

The Cliometric Society

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Report on the 6th World Congress of Cliometrics

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Edited by Mary Hansen

The 6th World Congress of Cliometrics convened in Edinburgh, Scotland, July 17-20, 2008. The meetings were held at the Dalkeith Palace, an impressive XII century estate and castle where one could still smell old battles. The footprint of the last one was still visible in the form of World War II troops' graffiti on the 3rd floor. After three days, we could well say that we economic historians conquered the Palace that holds such a long standing piece of history—in a figurative sense, of course. We went up and down looking for the right conference room across the wooden floors and marble staircase. Some even felt the spirit of lost ghosts while preparing their talks late at night. The austere old residence was overseen by a colorful staff that was quite accommodating to their Clio guests.

The days passed quickly between interesting papers and long walks across the 2,500 acre gardens and forest. The evenings became increasingly cheerful and so even the shyest economic historians got mixed amongst the warm gents and lassies from Scotland and the cold, large pints of beer and best whiskies ... how could it possibly have been different?

The high-quality papers at the conference exemplified the use of quantitative evidence to uncover new insights. The program committee members [Ann Carlos (Colorado), Price Fishback (Arizona), David Greasley (Edinburgh), Michael Hauptert (UW-La Crosse), Kris Inwood (Guelph), and Sumner La Croix (Hawaii)] assembled 72 worthy papers from both young and veteran scholars. It was, unfortunately, not possible to summarize each paper or the discussion of all sessions. Randomly selected summaries appear below.

Abstracts of all papers are available at <http://eh.net/Clio/WCC6/abstracts.html>. On-line abstracts include papers not summarized here by J. Peter Ferderer (Macalester); Stefano Ugolini (Institut d'Etudes Politiques de Paris); Les Oxley (Canturbury); Antonio Tena-Junguito (U. Carlos III de Madrid); Pierre-Cyrille Hautcoeur (Ecole des Hautes Etudes en Sciences Sociale) and David Le Bris (independent scholar); Giovanni Federico (European University Institute); Marina Adshade (Dalhousie); Mark Dincecco (IMT Lucca Institute for Advanced Studies); Olivier Accominotti (Sciences Po); Jean-Luc Demeulemeester (Free University of Brussels) and Claude Diebolt (Univ. Louis Pasteur of Strasbourg); Eric Hilt (Wellesley); Steven Nafziger (Williams); Alex Field (Santa Clara); Caroline Fohlin (Johns Hopkins); Christopher Kingston (Amherst); Alexander Rathke, Tobias Straumann, and Ulrich Woitek (all Univ. of Zurich); Brooks Kaiser (Gettysburg); Kris Mitchener

(Santa Clara) and Marc Weidenmier (Claremont McKenna); Saumitra Jha (Stanford); Peter C. Mancall (USC), Joshua Rosenbloom (Kansas), and Thomas Weiss (Kansas); Gavin Wright (Stanford); Angela Redish (Univ. of British Columbia); Jaime Bonet and Adolfo Meisel (both Banco de la Republica-Bolivia); Masato Shizume (Kobe Univ.); Graeme G. Acheson, Charles Hickson, John Turner, and Qing Ye (Queen's University Belfast); David Eltis, Frank Lewis (Queen's University (Ontario, Canada)), and Kimberly McIntyre; Ernst Juerg Weber (Univ. of Western Australia); Peter Meyer (BLS); Julia Casutt-Schneeberger (Univ. of Zurich); Jari Eloranta (Appalachian State); Gary Richardson (UC-Irvine) and Patrick Van Horn (Michigan-Dearborn); and Christina Gathmann (Stanford).

Stephen Broadberry (Warwick) opened the conference with the presentation of a paper co-authored with Bishnupriya Gupta (also Warwick). They compare labor productivity in India and the UK during 1870-2000, drawing a rather disenchanting picture of India and blaming its lagging agricultural sector for the overall disappointing performance. Gupta did not believe Andrew Seltzer (Royal Holloway, Univ. of London) who claimed that in a country where the cow is sacred agricultural productivity is constrained. She insisted that cows aren't that efficient. Moreover, most illiterate workers were in agriculture, having no opportunities in the other sectors.

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EBHS Report

By Janice M. Traflet (Bucknell University)

The 33rd Annual Meeting of the Economic and Business Historical Society (EBHS) convened at the Embassy Suites in Montgomery, Alabama, from April 17th to April 19th, 2008. Organized by EBHS President and Program Chair Silvano Wueschner (Air Univ., USAF), the conference attracted scholars from around the world who gathered to participate in a series of sixteen panel discussions exploring a diverse range of subject material. In total, 36 papers were presented in the lively sessions.

Befitting the Alabama locale of the conference, some papers dwelt upon regional subject matter, such as "The Business of Canning the Kaiser," a thorough study by Martin T. Oliff (Troy Univ.) on the birth of the Montgomery Cooperative Canning Club. A paper by Amanda Mushal (Univ. of Virginia) examined the intricacies of Southern Honor, commercial credit, and the national economy in the mid- nineteenth century. Notably, one session was devoted to southern enterprise, with interesting presentations by Mark Gardner (Piedmont College) and Randall Patton (Kennesaw State) and helpful commentary by chair Duncan Philip Connors (Univ. of Glasgow).

Given the proximity of the conference to Maxwell Air Force Base, it was fitting that one entire panel (chaired by Jason Taylor (Central Michigan) examined "The Impact of Military Spending on the Larger Economy." Silvano Wueschner provided a regional flair with his in-depth examination of "Lister Hill: The Economic Impact of Interwar Military Spending on the Greater Maxwell Community, 1925-1935." Also providing a valuable contribution to this session were Jari Eloranta (Appalachian State) and Mark Wilson (UNC-Charlotte) who spoke on "The Political Economy of Military Procurement in the West before the Second World War."

Several topics in many sessions reached far beyond the parameters of the United States, critically evaluating business and economic history in places such as Iran, Canada, France, Germany, China, Norway, Portugal, Nigeria, and Liberia. One panel explored, for instance, international extractive operations, with the featured papers being the "Evolution of the Petrochemical Industry in Iran" by Fatollah Salimian and Jerome De Ridder (Salisbury Univ.), "An Analysis of the Differentiation Strategies of Rural Foundries at the Beginning of the 20th Century in the Province of Quebec" by Lisa Baillargeon (Universite du Quebec) and Patrice Gelinias (York Univ.), and "Regional Concentration and the Shift in Importance of the Industrial Triangle in the European Coal and Steel Community: 1952-1968" by Eline Poelmans (Catholic Univ. of Leuven). Another panel focused on the economics of German social consciousness, with presentations by Alfred Mierzejewski (Univ. of North Texas) and Olli Turunen (Univeristy of Jyvaskyla). Also providing presentations with a heavy international flavor at the conference were Clark Hultquist (Univ. of Montevallo), Michael Scott Martin (Central Michigan), Jamie Stitt (High Point), Maria Cristina Moreira (Universidade do Minho), Suzanne Kathleen McCoskey (George Washington Univ.), Pichayalak Pichayakul (Ohio Univ.), Der-Yuan Yang (National Kaohsiung First Univ. of Science and Technology), Juuso Marttilla (Jvaskylan Univ.), and Frederick McKittrick (Monmouth Univ.).

While the conference was extraordinary for its breadth, sessions also had considerable depth. One session, for instance, reexamined the legacy and contributions of Adam Smith. Levi Pace (Univ. of Utah) delivered an informative talk on "Interpreting Adam Smith's Concept of Self-Interest," and Rachel Siegal (Lyndon State College) provided insights into "Adam Smith's Capitalism and Income Inequalities: A Closer Reading of the Wealth of Nations."

Another session provided a penetrating examination of the airline industry in the mid-twentieth century, with presentations by Erik Benson (Cornerstone Univ.) and Douglas Karsner (Bloomsburg Univ.) and commentary by chair Richard Byers (North Georgia College and State Univ.).

The session that perhaps sparked the most energetic comments was "Business, A Multidisciplinary Approach," chaired by Fatollah Salimian (Salisbury Univ.). Ranjit Dighe (SUNY, Oswego) gave a compelling analysis of "*Business Week* and the Coming of Keynesianism to America," sharing with the audience the results of his extensive primary research which indicated that *Business Week* writers articulated Keynesian thought before Keynes did so. Following Dighe's presentation was another powerful talk, this one by Shakila Jacob (Univ. of Malaya) on "Hidden Disciplines: The Business History Role in a Multi-Disciplinary Framework." In the aftermath of Jacob's presentation, the audience and panel entered into a vigorous debate about the meaning and methods of business history...and indeed, the *raison d'etre* of the EBHS conference itself.

Many other presentations were noteworthy, such as engaging ones delivered by Jim Cohen (CUNY), Fidelism Ossom and Michael Landry (Northeastern State), Richard Stone (Shippensburg), Duncan Philip Connors, Jason Taylor, Steven McClean (Michigan Public Service Commission), Kelly Kilcrease (Franklin Pierce Univ.), Gregory Zieren, William Gruver and Janice Traflet (all Bucknell), Raphael Obinna Amalaha, Chinwendu Fidelis Uchebue, Joseph Chidi Obi, and Ifeoma Stella Madueme (all of Univ. of Nigeria), J.J. Asongu (Univ. of Phoenix), Gregory Wood (Frostburg State), William L. Anderson (Frostburg), Stephanie Crofton (High Point), Emily C. Rawe (Univ. of Maryland-Baltimore County), and Mark Billings (Nottingham).

In addition to the quality presentations and paper discussions, the 2008 EBHS Conference was enriched by a host of activities chiefly planned by EBHS President Silvano Wueschner. Among the highlights was an informative tour of Maxwell Air Force Base. It is an EBHS tradition that attendees soak up the local history at the host site, and the 2008 conference included a guided history tour of Montgomery, Alabama (which included a stop at the Rosa Parks Museum). Conference participants also enjoyed a convivial reception at the Embassy Suites on the first evening of the conference, as well as the annual dinner the following night. At the dinner reception, Lynne Pierson-Doti, editor of the Society's peer-reviewed *Essays in Economic and Business History*, presented two awards for outstanding publications in the journal. Gregory Wood (Frostburg) received the James Soltow Award for best article by an author not previously

published in *Essays* for his paper "Forty Plus Clubs and White Collar Manhood During the Great Depression." The Editor's Award for contributors of multiple articles to *Essays* whose work over several years gives scholarly definition to the journal was awarded to Jason Taylor (Central Michigan). Jason's latest contribution to the journal was "Public Capital and the State-Level Variation of New Deal Expenditures," co-authored with Fred Bateman (Georgia). Jason Taylor had authored four articles in previous volumes of *Essays*, including one in Volume 25 for which he won the best article award in 2007.

The EBHS' 34th Annual Meeting will take place April 23-25, 2009, in Grand Rapids, Michigan, and is being organized by Daniel Giedeman (President) and Erik Benson (Program Chair). Details and the call for papers can be found at the Economic and Business Historical Society website: www.ebhsoc.org. The deadline for paper and/or panel submissions is January 15, 2009. Additional information may be obtained by sending an email to erik_benson@cornerstone.edu.

The Board of Trustees and the Officers of the Economic and Business History Society cordially thank all the participants who made the 2008 Conference a success, and they extend an invitation to past, present, and future EBHS members to attend the 2009 Conference in Grand Rapids, Michigan. ■

Upcoming Conferences

International Conference of Economic and Social History

New Perspectives in Theory and Empirical Research
Rethymno, Crete, December 2008

<http://www.hdoisto.gr/SynedrioHdoistoAug2008Eng.htm>

The Philosophy of Adam Smith

A conference to commemorate the 250th anniversary
of *The Theory of Moral Sentiments*

January 6-8, 2009 - Balliol College, Oxford

Organised by the International Adam Smith Society
and *The Adam Smith Review*

<http://www.adamsmithreview.org/conference.html>

XVth World Economic History Congress

International Economic History Association (IEHA)

Utrecht, The Netherlands, August 3-7, 2009.

<http://www.wehc2009.org/>



Pointing the way to Clioland from the peak of Arthur's Seat. Back (L to R): Alan Dye (Barnard), Joyce Burnette (Wabash), Andrew Seltzer (Royal Holloway), Rick Steckel (Ohio State), Tim Leunig (LSE). Front (L to R): Kevin O'Rourke (Trinity College Dublin), Chris Minns (LSE), David Mitch (UMBC). Photo credit: Patrick Wallis (LSE)

An Interview with Peter Mathias

Peter Mathias, now Emeritus Professor at Cambridge University, was formerly Chichele Professor of Economic History at Oxford and Master at Downing College, Cambridge. He is Honorary President of the International Economic History Association and Vice-President of the Economic History Society.

His books, including The First Industrial Nation: an Economic History of Britain, 1700-1914 (1983), and his edited volumes, including The Cambridge Economic History of Europe (with M.M. Postan, 1966-1989) and The First Industrial Revolution (with J.A. Davis, 1990) have been studied by many students of economic history around the world.

This interview was conducted by A.J.H. Latham and was concluded October 16, 2004.

You were born in 1928. Please tell us something of your childhood days.

In 1932, the worst year of the Depression, my father moved us to Bristol, where he eventually was branch manager with the Bristol and West Building Society. I first went to school in Bristol at Bishop Road Elementary School and then in 1938 on a scholarship to Colston's Hospital, a direct-grant charity boarding school at Stapleton, on the outskirts of Bristol.

How did you get into Cambridge?

I left Colston's in 1946 after a bleak experience, with the exigencies of the war impacting on a basic – that is, primitive – boarding institution which was more orphanage in lifestyle than a public school. Education to O level was adequate but sixth-form teaching was not. In the scholarship examinations for Cambridge colleges in 1945 I won an "open" Exhibition (worth £40 per annum) and went up in October 1948, having spent two years in military services, as the requirement then was.

Can you tell us something of your National Service days?

Initially I was in the Intelligence Corps, but the depot was soon flooded with I. Corps personnel leaving occupied Germany. I was transferred to the Education Corps and was posted to Chester Garrison, living in the Castle in the centre of Chester. Demobilisation came just in time for the beginning of term in October 1948.

What were your main interests as an undergraduate, and what brought you to focus on economic history?

I read the Historical Tripos at Cambridge and my principal mentor was the very productive Charles Wilson, then a lecturer in the Faculty, Director of Studies in the college, Bursar, and hard at work on the history of Unilever. Supervisions were constantly interrupted by telephone calls from the college stockbrokers, college tenants (the college owned farms in the region and much adjacent property in Cambridge), Unilever executives and the like. I was fascinated by the revelation of what academic life might entail.

Edward Welbourne, Senior Tutor and later Master of Emmanuel, was another mentor. He was a maverick economic historian, of immense improbable knowledge, scourge of the Fabians. Welbourne was known to his few aficionados as *the Sage*. I went to his totally unconstructed lectures every year as an undergraduate.

In my third year as an undergraduate Charles Wilson and Edward Welbourne encouraged me to take the brewing industry in the eighteenth century as a post-graduate research topic, on which I began work for a year before going to the United States in 1952. Second cousins were brewers (our only rich relations) at Rode, a few miles away from Wingfield. They gave me introductions to the Brewers Society which proved instrumental in getting access to the records of London breweries, which were then all being run as family firms.

The other main impact made on me as an undergraduate came from M. M. Postan, Professor of economic history. He lectured on medieval English and European economic history for the History Faculty, on Marxism for the Economics Faculty, and on 20th century economic history. His mind was confined by no intellectual boundaries, least of all those of the tradition of Cambridge history. I enjoyed closer links with him subsequently through the Economic History Society International Association.

I understand that you were taken by Rostow's lectures on the British Economy of the Nineteenth Century in 1949. How did you react to it?

I was in my second year as an undergraduate when I heard Rostow. It was a new methodology for the economic historians in the History Faculty. It was Rostow's lectures and the whole of the methodology which lay behind them which led me to go to the United States after graduating.

You spent a year in Harvard and MIT (1952-53)?

I went to the United States on a Rotary International Fellowship, which involved giving talks to Rotary Clubs in the Boston area. Through a link at Jesus College, I was invited to stay in Eliot House, at Harvard, as a Junior Fellow, which made a great deal of difference. The main aim was to learn some formal economics at graduate school level. I went to lectures by Wassily Leontieff (input-output theory), Ed Chamberlain (monopolistic competition – I had read Joan Robinson on imperfect competition), Arthur Smithies and others. I sat at the feet of Alexander Gerschenkron for economic history.

