not produce a "rational bubble" in the sense of Blan- chard and Watson (1982), of which there has been several variations in the literature e.g. Santos et al., (1997). In Blanchard and Watson's framework, a bubble emerges endogenously from the dynamics of rational expectations models; as previously alluded to, the effect of the interest rate on asset prices means that an asset price bubble is sometimes treated as an endogenous as opposed to an exogenous variable. Their rational bubble is intimately related to the existence of multiple model solutions. However, the authors, upon conducting various econometric tests find only circumstantial evidence at best for this type of model's validity.

4. Optimal Monetary Policy

4.1. Taylor Rule

The Taylor rule is a metric used by central banks in order to gain an idea of what the appropriate interest rate should be, given the prevailing economic conditions. It ensures the central bank minimizes its loss function, which is increasing in the deviation of both inflation from target and output from potential. According to the Taylor Rule, the target for the nominal interest rate is:

(3) $$i^* = 2.5 + \pi + .5(\pi - \pi^*) + .5(y - y^*)$$

For example, if inflation exceeds target the central bank will try to contract the economy and lower the real rate below the natural rate and induce a recession. Crucially, $\frac{\partial i^*}{\partial \pi} = 1.5$. So if inflation rises by 1 percent, the central bank will raise rates by 1.5. This way, it will raise real rates, $r^* = i - \pi$, by 0.5 in response to inflation. This idea of raising real rates when inflation rises is called the Taylor Principle: the increase in the nominal rate must be sufficiently high that it raises the real rate. In practice, most banks stress that inflation is their prime mandate and do not like to be perceived as targeting output, as this may may generate inflationary expectations on account of the dynamic inconsistency problem. Neither do they explicitly target asset prices. Finally, to ensure sta- bility in financial markets–and in particular bond prices–banks typically engage in interest rate smoothing. Of course, the central bank faces a constraint, $i \geq 0$, that is sometimes binding (i.e. a liquidity trap).

It has been argued that the fed's policy of low interest rates in the years leading up to the housing bubble actually caused it. With regard to the Taylor rule, it has been argued, by Taylor (2007) among others, that the interest rate was lower than that prescribed by his rule. If housing prices were included in the rule, it would have been higher, perhaps dampening the rise in said prices. This view has been countered by Bernanke (2010) however. He claims that, on account of the inherent lags in monetary policy, a better rule would employ lags in the variables. If one uses this measure instead, then interest rates were actually in line with that prescribed by the Taylor rule. Bernanke, quite rightly, also states that one cannot and should not base monetary policy solely on simple stylized rules. In reality, interactions in the financial system make it far more complex.

4.1.1. Should Asset Prices be Included in the Taylor Rule?

A key question is whether monetary policy makers should respond explicitly to deviations of asset prices from their steady-state or fundamental levels as part of their pursuit of inflation and output gap stability. There have been a number of empirical studies examining this question, with mixed results. Concretely, they examine whether asset prices have a statistically significant impact on inflation. From a theoretical point of view there seems to be a strong case also to consider property and share prices as determinants of aggregate demand, on account of the effect which asset prices have on the real economy. This would

imply a direct reaction of monetary policy to movements in these asset prices. As alluded to in the introduction, this issue has proven to be highly controversial however.

With regard to the type of models we have previously discussed, Goodhart et al. (2002), Cecchetti et al. (2000) and Batini et al. (2000) argue in favour of a direct response of monetary policy to asset price movements which are not in line with perceived fundamentals, on account of finding a significant effect on inflation, and find that using this to guide monetary policy decisions should lead to an improvement in macroeconomic performance and welfare. In contrast, others such as Filardo (2000) and Bernanke and Gertler (1999) posit that this will have undesirable effects on the economy. Namely, they posit that deliberate attempts to puncture asset prices will be destabilizing. However, the latter's models did not directly examine optimal monetary policy in the presence of asset price bubbles.

4.2. Pre vs. Post Crisis Stances

The successful performance of the US economy during the Great Moderation period of 1984 to 2006 and the financial stability this brought about (notwith- standing the two stock market crashes in 1987 and 2001), appeared to have offered both the economics profession and policymakers in particular the assur- ance that asset bubbles, once burst, could be effectively 'cleaned up' with little or no real adverse economic impact. But, this perception changed following the recent global financial crisis.

Prior to the global financial crisis, the Federal Reserve under both Chairman Alan Greenspan and Chairman Ben Bernanke followed an asymmetric policy ap- proach to asset price bubble management. This strategy was based on several factors: ex ante difficulties in identifying bubbles; concerns about the effec- tiveness of monetary policy to manage asset bubbles; and the expectation that losses to the macroeconomy from bursting bubbles could be limited with quick, aggressive responses. This is what is meant by the 'clean' side of the debate. However, even before the crisis, there was a cry for a different policy approach (see section 4.1.1).

Following the financial crisis, Fed officials and academic economists alike have encouraged a vigorous reconsideration of the role of public policy towards asset price bubbles. For example, since the financial crisis, Bernanke might have become slightly more sympathetic to using monetary policy to deal with asset bubbles, as in a 2011 speech he noted; "The possibility that monetary policy could be used directly to support financial stability goals, at least on the margin, should not be ruled out" (Bernanke, 2011).

While Bernanke's views against using monetary policy in this regard have softened, he still affirms that (macroprudential) regulation, supervision and monitoring would remain "the first line of defense" against the threat of financial instability (Bernanke, 2011). He also noted that; "The evolving consensus…is that monetary policy is too blunt a tool to be routinely used to address possible financial imbalances" (Bernanke, 2011).

The major paradigm shift since the financial crisis is the recognition that different types of bubbles can be harder to 'clean up' after, and can have differing effects on economic activity. For example, it was relatively straightforward for the Fed to minimise the effects of the 'dot-com' bubble bursting in the early 2000s, while the effect of the housing bubble bursting in 2007 has had far more perverse effects on economic activity. It is now accepted that "credit" bubbles, which form in the way Kindleberger describes above, are far more dangerous and are far more difficult to 'clean up'. This is the exact type of bubble that burst in 2007. Bank's lack of willingness to lend, as described above in section two, has dramatically reduced the effectiveness of monetary policy. For example, the money multiplier is now almost at zero, meaning that injecting reserves into the bank's balance sheets will not have any effect in creating credit in the real economy. Furthermore, the so-called zero lower bound, where the nominal interest rate is at or near zero, is far more problematical than initially believed. Not only are banks not willing to lend, but consumers are unwilling to spend. As shrewdly pointed out by Sir Dudley North in his well known 1691 work '*Discourses Upon Trade*', it is not the supply of money per se that governs the level of economic activity, but the disposition to spend of those who hold it (Vickers, 1968). Perhaps we should look back to history for lessons in this regard.

5. Concluding Remarks

Professor Woodford in his recent Jackson hole paper stressed the importance of the Fed's communication policy, arguing it was even more important than QE. Going forward, perhaps a viable step for the Fed to take would be to incorporate asset prices into their communication policy. The advantage of this is that it would not involve any explicit action to target asset prices. The expectations such a communications policy would create would be sufficient to generate expectations of future low asset prices, if people believed the Fed may target them.

