STUDENT ECONOMIC REVIEW 2015

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Prize-Winning Essays of the Student Economic Review 2015

Best Overall Essay: Dermot McAleese Medal

Jaywalking or Joywalking: A Game Theory Approach to Policy-Making

Sabrina Schönfeld

Best Political Economy Essay

Britain Must Leave: Why Patriotism Has No Place in the Modern Union

Rónán O'Connor

Best Applied Economics Essay

Spillovers and Synergies: Geographical Clustering of Eminent Scientists

Conor McGlynn

Editors and General Managers of the Student Economic Review 1987 - 2015

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 Stamp
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)	Fergal 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

Year	Editor	General Manager
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 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
2014 (Vol.XXVIII)	Féidhlim McGowan	Cián Mc Leod
2015 (Vol.XXIX)	Gearóid Gibbs	Michael Mahony

Guest Speakers at the Launch of the Student Economic Review 1990 - 2015

Year	Speaker	Organisation
1990 (Vol. IV)	Richard Lipsey	Simon Fraser University
1991 (Vol. V)	Charles Goodhart	London School of Economics
1992 (Vol. VI)	Peter Sinclair	Brasenose College, Oxford
1993 (Vol. VII)	David Greenway	Nottingham University
1994 (Vol. VII)	Hamish McRae	The Independent, London
1995 (Vol. IX)	John Sutton	London School of Economics
1996 (Vol. X)	John Martin	OECD
1997 (Vol. XI)	Alan Tait	IMF
1998 (Vol. XII)	David O'Sullivan	European Commission
1999 (Vol. XIII)	Paula Donovan	World Bank
2000 (Vol. XIV)	Dermot McCarthy	Department of An Taoiseach
2001 (Vol. XV)	Donal Donovan	IMF
2002 (Vol. XVI)	Margaret Doyle	The Economist
2003 (Vol. XVII)	Tom Healy	Irish Stock Exchange
2004 (Vol. XVIII)	Gerry Foley	ITV PLC.
2005 (Vol. XIXI)	John Fingleton	Competition Authority

Year	**Speaker**	**Organisation**
2006 (Vol. XX)	Marius Brülhart	HEC University of Lausanne
2007 (Vol. XXI)	Cliff Taylor	Sunday Business Post
2008 (Vol. XXII)	Alan Barrett	ESRI
2009 (Vol. XXIII)	Patricia Callan	Small Firms Association
2010 (Vol. XXIV)	Jane Williams	Forfás
2011 (Vol. XXV)	Tom O'Mahony	Department of Transport
2012 (Vol. XXVI)	Kyran McStay	Key Capital Limited
2013 (Vol. XXVII)	Alan Gray	Indecon Economic Consulting Group
2014 (Vol. XXVIII)	Anke Heydenreich	Attestor Capital LLP
2015 (Vol.XXIX)	Declan Sheehan	JP Morgan

STUDENT ECONOMIC REVIEW DEBATES 1996 - 2015

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 U.S. State Does Not Care for its Sick	Harvard
2013	Oxford	Deserting the Euro	Trinity
2013	Yale	Tax is Theft	Trinity
2014	Cambridge	United States of Europe?	Cambridge
2014	Harvard	U.S. Education System	Trinity
2015	Oxford	100% Inheritance Tax	Trinity
2015	Yale	Opening the Mexican Border	Yale

"The Student Economic Review is the only student-run economics journal that I know of at any university... 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 Hopkins University, formerly Board of Governors
US Federal Reserve, SER Editor 1989

"My involvement in the SER was an important defining point in my undergraduate experience at Trinity. It introduced me to the world of academia, the role and importance of academic publishing and the range of questions and depth of research possibilities in the discipline of economics."

Carol Newman,
PhD TCD, Associate Professor TCD,
General Manager 1997 SER

"In my first year at Trinity, I read the Student Economic Review with awe. There were so many thought-provoking articles, written to such a high calibre... 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

Further reflections available online at
http://www.tcd.ie/Economics/SER/about/reflections.php

The Student Economic Review

Economic History

Political Economy

Applied Economics

Monetary Thought

Economic Research

THE STUDENT ECONOMIC REVIEW

WELCOME TO THE REVIEW

On behalf of the committee of the Student Economic Review I would like to extend our warmest thanks to you, the reader, for purchasing this copy of our annual journal and for your continued support of our society. Within the pages of this highly acclaimed academic journal you will find the culmination of a yearlong project executed with precision by this year's committee, comprising solely of Junior Sophister Economic students. Now in its twenty-ninth year the SER provides a unique focal point for students across a range of disciplines to demonstrate their skills and knowledge, outside the usual setting of the lecture theatre or exam hall. This provides Trinity students with a hands-on approach to learning, allowing trinity undergraduate students to reach their full potential and to develop independent learning skills crucial to life after college.

The remit of the SER extends beyond the publication of this journal. In conjunction with the Trinity Philosophical Society, the SER was proud to host two very successful debates against Oxford and Yale University this academic year. The innovative and ever-evolving nature of the SER was on full display this year when, for the first time, a post-debates workshop was held to discuss the debate motions, allowing those not directly involved with the debate to have their say and practice for future and forthcoming debates. Our interview with Gideon Rachman (chief foreign affairs columnist of the Financial Times), was another first for the SER. Our annual Foundation Scholarship workshop helps young undergraduates gain their first footholds on the ladder of academic success. We were proud to invite back Cormac O'Dea, a former editor of the SER, who has successfully established himself as a senior research economist at the Institute for Fiscal Studies, London.

I would not be writing this welcome, nor would you be reading it, if it were not for the generous support of our sponsors. Due to kindness and foresight of these modern day philanthropists the SER has been able to tap into the well of potential that is our students, who are the future leaders of the business, economic, social and political world. It is through societies, such as ours, that students learn to develop their skills outside the lecture theatre and exam hall. Through the debates, workshops and publication of essays undergraduate's progress from being a student to an economist and masters of their field. Therefore, it is only but fitting that our deepest respect and gratitude is extended to Harry Hartford, Vinay Nair, Alan Gray, Aoife Cunninghan and Bord na Móna.

I would also like to extend our thanks to Siobhán O'Brien of the economics department. Without her help, dedication and hard-work the SER would not be the success it is today. In particular I would like to thank her for the fantastic work she has done in launching our brand new website. On the website past issues of the SER journal, our upcoming events, a list of our sponsors and our submission page for potential essays for the journal can be found. Without doubt, the launch of our new website was a milestone in the history of the SER.

The SER would never have been established as the successful society and the academic masterpiece it is today without the perseverance and clairvoyance of the President of the SER, Professor John O'Hagan. For that, we must all be thankful. Professor John O'Hagan has provided countless students with the opportunity for self-advancement not only in his lectures but also through the workings of the SER. Throughout the year, I found that no matter the time of day (or night, in some cases) Professor O'Hagan was always there, ready to dispense advice or simply just to chat. It was a great honour and privilege to have the opportunity, and experience, to work with one of Trinity's (and Ireland's) most experienced and professional economists. Furthermore, the committee would also like to extend our thanks to Dr. Ronan Lyons, Dr. Michael Wycherley and Dr. Tara Mitchell who regularly liaise with committee members to ensure our success throughout the year. Our final worthy patron is Whately Professor of Political Economy and Head of the Economics Department (and former editor of the SER), Professor Philip Lane. Not only has he helped the SER through his successful stewardship as a former editor, but now as head of department continues to provide support allowing this much appreciated society to continue, prosper and evolve.

Finally, I would like to thank my fellow committee members. While I would like to mention each individually and all their accomplishments throughout the year, that would diminish the team effort that is vital to the survival and spirit of the SER. Every single member exerted themselves one hundred percent in ensuring that the standard of the SER was as high this year as every other. The committee acted in unison at all times, allowing us to achieve all of our stated goals and to provide the greatest service possible to our fellow economic students. I could not have been luckier in the chosen committee; the intelligence, dedication and innovation of each member never failed to astound me. Not only did I enjoy leading this diverse group, I also have made many new friends for life!

I hope that as you read this journal you will appreciate the high academic ability sampled in it. The journal is the culmination of a year-long project undertaken by us on the committee, the department of economics and all students of the discipline of economics who attended the debates, workshops and submitted an essay.

MICHAEL MAHONY

General Manager, Student Economic Review 2015.

LETTER FROM THE EDITOR

It is my great pleasure to welcome you to the Student Economic Review 2015. In its 29th year, the Review has a long established tradition of academic excellence, and prides itself in providing students with a forum to contribute to the economic discourse at Trinity and beyond.

An exploration of economics can take many forms. This diversity is evident in the variety of submissions we have received and the papers we have published. While some submissions are natural developments from course material, others extend beyond the scope of what is taught in the classroom and examine a range of contemporary economic issues. Regardless, publication is a fantastic achievement and demonstrates an ability to both understand and convey the often complex arguments of economics. Given continued high submission levels, we regretfully had to leave many excellent essays out. We hope, however, that the papers selected for this edition will educate and inform the reader about a range of topics of interest to students at present. The publication is divided into five categories, which are outlined below.

The first section on Economic History opens with an essay by Conor McGlynn exploring the common ground between Aristotle's account of private property and modern economic views. Féidhlim McGowan considers historic British tea prices and develops an empirical framework to investigate commodity price shocks. Following this, we have a thought-provoking paper which questions if free trade is always the best policy, while another paper examines the panic of 1873, which triggered a depression in Europe and North America.

Applied Economics contains several novel and original essays concerning the practical applications of economics in the modern world. Sabrina Schönfeld's behavioural game theory exploration of jaywalking was awarded the Best Overall Essay Prize. This engaging and informative piece looks at how policymakers can use concepts from behavioural economics to change payoff structures of agents in order to achieve optimal Nash equilibria. Greg Mangan takes an industrial economics approach to the music industry and looks at the market for digital music against an ever-changing technological background. Another prize in this section, Best Applied Economics Essay, is awarded to Conor McGlynn for his account of the phenomenon of geographical clustering by eminent scientists. One last paper examines the impact of a new climate change risk on urban housing market dynamics.

Monetary Thought remains an important area of interest. Jack Dempsey examines the factors which can help explain higher sovereign default rates in South American countries. Sergey Alifanov explores a number of concerns with the workings of the fractional reserve banking system and outlines how policy implementations could address these. A further paper recounts how reluctance to leave the gold standard was significant in prolonging the Great Depression.

Essays in Political Economy allow for rich and varied analyses of economics intertwined with policy and politics. Rónán O'Connor wins the Best Political Economy Essay Prize for a confident and well-argued piece on the current state of the European Union and Britain's role, if any. Economics has obvious practical implications for policy issues and Daniel O'Brien presents an intriguing paper on how paternalistic polices can disproportionately affect the poor. We also learn about the moral limits surrounding the market for blood, and the barriers which inhibit job creation in the French labour market.

Economic Research is the fifth and final section of the Review and sees two strong econometric investigations. Firstly, Cián Mc Leod looks into the impact of labour market gender equality on FDI flows in Southeast Asia. While, Conor Parle considers what is the most efficient method to improve an education system.

I cannot continue without expressing my sincere gratitude to my colleagues on the Editorial team. Paul, John, and William all worked tirelessly to identify and select essays which were not only economically sound and well argued but also interesting and engaging. The selection process was lively but we managed to reach consensus, while also learning a great deal about new topics and issues in economics. Paul's attention to detail has ensured maximum writing quality throughout the essays.

I must also thank my fellow committee members for their dedication in organising a variety of events throughout the year. The debates and workshops reinforce the Review's aim of promoting and stimulating economic discussion on campus. Michael, as General Manager, was of vital importance in keeping the selection process anonymous. While Greg, our production manager, put in long hours to ensure the Review looked well and was published on time.

Finally, I must thank the Department of Economics for their continued support of this student publication. Special thanks to Dr Mitchell, Dr Lyons, and Dr Wycherley for their help throughout the year. Most importantly, I wish to acknowledge the unwavering commitment of Professor O'Hagan. As our president, it has been his vision, counsel, and dedication that have made the Student Economic Review what it is today. For this, we have the utmost gratitude.

I now encourage you to explore the many novel and engaging essays which we have chosen for publication, and I hope you enjoy reading the papers presented as much as I have.

GEARÓID GIBBS
Editor, Student Economic Review 2015.

Workshops

For the 2014-2015 academic year the Student Economic Review ventured into new ground. In addition to the two workshops held in Michaelmas and Hilary Term, we held an interview with Gideon Rachman, the Chief Foreign Affairs Correspondent for the Financial Times (FT). Such experiences helped students engage with economic affairs outside the lecture hall.

'Schols' Workshop

30 October 2014

The Annual SER Schols Workshop is the key event for the preparation of Trinity's most prestigious examinations, the Foundation Scholarship. By covering the Economics, Business, Politics, Sociology, and Philosophy papers the SER gave valuable insights and tips to prospective scholarship candidates. A mixture of current scholars and high scoring students engaged with the audience with Q&A session making the event as interactive as possible.

Cormac O'Dea, Senior Research Economist IFS

28 January 2015

The SER welcomed Cormac O'Dea, a Senior Research Economist from the Institute for Fiscal Studies (IFS) in London, to discuss the relevance of economic research to public policy. The IFS is Britain's leading microeconomic research institute, which has a global impact on a range of actors. Due to having one of the broadest research remits in public policy analysis, this event covered a range of topics relevant for all economics students.

Gideon Rachman Interview

19 February 2015

Three SER members, William Foley, Rónán O'Connor, and myself, were given the opportunity to interview Gideon Rachman over a cup of coffee. The interview is published below, aptly named "Coffee with the SER: Gideon Rachman". Given the topical nature of European affairs we focused our attention to these issues.

Before the interview the SER would like to add it was a pleasure to interview Gideon, and thank him for the experience. I would like to extend my appreciation to the rest of the SER who helped make all these events a rewarding experience. Special thanks to Professor John O'Hagan, and the rest of the economics department for their continued support.

From left to right: Rónán O'Connor, John Tate, Gideon Rachman, William Foley

Coffee with the SER: Gideon Rachman

Before joining Financial Times in 2006, Gideon Rachman worked for 15 years at The Economist in a range of jobs. Currently the chief foreign affairs correspondent for the FT, he has gained a unique insight from his extensive travels and access to world leaders. Such knowledge has given us a refreshingly different perspective on the current issues in the European Union (EU).

From being born and raised in London, it was intriguing to find out that Gideon believes that "the predictions everybody has made for many years, that Britain would be marginalised if it did not join the euro, have pretty much come true". Such events combined with the current political climate in Britain, has led the UK Prime Minister, David Cameron, to attempt to quell threats from Tory backbenchers and UKIP, with a referendum promise on the EU after the next general election. Gideon suspects a British exit from the EU will not occur, but the outcome will be close. Such a vote to stay in does not mean the UK should join the euro, as Gideon believes "Britain was probably right not to join the euro given what has happened, but the cost is that you are marginalised and that will continue". Gideon argued that such an affect would occur as "the main questions of the EU are about the euro".

However, Gideon stressed that the potential dangers of a Brexit are not confined to Britain itself. If the UK left it "would damage the EU", and is arguably worth more consideration. Despite being the pain-in-the neck of Europe, the UK is an ally to the economically liberal countries. He argued, "If you were one of the Nordics, or the Germans, or actually the Irish, I would be uneasy where EU debates would go if that British voice was not at the table". Gideon supported such claims by citing Britain's key role in the development of the internal market.

Gideon was not only uneasy about where the debate in Europe might go, but also of the potential negative signal a Brexit could have to the rest of the union. Given the relatively large economic clout the UK possesses a move away from the EU may highlight the potential weakness of the resulting members. He argued, "if Britain leaves they've got to fail". However, if the perception of such a move is that it is due to internal nervous breakdown such signals may not be present. As a large economy, unlike Switzerland, Britain can have leverage with tax rates, which could create tensions. Gideon argued we "could get into a very difficult relationship and it would be probably be better for all sides to cooperate".

However, Gideon believes one of the big problems with European integration generally is that "they have tended to assume there is a greater degree of unity than actually exists, and they have also assumed that if they created the structures that unity will follow if they force people to cooperate". He believes that such effects are not working very well. Although, with "foreign policy you've tended to see that the EU is good at agreeing on second order issues, but when there's a huge international crisis national interests come to the fore very quickly". With regard to the current crisis in Ukraine, Gideon believes that the EU has not done too badly over Russia compared to other crises, like Iraq. However, tensions have bubbled beneath the surface. Gideon argued, even though "Greece isn't really in a position to be difficult, but they are being as difficult as they can be given their position".

Despite such a potentially fractionalised response Gideon does not believe that the EU has failed as a peace project, by not developing a modern day equivalent to the European Coal and Steal Community (ECSC). Signed in 1951 Schuman argued this treaty made war between historic rivals, France and Germany "not merely unthinkable, but materially impossible" by joining these key strategic industries. Gideon argued, "I would never say [war is] impossible in Western Europe, but it is as close to as impossible". In this light, Gideon revealed a previous conversation with a French strategist explaining that they had a nuclear facility as a form of insurance against a potential German aggression.

Gideon argued that the reason for there being no EU foreign policy collective is due to the potential lack of acceptance from member states. Thus a move to majority voting with foreign policy must be accepted, and such a case is unlikely to occur if countries deem that their national interests are at stake.

Such hardwired sovereignty not only posits problems for foreign policy, but also economic policy across the Eurozone. Such divisions are clear with crises, which are the real test to the European project. The lack of trust between EU members highlighted the ethno-national divide, which is not present between states within the US. Gideon argued there is a need to respond to nations' preferences. He argued the most recent attempt to build trust happened with Monnet, where the WW2 peace project was more resonant.

Even including such effects Gideon cited that "what Monnet was asking people to do was less hard than what was done in the 1990s."

However, despite such potential limitations to a foreign policy response, Gideon finds the desire for Europe to be a superpower "is the most persuasive argument for the EU." The days of Britain and France's use of the UN Security Council membership are probably gone, Gideon argued. To maintain their influence the EU must rise with India and China on the international stage. Gideon argues such realisations have convinced natural euro sceptics, like William Hague, that it's easier to get heard when you speak for 27 or 28 countries rather than one.

Despite such potential gains of the EU it is a consensus-based organisation and the rise of populist parties poses a clear threat to progression. Gideon argued such a phenomenon "is partly a product of the euro-crisis". Without the ability to devalue or inflate away the debt, debtor countries have adjusted more painfully. Gideon argued there are always two sides to debt, and for the EU to operate we need trust, and reneging on debt will break that. He argued that "the EU is a law based institution and it's based on the idea that people follow them, and if they don't trust begins to break down, the whole thing begins to breakdown."

Gideon did raise concerns about the political stability of Europe, evident with the rise of Golden Dawn, a Neo-Nazi party in Greece. However, he argued cutting the debt is not necessarily the solution as other countries had similar debt problems yet did not have such political turmoil. With regards to the Irish case Gideon agreed that Ireland should not have guaranteed unsecured bondholders, and that they should have faced a haircut making the debt less crushing. He argued a sense of social justice would then be more prevalent. However, Gideon praised Ireland in admitting their fault in the crisis, and made a stark contrast with the "self-pitying" nature in Greece.

However, Gideon believes criticism may have now gone to far, and there is a lack of recognition of our common ground. He argued that the euro has focused attention "on what is different… but if we look at Russia we see that we have a lot in common". In light of this, Gideon believes that the Euro will break-up as monetary unions generally don't last unless political union is behind them. He argues, "it has become apparent that you need at least a transfer union, …[but I] doubts the political will is there for that or that it will emerge". He acknowledges that "There are massive risks for breaking it up, and that may be enough to keep it together", like an unhappy marriage. He warned, "Russia has the potential to divide us, but equally if it went in the other direction it could be a unifying factor, although I wouldn't put my house on it."

John Tate
Assistant Editor &Workshop Convenor, Student Economic Review 2015.

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 saw Trinity face Oxford and Yale and proved to be one of the most exciting years yet with each debate played out to packed chamber. We would like to extend our sincerest gratitude to the University Philosophical Society and in particular to their President Sarah Mortell and their Secretary Clare Ní Cheallaigh, who were a pleasure to work with and ensured the debates exhibited the professionalism and oratorical prowess that characterises both the Phil and the SER. Thanks also to Professor John O'Hagan, Tara Mitchell and Ronan Lyons for their counsel throughout the year, without which these debates would not have been so successful. We also wish to extend our thanks to Mr Vinay Nair, founder of the international debates against Harvard, Yale, Cambridge and Oxford.

From left to right: Richard Ngo (Oxford), John Engle (Oxford), Rex Batar (Oxford), Liam Hunt (Trinity), Caoimhe Stafford (Trinity), William Dunne (Trinity)

Trinity vs. Oxford

20 November 2014

The first SER debate of the year was against Oxford, with the teams facing off over the motion "This House would introduce a 100% inheritance tax" to a packed chamber in the Graduates' Memorial Building. It was agreed the proposal was best debated ideologically and the principled debate that unfolded revealed the dual nature of inheritance to an economy.

Caoimhe laid out the endemic harms in perpetual wealth that circulates lineage rather than the economy. She outline the stagnation that this causes and the unfair burden lifted from the kin of the successful to contribute for themselves. She impressed upon us the good that the State could do with the wealth obtained by this tax.

Rex was quick to point out that we were still mystified as to the implementation of such a policy. He harangued Trinity for the burden Oxford saw that would require children to pay back every penny their parents invested in them. He extolled the virtues of longevity in business as a means of creating a legacy and a lasting ideology that can persist beyond the economic quarterly forecasts.

William clarified the practical aspects of the policy by explaining that the tax was only applicable to assets that held transferable monetary value after the death of the parents. In this sense the field of the debate was more about ownership of boats and houses than education and clothing. He argued that the burden this removes from the lower-income individuals cannot be overlooked in that it allows them access to social mobility they could never previously attain.

Richard continued the discussion in terms of the impact on the lower-income households by arguing that they in fact lose out when they can no longer retain a family business. He deplored the intense competitive markets that would destroy family businesses without the protection of inheritance to sustain them.

Liam brought Trinity's case to a close by exploring the costs of inheritance on a broader scale. He outlined how inefficient wealth can be when held for so long in inheritance because it is so inflexible when removed from the competitive market allocation. He illustrated this with the losses to property that might be more efficiently used in another form that may lie vacant as part of an inheritance so large it remains unexploited for generations.

John responded on behalf of Oxford by discussing what he saw as the Trinity team's failure to provide a viable alternative. Ultimately he told us inheritance is the only means by which we can maintain longevity to an field of business which is essential for development. Progress would not be possible without the institutional memory accumulated by corporate longevity and ultimately those who owned big businesses can always find a way around these governmental constraints.

The debate came down to whether a redistribution of wealth by removing inheritance was desirable rather than whether it was feasible. Trinity won the debate unanimously while John of Oxford claimed the best speaker prize on the night. Our thanks to all of the judges and particularly to Dr. Frances Ruane for her pithy insights in delivering her adjudication and the more lighthearted commentary from the debate chair, Dr. Patrick Geoghegan.

Back row (L to R): SER Committee- Aoife Slevin, Michael Mahony, William Foley, Greg Mangan, Richard d'Esterre Roberts, Gearóid Gibbs, Paul Reidy, John Tate, Rónán O'Connor
Front Row (L to R): Niall Casey (Trinity), William Dunne (Trinity), Hannah Beresford (Trinity), Soonjoe Sul (Yale), Adira Levine (Yale), Christopher Taylor (Yale)

Trinity vs. Yale

19 February 2015

Teams from Trinity College Dublin and Yale University debated the motion "This House would open the U.S. border to Mexico" in the Graduates' Memorial Building. The debate was chaired by Gideon Rachman, Chief Foreign Affairs Editor of the Financial Times. The chair of the judging panel, RTÉ Morning Ireland's Áine Lawlor, awarded Yale the prize for best team on the night. Trinity's Hannah Beresford was awarded Best Speaker, while Trinity's William Dunne was, according to Ms. Lawlor, a close runner-up.

The full panel for the debate, hosted by the University Philosophical Society, consisted of Áine Lawlor, Stephen Collins, Political Editor of the Irish Times, and Hannah Cogan and Rebecca Keating, both past winners of the SER debate and Trinity graduates. The Trinity team, consisting of Niall Casey, William Dunne, and Hannah Beresford, argued on the proposition side during the debate.

Casey argued that immigration has historically underpinned American success and that the current system has held back prosperity and caused massive suffering. Dunne claimed in his speech that he despaired on lecturing Americans on their own cherished values of freedom, and argued that the better wage competition caused by the migrant influx would keep firms in the US. In her speech, Beresford put it to the house that immigrants would bring new ideas and entrepreneurial spirit to America.

The Yale team, consisting of Adira Levine, Christopher Tyler, and Yoon Joe Sul argued the opposition side. Levine argued that the sudden wholesale opening up of the border to low-skilled migrants would lead to a disastrous rise in crime and a fall in working conditions. In his speech, Tyler argued that the proposition side were basing their position on a mistaken idea of American exceptionalism. Finally, Yoon argued that there is a difference between being nice and being good - so that if her mother decided to feed all the homeless men on her street rather than her she would be justifiably annoyed.

In his closing speech, Gideon Rachman told an amusing but salutary story about his deportation from the United States. He also pointed out that the opening up of internal borders within the European Union had led to a surge of anti-immigration parties. He also said that he felt uncomfortable hearing Europeans lecture Americans on their border problems when hundreds of migrants drown in the the mediterranean every year when trying to enter Europe.

The SER woule like to extend our sincerest thanks to both Trinity teams and the Oxford and Yale teams for providing two compelling debates. Their talent both engaged the audience through rhetorical persuasion as well as challenged the judges through their developed, principled argumentation. We would also like to thank in particular Professors John O'Hagan, Tara Mitchell and Ronan Lyons for their guidance throughout the year. Thanks finally to all of those who came out to enjoy this opportunity to open up Economics to the art of debate, something that we hope to see even more of going forward.

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A Cliometric Investigation into the Causes of the US Panic of 1873

Ludo Dawnay
Senior Sophister

Ludo Dawnay sets out a research framework to investigate the link between international contagion and financial crises. He uses the panic of 1873 in the United States as an interesting case study to investigate the theory of financial crises proposed by Charles Kindleberger. He concludes by highlighting some of the potential econometric pitfalls involved in the research proposal.

Introduction

This paper proposes a case study which sets out to contribute to answering the following question: To what extent are financial crises the result of international contagion? The aim of this proposal is to shed light on the degree of interconnectedness of national economies during the end of the 19th century. By this time, almost all regions were part of the world economy. Technological advances and a fall in trade tariffs had made distant corners of the globe increasingly interlinked.

Motivation

Evaluating the factors provoking financial crises are essential for preventing them in the future. Stock market crashes have generated deep and long-lasting recessions since before the 19th century. Over the course of the 1800s, there were six panics in the United States alone. Financial services can be a very useful tool by transferring money from one time period to another; it enables savings and insurance, for example (The Economist, 2014). However, it may also offer the opportunity for a series of misjudged decisions made by a select segment of society to have negative ramifications for all.

Juglar (1967), Mitchell (1926) and Morgenstern (1959) all agree that financial crises in one country both affect and are induced by circumstances beyond its borders. The international movement of money for investment is included as one of the mechanisms by which panics can be transmitted (Kindleberger, 2005). Moreover, wars and monetary policy are further examples of the determinants of the level of fluctuations in capital flows (Kindleberger, 2005).

Various other arguments have been put forward regarding the causes of financial crises. Most academics are divided between speculative investments and systemic economic foundations (Mixon, 2008: 723). Hyman Minsky outlines the classical view that crises originate from the fragility of markets (Kindleberger, 2005). An exogenous shock expands the supply of credit and thus raises the optimism of borrowers and lowers the level of risk aversion among lenders (Minsky, 1975). The eventual slump in confidence in the initial investments resulting from the realisation of past inflated expectations increases the likelihood of a crash (Kindleberger, 2005). The irrationality was articulated rather cynically in the Chicago Tribune of April 13, 1890:

> *"In the ruin of all collapsed booms is to be found the work of men who bought property at prices they knew perfectly well were fictitious, but who were willing to pay such prices simply because they knew that some still greater fool could be depended on to take the property off their hands and leave them with a profit." (Quoted in Hoyt, 1933: 165)*

Minsky interpreted Keynes' theory that a financial crisis is a "systemic rather than an accidental event" generated by the dependence on "debt-financed ownership of capital assets" (Minsky, 1975). Walter Bagehot argued that financial bubbles occur when the 'blind capital' of the public wanders towards speculative investments (Bagehot, 1915).

According to Mixon (2008), fundamental domestic economic factors are to blame for economic troubles. Mishkin (1991) argues that worsening balance sheets generates asymmetric information in financial markets. Asymmetric information occurs when there are differences in the information held by borrowers and lenders (Mishkin, 1991). The adverse selection and the 'market for lemons' that results have negative repercussions for the economy (Mishkin, 1991; Akerlof, 1970).

Monetarists, led by Milton Friedman and Anna Schwartz (1963), view banking panics as the result of significant contractions in the money supply solved only by the central bank acting as the lender-of-last-resort (Mishkin, 1991). In the view of Schwartz (1986), a 'real' financial crisis occurs when the public lose confidence in their ability to withdraw cash from the banks (Bordo, 1990). The monetarist does not view monetarist contraction, but the public perception of the future availability of money, as the cause of a crisis (Bordo, 1990).

Research Question

This research proposal focuses on the Panic of 1873, an event which led to the Long Depression (1873-1879) in Europe and North America. The specific question is: How much was the Panic of 1873 in the United States the result of the Franco-Prussian Indemnity payments of 1871-1873?

The paper intends to explain to what extent the crash in the United States was encouraged by events in Europe, particularly Germany. The New York Stock Exchange closed its doors for ten days at the end of September 1873. The Panic was followed by the longest period of depression on record, from October 1873 to March 1879 (NBER, 2008). A more interesting reason to select the event known as 'The Great Depression' before the more famously known one stole its name, is its international dimension (Kindleberger, 1990). It shares this characteristic with the panics of 1890, 1929 and 1987 (Kindleberger, 1990). Moreover, little empirical research has been carried out to determine the causes of this Panic (Mixon, 2008).

The paper will assess the theory of Charles Kindleberger who is associated with the 'speculative bubble' school of thought. The 1873 Panic is a fundamental example used by Kindleberger to outline his theory. Kindleberger (2005) listed thirteen factors which contributed to both crises across the Atlantic, but emphasised the reparations paid to Germany, the victor of the Franco-Prussian War. The Germans increased their domestic investment, thereby decreasing their foreign investment in the U.S. The decrease in capital inflows halted the great expansion of the Northern Pacific Railway which ultimately culminated in the bankruptcy of an important bank, Jay Cooke & Co., in September 1873 and the following stock market crash. Intuitively, an increase in money supply would increase domestic as well as international German investments. But his argument is that there was such a large speculative boom that investors took their money out of the U.S. to put into Germany.

Kindleberger (2005) uses a narrative approach to develop his argument, emphasising the uniqueness of each event through qualitative evidence, rather than identifying patterns by collecting and analysing data. This proposal, on the other hand, will use econometric analysis to assess this theory.

Literature Review

Tackling the question in a different way may overcome some of the faults of the original explanation. The study is 'vague and untestable' (Gorton, 1990). Kindleberger offers no definitions for and does not distinguish between concepts that he is trying to explain such as 'crash', 'mania' or 'bubble' (Gorton, 1990) and he did not develop a model to explain the chronology of events (Mixon, 2008). The impact of unanticipated shocks is undoubtedly important to the assessment of business cycles (Bordo, 1990). Kindleberger fails, however, to sufficiently identify the given results of a particular shock, among the many others that occur during any period (Bordo, 1990).

Matthew Simon suggests that European investors lost confidence in railroad debt (Simon, 1978). The increasing number of joint-stock firms in Germany, catalysed by a series of deregulations in 1870, further incentivised investors to turn away from U.S. railways (Simon, 1978; Mixon, 2008). Kindleberger includes the deregulation of the German financial system in his thirteen factors (Kindleberger, 1990). In December 1872, the American consul in Frankfurt wrote that German investors '... can no longer be relied upon as a market for the securities of the railroad, cities, or even the states of the Union.