The key institution for me turned out to be the Research Centre in Entrepreneurial History presided over genially by Arthur Cole and Fritz Redlich, where Schumpeter's heritage was still nurtured. It seemed that Schumpeter himself might reappear at any seminar. Walt Rostow was at MIT, and Harvard graduate students enjoyed reciprocal rights to attend lectures. Also, there was Alfred Chandler, who always came to meetings of the Research Centre.

Apart from the academic experience, which blew away some of the assumptions absorbed unconsciously in Cambridge, the general experience of living in a non-English culture for a year also expanded my awareness and perceptions. I became part-owner of a large 1938 Chrysler saloon (belonging, I still remember, to the sociologist Francis Xavier Sutton), in which a group of us went to Louisiana, with various visits *en route*, and then on a circuit round the United States in the summer. It was the traditional thing for such visitors to do. The car carried a future Secretary of Defence and an extremely radical French sociologist, and the impact of the trip survives to this day.

And upon your return?

I was quite busy. My research Fellowship at Jesus ran out in 1955, luckily coinciding with an appointment as an Assistant Lectureship in the History Faculty, which in turn occasioned a Fellowship at Queens' [College] to be being Director of Studies in History there. I became, at the same time, Assistant Editor of the *Economic History Review*.

On getting the Research Fellowship at Jesus, Charles Wilson had encouraged me to resign from the register of graduate students: "My boy, now with your knees under a High Table take all the time you need and write a large book." It took until 1959. Since then I have regretted not having a Ph.D., but this was not uncommon in Oxbridge in that generation and before.

Your "large" book was, of course, *The Brewing Industry in England, 1700-1830*. What do you see as your major findings?

It seemed to me that the brewing industry stood at the heart of the English economy in the eighteenth century. Its agricultural inputs were of major consequence. Other linkages were downstream activities in integrated retailing and beer as the major contributor to taxation. Beer had a central place in the purchasing of the poor; there was a developing technology which gave the opportunity of massive production from single plants where an intensive local urban market allowed; conscious management of "monopolistic competition" in London, and much else.

I intended to study the industry in its wide context: inputs and outputs, direct and indirect linkages. The resultant book was too long to read and too expensive to buy, but it served as a splendid launching pad for me. In retrospect, the surprising thing was there was at that time virtually no academic research on the history of the brewing industry.

You remained at Queens' until 1968. Rostow returned to Cambridge in 1958 and gave his famous lectures on *Stages of Economic Growth*. How did they strike you?

They certainly hit the *zeitgeist* as they were seized upon (as intended) as a non-Marxist manifesto, a general *explicandum* of the dynamic of history leading inexorably to the triumph of the West – a path trodden in more discreet terms by other historians of world economic growth more recently. We worried about the univocalism of Rostow's thesis. We doubted that there was only one path to glory, and that each successive modernisation followed the same trajectory, but this was an essential aspect of his personal philosophy and his political commitments in Washington. It coincided with the more parochial re-orientation of the Industrial Revolution (i.e., the process of modern industrialisation) from disaster, in the Fabian doctrine, to redemption, which I dated from T.S. Ashton's little book on the Industrial Revolution of 1948.

Then came your appointment to the Chichele Chair at Oxford in 1968.

David Joslin had succeeded M.M. Postan in 1965. He was four years older than me, and I assumed that the Chair in Cambridge was blocked until I was over 60, which was a main inducement for me to apply for the Oxford chair when Habbakuk left to become principal of Jesus College in 1967.

The Chichele Chair was endowed by All Souls in 1931 (hence the Fellowship held in conjunction with the Chair at this College). While "Chichele" is an ancient name, being that of Henry

Chichele, Archbishop of Canterbury, founder of All Souls College in the fifteenth century, the Chair itself is not of long standing, as Oxford chairs go. G.N. Clark was the first appointed, and then the sequence ran to Keith Hancock, Hrothgar (John) Habakkuk, and, following my appointment, C.H. Feinstein, and now Avner Offer.

To be appointed to such an enormously prestigious Chair at the comparatively young age of 40 was a great achievement. How did things work out?

I was anxious to maintain the breadth of vision (and methodologies) in economic and social history and to maintain the confidence and goodwill of colleagues in the Faculty of Modern History. Although the holder of the Chichele chair is a member of the two Faculties concerned with the subject (as in Cambridge), my commitments lay with the historians. The main faculty issue was to get a basic economic history paper established in the Final Honours School of Modern History, which happened. It was not possible, then, to promote a taught post-graduate programme. (Change required the support of the Faculty Board, then dominated by college Tutors. As a disillusioned professor told me on arrival in Oxford: "Tutors English good; professors German bad." This exemplified much of traditional faculty attitudes in non-laboratory subjects in Oxford at the time.) There was a joint history and economics Final Honours School which attracted few but very able candidates. This offered methodological flexibility in the rigid examination structure and was an important undergraduate apprenticeship in economic history.

In 1969 came your textbook, *The First Industrial Nation: An Economic History of Britain, 1700-1914*. It sold quite well and has been translated into many languages. Phyllis Deane had written an important textbook on the industrial revolution four years previously. How do the books differ?

On appointment as an Assistant Lecturer in Cambridge in 1955 I found that I had inherited from Charles Wilson the second half of the (virtually compulsory) main first-year lecture course covering the whole of British economic history. John Saltmarsh of King's gave the first half. This was Clapham's original course, but when he retired no one was willing to take on the whole thing alone. It met Monday, Wednesday, and Friday at 9 a.m. in the Mill Lane Lecture Rooms and was delivered to a sea of about 300 anonymous faces. This explains the structure and the level at which *The First Industrial Nation* was pitched: it was written up from my lecture notes.

I revised the text in 1983 but not since. It had seemed to me, apart from the great labour involved, that further change would require a complete restructuring of the text, rather than just updating. I therefore decided to let it grow old gracefully, which it has done most satisfactorily. The latest edition, with a new explanatory introduction happened in 2001.

Phyllis Deane's textbook was also based on her lecture notes to first year undergraduates in the Economics Faculty, a quite separate constituency, such being the Cambridge structure.

These were the days when the Cliometric revolution was in full swing. As an onlooker from Britain, what was your reaction to this furor, and how do you see things now? With most economic historians in the U.K. coming from a background in history (perhaps with some elementary

economics), while most in the United States being placed in departments of economics, there was a deep-rooted contrast in intellectual culture as well as in technical expertise. One of the difficulties was that, in the absence of such technical expertise in econometrics and statistics necessary to understand the new methodology, it was almost impossible to mount an informed critique. This encouraged either outright rejection or an acceptance by faith. Missionaries with proselytising zeal arrived by the planeload from North America, spreading the new gospel.

The price of citizenship in the new republic of Cliometrics was this formidable apprenticeship in theory and methodology. Students promptly abandoned economic history on a large scale for social and cultural history. This was flourishing on its own terms so there was a strong pull, as well as a push. One consequence was that the radical tradition in British historiography, firmly based in economic history since the subject's original differentiation from political, constitutional and religious history, was driven out by quantification and theory to find a congenial new home in social history. In terms of specialist degrees and numbers of registered students the subject shrank in the 1970s and 1980s. Many specialist departments and economic history honours degrees, which had expanded with the rise of the subject in the 1950s and after, now re-merged in history departments. For one who had never had an appointment in a separate department of economic history, I did not consider this to be death beyond the hope of resurrection. Indeed, I thought small independent departments in the subject could too easily be parochial and inward-looking when divorced from their two larger neighbours.

More generally, I was apprehensive that, methodologically, economic history was painting itself into a corner. The "new" economic history – a highly charged adjective – was defining itself as the "real" economic history. This implied that all the rest was, like stamp collecting, interesting on its own terms, but not "scientific." The essence of "new" economic history lay in the formal testing of quantified relationships in a model with defined variables. All the rest was outside the model and therefore unanalysable in comparable terms. This is a caricature, of course, but not much more so than the necessary assumptions behind the most dramatic exercises and the greatest claims in Cliometrics:

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Peter Mathias

that the economy was in a state of competitive equilibrium, that prices could be accepted as proxies for costs, etc. Full-blooded Cliometrics might be important exercises in method but could one hope to understand the process of historical change by ignoring all institutional, legal, political, societal and cultural relationships – amongst others? Precision was being bought at too high a cost, it seemed to me.

The newer "institutional" economics, emphasising such things as property rights, incentive structures, agency relations, transaction costs, and legal and security issues has restored a balance.

Some have assumed that old-style economic history has been forced onto the defensive. Yet, from a broader academic viewpoint, it can be argued that the economic dimension of change and the economic dynamic (or inertia) in the process of change has now penetrated all other aspects of history – military history, technological history, the history of medicine, political and diplomatic history, and others, all previously almost hermetically sealed within their own methodological conventions, utilizing just their own internal criteria. As an optimist for the subject I might claim that, even if economic history was in danger of losing a battle, it has now recovered and, on the wider scene, it has won a war.

You were treasurer of the Economic History Society for many years, and served a term as President, and you remain an Honorary Vice-President. You were made a fellow of the British Academy in 1977, and were Honorary Treasurer of the British Academy 1980-89. Meanwhile, in 1984 you were made a Commander of the British Empire by Her Majesty the Queen. You have always been interested in internationalising the study of economic history, and were President of the International Economic History Association from 1974 to 1977, and subsequently an Honorary President. The International Economic History Association meetings are now huge events with more than a thousand participants

from every corner of the world, so you have clearly been very successful. Would you like to comment about these aspects of your career?

I have liked running things and becoming involved with the organisations of which I was a member. Doubtless I accepted more invitations for administrative commitments (almost all of them directly or indirectly academic) than was good for my own research and publishing. I have no regret about this.

The subject [of economic history], and academe more widely, advances by administrative commitment and initiatives that gain resources. And, given the influence of state organisations, public funding, and charitable foundations, academics need to actively promote the interests of their subjects and their academic institutions. One's credibility in these wider relationships depends on personal status as a scholar and the ability to maintain trust and confidence in others, which requires objectivity in judgement and carrying commitments through with probity, effectiveness and reliability. Each individual has to strike a balance between administrative work and personal research and publications.

You were research supervisor of the present Crown Prince of Japan when he was in Oxford in 1983-85. You have also been Visiting Professor at Waseda University, and at Osaka Gakuin University, and maintain good contacts with your former research student Professor Heita Kawakatsu at The International Research Centre for Japanese Studies in Kyoto. You are Chairman of the Great Britain-Sasakawa Foundation, and were awarded the Order of the Rising Sun in November 2003. How do you see Japanese economic history developing?

I had met Japanese economic historians regularly from the 1960s in Cambridge and Oxford, where we enjoy many visitors and have reciprocal links, and at international and national conferences. There are usually one or two Japanese participants at the Economic History Conference. My first academic visit to Japan came in 1967 *en route* between the Delhi School of Economics and Berkeley, where I was on sabbatical year from Cambridge. Through the intermediation of Professor Komatsu of Waseda, Heita Kawakatsu came to Oxford to take a D. Phil. (no mean feat). That began a long friendship. Becoming research supervisor for the present Crown Prince of Japan for those two years in Oxford had a greater long-term impact than I had anticipated. He still maintains a commitment to research in economic history (breaking with his family's long standing tradition of grandfather, father, and brother being identified with marine biology) despite all the commitments, public and family, which he has since assumed. He and the Crown Princess (who was at Oxford herself a few years later) maintain warm regards and links with Oxford. I try to meet with the Crown Prince when I visit Tokyo.

Economic history has a strong presence in Japanese universities, with many more chairs than in Britain. There are parallels to the evolution of the subject and its progressive specialisations in Japan and the U.K., without the same evolution and then retraction of separate departments. The influence of Marxism was stronger, more disruptive, and more long-standing in Japan than in the U.K. at its height, and took longer to fade there. I do not think that the full rigour of Cliometric methodology hit Japan as much as in the West. Business history has flourished.

My links with the Great Britain-Sasakawa Foundation—founded in 1985 with parallel foundations in Scandinavia, France, and the U.S.A.—had a more local derivation, being largely through John Butterfield, my predecessor as Master of Downing. He established close links between the college and Keio University, which still flourish, as well as invigorating the Foundation.

You mention your return to Cambridge as Master of Downing College in 1987. It is now nearly a decade since you “retired,” yet you remain very active with your administrative duties. Do you have any further academic projects you are working on?

The danger in retirement is to accept too many invitations. The last sentence of most of them is: “Unfortunately, this position is unremunerated.” Apart from the Foundation, and residual commitments for the Royal Historical Society and the Economic History Society, for the past three years I have been chairman of the Advisory Board of the Central European University Press in Budapest. I have also been giving an annual set of lectures at the Institute of Philosophical Studies in Naples and reading the proofs of the *Journal of European Economic History*. Less than a year ago I completed the long haul of being general editor and contributor to Vol. VI (the 19th Century) of the new UNESCO *History of Humanity*, a fraught venture. I am also correcting the proofs of the biennial Linecar Lecture for the British numismatic journal *New Uses of Money in the Eighteenth Century*. There always seems to be a lot going on.

Selected Publications of Peter Mathias

Books:

The Brewing Industry in England, 1700-1830 (Cambridge, 1959).

English Trade Tokens: The Industrial Revolution Illustrated (photographs by A.C. Barrington-Brown) (London, 1962).

(with P. Lengyel) *Social Prerequisites of Economic Growth*, UNESCO (Paris, 1964).

The First Industrial Nation; an Economic History of Britain, 1700-1914 (London and New York, 1969); (Japanese edns. 1971; 1986). Revised edn. 1983 (London and New York); 1986 (Tokyo). 1988 (London and New York); 2001 (London and New York).

Report of the Working Party on the Private-Sector Funding of Scientific Research (a.k.a. Mathias Report), Department of Education and Science, ABRC: iv-70 (London, 1986).

Edited Volumes:

Science and Society, 1600-1900 (Cambridge, 1972).

(with M. Postan) *The Cambridge Economic History of Europe*, vii, *The Industrial Economies: Capital, Labour and Enterprise, Part 1, Britain, France, Germany and Scandinavia; Part 2, United States, Japan and Russia* (Cambridge, 1978).

(with S. Pollard) *The Cambridge Economic History of Europe*, viii, *The Industrial Economies: The Development of Economic and Social Policies* (Cambridge, 1988).

(with J.A. Davies) *The Nature of Industrialization: The First Industrial Revolutions* (Oxford, 1990) (Spain 1990) (Italy 1992).

UNESCO History of Mankind vol. VI (1789-1914) (London, 2005).

Articles and Chapters:

“Agriculture and the Brewing and Distilling Industries in the Eighteenth Century,” *Economic History Review*, 2nd ser., 2/2(1952): 249-57.

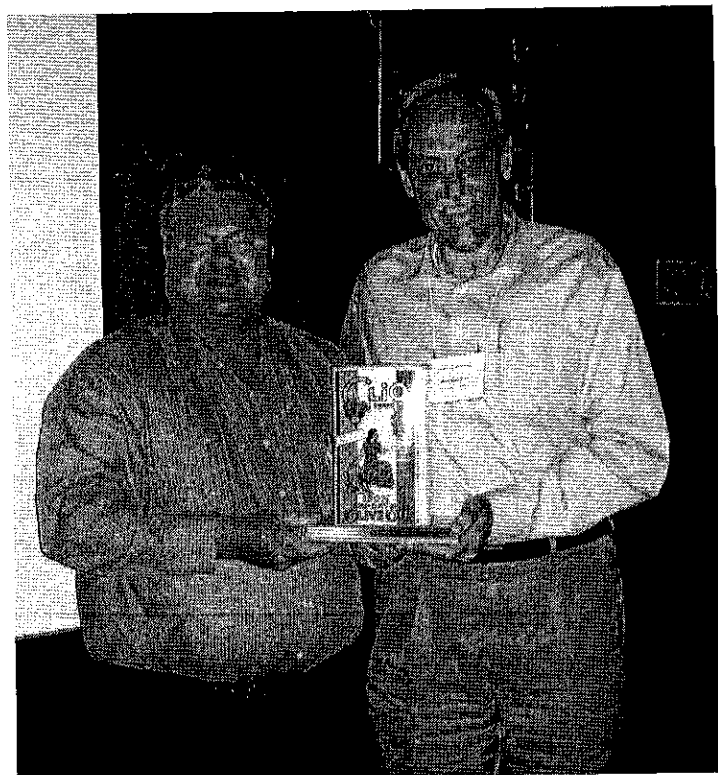
“Economic History – Direct and Oblique,” in M. Ballard, (ed.), *New Movements in the Study and Teaching of History* (Bloomington, 1970). 76-92.