What is crucial to recognise and what should be evident throughout the pa- per is the trade-off between different policy actions. On account of the inherent "bluntness" of monetary policy, bursting the bubble may lead to undesirable levels of inflation and unemployment. While the downside to not bursting the bubble before it gets out of control is a financial crisis. Whatever action is deemed most desirable depends on the value judgement made by the policy- maker and involves calculating the effects on welfare of both actions. Alas, this remains a highly subjective task and is notoriously difficult to quantify. Nev- ertheless, we would tentatively argue that the welfare effect of the fed "leaning against" or deflating the housing bubble would have been far more desirable than the manner in which they are now "cleaning up".

In summary, it is clear that the current inflation targeting framework is insufficient for both preventing asset price bubbles and in 'cleaning up' after they burst. Because of the devastating effects of a bubble bursting and recent academic and financial innovations

that have made it easier for us to identify asset price bubbles, we advocate that the central bank prevent such bubbles from occurring in the first instance, rather than directly bursting or 'cleaning up' after they burst. This can be achieved through incorporating asset prices within the inflation targeting framework, which, as previously alluded to, should result in an improvement in macroeconomic performance i.e. a reduction in output and inflation volatility.

What we find most worrying is policymakers' (i.e. the FED and particularly the ECB) refusal to deviate in any way from the clearly inadequate current inflation targeting framework. What is concerning is that the lax attitude to- wards asset price volatility, as evidenced by Beranke and Gertler's comment in a 2006 paper just before the financial crisis that "…as of this writing, whether the U.S. stock market boom will be sustained or will end in tears is anybody's guess", still remains. Had the FED been willing to incorporate asset prices, namely stock and house prices, into the inflation targeting framework by including them in the Taylor rule say, then this boom which did indeed 'end in tears' would not have been so pronounced in the first place. Furthermore, the apparent sweeping under the carpet of the asset price collapse by policymakers and the tendency to forget about such bubbles, along with the demonstrably fallacious belief which appears to be still held by some of those in power that such dramatic asset price collapses represent so-called 'black swan' events is extraordinarily dangerous, and unfortunately may well mean that we may find ourselves in a similar situation in the not too distant future.

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WHY CENTRAL BANKING?

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While there is continuous debate about the optimal policies of central banks, there is rarely a debate about the structure, and indeed the existence, of central banks. In this essay, David Lally boldly questions the necessity of central banks. He continues to ask: if we need them, do they need to be government controlled. His probing questions lead to an interesting rethinking of our monetary systems.

"The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else".

(John Maynard Keynes)

Introduction

What are central banks, why do they exist and how do they affect economic activity? In attempting to understand the quagmire of policy debate which currently exists as to what central banks should actually 'do', one must examine the origins of this institution and the motives behind its creation. The inherent assumption is that this powerful institution is a natural and necessary development in any economy. Where such an organization, capable of huge influence over the wellbeing of an economy is concerned, there should naturally be extensive debate. This debate must question not only on the current roles and functions, but also to the necessity of its existence. This essay will attempt to challenge this logical conclusion, highlighting the need to question central banking at a deeper level, examining whether this pillar of modern economics is plausibly a natural free market development. Political motivations for central banking will be examined, alongside a general introduction to the debate on institutional centralization to emphasize the need for re-examination of our current monetary framework. The objective of this essay is to catalyze the debate on central banking, allowing for a more critical analysis of this powerful institution and its place in a modern economy.

The Contemporary Debate on Central Banking

> "Over the past decade, central banks have emerged from relative obscurity to global recognition as one of the most powerful institutions in the world—powerful not only economically, but also politically, socially, and as forces for cultural and historical change".
>
> (Geoffrey P.Miller)

Coming out of 'the great recession' of recent years, central banking has not been left unscathed by the public and academic scrutiny of the economic institutional framework and its role in ensuring future stability. Three major questions remain as to the functions of central banking. Firstly, there is debate as to the policy objectives of central banking. Here, contention exists whether a central bank should seek to achieve both monetary and financial stability, and whether this is indeed even possible. Proponents of financial stability standards, seen to be supportive of a "leaning against the wind" strategy, advocate measures to introduce countercyclical interest rate policy and means to burst asset bubbles prematurely (Goodhart, 2000; Bordo and Jeanne, 2002; Borio and White, 2003) One major, and convincing argument against this ability of central banks to integrate such an orientation as a financial stabilizer is the Tinbergen rule. Jan Tinbergen highlighted the inability of a single monetary tool (control of interest rates) to simultaneously achieve different policy objectives (Stark, 2010; Miller, 1996).

Secondly, the question of central banking independence has come to the fore in recent years. Across the spectrum of economic commentary, there reverberates the viewpoint that central banks need to become more independent. One conclusion reached is that the logical next step in central banking is an expansion of powers to cover a three part mandate of price, output and financial stability. The influential report of the Committee on International Economic Policy and reform, has, in this context, proposed greater independence; "Central banks already require substantial operational independence… they will require even greater independence" (Eichengreen et al, 2011). Central Bankers reiterate the necessity of strong, independent central banks (Miller, 2002; Bernanke 2010), while political theorists are, of late, highlighting the inevitability of a central bank coming under political influence, or, if 'independent', becoming subject to regulatory capture by commercial banks (Boyer and Ponce, 2010) .

The role of central banks in crisis management can be deemed the third major question surrounding central banking in contemporary debate. Following from the perceived dichotomy existent between monetary and financial stability policy (Mishkin, 2011; Issing, 2003), the resulting framework which has been applied until recently has been that of the Greenspan Doctrine. Here, under the influence of Alan Greenspan, central banks were seen to avoid attempting to burst asset bubbles, but instead focus on damage limitation thereafter. Juxtaposed against those who argue in favor of a more comprehensive

stability initiative, this has been dubbed the "lean versus clean" debate (White, 2009). Conversely there is a push for central banks to act to reduce accommodative monetary policy in times of higher growth (Wagner, 2010), or more specifically to adopt a stricter alignment to the Taylor rule (Lee, 2011).

Free Market Development?

> "If you want to understand the nature of a modern central bank, you have to study its history and relationship to commerce and government".
>
> (Federal Reserve Bank of Minneapolis)

Central banking is by its nature, a government empowered institution. It is given powers beyond those achievable in the free market. According to Michael Rozeff, central banking can only exist once four conditions are satisfied (Rozeff, 2009). These four necessary pre-requisite steps are, he asserts, all unnatural designs imposed against a free market. Below I will explore these preconditions, using them as a framework by which to analyze central banking from a free market and political perspective. To assess the historical truth in the implementation of such steps, reference will be taken from some early developments in central banking, both in France and the United States. These are primarily drawn from the work of Vera Smith (1936):

- Government legislated fiat/forced money
  - In France, the infamous monetary expansion of John Law under his Banque Générale served as an example of a hyperinflated fiat currency.
  - The Caisse d'Escornpte in France 1776. This bank, having lent heavily to the (see Politics Perspective below) state had to use government powers to give forced currency to its notes.
  - Following the Caisse, the Assignat Regime of short dated interest bearing Government bonds were made legal tender, which resulted in the collapse of the state backed bank due to over issuance.
- Homogenous bank note
  - By 1865, the federal government in America had created banking laws to penalise banks not depositing centrally their reserves, and maintaining proportional holdings of greenback' federal notes. Here we see the beginning of a move towards a fully homogenous note issuance. This step would finally be taken with the creation of the Federal Reserve in 1913.
  - The so-called 'Free' banking period in 18371863 was characterized not by the competitive equilibrium of different currency issuance, but instead the misaligned competition of perfect substitutes (one type of currency), which thus fell subject to Gresham's law. The incentives to over expand, the subjectivity to

industry-wide bank runs and constrictive regulations on branch banking and free market developments led to recurring financial crashes and cash suspensions.