So many railroad corporations have failed to pay their interest coupons ... the buyer now considers everything American uncertain' (Simon, 1978: 161-172 Mixon, 2008: 751). A survey of German bankers concluded, 'Doubtless the failure of a few properties had affected the values of the perfectly sound ones' (Simon, 1978: 143-145). Mixon states that the combination of the poorer than expected business prospects of the U.S. railways and the difficulty of raising capital due to the booming German markets led to the crash (Mixon, 2008). Both Simon and Mixon advocate domestic factors. They do not disagree with the importance Kindleberger places on flows of capital but view it as a symptom, not a cause of the crisis (Mixon, 2008).

Michael Bordo's theory states that the French Indemnity of 1871-72 caused inflation which spilled into Austria (Bordo, 1990). This monetarist viewpoint does not dispute the global background to the financial crisis, citing the connections between countries through the fixed exchange rate gold standard (Bordo, 1990). However, one should note that the United States did not sign up to that mechanism until 1873 (Bordo, 1990). Thus, the U.S dollar's floating exchange rate immunised its economy from European investments (Bordo, 1990).

Mishkin's (1991) analysis of interest rate spreads and stock prices during the period demonstrates that financial failures such as those of Jay Cooke and Co. contributed to the financial crisis of 1873. However, Mixon's evidence suggests that 'irrational exuberance' was entirely absent within the American financial markets in the period preceding the Crisis of 1873 (Greenspan, 1996; Mixon, 2008). Mishkin's (1991) findings, while consistent with his asymmetric information argument, strongly emphasise the bank panic's impact on declining money supply. Friedman and Schwartz (1963) show a sustained decrease in money supply for the period 1873-1879. This leads Mishkin (1991) to conclude that the monetarist view complements his own by illustrating the transmission mechanism between banking panics and economic activity.

Data

Impact of the Franco-German Indemnity on the German Economy

The dependent variable for the first regression is net new foreign investment into the U.S. in millions of dollars taken from Simon (1960).

The first independent variable is German banknote circulation measured in millions of marks available in International Historical Statistics by Mitchell (2007). It is an indicator of the impact of the Franco-German payments.

The second independent variable is the number of new buildings constructed in Germany available from the National Bureau of Economic Research (NBER, 2008). Also generated by the NBER (2008) is the independent variable of German stock prices indexed to 100 in 1913. Both are indicators of the speculative boom.

The fifth independent variable will be a dummy for the Austrian World Exhibition, or Weltaustellung, which occurred on May 1, 1873. Its entry will be 0 before and 1 after that date. The Weltaustellung is not one of Kindleberger's thirteen factors, but he does mention it as a cause (Kindleberger, 1990). Large investments were made in services such as hotels and cafés in preparation for an influx of visitors to the event. However, much less than expected made the journey, and on the ninth of May the Austrian stock market crashed.

Kindleberger would expect that all explanatory variables except the fifth are inversely correlated with capital inflows.

Impact of Capital Inflows on U.S. Stock Market Prices

The dependent variable of the second regression is all US common stock prices indexed to 1913 from the NBER (2008).

The first independent variable is capital inflows, the dependent variable in the first regression. The hypothesis of this paper expects a positive coefficient for this variable.

The second independent variable is miles of railroad built in the US which is drawn from data collected by the NBER (2008). The most commonly cited reason for the 1873 Panic is the overextension of the railway and the exhaustion of its funds.

The third independent variable is the price of land and buildings combined in Chicago provided by Hoyt (1933). The Chicago fire of October 8, 1871 is cited as a domestic factor by Kindleberger (1990). It accelerated a real-estate boom in the city which slowed down during the middle of 1873 and crashed after the news of Jay Cooke & Co. (Kindleberger, 1990).

The last independent variable is the ounces of silver per ounces of gold collected by Officer and Williamson (2014). The German Empire introduced the Gold Standard in 1871, halting the use of silver Thaler coins and decreasing the commodity's global market price. The US was a large producer of silver and the decision in Germany caused the US to move away from silver by enacting the Coinage Act of 1873. Therefore, this is an illustration of international financial contagion; a statisticallly significant result would show that events in one country have affected those in another.

The German-US foreign exchange rate provided by The Federal Reserve Bank of St. Louis is illustrated in Figure 1 of the appendix. Also there are graphs for capital inflows and stock prices.

Drawbacks of the Data

Cliometrically, it is difficult to find detailed historical data regarding international capital flows. The capital inflow figures show total capital inflow into the US, and do not distinguish between those from Germany and those from other countries. Also, not all of German external investment would have been flowing to the US.

The regularity of observations varies: US and German stock prices are given monthly, whereas all other datasets give annual data. The monthly data will be collapsed into means using the tscollap function in Stata. Another limitation is the lack of for some of the inputs pre-1871. It would give a more detailed picture to analyse over a greater period of time. Both these shortcomings create smaller sample sizes.

The empirical analysis will be carried out in two stages using econometric methods. The purpose of this analysis is to prove, firstly, that speculative German investments triggered by the Franco-German Indemnity were the cause of a decrease in capital inflows into the United States and, secondly, that this decrease in capital inflows lead to the stock market crash of 1873 in the U.S. The other independent variables of the second regression model are each used to support a different explanation of why the Panic occurred.

Ordinary Least Squares (OLS) time series analysis will be run in order to estimate the impact of each independent variable on the dependent variable, ceteris paribus. The time series data collected gives one possible realization of the stochastic process (Wooldridge 2009). The counterfactual case would be any other outcome, which is not exclusive to the Franco-Prussian Indemnity not being paid (Wooldridge 2009).

The data set provides 22 annualized intervals for the years 1871-1892 inclusive, each variable indexed at time period t, as shown below. The interval stretches from the start of the Indemnity to the emergence of the following panic. The limited data, an inevitable consequence of examining such a short period of time, lowers the degrees of freedom of the analysis, and means that the t-statistics will be less normally distributed and more concentrated around the sample mean.

Regression 1

$$USCapFlows = \beta_0 + \beta_1 GerMS_t + \beta_2 GerSP_t + \beta_3 GerCon_t + \beta_4 AusWE_t + u_t$$

Where:
USCapFlows = U. S. capital inflows
GerMS = Germany money supply
GerSP = German stock prices
GerCon = German construction
AusWE = Binary/event variable for the opening of the Austrian World Exhibition

Regression 2

$$USSP = \beta_0 + \beta_1 USCapFlows_t + \beta_2 USRail_t + \beta_3 GoldSilver_t + \beta_4 ChLand_t + u_t$$

Where:
USSP = U.S. stock prices
USCapFlows = U.S. capital inflows
USRail = U.S. railroad mileage
GoldSilver = Gold/Silver price ratio
ChLand = Chicago land prices

The preliminary results of the two regressions and the data tables are shown in the appendix.

From Kindleberger's theory, foreign investments were an integral part of total railway investment. Therefore, capital inflows and railways may not be independent and there may be multicollinearity present. To check robustness, a regression should be run using U.S. railways as the dependent variables with the explanatory variables from the first regression. If both this third and the first regression both show high R2, then U.S. railroads and capital inflows may be correlated. This issue could also be inferred to exist between German stock price, money supply and construction.

Multicollinearity violates none of the OLS assumptions (Wooldridge, 2009). However, a strong linear relationship between two independent variables may lead to large variances for the OLS slope estimators (Wooldridge, 2009). The statistical phenomenon increases the standard errors, decreasing the t-values. It therefore is harder to reject the null hypothesis that the coefficient is zero and conclude statistical significance.

Heteroskedasticity, present when the variance of the error term is not constant across explanatory variables, could also exist in this model. It renders the t-statistics and F-statistics invalid and the OLS estimator is no longer the best, linear unbiased estimator. It can be identified using the Breusch-Pagan or White's test. The assumption of residual normality required to enable statistical inference regardless of sample size can be tested by illustrating the values in histograms, normal probability plots or dot plots (National Institute of Standards and Technology, 2014; Wooldridge, 2009).

The potential inconsistency of OLS created by omitted variable bias can be avoided by using a suitable proxy variable for an unobserved variable (Wooldridge 2009). However, this assumes the identification of an omitted variable and the availability of a proxy. Examples of potential omitted variables include required cash reserve ratios implied by Simon (1978), Franks et al. (2006) and Kindleberger (1990) and U.S. money supply suggested by Friedman and Schwartz (1963).

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Appendix

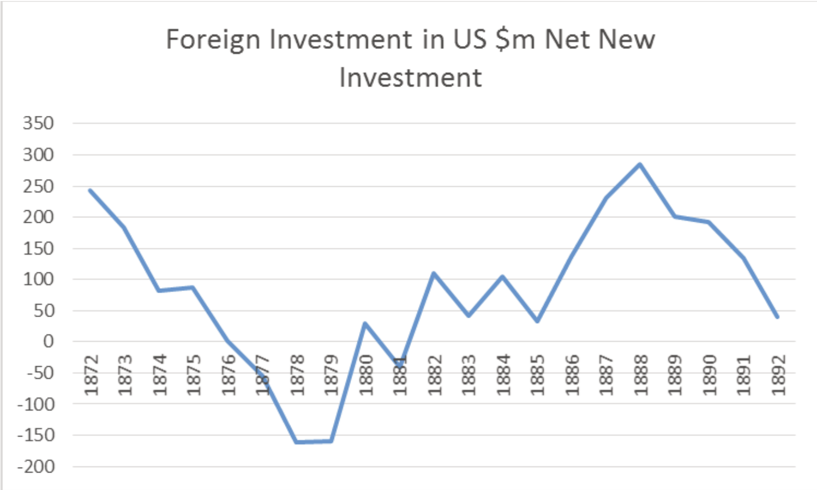

Figure 1:Net New Foreign Investment in US ($m)

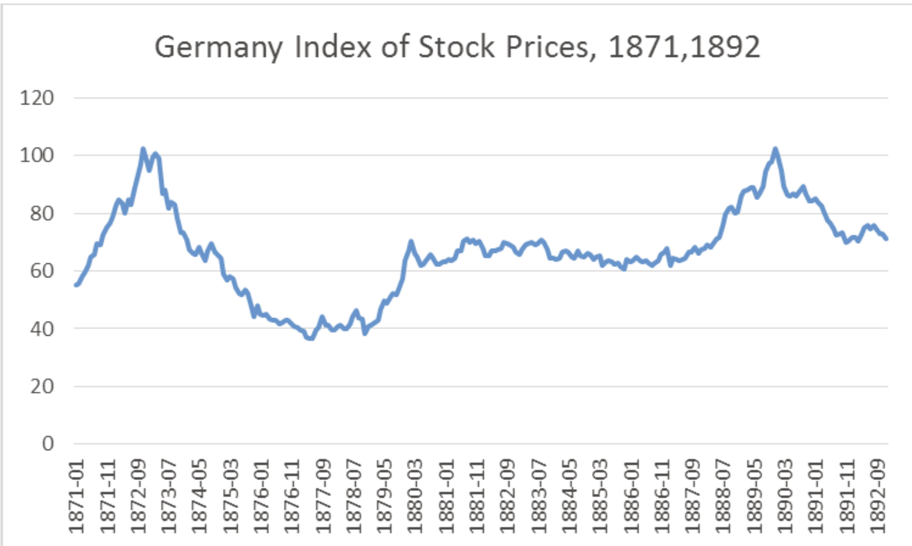

Figure 2:Germany Index of Stock Prices, 1871-1872

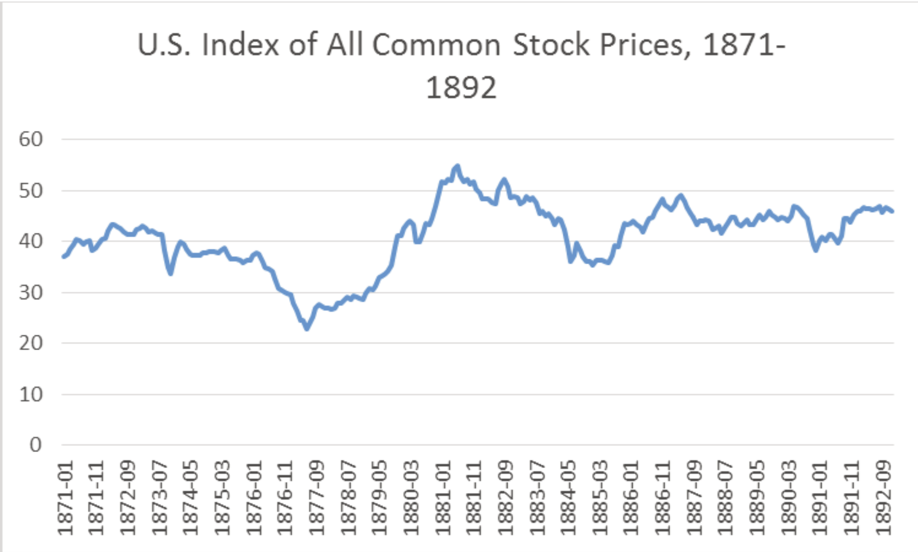

Figure 3:US Index of All Common Stock Prices, 1871-92

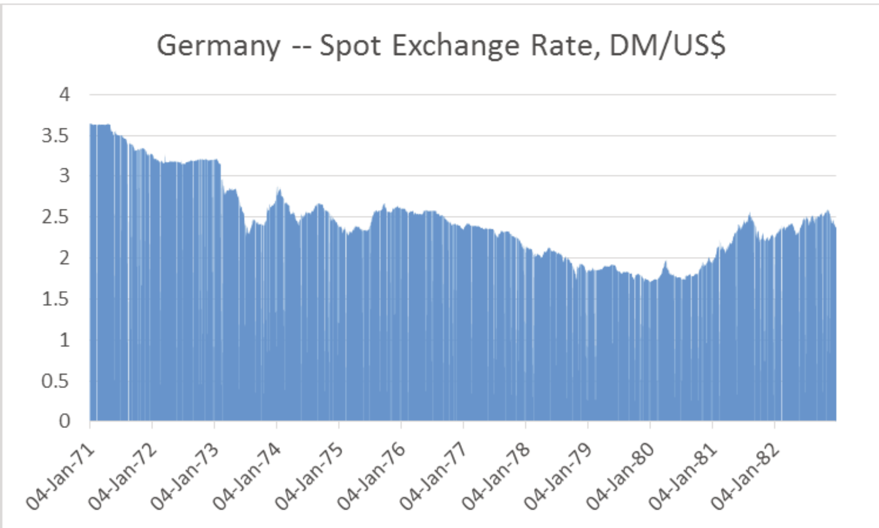

Figure 4: DM/USD Exchange Rate

ARISTOTLE'S ECONOMIC DEFENCE OF PRIVATE PROPERTY

CONOR MCGLYNN
Senior Sophister

Are modern economic justifications of private property compatible with Aristotle's views? Conor McGlynn deftly argues that despite differences, there is much common ground between Aristotle's account and contemporary economic conceptions of private property. The paper explores the concepts of natural exchange and the tragedy of the commons in order to reconcile these divergent views.

Introduction

Property rights play a fundamental role in the structure of any economy. One of the first comprehensive defences of the private ownership of property was given by Aristotle. Aristotle's defence of private property rights, based on the role private property plays in promoting virtue, is often seen as incompatible with contemporary economic justifications of property, which are instead based on mostly utilitarian concerns dealing with efficiency. Aristotle defends private ownership only insofar as it plays a role in promoting virtue, while modern defenders appeal ultimately to the efficiency gains from private property. However, in spite of these fundamentally divergent views, there are a number of similarities between the defence of private property Aristotle gives and the account of private property provided by contemporary economics. I will argue that there is in fact a great deal of overlap between Aristotle's account and the economic justification. While it is true that Aristotle's theory is quite incompatible with a free market libertarian account of private property which defends the absolute and inalienable right of an individual to their property, his account is compatible with more moderate political and economic theories of private property. In this essay, I will focus on two of Aristotle's arguments for private property rights, which can be seen as anticipating later defences of private property.

The Tragedy of the Commons

The 'Tragedy of the Commons' is a problem for property that is held in common between many people. Aristotle formulates this in the Politics as follows: "For that which is common to the greatest number has the least care bestowed upon it. Every one thinks chiefly of his own, hardly at all of the common interest; and only when he is himself concerned as an individual. For besides other considerations, everybody is more inclined to neglect something which he expects another to fulfil…" (1261b). Property held in common is likely to be neglected by everyone, because the benefit to any one particular individual of maintaining or caring for the commons will not be great enough for them to do so. We can compare this to a more recent formulation of the problem, in relation to pollution: "The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them. Since this is true for everyone, we are locked into a system of 'fouling our own nest' so long as we behave only as independent, rational, free-enterprises" (Hardin 1968: 5). The conclusions of the two formulations are the same: whether the resource in question is the environment or, in Aristotle's example, children who are cared for in common, if they are held in common then their care will be neglected.

Modern versions of the tragedy of the commons tend to be based on the formulation given by William Forster Lloyd in a pamphlet of 1838, and are often set out in terms of game theory. As an illustration, consider 100 families grazing goats on common land. Total milk production is maximised with a thousand goats in total. How many goats should each family keep to maximise its own utility? The apparent solution of 10 goats is not actually the optimal strategy for each family. If a family adds an extra goat to their own herd it will reduce total milk production, but will increase their personal quantity of milk, so it is in their own individual self-interest for families to increase their herds beyond the socially optimal quantity of 10 (Binmore 2007: 66-67). In game theory, this is an example of the 'diner's dilemma', where the individual utility maximising actions of many different agents leads to an outcome that is disadvantageous to all. The tragedy of the commons is that the individuals acting in their own self-interest will neglect the commons, and ultimately this will lead to worse living conditions for all.

While Aristotle's account is not as detailed as such modern versions of the problem, he does reach the same conclusion. There is, however, an interesting difference in Aristotle's account. In modern formulations, the problem is that people will take advantage of a resource that is common to the point where it is no longer usable, for example the use of common agricultural land to the point of desertification. Aristotle gives an opposite formulation of the problem: "Everyone is more inclined to neglect something which he expects another to fulfil" (1261b). For Aristotle, the problem is not that everyone will do what is bad for society if property is common, but rather that no one will do what is good for society. This different formulation gives us an insight into Aristotle's concerns in his ethical and political writings. Aristotle is concerned primarily with people living life well, with eudaimonia, and with having institutions in society that promote virtue. The absence of virtue in a society is for Aristotle at least as undesirable as society that operates inefficiently. This underlines one of the fundamental differences between Aristotle and modern defenders of private property. Modern accounts emphasise the inefficiency caused by the tragedy of the commons, and loss in societal utility it creates. The further tragedy for Aristotle, on the other hand, is the loss in virtue, as people won't do the virtuous act of caring for property under a system of common ownership.

How does Aristotle's argument fare as a defence of private property? The tragedy of the commons has been challenged on empirical grounds. Noam Chomsky disputes whether it gives an accurate description of how the world operates: "The tragedy of the commons [is] a doctrine which holds that collective possessions will be despoiled so therefore everything has to be privately owned. The merest glance at the world shows that the opposite is true. It's privatisation that *is destroying the commons*" (2013). The tragedy of the commons is an argument which should be able to be verified through experience. Ken Binmore points to desertification as verification that common property will ultimately be destroyed: "The Sahara Desert is relentlessly expanding southward, partly because the pastoral peoples who live on its borders persistently overgraze its marginal grasslands" (2007: 67). Beryl Crowe (1969) speculated that while the depletion of common resources might be inevitable on the scale of nation states, a self-enforcing value system in relation to common property might be possible in smaller communities. Ironically, this suggests that the tragedy of the commons is not inevitable in a small city state – the city state being precisely the type of political organisation that Aristotle favours. Nonetheless, Aristotle's observation is apposite: common property will generally not be as well cared for as private property. While Aristotle's ultimate motivation in defending private property in this way – namely the defence of a system which is most conducive to citizens living virtuously – is fundamentally different from the motivations of modern defenders of property, both his argument and his insights are reconcilable with modern economic theories of property.

Natural Exchange

Aristotle's next argument for private property is the argument from natural exchange, which appears in the Politics. A point to note in regard to this argument is Aristotle's use of the term "natural", which, as CCW Taylor observes with wry understatement, is "not entirely unproblematic" (1995: 136). Murray Rothbard, with more forthrightness, describes Aristotle's use of the term as "fallacious" (2009) in its negative attitude towards exchange for the sake of profit and its lack of definition. While the term does at first glance seem to be undefined, I shall argue against these views, and I will attempt to show that the distinction between natural and unnatural exchanges does in fact have a corollary in modern economic theory.

According to Aristotle, natural exchange occurs because "some men have too much, others too little for their needs", and so they will trade with each other, "giving and receiving wine, for instance, in return for corn and other such commodities" (1257a). Aristotle's account of why trade occurs is almost identical to the account given by General Equilibrium (GE) theory, the contemporary economic theory of exchange. According to this theory, exchange occurs because people's initial endowments of goods do not necessarily align with their preferred quantities of goods, given the total stock available, and so by trading with one another everyone can become better-off. People will trade out of their initial endowment into a general competitive equilibrium, where no one has an incentive to trade any further – in other words, they will engage in natural exchange, until they have "enough for their needs". In GE theory, everyone ends up in a Pareto efficient point, where they are optimising their own utility, given the utility and preferences of everyone else. From an initial endowment w, two individuals A and B can engage in trade to move to higher indifference curves, and hence will both be made better-off by trading, as in Aristotle's example, wine for corn. This is precisely what Aristotle means by natural exchange. The point at which the individuals end up is the market equilibrium, and no further trade will occur. In this context, Aristotle's use of the term "natural" doesn't seem so mysterious; a natural exchange is simply one which brings a market into equilibrium.

The extension of Aristotle's analysis of exchange to a defence of private property is then similar to the modern defence of private ownership offered by GE theory, namely that of markets being the best aggregators of information. Markets are means of allocating goods and services and, under the assumptions of GE theory, they do so efficiently. Markets are, in the words of the economist Kenneth Arrow, characterised by coherency brought about by numerous individual decisions; they are information processing machines. This is the intuition behind Adam Smith's invisible hand: that many individuals, each of whom "intends only his own gain" are "led by and invisible hand to promote…the public interest" (1937: 43). In a system of collective ownership on the other hand, goods and services must be allocated by some other means; this almost always means central planning. However, any attempt to centrally plan such allocations, and to do so efficiently, is faced with considerable information problems. It is effectively an impossible task to collect the level of information about individual preferences, relative scarcities, and utility levels that would be needed to even attempt such an allocation of goods. Aristotle realised this problem of getting information about individuals' preferences. Just as different patients get prescribed different medicines by a doctor, so too do different people have different preferences, and they therefore need different things to lead a happy and virtuous life. "Hence it seems that treatment in particular cases is more exactly right when each person gets special attention, since he then more often gets the suitable treatment" (1180b). No one knows what an individual needs to live virtuously, what they need for eudaimonia, better than the individual himself does. Since the individual knows how to live best, the individual should be in charge of deciding what material goods he needs, and so be able to engage in natural exchange to acquire the correct amount of goods.

There is, however, another difficulty with Aristotle's concept of natural exchange, namely the converse notion of unnatural exchange. Aristotle thought there should be limits on the amount of wealth that an individual should be able to acquire, "for the amount of property which is needed for a good life is not unlimited" (1256b). Many modern defenders of private property would baulk at such a notion, particularly since Aristotle includes retail trade for monetary gain in the category of unnatural exchange. Aristotle's notion of exchange is closely connected with his concept of the Mean, the right amount between excess and deficiency that is necessary for a virtuous life. In order to promote virtue, and for the sake of the Polis, property ownership needs to be limited. Libertarian defenders of private ownership who assert an absolute right to property will be scandalised by this proposition, and it will strike many as groundless and inconsistent. In the concluding part of this essay, I will suggest a way in which Aristotle's position might be defended in a modern context.

First of all, we should elaborate on Aristotle's criticism of retail trade. Murray Rothbard writes that "Aristotle, like Plato, was hostile to economic growth and favoured a static society, all of which fits with his opposition to money-making and the accumulation of wealth" (2009). It is a mistake, however, to think that Aristotle was opposed to any and all money-making activities. "What is really salient in Aristotle's condemnation of retail trade is its aiming at unlimited, and therefore a non-virtuous acquisition of goods of any kind at all not merely coin and money" (Grunebaum 1987: 41). Aristotle must have realised the importance and convenience of retail trade in the social life of the city. Indeed, in order for people to engage in natural exchange at all and not to be subject to the double coincidence of wants (where two people happen to meet who just by coincidence want to trade each other's goods) some sort of retail trade is necessary. There is nowhere in Aristotle's work where he suggests so radical a measure as the banning of retail trade. As Grunebaum points out, "There is no reason why retail trade cannot be practiced within virtuous limits" (1987: 42), and we can only assume that Aristotle came to the same conclusion.

What, then, would Aristotle consider to be unnatural exchange? Retail trade, as we have seen, can be natural as long as it is only engaged in to the extent that it aims to fulfil finite and natural needs and desires. Trade that goes beyond this, the pursuit of profit without end for example, is unnatural. There is a corollary of this distinction in modern economics: normal levels of profit versus economic rent. In economics, normal profit is profit that is "just sufficient to keep owners and investors satisfied" (Case et al 2009: 169). In other words, it is the profit level that is enough for the trader to stay in business, but nothing more. Economic rent is defined as "those payments to a factor of production [in this case, the retail trader] that are in excess of the minimum payment necessary to have that factor supplied" (Varian 2010: 424). Economic rent is any profit above the normal level of profit for a firm. In the market system known as perfect competition, economic rent equals zero and in the long-run only normal profits are possible. This outcome is usually considered to be the best from society's point of view; it maximises the welfare of the community. Economic rent arises in market systems such as monopoly, where one firm dominates and can set any price it chooses. This outcome involves a loss to society in terms of welfare, and the community as a whole is less well-off. Firms seeking economic rent engage in rent-seeking activities; this is equivalent to traders seeking unlimited profits in Aristotle's view. While libertarian advocates of the free-market claim that no interference should take place in the case of markets earning economic rent, many would consider the best outcome to be something close to perfect competition. Adam Smith's use of the term 'perfect' in this context was not accidental; he certainly felt that perfect competition was the best outcome, in a moral as well as an economic sense. We can now see that Aristotle's attack on unnatural forms of collecting wealth was not an ungrounded prejudice, but in fact reflects a modern intuition which is built into our economic theories.

Conclusion

J.O. Grunebaum concludes his discussion of Aristotle by saying "the later justifications of private ownership grounded upon free market maximisation of wealth and efficiency are in opposition to the virtue by which Aristotle justifies private ownership" (1987: 46). Robert Mayhew reaches a similar conclusion: "We cannot subsume Aristotle's conception of property under any one modern theory" (19: 831). These statements are true only up to a point. As I have shown, there is a lot of common ground between Aristotle's account and modern economic conceptions of private property. While there are significant differences in motivations, it is a mistake to think the two are irreconcilable. Although it is outside the scope of this current essay to provide a full account of it, I think Aristotle's theory of property is compatible with modern economic defences of property. The sketch provided here hopefully gives an outline of what such a project would entail.

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Brewing Up a Storm: Investigating British Tea Prices from 1690-1914

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With one of the highest tea per capita consumption rates in the world, tea has long been associated with the British national identity. In this essay, Féidhlim McGowan provides a thoroughly enjoyable discussion of tea prices in Britain between 1690 and 1914 and proposes a rigorous framework to investigate the impact of shocks on these prices during this period. He concludes by diligently considering the most suitable econometric approach and finds that an ARCH model is likely to be most appropriate.

Introduction

"I did send for a cup of tee, a China drink, of which I never had drunk before".
(Pepys, 1660)

As the global economy becomes ever more interconnected, it is instructive to examine how unpredictable events – or 'shocks' in economics parlance – can have important effects on the prices of factors of production and commodities. This paper aims to provide a framework through which the growth of tea as a commodity can be tracked, with specific emphasis on Britain from 1650 to 1914, and to identify the shocks that led to noticeable price changes during this time period. A priori, given the rise in popularity of tea it can be expected that most of these shocks will drive the price downwards. However, there have always been gains to be made from digging deeper into what appears at first glance to be self-evident. Was there a pattern to these shocks, and if so, what can they tell us about current trends in commodity flows?

Why tea? Since it was introduced to Mr. Pepys and Company in the mid-17th century, tea has been inextricably linked to revolutions, both military and industrial, and so it is intriguing to examine why such seemingly innocuous leaves from the Camellia sinensis plant brewed up such a storm. Hyperbole aside, there are at least three good reasons why studying the evolution of a specific commodity such as tea is a worthwhile exercise for economists today. Firstly, it may act as an instrument for policymakers. For example, a lack of diversification in the supply of a staple good or service can be at best foolhardy, and at worst disastrous[1]. The prudent response is to ensure, whenever possible, a variety of suppliers for necessary goods. Further reason to study commodity flows is that the unintended consequences of such flows are a perennial source of fascination to historians and economists alike. How did the discovery of vast quantities of silver in the New World influence Euro-Asian trade patterns? Indeed, did the booming spice trade actually act as a catalyst for the discovery of the New World? Furthermore, for developing economies especially, the importance of commodity price changes cannot be overstated as fluctuations can have large effects on real output, the balance of payments, and the government budgetary position.

Finally, by virtue of the fact that tea was the natural complement to sugar, by examining the tea trade one may also gain insight into why the sugar industry, and the slavery that sustained it, evolved as it did. To this extent this proposed framework may have increasing returns to scale. As an aside, given the volume of the tea trade and its inter-linkages to sugar, it is a slight puzzle why the tea trade has received relatively little attention from economic historians. A final aim of this paper is to provide a slight redress of this imbalance.

A Brief History of the Tea Trade

This section deals with the existing work on the evolution of the British tea trade. The seminal work to date on British tea prices was carried out by Clark (2004) and Allen (2001). Both studies record a dramatic price decline for tea. The Clark series falls from a peak of 614 pence per pound in 1690 to 54 pence per pound in 1850 - a price drop of 91 per cent. The Allen paper starts at a later date (1760) but as evident in Figure 1 - taken from Hersch and Voth (2009) - it shows a high degree of correlation (0.89) with Clark's results. However, both of these papers are concerned with numerous commodities, and subsequently neither dwells on the specific reasons for this steep price decline.

Rich data on consumption patterns can be assembled in a patchwork fashion using three sources: Forrest (1973) for 1700-1770, Davis (1979) for 1784-86 and Moykr (1988) for 1794-1854. In aggregate, these papers document a secular rise in the quantity of tea consumed from 1690 for approximately 100 years. Some researchers posit that to gain a holistic view of the British tea trade one must examine the records of illegal imports or smuggling. A reference point in this area is "Smuggling and the British Tea Trade before 1784" by Hoh-Cheung and Mui. The authors begin by reminding the reader that when Adam Smith wrote that a highly taxed article, if in strong demand, would find a way of evading the additional charges, that tea was his primary evidence. The authors proceed to

1. One need look no further than the Irish potato crop and the then ubiquitous 'lumper' strain, which never failed – that is, until it did.

describe in minute detail why the smugglers could operate as they did until 1784. This data will be incorporated into the econometric model in section five.

A novel approach to the impact of tea in British life is provided by Hersh and Voth (2009) who raise the question of how the introduction of tea, coffee and sugar improved welfare in Britain. Using the Greenwood-Kopecky (2009) method, they find that the average Briton in 1850 would have been willing to give up 15 per cent of his income to retain access to tea and sugar. More pertinent to the thrust of this paper, the authors also incorporate the incentive to smuggle (i.e., the tariff rate) in a robustness check for the quantity of tea imported. As the authors explain:

> *"We hold the tariff rate constant at the period average to predict tea demand in the absence of tariff changes. This effectively reduces the rate of growth in the British demand for tea. Overall, the variability of the new, predicted series is lower than of the official imports"*

To conduct a robust analysis it is necessary to control for real income changes. Fortunately, Clark (2005) created a highly detailed real wage index which tracks many items, making it less volatile. This index shows that not until 1850 was the average real wage higher than in 1500. The price of tea and the real wage are intertwined through the elasticity of demand for tea, thus it is necessary to include real wages in the specified model.