“Capital, Credit and Enterprise in the Industrial Revolution,” *Journal of European Economic History*, 2/1(1973): 121-43.

(with P. O'Brien) “Taxation in Britain and France, 1715-1810. A Comparison of the Social and Economic Incidence of Taxes Collected for the Central Governments,” *Journal of European Economic History*, 5/3(1970): 601-50.

“Skills and Diffusion of Technology from England in the 18th Century,” *Transactions of the Royal Historical Society*, 5th ser., 25(1975): 93-113.

“Risk, Credit and Kinship in Early-modern Enterprise,” in J.J. McCusker and K. Morgan (eds.), *The Early Modern Atlantic Economy* (Cambridge University Press, 2000). ■



2007 Clio Can guardian Rick Steckel (Ohio) passes the responsibility along to Alan Olinstead (UC-Davis). Photo credit: Sumner La Croix (Hawaii)

Prize Winners at EHA 2008

Nevins Prize

Marco Sunder for "Passports and economic development: an anthropometric history of the US Elite in the 19th Century," Doctorate in Political Economy, Ludwig-Maximilians-Universität München
Chair: John Komlos and Claude Hillinger

Gerschenkron Prize

Amílcar Eduardo Challú for "Grain Markets, Food Supply Policies and Living Standards in Late Colonial Mexico," Department of History, Harvard University
Supervisor: John Coatsworth

Jones Prize

Carlos Marióchal, *Bankruptcy of Empire: Mexican Silver and the Wars between Spain, Britain and France, 1760-1810* (Cambridge UP, 2007)

Hughes Prize

Pamela Nickless, University of North Carolina at Asheville

Cole Prize

Aldo Musacchio, Harvard Business School
"Can Civil Law Countries get Good Institutions: Lessons from the History of Creditor Rights and Bond Markets in Brazil," March 2008 *JEH*

Explorations Prize

Michael Huberman (University of Montreal) and Chris Minns
"The times they are not changin': Days and hours of work in Old and New Worlds, 1870-2000," October 2007 *EEH*

THE TARHEEL TATTLER

The gang gathered in Bonny Edinburgh for the Sixth World Congress of Cliometrics in July. Things got off to a rocky start when a group of Scottish toughs accosted some Yanks on a bus with taunts of "F&@# George Bush." Fortunately, the Yankee Clioms successfully persuaded the toughs that they were in fact *effete*, liberal, wine-sipping, Obama supporters, and the encounter ended well enough when the Scots stumbled off the bus and retched.

The World Congress started with a bang for the Tattler as well. He stumbled off his plane, caught a cab, and went straight to the opening session of the Congress—where he immediately fell asleep in the back of the room. He woke up just as Clio's dashing Hopkinsite informed the audience: "All the action takes place between the pink sheets." *Indeed*, thought the Tattler, now fully awake. Moments later, one of the Money Trusters from Rutgers revealed that a "pink sheet" was some kind of financial document. The Tattler, losing interest, dozed off again.

The Tattler was pleased to see that mentoring the young remains a Clio goal. We bring the newbies in to advance their research and to be encouraged by the more senior members of the group. The Tattler witnessed a perfect example of this support when one of Oxford's gifts to LSE began the discussion on one youngster's paper with: "Your paper reminded me of sewage." Later, another of Oxford's gifts to LSE told yet another young presenter: "If you would tell a completely different story, then you would have an important paper." The Tattler hopes his own daughters will someday study under such nurturing mentors. But what makes them so nurturing? Is it Oxford or LSE? Maybe it's the weather.

Please don't think, dear readers, the Tattler is down on the mentoring skills of the senior participants at this year's Clio. Far from it. Some truly good advice was offered. Perhaps the best came from the distinguished gentleman from Dublin, who advised the youngsters how to get ahead in Cliodom: "This project was a lot of work, so I did what we should all do: I got a German co-author!"

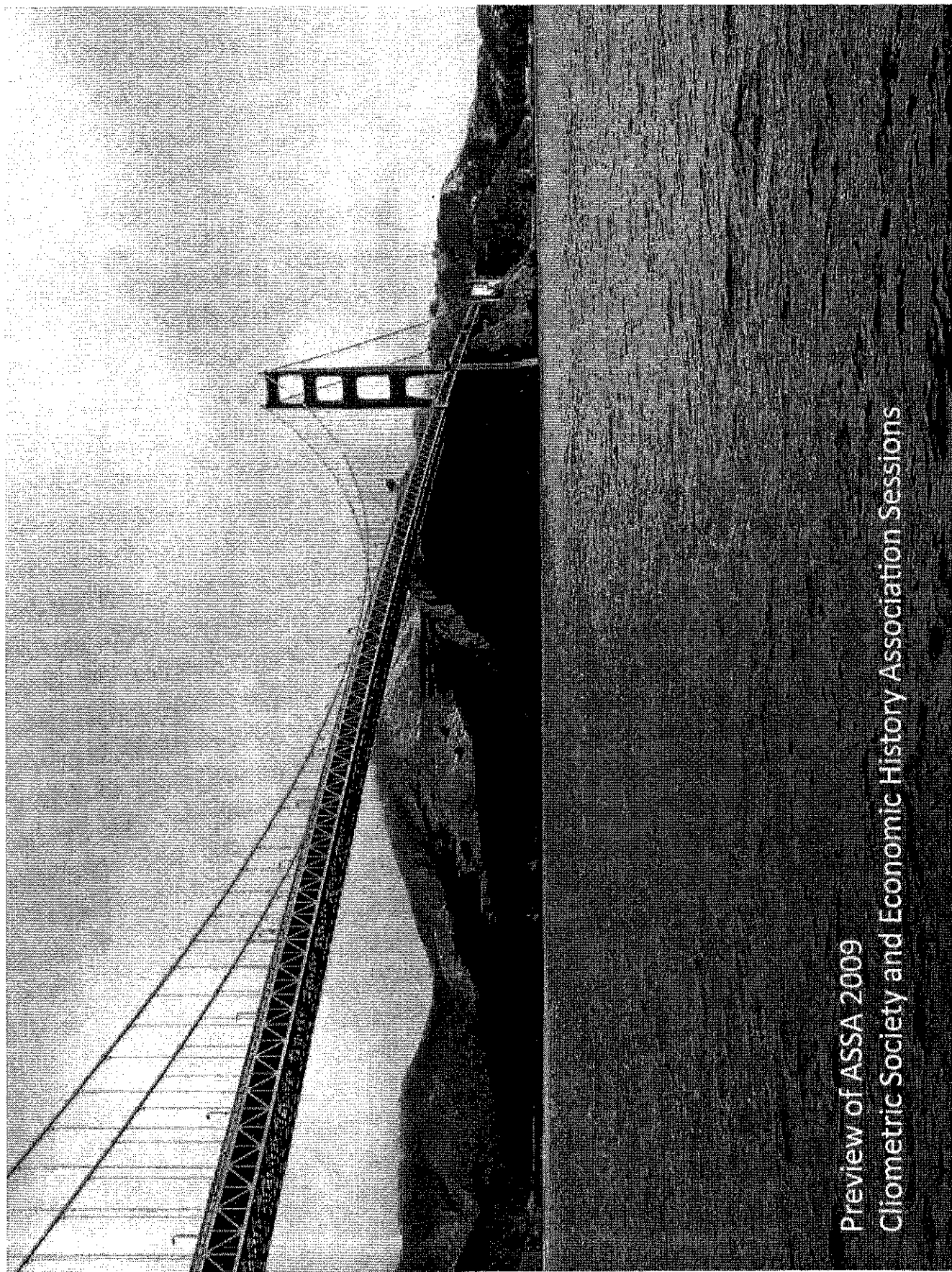
Also, even dinosaurs, such as the Tattler, can learn a lot by how their peers approach a problem. For example, someone made a suggestion concerning the paper of the divine diva from the banks of the Susquehanna, and she said: "That's my story; I just haven't researched it yet." In the old days we did it the other way around.

The diva and the Dubliner had a curious exchange during the presentation of the Dubliner's paper. The diva said: "When I think of Europe, I think of a bunch of itty-bitty countries." The Tattler could only infer that the Dubliner took this as a metaphor for something else altogether. He replied: "I worry about itty-bitty things because I know that being itty-bitty is a problem."

Let me say this about that. First, many men feel that way at one time or another. And second, although Clio is a family, even in families, there's such a thing as *too much information*.

One can learn a lot from the *way* someone asks a question. The very first question in one session came from Macalester's Finest. It seemed, to the Tattler, to be a perfectly reasonable question. But, then, the Whaleman from Wellesley followed it with: "I also

Continued on page 66



Preview of ASSA 2009
Cliometric Society and Economic History Association Sessions

Notes

ASSA Preview

Summaries of Papers to be Presented at Economic History Association and Cliometric Society Sessions

Note: The days and times given below are preliminary. Please check the official conference booklet for any changes and for locations.

January 3, 10:15 a.m.

Economic Impact of Government Policy EHA Session

- Christine Romer and David Romer, University of California - Berkeley, "The Effect of Marginal Tax Rates: Evidence from the Interwar Era"
Douglas Irvin, Dartmouth College, "Trade Restrictiveness and Deadweight Losses from U.S. Tariffs, 1859-1961"
William Collins and Katharine L. Shester, Vanderbilt University, "Slum Clearance and Urban Renewal in the United States, 1949-1974"
Juan Manuel Pueras, Universitat Pompeu Fabra, "Compulsory Schooling Laws, Education and Fertility in the United States (1900-1920)" (no summary available at press time)

January 3, 12:30 p.m.

Historical Perspectives on Capital and Productivity EHA Session

- Nathan Nunn, Harvard University, and Nancy Qian, Brown University, "Columbus's Contribution to World Population and Urbanization: A Natural Experiment Examining the Introduction of Potatoes"
James Bessen, Boston University, "More Machines or Better Machines?"
Alexander J. Field, Santa Clara University, "Should Capital Input Data Receive a Utilization Adjustment?"

January 4, 10:15 a.m.

Institutional and Legal Change in Economic History Cliometric Society (CS) Session

- Rich Sicotte and Catalina Vizcarra, University of Vermont, "The Mexican-American War and Institutional Change in Mexico"
Jared Rubin, California State University - Fullerton, "Printing and Interest Restrictions in Islam & Christianity: An Economic Theory of Inhibitive Law Persistence"
Steven Nafziger, Williams College, "Democracy in Tsarist Russia? The Case of the *Zemstvo*"
Alan L. Olmstead, University of California - Davis and Paul W. Rhode, University of Arizona, "The Battles against Animal Diseases: Science, Policy, and the Origins of Economic Regulation in the United States"

January 4, 12:30 p.m.

Economic Crises in Early American History Cliometric Society (CS) Session

- Roger Hewett, Drake University, "Public Economics and the American Revolution"
Jac Heckelman, Wake Forest, and Keith L. Dougherty, University of Georgia, "Personality Interests at the Constitutional Convention: New Tests of the Beard Thesis"
Richard Sylla, New York University, Robert Wright, New York University, and David Cowen, independent scholar, "Alexander Hamilton, Central Banker: Crisis Management during the U.S. Financial Panic of 1792"

January 4, 2:30 p.m.

New Frontiers in Cliometrics Cliometric Society (CS) Session

- Rui Esteves, Oxford University, and David Khondour-Castéras, Universidad Externado de Colombia, "Remittances, Capital Flows and Financial Development during the Mass Migration Period, 1870-1913"
Susan B. Carter, University of California - Riverside, "Celestial Suppers: The Invention, Innovation, and Diffusion of the Chinese Restaurant in Early-Twentieth-Century New England" (no paper available at press time)
Brandon Dupont, Western Washington University, Alka Gandhi, University of Maryland, and Thomas Weiss, University of Kansas, "Fluctuations in Overseas Travel by Americans, 1820-2000"
Vincent Bignon, University of Paris, "Cigarette Money and Black Market Prices around the 1948 German Miracle"

THE EFFECT OF MARGINAL TAX RATES: EVIDENCE FROM THE INTERWAR ERA

Christina D. Romer

David H. Romer

University of California, Berkeley

A central issue in tax policy concerns the incentive effects of marginal tax rates. Do high marginal rates reduce labor supply? Do they give rise to income shielding? Do marginal rates affect entrepreneurial activity and productive investment? The answers to these questions are crucial for understanding how tax changes are likely to affect tax revenues and economic growth.

Many studies have looked at these possible effects of marginal rates using data from the postwar United States.¹ For example, there are a variety of sophisticated studies using panel data to identify the elasticity of reported income to tax rate changes. Often, these studies use particular pieces of legislation, such as the Reagan tax cut or the 1986 tax reform, as natural experiments. One problem with using the postwar period as the testing ground is that the degree of variation in tax rates is relatively small. For example, the Reagan tax cuts, which are commonly acknowledged to be the most significant in the postwar era, only reduced top marginal rates on personal income by twenty percentage points. Because the identifying variation is relatively small, the effects of tax changes are often measured imprecisely and the studies are inconclusive.

The interwar United States has been greatly underused as a laboratory for analyzing the effects of marginal tax rates.² Marginal rates moved frequently and dramatically in the period between the two World Wars. To give just a sense of the variation, the top marginal rate at the end of World War I was 77 percent; by 1929 it had been reduced to 24 percent; by 1936 it had been raised to 79 percent. Furthermore, tax changes in this period did not just move the tax schedule up and down uniformly: some acts mainly changed rates at very high income levels;

¹ Key contributions include Lindsey (1987), Feldstein (1995), Aulen and Carroll (1999), Goolsbee (2000), Moffitt and Wilhelm (2000), Gruber and Saez (2002), Kopczak (2005), and Gierz (2007).

² Three obvious exceptions are Smiley and Keehn (1995), Goolsbee (1999), and Brownlee (2000).

some were across-the-board changes; and some mainly affected rates at income levels below the top of the distribution. As a result, there was both tremendous time-series and tremendous cross-section variation in rates. This paper seeks to use this extreme variation to provide new estimates of the incentive effects of marginal rates.

While individual panel data, such as are used in most postwar studies, do not exist for the interwar era, the Bureau of Internal Revenue (the precursor to the IRS) provides detailed data on reported income, deductions, taxes paid, and other variables for this period. The problem is not a lack of data, but figuring out how to use the data in a sensible way. The income tax statistics are all reported for nominal income categories. But, economic growth and price changes cause nominal income categories to be inconsistent and misleading over time. For this reason, we focus not on nominal income groups, but on slices of the income distribution. That is, we look at the reported income and marginal rates of the top 1/100th of one percent of the income distribution, the next 1/100th of one percent, and so on down the income distribution.

The first thing that one discovers is that in the interwar era, the very top of the income distribution paid almost all of the personal federal income tax. The top three-tenths of one percent paid roughly 95 percent of all taxes. The vast majority of Americans paid no income tax at all. This is true because tax rates were zero or very low until quite high levels of income. For this reason, we focus our analysis on the behavior of the various slices at the top of the income distribution. Only where marginal rates were substantial would one expect to see important effects of changes in marginal rates.

Another thing one discovers is that, because the interwar tax code was very progressive, changes in business cycle conditions had a large impact on the marginal rates paid by various slices of the income distribution. For this reason, we are careful to separate policy-induced changes in marginal rates from other changes. We do this by examining what marginal rates in the year of a tax change would have been had there the level and distribution of income been the same as in the previous year. The resulting series on policy-induced changes in marginal rates for various slices of the income distribution is the crucial input for this study, and may be useful in other studies of tax policy over time. We supplement and check this statistical identification of policy-induced changes in tax rates with a detailed analysis of the motivation and nature of each legislated tax change using contemporaneous presidential and Congressional documents.