- Monopoly of issuance
  - The Banque Générale in France, 1716, which ended in failure after 5 years, had been granted a monetary monopoly by the state of France, with the intention to eliminate public debt.
  - After gaining control of issuance rights through the power to grant charter to banks, the Bank of France, in 1840 ceased granting new charter.
- Arbitrary control of money supply
  - The Bank of France in the mid 18th century imposed issuance limitations on all departmental banks, thus subjecting them to a centralized control over the money supply.
  - The origins of the Lender of Last Resort function to central banks, enabling mass credit expansion by commercial banks, dates back to the Second Bank of the United States. This concept shows the huge powers, especially in times of crisis for a central bank to expand arbitrarily the level of the money supply. This has been reflected in recent years with programs such as the Fed's Quantitative easing and the ECB's Long Term Refinancing Operations.

Politics Perspective

To understand the current form of central banking is to understand the accompanying history of how it came about. Unnatural and undesirable outcomes can development under the interaction of economics with politics. A key feature of this evolution is the link to state funding. The timing of the first developments are of importance, with the theories of sovereignty by Jean Bodin providing as a basis for the claim of a government money mandate (Hayek, 1977). Gerard P. O'Driscoll of the Cato institute furthers this viewpoint, highlighting the inseparable link to the spread of centralized government; "the rise of the central bank coincides with the rise of nation states, whose spending commitments exceed their capacity to finance those commitments" (O'Driscoll, 2012).

We see, looking to historical examples, that the need of these governments to cover expansive spending projects, notably war, was a primary justification for the creation of state currencies and central banks.

The history of how central banking came to be in the US is one of factitious debate and political rivalry. The first venture of the federal government towards creating the functions of central banking was under the Continental Congress. Motivated by the need to find funding sources for the war of independence, notes dubbed 'continentals' were printed and used to cover military expenditure. Operating as a fiat currency, the return on the notes was to be based on future taxation income. Demand on the currency saw it detied to specie, to be followed by its collapse after rapid inflation resulting from

over issuance. This voluntary means of exchange, based entirely upon trust in the issuing institution paved the way for more intrusive explorations of central banking in years to come.

Under Alexander Hamilton, the First Bank of the United States gained a charter from 17911811 to issue (under monopoly) a federal currency. Authoritative sources, including a history of central banking from the Federal Reserve Bank of Minneapolis, describe the motivations for such a bank as predominantly political rather than economic. Thomas Jefferson, writer of the declaration of independence and former president of the United States vehemently opposed the bank, citing it as a subversive tool for a return to mercantilist ideals and imperialism. Recognizing the manipulation of financial engineering to eliminate accumulated state war debt, and thereafter to allow profiteering through arbitrage arrangements, Jefferson wrote "Hamilton's financial system had two objects. 1st as a puzzle, to exclude popular understanding & inquiry. 2ndly, as a machine for the corruption of the legislature" (Jefferson, 1818).

Looking to the development in France coming into the 19th century, the push for centralization was far from a free market development. It was instead due to the desires of Napoleon to fund military expansion and concentrate monetary powers (Smith, 1936). Here, as elsewhere, the failing of a partially regulated monetary system gave weight to those who proposed further government control. Looking to France, under Napoleon the loi de 24 Germinal an XI had withdrawn issuance rights to private banks except under charter. As would later be seen in arguments for central banking in the USA, this push for government regulation was justified in response to an earlier financial crisis. Comparison can easily be drawn between these laws being initiated in response to the slight 1802 financial crisis, and recent developments seeing the ECB's bestowed broad new supervisory powers in response to the recent crisis. From historical extrapolation, we can thus conclude that a breakdown of the inherently unstable hybrid system of government regulation, has served as a basis for further centralization.

Limited Debate

One issue of significance undermining the historical precedent of central banking is the lack of balanced and informed debate that existed during the evolution of this institution. The limited and misaligned argumentation surrounding free banking in the U.S was framed only as a pluralism of homogenous currency issuance, and not one encompassing different types of currency. Much of the debate in America, as in France[1], is centered around the plausibility of free market money issuance and the need for government intervention. Simultaneous issuance of a homogenous currency, but differentiated into different bank

1 Questions of the legitimacy of the Bank of France, notably brought forward by the Pereire brothers, were to be dispelled by the results of a report by the Conseil Supérieur du commerce de l'Agriculture et de l'Industrie 3 Quote attributing to various authors. See (Lietaer et al, 2010)

notes was the system in the mid 19th century in the United States. In Denationalization of Money, Friedrich Hayek dispels the often cited application of Gresham's Law as argument against pluralistic currency issuance. Hayek highlights the misunderstanding evident in this line of debate, which fails to recognize that this law only stands under a fixed exchange rate, where two or more issuers are competing to produce perfect substitute monies (i.e. homogenous gold coins). What one seeks to conclude from this rationale is that while the maxim of 'good money pushes out bad' holds true where multiple issuers seek to compete to create the same money; a system of competing currencies of different denominations, under a floating exchange rate has yet to be truly attempted.

Centralization

> "The urgent message for economics from nature is that the monoculture of national currencies, justified on the basis of market efficiency, generates structural instability in our global financial system".
>
> (Bernard Lietaer)[2]

One important aspect of debate in the need for central banks must be the need for a centralized institution, as opposed to a decentralized system. Historically, central banking has been a transfer of powers from cities or states to national institutions. Current trends are toward an ever wider scope and scale of central banking responsibility. Ireland's economic sovereignty has been now been conceded to a central European central bank in the hope of closer economic integration at European level. The subsidiarity principle, championed by the European Union, and thus by the European Central Bank, states " that a central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at a more immediate or local level"[3]. By direct implication, this concept implies that functions ranging from currency generation, control of interest rates and inflation, to acting as lender of last resort, are not only necessary, but impossible at any level less centralized that a national or supranational central bank.

Great thinkers of recent history have based their political and economic theories on different interpretations of the idea of freedom, liberty and the nature of the state. On one end of the spectrum would be thinkers such as Hayek, who through his writings such as the Denationalization of Money fervently opposed the central banks, and more generally all monetary policy as unjust and unnecessary. While sharing many views on liberty with Hayek and the Austrian school, Friedman supported central banking in as much as he presupposed their necessity to achieve his suggested inflation targeting policies (Friedman, 1962).

John Maynard Keynes lies on the other end of the spectrum. Commonly under-

2 Quote attributing to various authors. See (Lietaer et al, 2010)

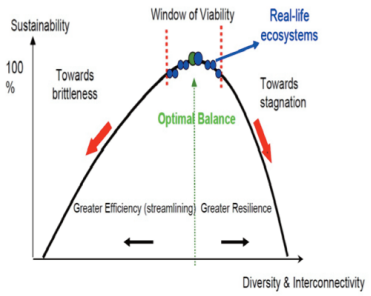
3 As Taken from the Oxford Dictionary, online resource. Available at http://oxforddictionaries.com/

stood to advocate economic management and centralized monetary policy, he too recognized the limitations of state action "But, above all, individualism, if it can be purged of its defects and abuses, is the best safeguard of personal liberty" (Keynes, 1936). What is clear is that, far from consensus, the conclusions of many great economic and political theorists have stumbled upon the question on central banking, not just from an efficiency perspective, but also from a moral one.