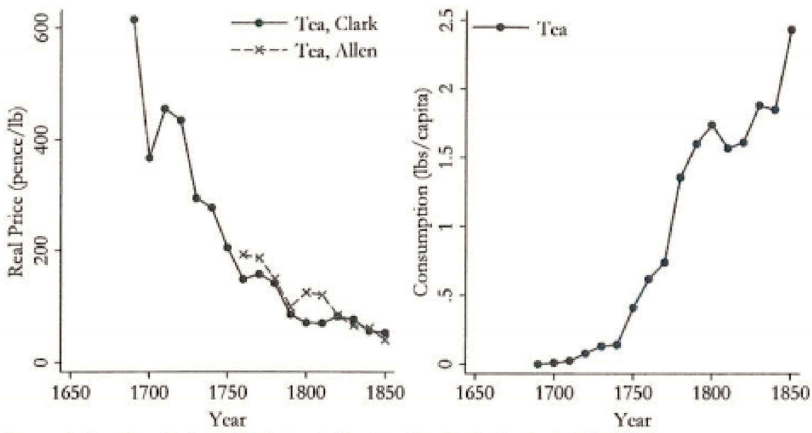

Figure 1: Tea Prices (Source: Hersch and Voth, 2009)

Possible Shocks to the Price of Tea

The Boston Tea Party, 1773: Apart from the minor incident of setting in motion a war of independence, the act of throwing crates of tea into Boston harbour also culminated in legislation that abolished tariffs placed on tea in both the colonies and domestically[2].

The Opium Wars, 1839–42, 1859-1860: Along with silk and porcelain, a strong demand for tea developed in Britain from 1650 onwards. However, only silver was accepted in payment by China, which was self-sufficient and not particularly interested in purchasing any Western goods. Eventually the British figured out that instigating an influx of opium into China (despite the best efforts of the Chinese government) would be a deviously effective way of eliminating the trade deficit. This policy worked remarkably well, resulting in the Treaty of Nanking.

Tea Arrives in India, 1851: Despite strict Chinese restrictions on the movements of European merchants in the interior, Robert Fortune, a Scottish botanist, smuggled the Camellia sinensis plant out of the country to India[3], thus ending the Chinese monopoly on tea production. In addition to the plant, Fortune brought a team of expert Chinese botanists to foster the growth of tea in India[4]. Within a generation India was a world leader in tea production.

The Clipper Cometh, 1843: Tea was one of the few commodities that was valuable enough to command a speed premium in transit[5]. A Smithsonian article described the incentive thusly:

> *"In the middle of the 19th century, demand for fresh tea was such that the first vessel home from Fuzhou or Shanghai could command a premium of at least 10 per cent for her wares, and a clipper ship that cost perhaps £12,000 or £15,000 to build might bring home a cargo worth almost £3,000 on her first voyage".*

Tea and Typhoid

As a slight aside, this section briefly reviews the literature which implicates tea consumption as a causal factor in the successful build-up of large urban centres during the Industrial Revolution in Britain. Firstly, sweetened tea provided a convenient source of calories which facilitated longer working hours. This is a partial explanation for the 'British Food Puzzle' whereby, despite a substantial increase in real income per head, domestic demand for foodstuffs stagnated or declined from 1770-1850[6]. In fact, by 1900 one fifth of British calories came from sugar, mainly through the medium of tea[7].

The more substantive reason why some postulate that tea was vital for the Industrial Revolution is its role in making the nation healthier. For a start, tea has mild an-

2. Cole (1958) - duty on tea decreased from a high of 125 percent of net cost in 1736-40 to only 12.5 percent in 1787-91.
3. Rose (2011).
4. When choosing his team of botanists, it is said that Fortune favoured the brave.
5. Evans (1964).
6. Clark, Huberman and Lindert (1995).
7. Mintz (1985): Sweetness and Power.

tiseptic properties[8] which can be passed on through breastfeeding from mother to baby. Secondly, and perhaps more importantly, water is boiled in the tea making process, thus killing lots of nasty bacteria that cause illnesses such as dysentery and typhoid.

A possible rebuttal to this viewpoint is that a higher real wage meant the general population benefitted from improved nutrition, in quality if not in quantity, as the Industrial Revolution progressed. However, this argument does not hold given that studies investigating average height have found that physical well being actually declined during the Industrial Revolution[9]. Directly testing this theory about the health benefits of tea is unfortunately beyond the scope of this paper. However, to do so one could examine the incidence rate of waterborne disease and tea consumption in different cities before and during and after the Industrial Revolution. A preliminary hypothesis would be that the cities that were quicker to take up drinking tea would also record an earlier drop-off in the rates of these diseases. A well-specified regression with appropriate controls could be highly informative in this regard.

Empirical Approach

The nature of this proposal means it is impossible to avoid a certain element of deductive reasoning. The price changes in tea have been well documented (see Figure 1), and to simply replicate these findings using a simple linear regression would not add anything to the corpus of knowledge in this field. Ideally, the proposed research would lend empirical findings to what is at present just a hunch, or else debunk what is currently a persistent myth.

The most appropriate way to approach this research question is through the use of a time series analysis. However, one must proceed with caution when using such a tool and be aware of the many pitfalls such as spurious correlation and omitted variable bias that may be lurking in the data. Sufficient controls must be included to ensure the robustness of the results.

The table below summarises the data sources for this proposal. The main data source is the Clark database on commodity prices.

Variable	Source	Geographic Coverage	Period Covered
Price of Tea	Clarke (2005)	Britain	1200-1913
Income	Allen	Britain	1200-1913
Consumption	Forrest (1973), Davis (1979), Moykr (1988)	Britain	1700-1850
Tariffs	Cole (1958)	Britain	1726-1829
Clipper Speed	Clark (1910)	USA, Britain	1843-1869
Price of Substitutes	Clarke(2005)	Britain	1200 - 1913

Table 1: Data Sources

8. Chan et al (2011).

9. Komlos (1998).

The coefficients of the above independent variables are estimated to be as follows:

X_1: Income: The coefficient is expected to be positive, as a higher real wage will lead to more disposable income for tea and this increased demand will increase the price.

X_2: Consumption: This is analogous to demand. By construction the coefficient should be positive.

X_3: Tariffs: The coefficient expected to be positive, as higher tariffs should obviously increase the price of tea. It is necessary to include an interaction term for how tariffs negatively affects official consumption (i.e., the smuggling confound – see X_{10}).

X_4: Clipper speed: This is a proxy for transport costs, as the fewer days at sea means a smaller wage bill for deckhands etc. However, the expected coefficient sign is ambiguous as quicker transport means the tea arrives in better condition and could therefore command a higher price.

X_5: Price of substitutes: Coffee is the main substitute for tea. Standard economic theory suggests that price declines in coffee would, ceteris paribus, lead to decreased consumption of tea as people switch to the cheaper alternative. The decrease in demand should reduce the price, thus the expected coefficient is positive.

$X_6 – X_9$: In addition to the variables in the above table, dummy variables will be included to see whether certain events (outlined above) may be considered "shocks". A significant coefficient on these terms would add weight to the notion they were events of consequence for the price evolution of tea.

$X_{6,t-1} – X_{9,t-1}$, etc: To allow for the impact of shocks not becoming apparent immediately, lagged dummy variables will also be included in the model.

X_{10} : Smuggling interaction term (basically X_3*X_4).

And the dependent variable is:

Y_t: Price of Tea

Two possible approaches are as follows:

1. Dummy Variable Approach

$$Y_t = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \ldots + \beta_9 X_9 + \beta_{6,t-1} X_{6,t-1} + \ldots + \beta_{9,t-1} X_{9,t-1} + \beta_{10} X_{10} + \varepsilon_t$$

This econometric model will aim to isolate the impact of possible shocks using a host of control variables and dummy variables. In essence this reduces to a study of outliers. There are two types of outliers to consider in this analysis – additive outliers and innovational outliers. Additive outliers are essentially errors in observations, for example if the price of tea in a particular year was wrongly transcribed by a clerk. These errors arise in many areas of economics but are particularly relevant in economic history. The pragmatic way to get around additive outliers is to use multiple data sources. Innovational outliers are different in that they affect subsequent observations. This type of outlier is central to the proposed model as their effect on prices is what the model attempts to isolate.

2. ARCH Approach

Myers (1992) suggests an Autoregressive Integrated Moving Average (ARlMA) methodology for modelling commodity price series. Myers writes that the accurate job ARIMA does of modelling "is consistent with the idea that commodity prices are made up of a stochastic trend and stationary deviations around trend". Krishnarani (2013) used ARIMA to model tea prices, but a major caveat is that he included no explanatory variables. This means that while still useful to consult, replicating this model using the above data would not achieve the desired goal.

An alternative, and probably superior method, is the use of an Autoregressive Conditional Heteroskedasticity (ARCH) model, which has the benefit of the error terms accounting for the time series element, i.e. that the series are correlated through time. This approach necessitates the vectorisation of the independent variables, which can be easily implemented in statistical pakage such as Stata. Next, lag tests are performed to choose the appropriate p and q[10] for the ARMA component, based on information criteria like AIC or BIC[11].

Then, the standard ARCH model is specified as follows:

$$y_t = x_t \beta + ARMA(p,q) + \varepsilon_t$$

$$Var(\varepsilon_t) = \sigma_t^2 = \gamma_0 + A(\sigma,\varepsilon) + B(\sigma,\varepsilon)^2$$

The advantage of an ARCH model lies in its ability to capture the time varying stochastic conditional volatility of the series and this can help in gaining an understanding of the

10. p = number of Autoregressive lags, q = number of moving average lags.

11. Khan and Asghar (2010).

process. In other words, it will give a better representation of how the explanatory variables and the movements in the price of tea are related. For example, the ARCH model could show the marginal effect of tariff changes on price.

Conclusion

To reiterate, this proposed framework sets out to accomplish quite an ambitious task – to explain why the price of tea changed with reference to specific shocks, rather than just how it changed. It is clear that the principles of this approach can be easily transposed to any other commodity. Although ARCH is probably the best econometric option available, it is advisable to keep one's hopes in check when attempting to achieve the goal set out at the beginning of this paper given the ominous warning: "what commodity prices lack in trend, they make up for in variance"[12].

12. Deaton (1999), quoted in Cashin and McDermott (2002).

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IS FREE TRADE ALWAYS THE BEST POLICY?

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In this essay, Florian Wicknig considers the vitally important question of whether free trade is always a suitable policy for promoting long-term growth and development. She compares the positive experiences of South Korea with the negative outcomes for Kenya and Nigeria. The author concludes that free trade is only beneficial if appropriate policies and circumstances are in place to support it.

Introduction

Economic theory is mostly unambiguous in stating that free trade leads to growth and welfare gains for the countries involved. Beginning with the theory of comparative advantage by David Ricardo, countless studies tried to pin down the exact benefits from trade.

There is a broad consensus that trade offers static and dynamic gains. A country, being specialized in the production of the good it has a comparative advantage in, will experience welfare gains and face a higher variety of products. The increased competition due to trade might raise productivity and stimulate benefits from economies of scale considering that with increased market size, average costs fall. In addition to these one-off effects, dynamic effects might benefit a country that is engaged in trade – in other words the long-run growth rate is affected. This may happen due to influences on technology by knowledge spillovers from other economies or the increasing incentive for R&D that results from more intense competition.

In short, economic theory states that trade is always the best policy since it increases growth and welfare permanently. However, this might fail to fully describe reality. The last decades involved the expansion of globalization worldwide and with it an increase in trade between most countries, yet it is easy to clearly identify countries that benefited from the opportunities of free trade (they grew) and others that apparently did not experience welfare gains.

Figure 1 plots the GDP per capita and the poverty rate of two world regions, East Asia and Sub-Saharan Africa (henceforth EA and SSA). Both regions had similar GDP per capita in the early 1970s and poverty was even higher in EA. However, for the last 30 years EA displays an extraordinary development that involved a huge increase in GDP per capita and the massive decline of poverty, whereas GDP per capita in SSA stagnated and poverty actually increased at times.

On basis of these observations, this essay will further analyse the question whether trade is always the best policy. Since both regions started at the same level, it is natural to ask, why free trade benefited one region but not the other. First, the economic development in the recent decades of both regions will be compared to emphasize certain characteristics that might have accounted for said observation. Then, a conclusion shall summarize the most important results, suggesting that free trade is almost always the best policy but that certain policies and circumstances must be in place to allow the gains from trade to be realised.

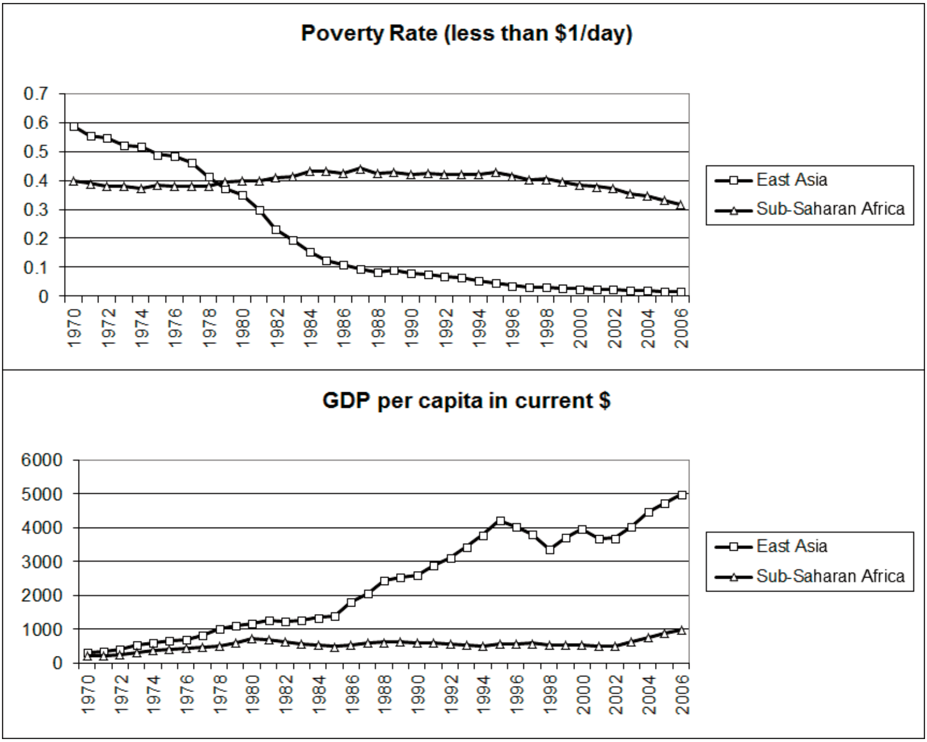

Figure 1: Economic indicators of SSA and EA
Source: Pinkovskiy, M. and X. Sala-i-Martin (2009),World Bank and own calculations

Economic Developments in these Regions

The following sections describe the economic development of two countries in said regions.

Although many East Asian economies may be appropriate for this analysis, the focus will be placed on South Korea. This is because it is a member of the so-called Asian

Tigers, a group of countries that started to industrialize quickly in the 1960s, and displays different characteristics that contributed economic growth. Identifying suitable examples in SSA proves more difficult. This region contains many countries and is fraught with political, economic and social difficulties. Nigeria and Kenya were chosen as they are two of the biggest African economies and are likely to a good representation of the most important characteristics of the region.

East Asia: South Korea

In the first 60 years of the 20th century South Korean history was marked by conflicts. After being a Japanese colony before and during the Second World War, the Korean War (1950-1953) destroyed large parts of the peninsula and caused millions of deaths. Naturally, this meant the destruction of huge parts of the infrastructure and industry as well as a massive loss in terms of human capital (Library of the Congress, 2005). Until the late 1950s Korea did not recover as GDP per capita fluctuated around $120 – comparable to SSA countries – and the mostly agricultural exports only amounted to 3% of GDP (World DataBank, 2014). Furthermore, the economy was scarce in natural resources and for the most part agricultural. In short, the country was poor and not very well integrated into world markets.

Beginning in the 1960s, and gaining momentum in the 1970s, the country underwent a rapid industrialization and boost in exports, mostly due to policies that fostered industrialization and export-orientation. The central idea of those reforms was to secure that exporting was at least as profitable as serving the domestic market. Inputs used in the production of export goods were free of tariffs, indirect taxes or quotas. This 'virtual free trade regime' added up to approximately 66% of all export incentives in 1968 (Westphal, 1990). Furthermore, the government exercised far-reaching powers over the banking system it used to offer further export incentives. Firms could lend money according to their export activity and were offered preferential credits – the non-preferential loans were around 25-30% in the late 1960s, while preferential loans amounted to 6% (Westphal, 1990). Apart from that, the government tried to monitor export activity closely. Together with the export industries, it negotiated export targets that, if met, offered further rewards for companies. Undoubtedly, this encouraged firms to export even if the profit margin would otherwise be too small (Kuznets, 1988).

Most of these privileges were granted to all exporters. The government, however, also targeted small industries directly (e.g., ship building). These industries were protected from foreign competition by various means – e.g., the 'law of similars' that only allowed imports if no domestic firm would produce the good in a likewise fashion – under the condition to pursue an export-oriented strategy (Westphal, 1990).

In brief, the government employed partly interventionist policies that aimed at establishing a strong exporting sector. While governmental determined export plans sound like a planned-economy feature, it has to be stressed that these plans were adopted with an orientation towards the markets.

Another feature of the South Korean economy, that benefited growth, was a very competitive labour market. Firstly, the average wage rate was very low; therefore, South Korea had a comparative advantage in labour-intensive manufacturing at the beginning of its industrialization. Due to a high educational attainment – in 1982 approximately 24% of the 20-24 year olds visited a university while only 14% of the same age group were enrolled in higher education in comparable countries – it later shifted to skill-intensive and technological goods (Kuznets, 1988). Labour legislation was also weak as unions were at time forbidden (1971-1981) and if allowed, only had very limited rights to strike. The low wage, weak unions and (later) the well-educated human capital made the economy attractive to foreign investors and provided comparative advantages. In the end, higher wages and employment resulted that might have significant impact on the workers' welfare (Kuznets, 1988).

All these policies had a long-lasting impact on the South Korean Economy. The economic structure not only changed from an agricultural economy to an industrialized one but also did exports increase rapidly as visible in Figure 2. Nowadays, mostly vehicles, electronic devices and machinery are exported whereas in the 1960s South Korea mostly exported 'simple' goods, like shoes or textiles (Westphal, 1990).

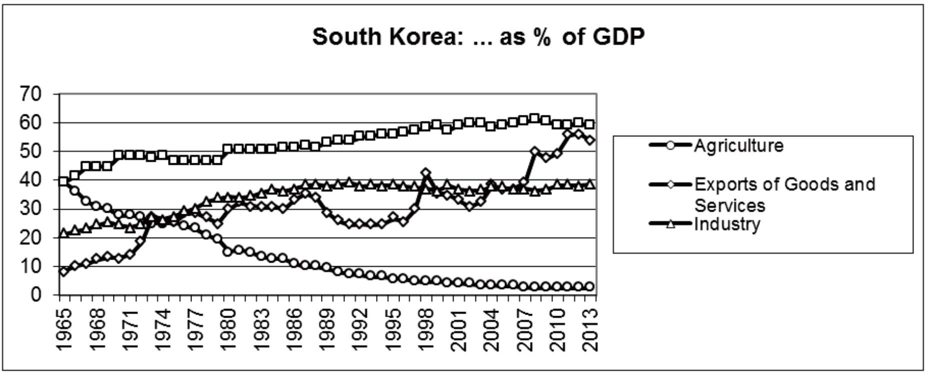

Figure 2: Exports and economic sectors of South Korea
Source: World DataBank and own calculation

To conclude the section about East Asia, it is necessary to point out some endogenous factors that benefited the development of South Korea. First of all, it mainly experienced manageable population growth and had a favourable geographic location at the sea. The fact that the region was – to the most part – free of ethnic tensions and that linguistic homogeneity was given facilitated the implementation of an integrated development strategy. Finally, South Korea experienced long periods of political stability that allowed implementing long-term growth agendas. This does not mean that it was democratic, quite the opposite as Figure 3 suggests: it was partly autocratic and the opposition was at times suppressed.

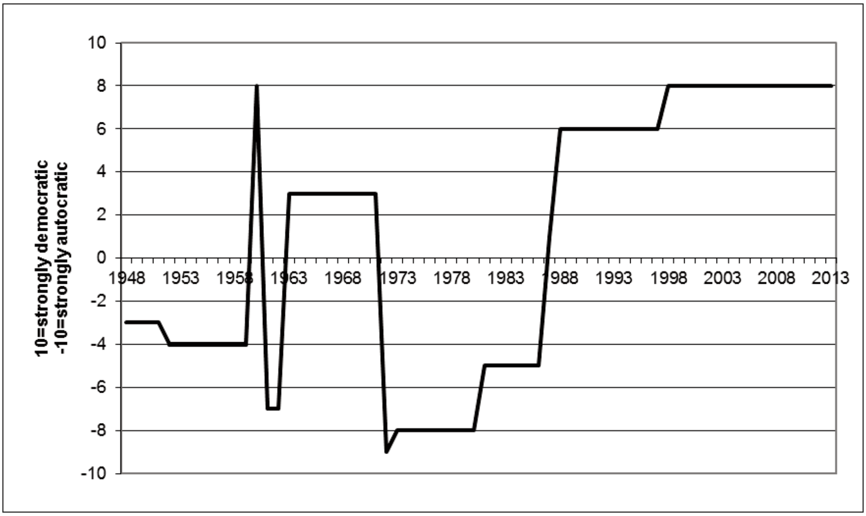

Figure 3: Polity IV-Index
Source: Polity IV Project and own calculation

Sub-Saharan Africa: Kenya and Nigeria

Nowadays, SSA is the poorest region in the world. Its problems are diverse – extreme climate, diseases, political instability and poverty – but so are also its advantages – abundance in resources and a huge internal market. Therefore, potential for gains from trade exists.

During the 1960s many African countries gained independence and the growth prospects of the region were similar to those of East Asia. Nigeria had better outlooks than Indonesia and Congo or Ghana had at least similar perspectives like South Korea. Therefore, the first years after independence often seemed promising with annual growth rates higher than 3% (Heidhues, 2009). Nevertheless, most states faced downturns in the 1970s with stagnating GDP per capita (see Figure 1) and a declining share of world trade – 4% in 1970 to 2% in 2005 (Bosker and Garretsen, 2008).

A good example of those developments is Kenya. After the independence from Britain the government pursued free market policies that aimed at attracting FDI and spent a lot on education. That is also reflected in growth rates that amounted to 6% on average in the 1960s and 1970s (Library of Congress, 2007). But at the same time the export structure remained undiversified and mainly included primary products which made it prone to fluctuations in world prices. Besides, wealth was distributed very uneven because the governing elite embezzled the surpluses and population grew rapidly – at the end most Kenyans did not experience an increase in standards of living (Library of Congress, 2007). Political unrest, coups d'état and corruption during the 1980s not only worsened the economic performance but also the investment climate. As a consequence, FDI and development aid were withhold and the growth rate declined to 1.5% in the 1990s (Library of Congress, 2007).

By the time policy changed in 2002, the new government faced severe problems like a weak infrastructure, a one-sided dependency on agriculture, ethnic tensions as well as high poverty and corruption.

Another set of obstacles to the advantages of free trade can be found by examining Nigeria. Today, the biggest African economy with rich resources and the greatest population, it had, and still has, various problems that hinder the full development of its capacities. Besides problems with bad governance and a period of civil war in the past, it is said that its abundance in resources, mostly oil and gas, is its 'curse'. At first sight this might seem paradox since abundance in resources is said to lead to specialization and to gains from trade. But the large scale export of resources can lead to a surplus in the balance of trade that eventually triggers the appreciation of the currency. Consequently, the terms of trade for other exporting industries, often manufacturing, get worse so that the economy might start to de-industrialize which increases the already significant dependency on resource exports (known as Dutch Disease). Furthermore, huge money inflows may foster corruption and lead to a delay in reforms or investments in education considering that no direct need for such actions exists (Heidhues, 2009). A World Bank report estimates that 80% of the revenues from trade with fossils only benefit 1% of the population. Moreover, outside the energy sector the Nigerian economy is mostly inefficient and lacks well-educated human capital.

To sum up, most SSA states faced problems concerning bad governance. Often corruption and the suppression of the opposition led to a bad investment climate and hindered a rise in living standards for the majority of the population. Many SSA economies remained dependent on only a handful of export goods, often primary products. Both features are visible in Figure 4 that plots the exports and sectoral division of the Nigerian economy. A similar pattern of the graphs for exports and industry attracts attention that can be explained with the fact that approximately 90% of Nigerian exports are fossils – this sector is contained in the measure for industry. Apart from that, the absence of a trend in the data might be result of a lack of long-term macroeconomic policy due to the frequently politically unstable situation.

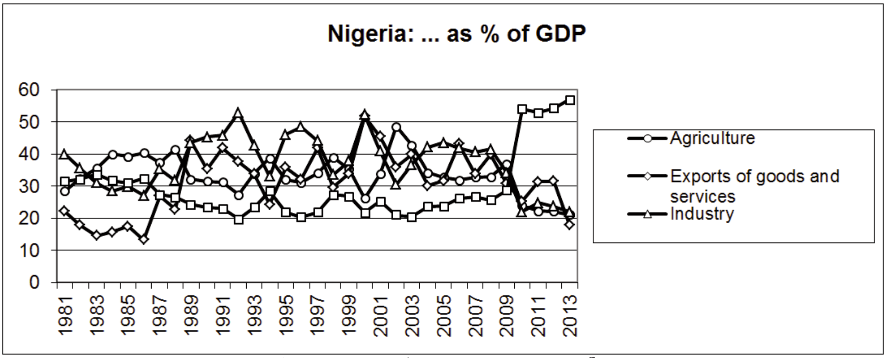

Figure 4: Exports and economic sectors of Nigeria
Source:World DataBank and own calculations

Furthermore, an often weak infrastructure prevented a large-scale industrialization. Nigeria was one of the most industrialized countries of Africa but power outages and high transport costs played their part in hindering an increase in the share of GDP.
Of course, external factors like the geographical position (land-locked = no harbour), often unfavourable climate and diseases also influenced the developments in SSA. Because of an arbitrary determination of borders by former colonial powers, ethnic tensions might have emerged that meant a restriction of growth perspectives.

Now: Is Free Trade Always the Best Policy?

After comparing two world regions that can be described as winners and losers from free trade in the last decades, a conclusion can be drawn.
EA showed that a stable and corruption-free government and well organised institutions matter because they enable the efficient implementation of a long-term growth strategy. Furthermore, the diversification of exports and the economic structure may also be crucial, for the reason that dependencies lead to unstable economic performances determined by world prices and demand. As a matter of fact, the ability to raise savings and to attract FDI as well as a good infrastructure enabled South Korea to grow rapidly. The analysis also revealed that democracy or abundance in resources are not necessary conditions for benefiting from trade. Regarding resources it may, at times, even be an obstacle like the case of Nigeria showed. Apart from these endogenous attributes, various exogenous characteristics promoted East Asian engagement in free trade, like a favourable geography or the relative freedom of ethnic tensions.

Surely, no single factor can boost or hinder growth alone; instead it is the combination of factors that leads to different outcomes. Besides, policies EA applied to promote industrialization, may not work for other countries or another time period. It often country specific characteristics or circumstances that enabled their successful development. If SSA countries nowadays pursue a policy of export-orientation that – like in EA – starts with industrialization in the textile sector, they face massive Chinese or Indian competition thus growth on basis of this sector is quite difficult.

Most importantly, the comparison pointed out that benefiting form trade was often not result of completely relying on market forces. All Asian Tigers used interventionist and partly protectionist measures to promote exports and protect infant industries. As a matter of fact, some SSA countries also pursued similar policies but were less successful. A possible explanation for that divergence may be that East Asian politics were marked by unusual stable conditions and that institutions were sufficiently developed.

In the end, it should be clear that free trade is not always the best policy since certain conditions have to be fulfilled to be even able to participate in free trade in a way that promotes growth.

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IN THE NAME OF THE FATHER: PATERNALISM AS CLASS WARFARE

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Paternalistic policies treat individuals benevolently but often intrusively. Daniel O'Brien argues that such policies unfairly target the poor and can undermine the choices of vulnerable groups in society. He contends that policymakers should be more accommodating in allowing the preferences of such groups to coexist alongside the views of those in power.

Introduction

Paternalistic policies are designed to prevent people from harming or failing to benefit themselves (Hillman, 2009). In theory and practice, such policies often target the poor on the assumption that they are most in need of saving. However, it seems evident that paternalism has overstepped its bounds, or at least manifested itself in policies that directly contradict that aim.

This essay does not entirely reject the logic of paternalism. Rather, it argues for a more informed and balanced understanding of the many harms within that logic that stigmatise and limit social mobility for the poor. These empirical risks must be more explicitly weighed against theoretical benefits when considering the extent to which paternalistic public policy is desirable in any society, as well as the aims and means with which policy is implemented. This essay will examine three traditional justifications for paternalism as offered by Hillman (2009): interdependent utilities, community values, and hyperbolic discounting. In each case it will examine how policy based on these justifications can disproportionately undermine the poor instead of helping them, before discussing how policies can be better targeted to achieve their stated goals.

Illegal Markets and Interdependent Utilities

There are two basic forms of paternalism in public policy. Hard paternalism is legally coercive, eliminating voluntary transactions in the legal marketplace either through compulsory spending or the banning or restricting of purchases (Hillman, 2009). Soft paternalism, as described by Thaler and Sunstein (2003), "tries to influence choices in a way that will make choosers better off, as judged by themselves". Soft paternalism will be shown to be the less harmful of the two, and thus the more preferred basis for policy.

Hard paternalism can be legitimately justified when strong interdependent utilities exist, i.e., when one person's decision could strongly and negatively affect the utility of others. It seems logical, for example, to compel individuals to purchase health insurance. If such purchases were not compulsory, only those who frequently rely on their insurance would choose to buy in and it would become exorbitantly expensive for them to do so (Majerol, Newkirk, and Garfield, 2015). Society recognises that this logic punishes people who have made no fault of their own, e.g. being born with chronic health problems or having a serious accident. This effect also particularly hurts the working poor. In 2013, 71 per cent of nonelderly uninsured families in America had at least one full-time worker, and the most common barrier to insurance was cost (*Ibid*). Clearly, in some instances, involuntary purchases help to maximise utility for all members of society.

Far more often, though, hard paternalism removes the most preferred option for impoverished individuals by needlessly illegalising markets for the participant's own "protection". The commercial sex industry best exemplifies this flawed logic. Hillman (2009) offers a number of reasons for the illegality of commercial sex; he says that supplying sex "can be a means of last resort for earning income and suppliers can harm themselves". Getting a stressful minimum-wage job, or more often two or three, is also a means of last resort for earning income, but it is a far less effective way to do so than through commercial sex (Edlund and Korn, 2002). Welfare payments often attempt to eliminate the need for such undesirable circumstances, but Edin and Lein (1997) show that, in the US, commercial sex has been the largest supplemental income-earning activity for single mothers on welfare or with low-wage jobs, leaving the success of such efforts questionable at best.

Furthermore, workers in all fields and income brackets may harm themselves, but self-harm disproportionately occurs among sex workers because the market is illegal, not the other way around. Workers may be subject to abuse for which they have no legal recourse, especially given that illegal markets exclude law-abiding citizens by definition (Jakobsson and Kotsadam, 2010). The stigma of working in an illegal industry may also damage self-worth. Hillman sees this stigma as a reason to ban commercial sex, arguing that entering the field may limit one's choice of career options. Given that illegal markets for commercial sex thrive despite a perceived stigma, it seems that normalising sex work would be a preferable solution. Having to explain sex work on a CV may be embarrassing to some, but having to explain an extended period during which you were not legally "working" is far more damaging for career advancement. The specific effects of criminal convictions on labour market outcomes will be more thoroughly explored in the next section. Finally, it seems likely that some individuals, impoverished or otherwise, may not care about social stigmas regarding their choice of work, and would willingly supply commercial sex if they benefitted from traditional legal protections in the labour market.