The key analysis that we do involves time-series/cross-section regressions of reported

income on policy-induced changes in marginal rates. Macroeconomic shocks are so large in the interwar era that it is difficult to get meaningful information from purely time-series analysis. The aggregate effects of changes in tax rates may well have been swamped by monetary shocks, the changes in government spending related to the end of one World War and the start of another, and other developments. But, we can use the fact that a given tax law often changed the marginal rate of one slice of the income distribution much more than that of another slice. This is the cross-section variation. And, we can pool this cross-section information over time to see if there are common responses. This is the time-series component.

The time-series/cross-section analysis shows that changes in marginal rates have a significant effect on reported income. However, the effects are modest. The estimated elasticity of income with respect to the marginal after-tax share (that is, one minus the marginal rate) is 0.4, almost exactly what comparable postwar studies have found. However, because of the extreme variation in marginal rates in the interwar era, both over time and across slices of the income distribution, the interwar estimates are more precise than most postwar estimates. The results suggest that supply-side or income-shielding effects of marginal rate changes, while clearly present, are of limited economic significance. This finding is robust to a wide variety of specifications and checks. For example, allowing the response of income to marginal rate changes to depend on the state of the economy does not reveal a stronger effect. Likewise, restricting the analysis to the shorter sample period 1923-1935, well away from both World Wars, only lessens the estimated impact of marginal rate changes.

To look for longer-run effects of marginal rate changes, we consider time-series evidence on the response of entrepreneurship and investment. Policymakers in the 1920s, especially President Coolidge and his Secretary of the Treasury Andrew Mellon, felt that a key effect of high marginal tax rates was to skew investment funds away from productive activities and toward tax-free state and municipal bonds. In their view, high tax rates distorted behavior in a way that could have reduced economic growth over a very long horizon. Such long-run effects would be difficult to find in our time-series/cross-section analysis, which looks at the response of reported income in the few years immediately following the tax change.

We test for the presence of these more long-run effects by examining the response of a number of high-frequency indicators of productive investment activity and business formation to changes in marginal rates. To abstract from the obvious influence of other macroeconomic

developments, we look not at the simple change in these variables, but at the change controlling for the overall level of output. For example, we look at the monthly change in the ratio of the Federal Reserve Board index of durable goods production to the overall index. This allows us to at least partially separate the effect of marginal rates on investment from the usual response of investment to business cycle conditions. Nevertheless, because these tests focus on time-series evidence, the results are inherently more speculative than the time-series/cross-section results about the effects of marginal rates on taxable income.

We find no evidence that the large swings in marginal rates in the interwar era had a significant impact on the fraction of output invested in new machinery, the amount of industrial construction relative to overall construction, or other measures of the strength of investment or entrepreneurial activity. This suggests that the modest, fairly immediate effects of marginal rate changes on income we identify from the time-series/cross-section analysis may be the likely extent of the supply-side effects. And, of course, those modest income effects could be the result of income shielding or tax evasion, rather than genuine effects on labor supply and effort.



(L to R): Stephen Morgan (Nottingham), Andrew Newell (Sussex), John Lyons (Miami of Ohio), Peter Wardley (Univ. of West of England), and David Mitch (UMBC) relax at the County Hotel after a hard day's work on Thursday. How will they ever make it through the weekend? Photo credit: Claude Diebolt (Univ. Louis Pasteur)

Trade Restrictiveness and Deadweight Losses from U.S. Tariffs, 1859-1961¹

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Abstract

This paper uses detailed tariff data to calculate the Anderson-Neary (2005) trade restrictiveness index (TRI) for the United States in 1859 and annually from 1867 to 1961. The TRI is defined as the uniform tariff that yields the same welfare loss as an existing tariff structure. The import-weighted average tariff understates the TRI by about 70 percent over this period. This approach also yields annual estimates of the static welfare loss from the U.S. tariff structure over a period that spans the high protection after the Civil War through the trade liberalization that starts in the mid-1930s. The largest deadweight losses occur in the early 1870s (about one percent of GDP) but they fall almost continuously thereafter to less than one-tenth of one percent of GDP by the early 1960s. On average, import duties resulted in a welfare loss of 40 cents for every dollar of revenue generated, slightly higher than contemporary estimates of the marginal welfare cost of taxation.

1. Introduction

The import-weighted average tariff rate, which can be readily calculated by dividing the revenue from import duties by the value of total imports, has four critical shortcomings that make it a poor indicator of the tariff's height and static welfare cost. First, the average tariff is downward biased: goods that are subject to high tariffs receive a low weight in the index, and goods that are subject to prohibitive tariffs will not be represented at all. Second, the average tariff understates the welfare cost of a given tariff structure because it ignores the dispersion in import duties across goods. Third, the average tariff lacks any economic interpretation: an average tariff of 50 percent may or may not restrict trade more (or generate deadweight losses larger) than an average tariff of 25 percent. Fourth, the average tariff will not reflect the impact of non-tariff barriers, such as import quotas, in restricting trade.

Anderson and Neary (2005) recently developed several indices of trade barriers that have a well-defined theoretical basis in terms of economic welfare and the volume of trade. The trade restrictiveness

index (TRI) refers to the uniform tariff which, if applied to all goods, would yield the same welfare level as the existing tariff structure. The mercantilist trade restrictiveness index (MTRI) refers to the uniform tariff that would yield the same volume of imports as the existing set of tariffs. The TRI has several advantages over the average tariff: it has a clear interpretation in terms of economic welfare and summarizes in a single metric the effects of varying import duties in a way that the average tariff cannot.

This paper calculates a highly simplified, annual trade restrictiveness index for the United States during a long period of its history (1859, 1867-1961) based on a broad classification of imports derived from the U.S. tariff schedule. This is the classic period of trade protection during which America's trade barriers consisted almost exclusively of import duties, not non-tariff barriers such as import quotas or voluntary export restraints that would otherwise make a tariff-based TRI quite misleading. The results also show how the static deadweight losses from U.S. tariffs have evolved over time.

2. The Trade Restrictiveness Index

Anderson and Neary (2005) present the complete details on the theory behind the trade restrictiveness index. Feenstra (1995, p. 1562) shows that, under the special assumption of linear demand, a simplified TRI can be calculated without resorting to complex general equilibrium simulations. In his formulation, the TRI can be expressed as:

$$(1) \quad TRI = \left[\frac{1}{2} \sum_n \mathcal{E}_n / \bar{\mathcal{E}} \right] (p^* / \bar{p})^2 / \frac{1}{2} \sum_n (\mathcal{E}_n / \bar{\mathcal{E}}) (p^* / \bar{p})^2 \bigg]^{1/2},$$

where the TRI is a weighted average of the squared tariff rates on each of n goods, with the weights $(\partial C_n / \partial p_n)$ being the change in import expenditures as a result of a one percent change in the price, evaluated at free trade prices. Kee, Nicita, and Olarreaga (2006) rewrite this equation as:

$$(2) \quad TRI = \left[\sum_n s_n \mathcal{E}_n \bar{\mathcal{E}}^2 / \sum_n s_n \mathcal{E}_n \right]^{1/2},$$

where s_n is the share of imports of good n in GDP, $\mathcal{E}_n$ is the elasticity of import demand for good n , and $\bar{\mathcal{E}}$ is the import tariff imposed on good n .

Equation (2) is a highly simplified, partial equilibrium version of the TRI designed to capture the first-order effects of trade barriers. The measure ignores cross-price effects on import demand and other general equilibrium effects and implicitly assumes that world prices are given. Despite these simplifications, this equation for the TRI has the virtue of being computationally straightforward and indicates that the TRI depends on the tariff structure, the elasticities of import demand, and the share of

¹ I wish to thank Celia Kujala for excellent research assistance. I am also indebted to Marcelo Olarreaga, Gilbert Metcalfe, and seminar participants at the NBER Summer Institute, the U.S. International Trade Commission, the World Trade Organization, and Dartmouth College for very helpful comments and advice.

imports in GDP.

The reduced-form TRI in equation (2) also yields a linear approximation of the static deadweight loss from tariff protection identical to that in Johnson (1960). The formula for the deadweight loss as a share of GDP is

$$(3) \quad DWL/GDP = \frac{1}{2} \sum_i s_i \varepsilon_i \tau_i^2,$$

where the deadweight loss depends upon the weighted average of the tariff, the variance of the tariff, and the covariance of the tariff and the import demand elasticity (Kee, Nicita, and Olarreaga 2008a).

3. Implementing the TRI for the United States

This section describes the calculation of a TRI for the United States for a long period of its history, for the year 1859 and annually from 1867 to 1961. The annual data on the U.S. tariff structure are based on the classification of imports into roughly 17 categories based on the tariff schedules that were in continuous use (with some minor modifications) from the Tariff of 1883 until the 1960s. Data on imports and customs revenue by tariff schedule were presented in the *Annual Report of the Treasury Department* and also in the *Statistical Abstract of the United States*. These data can be extended back to 1867 based on the various compilations in Congressional documents (in particular, U.S. Senate 1894). The U.S. government stopped reporting these data in 1961, hence this terminal point.

The TRI calculation also requires estimates of elasticities of import demand. Estimating these elasticities is virtually impossible for this period because existing import price and quantity data (such as in Lipsey 1963) do not match up with the tariff categories. Rather than attempt to estimate the import demand elasticities, existing studies of these elasticities can be used. Stern, Francis, and Schumacher (1976) present a wealth of older estimates of disaggregated import demand elasticities. They report the “best” elasticity estimates for categories of goods at the three-digit level that provide a reasonable match to the categories in Table 1, where they are reported (column A). The TRI calculations using these estimates will be considered the benchmark results. The results will be compared with those using the elasticities estimated by Shiells, Stern, and Deardorff (1986) and Ho and Jorgenson (1994), in columns B and C, respectively. For purposes of comparison, column D shows the recently-estimated Broda and Weinstein (2004) elasticities. Most of the estimates are very similar in magnitude, and even the highly disaggregated import demand elasticities estimated by Kee, Nicita, and Olarreaga (2008a) and Broda and Weinstein (2004) fall within narrow bounds: the estimates lie almost entirely within the interval of -

1 to -3.

A. An Annual TRI Index

Figure 1 displays the standard average tariff on imports along with three estimates of the TRI using the first three sets of elasticities from Table 1. The TRI estimates are very close in magnitude and never deviate by more than 5 percentage points from one another.

This figure also reveals that the average tariff on imports and the trade restrictiveness index are highly correlated. The correlation coefficient of the average tariff and the calculated TRI are 0.95 (TRI-A), 0.88 (TRI-B), and 0.95 (TRI-C). The results here suggest that the standard average tariff measure is highly correlated with the TRI, but that it understates it by a considerable (and variable) margin because it ignores the variance in tariff rates.

B. Annual Deadweight Loss Estimate

Figure 2 plots the annual deadweight loss from the tariff as a percent of GDP using the three sets of elasticities, and shows that they are bounded by the losses using uniform elasticities of -1 and -3. During this period, the United States did not employ many non-tariff barriers on imports (such as quantitative restrictions) so that this should represent a reasonable confidence interval on the total static deadweight loss as a result of trade barriers. After 1961, however, the deadweight loss from tariffs alone would be a misleading indicator of the costs of U.S. trade restrictions because of the increasing use of voluntary export restraints.

How does the time-series pattern of deadweight losses conform to our understanding of the evolution of U.S. trade policy? It is not surprising that the highest costs of America's tariff policy came immediately after the Civil War. High and comprehensive duties on imports were imposed during the war and remained in place for several years after the war in order to raise revenue for the federal government. Only a tiny share of imports was allowed to enter the country without paying any duties. The welfare loss was much lower in 1859, when tariff rates were lower and much more uniform (only ad valorem duties were used from 1846 to 1860).

Many of the big changes in the TRI and DWLs over time have been the result of shifting large categories of imports on (and off) the duty-free list. The first major post-Civil War change in the tariff code occurred in 1873, when coffee, tea, and other consumption items were put on the duty-free list. The next significant change was the McKinley tariff of 1890, which temporarily put sugar on the duty-free list, followed by the Wilson-Gorman Tariff of 1894. Both of these acts helped push up the share of

duty-free imports to about 50 percent of total imports and further reduced the welfare losses from the tariff, although this was partially reversed by the Dingley Tariff of 1897. The TRI and deadweight losses fell further during the 1910s as a result of the drastically reduced duties in the Underwood tariff of 1913 and a rise in the share of duty-free imports from 40 percent to 70 percent. But the decline in the U.S. tariff, after the passage of the Reciprocal Trade Agreements Act of 1934 and higher import prices, continued this trend (Irwin 1998a). By the late 1940s, the TRI and the deadweight losses were at extremely low levels.

C. Comparison with Other Results

How do the TRI and DWL calculations compare with other existing estimates for the United States? Figure 3 shows the estimates here in comparison to later calculations. Stern (1964) calculated that the welfare cost of tariffs for the United States in 1951 was about 0.07 percent of GDP, somewhat higher than the TRI-based estimate here of 0.04 percent of GDP in that year. Estimates by Magee (1972) and Rousslang and Tokarick (1995) put the welfare costs of U.S. tariffs in 1971 and 1987, respectively, at 0.04 percent of GDP. And most recently, the U.S. International Trade Commission (2007) put the aggregate cost of U.S. import restrictions at 0.03 percent of GDP for 2005. All of these figures are remarkably close to the cost calculations presented here for the late 1950s and early 1960s, which are about 0.04 percent of GDP.

Thus, the estimates here fill in a large gap in existing calculations and show how U.S. trade policy has evolved over time. The estimates augment the small handful of deadweight loss calculations for recent years by providing nearly a century's perspective of how the costs have declined over time.

Of course, the standard static welfare estimates of the costs of protection have many well-known limitations that are worth repeating. These estimates understate the deadweight losses by ignoring the costs of rent-seeking, the dynamic gains from trade in terms of productivity improvements, the benefits of product variety, the endogeneity of protection. On the other hand, the estimates here do not account for any improvement in the terms of trade as a result of import tariffs. Furthermore, it should be emphasized that the low costs of protection do not imply that the gains from trade are small; indeed, the gains from trade could be enormous. Rather, it simply suggests that, in general, formal U.S. trade barriers are at a very low level.

D. Average Welfare Cost per Dollar of Revenue

From 1867 until the introduction of the income tax in 1913, import duties raised about half of the

revenue received by the federal government. The important role of the tariff in public finance raises the question of its efficiency as a revenue-raising tax. The average welfare cost per dollar of revenue for this period is 46 cents for 1867-1913 and 40 cents for 1867-1961. While there does not appear to be any historical estimates of the excess burden associated with taxes a century ago, this figure can be compared - with caution - to contemporary estimates of the marginal welfare cost of taxation, which tend to be around 33 cents per dollar of revenue (Ballard, Shoven, and Whalley 1985).

4. Conclusions

This paper presents annual estimates of static deadweight loss from the U.S. tariff code for nearly a century. These annual estimates provide a sharp contrast for the isolated handful of estimates for individual years in the post-World War II period. Unlike the low deadweight loss estimates in recent decades, the results here indicate that the losses were quite large in the years immediately after the Civil War, at about one percent of GDP, but have since declined secularly, to less than one tenth of one percent of GDP by the end of World War II. This decline in the welfare cost of tariffs is due to the rising share of imports that were given duty free access to the U.S. market and the decline in rates of import duty. Historically, the cost of protection has been low for the United States because international trade has been a relatively small part of the overall economy and import tariffs are much less distortionary than other trade interventions, such as import quotas or import licences.

References

Available from the author.