One perspective as to the creation of a central bank is the argument of liberty and the mandate for government intrusion into the economic circumstances of individuals. Over a century ago, George Earle made the case against a central bank, recognizing the absence of constitutional mandate allowing for it to be imposed on the American states. Recognizing the inevitable political nature of such a development, Earle condemned this initiative as a step away from freedom "which must inevitably destroy liberty by vesting all discretion in some form of central government".

Emergent economic theories are revolutionizing the centralization debate, drawing on scientific understanding of complex systems. In comparing economics, not to an absolute science, but indeed to a natural ecosystem, a very different perspective on the need for diversity becomes evident. Working on this approach, a direct trade off has been identified between diversity and efficiency, with optimal sustainability accordingly achieved through a balance of the two metrics. As seen in figure 1 below, a window of viability is achieved, not through perfect efficiency (monopoly currency issue), but through significant decentralization of monetary developments (competing currencies). In moving towards an understanding of economic interactions in a given geography as a complex flow system, economics can bring a fresh perspective to the business cycle debate, placing emphasis on the need for decentralized and dynamic economic systems.

Figure. 1. The Sustainability Curve[4]



Conclusion

This essay has covered the major debate points surrounding central banking. Moving from

4 In Is Our Monetary Structure a Systemic Cause for Financial Instability?. (see Lietaer et al, 2010)

the current roadblocks facing policy decision makers, context has been given to the underlying principles of central banking, whilst drawing on historical examples. The major themes of this examination have been those of the free market nature of central banking, the political perspective and the centralization debate. Throughout, the lack of debate on these fundamental tenets of central banking has been highlighted, with a view to encouraging further, more in depth discussion. In concluding, this work seeks to draw attention to the need for a reexamination of the institutional makeup of current monetary policy, with a focus on the role of the central bank, and the potential for a decentralized alternative.

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THE END OF INFLATION TARGETING: LESSONS FROM THE LIQUIDITY TRAP

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Senior Sophister

The international financial crisis has led to much criticism of the Central Bank's, including the ECB's, overwhelming focus on inflation targeting. In this exceptionally relevant paper, Andrew Salter provides a thorough review of inflation targeting while presenting the alternatives: price level targeting and nominal-GDP targeting. The paper makes a strong case for a reevaluation of Central Banks policies.

Introduction

In a now notorious paper, IMF chief economist Olivier Blanchard observed that "the state of macro is good" mere weeks before the greatest contraction in global economic activity since the Great Depression. Blanchard's assertion rested on the convergence he detected in macroeconomics towards a New Keynesian perspective; a world-view in which inflation targeting constituted optimal stabilisation policy (Blanchard, 2008: 10). From the end of the Great Inflation in the early 1980s to the onset of the Great Recession in 2008, this view appeared to correspond with the developed world reality: inflation targeting had presided over the 'Great Moderation'. But warning signs were increasingly evident. Real interest rates had declined steadily (Williams, 2009: 16). Increasing disinflationary pressure from emerging market imports was profound (Bernanke, 2010). Meanwhile Japan, poster-child for economic success during the post-war period, was laid low for over a decade by an academically unfashionable phenomenon: the liquidity trap. The vast majority of developed countries have since joined Japan in its malaise. This paper will explore the implications of these developments for monetary policy. To do so, this paper will elaborate a liquidity trap model within Loanable Funds and New Keynesian frameworks. Armed with the implications from both models, three approaches, representing increasingly broad explicit mandates for monetary policy, will be evaluated: Inflation Targeting, Price-level Targeting and Market Monetarism. The author will conclude with policy recommendations.

Some might argue that the liquidity trap is a '100-year flood'. Surely then, it should not form the basis for stabilisation policy: hard cases make bad law. It can however be viewed as an acid test. The effect of all of the above policies ought to be the same in 'normal' times: nominal growth equal to trend real growth plus target inflation. Any increased efficacy in dealing with '100-year floods' is thus a pure welfare gain. Given the

human cost of the 2008 Great Recession, this welfare gain is potentially enormous. Further, this paper is about policy goals, not the transmission mechanism. We are interested in asking which objective(s) best induce(s) stability in all environments.

On liquidity traps

A liquidity trap occurs when people are indifferent between holding money and bonds because they offer the same rate of return (Krugman, 1998: 141). The goods market can then become stuck in disequilibrium for an extended period due to money market

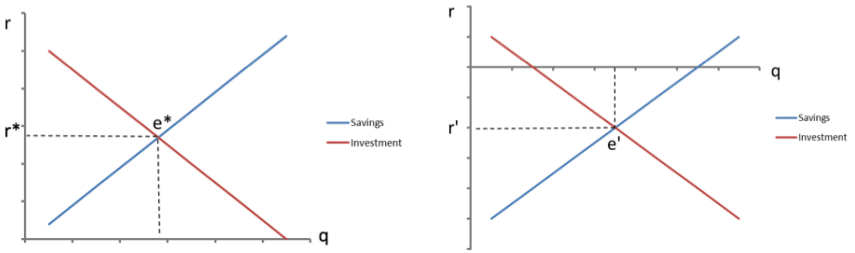

Figure A: Real Interest Rates in the Loanable Funds Model

failure. This is largely due to the zero-lower bound (ZLB). Consider a loanable funds model. Suppose we start at e^* in Figure A. Here, the market is in equilibrium. The preferences of savers and investors select a real interest rate r^*. What if there is a large 'deleveraging' shock, wherein savings increase while investment falls for all r? One possibility is that we end up at e', with a negative natural interest rate given by r'. This implies, due to the paradox of thrift, a negative output gap for any interest rate higher than r'[1].

In reality, the nominal rate, i_t, is the rate people are familiar with, and it is in practice bound at zero[2]. The real interest rate, r_t, is:

$$r_t = i_t - \pi_{t+1}$$

A negative real interest rate can therefore only be achieved through inflation. We turn now to the New Keynesian approach to clarify the policy implications.

The basic New Keynesian model is described by three key relations:

1 Liquidity preference binds rates at zero: otherwise people would simply hold only money (with $i_t = 0$) and no bonds (with $i_t \leq 0$) (Krugman, 1998). Investment doesn't therefore absorb all of the increase in savings, and so output adjusts.

2 For discussion on the feasibility of negative nominal rates see Svensson 2010. A Gesselian negative rate on money has also been proposed (Buiter, Panigirtzoglou, 2003). In this paper I assume a zero bound.

An IS curve:

$$D_t = Y_t = \frac{\rho}{\theta} - \frac{r_t}{\theta} + E_t(C_{t+1}) + g_t + u_t$$

A Taylor Rule:

$$r_t = r_n + \gamma(y_t - y_n) + \beta(\pi_t - \bar{\pi}) + \epsilon_t$$

A Phillips Curve:

$$\pi_t = \varphi E_t(\pi_{t+1}) + \psi(y_t - y_n) + v_t$$

Consider the IS curve. There is a large negative shock u_t, reducing output below potential. From the Phillips Curve, this causes disinflation. The central bank lowers i_t, in an effort to offset the shock, but hits the ZLB. Krugman's (1998) path-breaking research showed that the central bank now faces a credibility problem. Further stimulus can only be affected through π_{t+1}: the central bank must promise higher future inflation. Increases to base money after the ZLB is reached must be permanent to have any effect; if people believe money growth today is simply money growth we won't have tomorrow, it becomes an intertemporal wash. But this policy is dynamically inconsistent; everybody believes the Central Bank will withdraw the money at the first sign of recovery[3].