Illegal markets are often mistakenly framed as inherently harmful. In reality the alleged harms are far more symptomatic of the illegality of the market itself. The logic of interdependent utilities explains why this is an argument for the widespread legalisation of markets. If only one country legalises prostitution, for example, the benefit to that country is minimal. The supply of voluntary legal participants is likely to be offset by coerced or kidnapped workers from other jurisdictions, driving down wages and driving up the prevalence of crime and abuse (Jakobsson and Kotsadam, 2010). Each additional country that legalises the market for sex exponentially decreases the incentive for illegal activity in neighbouring markets.

Community Values

If the legalisation of certain markets is shown to be desirable in practice, it may still be objected to in principle. Hillman (2009: 387) discusses the idea of "community values" as a type of societal moral framework that paternalism seeks to promote and uphold. He says, "Paternalistic public policies in a government jurisdiction do not restrain personal behaviour in a community but rather reflect consensual community values chosen when people choose where to live." Justifying paternalism through community values requires the problematic assumption that people are free, both legally and financially, to select the community they want to live in. Realistically, many people are born into a community whose values do not align with their own. Those most harmed by paternalism are often those with the least recourse to choose a new community.

The pursuit of community values has also, in some instances, had the exact opposite effect. Jeffrey Kling (2006) and Harcourt and Ludwig (2007) find that the U.S. federal government's "War On Drugs" has undermined poor communities in a number of disturbing ways. Strict sentencing for even minor possession charges leads Kling to estimate that 32 per cent of African-American males born in 2001 will spend time in prison at some point in their lives, with most coming from impoverished backgrounds. Furthermore, for any given offense type, individuals with less human capital (e.g., education) tend to serve longer sentences (*Ibid*). Incarceration in any form leads to lost earnings, lost job experience, difficulty re-entering the labour market, and association with other criminals. All of these factors cause a serious risk of recidivism among impoverished inmates, as well as struggles to support a family or even a healthy life for the individual. Impoverished communities face far higher incarceration rates, often for petty crimes, and thus the struggle to establish community values stems, ironically, from legislative efforts to do so.

The loss of current and future income due to incarceration helps to perpetuate social inequality. Dahl and Lochner (2005: 30) find a distinct causal relationship between income shocks in poor families and educational achievement for their children – specifically an increase of 2.1 per cent and 3.6 per cent of a standard deviation, respectively, in math and reading test scores per $1,000 in income. Accounting for omitted variable bias and endogeneity issues related to income, they also find evidence that incorporating expectations of lower future income into current spending further harms a child's health and education outcomes. Using community values as justification for policies that disproportionately (and perhaps unfairly) incarcerate the poor thus unequivocally undermines family structures and social mobility in vulnerable communities.

Crucially, the actors within society that determine community values and the way in which legislation promotes those values are far more homogenous than the community itself. They are also highly unlikely to come from impoverished backgrounds (Gilens, 2007). As shown in Figure 1, Gilens estimates that policy outcomes "strongly reflect the preferences of the most affluent but bear little relationship to the preferences of poor or middle income Americans." This relationship stems from the disproportionate influence of wealth on political processes more so than any influence on actual public preferences (*Ibid: 2*). Community values are therefore less of a democratically agreed upon concept and more like the arbitrary legislative result of the current inclinations of powerful groups in society. Liberal governments should accommodate as wide a range of values as possible without violating basic individual rights (protection of private property, personal safety, etc.) in order to mitigate the persecution of minority groups under the guise of paternalism.

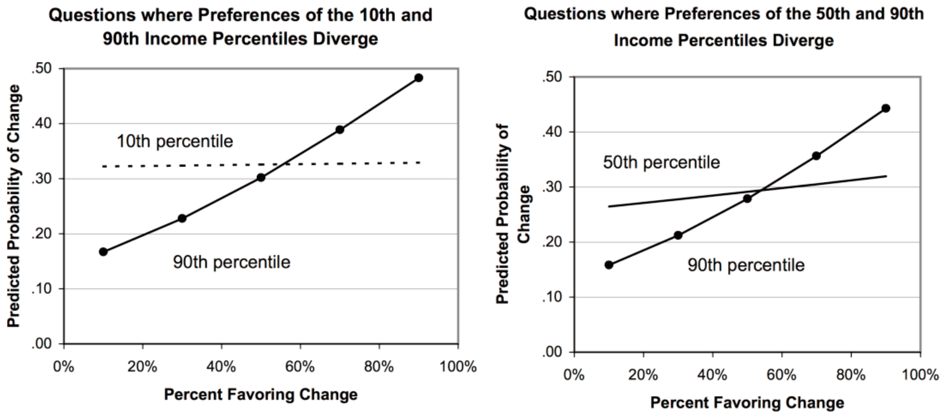

Figure 1: Income Effects on Policy Outcomes. (Source: Gilens, 2007)

Hyperbolic Discounting

Hyperbolic discounting, a third defence for paternalistic policy, refers to the tendency of individuals to act in ways they will, and possibly know they will, regret in the future. Specifically, the rate at which people increasingly discount future benefits over time forms a "hyperbolic" function. But policy rarely holds all hyperbolic discounters to the same standard. The miserly, workaholic banker may one day regret having overvalued money in the short-term at the expense of other components of happiness, like family time or travelling. There is no suggestion that he be protected from his hyperbolic discounting, though, because his vices happen to align with the "community values" described above. Politicians, meanwhile, are among the worst hyperbolic discounters, prioritising short-term public opinion and re-election prospects over rational long-term policy (Bartels, 2002). The philosopher Jeremy Bentham famously declared, "nothing short of absolute idiotism can cause the individual to make a more groundless judgement than the legislator" (Persky, 2007). Yet somehow the poor remain the primary target of paternalism.

Unequal discounting is not even inherently irrational, especially for the poor. Murphy and Becker's (1998) theory of "rational addiction" suggests that individuals can account for future costs such as addiction when making decisions to smoke, drink, or gamble. Similarly, Stegman (2007) argues that payday loans can fill a short-term financial need that makes them rational for some people. When Hillman (2009: 380) patronisingly declares, "people want immediate gratification and are therefore unwilling to wait until payday for their money," he implicitly rejects the possibility that they are unable rather than unwilling. Individuals living on an already tight budget may face an unexpected family health emergency or need to repair the car they use to get to work. In these cases the money is more valuable at the present than it will be at the future payday, because without it the individual may no longer have a job. Lower income families have far less access to traditional loan sources (Stegman, 2007); so turning to a payday lender may be a painful but rational last resort.

The subjectivity of quantifying future benefits is also a relevant consideration of policy. Certain individuals are truly unconcerned about wealth and social status, and may value leisure time far more than any additional benefit from working or saving more. Similarly, some may view entrenched social immobility as reason enough to play the lottery or spend extra money on things that make them happy in the present. It is difficult to say for certain what counterfactual benefits they are foregoing, because only the individual can accurately evaluate their subjective benefits. Unless those decisions are putting children or other individuals at risk, policymakers have no basis to intervene. The Economist (2012) argues, "If there is widespread disagreement about the human good, about what counts as a benefit or a harm, then paternalistic policies, even when they work as intended, inevitably restrict the liberty of some citizens in the service of conceptions of the good they reject."

In the context of the empirical harms of hard paternalism, the rapidly expanding literature on libertarian or "soft" paternalism should be welcomed. Soft paternalism can go a long way toward minimising the risks of hyperbolic discounting by designing policies to help those who unknowingly behave irrationally while respecting the decisions of others. First and foremost, the government bears primary responsibility for providing objective and helpful information to its citizens. Properly informed citizens find it easier to make choices that they feel are in their own interests (Camerer et al., 2003). From there it can further promote socially optimal decisions by setting incentives through tax credits, etc. and by framing decisions appropriately (*Ibid*). Ultimately, well-targeted soft paternalism can be far more effective at loosening legislative shackles on the poor and freeing up social mobility.

Conclusion

This essay has shown numerous ways in which strong paternalistic attitudes and policies unfairly target the poor. They too often stigmatise and undermine the life choices of the most vulnerable groups in society. Policy decisions must offer more room for the experiences and preferences of such groups to coexist alongside the more traditional values and narratives of those in power.

Individuals are far from perfect at judging their own best interests, but that hardly precludes them from being the "best" at it. Following the logic of hard paternalism risks legislating regret out of life entirely. Almost any decision may end in regret, but none will necessarily do so. Searching for the ones that won't is a crucial part of the human experience, and one to which the poor are disproportionately denied access in paternalistic societies.

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BRITAIN MUST LEAVE: WHY PATRIOTISM HAS NO PLACE IN THE MODERN UNION

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At a time when nationalist parties are gaining support across Europe, Rónán O'Connor deftly argues that patriotism is a barrier to the survival of the European project. In particular, he shows that euroscepticism in Great Britain stands in the way of the evolution of the Union. He further highlights the potential of a federalised EU to address many current European and even global challenges.

Introduction

The EU's evolution to date has been a narrative of economic integration followed by reluctant incremental political and fiscal integration to sustain economic development. This reluctance is borne of the hesitancy with which governments relinquish sovereignty due to a misbegotten fear of European federalisation. When the European project was conceived of, politicians such as Jean Monnet spoke boldly of a future with a United States of Europe. This essay will contend that a turning point is upon us where the EU must once again embrace an 'ever closer Union' to survive. What stands in the way is the nostalgia of former superpowers such as Great Britain, who are unprepared for a post-national global order. This essay will illustrate the role of euroscepticism, which Great Britain embodies, in preventing such evolution. Furthermore this essay will demonstrate the means by which a federalised EU would solve many of the current crises facing the Union.

'An Ever Closer Union'

The formation of the European Coal and Steel Community was a purely economic endeavour. While the threat of the USSR and the aftermath of World War Two were clearly key in conceiving of a united Europe, these issues could not have driven the Member States to such an integrated project. This is clear for several reasons. If the threat of war or unrest, either from the USSR or within Europe itself, was of key concern then defensive mechanisms would have been at the heart of the project. No defense alliance was ever agreed as part of the European treaties. In fact, NATO was set up specifically to serve as a defense alliance for European stability. The close ties between the Marshall plan and the

European project highlight the prioritisation of economic recovery. The funding provided under the Marshall plan was specifically provided on condition of mutual economic recovery: it required a shared commitment for continental Europe to return to growth (Kunz, 1997). This mutually assured future enshrined in the Marshall plan may well have been the first step towards intertwining the futures of recovering European economies, a legacy that lasts to this day. This casting in of the lots of European countries would never have been politically tenable if it weren't purely based on economic interdependence (Kunz, 1997). Perhaps Bastiat provides the reasoning that was promulgated at the time, that "When goods don't cross borders armies will". Yet as the project succeeded and growth within the ECSC accelerated, it was not long before economic interdependence was being framed as the first step towards a federalised Europe. It seems clear that 'legitimation "through outcomes"' was and continues to be central to the future of an ever-closer Union (Habermas, 2001). The issue with such reasoning is that the commitment to the project from some parties is only based upon empirical success rather than a commitment to the ideal of the project itself. Given that the European project is innovative to the point of having no global precedent, such justification is untenable.

Great Britain provides an excellent illustration of this 'legitimation "through outcomes"' in the 1960s with the formation of the European Free Trade Area. This was instigated to compete with the European Community's Customs Union. Britain's main objection to the Customs Union was the supranational governance of the agreement which was a sacrifice of sovereignty that the fading superpower was unwilling to concede. Instead Britain instigated an intergovernmental agreement based purely upon self-interest rather than economic cohesion. This group failed for several reasons; it was an inferior economic grouping consisting of marginal trading partners and the exceptions made for agriculture and a lack of an external tariff were all motivated by underlying protectionism on the part of Great Britain (Fienberg, 1994). Once again Britain reluctantly bought into the European approach once it became clear that it was to be far more economically viable as well as due to the pressures put on them by other European powers to do so.

The British approach of 'legitimation "through outcomes"' is ultimately flawed for two reasons. The first, more obvious reason, is that quite simply things cannot always be good - there will be periods of crisis such as is being experienced at present. The second reason, which extends upon the first, is that in order to protect the Union from crisis, political and fiscal integration is required. Britain's reluctance to accept this commitment arises because it adds a moral dynamic to the Union. Free trade is a relatively amoral enterprise - the buying and selling of goods with other democratic countries requires little moral justification. Political and fiscal integration change this because, as will become clear, they require value judgements to be made. Yet when one considers the level of economic integration that occurred from 1950 to the present day it is impossible to imagine no commensurable shift of political and fiscal sovereignty to the supranational level.

To demonstrate this one need only look at a significant and recurring issue for economic integration, which has been the growth of the regulatory sphere. Regulatory harmonisation became necessary due to the high growth of intra-EU trade which exploded even prior to the 1950s. In order to create a level playing field, regulations had to be standardised. This stoppped governments from favouring domestic business by regulating out European competition. It also ensured that public goods were protected such as health and safety standards and environmental protection.

The most recent instance of a public good going unregulated is the banking crisis. The Single Supervisory Mechanism was established as a result to protect both the Euro and the European economy. The bank bailout itself will be returned to later, yet even without the bailout the regulation of banks must occur at a supranational level if the banking sector is to remain comprehensively integrated. The need for regulation is largely unquestioned and yet there is an expectation that it could be achieved without a political element. There is an underlying fear about the future competitiveness of domestic markets on an evenly regulated playing field, despite the success of EU businesses to date (Barysch, 2014). Political accountability is key for supranational governance and it is far more innocuous than portrayed. While caution in the face of accelerated integration is wise, it is important to recognise that the political and fiscal integration are simply catching up with the advances in economic integration that preceded them. While it is clear that the political and fiscal elements were not politically possible at the outset of the project, they were inevitable if the project is to be sustained. Therefore 'an ever closer Union' is less of an intention than it is an inevitability if the European project is to continue.

The Potential of a Post-National Europe

Even as the EU recovers from the banking crisis Great Britain is still considering its future as a Member State. Such scepticism has not been explained by the British through the emphasis of some systemic flaw in the European project. Rather it has been a shying away from the responsibility of sharing the burden of economic downturn justified through a patriotic distaste for bearing the burden of the EU's failings (of which Britain sees itself largely absolved) symbolised by the rise of the far right in Britain. And yet many Member States hold reservations about a federal Europe because there is no 'European people' (Habermas, 2001). The 'no demos' problem is one that finds justification in an ethnic conception of national identity. Europe doesn't need an ethnic conception of its populace if that people is created by a civic conception. Why must there be a historical lineage to justify a nation state when people can instead choose to belong? The ethnic conception of identity finds itself increasingly irrelevant due to globalisation because no Member State can claim a homogenous people in a culturally diverse context (Habermas, 2001). Ultimately all that seems to be keeping Member States from committing to a European nation state is a long-standing tradition of ethnic identity, even as that tradition is dissolving before our eyes. Such 'ethnic protectionism' may be politically expedient given the current crisis but it is stymieing the European project in its natural progression.

At this point it is important to identify why such 'ethnic protectionism', which Great Britain embodies, is problematic for the future of Europe. To do so one need only look at the dilemma of fiscal union which has been brought to the forefront by the bank bailouts in the recent crisis. Deeper Eurozone integration is contingent on a sustainable solution to the debt crisis still plaguing Europe. The most recent bank stress tests have perhaps put the public too much at ease because what has been achieved is essentially a transfer of the problem from bank liquidity to national debt. Without relief of this debt Europe could be set for a "lost decade" the likes of which was last seen in Japan (Kahn and Tananbaum, 2014).

The resolution to this problem is clear because it is the action that would be taken in any independent economy: debt relief. There is considerable reluctance from even the most devout Member States to commit to debt relief. Germany in particular fears debt relief creates a moral hazard that encourages risky financial behaviour. In order for debt relief to be effective it must occur within the framework of a transfer union, where a reoccurrence of such a crisis will once again hold all Member States accountable (Kahn and Tananbaum, 2014). It is interesting to note that such a concern of moral hazard would not stop most Western countries from resolving debt crises within the national context. What is implied is the strong national paradigm from which all governments view this crisis: the crisis is about the failure of Ireland, Greece and Spain to regulate their banks rather than about protecting the economic future of the Union. It would be absurd to see such blame laying occur within an independent country. Imagine all states east of Texas refusing to support a bailout for California, holding the entire populace responsible for economic failure that occurred, if only geographically, within that State.

This geographical aspect of the crisis is of particular import in the Union. The integrated banking framework means that the bank bailouts paid to Irish banks also funded French and German banks by proxy. While the public are happy to share the economic growth brought about by an interdependent economy we are quick to forget this trait in times of economic downturn. Ultimately debt relief is a moral enterprise in that it denotes that a bank, a business or an economy is 'deserving' of being saved. If the Member States cannot bear this responsibility of codependence and cannot find other Member States deserving of transfers to create economic stability within the Union then the EU can go no further.

The potential of the EU if the Member States embraced a fully fledged Union are embodied in another current crisis facing the EU: the Crimean conflict. The EU is integrally linked to the upheaval in the region. At present this is reduced to surveillance of EU borders, particularly in the Baltic states, along with empty threats condemning the Russian invasion of Crimea. The EU cannot take meaningful action even if such action was advisable. If the EU held a common security and defense policy it would achieve two things. First, when foreign intervention is called upon, it is generally the USA along with the possible support of European allies such as Great Britain or France. If international consensus opposes such a move at best there are impotent protests from the UN, as in the instance of the invasion of Iraq. If the EU held security and defense capabilities and it refused to support an intervention in which one of its Member States was involved, this would resonate far more than UN disapproval (Habermas and Derrida, 2003). Second, it is an odd presumption that handing the EU military capabilities would involve a high risk of significant military involvement. Yet whenever the question of a European military arises it is presumed that the EU would become the new USA. It seems the justification of this is simply by example, that the only other superpower with the military capabilities abuses them so the EU would too. The EU was founded as a means of creating peace by trade not by force. Given the diverse history and perspectives of the Member States perhaps the EU embodies all of the best qualities of the UN. It involves enough voices to inject reason to override patriotic fervour while consisting of a group of countries with enough of a shared history to take action rather than be paralysed by bureaucracy.

In order for the EU to achieve any of this we, the European people, need to take the leap. The leap to abandon our nationalist fervour as justification for doubting the project, to commit to the Union for more than self-interested economic gain, to persevere through economic downturn, and to embrace the responsibility of becoming a collective global superpower. The potential is there and since Jean Monnet it was intended that it should be realised. For some this leap might be too far. Great Britain has for too long doubted the entire process, clinging to its historic imperial dominance perhaps in regret of the knowledge that the rise of the EU marks Great Britain's fall from international significance. As long as this doubt comes from a Member State the EU cannot move forward as the conviction in the Union's progression is diluted. If the EU can accept a future in which it exists without Great Britain, the self-interested doubts which British euroscepticism embodies can finally be debunked, even when they come from other Member States. Rather than threatening the stability of the EU as many predict, the departure of Great Britain from the Union may well turn out to be the turning point at which the EU once again takes an emphatic step towards an 'ever closer Union'.

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AN OVERHAUL OF THE FRENCH LABOUR MARKET

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In this essay, Theophile Pastre and Killian Cogan explore the much-maligned French labour market. In particular, the problems caused by open-ended contracts and the so-called 'threshold effect' are discussed. The authors advocate a new model based on the Danish system of 'flexicurity' in order to reduce long-term unemployment and boost growth. Proposed reforms include greater firing flexibility, fewer administrative requirements for larger firms, more retraining schemes and stricter enforcement of unemployment benefit rules.

Introduction

France is the world's fifth largest economy and is home to some of the world's most successful and renowned companies. The French social model is also hailed for the strong public healthcare and educational services provided to its citizens. Moreover, France boasts relatively low levels of income inequality compared to other industrialised countries. However, despite these strengths, the French unemployment rate has hovered near 10 per cent for the last couple of decades and growth has been anemic. It is conventional wisdom that the French economy is burdened by excessive red tape and bureaucratic procedures. As the recent Nobel-prize winner Jean Tirole puts it, "the French system is a machine that creates unemployment". In this essay, we highlight the deficiencies of the French labour market and present a number of reforms that would significantly spur growth and reduce long-term structural unemployment. We advocate a French version of the Danish 'flexicurity' model, understood as a combination of flexibility for employers and strong support for the unemployed (Boeri, 2012). The first two parts of the essay will deal with policies aimed at encouraging hiring and entrepreneurship from an employer's standpoint, while the third part will focus on incentivising job-seeking and improving assistance from a worker's perspective.

Greater Flexibility Within Open-ended Contracts

The French legal system recognises two main employment contracts, open-ended, full-time contracts with an unspecified duration (Hamren, 2014), CDIs (*contrats de travail à durée indéterminée*), and fixed-term contracts, CDDs (*contrats de travail à durée déterminée*), that last a limited duration. Under open-ended contracts, CDIs, firing procedures are highly regulated by rigid employment laws. Employee dismissals have to fulfill strict conditions set by the Code du travail and employers can only terminate a contract if judges deem their motives sufficiently serious (Hamren, 2014). In the case of economic dismissals such as financial difficulties, firms are only allowed to dismiss workers if the judges consider the advantage sought by the employer to outweigh the harm experienced by the employee (Hamren, 2014), a system which favours the latter. For reasons other than economic ones, i.e. concerning the behavior or performance of an employee, the law stipulates that "whenever a doubt exists as to whether the employer has proven that termination is warranted under the real and serious cause requirement, the judge should hold in favor of the employee" (Hamren, 2014: 545). Firing procedures are thus extremely burdensome and difficult for employers, often preventing them from terminating poorly performing and redundant employees (Hamren, 2014).

This lack of flexibility discourages entrepreneurship and contributes to France's low levels of start-up activity as it raises the cost of risk taking associated with the launching of a new business (Micco and Pagés, 2006: 24). The rigidity of firing practices deters already existing firms from recruiting new workers, as employers are reluctant to hire if they can only fire with great difficulty.

Moreover, when firms do hire, they tend to prefer short-term contracts (CDDs) to open-ended contracts (CDIs), especially during times of economic downturn and adverse business conditions. Jean Tirole recently stated:

> *"Firms are afraid of creating CDIs. They lack flexibility if problems arise. Instead, they use a lot of CDDs and internships. Low-skilled workers go from one small job to another, and unemployment in the meantime."(Le Monde, 2014)*

The Italian economist Tito Boeri (2011) conducted a cross-national study that confirms the correlation between the rigidity of employment protection for open-ended contracts and the share of fixed-term contracts in overall hires. In 2014, CDDs accounted for more than 80 per cent of hires in France (Dares, 2014: 2). As a result, this increases unemployment in the long run and induces psychological distress for employees, as their professional position is unstable. "New entrants into the labour force as well as the least skilled and most vulnerable workers suffer from high job instability and repeated spells of unemployment, which is both economically inefficient and socially unfair" (Enderlein and Pisani-Ferry, 2014: 8).

In order to foster entrepreneurship, French policy makers should allow greater flexibility for employers by enabling them to dismiss workers more easily under open-ended contracts. Entrepreneurs face uncertain economic outcomes and need to adjust their businesses rapidly (Hamren, 2014). Relaxing firing procedures would thereby enhance business efficiency and stimulate the much-needed creation of start-up companies, which France severely lacks (The Economist, 2013). For established firms, easier and simpler dismissal procedures would encourage job creation and eliminate the preference for fixed-term contracts. Hence, a more flexible CDI would reduce long-term joblessness and bolster potential growth (Enderlein and Pisani-Ferry, 2014).

Legislation implemented in 2013 has relaxed the rigid firing procedures, yet it failed to remove one of the most significant obstacles to employer flexibility: firms still need to justify their financial difficulty to dismiss workers (Hamren, 2014). French legislators should further deregulate firing procedures. The improved competitiveness will foster long-term job creation and prevent large-scale dismissals associated with firm breakdowns.

Preventing the Threshold Effect

Another hindrance to job creation is the so-called 'threshold effect' whereby firms do not hire more than a certain amount of workers to avoid increased administrative procedures. Once firms reach the level of 50 employees, a number of obligations start to apply, such as the requirement to have a "works council and a hygiene-and-safety council on such mundane matters as changing the office furniture" (The Economist, 2014). Firms are thus discouraged from expanding beyond 50 employees and choose to curtail their growth. As a result, we see that, "France has twice as many firms with 49 employees as it does with 50" reflecting the general effort of firms to remain below the threshold (The Economist, 2014). This means that businesses do not reach their optimal size and create unnecessary unemployment (Hamren, 2014).

Legislators in France should encourage firms to grow by reducing the bureaucratic burden incurred above the 50 workers threshold. Simplifying procedures and removing unnecessary administrative bodies beyond the threshold would incentivise companies to increase in size. For instance, the Works Council previously required for businesses above the threshold should be removed, as reforms implemented in 2013 have made it redundant. Its initial role as a mediator between workers and employer for dismissals is no longer needed. Employers can now directly negotiate an agreement with trade unions or unilaterally implement a maintenance plan, rather than having to receive the approval of the Works Council (Hamren, 2014). Other unnecessary and onerous Councils such as the CHSCT (committee on hygiene, safety and working conditions) should also be removed as they deal with tasks easily fulfilled by trade unions.

Enhancing Job Assistance and Unemployment Insurance

As we have thus far focused on the employers' side of the equation, we shall now propose a reform of France's active labour market policies and unemployment insurance schemes.

> *"Employment protection reform should be part of a comprehensive package that promotes better allocation of labour and adaptability in the labour market but also provides safety nets for the unemployed and effective re-employment services"(Scarpetta, 2014: 1).*

Reforming protection law without the second element of this package would make a significant fraction of the displaced workers worse off, as they would remain unemployed for longer and face lower real wages in their next job. France has a governmental agency (Pôle Emploi) devoted to helping the unemployed find jobs while providing them with financial support. Though it offers job search assistance and communicates information on vacancies, the agency lacks the fundamental element of retraining. The 'flexicurity' model initiated by Denmark and adopted in countries such as the Netherlands and Germany not only helps the unemployed look for jobs but also enrolls them in retraining programs if needed. France could learn from Germany's 'transfer companies', which provide displaced workers with courses to advance their technical skills (The New York Times, 2013). The acquisition of new skills improves the allocation of resources in the labour market as it allows workers to adjust to sectoral shifts. For instance, retraining programs are crucial in tackling the unemployment induced by the decline of certain industries such as manufacturing. The role of Pôle Emploi in France should be extended to provide effective retraining schemes in order to adapt the workforce to the shifting needs of employers and thus reduce unemployment.

Under France's unemployment insurance system, the unemployed are eligible to collect unemployment benefits (assurance-chômage) or social assistance (revenu de solidarité active) on the condition that they seek jobs. However, fraud persists as the rules are "undemanding and rarely enforced" (The Economist, 2014). The government should address the issue of voluntary unemployment and implement stricter policies "to make those claiming unemployment benefits more active in seeking jobs" (The Economist, 2014). This can be done at a surprisingly small cost if we follow the example of developing countries which start to build robust records of who gets what: people eligible to social benefits register online in Brazil, and biometrically in South Africa. Such technology cuts administrative costs and makes it less likely that one individual benefits from overlapping schemes.

Conclusion

Based on Denmark's successful 'flexicurity' model, we lay out a number of reforms aimed at reducing long-term unemployment in France. As France already enjoys extensive social security we tend to focus more on the lack of flexibility in its labour market. First, we demonstrate that the rigidity of firing procedures under open-ended contracts as well as the 'threshold effect' act as a deterrents to business and job creation. We thus advocate greater flexibility for employers to dismiss workers in order to kick start entrepreneurial activity and encourage hiring for already existing companies. To address the 'threshold effect', we show that French policy makers should seek to reduce the bureaucratic burden incurred by firms of more than 50 employees and prove that entrepreneurship and business growth should be promoted by removing unnecessary and cumbersome regulations. In the final part of the essay, we suggest the provision of retraining programs by the governmental agency Pôle Emploi in order to match the shifting needs of employers to the skills of the unemployed. Finally, we advise stricter controls on those claiming benefits to tackle voluntary unemployment. One must however bear in mind that the effects of these policies would happen over time. In the short run, firms will possibly lay off previously overprotected and unfit workers en masse, thereby putting upward pressure on the unemployment rate. Nevertheless, unemployment will be reduced in the long run, as firms will be more inclined to hire and launch new businesses.

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The Moral Limits of the Market for Blood

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How should economics view the market for blood? John Tate argues that given the current social organisation for whole blood, economists must help to optimally allocate these scarce but highly valuable resources. Through incentivising and coordinating supply, imbalances can be mitigated, while the need for illegal markets is reduced.

Introduction

> *"The economic system is, in effect, a mere function of social organisation"*
> (Karl Polanyi, 1924)

There has been a quiet revolution where we have drifted from being a market economy to a market society. The rise of "forehead advertising" as a body billboard is just one example of such a phenomenon. Little discussion has taken place over what role money and markets should play in our society, and without such a discourse markets have gradually expanded. Consequently, the notion of what goods and services that should or should not be bought or sold has changed. In some cases non-market norms of importance are crowded out, and such effects are often hard to reverse. Karl Polanyi, the economic anthropologist cited above, argued that allowing the market mechanism to be the sole director of humans would result in the demolition of society.

No matter what the outcome of the expansion of markets is, a public discussion must take place to avoid this passive encroachment. The aim of this paper is to spark such a debate around a particularly awkward case, the market for blood. First, one must clarify whether the market is undesirable and therefore open to being paternalistically banned as an expression of community values. Given such preferences, economists must attempt to optimally allocate these scarce resources. The market is only one mechanism, of many, to allocate resources, and as a social construct should be a benefit not a curse to society. The economic system must reflect the societal organisation.

Is the Market for Blood Undesirable?

Whether an outright market in blood or an in-kind exchange is morally defensible depends, at least in part, on which stance towards the body and human personhood is correct. We have to decide what kind of good blood is and how it should be valued. This requires a moral judgment that economists hesitate to make. To answer such questions economists must rekindle their roots in moral and political philosophy.

Robert Nozick (1974), an American philosopher, infamously attacked the forms of paternalistic government that "forbid capitalistic acts between consenting adults." Such an argument would not care about whether a market is undesirable, as long as the individuals gave consent. If actors are well informed and rational, they are deemed to be able to make the best decisions for themselves. By that logic, the market for blood should be allowed to operate, as selling blood is by no means an addictive activity, which could corrupt consent.

However, severe inequality may undermine the voluntary nature of exchange. Without other options consent may be given despite moral objections. Such coercion may occur, as needy people are forced to donate blood due to economic circumstances. Hagen (1982) argues an individual may become so dependent upon the sale of blood that they may be tempted to endanger their own health. Such behaviour is reflective of the notion of hyperbolic discounting, where varying discount rates are applied over a decisions time horizon. In this case, lower income groups may discount the future heavily meaning the short-term monetary gains outweigh the long-term consequences.

Setting a fixed legal limit on the quantity and frequency of donations may prevent such events from occurring. However, the effectiveness of such a policy is contingent upon the regime. Under the Somoza dictatorship, Nicaraguans had plasma extracted from poor citizens for meagre money with little regard for their health (Hagen, 1982).

Such policy may not be perfect, but J.S. Mill would argue it is the best "not because it is the best in itself, but because it is his own mode". A problem with such reasoning is that it fails to account for interdependent utilities, where actions of others affect your utility. Such a case can be made for banning the market for blood as it crowds out non-market norms of moral importance, leading to a socially sub-optimal outcome. It is often implicitly assumed in textbooks that the price of a good does not change its meaning, which is not always the case. Attempting to buy friendship, clearly exhibits this effect, as it corrupts the product, as a hired friend is not the same as the real thing (Sandel, 2013).

Despite the potential efficiency gains from the expansion of markets, the allocation of resources may not necessarily improve as non-market norms of importance can be crowded out. A growing body of research confirms what this common sense suggests, and the Gneezy and Rustichini (2000) study is one example of such a case. From studying childcare centres in Israel, the authors found that implementing fines for delayed pick-up of children actually increased late pick-ups as norms changed. Such a phenomenon is not new, and was previously coined to be the "commercialisation effect" by Hirsch in 1976. Interestingly, such an effect is hard to reverse. After the fine was cancelled the problem of late arrivals continued, as the non-market norms were eroded.