Figure 1: Average U.S. Tariff on Imports and Trade Restrictiveness Index, 1867-1961

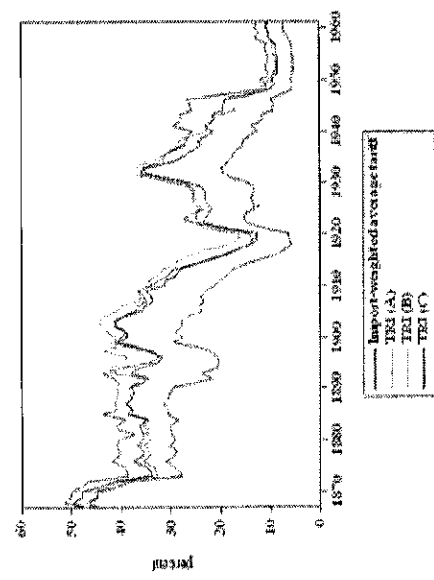


Figure 2: Deadweight Loss from U.S. Import Tariffs, 1867-1961

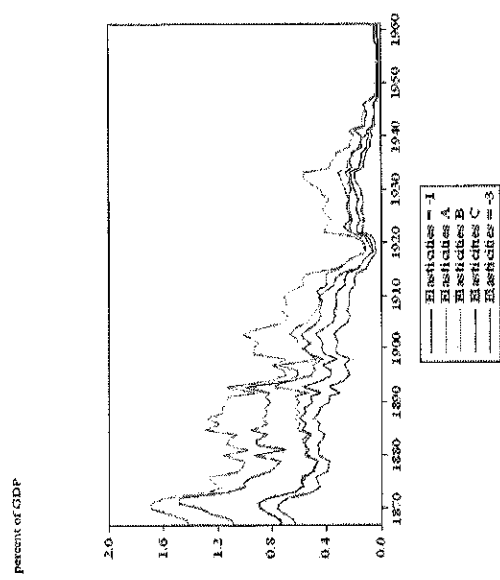
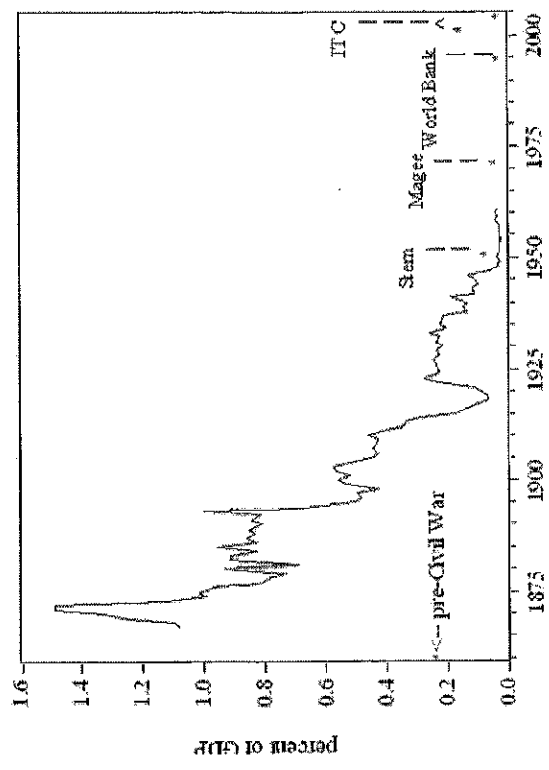


Figure 3: Comparison of Deadweight Loss Estimates from U.S. Import Tariffs



Note: From FRI (A) and other estimate on Table 2. The ITC estimate for 2002 includes import quotas (notably the Multifiber Arrangement); the ITC estimate for 2005 occurs after the MFA expires.

Summary of "Slum Clearance and Urban Renewal in the United States, 1949-1974"

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1. Introduction

In Title I of the National Housing Act of 1949, Congress launched an ambitious plan to rid American cities of their slums. Policymakers hoped that local government agencies, with federal financial assistance, could assemble, clear, and then sell parcels of land in "blighted" urban areas for redevelopment. The goals of Title I were broad: to reduce "substandard" housing that was considered a breeding ground for crime and vice; to stem suburban migration; to invigorate downtown central business districts; and to increase local tax revenues through property value appreciation (Groberg 1968, Teaford 2000). As such, Title I was a far-reaching effort to boost the economic prospects of American cities by funding local agencies that could clear urban land (exercising eminent domain if necessary) and, it was hoped, encourage new investment and revitalization.

New Title I funding ended in 1974, by which time local authorities had been awarded federal support for more than 2,100 urban renewal projects at a cost of approximately \$10 billion (unadjusted for inflation) (US Department of Housing and Urban Development 1974, p. 2). As of June 30, 1966, the last date on which detailed data are available, approved projects cleared (or intended to clear) over 400,000 housing units and forced the relocation of over 300,000 families (US Department of Housing and Urban Development 1966). Approximately 54 percent of these families were nonwhite, reflecting the relative concentration of African-Americans in "blighted" areas that were targeted for redevelopment. Importantly, some cities participated in the program far more intensively than others. For example, New Haven was awarded approximately \$800 per 1950 resident, whereas Hartford and Providence were awarded approximately \$300 per 1950 resident despite having similar "predicted values" of funding based on the proportion of dilapidated housing units, median family income, median property value, proportion black, and population size.

Over time, Title I programs became increasingly controversial, eventually leading to its demise (it was succeeded by the Community Block Grant Program). Critics decried the disproportionate and presumably negative impact on the poor who resided in and around the cleared areas, were troubled by the government's exercise of eminent domain to override local property owners' wishes (especially since private redevelopment of the area was the norm), and found the aesthetics of the new buildings unappealing (see *inter alia*, Jacobs 1961, Anderson 1964, and Wilson 1966). It is worth noting, however, that the program was launched with broad political support against a backdrop of deep concern about the state of American cities. Both major political parties endorsed the goal of slum clearance and urban renewal in their platforms for the 1948 presidential election. National publications celebrated the program's accomplishments well into the 1960s. For example, *Time Magazine's* cover for the November 6, 1964 issue featured Edmund Bacon of the Philadelphia Planning Commission and highlighted renewal projects in several other cities. Moreover, knowledgeable proponents of the program responded strongly to the critics (Groberg 1965, Abrams 1966).

Despite the heated controversy regarding its merits and faults, there is no comprehensive, econometric study of the program's economic impact on cities. This paper is a preliminary attempt to fill that gap in our understanding of urban economic history. Richard Bingham's study (1975) is closest in spirit to this paper in that it uses city-level data to study both the distribution of Title I funds and correlations between housing market outcomes in the 1960s and Title I funding levels. This paper takes a longer-run view by examining city-level census data from 1950 to 1980, spanning the entire period during which the program operated. Our sample includes all cities with more than 25,000 residents in 1950. Some of the data are from Haines (2004); some series were entered by hand. We use newly compiled data on Title I funding and project characteristics for nearly 500 cities. We also use new information about state legislation that constrained cities' participation in the federal program, and we use those constraints to pursue an instrumental variable strategy to measure the program's effects.

2. The Allocation of Funds and the Effects of Urban Renewal Programs

The goals of Title I were broad and predicated on the belief that targeted improvements in some parts of a city could have positive spillovers for the city as a whole. Therefore, we

examine a range of city-level economic outcomes: population growth, residential property value appreciation, changes in the quality of the housing stock (especially at the lower end), employment rates, income levels and poverty rates, and racial mix. Our first-pass empirical strategy is to regress an outcome variable observed in 1980 on city-level characteristics in 1950 (including the outcome variable's value in 1950), sub-regional dummy variables, and a measure of urban renewal funding per capita. (Results in this summary use funding "approved" as of June 1974, the last publication of the official "Urban Renewal Directory"; this funding was carried forward even if it had not been dispensed in 1974.) The basic empirical question is whether, conditional on a long list of relevant observable characteristics at the time of the program's initiation, more intensive urban renewal programs were correlated with differential outcomes in 1980.

The central econometric problem in interpreting the coefficients of such regressions is that the projects were initiated, planned, and carried out at the local level. This makes it difficult to establish unbiased measures of "treatment effects", even with a rich set of city-level control variables, because unobservable city-level differences in economic trends, outlooks, and shocks may be correlated with both the intensity of program participation and subsequent outcomes. Maybe cities that were going downhill fast (in ways unobservable to the econometrician) sought a lot of urban renewal funds; they may have ended up with worse outcomes in 1980 than other cities, but better outcomes than if they had gone without the funding (i.e., the regression coefficient on funding would understate the true impact of the program). Or the opposite case could hold: cities with many profitable investment opportunities may have collected a lot of urban renewal funds and had stronger outcomes in 1980 than other cities even if the renewal program had no effect whatsoever (i.e., the coefficient on funding would overstate the true impact of the program).

Headway on this problem must begin with understanding why some cities sought and received so much more funding than others. (Detailed analysis of the *types* of projects undertaken awaits future work.) There is a social science literature on this topic dating to the 1960s and typically based on cross-city comparisons of economic, political, and demographic characteristics (Straits 1965, Froman 1967, Clark 1968, Platt 1968, Aiken and Alford 1970, and Bingham 1975). Building on that literature, we estimated regressions of funding per capita on a variety of housing stock quality measures in 1950 (year built, presence of indoor plumbing,

proportion of crowded or dilapidated units, median property values, and so on) and other economic and demographic variables (measures of income, educational attainment, racial mix, sub-regional indicators, and population size). We find that the age of the housing stock and the proportion of the population that is nonwhite have strong positive correlations with funding (even with controls for city size and sub-regional indicators), but that the other characteristics are less robustly linked to funding levels.

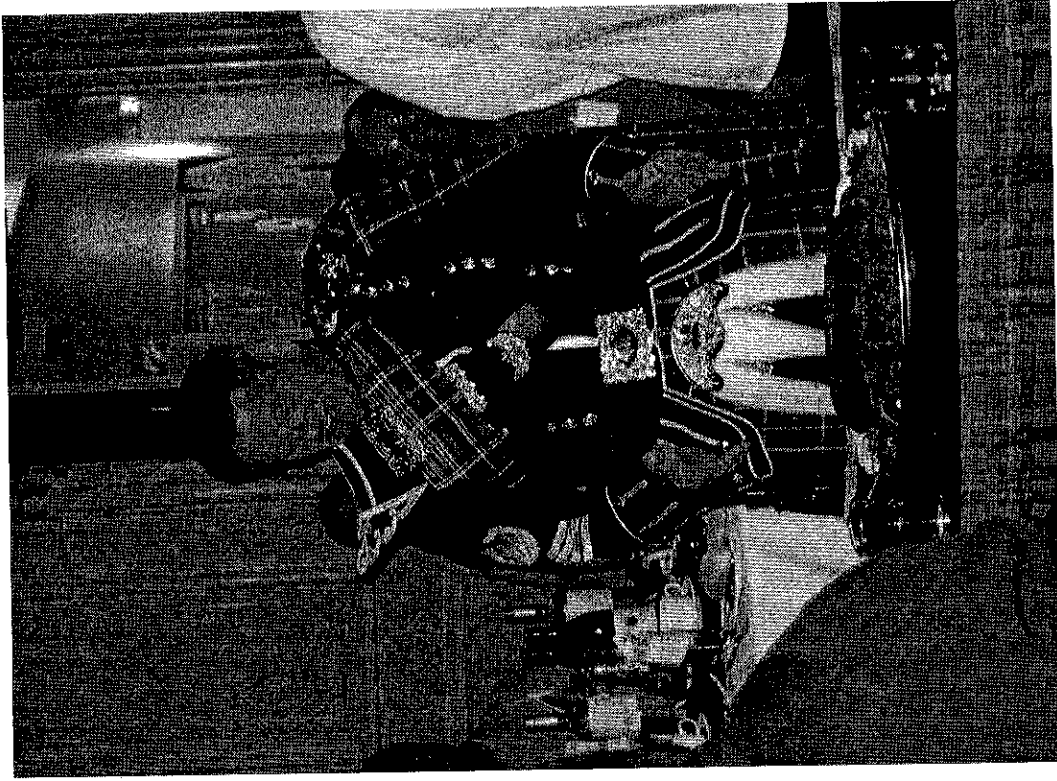
In this context, the passage of state-level "enabling legislation", which permitted cities to participate in the federal program and allowed city-level agencies to exercise eminent domain, merits special attention. State-enabling legislation is often discussed in the early social science literature, in historical accounts of specific cities (e.g., Fairbanks 2002, 2006), in legal considerations of urban renewal programs, and in the planning community's publications (e.g., issues of the *Journal of Housing*). All of these sources suggest that cities that wanted to participate in the urban renewal program were sometimes constrained by the lack of state enabling legislation. This is consistent with our regression analyses, as well. The timing of state-level enabling legislation is strongly correlated with cumulative urban renewal funding, consistent with the idea that delayed legislation narrowed the window of opportunity for participation in the program (keeping in mind that in 1974 the window closed). This finding holds even when controlling for relevant city and state-level political variables, suggesting that within-region differences in the timing of passage may have been largely idiosyncratic (e.g., sometimes hinging on state constitutional provisions or state Supreme Court decisions). This may be a promising instrumental variable for the identification of urban renewal effects – it certainly has a strong "first stage" correlation with funding, and the causal mechanism is highly plausible in theory and according to historical and legal accounts. The more difficult challenge is to ensure that the passage of enabling legislation is not picking up unobservable state or local conditions that influenced urban renewal funding and subsequent outcomes. We are still exploring these issues, and we will report estimates of the effects after we have completed further investigation.

3. Conclusions

Our results on the effects of urban renewal programs are very preliminary, and at this point we are reluctant to place too much weight on the IV identification strategy suggested above. The results with respect to the allocation of funding across cities, however, seem robust and informative. Conditional on city size, the proportion of the 1950 housing stock built before 1920 (old housing), the proportion of the population that was nonwhite in 1950, and the number of years eligible for participation in the federal program (reflecting differences in the timing of state-level legislation) are positively correlated with urban renewal funding per capita. This remains true when sub-regional fixed effects and other controls are added to the regression. Somewhat surprisingly, other characteristics of the housing stock (proportion dilapidated in 1950, median value, proportion crowded, proportion without plumbing) appear to be weak predictors of urban renewal funding. If in 1949 Congress had adopted a specific formula for the allocation of funds based on observable local housing characteristics, it appears that the distribution of funds would have been quite different from what actually occurred.

In addition to further examination of the IV strategy described above, we intend to incorporate data from the official publication "Urban Renewal Project Characteristics", which includes information on the number of housing units cleared, the number (and race) of families displaced, and the proposed re-use of project sites (commercial, residential, public, etc.) to see if variation in the types of projects undertaken yields further insight into the nature of the city-level outcomes. Although it has proven extremely difficult to pinpoint project locations in a large sample of cities (searches at the National Archives and inquiries at HUD have not yielded systematic data), two further extensions do seem feasible. First, we have compiled a set of potential "slum tracts" from the 1950 census of housing (e.g., those with high proportions of old, dilapidated, crowded housing and a high proportion of low-income families) – ostensibly the kinds of places that the 1949 Housing Act was targeting in Title 1. One-for-one tract matching with the 1980 tract data is not always possible, but a reasonably close correspondence of areas would allow us to see whether potential "slum tracts" in high urban-renewal intensity cities trended different from similar tracts in cities with low urban-renewal intensity. Second, a limited number of city-specific case studies (cities for which we have detailed project location data) may allow closer examination of pre- and post-urban renewal trends in specific locations that were in or very proximate to urban renewal areas.

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Celebrating the Haggis! Photo credit: Sumner La Croix (Hawaii).

Columbus's Contribution to World Population and Urbanization: A Natural Experiment Examining the Introduction of Potatoes

By Nathan Nunn (Harvard University and NBER) and Nancy Qian (Brown University, Harvard Academy and CEPR)

The relationship between agriculture and economic development is one of the oldest and most fundamental topics in the study of development economics. Despite its long history, we still do not have a complete and clear understanding of the role that agriculture plays in economic development. From a theoretical point of view, the effect of agricultural productivity on economic development is not obvious. On the one hand, an increase in agricultural productivity may increase surplus labor in the countryside which can then be released to the industrial sector in the cities. This is possible, for example, in the world described in the Lewis model. Alternatively, an increase in agricultural productivity may increase the returns to agriculture relative to industry and delay a switch to a modern economy. This occurs, for example, in the two sector growth model of Ngai (2003). Other models, such as that developed in Matsuyama (1992), predict that the relationship between agricultural productivity and economic growth is more nuanced; in Matsuyama's model the relationship depends on how open the economy is to international trade. Finally, arguments along the line of Malthus, suggest that an increase in agricultural productivity may raise income in the short-term, but in the long-run, the productivity increase results in increased population and income remains stagnant.

Overall, theory does not provide a clear prediction about the relationship between agriculture and economic development. The question then becomes an empirical issue. However, empirical evidence suffers from an important identification problem: both agricultural productivity and the outcomes of interest are influenced by omitted factors. An example of one of these factors is political stability, which may increase investment and productivity in all parts of the economy, including agriculture. Not accounting for this factor will bias upwards the relationship between agricultural productivity and economic development.

The existing empirical literature has generally attempted to infer evidence of the role of agriculture in economic development from correlations in the data Hwa (1988). Most recently, a study Tiffin and Irz

(2006) attempts to address the issue of causality by examining panel data, employing lags, and conducting Granger causality tests. Their empirical results provide evidence that agricultural growth "causes" aggregate GDP growth.