This analysis typically provokes two objections:

1. *Damaged financial systems curtail monetary policy transmission*: Koo's analysis of Japan rules out a supply-side explanation, citing the failure of unencumbered foreign banks to expand credit as evidence: it is therefore a demand problem (Koo, 2010: 8).
2. *High debt levels preclude borrowing*: Firstly, there are always those unencumbered by debt who can be induced to borrow. Secondly, increasing inflation expectations induces spending generally, not just borrowing, and companies are sitting on record cash-piles[4]. Thirdly, it reduces real debt burdens today through the promise of future debt erosion.

Recent empirical findings show that countries with higher inflation recover much more strongly after financial crises, exhibiting little apparent evidence of intractable structural problems (Calvo, Coricelli, and Ottonello, 2012). Armed with these insights, the next section will evaluate the implications for three disparate policy mandates.

Inflation Targeting

The rationale for inflation targeting stems largely from two observations found in most

3 Much as happened when the Bank of Japan ended the Zero Interest Rate Program in 2000 (Ueda, 2005). The economy stalled again, and subsequent measures have had little effect.

4 Apple, for example, has cash reserves of $137 billion.

macroeconomics textbooks:

1. Excessive inflation imposes 'shoe leather' and 'menu' costs on consumers and producers respectively.
2. The 'divine coincidence': It follows from the New Keynesian Phillips Curve (NKPC) that meeting a well-anchored[5] inflation target will stabilise output at potential.

Point one is inarguable, but currently of minimal concern. Point two is crucial: it suggests that meeting an inflation target is a win-win situation; there is no trade-off between inflation and output[6].

What if the NKPC is wrong? Its form arises due to 'Calvo Pricing': firms can change prices only with a certain probability each period, leading to sticky aggregate prices. This is clearly nonsense; there is no 'Calvo Fairy'. But what if it isn't even a good metaphor? Consider the deviation from Calvo proposed by Mankiw and Reis (2001), where information rather than prices is sticky. This destroys the 'divine coincidence'. Prices will be set based on old price-level expectations. Stabilising the rate-of-change will not be enough to maintain output at potential if the path of prices has changed; a history-dependent rule is required.

What about the acid test of the liquidity trap? The 'divine coincidence' rests on stable expectations. Central bankers have therefore become obsessed with credibility. A mandate, it is thought, must be pursued consistently to be credible[7]. But this is inconsistent with what we know about liquidity traps. Here, heresy is required: the explicit unseating of expectations. There are also deeper issues. Inflation has remained remarkably stable and expectations well anchored since 2008 (Koenig, 2012: 5). This explains why Fisherian 'Debt-Deflation' failed to emerge (Williams, 2009: 16). Yet output gap estimates are large. This suggests that downward nominal rigidity is of greater magnitude than upward rigidity. A classic study of the Canadian labour market in the early 1990s suggested the same conclusion for a low-inflation environment, as do recent U.S. wage data (Fortin, 1996; Figure B). This would mean that the disinflationary pressure from a negative output gap is weaker than its counterpart with low target inflation. Inflation in times of extremely low activity, as tend to characterise liquidity traps, could look similar to inflation at times of full employment: the NKPC breaks down. This would make it difficult to justify accommodative action. The 'divine coincidence' therefore rests on shaky foundations.

5 $\phi=1$.

6 Strictly speaking, this only holds for demand shocks.

7 Prima facie, it shouldn't matter if the commitments change or what they are, once they are feasible and credibly pursued. The Swiss Central Bank's commitment to a price ceiling on the Franc was a radical change which seems to have had no impact on its credibility.

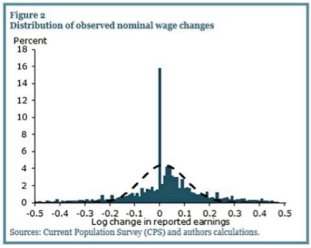

Figure B: U.S. Nominal Wage Changes (Daly, Hobin and Lucking, 2012).

Central bankers are not entirely blind to the exigencies of the current situation. Many subscribe to a "flexible" approach; Bernanke (2011) suggests that inflation-targeting credibility means that easing can be pursued now which won't unseat expectations. The approach de rigeur is Quantitative Easing (QE), the basis for which is Preferred Habitat Theory (Doh, 2009):

$$i_{nt} = \sum_{i=0}^{n} E_t\left(\frac{r_{1i} + \pi_{1i}}{n}\right) + \rho$$

The rationale here is that investors have preferences beyond those captured by expected future rates. The Federal Reserve's stated goal with QE is to lower ρ, which is determined by individual market characteristics, by influencing demand and supply (Bernanke, Reinhart and Sach, 2004). The evidence is broadly supportive: Japanese purchases of U.S. government bonds in 2004 appeared to lower 10-year rates (Bernanke, Reinhart and Sach, 2004: 57). Such effects ought to be larger in times of economic unrest when fear heightens liquidity premia, and QE appeared to lower rates in 2009 (Doh, 2009).

However, QE doesn't address the fundamental liquidity trap problem. We need strongly negative real rates through expectations that loose future policy will generate above-target inflation. Lowering ρ eases long-run rates, but the magnitude of the effect can't possibly be sufficient when short-run riskless rates aren't low enough to start with. To take an extreme example: in November 2008, U.S. real rates were approximately 7%; the Taylor Rule suggests the required rate was approximately minus 5%! (Haubrich, Pennacchi and Ritchken, 2008). It also causes potential market distortions; while raising inflation expectations lowers all real rates, preserving premiums and thus the market's capacity to price risk, QE actively seeks to erode these premiums. The effects of this tampering are uncertain and potentially store up future problems. It should be noted that if the effect of QE is really, as Woodford (2012) suggests, through the implicit promise of inflation, then we are no longer discussing inflation targeting in any meaningful sense.

Price-Level Targeting

A price-level target would address many of the criticisms of inflation targeting. The history-dependency of the rule makes it a stabilisation policy candidate in a Mankiw-Reis world. It would also mean that in response to a period of below-trend inflation due to a negative demand shock that the central bank would be obliged to pursue above-trend inflation later: exactly as required to generate negative real rates in a liquidity trap (Blinder, 2000: 1095). It does not indulge a 'let bygones be bygones' philosophy. But does it go far enough?

Consider the U.S. case since 2008. If we take the beginning of 2007 as a time when prices were 'on trend' they are still 'on trend' now (Figure C). Why? Two countervailing forces: above target inflation in 2008 due to commodity prices, and at or below target inflation since. The period of supply-shock driven high inflation pre-crisis meant that a price-level target would not actually have engendered expectations of above-target inflation when the liquidity trap took hold (Davis et al, 2012: 17). As Williams (2009: 28) points out, this unfortunate coincidence is a common characteristic of business cycles; adding history dependence to a price-based rule does not, therefore, guarantee an optimal response.

Market Monetarism

Consider the Quantity Theory of Money identity:

$$M.V = P.Y$$

The circulation of money must equal nominal ouput. Market monetarism proposes that the central bank commit to a nominal output growth path. This is a history dependent rule, engendering the same positive attributes in that regard as price-level targeting. But it goes further than that, combining the dual mandate of a central bank like the Federal Reserve into one consistent objective (Clark, 1994). What are the benefits of a nominal GDP target?