Does such an effect hold for the market for blood? By comparing the UK and US system British sociologist Richard Titmuss argued paying for blood would reduce donations because volunteers, donating for altruistic reasons, would be less willing to donate if paid. Such a finding was not without its critics one of which was Kenneth Arrow, the Nobel laureate, who invoked two assumptions. Firstly Arrow questioned, "Why should it be that the creation of a market for blood would decrease the altruism embodied in giving blood?" Such a critique disputes the existence of the "commercialisation effect" for donating blood. Michael Sandel rebutted this claim by arguing that blood donation may be seen as an unfair labour practice depriving a needy person of employment for selling their blood. Would it be better to donate blood yourself or to donate $50 to buy an extra pint of blood from homeless person who needs the income?

Secondly, Arrow assumed that ethical behaviour is a good that should be economised. He believed that ethical behaviour is depleted with use, and should not be recklessly used when the market can operate (Arrow, 1972). Such a concept seems strange outside the world of economics. Aristotle taught that virtue is something we cultivate with practice: "We become just by doing just acts, temperate by doing temperate acts, brave by doing brave acts." Rousseau held a similar view that the more country asks of its citizens, the greater devotion to it. Such philosophical underpinnings reflect that altruism, is similar to the process of building muscles, they develop more with use. Slonim et al. (2014) find evidence in support of such claims in the current state of the whole blood market, as countries with higher percentages of volunteer donors are associated with a higher quantity of blood donations, even after controlling for per capita income.

Does it matter that social norms are crowded-out? In short, yes. As the economic system is a function of social organisation, prohibited markets are an expression of community values. Roth (2007) recognises moral objections to the commodification of certain social practices, when he writes of "repugnance as a constraint on markets". The market for blood appears to be an example of repugnant or undesirable market, as it objectifies a person by encouraging us to view our bodies as property, as collections of spare parts to be used for profit.

Even if monetising the market for blood might not itself be objectionable, it may cause society to slide down a slippery slope to genuinely repugnant transactions. If the market for blood is widely accepted it may mean blood can be used as collateral in contracts, which commoditises humans further. Such activities may disadvantage those who do not wish to participate as Basu (2003) highlighted with a sexual harassment example. In this case, legalising labour contracts that allowed sexual harassment would put workers who did not wish it, at a relative disadvantage to the status quo. So despite Mellström and

Johannesson (2008) finding that crowding out can be resolved by adding an option to donate the payment to charity, such evidence does not suggest the expansion of markets are beneficial.

Therefore, due to interdependent utilities a market may be banned as an expression of community repugnance. Expanding markets to such areas may crowd-out non-market norms of importance and potentially cause society to slide down to genuinely repugnant transactions.

A Historical Perspective

The market for blood has not always been seen as repugnant, like other markets, what is seen as socially acceptable changes. Since the outset there were volunteer and paid blood donors. Individuals could earn $35 to $50 per donation in New York in 1923, which was a large amount of money given that the average annual income was around $1,200 (Whitely, 1999).

However, public perception largely shifted in the 1960s and 1970s as the importance of blood safety was increasingly stressed. Titmuss' work on blood donation being safer had large policy implications, which shifted global focus to the volunteer system. Such a case is evident with the World Health Organisation's aim to move towards a 100 per cent voluntary blood donation scheme. Despite such claims of potential adverse selection of market-based schemes, Slonim et al. (2014) argue there is no evidence to support such a claim. Despite this there still appears to be a community preference for donating whole blood.

The same cannot be seen with blood plasma. The US has become the dominant world supplier of plasma with its market-based scheme. In 2004, the United States collected almost 70 per cent of the world's plasma, 81 per cent of which was collected from paid donors (Flood et al. 2006). Objectively, repugnance arguments should apply equally between whole blood and blood plasma. One may argue that such a phenomenon is evidence of market-norms altering societies perceptions of what is deemed to be repugnant.

Current Problems

With no market price and limited storage length for whole blood, coordinating volunteer supply and demand has been subject to episodes of both excess supply and shortage.

Supply shocks often occur after disasters, due to the suppliers' altruistic responses. After the terrorist attacks of 9/11 an additional 570,000 additional units of blood were collected. Due to the limited shelf life, 6 weeks, and virtually no change in the demand for blood an estimated 100,000 to 300,000 units were discarded, which had an estimate minimum cost of $21-63 million (Starr, 2002). The well-publicised images of lines outside blood donor centres likely exacerbated the problem by signalling that donating was the appropriate social response.

On the other hand, shortages often occur during winter and holiday periods, as more people have colds or travel, and are therefore unable to donate. If attempts to boost supply via media campaigns are inadequate, usage must be prioritised and elective surgeries postponed. Toner et al. (2011) report that 58 per cent of US hospitals surveyed have postponed transfusions and 46 per cent have postponed surgeries.

In extreme cases, illegal markets can arise in an attempt to mediate such imbalances in supply and demand. With no rule of law, a form of Nietzschean anarchy arises, as the strong dominate the weak. Such a case is evident in Cairo where five people were sentenced for trafficking blood taken from street children (Egypt Independent Online, 2013).

How Economists can Improve the Market for Blood

If a social organisation was not constrained to the volunteer system for whole blood, the market mechanism would clear itself, and illegal markets would not arise. Given that whole blood in developed countries, like Ireland, tends to be characterised by volunteer supply, motivated by altruism, there is an absence of a price mechanism to balance supply and demand. Economists can help provide an effective information and incentive system to encourage supply, and reduce the imbalance.

Thaler and Sunstein (2003) advocate a form of Libertarian Paternalism, which attempts to "nudge" individuals to choices that will make actors better off, as judged by themselves, whilst still maintaining the ability to choose. Recent research supports the success of such a policy. Lacetera and Macis (2010) report higher donations from symbolic rewards (medals) and social recognition (newspaper recognition) among all donors in an Italian town. Even unconditional gifts to donors who had not donated for at least 28 months increased donations, due to the reciprocity nature of gifts (Slonim et al., 2013).

On the other hand, non-price signals can help to raise awareness of need. Under the current system donors may donate when it is not needed and may not when it is needed. Despite the lack of price mechanism a clearinghouse can provide such coordination. By targeting long-lapsed donors in Australia, Slonim et al. (2014) found that the registry increased donations during shortages. Such a result provides evidence that introducing non-price signals and nudging people to donate can improve the imbalances in whole blood supply.

Conclusion

As a social construct, markets should be a benefit not a curse to humankind. If a community perceives a market to be repugnant or socially undesirable, it can crowd out non-market norms and lead to a moral slippery slope. Public debate is necessary to ensure the expansion of markets is a reflection of the social organisation. The recent move towards a market society, where everything is up for sale, may not necessarily be socially optimal as market values seep into every aspect of our lives.

By focusing on the market for blood, it is evident that markets crowd-out non-market norms of importance. Such an effect occurs as the community values blood donation to be a moral responsibility of society. This preference has not always been present, evident with the historical evolution of the market. However, given the current social organisation for whole blood, economists must help to optimally allocate these resources. Incentivising and coordinating supply can mitigate current imbalances, and reduce the need for illegal markets. Thus, by reflecting the social organisation the allocation of resources in the economic system improves.

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Some Like It Hot: the Impact Of Climate Change on Housing Markets

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Eoin Campbell uses examples from cities in the United States to provide an interesting and thoughtful discussion of the effect of climate change on housing markets. He finds that house prices in many cities, such as Miami, do not reflect the serious risks of impending climate change and shows that behavioural biases and heuristics can explain this phenomenon. He also argues that the private insurance industry is in a unique position to remedy this and to warn markets of the potentially disastrous consequences of failing to act.

Introduction

Climate change is a hot topic. Estimated average global temperatures will increase by 2.6-4.8C between 2080 and 2100 if emissions remain unchecked, contributing to more frequent extreme weather events such as hurricanes, flooding, wildfires, heat waves and droughts (IPCC, 2013). If this trend continues there will be potentially dire implications for homeowners.

Climate change has the potential to affect many aspects of the urban environment including house prices, insurance premiums, residential mobility and urban spatial arrangements. Housing is often the largest kind of consumption good individuals will spend their income on, representing nearly one-third of US CPI basket, and an important investment asset, representing over half of US household wealth (Lyons and Mullbauer, 2013). Thus our understanding of housing is paramount to our understanding of society and individual welfare. Market volatility, through wealth depreciation or negative equity, has direct welfare effects for property owners. There is strong evidence of the link between housing markets and broader economic outcomes particularly through its links with the financial sector (ibid). Furthermore, as economists we care about why properties are valued and how they vary. Will a house in Portland differ if it was relocated to Miami? If so, by how much does it vary and why?

This paper examines whether climate change is changing perceptions within the real estate industry and what prospective consequences may arise for cities. Insights into future property markets are drawn upon mostly within the United States[1]. The inquiry into this topic starts with a discussion of ignorance in the Miami real estate market.

The Miami Paradox

In 2013 Rolling Stone Magazine published an article arguing that rising sea levels will bring about 'imminent doom' to Miami (Goodell, 2013). Miami Beach, for example, is only 1.2m (4 feet) above sea level (City-Data.com, 2014). Rappaport and Sachs (2003) further point that this threat is not isolated: the majority of US population and wealth is located in coastal and great lake areas. Despite the supposed impending doom of Miami, house prices have rapidly increased over the past 30 years (financial crisis aside) at the same pace as in-land Denver (City-Data.com, 2014). Certain Miami districts like Miami Beach and Coral Gablesare are experiencing even more pronounced booms (ibid). The non-responsiveness of Miami real estate poses a puzzle: Why do owners of property in Miami not face a price discount with the heightened climate risk?

Climate change's impact on physical capital rather than human capital may partially explain this puzzle (Bunten and Khan, 2014). In the US, the ratio of total value of lives lost to total damage to physical capital is strikingly low. In the case of Hurricane Sandy in 2012, 117 people were killed. If we valued each of these lives at \$6m, summing to \$702m, this figure would still be swamped by the total physical property damage of \$65bn (Mulvihill, 2013). Comparably the total number of homicides in New Jersey (state most damaged by Hurricane Sandy) was 409 (Star-ledger Survey, 2013). A former president of the Detroit Association of Realtors seems dismissive of climate change potential impacts on Detroit as an attractive city, arguing that there a more immediate concerns facing the housing market such as crime (quoted in Kingson, 2014). The point here is that unless climate related threats are a significant threat to life (like crime) it is not enough to prompt mass panic in the property market.

As long as the rich are rich enough they will choose to remain in high-amenity Miami, New Jersey and New York. In order to enjoy these amenities, the wealthy are willing to rebuild their houses after an extreme event that poses no serious effect to their life, such as flooding or a Hurricane (Bunten and Kahn, 2014). Market rebounds following natural disasters seem to support this theory.[2]

1. This is for two reasons. 1) Most research thus far has focused on the US. 2) The US has a varying climate and labour and capital is free to move to any location, meaning potential competition over a wide array of cities. It would be interesting to extend research to other trading blocs or areas with competitive cities and free movement of factors of production such as China and the European Union but this is beyond the scope of this study.

2. Lawrence Yun, chief economist of the National Association of Realtors notes that after the initial slump associated with a natural disaster, insurance money begins to flow in and the market gets elevated to levels

In addition, as long as the increase in costs of climate catastrophes (future and uncertain) are smaller than the costs of moving and establishing a new social network (immediate and known), Miami residents may rationally choose to remain in the city (Bunten and Khan, 2014). This theory provides a useful starting point but does not completely explain the apparent ignorance of the property and insurance markets in Miami and elsewhere. For this we must take a closer look at risk assessment.

A New Assessment of Risk

The puzzle of Miami's house price figures suggests that it is plausible that imperfect capitalisation is a product of imperfect risk assessment. Hedonics, the neoclassical theory for conceptualising the relationship between house prices and environmental disasters (see Harrison et al, 2001), tells us that risk is calculated from the perceived expected value of utility lost from extreme weather events. This approach suggests differential premiums across properties varying in climate hazards and that they should be fully capitalised into house prices insofar as information about frequency and severity of risk of location is known (Macdonald et al, 1987). If this theory was to be realised, Miami would be in decline while Detroit would be experiencing a boom. The approach fails to offer convincing explanations of the current geography of market prices. Several studies appear to contradict the approach, suggesting relatively rapid rebounds of housing prices in the wake of environmental disasters (see footnote 2).

However, we can draw on behavioural economics and the psychology of risk to explain these phenomena. Insights from alternative risk literature lead us to expect market actors will assess climate risk on the basis of:

1. Myopia or hyperbolic-discounting (see Hillman, 2009, Pryce et al, 2011) – discounting risk from anticipated future events, with the discount rate rising progressively when the event is further into the future.

2. Amnesia (see Pryce et al, 2011) - discounting information from past events, with the discount rate rising progressively as time lapses.

Both these factors mean perceived risk can diverge considerably from actual risk. Empirical studies show strong evidence of individuals having a skewed short-term outlook. Della Vigna (2009, p. 201), for example, concludes stock returns across a variety of industries are "consistent with inattention to information further than approximately five years into the future… information that is further into the future… is likely to be less salient". Burningham et al. (2008) relate this to climate risk, claiming future flood risks past a certain

even higher than before the storm. With natural disasters, the inventory level is reduced and demand tends to outweigh supply (new construction is delayed so housing stock isn't growing as fast as the population) causing a price rebound (Brennan, 2012).

time period are 'invisible' and thus ignored, hence we may expect predictions of flood risk 5 or 10 years into the future to be met with dismissal, and as a result future risk may have little perceptible impact on current market prices.

Other examinations of decision-making reach similar conclusions on skewed risk perception. 'Self-attribution bias' is explained as basing perceptions on one's personal experience (Della Vigna, 2009) and since anthropogenic climate change is an unprecedented phenomena previous temperatures may not be an indicator of what is to come. Unusual future events are more difficult to imagine and identify with and hence have little impact on our current perceptions of risk. But what happens when these unusual weather events become more frequent? Studies show that an individual may assess the likelihood of an event as higher when examples come to mind more readily providing an 'availability heuristic' (Tversky and Kahneman, 1973). As extreme weather events become more frequent, perceived risk is likely to converge into actual risk resulting in risk-adjusted house prices.

Perversely, amnesia can be exacerbated by actions of public institutions like local authorities granting planning permission in high-risk zones (Pryce et al., 2011). This artificial safety created by the actions of institutions leads to 'herd behaviour' according to Kousky and Zeckhauser (2006).

Alternatively, public myopia may occur as a result of the failure of institutions themselves to acknowledge and communicate the true risks of climate change: "in situations of high uncertainty, organisations deploy science and technology in combination with misplaced faith in their capabilities (including presumed infallibility) so as to redefine risks as more manageable and acceptable" (Williams, 2008, p.117). This may explain the investment in protection of New Orleans, Miami and New York.

Human cognition may influence individual and public acceptance of climate risk. Climate models are often highly technical and outputs probabilistic, while human "attention is a limited resource" (Della Vigna, 2009, p. 349). Della Vigna notes that humans respond to complex problems by "processing only a subset of information" emphasising 'simplifying heuristics', and because of this individuals may tend toward 'caricatured extremes', such as denial, making behavioural change less likely. Such a response may be a form of 'cognitive dissonance' (Festinger, 1957) – an attempt to justify past or planned decisions about house purchase and consumption choices. Dissonance arises from apparent conflict between the belief that a person has made the right decision to purchase a house in, say, Miami and the scientific evidence to the contrary. To overcome this internal conflict, homeowners may deny evidence of climate risks resorting to conspiracy theories and scepticism, rather than admitting the mistake, acknowledging risk and taking corrective action by relocating,

Sending out the Right Signals

Imperfect risk assessment feeds into insurance markets sending out misleading indicators to consumers. Nicolas Schofield, an economist at Allianz, Europe's biggest home-insurance provider, says that insurance rate setting is not a forward projecting exercise but rather based upon the nature and impacts of claims over a long period of time (Sweeney, 2013). It is estimated that Allianz stands to see losses from extreme weather events increase by 37 per cent within a decade (ibid).

Thus, with key footholds in finance and risk management, the insurance industry is uniquely positioned to further society's understanding of climate change and advance creative solutions to minimise impacts (Mills, 2007). If insurers do not manage their investments sensibly, they risk jeopardising their return and long-term capacity to meet liabilities (Lubber, 2014). In the last 10 years alone direct losses in real estate infrastructure as a result of climate change have tripled, totalling $150bn in 2013.

The Chairman of Lloyd's of London said that climate change is the number one issue for the insurance firm, showing a growing acknowledgement of the risks associated with the issue. Some insurers such as Allstate have already taken significant steps by cancelling or not renewing home-insurance policies in South Eastern US states, citing climate change as its primary motive. The company cut their number of homeowner policies in Florida from 1.2m to 400,000 with an ultimate target of less than 100,000 policies in the area (Mills, 2007). This drop in policies is sure to be reflected in market prices if other insurers follow suit. What is more difficult to detect than formal withdrawals or price spikes is the 'hollowing out' of coverage through reduced limits, increased deductibles and exclusions. This tactic maintains a profit level for insurers whilst bearing less of the cost in the event of an extreme weather event. The 'hollowing out' also creates an illusion of safety, where the ultimate losers are homeowners not the insurers. Mills (2007) stresses the importance of aligning terms and conditions with risk reducing behaviour calling for increased liability of corporate directors and officers regarding risk management.

Due to the varying geographical spread of climate risk, households in low risk areas are effectively cross-subsidising the in high-risk areas. Home insurance in these high-risk areas could be viewed as sub-prime and potentially damaging to the insurance industry as a whole (Bunten & Kahn, 2014). As insurance rationing becomes more prevalent, mortgage lenders may refuse to offer such reckless lending. Insurance rationing is likely to increase the likelihood of credit rationing and even if neither are an issue at the time of purchase (as is the case currently in Miami), today's buyers face the risk that they will have problems upon resale, creating an added threat of negative equity. This creates a 'lock-in effect' where homeowners are required to purchase further loans in order to move (Mills, 2007).

Ross et al. (2007) claim that if government does not allow insurance industry to engage in price discrimination then the costs of adaption will be higher in the aftermath of a disastrous event[3]. Policies to discourage full insurance, may initiate a tipping point in home price risk adjustment. This tipping point would represent an insurance industry sending out the right signals. If a fully functional insurance industry is allowed to freely allocate risks then this may provide greater protection than that of sea walls or disaster relief. Khan (2009) points out the irony of championing a free market solution: capitalism, arguably the cause of global warming, becomes the solution.

Is Alaska The New Florida?

In this section the spatial implications of emerging climate risk is examined. If the insurance market sends out the correct signals and house prices become risk-adjusted where can we expect to see future development and property booms? Competition between cities will intensify as people vote with their feet (Kahn, 2009). Mora, quoted in (Kingson, 2014), proclaims “Alaska is going to be the next Florida by the end of the century”. According to Sinclair (2012) the Pacific North West could fair very well. Vineyards are already beginning to spring up around Washington State, with many calling it the next Napa Valley (Kingson, 2014). Canada could experience population growth due to better weather conditions (Bunten and Kahn, 2014). Worryingly, a recent study of residential mobility by United Van Lines outlined North Carolina, South Carolina, Florida and Washington DC within the top in-bound states. Comparably climate safe states Illinois and Connecticut were named among top outbound states (ibid). This study suggests that people are moving into harm’s way, from relatively safe places to places along the south east coast.

How will New York, the USA’s most populous city fare? Andrew Cuomo, the NY governor, remarked the state now has a 100-year flood every two years (Sinclair, 2012), but noted that the city “has such a concentration of wealth and assets that I expect we will invest to defend the region from sea level rise and flooding, and there is already a movement in that direction” (Strauss quoted in Kingson, 2014). Sea level rises may not be the driving factor behind future house price dynamics in NYC, however. Instead increased temperatures may be the key factor. Mora (in Kingson, 2014) projects 2047 as the year when NYC weather becomes ‘extraordinarily’ and ‘unbearably’ hot by today’s standards.

The rising temperatures could have an earlier impact on South Western cities such as Los Angeles, San Diego and Phoenix, with the latter with the worst prospects: “If cities were stocks, you’d want to short Phoenix” (deBuys, 2013). Climate change will likely push Phoenix’s days in the year above 35C from 116 today to as many as 205 by

3. This cost of adaption could harm the US Treasury and subsequently the American taxpayer. In the US the federal government is responsible for selling most flood insurance policies through the National Flood Insurance Programme (NFIP). The NFIP isn’t required to buy reinsurance, instead any claims exceeding reserves are borrowed directly from the US Treasury. In the event of increased flooding and widespread claimants, the US Treasury could be adversely affected.

2099 (Risky Business, national report, 2013).

Rising temperatures, particularly in the South West could instigate an air-conditioning boom (Cox, 2012). Climate change would in this case affect the type of property demanded as well as locational choice. Energy costs of air-con could stimulate demand in smaller homes. Annie Macbeth elaborates on this explaining that a house's self-efficiency will increase its price; "Urban lifestyles are beginning to be affected by water and heat restrictions, although the real impact has not yet been felt by most city dwellers, properties that are water and energy conscious will have a well-recognised added value" (Sweeney, 2007). Mcllwain believes that large inefficient mansions in the "outer edge of the suburbs are the most susceptible to a drop in value as the world changes, traffic congestion gets worse and the cost of driving around rises". If energy costs get too expensive it may drive consumers to revisit the location issue (Kingson, 2014).

Finally, the risks associated with climate change may carry elements of social injustice. Population sorting may occur resulting in future high-risk cities such as Miami and New Orleans, attracting the poor as well as risk lovers. If the poorest are unable to bid their way out of low-amenity and high-risk cities, then they will bear the brunt of climate change (Bunten and Kahn, 2014).

Conclusion

Overall, property has a significant effect on individual welfare through direct channels but also through general economic and non-market channels. Hence understanding fundamentals of housing markets can help us improve societal welfare. However, relatively little academic research exists examining the impact of climatic changes on property transactions. This is reflected in property markets remaining thus far largely unresponsive to underlying systemic risk, as is the case in Miami. It is clear that this must change, as failure to act is likely to be very costly. In order to reassess risk considerations, behavioural economics and psychology must be considered. Markets turn, at least in part, on big shifts in public thinking (Sinclair, 2012). The private insurance industry is in a unique position to send out risk-adjusted market signals providing such a shift. House prices reflect where people want to go, and it may be that the property booms of the future could take place in the Pacific North-West of the US - in Portland, Seattle and even Anchorage.

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CHANGING THE BEAT: TECHNOLOGY AND THE MARKET FOR DIGITAL MUSIC

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In this essay, Greg Mangan explores the impact of technological progress on the music industry. He skilfully presents a price-discrimination model, showing that it can provide a profit-maximising strategy for the sale of digital music. Interestingly, he concludes by arguing that offering free music as part of a price-discrimination model is a viable long-term strategy for this dynamic industry.

Introduction

Music is an audible art form, not a commodity. Markets for recorded music exist because technological advances created goods that could be consumed in lieu of being present for actual performances by the original artists. Distribution of recorded music is an innovation of the 20th century, a flash in the life of an art that stretches back millennia.

Recent decades have seen a sharp decline in music sales, however, with many proclaiming these "rough times" as the end of an era (Albini, 2014). The problem is that the fall in demand for recorded music is being wrongly equated with a decline in the music industry as a whole. A significant factor causing this fall in demand has been the advent of music piracy - illegal downloads from file-sharing sites. However, this has overshadowed a more important issue: the general impact of technological change on music markets.

This essay does not deal with music piracy but rather with this general impact of technological advancement, specifically the modern ubiquity of the internet. It firstly explains how free streaming of songs is reducing the demand for digital music. Secondly, a simple price-discrimination model for the artist is presented. This model puts emphasis on the live performance aspect of music rather than the recorded which, it is argued, ultimately benefits the artist.

Background and Key Concepts

The art of music should be seen as distinct from the music industry. The music industry is a catch-all term which refers to artists, producers, publishers, music labels, concert promoters and many more. When referring to 'the artist', it is assumed that they have control over the pricing of their work. This essay will refer solely to pricing of digital music in an Irish context, but its implications hold for American and European markets also, where the industry is similar in structure.

Current pricing of 'music downloads' across a variety of online stores such as iTunes, Amazon, and Bandcamp see individual songs retailing at either 79c, 99c or €1.29. In the Irish market, full album releases retail for between €7 and €13. There is very little price competition among retailers.

Music streaming services generally offer online access to an expansive database of music through both a web browser and a smartphone application (also allowing songs to be downloaded for offline access) for a monthly subscription fee. The two largest of these services are Spotify and Deezer, who currently account for two thirds of the global market (Mathews, 2012). Both charge €9.99 for their premium streaming service, which will be referred to as 'convenient streams'. Both of these companies offer a free version of their service - with limited mobile access, mandatory audio advertisements and no offline downloads - which will be referred to as 'inconvenient streams'.

Other large sources of inconvenient streams come in the form of music videos. Through websites like YouTube and Vevo, users can watch a song's accompanying music video for free, but must watch short advertisements before the video plays. These videos are often consumed as inconvenient streams, as users can listen to the song without watching the video, and are similarly restricted in that the videos cannot be downloaded.

Depreciation

Causing the Depreciation

The issue with music streaming services, specifically the inconvenient streams, is that they effectively depreciate full price music downloads, although this is not the intention of the companies offering these services.

Firstly, music videos are made available to stream primarily as a form of marketing, and constitute a sunk cost. While they are almost never sold on markets, they can still generate revenue from embedded advertisements, but this is not their main aim. Music videos make individuals aware of the artist and their work, adding value to an artist's overall image, offering an extra dimension to engage with other than sound, and attracting new fans (or customers).

Secondly, inconvenient streams from both music videos and music streaming services are offered as a way of sampling the full product. In the case of the music video, after watching the video a user may follow links to websites where the artist's music can be purchased. In the case of streaming services, an individual who is attracted by the free steaming service as a whole may convert to the premium service for the added features. This 'freemium' strategy is the usual business model of music streaming companies.

However, regardless of original intent, these inconvenient streams are affecting the 'access versus ownership' trade-off in digital music due to technological development. *Ownership* of digital music, (i.e. the ability to play a downloaded digital song on any compatible devices, whether online or offline), can be seen as being strictly higher-valued than *access* to digital music by all individuals. This is because in virtually any situation where a user can access a song through a free or premium streaming service they would equally have been able to play the song if it had been previously downloaded. However, the converse situation is not necessarily true.

The crux of the difference in utility lies in internet access. Technological developments have meant that the utility of accessing a music stream has increased for consumers. Whereas a decade ago, having access to a music streaming service would not have carried much value for the average consumer, the current widespread availability of high-speed broadband (Popham, 2012), the availability of 3G mobile internet and the low entry-price of smartphones means that the utility of music access has increased relative to ownership, reducing this gap between their valuations.

While the value of music access is increasing relative to ownership, equivalently the value of ownership can be seen to be decreasing relative to that of access. As such, it is this technological development, and its effect on individuals' valuations of inconvenient streams, that is devaluing music ownership and leading to a fall in demand for full price music downloads.

Addressing the Depreciation

In its origins, the premium streaming model aimed to address the issue of the overall fall in music sales both physical and digital. There was a sense of recouping losses, as the hope was that a consumer who was not willing to pay €10 per album would be willing to pay €10 per month for music access, rather than not paying for music at all. There have been many issues with this model; for example, there are still only a small proportion of Spotify's active users that are actually premium subscribers, and furthermore the amount in royalties that are distributed back to the artists themselves is minute in many cases (Edwards, 2013).

Another form of response to the fall in demand could be to build a long-term model around price discrimination in the market for digital music - lowering the price for specific individuals. Price discrimination assumes that the seller may separate the markets and prevent reselling between them (Varian, 1999). This is possible in the digital music context as most online retailers are selling a license to the music which does not grant any rights to resale, reproduction or redistribution (Amazon, 2014). A company called ReDigi which tried to circumvent this, launching a marketplace for pre-owned digital music, has run into many legal issues in recent years (McIntyre, 2014).

Firstly, the case of zero-pricing for music downloads offered by all artists to all consumers in a market should be rejected. This would leave relative prices unchanged (as those of current pricing). Lesser known artists are no more likely to be consumed than before. While there should be a greater quantity of music demanded in the market, these smaller artists are no more likely to be 'discovered' than before. Conversely, larger artists (whose music was already being purchased) would see a substantial drop in revenue, with very little added benefit, as they are no more distinguished from lesser known artists than before.

However, artists targeting specific individuals with free music downloads (while still maintaining current music download pricing for the rest of the buyers in the market) may be a more viable solution as this creates price incentives for individual buyers. The individuals to be identified are those who are most likely to have a high preference for an artist's music. Though it may seem counter-intuitive to offer free music to the group of individuals most likely to purchase it, it is justifiable if you widen the scope to look at the market for concert tickets.

Two-good Model

Price Discrimination

The analysis up until now has been focused specifically on the market for digital music, but expanding to a two-good world, with digital music and concert tickets, allows a new outlook. Proposing a simple model, an artist could operate a system of price discrimination in the market for digital music with two price points - the current price-point and zero-pricing - with the aim of increasing demand for and maximising profits from the sale of concert tickets.

As mentioned, price discrimination assumes that the artist can separate the market, which in this case translates to identifying those individuals who are most likely to attend their concerts. This can be done in any number of ways by the artist, for instance targeting individuals that have previously attended their concerts, individuals that have attended other artists' concerts where they have been the opening act, and targeting individuals that engage with them through social media platforms. The scope of targeted individuals and so the extent to which they discriminate can be at the discretion of the artist and be dependent on factors such as their financial standing.

The Artist

Maximising profits through concert ticket sales rather than albums sales would seem like an economically sound objective. While artists' contracts with record labels may vary hugely, they can usually only expect a cut of around 10 per cent from album sales: for example, iTunes pays 14 per cent of sales in artist royalties (Byrne, 2012). The artist's cut from concert ticket sales is generally higher, as it is sometimes perceived as a loss-leader for record sales by the record labels, although this is beginning to change as concerts become more lucrative (Byrne, 2012).

While some musicians are in fact profit-maximisers, it is also fair to assume that a certain proportion of them are not. Many artists may simply wish to have his or her art, both live and recorded, consumed by as many people as possible. This still fits within the remit of the two-good model, however. Offering free music downloads to targeted individuals is certainly going to have a positive effect on the distribution of an artist's recordings. The expected increase in demand for concert tickets will have a similar effect. While supply of concert tickets is fixed over certain ranges, an increase in consumer demand for them does not translate directly to a higher price, but rather a larger venue being booked for the artist. Performing in a venue with a higher capacity (and selling a higher quantity of higher-priced tickets in the process) allows the artist's live performance to be seen by a larger number of individuals.

The focus of the proposed model has been the effect on the artist, with little said about the interest of the record label. Record labels were much more importance in the past, providing capital, skills and advice to artists who would otherwise not have been in a position to release recorded music. Nowadays costs of recording and distribution have fallen to the point where anyone with a laptop can conceivably record and publish their music online. That is not to say that record labels have become redundant, but rather that artists can feasibly be successful (in whatever way they choose to define that success) without signing a recording contract.

The industry middlemen have been slow to accept this technological change. This is a particular problem in the US where the Recording Industry Association of America (RIAA) are often accused of regulatory capture – its former Vice President of Litigation was recently made second-in-command at the US Copyright Office (Klein, 2013). Copyrights and patents are used in ways that seek to protect the profits from dated music industry business models, and hamper the technological developments that are changing how individuals value and consume music.

Beyond the two-good world presented there are alternative revenue sources for the artist. Most sell merchandise such as clothing, accessories and poster prints. Ironically, an unlikely source of revenue has re-emerged in the form of a recent resurgence in vinyl sales (Topping, 2014). Vinyls have become a collector's item, with a large amount of modern artists selling limited releases of their new albums on vinyls, which are marketed at their die-hard fans. This underscores the idea that the music industry is not actually in decline, but rather going through structural change.

Conclusion

Though technology effectively created the market for recorded music, modern advances have seen the value of the industry's products fall considerably. In particular, free streaming of music is having a negative impact on how individuals value music ownership and is causing a fall in music sales.

Considering a pricing model for this market in transition, it has been shown that a simple price-discriminating model in the market for digital music can function as a profit-maximising strategy for the sale of concert tickets. This is also a beneficial strategy for those artists who are not profit-maximisers.