Our analysis addresses this identification problem by focusing an agricultural productivity shock that was caused by the introduction of potatoes to the Old World from the New World after the discovery of the Americas by Christopher Columbus. This "experiment" allows us to estimate the causal effect of this agricultural technology shock on historic population growth and economic development, measured by urbanization rates. Because potatoes are nutritionally superior relative to grain crops, both in terms of caloric yield per acre of land and in terms of the important vitamins and nutrients provided by the crop, the parts of the Old World that were able to adopt potatoes experienced a dramatic increase in their agricultural productivity. Our empirical analysis estimates the effect of this positive productivity shock by implementing a differences-in-differences (DD) estimation strategy that compares the relative difference in the growth of population and urbanization, before and after the introduction of potatoes, between countries that were able to adopt potatoes and countries that were not. That is, we investigate whether we see the largest increase in the growth rates of population and urbanization after potatoes were introduced to the Old World occur in the countries that most suitable for potato cultivation.

Rather than using the actual date of a country's adoption and its actual extent of adoption, we use the median date of the adoption and each country's suitability for potato cultivation. Based on the historic evidence we take the median date of the adoption of potatoes as a field crop to be 1700 and we measure a country's suitability for potato cultivation using data from the FAO that is based on whether an area's weather, climate, and land satisfy the requirements necessary to grow potatoes. The advantage of this strategy is that a country's ability to adopt potatoes (unlike its actual adoption) and the date of introduction (rather than the date of actual adoption) are less likely to be correlated with omitted factors that also affect population growth and economic development. However, our estimates will still be biased if our country level measure of potato suitability is correlated with other country level characteristics that affect population and urbanization differently, and in a systematic manner, before or after 1700.

One concern is that the suitability of potato production may be correlated with overall agricultural productivity, which may have become more important after 1700. Therefore, in our baseline estimates we also control for a measure of a country's overall suitability for agriculture, and allow this effect to vary after 1700. We also control for the suitability for growing other New World crops like maize and allow their effects to vary after 1700.

Another concern arises from the fact that there were a number of other changes in the world around 1700, the most important being the industrial revolution in Western Europe and increased global integration. We include a number of country characteristics which through these large historic events may also have affected population growth and urbanization around 1700.

Our most conservative estimates indicate that the introduction of potatoes accounts for up to 18% of the increase in Old World population growth after 1700, and 37% of the increase in the growth of urbanization. Interestingly, our results show that the effect of potatoes on urbanization lags the effect on population by 100 years. These results are consistent with the research of many historians. Based on descriptive evidence, it has been argued that in Europe, "the spread of the potato culture everywhere corresponded with the rapid increase of population" (Langer, 1963, p. 14). Even more boldly, McNeill (1999) argues that "potatoes, by feeding rapidly growing populations, permitted a handful of European nations to assert domination over most of the world between 1750 and 1950". While our results cannot prove McNeill's assertion that the potato is responsible for Europe's global domination, they do provide empirical validation for the common view that the potato is responsible for part of Europe's increased population and economic development during this period.

There has been only one previous study that empirically examines the effect of the introduction of the potato. This is a study by Joel Mokyr (1981) that looks at a cross-section of counties within Ireland in 1845 and tests for a relationship between potato cultivation and population growth. To address the problem of endogenous adoption, Mokyr estimates a system of two equations using 2SLS. He finds that potato cultivation resulted in a statistically significant increase in population growth. He also finds no evidence that the potato was adopted in response to rapid population growth. Our study differs from Mokyr's in two ways. First, our difference-in-differences estimation strategy is very different from Mokyr's IV strategy. Second, our data allow us to examine the impact of potatoes beyond the Irish context, as well as the impact of potatoes on long-term economic development.

References

- Hwa, Erh-Cheng, "The Contribution of Agriculture to Economic Growth: Some Empirical Evidence," *World Development*, 16 (1988), 1329-1339.
- Langer, William L., "Europe's Initial Population Explosion," *American Historical Review*, 69 (1963), 1-17.
- Matsuyama, Kiminori, "Agricultural Productivity, Comparative Advantage, and Economic Growth," *Journal of Economic Theory*, 58 (1992), 317-334.
- Mokyr, Joel, "Irish History with the Potato," *Irish Economic and Social History*, 8 (1981), 8-29.
- Ngai, Rachel, "Barriers and the Transition to Modern Growth," *Journal of Monetary Economics*, 51 (2003), 1353-1383.
- Tiffin, Richard, and Xavier Irz, "Is Agriculture the Engine of Growth?" *Agricultural Economics*, 35 (2006), 79-89.

A weaver in the U.S. in 1902 produced over 25 times as many yards of cloth in an hour of weaving as did a weaver a century earlier producing a comparable cloth. The weaver in 1902, however, achieved that output using seven or eight power-driven looms while the weaver of 1802 used a single handloom. Similar patterns of productivity growth accompanied by capital deepening are seen in many other technologies.

How much of this growth in labor productivity came from "more machines" and how much came from "better machines"? That is, to what extent was it driven by simple capital accumulation that pushed production to more capital intensive techniques on the production possibilities frontier and to what extent was it driven, instead, by a process of technical change that introduced new techniques that were both more productive and more capital intensive? In the "more machines" story, rising wages (relative to capital costs) drive capital deepening. In the "better machines" story, biased technical change plays this role. This paper attempts to assess how much of the growth in labor productivity in nineteenth century weaving arose from factor substitution and how much from biased technical change and what caused such bias. I do so by looking in detail at the inventions, the capital deepening and the realized productivity improvements.

The question of "more or better machines" is important for understanding nineteenth century economic growth. At least since Hicks (1932), biased technical change has been seen as a feature of economic development. For example, analyzing macroeconomic data, Abramovitz and David (1973, 2001) argue that a labor-saving/capital-using bias accounts for the substantial capital deepening that occurred in the nineteenth century United States. And this affected the character of economic development.

This paper explores technical change and factor substitution by looking in detail at the major inventions adopted in nineteenth century U.S. cotton weaving and I relate these to the performance of cloth production over time. The big advantage of studying cotton textile technology is that it is a simple mechanical technology that has been extensively researched. Because detailed information is available, I can measure the rate, the bias, and the sources of technical change. First, I build an engineering model of cloth production and show that the technology imposes constraints on the nature of technical change and factor substitution. Three types of technological improvements in productivity were possible: one that is purely labor-augmenting, one that is purely capital-augmenting, and one that enhances labor and capital efficiency in fixed proportions.

Technology also limits the elasticity of substitution between labor and capital. I find the

Summary

More Machines or Better Machines?

by James Bessen

(Boston University School of Law, Research on Innovation)

Full text: <http://www.researchoninnovation.org/mobetter.pdf>

Abstract: Using an engineering production function and detailed information on major inventions in nineteenth century cotton weaving, this paper assesses how much of the rapid growth in labor productivity arose from capital-labor substitution and how much from technical change. I find that labor-saving technical change accounts for almost all of the growth. However, much of the labor-saving bias arose not from inventions, but from acquisition of new knowledge and skills by weavers. Moreover, this was endogenous, influenced by wages and prices. This provides a technology-based explanation for the persistent association between economic growth and capital deepening.

production function to be rather inelastic and my estimates based on the engineering production function match closely to two econometric estimates.

I then look at the major inventions that were widely applied to weaving during the nineteenth century and seen as important by contemporaries. Using data from a variety of sources including trade publications, patent specifications, weaving manuals and measurements taken on working museum models, I estimate the increases in labor and capital efficiency brought by each invention. Using data on realized performance at large mills, I validate these estimates and identify other sources of productivity growth.

This analysis reveals a surprising result: labor efficiency gains from inventions during the 19th century were only modestly larger than capital efficiency gains. Inventions can account for only a doubling of the number of looms per weaver, but the number of looms per weaver increased seven-fold over the century. Despite the common assumption that the growth in labor intensity can be attributed to the technical bias in inventions, something else seems to be at work here.

I investigate four possible explanations using detailed data on one mill of the Lawrence Company from 1835 to 1855. The critical change for this mill (and the other Lowell mills) occurred in 1842, when the mills switched from assigning two looms to each experienced weaver to three looms. Only one explanation seems consistent with the facts about this event:

1. Factor substitution. Perhaps rising wages caused the mills to substitute capital for labor along the production possibilities frontier. There are two problems with this explanation. First, the engineering model finds a very low elasticity of substitution between capital and labor and this estimate is matched by two econometric estimates. Given this inelasticity, rising wages can have had only a very small impact on the allocation of looms per weaver. Secondly, the evidence shows that the transition from two looms per weaver to three in 1842 was not a costless transition, but, instead, there was a loss of about 15% of a year's output. This is inconsistent with a simple substitution of one known technique for another along the production function.

2. Other inventions. Historians and industry observers agree that the middle of the century was a period of little innovation. But perhaps they have missed a number of minor innovations that nevertheless cumulatively provided a significant increase in productivity. The documentary record for the Lawrence Company mill only reports two minor changes. Moreover, a regression analysis does not find any significant residual trend in productivity once worker experience and

other factors are taken into account.

3. Effort. Ware and Josephson attributed the increase in looms per weaver to the change in the labor force from literate Yankees to illiterate Irish girls. The latter were supposedly less able to resist employer efforts to get them to work harder. But this story has problems, too. As I have argued elsewhere (JEH 2003), the change in the composition of the workforce occurred well after the first increase in capital intensity. Moreover, even ignoring the cultural explanation, it appears that productivity was lowest after the change in 1842 just when piece rates were highest—exactly when one would expect the greatest exertion of effort. Instead, it appears that weavers were *unable* to take advantage of the high piece rates and high capital intensity even though this is when they would have wanted to exert the greatest effort.

4. Learning on the job. Indeed, Montgomery (1843) notes that weavers were not able to keep up with three looms in 1842 and, for this reason, the mills had to slow the speed of the looms. Yet the evidence shows that by late 1843, the weavers were able to efficiently handle three looms at something close to their original speed. The simplest explanation for this change is that the weavers learned new skills or technical knowledge. Indeed, the evidence for the Lawrence Company shows sharp learning curves for workers and the learning curves are steeper and last longer when weavers are learning to handle more looms. Both the duration and magnitude of the loss in output that occurred following the 1842 change are consistent with these learning curves.

In addition, the learning story explains why the change to three looms occurred in 1842 and not earlier. The change was not profitable earlier but it became profitable for two reasons: the price of cloth declined relative to wages (making the cost of the foregone output relatively less) and workforce turnover declined, allowing employers longer to recoup their human capital investments. In other words, this story suggests an endogenous explanation for much of the labor saving bias. As economic conditions changed, firms were able to invest more in the development of weaver skills and technical knowledge, and this allowed the weavers to handle more looms.

Accepting this explanation, I then calculate the contributions made by factor substitution, inventions and on-the-job learning to labor productivity growth in coarse weaving during the nineteenth century. I find that *very little* of the capital deepening and labor productivity growth that took place in weaving can be attributed to factor substitution. That is, economic growth in weaving was hardly a story of "more machines."

More/Better Machines - 5

On the other hand, it was not a simple story of "better machines," either. The growth in labor efficiency and in the capital-labor ratio were not entirely realized at the initial adoption of new inventions. I find that reported inventions can explain only about one half to two thirds of the increase in labor efficiency. In addition, workers gained greater technical knowledge and/or skills that enabled them to handle more looms efficiently, realizing the potential benefit inherent in the new technologies. The story thus appears to be one of "better machines *and* better specific human capital."

These considerations prompt another look at the role of technical change in nineteenth century economic growth. At first glance, economic growth during the nineteenth century in the US appears to be driven mainly by factor accumulation, not by technical change (Abramovitz and David 1973, 2001). In part this is because estimates of the productivity residual during most of the century have been found to be relatively small. However, my findings suggest that what might appear to be accumulation-driven growth is, instead, driven by technical change, as Abramovitz and David point out. When technical change is strongly biased, the Solow residual fails to capture the complete role of technical change.

Too often, researchers view the part that technology plays in economic growth as limited to the role of inventions foisted on a mass of unskilled workers. I have argued elsewhere (Bessen 2003) that nineteenth century weavers were hardly unskilled, even though they were often uneducated, especially after the 1840s. Here I argue that the role of knowledge and skill acquisition among these workers was critical to technical change.

Moreover, my analysis suggests that this role is endogenous. Although there has been speculation about the role of endogenous growth in the Industrial Revolution, researchers have so far found little supporting empirical evidence (see Crafts 1995). But most endogenous growth models only look at endogeneity in R&D and invention. My evidence suggests substantial endogenous technical change in weaving, but this occurs in the development of new skills and technical knowledge.

This bottom-up approach reveals a richer picture of technical change and growth than can be gleaned from aggregate statistics alone. My findings are limited to the technology of cotton weaving, however, other technologies of mechanization—technologies responsible for much of nineteenth century economic growth—share similar constraints and therefore these technologies might share a similar endogenous response to economic conditions.



Lame Duck Executive Director Lee Craig (NC State) shows off a swag from a Scottish shopping spree.. Photo credit: Sumner La Croix (Hawaii).

Should Capital Input Data Receive a Utilization Adjustment?

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Introduction

A common procedure in productivity research is to use estimates of the stocks of physical capital as proxies for service flows. This practice is of little concern if one is exploring growth across different time periods, because in such inquiries one typically measures from peak to peak, in part to abstract from cyclical influences on productivity. Once one gets into research on those cyclical influences themselves, however, it can matter a great deal.

A variety of studies suggest that both TFP and, to a lesser degree, labor productivity, are now and have for over a century been strongly procyclical in the United States. Using data for the private nonfarm economy, Field (2007c), for example, finds that between 1890 and 2004, a one percentage point decline in the unemployment rate added about .9 percentage points to the growth rate of TFP, and a one percentage point rise did the reverse. This elasticity is stable across periods during which the trend growth rate of TFP was quite different, and its magnitude has been unaffected by whether the economy was close to potential output or far away from it.

While the findings of procyclicality, although broader in terms of sectoral coverage and time span, build on the results of prior studies, my analysis of the underlying microeconomics departs from the conventional. I don't emphasize the voluntary labor hoarding often adduced to account for procyclicality in output per hour (Fay and Medoff, 1985).¹ Whatever tendency there is for firms, having retained workers during the downturn, to refrain from hiring during an upturn, it is a tendency that weakens and disappears in the last year and a half or two years of an expansion, when companies add both employees and hours at a rapid rate. Gordon (1979, 1993) calls this the end of

¹ Labor productivity in the private nonfarm economy is, like TFP, procyclical, although the magnitude of the effect is substantially weaker, and for the postwar period one can't reject acyclicity (see Field, 2007c).

expansion effect. This means, as an empirical matter, that labor hoarding can't be the full explanation for procyclicality.

My emphasis is rather on the involuntary hoarding of capital inevitable in a private enterprise system. Capital owners are in the same position with respect to the physical capital stock as were southern plantation owners prior to the Civil War with respect to their slaves. Whether the physical capital is owned, leased, or rented is largely irrelevant. Someone has to hold (own) it and bear the incidents of ownership. These incidents include costs as well as benefits. Unlike the benefits, capital costs, I will argue, vary relatively little over the cycle.

For some types of fixed assets, depreciation and user costs do fluctuate with utilization, but for many other assets – indeed, the preponderance – there is hardly any effect at all. The consequence is that, in the aggregate, the user cost of capital is affected only slightly by changes in the output gap. Since capital costs are largely invariant to utilization, and since output rises as the output gap closes, capital productivity is strongly procyclical, and as one emerges from a recession, unit costs face downward pressure because these costs, largely fixed over the short run, are spread over a larger flow volume of output.²

The claim, then, is that the total factor productivity of a hotel rises and falls with its occupancy rate, just as the TFP of an airliner rises and falls with its load. In each case user costs are largely invariant to utilization. It is true that the user costs of machinery, particularly mechanical machinery, respond differently to fluctuations in utilization. But the preponderance of assets are closer in their cost and productivity behavior to the hotel. Rising TFP as one approaches potential output from below is both real and economically meaningful.