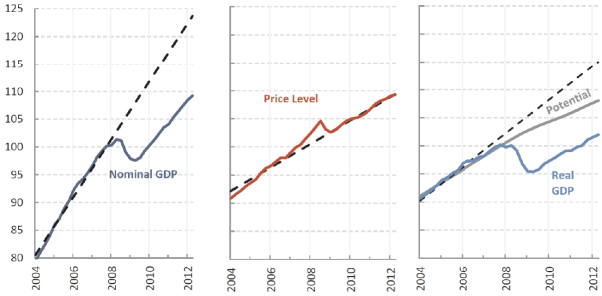

Figure C: U.S. Economic Variables (Davies et al., 2012)

The first stems from a point which is often the elephant in the room in such discussions: defining inflation is difficult (Sumner, 2012). It is unclear which measure is optimal, and they can diverge wildly due to everything from tax-code changes to oil prices. Nominal GDP is simply nominal income. Secondly, it deals with supply shocks more evenhandedly, the composite target dividing the weight of adjustment evenly between real GDP and prices (Frankel, 2012). Finally, and most importantly, it targets stabilisation explicitly: it is a commitment by the central bank to demand management (Clark, 1994: 12). As Keynesians have long argued, the Great Depression was not caused by financial crisis, but by a collapse in spending (Sumner, 2012: 14). What matters for demand is the level of nominal spending: contracts are made and settled in nominal terms. Allowing the level of nominal spending to collapse invites disaster. U.S. nominal GDP collapsed in late 2008 and has not returned to its original path (Figure C). Unless one accepts the dubious assertion that U.S. productivity fell off a cliff in 2008, the initial response to increasing demand would be real output growth.

What about the liquidity trap? A central bank targeting nominal GDP would pursue vigorous expansion until nominal GDP returned to trend. Because policy is 'too tight' now, it would be obligated to keep it 'too loose' later in order to make this happen (Koenig, 2012: 8). This explicit, mandated commitment to 'policy smoothing' would overcome dynamic inconsistency, raising inflation expectations in a liquidity trap as required. Inflation expectations would become countercyclical under a nominal GDP targeting regime: in a boom inflation expectations would fall, just as they rise in a liquidity trap. This would enhance the power of stabilisation policy in general.

Conclusion

Why has monetary policy failed since 2008? The answer is surely timidity. In the case of the Federal Reserve, policy has gradually drifted towards what is required. Quantitative Easing was followed by unprecedented forward guidance; vague promises became an explicit unemployment target. This is a positive trend. But it has taken four years! And it is still not enough: the latest Fed projections still forecast inflation at target well into the future, allowing dynamic inconsistency to hamstring policy (Avent, 2012). Bold action is required. Inflation targeting was fine when it coincided with broader goals; its obsession with anchored expectations is now counterproductive and increasingly myopic. It is also baffling; if there is one thing monetary policy has successfully done, it is quell inflation[8]. That fear of it should cause us to suffer high unemployment without attempting to intervene is ludicrous. Economists have generally accepted the power of monetary policy, so much so that activist fiscal policy has become anathema to many. Monetary policy must fully accept the responsibility such primacy and faith entails. Central bankers have until now been like divers poised at the brim of an unfamiliar pool; dipping in a toe, a foot,

8 For evidence of this see the Volcker disinflation of the early 1980s..

and now a leg. It is high time they took the plunge. Inflation targeting has failed; its credibility obsession precludes an adequate policy response. Price-level targeting is inadequate, vulnerable as it is to supply-shock pressures. Barring dubious coincidences, why should a stabilisation rule focus only on prices? A nomianl GDP target marries both inflation and employment concerns into one target, making it simple and comprehensive. In a liquidity trap it is the only mandate which is both necessary and sufficient.

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DEBT-FREE MONEY: REVISITING MAJOR DOUGLAS' SOCIAL CREDIT THEORY AND ASSESSING ITS RELEVANCE FOR THE RECENT FINANCIAL AND ECONOMIC CRISES

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With the unprecedented increases in central banks' balance sheets over the past years, attention has been drawn to the nature of money. In this topical essay, Marc Morgan revisits the financial theory laid out by Major Douglas: for the theorist, the system is built on society-wide fraud and deception. The paper then transposes the theory to our contemporary problems.

Introduction

> I am certainly not here as a moralist; but as an engineer. I have an appreciation of the importance of foundations. I find it incredible that a stable society can persist founded on the most colossal lucrative fraud that has ever been perpetrated on society.
>
> (Douglas, 1936)

The name of Clifford Hugh Douglas (or Major Douglas, as he was more commonly known) will not be familiar to many students of economics. But the economic writings of this engineer are of great relevance in coming to terms with what Keynes (1936: 371) labelled 'the outstanding problem of our economic system': the problem of deficient demand. This paper revisits Major Douglas' Social Credit theory and describes how it seeks to solve the problem of insufficient demand, which is a general precursor to economic decline and unemployment. This analysis will have important implications for our current economic predicament, given the nature of the recent financial and economic crises and the proposed remedies to their effects by policymakers around the world. Indeed, it was with the issue of finance that Major Douglas was primarily concerned. Douglas' criticism of the economic system focuses on the financial structure present at the foundations of

the economy. He strongly thought that the structure was ultimately built on false foundations, hence the 'colossal lucrative fraud' imposed on society.

Social Credit, in its entirety, is an expansive theory, covering areas of economic theory, financial economics, political economy, and democratic development. It can be narrowly grasped in its aim to offer proposals for a decentralised and democratically controlled economy through democratising credit and thus policy. Unfortunately, a fair analysis of each of these themes covered by Douglas is beyond the scope of this paper. I will instead focus primarily on Douglas' theory of finance since it provides the foundation for his whole system. One of the theory's most notable conclusions is that of debt-free money, available to finance and ultimately consume the entire production of an economy.

The paper begins by conveying Douglas' underlying motivations for his theory of Social Credit, before going on to expose the different components of the theory itself, including the A+B Theorem, the nature and role of credit, and the justification for a national dividend. The paper will then consider the relevance of Douglas' theory for present economic policy, before drawing conclusions.

The enlightened engineer: motivations for Social Credit

Major Clifford Hugh Douglas (1879 – 1952) was born in Stockport, in England and was by formal training a mechanical engineer. It was while working at the Royal Air Force factory in Farnborough during the First War where Douglas made his original insights that would provide the backbone for his theory of Social Credit. Douglas was tasked to devise a new costing system for keeping accounts at the factory (Mairet, 1934: Back flap). Employing a dynamic new accounting method Douglas discovered that the total costs incurred by the factory each week were greater than money paid out in wages, salaries and dividends in the same week. This curious finding motivated Douglas to study the accounts of more than a hundred large businesses operating in Britain (ibid). The result was the same in every single case. This led Douglas to debunk the mainstream theory which governed company finance, namely that all the costs of a firm are distributed as purchasing power (ibid). As economic undergraduate students may observe, this implies that output does not strictly equal income at any fixed moment in time, thus invalidating the national income identity of neoclassical macroeconomic theory.[1] From this discrepancy arises the chronic problem of insufficient demand, which, as Douglas observed, could only be remedied by constantly injecting new money (credit) into the system.