While the concept of offering free music is not revolutionary, it is generally perceived as a once-off promotional exercise. Viewed instead as a long-term model, and incorporated into an intelligent price-discrimination strategy, the idea should be adopted by the artist to keep time with changes in technology.

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JAYWALKING OR JOYWALKING: A GAME THEORY APPROACH TO POLICY-MAKING

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In a lively and thoroughly researched essay, Sabrina Schönfeld uses the phenomenon of jaywalking to compare standard rational choice theory and an alternative behavioural model with bounded rationality. She skilfully shows that policies which incorporate behavioural biases can lead to pareto-improvements and concludes by highlighting the fascinating potential of similar solutions in other policy areas. Her findings illustrate the importance of the underlying assumptions when applying rational choice theory in a policy-context.

Introduction

> *"If you do decide to step up and thumb your nose at Johnny Roadlaw like the natives, learn your chops on the beginners' courses of Parnell Street and College Green before tackling the world-class black runs at the Stillorgan Dual Carriageway and Dame Street…"*

(Kelleher, 2010)

The world that we live in keeps changing at a vertiginous pace. The challenge for policy-makers is to devise more effective forms of regulation that unburden rather than encumber the average person - regulation that produces results, laws that can be followed, and that will be effective. For this purpose, the discipline of economics has long been regarded as the ultimate tool to assist policy-makers to make the right choices, thereby improving the lives and wellbeing of the citizens and constituents. However, policies do not always lead to the desired outcomes.

To illustrate the importance of realistic assumptions that can help in the development of optimal policy, ideally resulting in pareto-improvements, this paper will discuss the case of jaywalking. This is a classic example demonstrating how a framework applying theoretically appropriate incentives and assumptions about actors' preferences can result in very different outcomes, including inefficiencies and, occasionally, dangerous situations.

The reason why jaywalking is an ideal candidate to address the divergence between theoretical models and reality is that the sheer scale of the phenomenon cannot be justified by pointing to random deviations from the logic underpinning it.

In most countries, jaywalking is prohibited. The underlying reasons are multifarious - jaywalking affects the efficiency of the traffic system, results in externalities as it endangers other traffic participants, and constitutes a hazard to the individual's health. By standard economic theory, the threat of being hit by a car or collecting a fine should present a strong disincentive to jaywalk. The benefit of a minuscule time saving should not outweigh the possible high short- and long-run costs. However, observational evidence in most cities suggests that jaywalking is a common practice.

This begs the question, why is this the case? Using a behavioural game-theory approach[1], this paper will demonstrate the importance of realistic assumptions with regard to incentives and payoffs that influence the rational actor in the standard economic framework. Moreover, it will offer explanations as to why seeming deviations from the rationality principle may be more common than often implicitly assumed. The first section will provide a brief overview of the phenomenon of jaywalking, while the following section will discuss the standard rational choice theoretical model commonly underlying policy- and traffic design. The third section will then offer an alternative model with modified assumptions about the actors' preferences, and discuss how they are shaped, as well as present evidence that different approaches to policy design incorporating these insights can lead to better outcomes. The final section concludes.

My Street Is Your Street – from Public Space to Segregation

Until the 1930s, streets were considered public space, with pedestrians having the natural right of way. Automobiles were private property and merely tolerated on the condition that they did not interfere with the public rights of pedestrians. Automobile clubs and car manufacturers brought increasing pressure to bear on policy-makers (coining the term jaywalking along the way, inspired by the use of "Jay" as an insult for people from rural areas, who were unfamiliar with the rules of the high traffic cities). This led to the development of a legislative trend whereby automobiles gained greater rights of way than pedestrians (Norton, 2008).

Policy-makers and traffic engineers sought to make the flow of cars as efficient as possible, whilst improving public safety. This resulted in even further reductions in pedestrian rights and a move towards policies guided by the segregation principle that still prevails (Hamilton-Baillie, 2008). Although a relative reduction in the number of casualties has been observed in many countries, the problem of jaywalking and the associated

1. As Camerer (1997) outlines, "[b]ehavioral game theory aims to replace descriptively inaccurate modelling principles with more psychologically reasonable ones, expressed as parsimoniously and formally as possible." (p. 185).

loss of life have become no less urgent (Jost and Allsop, 2014). Perhaps the most common regulatory approach to jaywalking in conjunction with traffic signalling is criminalisation, the penalty for which is generally the imposition of fines. Nonetheless, jaywalking remains one of the most commonly committed regulatory offences across the globe.

For example, take the city of Dublin. Dubliners are renowned for their jaywalking skills and pride themselves on the ability to navigate the city's byzantine maze of traffic lights, roundabouts, one-way streets, and quality bus corridors with confidence. However, particularly in urban areas in Ireland, fatal accidents involving pedestrians and cyclists are a regular occurrence (Jost and Allsop, 2014). Traffic congestion remains high, in part due to sub-optimal road planning and high car dependency (McDonald and Nix, 2005, Wickham, 2006). To handle this situation, Dublin uses a sophisticated adaptive traffic system to regulate the flow of traffic through the capital. Its main objective is the optimisation of traffic flow, the avoidance of congestion and delay, with a focus on efficiency (Fellendorf, 1997). As is common elsewhere, jaywalking (as defined as crossing a roadway when the pedestrian crossing signal is red) is illegal and anyone caught jaywalking can be required to pay a fine pursuant to the Road Traffic (Traffic and Parking) Regulations (1997) as amended by the Road Traffic Act (2006). Moreover, a strategic plan is in place to continuously improve road safety for every participant (Road Safety Authority, 2010). Taking all of this into account, it is safe to conclude that considerable efforts are made to reduce the occurrence of jaywalking. Nonetheless, one needs only step outside to know that it remains a common practice to jaywalk on the streets of Dublin, as is the case in so many other cities in the world. This begs the question, why do Dubliners jaywalk despite these efforts? The following sections will demonstrate that the reasons for this are complex, but can be explained using a simple game-theoretical model.

The Classic Model

As outlined before, the sanctioning of pedestrians crossing the street when traffic regulations require them to stop is a common practice. The principle on which this is based is deterrence theory, coupled with rational choice theory, as O'Neill (2004) explains:

> *"This important link between deterrence and rational choice has become well-established in the legal literature and is the foundation of so-called optimal penalty theory. This theory posits that an appropriately constructed sanction will be no harsher than necessary to prevent the rational individual from engaging in criminal conduct."(p. 155)*

Apart from penalties in the form of fines, not exercising due care can be equally costly for the pedestrian. As Baird et al. (1998) show in a game-theoretical set-up, in a regime of comparative negligence, each rational player has an incentive to exercise due care, resulting in a stable Nash equilibrium. Using these insights about the incentives of the players, the following model illustrates the rationale that underlies common traffic policy design.

The players in the strategic game are the participants in traffic, with N = {1, 2, … , n}. Player i chooses from a_i = {Go, Stop}. The payoffs are such that u_i(Go, Stop) > u_i(Stop, Go) > u_i(Stop, Stop) > u_i(Go, Go). In this game, player 1 is the pedestrian and player 2 the motorist. The least preferred scenario, when both players go, is associated with a high potential cost, for example death, injury, damage or a penalty. Moreover, it is safe to assume that a situation in which both players stop has a lower payoff for the player than stopping when the other player moves. Even when relaxing this assumption to indifference, the best response would still be the same. Solving the game as illustrated in Figure 1, one finds that [Go, Stop] and [Stop, Go] are stable Nash equilibria, in which none of the players has an incentive to change their actions, given their expectations of the other player's action.

		Player 2	
		Go	Stop
Player 1	Go	-1, -1	4, 1
	Stop	1, 4	0, 0

Figure 1: Strategic game using standard assumptions. The payoff orderings for player 1 and player 2.

As this paper is interested in the pedestrian's decision-making of whether to go or stop when her crossing signal is red – the very definition of jaywalking - a more specific model is illustrated in Figure 2. This extensive form game allows the players to move sequentially. This captures the reality that a player may change her mind based on the actions taken by the other player. Assuming that the pedestrian's light is red, both players have to decide on their best strategy, while having full information on the other player's strategy. Again, negative payoffs are assigned to both players going at the same time. Similarly, it is explicitly assumed that player 1's payoff when she goes remains unchanged even if player 2 stops, due to the high opportunity cost as discussed above.

		Player 2			
		Go, Go	Go, Stop	Stop, Go	Stop, Stop
Player 1	Go	-1, -1	-1, -1	-1, 1	-1, 1
	Stop	1, 4	0, 0	1, 4	0, 0

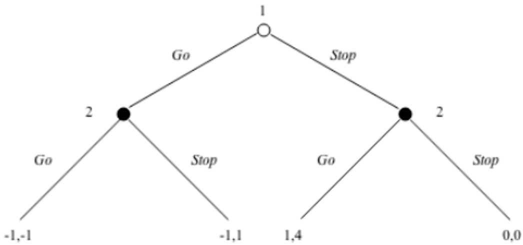

Figure 2: Extensive form game using standard assumptions. The payoff orderings for player 1 and player 2. Player 1 moves first.

Solving the game, there are two Nash equilibria, [Stop, (Go,Go)] and [Stop, (Stop,Go)]. The only subgame perfect equilibrium, however, is [Stop, (Stop, Go)], as player 2's strategy to go if the player 1 goes is a non-credible threat. This is consistent with the rational actor's preferences outlined before. Player 1's dominant strategy is to stop at the red light, whereas the motorist would choose to stop had the pedestrian chosen to go, and to go when the pedestrian stops, an outcome that is clearly desirable from the policy-makers' perspective.

However, as suggested before, the phenomenon of jaywalking highlights the fact that the assumptions about the pedestrians' preferences do not seem to reflect reality very well. Why this may be the case and how different preferences lead to a "bad" non-optimal Nash equilibrium is the content of the next section.

A Behavioural Game-theory Approach

Although the reasons for jaywalking depend on many different factors, common themes can be identified that give insights as to why actors do not act as predicted by the rational actor model presented in the last section. The key insight to understand why this is the case clearly lies in the preferences of the pedestrian, as she is the player deviating from the predicted actions. Therefore, the following game displayed in Figure 3 makes similar assumptions as the game in Figure 2, with one important exception. The payoff for player 1 when she goes and the motorist stops is assumed to be positive. The reasons why this may be the case will be discussed in the following section. The explicit assumption here is that the pedestrian is confident that she has sufficient time to pass the car without getting hit.

		Player 2			
		Go, Go	Go, Stop	Stop, Go	Stop, Stop
Player 1	Go	-1, -1	-1, -1	4, 1	4, 1
	Stop	1, 4	0, 0	1, 4	0, 0

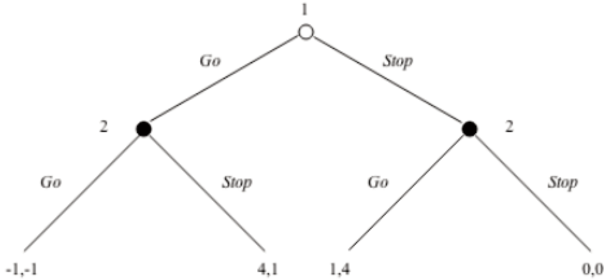

Figure 3: Extensive form game using modified assumptions. The payoff orderings for player 1 and player 2. Player 1 moves first.

Solving the model shows that the optimal strategy for the pedestrian will be to go, while the best response for the motorist is (Stop-Go). The two other Nash equilibria are, again, no subgame perfect equilibria, due to the non-credibility of the threats. In terms of the welfare outcome, however, this equilibrium is obviously not optimal. One of the possible negative outcomes is inefficiency in the traffic flow. The other, more dangerous one is injury. This is because the pedestrian's strategy is based on the expectation that a) the motorist will stop if necessary, and b) the probability of being hit by the car is low enough to not cause the pedestrian to stop. Moreover, what this stable equilibrium suggests is that such a payoff structure may lead to the establishment of a negative social norm, an issue that will be discussed in detail later. However, how realistic are these assumptions about the pedestrian's preferences? What would lead to a non-negative payoff structure like this?

A systematic review of existing research by Heinonen and Eck (2007) found that the reasons for jaywalking are often psychological, an unsurprising result. They argue that the physical environment in the form of a lack of crossing devices, midblock crosswalks, the poor timing of traffic signals, and the insufficient capacity of sidewalks impede pedestrians' willingness to adhere to traffic regulations, while the behaviour of pedestrians is another crucial factor. In their report they show that pedestrians' perception of risk, miscalculations of the probability of a collision, a tendency to follow the example set by others, and a general perception that the pace of urban life is faster can result in a lower willingness to stop and wait for traffic lights.

A vast literature on bounded rationality supports these insights. It is important to stress that the concept of bounded rationality does not refute the model of the rational actor in general, but rather is a helpful way to incorporate known biases and heuristics into the model. That this is desirable for economic modelling has been compellingly argued by Conlisk (1996) and others (see for example Dawnay and Shah (2005)). For example, legal scholars have begun to stress that bounded rationality must be taken into account when designing policies with punitive elements (O'Neill, 2004). With reference to the findings of Heinonen and Eck's report, the relevant heuristics that illustrate why the pedestrian's payoffs may be non-negative if she goes are the following.

Thaler (1981) discusses how dynamic inconsistencies through hyperbolic discounting - weighing present payoffs higher than future ones - and "rule of thumb" decisions can influence decision-making. In this case, the preference to jaywalk is highly influenced by the higher payoff associated with saving time. As Heinonen and Eck outlined, various studies have shown that pedestrian delays at signal-regulated crossings are a strong contributing factor to jaywalking. Moreover, Dawnay and Shah (2005) note that "fundamental attribution error" - the false belief of control over situations - as well as habits need to be taken into consideration for optimal policy design. These biases, it can be argued, are equally applicable to the phenomenon of jaywalking.

Similarly, even if the pedestrian believes that the possible payoff may be negative, a case of herd behaviour may influence her decision of whether to jaywalk or not[2]. This leads to the most plausible explanation as to why actors would choose to cross the street despite a red light - social norms. The role of social norms on individual decision-making has been well established in the literature (see for example Boyd and Richerson (2002)). As Conlisk (1996) observes, "[n]orms might be the cause of bounds on individualistic rationality. Or norms might be the effect of bounded rationality" (p. 677). Moreover, Posner (1997) comments that:

> *"[l]awyers think that the law is potentially significant as a shaper (not just an enforcer) of norms, much like education. The evidence for this conjecture is weak, and against it can be cited evidence that subgroups will often go their own way, adhering to norms that serve their special needs but violate the applicable legal norms, which may have been created without consideration for those needs."(p. 368)*

Finally, a possible explanation may be provided by the observation that fairness considerations affect players' payoffs. Although this insight has been mainly gained by an experimental approach using ultimatum games[3], it provides another important explanation as to why pedestrians may prefer to go rather than stop when the crossing signal is red. If

2. Banerjee and Duflo (2011), using a simple model, showed that herd behaviour can lead to such an outcome: "It then turns out that a likely consequence of people trying to use this information is what we call herd behavior - everyone doing what everyone else is doing, even when their private information suggests doing something quite different."(emphasis in original, p. 798)
3. See for example Korth (2009).

segregation, and in many cases an unequal distribution of waiting times, results in a perceived disadvantage for the pedestrian, this suggestion appears plausible.

So how can the pedestrians' preferences be changed to at least indifference between {Stop} and {Go}? The success of regulatory approaches that incorporated the insights about pedestrians' preferences discussed in the previous section is an indicator that a change in thinking with respect to incentives and preferences can result in considerable improvements. In other words, policy makers have successfully reverted the payoff structure from Figure 3 back to one similar to the one presented in Figure 2. For example, traffic engineers in many countries have placed an emphasis on reducing waiting times for pedestrians in order to reduce the incentive to jaywalk. That this is theoretically possible without causing delays for vehicle traffic has been established by a large number of researchers (Jason and Liotta, 1982, Ma and Zhang, 2008, Tianjiao et al., 2010, Vallyon and Turner, 2011). A prominent example of this approach, in combination with a strong social norm that punishes jaywalking in public[4] as well as a strict enforcement system is Germany (Pucher and Dijkstra, 2003).

Another example is the concept of shared space, originating from Holland, and now in place in a growing number of countries. By removing traffic lights, signs and markings, participants are forced to interact with each other through signalling and eye contact. This concept has been largely successful, resulting in a highly efficient traffic flow and low accident rates (Hamilton-Baillie, 2008). The effectiveness of this approach may be surprising at first, given the complete lack of regulation. However, scholars such as Ostrom (2000) have argued that regulatory attempts may not necessarily lead to efficient outcomes:

> *"[i]t is possible that past policy initiatives to encourage collective action that were based primarily on externally changing payoff structures for rational egoists may have been misdirected - and perhaps even crowded out the formation of social norms that might have enhanced cooperative behavior in their own way. Increasing*
>
> *the authority of individuals to devise their own rules may well result in processes that allow social norms to evolve and thereby increase the probability of individuals better solving collective action problems"(p. 154).*

Moreover, this approach similarly ensures an egalitarian character and circumvents the problems associated with the fairness considerations discussed earlier.

Other controlled experiments have shown that changing public behaviour is possible, and that the incorporation of these findings into policy-making including traffic system design may provide an opportunity to significantly improve pedestrian behaviour and

4. The role of third-party sanctions influencing social norms that lead to stable equilibria is well discussed. See for example Fehr and Fischbacher (2004).

consequently, public safety (Burger and Shelton, 2011, Cabinet Official Behavioural Insights Team, 2012). And while comparative studies relating to the change in pedestrians' preferences are still rare, these developments indicate that an approach aiming to model the actors' payoffs as realistically as possible rather than relying on standard theoretical assumptions is likely to be more fruitful in policy-making. Moving away from the illustrative example of jaywalking, this analysis using a simple behavioural game-theory model has highlighted the potential pareto-improvements that are achievable when the preferences modelled are based on behavioural structures that experimental and observational approaches suggest.

Conclusion

The above discussion has demonstrated the importance of the assumptions made about actors' preferences when using rational choice theory for policy design. A game-theoretical approach has been used to contrast the standard model with an alternative behavioural model using payoffs reflecting bounded rationality that may be the result of various heuristics and biases. The application of this model has been illustrated through the common phenomenon of jaywalking, and it has been argued that changes in policy-making that incorporated the issues relating to the assumptions discussed have led to pareto-improvements by successfully changing the payoff structure of the pedestrians in order to achieve optimal Nash equilibria. Finally, this paper has suggested that a similar approach to other applications in the area of policy design is likely to lead to further improvements.

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SPILLOVERS AND SYNERGIES: GEOGRAPHICAL CLUSTERING OF EMINENT SCIENTISTS

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In this essay, Conor McGlynn provides a comprehensive overview of the effect of geographical clustering on the research output of leading natural scientists. He outlines why geographical clustering occurs and why it may have a particularly strong impact on eminent scientists. He also discusses some policy implications and motivates future research in this exciting field of economics.

Introduction

This paper investigates the question of geographical clustering, and its impact on the output of eminent natural scientists. It will particularly address three areas. First, it will look at the issue of geographical clustering in general, and why it plays an important part in the production of knowledge. Second, by reviewing the literature published in the last few years on this topic it will show why we might expect geographical clustering to have an impact on the output of natural scientists, and eminent natural scientists in particular. Third and finally, given that it is likely that such clustering did take place, this paper will give a justification for why this research is worth pursuing, and will consider some possible policy implications. By doing so, it will provide theoretical and pragmatic motivation for a full empirical treatment of the subject.

Why Geographical Clustering?

Different parts of economics ask different questions. Focusing on production, the most fundamental questions typically concern what goods shall be produced in an economy. Labour economists will then ask questions about who will produce these goods, and how the production process takes place. Researchers looking at the sociology or philosophy of economics might ask why production occurs in the manner that it does, and whether or not this process is fair. Economic geography is related to these areas, but it asks questions about where production takes place, and what effect location and geography have on the production process. Economic geography focuses on where firms and workers decide to locate, and how geographical factors influence the manner in which production takes place.

One area of economic geography deals with the economic costs and benefits of proximity. These benefits include, for example, economies and diseconomies of scale and spillover effects. By locating together in cities, companies can avail of positive externalities that arise from being near other firms, such as lower transport costs, easy access to other firms in the production chain, and immediate knowledge of new innovations in technology. There are also locational spillovers for companies from locating near universities in terms of access to a high-talent pool of workers.

The benefits of spillover effects are not, however, limited to large corporations. Individual workers too can avail of geographical benefits to increase the quality and quantity of their output. Indeed, the original rationale for universities was to allow researchers to avail of advantages that accrue from close and easy interaction between those working in similar fields. Alfred Marshall, writing in 1890, observed the geographical clustering of creative workers in particular, and posited the synergies and cooperation afforded by such clustering as the reason why creative workers move close together (Marshall, 1930).

There is a growing body of empirical research into the historical impact of geographical clustering on the output of eminent creative workers. Hellmanzik (2009), for example, investigates the migration and clustering of visual artists from the Renaissance until 1900, while Borowiecki (2013) looks at the impact of geographical clustering on the output of prominent composers from 1600-1950. This research has provided support for the hypothesis that geographical clustering positively impacts on the output of creative workers.

However, there has not yet been an econometric study that takes the same line in looking at the effect of geographical clustering in the history of eminent natural scientists. An investigation into this field would be of interest for two reasons. First, it would be of academic interest to find out whether and to what extent the effects of geographical clustering are present amongst natural scientists. Looking at the history of natural scientists would test Marshall's theory outside of the realm of the arts by investigating whether synergies and cooperation have historically played an important role in the progress and development of natural science.

The second reason why this study would be of interest is the implications it could have for government policy, particularly with regard to funding for the sciences. If a significant level of clustering of the leading scientists in history is found, and if this clustering is associated with increased levels of output and discovery, then it would provide a powerful argument in favour of increased spending by universities to attract world-class scientists, and would provide empirical evidence of the benefits of spending on scientific research institutions. These benefits will be discussed in more detail below.

Literature Review

There is a growing body of research into the impact of migration and clustering on the output of creative workers generally, and in particular on the impact on the output of highly eminent workers in creative fields. That eminent workers in a field do tend to migrate and cluster together was formally established by Kelly and O'Hagan (2005). In this paper the group the authors look at is prominent Western visual artists. Their positive results with regard to migration and clustering prompted the additional question of which cities these artist tend to cluster in. This question is addressed in Kelly and O'Hagan (2007). O'Hagan and Hellmanzik (2008) further expand on these questions, and pose some initial hypotheses about the clustering of highly eminent creative workers.

The choice to use eminent scientists rather than "average" workers is based on two factors. First, more historical data is available on the most successful scientists. Second, and more fundamentally, previous research has found that prominent workers in a field are more likely to cluster than less prominent workers (O'Hagan and Borowiecki, 2010).

The previous papers in this field take Charles Murray's Human Accomplishment (2003) as their starting point. In this work, Murray identifies the most eminent workers in a range of fields including the natural sciences: physics, chemistry and biology. His dataset covers 600BC to 1950AD. He identifies and ranks the top workers in each discipline. For this paper the ranking of the scientists is not important; all that is needed is the unranked list of top workers. This list, which incorporates 615 scientists in total, would form the basis of an econometric treatment of the subject.

O'Hagan and Borowiecki (2010) apply the methodology developed in these papers to another group of creative workers. In their dataset they look at prominent Western composers in several different periods. Their findings support the results of the earlier papers in identifying a clear tendency for highly eminent workers to migrate to and cluster in certain cities. They also provide a number of possible explanations and hypotheses which may be tested on the data.

Two studies have looked at migration and clustering amongst eminent philosophers. Collins (1998) looks at networking and clustering amongst a wide range of philosophers, east and west. However, his methodology for analysing and collecting this data is sui generis in the literature. Walsh and McGlynn (2014) look at the migration and clustering of 146 philosophers using a methodology similar to that established in the literature discussed above.

Waldinger (2010, 2012) uses an exogenous shock, namely the expulsion of scientists from Nazi Germany, to isolate and investigate the causal effect of migration and clustering on the output of natural scientists. While his methodology is different from that of these other papers his research informs the study of clustering of scientist in particular. Borjas and Doran (2012) take a similar approach to Waldinger in looking at mathematicians. They chose the exogenous shock of the collapse of the Soviet Union, and the effect on the output of American mathematicians of the influx from the USSR to the US. Interestingly, the authors in this case find a negative impact of migration on the output of indigenous American workers.

There are two noteworthy econometric analyses in the literature that take Murray's dataset as their starting point. Hellmanzik (2009) empirically examines two questions relating to the migration and clustering of visual artists. The first question is: What determines the degree of mobility amongst artists? The second is: What determines the decision to move to a specific cluster location? The model used includes control variables on biographical information, career indicators, mobility indicators, country of origin, and artistic style.

Borowiecki (2013) looks at the effect of geographical clustering on productivity, taking prominent composers as the dataset. The aim of this study is to estimate the causal relationship between composers' productivity and the incidence of geographical clustering. A two-stage least-squares model is used to avoid possible endogeneity, with variables on age and distance from cluster location included. The results of this model show a significant benefit for composers, in terms of the number of written works produced, from working in a geographical cluster.

Policy Implications

Evidence of a historical link between the clustering of eminent scientists and increases in output could have important implications for policy today relating to, for example, university and institutional funding. As we have seen, there are strong reasons to think that such clustering of scientists did indeed take place. Previous research has confirmed Marshall's hypothesis with regard to artists, composers and philosophers. Marshall posited three types of externality that would lead to the clustering of creative workers: the growth of subsidiary trades, synergies, and creative spillovers. Synergies and creative spillovers certainly do apply to the work of natural scientists, and so it is reasonable to expect that they will cluster. There is also plenty of anecdotal evidence that eminent scientists worked together throughout history, which suggests that clustering did indeed take place (Koestler, 1964).

What is involved in the spillovers and synergies generated by such clustering? This is a question still debated in the literature. One answer to this is given by the idea of tacit knowledge. This is the sort of knowledge that is difficult to transfer from one person to another by means of verbalising it or writing it down. This includes, for example, the knowledge of how to speak a language, tie a bow-tie, or design and use complex technologies. Tacit knowledge is defined by the philosopher Gilbert Ryle as "know-how" as opposed to "know-that" knowledge (Ryle, 1945). This sort of knowledge plays an important part in scientific networks, in transmitting knowledge that consists in tacit rules that we may be unable to formulate in words (Collins, 1974), for example mathematical or technical methods. Historically, this tacit knowledge could only be transmitted by scientists locating together in a particular location, and hence clustering would be expected to have played a key role in the development of scientific theories and ideas.

Given the likelihood that such clustering took place, and hence that output increased through tacit knowledge transfer, why should policy makers and researchers be interested in investigating it? Investigation of the clustering of eminent natural scientists would obviously be of academic interest, and would inform the study of the history of science. It would also provide support for Marshall's hypothesis outside of the realm of the arts and humanities. However, such an investigation would also have tangible benefits for policy makers. Evidence of a historical link between the incidence of clustering of eminent scientists and an increase in their output would provide strong support for policies aimed at promoting such clustering amongst scientists today. This could be in the form of increased funding for universities and research institutes, so that they could attract the most outstanding practitioners in each scientific field.

An investigation of the link between clustering and output could also make the allocation of funding to research institutions more efficient. For example, does specialisation increase output most, as when biologists working in similar areas cluster, or are there benefits from those working in radically different areas clustering together? An answer to this question would inform policy related to setting up research institutions that are specialised as opposed to universities, where a wide range of practitioners in different areas cluster. This could also be linked to the previous research in the area of geographical clustering of artists, composers and philosophers, and whether spillover benefits manage to cross between the 'two cultures' of science and the humanities.

A final benefit of an investigation into the effects of clustering of natural scientists is the greater understanding it would give us of the creative process within science, particularly amongst highly eminent practitioners. This is an area that has been investigated by the psychologist Dean Simonton (2010). In his research he looks at many different groups, including scientists, artists, writers and politicians, to identify common elements in the lives of extraordinary individuals. These include psychological factors such as the likelihood of mental illness, and environmental factors such as childhood environment. An investigation into the effects of clustering on the process whereby new scientific theories are generated would inform this area of research, and would give us a better understanding of what makes eminent people so outstanding in their field. This research could thus inform policies aimed at fostering greatness and genius in a wide range of creative endeavours.

Conclusion

This paper has provided a theoretical justification for more in-depth research into the geographical clustering of eminent natural scientists, informed by previous empirical work in the field. Such research would be valuable both for its academic interest, as well as informing government policy regarding scientific funding. It would also inform general studies into the creative process and the study of highly eminent individuals. For these reasons, this area of research is worth pursuing.

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ON THE DANGERS INHERENT IN A FRACTIONAL RESERVE BANKING SYSTEM

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Fractional reserve banking is ubiquitous in modern financial systems. However, does this dispersion mean it is the best banking available today? In this essay, Sergey Alifanov explores a number of concerns with the workings of the fractional reserve banking system and outlines how policy implementations could work to address these issues.

Introduction

In 1939, a brief proposal auspiciously titled "A Program for Monetary Reform" was circulated among economists in the United States. Written in the wake of The Great Depression by a group of prominent American economists which included Irving Fisher and Paul Douglas, it included a stark criticism of the fractional reserve banking system in the United States, referring to it as "a chief loose screw in our present American money and banking system" (Fisher et al., 1939). Despite this, the fractional reserve system remained then, and continues to remain status quo for all developed banking systems in the world. It has gathered many more critics over the years that attribute to it many disadvantages, such as a tendency for bank runs and moral hazard on behalf of lending institutions, among other negative externalities. This essay will outline the biggest issues with fractional reserve banking and provide several policy solutions that should adequately address these concerns.

Fractional Reserve Banking

Under a fractional reserve banking system, the central bank imposes a legal requirement on all banks operating under its mandate to maintain a specified proportion of their deposits in reserves. Reserves against these deposits can take the form either of currency on hand (vault cash) or balances at the central bank itself (Feinman, 1993). Originally, reserve requirements were designed as a safeguard against "runs" on the banks that were quite widespread over the world until roughly 1930-40s. The rationale behind this system was that by requiring financial institutions to hold some liquid assets on hand, central banks wished to reassure the depositors that their money was available on demand (Cecchetti and Schoenholtz, 2011). However, according to Feinman (1993), a series of bank runs and financial panics in the late nineteenth and early twentieth centuries (such as the

Great Depression) made it clear that imposing reserve requirements does not guarantee the convertibility of deposits for the entire banking system. Consequently, many central banks around the world took on the additional responsibility of being the lender of last resort in their respective economies.

Any market economy is susceptible to a fundamental mismatch, for example due to economic shocks, which can "lead to the negative externalities of liquidity demand, which include credit cycles, bank runs, and financial crises" (Gorton and Metrick, 2013). For instance, during a period of financial uncertainty or a recession, many depositors will race to withdraw their deposits to either reinvest them in a subjectively safer asset, e.g., gold or sovereign bonds, or to simply spend them. Either way, when such liquidity shocks occur a central bank will theoretically provide short-term liquidity to the troubled bank(s), allowing them to fulfil their short-term liquidity demands, thereby preventing a possible run on the banks. When central banks such as the Federal Reserve first took on the responsibility of being the lender of last resort, many economists believed that if depositors knew of the banks' facility to borrow excess liquidity if required, it will prevent depositors from withdrawing their assets and creating the liquidity shock in the first place. Supplementary to the safety net provided by the lender of last resort, some countries have also introduced personal deposit insurance schemes for all deposits up to a specified sum. In Ireland, the Central Bank guarantees deposits up to €100,000 under the Deposit Guarantee Scheme (Central Bank of Ireland, 2014), while in the United States the Federal Deposit Insurance Corporation (FDIC) acts as a guarantor of bank deposits (Gorton and Metrick, 2013).

Bank Runs

Bank runs are the chief danger associated with fractional reserve banking. A run on a bank occurs when depositors scramble to withdraw their deposits, fearing for their safety. Bank runs used to be a common occurrence in the early days of modern banking. However, a run on Northern Rock in the UK in 2007 among other bank runs in the United States has shown that they are still a real possibility today, albeit under exceptional economic circumstances. There are many reasons as to why runs on the bank can occur, including rumours or facts about financial difficulties at the bank, poor performance of the economy, or exposure of the bank to another troubled financial institution. In some cases, rumours of illiquidity can become a self-fulfilling prophecy where depositors scramble to withdraw their deposits, the bank runs out of liquid assets to furnish these requests and fails. In fact, there are countless reasons (both genuine and otherwise) why bank runs might take place. Cass and Shell (1983) refer to this extrinsic uncertainty as "sunspots", while Keynes famously coined the term "animal spirits" which refers to a similar notion.