Economists in the RBC tradition also believe that procyclical TFP is real and economically meaningful, but their interpretation is different. They identify deviations of TFP from trend as the consequence of technology shocks. Procyclical TFP is, by definition, the cause of business cycles, not the result of cycles that might have their origin in the realm of aggregate demand. The real business cycles interpretation, however, faces a difficult fact. TFP doesn't just grow at different rates, which might

² As the output gap closes, these dynamics are eventually counteracted by rising labor costs.

plausibly be attributed to variations in the arrival of new technologies. It also periodically and systematically declines – its level actually falls – particularly during recessions. RBC proponents must provide plausible narratives to account for these declines in levels. Aside from 1974 (oil price shocks) this challenge has not been met, and this is particularly so for the worst years of the Depression.

From 1890 through 1948, average annual growth of TFP in the U.S. private nonfarm economy was 1.7 percent per year, but the standard deviation was 5.4 percentage points. The level of TFP declined in 23 of those 58 years, with especially large declines in 1930, 1931, 1932, and 1933. For the postwar period (1948-2004), average TFP growth was 1.4 percent, with a standard deviation of 1.8 percent, reflecting the reduced volatility of the business cycle, particularly in the last quarter of the century. Still, the level of TFP declined in 1956, 1969, 1970, 1974, 1980, 1991, and 1995. If we are to take seriously the claim that TFP deviations from trend are principally the reflection of technology shocks, these declines – and those during the prewar period – need to be explained.

A potentially more devastating challenge to the interpretation of procyclical TFP advanced here is that there is in fact nothing to explain: TFP procyclicality is simply a statistical artifact resulting from the failure adequately to make a utilization adjustment for capital input. If this were true it would, of course also present difficulties for RBC proponents. The procyclicality of TFP is central to the RBC view, and if this regularity is just a statistical artifact, it undermines the case for understanding business cycles in those terms. The object of this paper is to argue that whatever its interpretation, the phenomenon of procyclical TFP is indeed real. If capital input requires a utilization adjustment it should be small, and will not wipe out the finding of procyclicality.

1. The Argument for Adjustment

The findings regarding the procyclicality of TFP, including Field, 2007c, are based on capital input data which use the stock to proxy for the service flow. The objection of capital input adjusters is that even if the capital stock doesn't change much over the cycle, service flow does. Thus capital service flow is cyclical, possibly even more cyclical than labor input (Tatom, 1980). Capital service flows in a trough, a proponent of

large utilization adjustments will argue, are much lower than they are during the peak, even if the measured stock doesn't change much.

To the degree that we make cyclical adjustments to capital input, such adjustments will weaken and, if large enough, completely eliminate the finding of procyclicality (Tatom, 1980; Shapiro, 1993; Burnside, Eichenbaum, and Rebello, 1995). The arithmetic is simple: lowering capital input in the trough raises the calculated level of TFP in the trough, thus reducing or even eliminating the trough to peak increase in TFP at the heart of the procyclicality dynamic. Because of its implications for procyclicality, it is important to know whether a cyclical adjustment to capital input is justified, and, if so, how large it should be.

Most calculations of total factor productivity, including those provided by the Bureau of Labor Statistics, do in fact proxy capital input using estimates of the capital stock. In so doing, researchers proxy the service flow from the stock in the same way we would proxy the service flow from a slave or owned cattle from an estimate of the value of the stock. Obviously this is not exactly right, because it is possible to work a slave or an ox or some types of physical capital in a more or less intense fashion, and this could affect depreciation as well as operating costs.

It is also true, however, that we commonly associate with an asset, whether it be a horse, a machine tool, a warehouse (or, in the case of the antebellum South, a slave), a standard service life. In doing so, we are implicitly assuming "normal" or "optimal" levels of utilization and idleness (Winston, 1974). To talk in terms of service lives is to imply that the annual user costs of assets are largely independent of their utilization.

We can see here two different and in some ways conflicting views of the nature of a fixed asset. The first imagines a capital good as a non-rechargeable battery, with a certain number of hours of use after which it is drained and must be disposed of. The second, the service life view, sees the asset as having a "normal" lifetime, a period of time largely independent of how intensely the asset is exploited. In the first instance higher utilization means the fixed asset gets "drained" more quickly, while in the second, annual user costs, which include depreciation, are largely unaffected by how intensively it is used.

economy. But my critique of these adjustments runs deeper. Even if we could persuade ourselves that capacity utilization measures in manufacturing were a good proxy for the entire economy, it would be a mistake to reduce our estimate of capital input by the full percentage by which output falls short of potential. The main reason is that most of the capital stock has user costs which are largely invariant to utilization.

In a more detailed study, Mathew Shapiro (1993) used actual data on operating hours of equipment within manufacturing to make an adjustment for the service flow from the manufacturing capital stock. Burnside, Eichenbaum, and Rebello (1995) performed a somewhat similar exercise, in their case using data on electricity consumption as the basis for the adjustment. For the same reasons, the cyclical adjustments to capital input proposed by both of these studies are too large.³ They do not take into account the degree to which parts of the capital stock – buildings especially -- have user costs that react little to how often the machines within them are operating. Even the machines themselves have associated with them a pure holding cost of capital as part of their annual cost, and this charge is invariant to utilization.

Solow, more interested in growth, was not especially concerned with the procyclicality question. Shapiro and Tatom were, and both argued that cyclically adjusting capital input weakens or even eliminates the procyclicality of productivity measures. Again, the arithmetic is simple: lowering estimated capital in the trough raises the level of TFP in the trough, and thus narrows and ultimately eliminates the trough to peak rise which drives the procyclicality finding.

For those who believe that the procyclicality of TFP is real and economically meaningful, it is important to make the case that the types of cyclical adjustment to capital input suggested by these authors are too large. In explaining why they are too large, I challenge some common and deeply ingrained ways of thinking about capital. These include a tendency to focus disproportionately on the manufacturing sector, as well as a tendency to think of the representative capital good as a machine (Field, 1985).

³ In response to the 1979 report of the Panel to Review Productivity Statistics, which was chaired by Albert Rees and set up by the National Research Council, the Bureau of Labor Statistics has published TFP estimates beginning with the year 1987, from which growth rates can be calculated. According to Jorgenson, Ho, and Strout (2008) these calculations "employ capital services rather than capital stock as a measure of capital input, which represented a significant step forward in productivity analysis" (p. 8).

A nation's fixed capital stock consists of different kinds of assets, and it stands to reason that the depreciation behavior of these different types might be closer to that suggested by one or the other of these archetypes, or in some combination of the two. This paper is about which classes of assets fall into which categories and what this means for a possible cyclical adjustment to capital input. The main thesis is that the second type captures the essential features of a far wider range of fixed assets than is typically recognized. Utilization exercises a significant effect on the user costs of a small fraction of the stock, and, consequently, the impact of utilization on depreciation, overall user costs, and, ultimately, cyclically adjusted measures of TFP, is very small.

When Robert Solow wrote his seminal article in 1957 on "Technical Change and the Aggregate Production Function," he considered it natural to try and treat labor and capital symmetrically. He reasoned that if part of the labor force were unemployed during a particular period, we would reduce our estimate of labor input accordingly. He suggested we should do the same for capital, and in fact used the share of the labor force employed as the basis for that adjustment, multiplying it by his estimates of the capital stock to get a series that he believed more accurately proxied for service flow over the cycle than would the unadjusted capital stock series.

Others have suggested different bases for a utilization adjustment. Griliches and Jorgenson (1966, p. 60) employed data on hours of operation of machines in the electric power industry to adjust capital input for the entire private domestic economy. Tatom (1980, pp. 390-1) used a somewhat broader foundation, the Federal Reserve Capacity Utilization Index, to adjust input for the private nonfarm capital stock. Based on these adjustments he claimed that capital input actually declined more than labor input during a recession, and attributed the finding of procyclical labor productivity to capital deepening as one comes out of a recession, capital deepening driven not by procyclical additions to the capital stock but by increases in utilization and thus service flow.

This is in sharp contrast to the argument in Field (2007c), in which procyclical TFP is associated with capital shallowing (declines in the capital – labor ratio) but sharply rising capital productivity (output per unit of capital) as one comes out of a recession. Tatom's procedure takes capacity utilization data from a small and shrinking portion of the economy (the manufacturing sector) and applies them to the entire private nonfarm

Even today, with the equipment share in the fixed asset stock having risen in recent years, structures account for over four-fifths of the net private fixed asset stock (current cost) in the United States (see Table 1 below). The Bureau of Economic Analysis data go back to 1925, and the share of structures has never fallen below 80 percent since then. In the United States, a machine is not now and never has been a representative capital good.

So we are better off if we begin by thinking of the representative capital good as a structure: a warehouse, commercial office building, or hotel. Structures are different from machines. They have few moving parts, they rely much more on structural as opposed to mechanical or electrical engineering, and they have much longer service lives. Building on le Corbusier's views, we can usefully think of buildings as machines for producing structural services. But, even more so than is true for conventional machines, these structural services have a use it or lose it aspect to them.

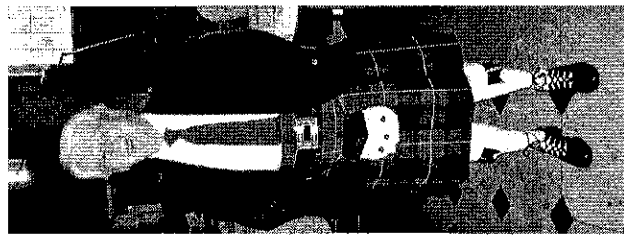
The basic function of a structure is to enclose space and protect it from the elements. Whether or not the building is "turned on" or "turned off", occupied or not, empty or half full, it continues to enclose space. The structure simply emits these enclosing services. Whether they are used constructively in producing marketable goods and services or whether they simply vanish into the air is beside the point. Once the structure is complete, the services flow, and if a firm borrowed money to acquire or construct it, or used its own funds, it has to pay for these service flows, either in interest payments, or in the opportunity cost of not having invested its funds elsewhere. For these types of assets the value of the stock is a perfectly good starting point for estimating the value of the service flow.

Many of these considerations also apply to a machine. But there are important ways in which a structure differs qualitatively from a producer durable. First, the depreciation on a structure, for example how rapidly the exterior paint oxidizes or the roof wears out, is almost entirely unaffected by how full or empty it is. Secondly, the service life of a structure is likely to be far longer, so that the depreciation flow, which we have in any case already established is largely unaffected by the building's utilization, will be dominated by the pure holding cost of the structure in determining its annual user cost.

Because machines have shorter service lives, and because some types of machines have the potential to wear out more quickly if they are utilized (turned on, not idle) more

frequently or more intensely during a year, their overall user cost is likely to be measurably influenced by fluctuations in utilization. It is this reality, combined with our tendency to think of the representative capital good as a machine, that leads to what seems the obvious conclusion that utilization will have a big impact on aggregate service flow, and that consequently we ought to make sizable adjustments to capital input to account for variations in utilization associated with a rising or falling output gap. My intention in this paper is to demonstrate why this intuition is faulty.

To read more of this paper, please visit my author page on the Social Science Research Network (SSRN): <http://ssrn.com/author=347743>.



Don Peaterson (UBC) shows off his Clan tartan (and his legs) at the Congress banquet. Photo credit: Summer La Croix (Hawaii)

The Development of Mexican Institutions during the "Lost Decades," 1820-1870.

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The "lost decades" of the early nineteenth century have been identified by economic historians as the period during which Latin American economic development fell behind that of the United States. Nowhere is that more evident than in Mexico, which by some estimates had a GDP per capita about 2/3 that of the U.S. in 1800. But between 1820 and 1870, U.S. GDP per capita approximately doubled, while in Mexico it only increased by between 0 and 20 percent. Recent scholarship has attributed the poor performance during the lost decades to the lack of a set of institutions capable of supporting economic growth.

What were the obstacles to the development of growth-enhancing economic and political institutions in early republican Mexico? A variety of viewpoints have been put forth. In their paper on factor endowments and institutions in Latin America, Kenneth Sokoloff and Stanley Engerman (1997) place the blame squarely on inequality, which they argue was a holdover from colonial times. That is, initial factor endowments favored the establishment of a pattern of economic development that was highly unequal, and this unequal distribution of wealth led to the creation and persistence of institutions that strongly limited the economic and political opportunities for the vast majority of the population. These arrangements were not only inefficient and inhibited growth, but also were path dependent. Daron Acemoglu, Simon Johnson and James Robinson (2002) place the blame on colonial institutions, which they call extractive, which had long-term consequences because these institutions maintained concentration of wealth and political power. Douglas North, William Summerhill and Barry Weingast (2000) point to the difficulties in establishing political order. In particular, they argue that in nineteenth-century Latin America there was an extremely wide scope for the exercise of state power, and there was a lack of institutional mechanisms by which the state was able to credibly

commit not to use this power to expropriate the private investments. As a consequence, disorder followed as powerful interests vied for control of the state. North, Summerhill and Weingast also note the important role that beliefs and informal institutions play in maintaining order. Haber (2002) and Haber, Maurer and Razo (2003) note that the crony capitalist organization of the Porfirio Diaz regime (1876-1911) in fact solved the credible commitment problem for a critical number of elite players, providing both order and economic growth, at the cost of substantial inefficiencies from a panoply of monopolies and protective tariffs.

But what were the precise mechanisms or most influential factors that caused the political disorder and slow growth of the early republic give way to the crony capitalism and relative stability of the Porfirio Diaz regime? North, Summerhill and Weingast posit that order will replace disorder when the opportunity cost of continued violence rises beyond some threshold. Coatsworth (2005) agrees with Haber, Maurer and Razo that in the case of Mexico the rise in opportunity cost occurred precisely when Diaz was able to seize a new opportunity – economic integration with the United States. Coatsworth explains, "Without railroads to make Mexico's resources economically accessible, along with the foreign (and domestic) investment their construction provoked, the Diaz regime would have failed... VPI [vertical political integration] regimes succeeded where their predecessors had failed because of globalization." The growth of the United States' economy, and its westward push, brought new trade opportunities to Mexico, increasing the potential returns for investments in industries and sectors that could take advantage of these opportunities. Porfirio Diaz, the argument goes, skillfully created a system of vertical political integration that selectively protected the property rights of economic elites and political power brokers, stimulating investment and economic growth.

More recently, Coatsworth (2007, 2008) has argued that the transition to institutions that fostered economic growth occurred in separate stages. During the first, colonial institutions were undermined by political and economic fragmentation (effectively documented by Grafe and Irigoin, 2008), which weakened the state's ability to enforce some of the more onerous institutions inherited from colonial times, such as caste

systems, state monopolies, clerical and military legal privileges and indigenous tribute. Governments shifted to reliance on other revenue sources, especially customs. The second stage comprised liberal economic and legal reforms, and the third involved the creation of the aforementioned VPI coalitions.

Our goal is to re-examine the political economy of Mexican development during these "lost decades" between independence and the Porfiriato. We agree with Coatsworth's position that state capacities for enforcing institutions are key to their viability and survival. We argue that one of the foundations of these state capacities are in the state's fiscal condition. The fiscal position is important because it signifies the resources available to the state for enforcement of institutions. We incorporate these insights into the framework for analyzing institutions and economic growth that has been put forth by Acemoglu, Johnson and Robinson (2005). We analyze the development of Mexico's economic and political institutions from the perspective offered by that framework. In particular, we discuss how civil and international conflict influenced key variables that in turn impact institutional change. We pay special attention to the Mexican-American War of 1846-1848 as a turning point in the history of Mexican institutions.

The Analytical Framework

Following Acemoglu, Johnson and Robinson (2005), we begin with the proposition that economic institutions are at the root of economic performance and the distribution of resources. That is, the economic rules of the game provide incentives for individuals and firms to invest, and the pattern of investment strongly influences the path of growth and the resulting distribution of income and resources. Economic institutions are the product of a political process, and thus are a function of the distribution of political power in society. Acemoglu, Johnson and Robinson differentiate between *de jure* and *de facto* political power. The former is determined by political institutions (the form of government and the formal rules for political exchange). The latter depends on the distribution of resources. The view here is that groups with more resources can manipulate existing political institutions, or employ force or the threat of it to achieve their objectives. For Acemoglu, Johnson and Robinson, political institutions and the

distribution of resources are state variables in a dynamic system, "because they typically change relatively slowly, and more importantly, they determine economic institutions and economic performance both directly and indirectly."