The way money is created to fulfil its role as credit, and thus debt, was of par-

1 'That the national income equals the sum of the price values of the national production…would be true if all wages, salaries and dividends charged to production were used, at the instant they were earned, to buy the production in respect of which they are earned. But they are not so used; and on this gap between production and delivery, which the complexity of modern co-operative production is widening, a mass of credit-purchasing power is erected which never appears as income at all' (Douglas quoted in Mairet, 1934: 65).

ticular interest to Douglas throughout his intellectual life. From his early experiences dealing with company finance, he came to label the standard credit operation a 'fraud'. In an article on the history of money (1936), Douglas highlights how the relation between money creation and wealth creation has become divorced over time. In its very early stages money was originally created by the producers of wealth, i.e. the owners of livestock. The creation of money then passed on to the custodians of wealth, the goldsmiths, who initiated the fraudulent activity of issuing more paper than the wealth (gold) they guarded, and finally the role was taken up by 'a set of people who neither produce, nor own, nor guard the wealth, but are merely book-keepers' (Douglas, 1936). The banknotes issued by banks essentially represented false documents and information since they amounted to deposited money which did not exist. This, Douglas believed, was plainly factual. The same holds for more modern systems of banking in which banknotes have been replaced by computerised book-keeping entries.

But the important fact resulting from the historical development of money is that the creation of wealth - the production of goods and services necessary to maintain a decent standard of living and essential for the progress of a civilisation – has come to be carried out by entirely separate entities to those involved in the creation of money – necessary to consume the wealth produced. Modern makers of money have 'no real connection with the production of wealth at all, not even as its custodian' (ibid). Douglas compares this unnatural division between finance and production to the equally unnatural situation in a railway industry, if the ticket office were managed by an entirely different organisation to the one providing the trains, the stations, etc (ibid). Therefore, a bank, resembling a ticket office, should not be responsible for determining productive capacity. This implies that the bank has no right to decide the qualifications of producers or the conditions under which they produce, as the ticket office 'has no valid right to any voice in deciding either the qualifications of travellers, or the conditions under which they travel' (Douglas, 1933: 62). The fact that banks do not operate like ticket offices is sufficient proof for Douglas of the systemic fraud involved in modern banking.

The monetary philosopher: the theory behind Social Credit

For Major Douglas, 'the first essential of a stable, peaceful and successful society is to get at the truth and to present – not misrepresent – the truth to everyone concerned' (1936). Therefore, Douglas' theory begins with the true financial dynamics at play at micro-level, informed by his initial observations at the R.A.F factory and formalised in his famous A+B Theorem. It then steadily builds towards the macro sphere, giving credit its true identity, function and form.

A+B Theorem

The first axiom of Douglas' A+B Theorem is that all productive entities (factories or firms)

in an economy have two roles: an economic role as producers of goods and services, and a financial role as distributors of purchasing power through wages, salaries and dividends on the one hand, and as generators of prices, on the other. It is the financial role that is at the heart of the Theorem. It states that a producer's financial payments may be divided into two groups (Douglas, 1920: 21-23):

> Group A – All payments made to individuals (wages, salaries, and dividends).
> Group B – All payments made to other organizations (raw materials, bank charges, and other external costs).

It can be thus deduced that 'the rate of flow of purchasing power to individuals is represented by A, but since all payments go into prices, the rate of flow of prices cannot be less than A+B.' As Douglas' earlier empirical observations informed him, 'A will not purchase A+B' and therefore, 'a proportion of the product at least equivalent to B must be distributed by a form of purchasing power which is not comprised in the descriptions grouped under A'. This additional purchasing power necessary to remedy the problem of insufficient demand can only be obtained from either loan credit or export credit (ibid).

It is the issue of credit in its conventional form that Douglas finds harmful for the economy. This is because 'A' payments are fundamentally dependent on credit, 'as current incomes are dependent upon present production' (Hutchinson and Burkitt, 1999) and present production is induced from past investment which involves credit. Therefore, the goods consumers buy as well as the money used to buy them are ultimately sourced from borrowed money. The value of this credit must 'reappear in selling prices somewhere, and be recovered again from the consumer if banks are to be repaid their advances' (Douglas, 1920: 25). Thus, in this vicious cycle debts are only ever repaid on the back of further credit. 'In other words, the existing financial system increasingly mortgages the future in order to sell the goods existing at present, the most recent and most obvious form of this practice being the installment system of purchase' (Douglas quoted in Mairet 1934: 64). Douglas thought that in order to overcome the problem of insufficient demand and escalating debt a novel source of purchasing power not included in the price of output was essential. This novel source turned out to be a re-interpretation of credit towards its true meaning.

The true meaning and function of credit

Douglas defines credit as 'the substance of things hoped for, the evidence of things not seen' (Douglas, 1936). This evidence must be backed by truthful means, which for Douglas can only be society's present capacity for future wealth creation, and not money which does not exist in bank vaults, which only amounts to 'false evidence' (ibid).

The first premise in Douglas' credit theory is that credit is 'communal property' and therefore should not be managed as if it were the private property of financial institutions. The reasoning for this is deduced from credit being 'the estimated value of the only real capital – it is the estimate of the potential capacity under a given set of conditions including plant, etc., of a society to do work' (Douglas, quoted in Mairet, 1934: 20). Hence, credit originates from the productive needs of society and not from the productive needs of financial institutions since they do not physically produce wealth.

From this premise, Douglas' theory establishes an important distinction between 'financial credit' and 'real credit', a distinction that resembles the difference between what we may today call the 'financial (or fictitious) economy' and the 'real economy'. Real credit, according to Douglas, is a correct credit-estimate of a society's capacity, accounting for all its resources, to deliver goods and services as demanded, at a certain rate. Financial credit is the means by which this capacity can be fully realised (ibid: 19). Therefore, it follows that financial credit should be under the demands of real credit. Neither in Douglas' time nor in our own does this appear to be the case, however. Yet in Douglas' view it lays the foundation for an effective economy[2] (Douglas, 1920: 106-7):

> 'Now, one of the components of the capacity of a society to deliver goods and services is the existence of an effective demand[3] for those goods and services. It is not the very slightest use, under existing conditions, that there are thousands of most excellent houses vacant in this country, when the cost of living in them totally exceeds the effective financial demand of the individuals who would like to live in them. The houses are there, and the people are there, but the delivery does not take place. The business of a modern and effective financial system is to issue credit to the consumer, up to the limit of the productive capacity of the producer, so that either the consumer's real demand is satiated, or the producer's capacity is exhausted, whichever happens first.'

Given these foundations for the workings of a productive economy the next appropriate piece of the theory to be laid out is the notion of interest, which appears under the 'B' payments in the Theorem. As Douglas understood it, credit can either take the form of an interest-bearing loan or an interest-free grant. The difference between a loan and a grant is that with the former an individual or entity is under a 'moral obligation' to return it, of which the rate of interest is just a contractual agreement to pay. In the case of a grant the recipient has a moral right not to pay (Hutchison, 2010: 68-9). Crucially the ownership

2 'Effective', usefully understood in the engineering sense of the word, whereby a structure is effective if it is built on solid foundations and therefore unlikely to collapse.

3 'Effective demand' simply refers to a demand backed by the financial means, i.e. money, to realise it.

right of credit is what determines whether it takes the form of a loan or a grant. Since new credit, according to Douglas, arises from the productive capacity of society, i.e. real credit, then society should be under no moral obligation to pay interest on it. Therefore credit, as Douglas advanced, should be given by the state in the same way as the banking system creates new money. This credit would take the form of a national dividend, paid to all citizens independently of income from employment in order to boost purchasing power or as a subsidy for businesses to expand production as determined by society's effective demand. In such a scheme private banks would be agents of the state in the distribution of credit, 'paid for their services as trustees' by the state (ibid: 69). As such, new money is created debt-free by the rightful owners of credit – productive society, i.e. 'the true state' (Douglas quoted in Mairet, 1934: 105).