In 1983, D.W. Diamond and P. Dybvig published a seminal paper which proposed a model that attempts to explain why bank runs occur. They have found that "bank deposit contracts can provide allocations superior to those of exchange markets, offering an explanation of how banks [...] can attract deposits" (Diamond and Dybvig, 1983). However, these bank contracts are less stable than other types of financial contracts and they contain multiple Nash equilibria, one of which is a bank run. The basic principle of the Diamond-Dybvig model is as follows: by transforming illiquid assets (loans) into liquid liabilities (deposits) banks offer liabilities with a different, smoother pattern of returns over time than the illiquid assets offer. Under normal circumstances there is efficient risk sharing by all depositors because confidence is maintained. However, "if agents panic, there is a bank run and incentives are distorted. In that equilibrium, everyone rushes in to withdraw their deposits before the bank gives out all of its assets. The bank must liquidate all its assets, even if not all depositors withdraw, because liquidated assets are sold at a loss" (Diamond and Dybvig, 1983).

Diamond and Dybvig report that introduction of deposit insurance to their model greatly reduces the chance of a bank run. While it is considered to be a standard mechanism of dealing with bank runs, a vast amount of consequent research has shown its limited effectiveness. More recently, a study done by Iyer and Puri (2012) has looked at the importance of depositor-bank relationships in mitigating bank runs. While they have also found that deposit insurance helps to mitigate bank runs, another important factor was the level of relationship between the customer and the bank. The longer the people held accounts at the bank, the less likely they were to run. Additionally, depositors were more likely to run if anyone in their social network ran, which illustrates well the snowball effect that bank runs can have.

A number of economists including Irving Fisher and at one stage Milton Friedman have blamed the fractional reserve system for the existence of bank runs. An obvious policy solution would be to increase the reserve requirement, or to do away with reserve requirements altogether and introduce 100 per cent reserves: "the task [of sound financial regulation] would be much simplified if we did away altogether with the fractional reserve system; for it is this system which makes the banking system so vulnerable" (Fisher et al., 1939). However, there are numerous monetary and policy issues associated with this. Feinman (1993) argues that liquid reserves are not costless. By requiring a bank to hold reserves in excess of what they would have ordinarily held, the central bank imposes an opportunity cost equal to the interest forgone on the part of reserves held in excess of the banks desired level.

Moral Hazard and the Lender of Last Resort

It was already hinted above that an introduction of the lender of last resort and deposit guarantee schemes creates a moral hazard both for the banks and for their depositors. In this instance, moral hazard can be seen as "any situation in which one person makes the decision about how much risk to take, while someone else bears the cost if things go badly"

(Krugman, 2009). The existence of the safety net provided by the central bank alters incentives. Depositors have less incentive to worry about the reputation of their chosen bank because their deposits are insured, while the bank has less incentive to firstly hold more excess reserves, and secondly undertake safer investments.

In "A Monetary History of the United States, 1867 - 1960", Friedman and Schwartz (1963) through thorough theoretical and analytical research have found that the existence of the Federal Reserve System as a lender of last resort has led to a decline in actual reserves relative to required reserves. In short, the newly introduced safety net has "encouraged banks to trim their reserve balances further than they otherwise would have done" (Friedman and Schwartz, 1963). More recent authors report varying findings on the extent of moral hazard brought about by deposit insurance, or more specifically how risk taking and deposit insurance interact. Gropp and Vesala (2004) posit that these ambiguous findings are due to the omission of at least three other important factors by previous researchers: banks' charter values, the effectiveness of monitoring by non-deposit creditors and "too-big-to-fail" policies. Dam and Koetter (2012) argue that ambiguity stems from an identification problem: "bailed-out banks are, by definition, in some sort of distress and exhibit high risk. But this might simply be due to bad luck rather than bad behaviour." Nevertheless, being too big to fail seems to strengthen moral hazard of the banks. Firstly, seeing that being large enough warrants a bail-out, some banks may have the incentive to keep growing (possibly irresponsibly) until they are "too big to fail" (Gorton and Metrick, 2013).

Policy Proposals

Mitigating Probability of Bank Runs

The easiest way to decrease the probability of bank runs is to raise the reserve requirement. That way banks have more liquidity on hand to absorb any unexpected liquidity demands. However as we have previously observed, remaining liquid is not costless. By requiring banks to hold reserves in excess of reserves they would have ordinarily kept, banks face an opportunity cost equal to the interest forgone on the excess reserves (Feinman, 1993). Furthermore, since the reserve requirement is likely to be increased in times of financial crises or recessions, when lending capacity of banks is already squeezed this policy action will have the additional negative externality of credit forgone.

We may also consider the more extreme polar policy of narrow banking, which has been colloquially described as to be separating utility from the casino (Kay, 2009). In a narrow banking system, banks are restricted to hold deposits in very safe assets, while lending is left to other financial institutions. Obviously, self-fulfilling runs cannot happen. But on the other hand, "there is a loss in welfare relative to the no-run equilibrium. Narrow banking is equivalent to autarky; requiring it does away with all the benefits of financial intermediation" (Chang and Velasco, 1999). Similar to the higher reserve requirement scenario, maintaining liquidity is expensive.

Chang and Velasco (1999) argue that despite the fact that financial liberalisation increases the vulnerability of countries to crises, "one should not put too much stock on financial regulation alone as the panacea of crisis prevention." As it was already stated above, mandating banks to remain liquid bears a large cost. Additionally, financial regulation suffers from asymmetric information and lag effects, rendering it useful only up to a point, as financial crises in countries as developed as Sweden and the United States in the 1990s have suggested. The best way to mitigate the probability of liquidity shocks and consequently bank runs is to employ good macroeconomic policy that prevents economic shocks to begin with (Chang and Velasco, 1999). Hence, in the long-run the best panacea against bank runs is good macroeconomic policy and adequate financial regulation. Basel III standards are an example of a step in that direction.

Reducing Moral Hazard Present in the Existence of a Lender of Last Resort

Mitigation of moral hazard problems should go a long way towards a more sound fractional banking system. At the root of lender of last resort and deposit insurance issues are agency problems. In effect, the taxpayer agrees to be responsible for a bank not necessarily knowing the amount of risk that a particular bank takes on. According to Gorton and Metrick (2013) the existence of this safety net "provides the rationale for close supervision and regulations that limit the scope, risk-taking, and leverage of these institutions. If the safety net is too large, then banks lack incentives to manage risks in a socially optimal way; if the safety net is too small, then failure of a large institution could have major spillovers to the whole financial system."

There are a multitude of policies that can be undertaken to address bad incentives of banks to take on excessive risk. Dam and Koetter (2012) developed an econometric model that looks at the effect different supervisory interventions had on the banks' risk-taking behaviour, based on recent German data. They have found that "moral hazard is significantly reduced if interventions aim directly at the banks management or involve outright restrictions of its business. Sturdy interventions are effective. But weaker measures, such as warnings that are more often used, are ineffective in reducing moral hazard." An earlier study by Gropp and Vesala (2004) suggested that deposit insurance should be devised in such a way that deposit insurance credibly and explicitly leaves out non-deposit creditors. That way deposit insurance may even reduce moral hazard.

After the financial crisis of 2009-10 in the United States the "too big to fail" problem has also risen to prominence. In 2008, Emergency Economic Stabilisation Act (EESA) authorised the Treasury, under the Troubled Asset Relief Program (TARP), to spend up to $700 billion to purchase and insure distressed assets (Barth and Prabha, 2014). However, the problem with TARP was that in the end funds were used to bail-out not only banks, but entire holding companies which included other ventures besides banking itself:

"the fact that 86 per cent of TARP's capital purchase program funds went to 20 big banks, while the other 14 per cent went to the 687 smaller institutions, again focused substantial attention on the too big to fail issue" (Barth and Prabha, 2014). Under the new Dodd-Frank Act, the American government is "trying to resolve the too big to fail problem by stating that losses must be imposed on both debt and equity holders should a bank encounter sufficiently severe financial difficulties." In theory, this should also align interests of equity and bondholders with those of the Federal Reserve.

In the global financial world, Basel III standards are slowly being implemented, particularly in the Eurozone, under the premise that these enhanced standards of financial regulation will prevent the need for governmental financial assistance in the future. According to Bank for International Settlements (BIS), "the objective of the reforms is to improve the banking sectors ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy" (BIS, 2010). Stress tests are currently being implemented across the Eurozone in order to gauge the resilience of the banking sector at present.

Conclusion

Despite some major shortcomings of the fractional reserve banking system, it remains arguably the best form of banking available today, corroborated by the fact that it is so widespread throughout the world. Bank runs are a traditional concern in a fractional reserve system. This essay has shown that bank runs are a result of a liquidity mismatch in the banking system following a liquidity shock. Bank runs have a high economic cost, so prevention is crucial. It was demonstrated that the best long-term policy response is a not a permanent increase in the reserve requirements, but rather a mixture of good macroeconomic policy and sound financial regulation. The second biggest concern of fractional banking is moral hazard in the presence of deposit insurance schemes and a lender of last resort. It was found that the best policy response to bad incentives is prohibitive regulation that explicitly outlines what banks can and cannot do. Mere warnings were found to be ineffective. Finally, the "too big to fail" mindset of banks and governments needs to be challenged. In the USA, the Dodd-Frank act takes some measures in that regard. In Europe and the rest of the world the new Basel III standards provide a framework to local regulators to make sure that systemically important banks are crisis proof, so that the possibility of them failing does not even arise during future economic shocks and financial crises.

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THE USUAL SUSPECTS: SOVEREIGN DEFAULT IN SOUTH AMERICA, 1950-2010

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Why do South American countries tend to have higher sovereign default rates? Jack Dempsey attempts to explain this phenomenon by examining the causes and costs surrounding sovereign defaults. He addresses the 'usual suspects' of high borrowing costs, low resources and political factors and concludes these are largely to blame.

Introduction

Venezuela's recent sovereign debt woes have been well documented in the media with a general conclusion that it is not a matter of if, but when the nation will default on its sovereign debt. Argentina technically defaulted in 2014, their second default in 13 years, due to legal disagreements over the restructuring of debt from 2002. Combine these with Paraguayan and Uruguayan defaults in 2003 and a Venezuelan default in 2005 and a recurring theme begins to emerge of sovereign default among South American nations in recent times.

Building on data compiled from 70 countries from Reinhart and Rogoff's "This Time is Different" (2009), there have been 103 external defaults since 1950, giving an average of 1.47 defaults per country over this time period. The ten South American nations included in the sample account for 35 of the aforementioned defaults, an average of 3.5. Understandably, this is a somewhat biased statistic as the overall sample contains many nations that have not defaulted since 1950 and therefore dilute the overall results. However, by removing nations that have not defaulted in the stated time period, leaves an average of 2.51 defaults per nation, proving South American to default 40 per cent more than the average defaulter.

Therefore the question that must be posed, and the one this essay attempts to answer, is why do South American countries tend to have higher default rates on external sovereign debt? The answer to this question is a complex one, steeped in a vast array of economic, political and social issues. An attempt to address this issue will be made along the lines of:

i) The explicit causes of default
ii) The costs of default
iii) Why do South American nations have higher default rates?

A good place to start is with an explicit definition of sovereign default. According to the previously mentioned Reinhart and Rogoff, two of the world's most pre-eminent voices on debt, sovereign default is: "the failure to meet a principle or interest payment on the due date (or within the specified grace period). These episodes also include instances where rescheduled debt is ultimately extinguished in terms less favorable than the original obligation" (2008).

Over the stated time period, it is obvious that it is today's emerging economies that are guilty of almost all the defaults, with the 26 advanced economies included in the study having only defaulted twice among them since 1950. While South American countries are deemed to be "developing" under international guidelines, this does not go as far to help explain why they have a higher default rate, as many developing economies boast exemplary records in relation to sovereign debt. Countries like China, Malaysia and Taiwan are yet to experience a sovereign default since 1950, and do not look likely to do so any time soon.

The Cause of Default

Hatchando, Martinez and Sapriza state that sovereign default is most likely to be observed when resources available to the sovereign are low, borrowing costs are high or there is a substantial change in the political circumstances.

Resources

When resources run sufficiently low it may become optimal for a sovereign to default rather than make massive expenditure adjustments. Research from Tomz and Wright (2012) shows that 62 per cent of defaults occur when a country's output levels are trending below average. Such empirical evidence helps put weight behind the general consensus that default risk is higher when a nation's economy is performing poorly.

Resources for many countries rely on commodity prices, and if prices of such drop abruptly the sovereign can face gaping holes in the national budget. Commodity prices can fluctuate massively, leaving such dependent nations susceptible to worldwide demand for natural resources. The last great commodity price slump, which began in the late 1970s, was a drag on developing economies for almost two decades (The Economist, 2014).

Borrowing Costs

Borrowing costs are highly susceptible to change for countries due to many internal and external factors. The most important of these external factors involve changes in the exchange rate. Eichengreen, Hausmann and Panizza (2005) reported that between 93 per cent and 100 per cent of developing country debt is issued in foreign currency, mainly the dollar, euro and yen. Such debtor countries are therefore exposed to fluctuations in exchange rates, leaving them open to ballooning payments in the case of an appreciation in the debt denominated currency.

Empirical studies have also indicated that interest rates paid by developing countries tend to move in the same direction as U.S. interest rates (Lambertini, 2001). This leaves such developing nations extremely vulnerable to variations in the state of the US economy and the resulting interest rate changes. Evidence of this can be found in the massive increases in U.S. interest rates in the early 1980s, as rates hit 20 per cent, a period that coincides with the much-discussed Latin American debt crises.

Increased borrowing costs can be extremely dangerous for countries that continually roll over on short-term debt in order to service fast approaching interest payments and maturities, an activity that many nations indulge in.

Political Factors

There is a strong correlation between political risk and sovereign default, with studies by Citron and Nickelsberg (1987) showing that political instability is statistically significant as a determinant of a country's default probability. This can be seen by Syriza's rise to prominence in Greece coercing a negative reaction from worldwide bond markets. A country's willingness to pay is firmly influenced by politics via the distribution of interests and by the institutions and power structures (Von Rijckegham and Weder, 2004). Further evidence from Kohlscleen (2008) shows that the political systems in place also play a large role in whether a nation defaults or not, with parliamentary democracies experiencing lower default probability than their presidential equivalent due to the higher number of veto players. Even higher default probability is observed when a nation is under the rule of a military dictatorship or similar (Dhillon and Sjostrom, 2009).

The Cost of Sovereign Default

This is a particularly important topic as if costs to default were low or nonexistent then all countries would incessantly default on debts and international credit markets would dry up. Therefore, an important matter contingent on the terms of debt contracts is that default must be more costly than repaying the debt. Hatchondo, Martinez and Sapriza (2007) state there are two main costs creditors impose on default of sovereign debt: i) Higher borrowing costs and ii) Signaling costs.

Higher Borrowing Costs

Increased borrowing costs can be defined simply as a hike in the price of debt. Following a default, coordination is required among the holders of the defaulted debt and any potential future lenders in order for this condition to be enforced. However, such a feat is near impossible to achieve in today's extremely competitive credit markets. The only truly viable solution remaining is to block payments to other creditors via legal actions to try and exclude defaulters from capital markets, as is being currently attempted by the media-coined 'Vulture Funds' on Argentina, who refuse to take a haircut on defaulted debt from 2002.

Empirical evidence from Eichengreen and Portes (2000) finds no evidence of higher borrowing costs or capital market exclusion following a sovereign default, this is indicative that signaling costs are the only true cost to sovereign default. Although it must be mentioned that, unlike a private company, a country cannot enter bankruptcy and, as such, most default episodes are followed by settlement with creditors, an outcome not worthy of capital market expulsion.

Signaling Costs

The true costs of default come as a result of the information it conveys to capital markets and economic actors. A number of issues are immediately raised following such an explicit default. Is the government not willing to respect property rights? Are economic conditions so bad in the country it cannot afford to service its debt? Is the country still safe to do trade with? All of these combine to essentially discredit a nation's economy and central bank, making it very difficult to raise funds at attractive rates in future credit markets.

In addition to the above, Tomz and Wright (2012) put forward a theory that a country only repays debt in order to retain access to future credit markets. Such a theory is very plausible as most governments need to borrow in order to finance capital expenditure among other things and the drying up of their only source of borrowing would leave the nation's finances reliant on increased taxes or decreased expenditure, neither popular approaches with the voting population.

South American Default Rates

This section will attempt to unearth the reasons behind South America's elevated default rates since 1950. This will be attempted, firstly, via Hatchondo, Martinez and Sapriza's (2007) format of the causes behind sovereign default and, secondly, via other methods the author believes allow for a more direct approach.

Low Resources

An over-reliance on natural resources leaves South American countries extremely susceptible to boom and bust cycles, as can be seen with Venezuela's current predicament, where a near 50 per cent fall in the oil price has had a detrimental effect on budget revenue, of which oil accounts for 48 per cent of, as well as for 96 per cent of export earnings (Kwan Puk, 2014). This has been a recurring theme in many South American nations over the years, where economies are heavily biased towards commodity exports and a slump in prices can make such nations very vulnerable to default due to the drying up of government revenues.

This failure to diversify is still prevalent today in South American economies, nations like Chile, Peru and Argentina remain heavily reliant on Chinese demand for copper, non-ferrous metals and soybeans respectively. This "sinodependency", a term coined by The Economist magazine, is a worrying aspect going forward considering the recent slow-down in the Chinese economy (BBVA Research, 2013).

High Borrowing Costs

As the risk of default becomes higher, the cost of borrowing naturally rises as creditors look to be compensated for the elevated level of risk they are undertaking. Such is the case for South American nations who suffer from historically high borrowing costs that come hand in hand with an elevated risk of default. This raises Reinhart and Rogoff's issue of serial defaulters (2004), where previous default increases the chance of future default via knock-on effects in relation to the difficulty such countries have in borrowing at attractive rates. This affects future economic development that could contribute towards paying any outstanding debts. The serial defaulters theory essentially embodies a self-reinforcing feedback loop in relation to sovereign default.

The pro-cyclical nature of capital markets (Reinhart, Rogoff and Savastano, 2003) means that cheap and easy credit comes periodically for South American nations. Used to having a high cost of borrowing, these surges of credit make certain nations liable to overindulge on debt (The Economist, 2015). This results in higher than normal debt/GDP ratios, which, working as the aforementioned vicious circle, result in higher costs of borrowing due to increased risk that comes conjointly with higher levels of government debt.

Political Factors

All South American nations have fallen under the rule of a non-democratic political regime during some time of the last 65 years, a significant factor in determining the probability of default (Xinrui Yu, 2012). By observing the political regimes of countries around their time of default, it becomes clear to the observer that there is a correlation between non-democratic regimes and default. Handpicking one country, Colombia, it can be seen that it had the shortest rule under a dictatorship (4 years) out of the South American nations and also no sovereign defaults since 1950, perhaps a coincidence but again, perhaps not. Furthermore, the political standpoint of the ruling party has a large role to play in regards to default. Some regimes prefer to default on external debt rather than see its people suffer, while others, such as Venezuela currently do the opposite, paying creditors while massive shortages of imported goods engulf the nation.

Crisis Factors

Reinhart and Rogoff (2009) developed default indicators of currency crises, inflation crises, stock market crashes and banking crises. When considering these it becomes clear that in the case of South American nations, defaults are generally accompanied by an elevated number of the aforementioned crises factors in the year or preceding year of their default.

While a slightly arbitrary measure, it is a revealing one that helps to control for countries that have not defaulted in the stated time period. Using this metric, the average defaulter experienced 1.612 such crises per default while South American nations were 53 per cent higher at 2.47 crises. Reading further into the data highlights a more profound problem among South American nations. Of the 166 crises experienced via the 103 defaults, 66.3 per cent were related to currency or inflation crises but of the South American cases the figure was a relatively higher 75 per cent, indicating possible inefficiencies in monetary and fiscal policies among such nations. This also works to highlight tendencies to deal with debt via the printing press, resulting in massive inflation and huge depreciations against the US dollar and other currencies.

It must be noted that a large number of South American defaults fell during the Latin American debt crises period, when an alarming build-up of foreign debt meant that Latin American nations would no longer be able to service their borrowings. The 1980s, the general period of these crises, accounts for 38.24 per cent of the overall defaults since 1950 for these nations. This is a significant figure when considering that the 1980s only accounts for 16.67 per cent of the observed time period. This highlights the possibility that South American nations' higher default rates are a result of an outlier event.

A further dive into trying to explain the higher rate of default can possibly be unearthed via the low credibility that the nation's central bank currently maintain. Is the credibility of South American central banks already so tarnished that losing credibility is almost no longer an issue to consider? The main obstacle to default, for advanced economies, tends to move along the lines of maintaining the integrity and credibility of the country's central bank and government. However, in the case of many of the South American nations, central bank credibility is already substantially low and so the loss of more credibility is not as devastating as it would be for many other nations.

Conclusion

Reinhart, Rogoff and Savastano (2003) observe that certain countries suffer from debt intolerance, in the same manner that a coeliac is gluten intolerant. These countries tend to have fragile fiscal structures, weak financial systems and almost always fall under the "emerging" banner. They are known to enter debt spirals as they borrow when at their greatest risk of default. This theory works well when trying to comprehend why South American nations have the highest sovereign default rates over the past 60 years, with their weak institutions failing to prevent problematic economic factors from ballooning into full scale crises.

Based on the above, in my opinion it seems that South American nations have expereinced higher default rates over the period 1950 to 2010 due to the worse than normal outcomes that result from the three already discussed reasons behind default. The politically unstable environment that many of the countries exist under make them a somewhat undesirable place to lend to, resulting in high borrowing costs that can be made even worse by fluctuating macroeconomic factors. Loose fiscal and monetary policy, and a strong tendency to start-up the printing press to repay debt, contributes further to their debt woes as government spending becomes unsustainable and the currency weakens, worsening the burden of foreign denominated debt. Finally, the issue of low availability of resources to the government is well documented in the above.

Overall, however, I believe that the main reason behind the high rate of sovereign default shown by South American nations is weak political systems. Such regimes allow for corruption, unsustainable social spending and an over-reliance on natural resources. These characteristics leave South American nations highly exposed to macroeconomic factors that can be highly beneficial or highly detrimental to their economy. Fluctuating exchange rates, commodity prices, and the pro-cyclical nature of credit markets that allow for easy credit in times of high global savings, all contribute greatly to the expansion and contraction of South American nations.

To avoid exposure to these extremely influential external factors, nations must begin to diversify away from the industries that they have become over-reliant on, in order to protect themselves from the ups and downs that come with such an economic system. Attempts of such have already been made by the likes of Colombia and Peru who have used the high commodity prices of the past decade to build foreign-exchange reserves and to pursue greater economic reforms in order to insulate themselves to slowdowns in the worldwide demand for commodities (The Economist, 2014).

Many of the issues involving sovereign default raised in this essay unearth problems that delve deep into eco-political and cultural mindsets, which are somewhat beyond the realms of this essay. However, time will bring forth more evidence of the reasons behind South American defaults and will determine whether the usual suspects will remain as so. An expected interest rate hike from the Federal Reserve combined with an increasingly strong dollar could produce problems for many South American nations, with the effects of such to be followed with great interest by this author.

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THE GREAT DEPRESSION AND THE GOLD STANDARD

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Have policymakers learnt from the mistakes of the Great Depression? In this essay, Conor McGlynn explores how the persistence of the gold standard prevented policymakers from engaging in expansionary monetary policies thereby prolonging the economic stagnation. The author postulates that the desire for stable monetary policy coupled with political factors were significant in explaining the reluctance to leave the gold standard.

Introduction

The question of what made the Great Depression so severe has been an important topic in the wake of the Financial Crisis of 2008 and the subsequent Great Recession. The key to answering this question lies in the international monetary system of the time: the gold standard. While the origin of the crisis and the mechanism through which it spread is by now well understood, there are still unanswered questions around why such a failure of policy occurred. This essay gives an overview of the Great Depression from its roots to the aftermath. It will in particular look at the question of why policy makers were so slow to react in response to deflation, and why it took so long for countries to abandon the gold standard. It draws on recent work by Adam Tooze for a potential explanation as to why there was such a persistent failure of monetary policy at the time.

Historical Context

In order to understand the role of the gold standard in the Great Depression, it is necessary to look at the international monetary system before and during World War 1. From the mid 19th century onward, most countries in the world gradually moved onto the gold standard (Findlay and O'Rourke, 2007: 407). Other countries followed a gold exchange standard, whereby they pegged their own non-gold currencies at a fixed rate to a currency on the gold standard, such as the pound sterling. This system brought with it benefits for the participants by allowing exchange rate and balance of payments stability. This promoted trade between gold bloc countries, with estimates that trade was lifted by up to 30 per cent (López-Córdova and Meissner, 2003). This acted as driver for economic growth in the period.

Why was the gold standard so effective before the war? One answer to this question is the idea of hegemonic stability (Eichengreen, 1987). Britain was the dominant economic force at the time, and so, it is supposed, the Bank of England acted as both the leader in terms of policy for other central banks and as the international lender of last resort. This concentration of power created balance of payments and exchange rate stability within the system, a stability which lasted until the outbreak of World War 1, when this global hegemony was destroyed.

Eichengreen, however, argues against this view. He describes what he thinks are the two main elements in the success of the pre-war gold standard: credibility of central bank policy, and international cooperation between gold bloc countries (Eichengreen, 1992). Governments' commitment to the gold standard was seen as absolute, and as such investors had enough confidence to direct capital flows into countries that got into balance of payments difficulties which depleted gold reserves, because they were confident that the government would honour its commitment to gold and replenish the reserves. These capital inflows had a stabilising effect on the exchange rate and corrected the balance of payments.

International cooperation was the other element that allowed the pre-war gold standard to run smoothly. This cooperation took the form of a willingness of central banks to loan gold reserves to each other when they ran into trouble. While the Bank of England did play a key role in lending to distressed countries, the success of the gold standard came not from the actions of any one central bank, but from the strength of the international collaboration which could successfully defend the standard from shocks.

The advent of war in 1914 tore this system apart. The costs for individual countries were colossal, and most suspended gold convertibility so that they could freely print money to finance the war. This nearly bankrupted most European countries, and led them to rack up huge debts. Europe's economy was ruined, with trade and industrial production plummeting. The credibility and cooperation necessary for the successful working of the gold standard were impossible during the chaos of war.

After peace in 1918 there was a gradual attempt to return to the garden of the pre-war gold standard, with it being universal in market economies by 1929 (Bernanke, 1995). The problem, however, was that the elements that had been key to the success of the gold standard before 1914, namely credibility and cooperation, failed to resurface sufficiently after the war (Eichengreen, 1992). Having broken wholesale with gold during the war, investors no longer had so much faith in governments' commitment to preserve the link with gold. This meant that capital flows were not so quick to enter countries that ran into gold reserve difficulties, and so put strain on the system.

Initially after the war there was a high degree of cooperation between central banks. The US made loans to many European countries, and European central banks helped countries that ran into balance of payments troubles (Eichengreen, 1992: 207). However, in 1927 the all-important link between the British and US central banks dwindled, and the cooperation necessary to sustain the system weakened. War debts and reparations also acted as barriers to closer international cooperation. This provided the setting for the subsequent financial crisis and the crash of 1929, and ultimately for the Great Depression itself.

The Great Depression

During the 1920s the US economy was booming. Much of this growth was driven by post-war recovery. However, fears of an equity price bubble led the Federal Reserve to try to cool down the economy. In 1928, the Fed tightened its monetary policy. The effects of this monetary contraction were not limited to the US, but were transmitted around the world through the workings of the gold standard (Bernanke, 1995). The Fed raising interest rates put pressure on debtor countries by restricting foreign lending. This meant that these countries had to also tighten their monetary policy in order to continue servicing their debts. The subsequent decline in economic activity led to a fall in demand for US exports, and reinforced the downturn. The gold standard played a central role in the transmission of monetary shocks around the world.

These monetary shocks acted on the real economy through two main channels: deflation and increased real wages above market clearing level (Bernanke, 1995). As the economy slowed from 1929, policymakers allowed money supply to fall further. This monetary contraction led to debt deflation. This deflation was crippling for the economy, and was a main contributor to the severity of the depression. The other channel through which monetary contraction affected the real economy was through nominal wages failing to adjust. This meant the labour market failed to clear, and led to unemployment and further economic decline.

Why did policymakers permit the money supply to fall so much, thus prolonging and worsening the downturn? Again, the gold standard is central to the story here. Because of fears of gold outflows, world central banks were unwilling to engage in any expansionary policies. This meant that they were unwilling to act as lender of last resort to troubled banks as it would threaten gold convertibility. This led to bank failures and worsened the financial crisis. The link to gold tied policymakers' hands. A strong multilateral push by countries to engage in monetary expansion could have been possible within the constraints of the gold standard. However, the level of international cooperation necessary for such a push, while it might have been possible before the war, was unable to be achieved in the 1930s (Eichengreen, 1992).

Ultimately, countries began to leave the gold standard. From 1932 onwards, major market economies began abandoning gold. This allowed them to reflate their price levels and money supplies, and engage in expansionary policies to rescue their economies. The countries that abandoned the gold standard sooner subsequently experienced a faster economic recovering (Bernanke, 1995: 5). By leaving the gold standard, countries removed what Eichengreen calls the "golden fetters" which restrained monetary policy and prevented a quick economic recovery.

The question that remains to be answered, however, is why countries were so slow to abandon the gold standard in the face of such grave economic circumstances? Why was there such a pronounced failure of policy around the globe at the time? There were a number of factors that contributed to this. For many countries, one of the main reasons they were unwilling to break with gold was a fear of inflation. During the 1920s many countries experienced severe and crippling levels of inflation. It was the desire for stable monetary policy that restrained inflation which led many countries to go back on the gold standard after World War 1 (Crabbe, 1989: 423).

This explanation, however, does not account for why countries that didn't experience very extreme inflation, such as Sweden and Britain, were so slow to leave the gold standard. An alternative account of why major countries tried to preserve the link to gold for so long is given in a recent work by Adam Tooze (2014). Tooze emphasises the importance of political factors in the wake of World War 1, and how these political factors influenced the aims and actions of policymakers around the world.

Tooze's thesis is that World War 1 represents a watershed in world history; in the words of Lloyd George it was "the deluge" that would completely reshape the world's political order. It created as an overwhelming aim for politicians the avoidance of any further conflict between advanced nations that would result in such destruction and loss of life. It was recognised that the only way that this could be achieved was through global cooperation and a new transnational world order.

Under this system, policymakers' bull-headed commitment to the gold standard in the face of worsening economic crisis can be seen as their protection of the supranational monetary order. This monetary accord represented a key part of the global political order, and in order to prevent a return to the separatism and nationalism that produced World War 1 governments would go to extreme lengths to protect it.

Tooze gives an explanation of why policymakers tried so hard to defend the gold standard during the crisis. It is extremely important to get an understanding of why policymakers did what they did during the Great Depression. According to Eichengreen (2015), an incomplete understanding of the mistakes of policymakers, coupled with the belief that such mistakes could not happen again, led to similar flaws in policy before and during the recent financial crisis and Great Recession. While policymakers learned the lessons of the Great Depression with regard to avoiding deflation and bank failures, in other areas they did not. This has led to a lack of systemic reform, and leaves us open to making the same mistakes in the future. An appreciation of the forces at work in policymaking during the Great Depression may help us to avoid this fate.

Conclusion

Ben Bernanke says of the Great Depression that it "gives birth to macroeconomics as a distinct field of study" (1995: 1). An understanding of its causes and of the causes of its severity is therefore crucial for the discipline of macroeconomics. While we have a strong understanding today of the mechanics of the crisis, it is still important to try to gain insights into the decision making process of policymakers at the time. Only by doing so in a comprehensive way can we hope to avoid their mistakes in the future.

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GENDER EQUALITY IN THE LABOUR MARKET AND FOREIGN DIRECT INVESTMENT

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With Southeast Asia attracting more foreign direct investment than China in 2013, it is worth questioning what factors attract multinational corporations to this region. Cián Mc Leod investigates whether labour market gender equality has an impact on foreign direct investment in these countries. He uses a fixed effects model to control for unobserved cross-country factors and finds that labour market equality does have a positive effect on foreign direct investment. However, he fails to find a statistically significant effect after accounting for autocorrelation and heteroscedasticity.

Introduction

While the long-term benefits of encouraging intense capital flows is often highly questionable, foreign direct investment (FDI) is seen by many as a key method and avenue for development and growth. So much so that the Association of Southeast Asian Nations (ASEAN) has made the attraction and retention of FDI one of its primary objectives. Recently, it was calculated that the so-called ASEAN-5 (Indonesia, Malaysia, Phillipines Singapore, and Thailand) received greater FDI inflows than China in 2013, receiving $128.4 billion and $117.6 billion respectively (Noble, 2014).

While it is generally accepted that factors such as trade openness and market growth affect the level of FDI inflows in these transitioning economies, questions remain as to the effect of labour market gender equality on the flows of foreign direct investment. Although attempts have been made to quantify the effect of FDI on gender equality, research is rather sparse on how a changing female labour participation rate affects foreign direct investment.

This paper begins by examining a selection of the past literature on FDI from both a gender perspective and a Southeast Asia perspective. It will then outline the structure and approach of the study undertaken before presenting the results of the study. Finally, extensions to the study will be discussed in the last section.

Literature Review

Literature on foreign direct investment from a gender-blind perspective is quite plentiful with many perspectives on its impact and determinants all over the globe. However, a growing body of research has emerged regarding the role of FDI on gender issues, although a narrower band of research has looked at it from the perspective of the effects of gender on FDI.

Elissa Braunstein (2006) provides a far-reaching summary of research carried out into the benefits, and often drawbacks, of employment by transnational corporations (TNCs) for females. However, research of this issue in developing countries has often been confined to small-scale studies. Braunstein conjectures that although there has been a positive correlation between women's employment conditions and FDI which has led to a short term improvement, the longer term impact of FDI is often not as positive, or indeterminable, as these industries develop further.

Baunstein (2006) maintains that where FDI inflows have been sizeable, such as in Southeast Asia, "there is strong evidence that the share of female employees in the labour-intensive, export-oriented assembly and manufacturing sector is high" (p. 14). Women also tend to be concentrated in these sectors, such as textiles and electronics, where there is pressure to keep costs low in the face of international competition. Traditionally, as women's wages are lower in these transitioning economies, employing a high proportion of female labour allows the TNC's product to be more competitive in an export market.

Sahoo (2006) and Sjöholm (2013) both discuss FDI from an Asian perspective tracking the changes of foreign direct investment in Southeast Asia and examining its determinants. Both find that potential market growth is a primary determinant of FDI inflows in the region as well as a skilled workforce. Sahoo discusses the importance of the degree of openness enjoyed by the Asian economies and the importance of not only exporting, but often importing, when corporations decide to invest in these countries. Textiles have played a central role in FDI in Southeast Asia. Sjöholm and Sahoo both track the composition of FDI throughout the last two decades. It is found that the textile industry sees the bulk of investment in the early years of FDI inflows while this fades away as FDI flows accumulate over time in the majority of cases.

Data

In an attempt to evaluate the impact of gender equality in the labour market on FDI flows in Southeast Asia, a panel dataset was selected as it allows for unobservable time-invariant factors to be controlled for. All data was obtained from the World Bank dataset. The panel consists of the eight of the nine ASEAN (Association of Southeast Asian Nations) members: Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam. Brunei was omitted from the sample due to the unavailability of data. The time period studied is

1990 to 2012 inclusive. It is worthwhile to note that this period covers the Asian financial crisis of 1997, and hence we include a dummy variable to control for this period.

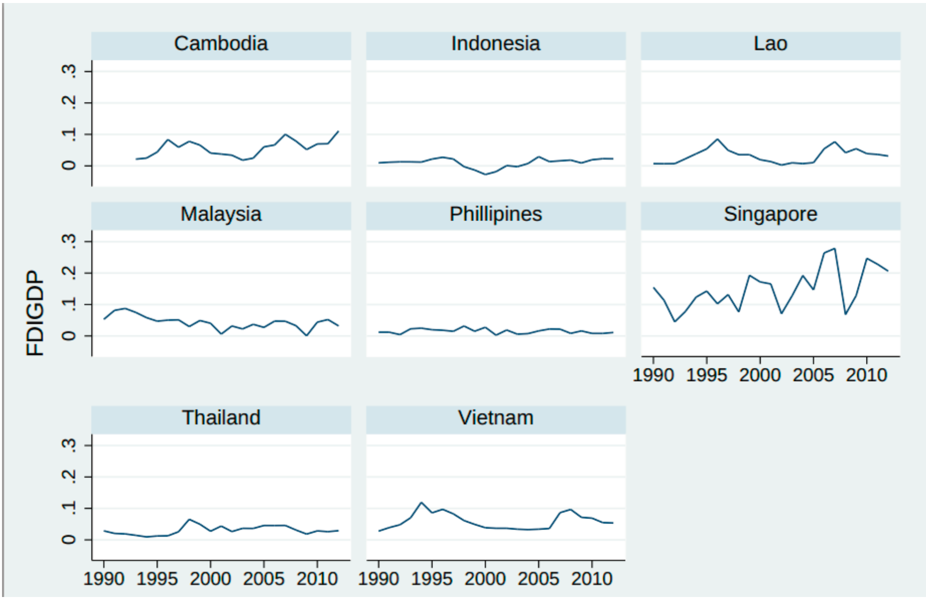

Figure 1: FDI as a percentage of GDP in ASEAN nations from 1990 to 2012.

The response variable chosen is the net inflow of foreign direct investment as a percentage of GDP (FDIGDP). Expressing this as a percentage of GDP allows us to control for the market size. This follows the consensus of the bulk of FDI literature. To model the main explanatory variable, gender equality in the labour market, the female labour participation rate was used. The World Bank define this as the percentage of the adult (aged 15 or over) female population who are economically active. A voice and accountability indicator from the World Bank's World Governance Indicators was used to account for differing institutional qualities.

The explanatory variable matrix that was used in the analysis also consists of a number of other explanatory variables to control for the traditional determinants of FDI. The growth rate of GDP is used to control for the market growth prospects. Trade is a constructed explanatory variable and equals the sum of imports and exports scaled by GDP. Exchange rate is the local currency unit relative to the US dollar and is computed as an annual average based on monthly data. All of these apart from the exchange rate are expected to have positive coefficients to account for their positive impact on FDI. Summary statistics of these variables are contained below in table 0.

Variable	Country	Minimum	Mean	Maximum
FDI/GDP	Between	.0096949	.0495617	.1502341
	Within	-.0557255		.1777549
Trade	Between	.5728862	1.371858	3.656125
	Within	.8080634		2.156736
GDP growth	Between	.0391992	.0590394	.0774416
	Within	-.1236815		.1432906
LNExchange	Between	.4487043	5.370455	9.530422
	Within	3.444321		6.458273
Female Participation Rate	Between	.4361739	.6138478	.7844348
	Within	.5826304		.7085
WGI Index	Between	17.46559	34.52253	69.99588
	Within	42.01125		92.5275

Table 0: Summary statistics for variables used in the model.

Empirical Approach

Firstly, a pooled OLS regression was applied to equation 1 to obtain a benchmark for the study. This results in no distinctions between the different countries in the sample and is of course subject to abundant errors. However, it still provides a suitable starting point in this study and has been used as benchmarks in similar pieces of work.

$$(1)\quad FDI/GDP_{t,i} = \beta_0 + \beta_1 FDI/GDP_{t-1,i} + \beta_2 FDI/GDP_{t-2,i} + \beta_3 Trade_{t,i} + \beta_4 GDPgr_{t,i} + \beta_5 LNExchange_{t,i} + \beta_6 FemalePartic_{t-1,i} + \beta_7 AsianCrisis + \mu_{t,i}$$

Female participation rate in included as an explanatory variable lagged one period. Early on in this study, it was found that it is the lagged participation rate which has statistically significant effects on the net inflow of FDI. This is consistent with other author's, work such as Anyanwu (2012), who find that decisions on FDI are often made in advance based on previous years' data. AsianCrisis is an indicator value to control for the effects of the Asian financial crisis of 1997.

Panel data estimation methods were then applied to the study's data. Both fixed and random effects estimation was used. A Hausman test produced a chi-squared value of 8.49 and a corresponding p-value of 0.29 meaning that we cannot reject the null hypothesis that the difference in coefficients is not systematic. As a result, fixed effects estimation was utilised due to the allowance of correlation between the unobserved effect and the explanatory variables.

Fixed effects estimation allows us to control for unobserved effects across countries. The implementation of fixed effects estimation allows for us to control for certain cultural differences across the countries. Du, Lao and Tao (2012) demonstrate that investors' cultural preferences, and the difference between their home and the host culture, affect the location and level of foreign direct investment.

$$(2)\quad FDI/GDP_{t,i} = \beta_1 FDI/GDP_{t-1,i} + \beta_2 Trade_{t,i} + \beta_3 GDPgr_{t,i} + \beta_4 FemalePartic_{t-1,i} + \beta_5^T IdTime + \alpha_{t,i} + \varepsilon_{t,i}$$

Where β_5^T is a vector of coefficients, and *idTime* is a vector of indicator variables for each, bar one to avoid collinearity, year. Equation 1 was selected after multiple specifications were tested at early stages of this study.

It is also possible that the β_4 is capturing the effect of improved institutions within the country. For this reason a separate specification, equation 3, including the World Governmental Index was analysed to control for the effect of improved institutions on FDI. This would eliminate the possibility that β_4 is only capturing the effects of improved institutions.

$$(3)\quad FDI/GDP_{t,i} = \beta_1 FDI/GDP_{t-1,i} + \beta_2 Trade_{t,i} + \beta_3 GDPgr_{t,i} + \beta_4 FemalePartic_{t-1,i} + \beta_5^T IdTime + \beta_6 WGI_{t-1,i} + \alpha_{t,i} + \varepsilon_{t,i}$$

Results

Table 1, outlines the preliminary results of this study using a pooled OLS method on equation one specified above. The log of the local currency unit to US dollar exchange rate is highly insignificant with a p-value of 0.37. This is not completely unexpected as the explanatory variable here is the annual nominal exchange rate from 1990 to 2012. FDI is likely to depend only on the real exchange rate, data of which was difficult to collect for this panel.

Data on various other explanatory variables was also collected and analysed for variable selection. Variables such as education levels, proxies for infrastructure and tax levels were all eliminated during a top-down variable selection process. This was not as expected as a traditional school of thought would be that all of the aforementioned factors would have a significant impact on the inflow of FDI.

$FDI/GDP_{t,i}$	Pooled OLS
Number of observations	170
$FDI/GDP_{t-1,1}$	.437797*** (*.0775023*)
$FDI/GDP_{t-2,1}$	-.0575343 (*.0774785*)
$Trade_{t,i}$	.0286949*** (*.00497*)
$GDPgr_{t,i}$	.2323027*** (*.0635037*)
LNExchange	.0008984 (*.0010004*)
$FemalePartic_{t-1,i}$	.0454093** (*.0216071*)
AsianCrisis	.0109077 (*.0075239*)
Constant	-.0557067*** (*.0132806*)
Adjusted R^2	0.7406
$F_{7,162}$ {Prob>F}	69.94 {0.000}

Table 1: Regression results for equation (1). Standard errors for each coefficient shown in parenthesis.

$FDI/GDP_{t,i}$	Fixed Effects	Robust Fixed Effects
Number of observations	172	172
Number of groups	8	8
$FDI/GDP_{t-1,1}$	.3118243*** (*.0803756*)	.3118243* (*.1382869*)
$Trade_{t,i}$	.2239939*** (*.0811084*)	.2239939 (*.1523432*)
$GDPgr_{t,i}$	.0241627** (*.0117865*)	.0241627 (*.0139636*)
$FemalePartic_{t-1,i}$	.295896** (*.1217873*)	.295896 (*.2781084*)
Constant	-.2031*** (*.0771341*)	-.2031 (*.196796*)
R^2 (Within)	0.3986	0.3986
$F_{25,139}$ {Prob>F}	3.69 {0.0000}	.

Table 2: Regression results for equation (2). Standard errors for each coefficient shown in parenthesis.

The main method in this study is fixed effects regression. For this analysis, the second lag of FDI was removed as the model is already dynamically complete and exchange rate was also removed due to its low explanatory power.

Looking at the fixed effects results in Table 2, as expected all coefficients were positive implying that an increase in these factors would increase the inflows of FDI in the region. Interestingly, all coefficients are also significant at either a five or one percent significance level. A one percentage point increase in trade would imply a 0.22 percentage point increase in the level of FDI as a percentage of GDP. Similarly, a one percentage point increase in GDP growth rate would imply a 0.02 percentage point increase in FDI as a percentage of GDP. The significance of the lagged female participation rate on FDI is noteworthy, implying that a percentage point increase in the female participation rate would increase FDI by 0.29 of a percentage point. An F-test rejected the null hypothesis that the coefficient vector for the time variables, β_5 was zero.

$FDI/GDP_{t,i}$	Fixed Effects	Robust Fixed Effects
Number of observations	172	172
Number of groups	8	8
$FDI/GDP_{t-1,1}$	.3043924*** (*.0802415*)	.3043924* (*.1479191*)
$Trade_{t,i}$	.0183852 (*.012416*)	.0183852* (*.0093334*)
$GDPgr_{t,i}$	.2360797*** (*.0812431*)	.2360797 (*.1598837*)
$FemalePartic_{t-1,i}$	.2559412** (*.1244962*)	.2559412 (*.2385256*)
$WorldGovIndex_{t,i}$	.0002236 (*.0001562*)	.0002236 (*.0002105*)
Constant	-.189151** (*.0777023*)	-.189151 (*.1715536*)
R^2 (Within)	0.4074	0.4074
$F_{26,138}$ {Prob>F}	3.65 {0.0000}	.

Table 3: Regression results for equation (3). Standard errors for each coefficient shown in parenthesis.

Table 3 outlines the results of the fixed effects estimation of equation three. The purpose of this estimation was to control for institutional differences and their effects on FDI as it may be possible that the coefficients on female participation rate is capturing these improved institutions. As we can see from the second column, despite the inclusion of increases in institutional index, female participation rate still has a statistically non-zero effect on foreign direct investment.

Validation of Results

While the fixed effects results reported in table two are interesting, it is important to ensure that these results are indeed valid and are not misleading due to incorrect standard errors. While a number of checks were carried out, those testing for heteroscedasticity and autocorrelation are of merit.

A modified Wald test for groupwise heteroskedasticity rejected the null hypothesis that $\sigma_i^2=\sigma^2$ for all observations with a p-value (Prob > χ^2) of 0.000 suggesting that heteroscedasticity could be a problem in this panel. This is perhaps not too surprising in itself considering that the period covered by this study, 1990 to 2012, covers the Asian financial crisis of 1997, the dot-com bubble of 2000, and the onset of the world financial crisis in late 2007 and early 2008. All of these events have possible effects on FDI flows and, ultimately, the volatility of these flows.

One of the assumptions required is that of no serial correlation. The Wooldridge test for autocorrelation in panel data was conducted. A χ^2 value of 246.12, and a corresponding p-value of 0.0000, clearly rejects the null hypothesis of no autocorrelation in the panel.

As a result of these findings, it can be ascertained, with a high degree of certainty that the original reported standard errors were false leading to the overstating of significance of these results. Hence, it was decided to repeat the fixed effects estimation again, this time requesting robust standard errors correcting for eight clusters in the country identity.

Requesting robust standard errors leads to perhaps a truer statement of significance of the results. In table 2, under robust fixed effects estimation, we can see that only the lag of FDI is significant at a ten percent level. In table 3, similarly under robust fixed effects estimation, it is trade and again the lag of FDI that is significant at likewise a ten percent level.

More importantly, robust standard errors means that we cannot exclude the possibility that the coefficient on female participation rate is statistically zero; both in equation two, and in equation three where we control for improvements in a country's institutions.

Possible Extensions to This Study

Using fixed effects estimation to analyse the effects of labour force participation rate on FDI allows us to control for unobserved effects that do not change over time. This means that we can control for cultural effects on the decision to invest in a country. However, it may be interesting to estimate the aforementioned effect using a gravity model. Gravity models have been used in literature on FDI, but not to analyse the effect of gender equality in the labour market. The use of a gravitational model may allow us to model these effects more accurately.

A possible extension of this study would be to look at different measurements of gender equality in the labour market. Although female labour force participation rate is frequently used as a measure of gender equality, one could also look at the gender wage gap or other similar measures. It may also be possible to collect better data on the female participation rate. It is likely that, in these transitioning economies, the female participation rate may be underreported due to the prevalence of casual employment.

Conclusion

This study attempted to address the impact of female labour force participation on foreign direct investment inflows in Southeast Asian nations. Despite the significant level of literature on FDI and its determinants, minimal attention has been focussed on the effect of gender equality in the labour market on the level of FDI flows. With Southeast Asia receiving a high level of FDI in female intensive sectors such as technology and textiles, it is interesting to examine whether a higher level of female participation increases the flows.

Using a fixed effects model to control for unobserved effects across countries, determinants of foreign direct investment were estimated. Variables such as GDP growth rate and trade were controlled for and proved to have positive influences as expected. Under fixed effects, female labour market participation rate was found to have a positive impact on FDI and was significant at a five per cent level. However, after controlling for detected autocorrelation and heteroscedasticity within the panel by correcting the standard errors through robust fixed effects estimation, the possibility of female labour market participation rate being statistically zero cannot be excluded. Despite strong qualitative references to the demand for female employment by multinational corporations in this region, it appears that an increased female labour market participation rate does not affect the flows of foreign direct investment in Southeast Asia.

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WHAT IS THE MOST EFFICIENT WAY TO IMPROVE AN EDUCATION SYSTEM?

CONOR PARLE

Senior Sophister

In this econometrics investigation, Conor Parle attempts to identify the factors which explain variation in educational achievement across OECD countries. By constructing a regression model, he finds interesting results in relation to student socioeconomic background, teacher development, and teacher-pupil ratios.

Introduction

This paper aims to answer the question on what is the best way for a country to improve its education system by examining data from the OECD member states. The idea for this project stems from research on the concept of mathematics education, and in particular, the recent results of the Program for International Student Assessment (PISA) survey, which takes place every 3 years. The 2012 results were recently released by the OECD to much intrigue and discussion.

PISA, started in 2000, is a survey undertaken by the OECD every 3 years. It assesses an education system on three main areas: maths, science, and reading in order to get an overall picture to describe the relative quality of a country's education system. Standardised tests are used to measure the ability of students aged between 15 years and 3 months, and 16 years and 2 months during the time period in question. These marks are then converted into a coefficient which is released every three years. Raw scores from the assessments are scaled to an OECD index, with the overall general average being 500, and the standard deviation being 100. The scaling is done using the Rasch Model of Item Response Theory (OECD, 2013).

This paper aims to account for the differences in standards of education between countries, and will attempt to discover what policies to improve standards have the greatest effect on overall outcomes.

Literary Review

There have been a number of articles exploring the differences in education systems between countries and there are many different theories as to which factors cause the greatest differentials in overall outcomes. Saleem, Nasseem, Ibrahim, Hussain and Azeem examine several schools of thought regarding the differences in education standards in their 2012 paper on "Determinants of School Effectiveness: A study at Punjab level". They show how the top systems often have highly skilled and motivated teaching staff and a high level of community involvement. However, they equally give heed to the idea that perhaps one of the biggest determinants of education standards is the socioeconomic climate, with lower-class students regularly performing worse than higher-income students, suggesting that educational equity is hampered by income inequality. This idea is also suggested by Raymond (1968) in a paper on the quality of schools in West Virginia. He argues that exogenous conditions such as the location of a school, and the surrounding economic climate have the greatest impact on the overall quality of a system.

A deeper inspection on such financial factors is made in the paper "Does Money Matter in Education" (Schanker Institute, 2012). In this paper there is a thorough examination of the financial factors which impact on the quality of an education system. One finding is that money matters when it comes to education, but wise and careful spending is necessary if a system is to reap the benefits of it. There is also emphasis on the idea that schemes that cost a significant amount of money, such as reducing class size and higher teacher salaries, are positively associated with overall student outcomes. Smaller class sizes in particular can go a long way to close the divide in standards that are caused by socioeconomic factors. This idea is backed up in the paper "Improving Educational Outcomes for Poor Children" (Jacob and Ludwig 2009).

Jacob and Ludwig extend the discussion on the financial side of improving educational standards, but also reinforce the idea of the undeniable impact that socioeconomic factors appear to have on the system. They contend that good social policy is just as important as education spending, while arguing that training, and research and development are perhaps the most important components of teaching spending.

In a 2007 paper, McKinsey extrapolate data from PISA to compare the education standards in the OECD. They use data from Singapore, which is ranked 27th out of the 30 OECD countries in terms of education spending, yet regularly comes out near the top of rankings to reinforce the idea of 'it's not how much you spend, but how you spend it'. They divide the process of developing a good system into three main steps: firstly, getting the right people to become teachers; secondly developing them into efficient instructors; and finally, ensuring that the system is able to deliver the best instruction for each child. This stresses the idea that by increasing the quality of the system, education standards can be raised, and further points to the benefits of increasing spending on research, development, and training as a means to improve a system.

Overall, previous research points to several factors which could explain what makes up the largest portion of the difference in cross-country education standards. This paper will focus on whether social factors, such as the allocation of government spending, or the fundamentals of the education system itself (e.g., class sizes, methods of teaching, etc.), are significant determinants of educational performance.

Empirical Approach

In order to hypothesise the potential determinants which are outlined above, the following regression model is proposed:

$$(1)\quad Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where:

Y_i = PISA - the average PISA score of a country over the three areas of study in a given year (maths, science, and reading).
X_1 = GINI - the GINI coefficient for a country in a given year based off World Bank data, which is a measure of income inequality in a country.
X_2 = CLSIZE - the average pupil to teacher ratio for a country in a given year.
X_3 = SALARY - the average salary received by an upper secondary teacher after 15 years of service and training, in dollars per year adjusted for PPP.
X_4 = RDTRAINS - the portion of educational spending spent on core educational facilities – e.g., research and development and training.
X_5 = THIRDLEVEL - the percentage of students who go on to tertiary "Type A" education. This acts as a proxy for overall expectations of educational attainment.
X_6 = CONTACTHOURS - the number of compulsory contact hours in a year between teachers and students in upper secondary school.
ε_i = an error term consisting of statistic residuals.

Expectations

We would expect there to be a negative relationship between PISA and GINI. This is due to the widespread theory that the overall socioeconomic climate has a major effect on academic performance, as theorised in Jacob and Ludwig (2009). A high GINI coefficient implies high income inequality, and so the higher the GINI coefficient, the lower the overall PISA score.

Similarly, a negative relationship between PISA and CLSIZE is expected as theorised by the Schalker Institute (2012). They found that reducing class size would be an efficient way to increase education standards.

The expected relationship between SALARY and PISA is positive, due to the theory discussed in Saleem et al., (2012) and by the McKinsey Institute (2007). Here, higher teacher salaries were shown to increase teacher motivation, and further attract the most qualified people into the teaching profession.

Furthermore, a positive correlation between PISA and RDTRAIN is expected, again, due to the idea of the quality over quantity approach when it comes to spending.

Both the Schalker Institute (2012) and McKinsey (2007) theorised that investing in research and training methods would have a positive impact on educational achievements. Adding to this, a positive correlation is expected between THIRDLEVEL and PISA, mainly due to the idea that a high third level attainment rate generally suggests a positive communal outlook on education, and this in turn is said to impact positively on the success of an education system (Saleem et al., 2012).

Finally, the effect of CONTACTHOURS is ambiguous given several opposing arguments in the existing literature. Some contend a degree of saturation when it comes to contact hours (McKinsey, 2007), suggesting that the quality of these hours and class size is more important. Conversely, a positive relationship is perhaps more intuitive.

Potential Issues

There are a number of potential problems with the model. Firstly, the international financial crisis of 2008 may cause a number of figures to be greatly skewed. It is for this reason that I may run the regression with figures excluding those collected after 2009, alongside the regression with the full data.

The model may also omit a relevant variable or may be under-specified (Wooldridge, 2009). This may occur, for example, if variations in PISA scores are merely due to differences in the ability of students sitting the test in a given year. Such differences in ability are not observed and end up within the error term, causing bias.

Furthermore, there is also the potential threat of heteroskedasticity. This is the idea that the variance of the unobservable error ε conditional on our explanatory variables is not constant given our observed variables (Wooldridge, 2009. pg.264). Some omitted variables potentially included in the error term may not be constant throughout the different inputs into the model. Should this exist, then the usual OLS t-statistics will not have t-distributions, and furthermore, the F-statistics will no longer be F-distributed, causing problems with the ability to test the significance of the model.

Data

The majority of the data present comes from the OECD Publication "Education at a Glance" (OECD, 2003, 2006, 2009, 2012), which is a yearly in depth publication of indicators relating to education around the world. All data except PISA scores and GINI coefficients are taken from this source. The historical PISA scores are taken from the OECD educational GPS website. Finally, all data regarding GINI coefficients was extrapolated from the World Bank's historical economic indicators page.

China is excluded from this study due to recent revelations that they may be cheating the PISA system by only choosing schools in affluent regions, where parents spend a significant amount on private tuition (Stout, 2013) and preparing students greatly via rote-learning to specifically take the PISA tests (Ringmer, 2013).

Overall, the data can be summarised in Table 1. There are 78 observations overall, dropping sets with missing data, which is a relatively decent size for an international study.

Variable	Obs	Mean	Std. Dev	Min	Max
Pisa	78	497.9744	32.33308	389	554
ginicoeff	78	.3131477	0.0582474	.232	.508
clsize	78	23.3	4.234429	15.6	35.8
salary	78	38881.63	15494.3	10263	101775
rdtrain	78	3.747179	.6239129	2.6	5.3
thirdlevel	78	53.97436	16.29833	26	96
contact	78	816.8333	200.8963	466	1197

Table 1: Data Summary

Results

The overall results of the study can be found in Table 2. The GINI coefficient was multiplied by 100, to get the figures in percent as opposed to in a proportion. This has led to a smaller slope coefficient of -3.36 as opposed to 336, making the results easier to interpret.

The regression equation theorised in equation 1 can now be written as:

$$(2)\quad PISA = 540.96 - 3.36\beta_1 + 1.8\,\beta_2 + .0073\beta_3 - .8653\beta_4 + .349\beta_5 - .03\beta_6$$

Standard errors are shown in Table 2:

pisa	coef	SE	t	p-value
gini100	-3.36	0.49	-6.85	0.00
clsize	1.81	0.58	3.13	0.00
salary	0.00	0.00	4.50	0.00
rdtrain	-0.87	3.88	-0.22	0.82
thirdlevel	0.35	0.17	2.11	0.04
contact	-0.03	0.01	-2.29	0.03
_cons	540.96	24.35	22.22	0.00

Table 2: Regression Output

Interpreting the Results

Overall, all variables are found to be statistically significant when tested against the null hypothesis of $\beta_n = 0$ using a t-test at the 5 per cent significance level, apart from RETRAIN, which has a p-value of 0.824, leading us to fail to reject our null hypothesis. This is rather interesting, although it may be due to the manner of data collection and perhaps it suggests that the overall standard of education may be more related to spending per student as opposed to the portion of overall expenditure on research and development.

Furthermore, the F-statistic for this regression is 21.64, meaning that the p-value is 0, implying that this model is statistically significant at predicting PISA scores. We have an R2 value of 0.6465, which means that this model explains approximately 64.65 per cent of the variation in PISA scores.

It is interesting to note the direction of the signs of the dependent variables. The highly significant nature of the GINI coefficient suggests a high degree of correlation between PISA scores and income inequality. This is in line with the theory as discussed in Jacob and Ludwig (2009). For an increase in GINI coefficient of 0.01, i.e., 1 per cent, there will be a fall in PISA score of 3.36, ceteris paribus. This suggests a strong link between the two, and highlights the role good social policy has to play in establishing a good education system.

The positive coefficient on class size is, however, surprising, as it suggests a positive relationship between student to teacher ratio and PISA scores. This supports the argument which was initially made by McKinsey (2007) that lower teacher to student ratios may not be such a good thing all round, as it causes people who are hiring to be less selective about the calibre of people who enter the profession.

The positive coefficient on third level and salary, however, is unsurprising. The positive relationship between third level and PISA is intuitive. There may in fact be a degree of reverse causality, however, as higher test scores usually imply more people going to university. Nonetheless, we used THIRDLEVEL to be a proxy for the overall attitudes to education, and the positive relationship is once again in line with theory as outlined in papers such as Saleem et al. (2012). Similarly, the positive relationship between PISA and teachers' salaries is in line with the theory in McKinsey (2007), where it was theorised that high teacher salaries lead to higher motivation of teachers and in turn leads to a higher calibre of individual entering the profession.

Finally, the negative nature of the relationship between contact hours and PISA may not be too surprising. It may seem counter intuitive, but could also highlight diminishing marginal returns to contact hours, suggesting that perhaps only a smaller amount is necessary. Countries such as Finland are a leading example of having a low number of contact hours and high PISA results.

Omitted Variables in the Model

We can check as to whether any variables have been left out by running a Ramsay RESET test for omitted variables. The results in Table 3 suggests that there will be some degree of omitted variable bias in the model. This could be as a result of omitting variables such as IT standards or natural ability of a country's students.

Ramsey RESET Test	
F Statistic	3.09
p-value	0.03

Table 3: Ramsey RESET Test

To check if the financial crisis had a major impact on the results, the model was rerun with only the values from 2003, 2006 and 2009 included. The results are outlined in Table 4.

pisa	coef	SE	t	p-value
gini100_01	-3.36	0.60	-5.63	0.00
clsize_01	1.19	0.61	1.97	0.06
salary_01	0.00	0.00	5.50	0.00
rdtrain_01	-4.93	4.41	-1.12	0.269
thirdlevel_01	0.68	0.21	3.27	0.00
contact_01	-0.02	0.01	-1.42	0.162
_cons	529.41	27.50	19.25	0.00

Table 4: Pre-Crisis Model

It is notable that contact hours are no longer statistically significant. This may be due to the lack of data given the smaller amount of observations; this may also explain the lack of significance of class size. Similarly, it is interesting to note the effect of salary is higher, perhaps in line with the fall in wages in some countries post-recession. On the whole however, the model is quite similar. The signs on all variables remain the same, suggesting that there was not much of a difference in the pre- and post-crisis determinants of PISA scores, with the major notable change lying in the difference in salary coefficient.

Extensions to the Model

There are a number of possible extensions to the model. Firstly, it would be interesting to see the relationship between research and training spending per student and test scores as opposed to the portion of expenditure discussed earlier. Furthermore, more variables could be included given that there is evidence of causal variables having been omitted. For example, teachers' job satisfaction could be measured via a survey or even teachers' salary relative to the national average. Moreover, it would be interesting to explore a link between positive family life and any positive impact on education. Further study into the relationship between contact hours and PISA scores could be carried out to ascertain if the negative impact only really exists at higher contact hours.

Conclusion

The aim of this econometric investigation was to explore how education systems may be improved. In conclusion, it is clear that the theory surrounding socioeconomic factors having a major impact on education standards is somewhat valid. This is evident by the statistically significant relationshii between GINI coefficients and PISA scores, suggesting that it has a great degree of causality. One implication following from this is that perhaps one of the best ways to improve overall standards is social policy to try and close the income gap. In practice, more opportunities can be given to those who are worse off. Furthermore, the negative relationship between class size and PISA along with the positive relationship between teachers' salary suggests that one of the best ways to improve an education system is to concentrate on the teacher quality. Funding should therefore be targeted into the attraction of the best candidates to the job rather than hiring extra teachers to reduce pupil teacher ratios as this seems to not have as strong a positive effect as suggested.

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