The National Dividend

Douglas lays out two further arguments, one economic and the other philosophical, for the issuing of a national dividend to all members of society. I have logically formalised them for clarity. The economic argument runs as follows (Hutchinson and Burkitt, 1997: 55-57):

> 1. Technological progress is the result of machines replacing the work of human labour.
> 2. This facilitates a greater supply of products onto the market, but not enough purchasing power embodied in consumer incomes to purchase all the goods supplied, as human labour is being displaced.
> 3. Therefore a 'national dividend' is justified arithmetically – labour ought to be given a share in compensation for the production done by capital machinery.

The philosophical argument, based on cultural heritage, submerges into the finer detail of the economic argument (Douglas, 1933: 48-50):

> 1. Wealth ought to be distributed to the owners of the factors contributing to its production.
> 2. Technological development is a process mediated by advances made by a long history of human labour [machines are a product of labour power].
> 3. 'No one person can be said to have a monopoly share in technological progress; it is a legacy of countless numbers of men and women, many of whose names are forgotten and the majority of whom are dead.'
> 4. Therefore, 'the rightful beneficiaries of the modern productive system can be shown to be individuals composing the community', who are the

> rightful heirs of past invention.

These two sound arguments taken together imply a different relationship between the individual and the state, to the one we have become used to. According to Douglas, rather than simply being a taxpayer, the individual becomes a direct shareholder in the productive system of the national economy (Douglas quoted in Mairet, 1934: 103):

> Instead of paying for the doubtful privilege of being entitled to a particular brand of passport, its possession entitles him to draw a dividend, certain, and probably increasing, from the past and present efforts of the community of which he is a member.

Contemporary scholars have expanded on this argument, and some have applied it to current political structures. For example in their book Unjust Deserts (2008), the American political economists Gar Alperovitz and Lew Daly also use the cultural heritage argument to claim that society has the inherited right to a larger part of the wealth created from technological progress. Subsequently, they argue that the national tax structure should be altered to more effectively reflect this fact.

The forgotten monetary theorist: the relevance of Social Credit today

Since their conception, Major Douglas' ideas have scarcely been considered, let alone studied, in university economic faculties anywhere in the western hemisphere. Yet his Social Credit theory, while technical and at times grounded in deep philosophy, makes a quite accurate analysis of the workings of the financial system.

Today, our economic system can be said to suffer from the problem of insufficient demand which has its origin in the financial crisis of 2008, and which has kept most western economies in recession since. In this respect the widely adopted policy of austerity is futile, if seen through the prism of Douglas' A+B Theorem. The reduction of costs, especially labour costs, reduces the purchasing power of society. So any resulting reduction in retail prices will be nullified by a reduction in the capacity to consume, 'and we are as badly off as before, with the added complication of the discontent evoked by the reduction of wages' (Douglas quoted in Mairet 1934: 77). If we add to this the mounting problem of debt the situation is starker.

The swift accumulation of high debt levels by sovereigns was partly due to states guaranteeing the substantial losses of the financial system since the crisis. These losses could be said to be sourced from the increased divorce between finance and industry that has occurred over time, with the former creating highly volatile markets of its own to trade in. Douglas' vision of money creators being under the demands of the real economy, and not the reverse (as conveyed above), is of great relevance to the role of finance in

light of recent events. This can be more easily appreciated by the fact that under the present system states can only avail of new money to fund their economies from privately owned financial institutions, which only adds to the sovereign debt problem.[4] With respect to private debt, it is worth noting that in Douglas' time, credit could only be given to entrepreneurs to purchase factors of production (Hutchinson and Burkitt, 1997: 50). The extension of credit to individuals to buy consumer goods was thus a later development. But this development has only worsened problems of private debt, as all money created in the form of loans is debt, which must somehow be repaid. Therefore, Douglas' proposal for a national divided in this case is worth studying more, as it would prevent banks and other money lenders from increasingly mortgaging the future.

It is tempting to argue that Douglas' free-for-all system of credit would be inflationary. However, as Douglas himself emphasises, credit for use as purchasing power in his system has a rational limit: 'the limit imposed by the ability to deliver the goods for which it forms an effective demand, providing that the community agrees to their manufacture' (Douglas, 1920: 102). What is irrational, if we extrapolate from Douglas' theory, is to pursue a policy of inflation in a non-social credit world. This is particularly relevant to the present, as inflationary policy has been voiced by many to be the best remedy for the on-going economic crisis. But, again, if analysed through the prism of Douglas' theory, this policy will not resolve the problem of deficient demand. This is because inflation means the creation and circulation of new money, and this can only be initiated under prevailing structures by private banks in the form of loan credit. Given the origin of this new money 'it can only reach the general public through the medium of costs', in other words as interest on loans, '…and must therefore be reflected in prices' (Douglas, 1933: 102-103). In Douglas' terminology this means an increase in 'B' payments, as these include bank charges. As 'B' payments increase, 'A' payments (purchasing power) will be less able to buy the goods presently available. The reasoning behind this is that the loan is an investment by the bank in future production and so part of that future production is returned in principle and interest to the bank and part is paid out as 'A' payments; the distribution determined by the size of future production and on the present rate of interest. Crucially, the cost of the loan is reflected in current prices while a potential increase in 'A' depends on future production. Therefore, what is certain is that purchasing power (A) will always lag behind prices (A+B). As a result, an inflationary policy will mainly increase A+B through B and this will 'reduce any financial and economy system to ruins…since it taxes the purchasing power of those who obtained it by work, for the benefit of those who

[4] To finance their needs, national governments issue bonds on the bond market, which are turned into currency by private banks and then lent back to the government in the form of a standard loan, earning compound interest. With this process the financial institutions determine how much new money is to enter into the real economy, a development which radically distinguishes them from the ticket offices they should resemble, as alluded to by Douglas.

obtain it by financial manipulation' (ibid).

Conclusion

This paper sought to shed light upon Major Douglas' radical theory of Social Credit by relaying its motivations, theoretical underpinnings, and potential relevance to the present. An engineer by profession, Douglas could only aspire to be an amateur economist among his peers. Yet his engineering mind, attracted to the finer details of systems of structure, was probably his greatest economic asset. This is clearly portrayed in how he came to construct his Social Credit theory, from analysing how a business' cost system is structured and how it subsequently results in distributing insufficient purchasing power to individuals, which forms one of the greatest problems in economic science – the problem of deficient demand. In explaining the most notable theoretical aspects of Social Credit, this paper finds them appropriate to the story of deficient demand. It must be acknowledged, however, that the paper could not cover the complete extensiveness of the theory. What the paper did focus on was on the financial implications of the theory. This culminated in the idea of debt-free money issued by banks as agents of the state, and solely representing the demands of the productive economy. The justification for a national dividend necessary to boost demand is logically well founded. The systemic structure presented by Social Credit thus allows the community to be in control of production, and not the financial sector. Moreover it allows all citizens to have a share in the productive economy of which they form a part.

Finally, the paper discussed the relevance of Douglas' theory for policy today. It can be concluded that Social Credit has important implications for current policymakers in how to understand the financial and economic crises and how not to proceed under the current financial system, even with liberal-minded policies like inflationary policy. This paper, therefore, concludes that Major Douglas is an important monetary theorist whose theory is due careful appreciation by students and policymakers alike.

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