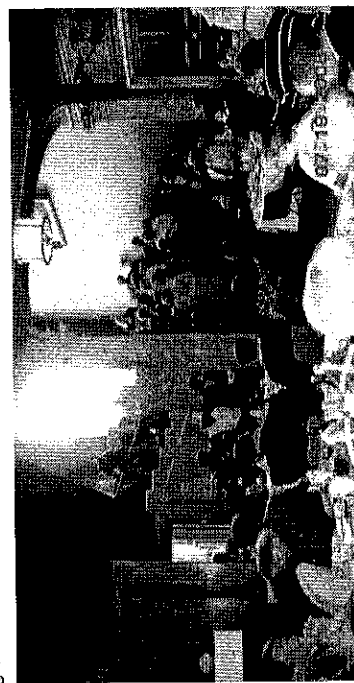
In our analysis of Mexican institutional change, we build upon the Acemoglu Johnson and Robinson framework by incorporating three main insights. First, as North, Summerhill and Weingast argue, belief systems and ideological positions of different groups matter for determining preferences of political groups for different political and economic institutions. Second, the ability of the state to limit *de facto* political power depends in no small degree upon its fiscal strength. Thus, fiscal outcomes in particular deserve special attention when discussing the distribution of resources and economic performance. Third, disorder plays a fundamental part in our story of institutional change. In the case of early 19th century Mexico, disorder was the norm, and it came in a variety of forms: civil wars, rebellions, coups d'état, and foreign invasions. We specify three ways that disorder can stimulate institutional change. First, that disorder can have substantial impacts on the distribution of resources, which can have a direct impact on choices of institutions because of changing power balances. Second, the fiscal consequences of wars can limit the ability of the state to enforce existing institutions, and thus also contribute to power realignments in society. And third, the tumult can upend or harden ideologies, beliefs and the subjective views of political actors as to the effectiveness of different institutional arrangements.

The Development of Mexican Institutions during the "Lost Decades"

In what follows, we provide an abbreviated version of our interpretation of the lost decades in the context of the model of institutional change outlined above. A more detailed presentation of our argument and evidence is in the complete version of the paper. In particular, we present econometric evidence on the fiscal impact of political instability and war through analysis of budget data plus evidence on the pricing of Mexican government debt. We also provide indicators of institutional change, and differentiate between those actors who had *de jure* and *de facto* political power. We have some more limited evidence on the distribution of resources from a variety of sources.

in more serious (albeit diametrically opposed) programs for reform from both conservatives and liberals (Hale). Second, the agiotistas rise and diversification into different industries and commercial activities was advanced considerably (Tenenbaum). That is, the trend in the distribution of resources and political power that had been in progress since the late 1820s, accelerated. Tenenbaum and others also argue that at least some agiotistas policy preferences began to reflect a greater concern with modernization, especially infrastructure development. Third, the ability of the government to raise tax revenue was significantly weaker after the war than it had been beforehand.

In the mid 1850s, when a liberal revolt against Santa Anna erupted in the provinces, it was able to attract the support of agiotistas. The new liberal government approved the landmark Ley Lerdo, which called for the expropriation of church lands, which many had seen as a barrier to modernization as well as a potential fiscal boon. A liberal constitution followed in 1857. The conservative opposition, their backs firmly against the wall, revolted in turn and a bloody war ensued. When it appeared that the war might end with liberal victory in 1861, conservatives formed an alliance with French troops supporting an Austrian who declared himself Emperor Maximilian of Mexico. Liberals continued resistance against these forces, and when France withdrew their 30,000 troops in 1866, the liberals ousted the regime and re-established the republic. The victory at that point was complete and the stage was set for a more stable period with greater economic growth under Porfirio Diaz.



Clowns gather for the Saturday evening feast. Photo credit: Rick Steckel (Ohio)

The application of the model to the development of Mexican institutions proceeds as follows. We analyze the "initial" state of beliefs, the distribution of resources and fiscal condition of the new Mexican state. We then discuss how these factors influenced the distribution of political power in society, and the balance of power influenced the choice of political and economic institutions, and the pattern of instability.

At independence, the Mexican economy had been shattered and there was widespread property damage. Further, there were strong disagreements among the elite about what political and economic institutions should be adopted. Fragmentation of power and resources was a result of ten years of independence struggles (Grafte and Irigoien, Dobado and Marrero, Prados de la Escosura). The result was a weak federal structure embodied in the constitution of 1824, in which the central government ceded some important tax revenue sources to the states, high tariff rates, and the accumulation of foreign and domestic debt.

The next ten years witnessed continued political instability, foreign threats from Spain, and high military expenditures. The central government defaulted on its sovereign debt, and when liberal proposals advanced to benefit the treasury at the expense of the church, conservatives revolted. The constitution of 1824 was replaced by a far more conservative, centralist document. Some of the province bristled at the attempt to exert state power, notably Texas.

Although ideological positions changed relatively slowly during the first 25 years of Mexican independence, there were changes in the distribution of resources that resulted directly from the program of heavy government borrowing. A new class of money/lenders, called agiotistas, emerged as a powerful economic and political group.

The war between Mexico and the United States that began in 1846 was on a such a large scale, and the U.S. victory so complete that it acted as an accelerant in the process of Mexican institutional change. First, the war hardened ideological positions, and resulted

Printing and Interest Restrictions in Islam & Christianity: An Economic Theory of Inhibitive Law Persistence

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* For references cited in this paper, please see the full version, located at:
http://faculty.fullerton.edu/jrubin/Rubin-Interest_Printing.pdf

Over the past few decades, a significant amount of research has been conducted in search of the causes underlying the "rise of the West". In relation to the Middle East, such research takes on a special significance. By almost any account, the Middle East was far more advanced economically and scientifically than Western Europe as late as the thirteenth century, yet Middle Eastern economies did not develop nearly as rapidly as Western European ones did in the ensuing centuries and were far surpassed economically after the Industrial Revolution.

Until recently, popular explanations for the economic divergence suggested that the "conservative" or "mystical" nature of Islam discouraged curiosity and prevented risk-taking, innovation, and mechanization.¹ In this view, Islam is seen as inherently hostile to commerce and finance. Indeed, there are numerous historical phenomena which encouraged this line of analysis. In particular, both religions advocated several laws which inhibited economic development – such as prohibitions on taking interest and printing, suppression of women, and laws against mass education. Although such laws were equilibrium outcomes in the pre-modern settings in which they emerged, they generally persisted for longer in Islam than in Christianity despite changing circumstances under which they inhibited economic activity.

This paper suggests that the differential persistence of economically inhibitive laws in Islam and Christianity resulted not from the "conservative nature" of the former but from the greater degree to which Islamic political authorities depended on conforming to the dictates of religious authorities for legitimacy – an exogenous remnant of the circumstances surrounding each religion's birth. The unintended consequences of this difference on equilibrium actions and outcomes are thus amenable to a theoretical analysis which falls into a broader literature seeking exogenous roots of institutional and economic differences.

In order to shed light on these unintended consequences, I construct a theoretical model containing two salient features: 1) the existence of a productive action (such as lending at interest

¹ For an overview of this literature, see Kur'an (1997, p. 49-53).

or printing) which is initially banned by political and religious authorities, and 2) political authorities are dependent on religious authorities for legitimacy. The model analyzes how an exogenous increase in the returns to production (such as the emergence of capitalistic markets or the invention of the printing press) affects the interactions between political authorities, religious authorities, and the laity under varying degrees of "dependence". The basic tension examined is the one between the political and religious authorities' relationship with the laity, whose productivity they have incentive to maximize, and their sources of legitimacy. The political authority derives legitimacy by conforming to the dictates of the religious authority, while the religious authority derives legitimacy by upholding its "eternal" doctrine.

I show that when "dependence" is sufficiently large, institutions which support economically inhibitive laws are more likely to be self-enforcing. When dependence is large, it is costly for political authorities to permit religiously-prohibited actions, so they are unlikely to do so. In turn, only a small portion of the laity transgresses the prohibition, since this entails worldly costs and other-worldly costs. With few individuals breaking its dictates, the religious authority has little incentive to enact a costly reinterpretation. Thus, the players' interactions entail that no player has incentive to "push the envelope", and the institutions upholding the law are self-enforcing. However, when the level of dependence is small, the institutional structure supports such incentives, and the institutions undermine the related laws, encouraging endogenous institutional change.

I substantiate the model's claims by analyzing the histories of two of the most ubiquitous economically inhibitive laws in Islam and Christianity – interest (usury) and printing restrictions. I show that the interactions predicted by the model under differing institutional circumstances are salient features of these histories, and they can account for a wide variety of disparate historical phenomena.

"Dependence" and Inhibitive Equilibria

In the full version of the paper, I consider seven hypotheses – representing the most frequently analyzed differences in culture and institutional structures in the Muslim and Christian worlds – which could explain the differential persistence of economically inhibitive laws in Islam and Christianity. Devoid of historical context, any of these hypotheses could theoretically account for the differences. Yet, I show that six of the seven hypotheses are contradicted by

historical facts and are thus untenable. Though I do not claim that a mono-causal explanation exists for such a complex phenomenon, only one – the divergence stems from the greater degree to which Islamic political authorities derive legitimacy from religious authorities – is consistent with the historical facts.²

But can this hypothesis *account* for differences in interest and printing histories in Islam and Christianity? In order to explore this possibility, I build a theoretical model which captures the salient elements of both religions and analyzes how changes in these elements – particularly the level of institutional “dependence” – affect the equilibrium interactions between the relevant players and the sustainability of economically inhibitive religious laws.³

The model considers an economy consisting of three types of players – a political authority (PA), a religious authority (RA), and numerous laity (L). It contains two salient features: 1) the laity chooses whether or not to undertake some economically productive action (such as lending at interest or printing) whose legality is determined by the PA and RA, and 2) the PA incurs a cost from legalizing actions prohibited by the RA (that is, the PA is “dependent” on the RA).

The model highlights the consequences of an exogenous “period 0” event that increases the economic returns to production. In the context of lending at interest or printing, this event could be the emergence of capitalistic markets allowing for investment lending or the invention of the printing press allowing for mass printing. Hence, this event entails that any law prohibiting the action is economically inhibitive. The event sparks interactions between the players, who are infinitely-lived and whose actions and objectives are described below.

Laity: The laity acts first, deriving utility from undertaking some action which is an input in a production function. In each period, they choose between undertaking the action, not undertaking the action, or undertaking the action while incurring a transaction cost. They incur a cost from choosing actions which the PA and/or RA prohibit.

Political and Religious Authorities: After the laity acts, the PA and RA “interpret” the legality of the action. They choose to either prohibit the action (which they do in period 0), permit the action, or allow it as long as a sufficiently large transaction cost is undertaken. The PA and RA derive utility from L’s production.

² This differing institutional relationship stems from the birth of these religions and is thus *exogenous* to the specific doctrines in question. For more, see the full version of the paper.

³ I omit the formal model here, but it is laid out formally in the extended version of the paper.

The PA and RA also derive utility from the “legitimacy” of their interpretations. The former loses legitimacy when it permits actions prohibited by the latter. For reasons noted in the paper, I assume that the degree to which the PA depends on the RA for legitimacy – modeled as a “dependence” parameter – is exogenous. The PA’s cost of diverging from the RA’s interpretation is increasing in the dependence parameter, and the model analyzes how changes in this parameter affect equilibrium outcomes.

The RA derives legitimacy from two sources. One source is its hold on “eternal truths” – when such truths are reinterpreted the very nature of its authority is threatened. Hence, in the model, the RA incurs a cost from changing its interpretation relative to the previous period. The other source of legitimacy is the degree to which its dictates are followed by the laity – accommodating custom has historically been an open concern of Islamic and Christian religious authorities. Thus, in the model, the RA’s utility is increasing in the number of L’s complying with its interpretation.

Results. The primary result of the model is that the size of the parameter set over which an economically inhibitive law (defined as any interpretation which does not openly permit the action) persists is increasing in the “dependence” parameter. The first order effect of an increase in dependence is that the PA’s interpretation is less permissive. In turn, lay agents are discouraged from transgressing the law, as they face both spiritual and legal costs from doing so. With few agents openly breaking its dictates, the RA has little incentive to reinterpret, since doing so is costly and there is little to be gained on the margin. No player has incentive to change actions and the institutions upholding the laws are self-enforcing. However, when the level of dependence is small, the PA has greater incentive to legalize the action. In turn, more agents transgress the RA’s law, as they only face otherworldly costs from doing so. With more agents breaking its dictates, the RA has greater incentive to reinterpret its doctrine. The implications of the institutional structure thus undermine the related laws, encouraging endogenous institutional change.

Two other testable predictions arise from the model. The first is that a high-dependence RA should reinterpret less frequently than a low-dependence RA before “catching up with custom”. Since the laity transgresses high-dependence RA’s interpretations to a lesser extent, a less radical (and less costly) reinterpretation is necessary for these RA’s to accommodate custom.

Meanwhile, low-dependence RA's have greater incentive to take "smaller steps", avoiding dramatic reinterpretations before eventually accommodating custom.

The other result is a counter-intuitive one. It stems from the above intuition, which entails that at some large level of dependence, a high-RA's return from accommodating a larger portion of L's actions is sufficient to encourage an "accommodating" interpretation, though it is not for lower-dependence RA's. This entails the counter-intuitive, testable prediction that a greater level of dependence can temporarily lead to a *more* permissive religious interpretation.

Interest and Printing Restrictions in the Context of the Model

In the eleventh through thirteenth centuries, capitalistic markets materialized in Western Europe. In the context of the model, this phenomenon can be viewed as the "period zero" event which sparks the salient interactions. Meanwhile, the resolution of the Investiture Controversy (1122) permitted papal power to reach its zenith ("dependence" was relatively large). As the model predicts, interest restrictions were also strengthened in this period. By the late thirteenth century, however, ecclesiastical leaders lost much of their authority (Tierney 1988), and secular regents recaptured domain over much of their lands (decreasing dependence). As the model predicts, interest restrictions were relaxed in this period (Noonan 1957). Indeed, the interactions analyzed in the model proved salient: the relaxation commenced with political authorities, who were less dependent on the Church than in previous centuries, allowing moderate interest. Meanwhile, beginning in the late thirteenth century, the Church slowly caught up with custom by repeatedly relaxing the ban; by the fifteenth century, the Church permitted openly usurious practices such as bills of exchange and the triple contract. This history thus accords with the model's intuition – as secular dependence on the Church diminished in medieval Europe, the legal relaxation of interest restrictions encouraged lenders to "push the envelope", and the institutions supporting the ban were undermined.

In the Islamic world, religious scholars gained considerable power vis-à-vis the state in the first Islamic century (Berkey 2003). Thus, lenders incurred worldly and otherworldly costs from openly lending at interest, which was banned since the dawn of Islam. To avoid these costs, they circumvented the ban by employing ruses (*hiyal*), such as the double sale, which violated the spirit but not the letter of the law (Schacht 1964). Yet, because *hiyal* were arguably within the confines of the law, they were relatively inexpensive for Muslim religious (and political)

authorities to permit – the "envelope" was not pushed too far. Moreover, because merchants were lending at small cost while facing significant sanctions for transgressing the ban, they had little incentive to further "push the envelope". An absence of lay "push" provided no incentive for political or religious authorities to reinterpret, entailing an inhibitive equilibrium in which lending at interest was permitted, but only if a sufficient transaction cost was undertaken.

This inhibitive equilibrium persisted until the early Ottoman period, when the religious authorities became a part of the state, a change which enabled a "limited but significant expansion in the ruler's prerogatives in relation to the *shari'a*" (Berkey 2003). Concurrently, as the model predicts, this decrease in dependence encouraged a slight relaxation of interest restrictions (Gerber 1988), though the interest ban remains part of Islamic doctrine today.

Moreover, the model clarifies other aspects of interest history. For one, it helps explain why Muslim religious authorities undertook only one major reinterpretation of interest doctrine in the medieval period, whereas Christian authorities accommodated custom with a series of "small" reinterpretations. After European authorities permitted moderate interest in the mid-thirteenth centuries, lenders were encouraged to transgress the Church's dictates to a significant extent. In turn, the Church was encouraged to take "small steps", avoiding dramatic (and costly) reinterpretations before accommodating custom. On the other hand, Islamic lenders employed *hiyal* as early as the first Islamic century. These actions, which abided by the letter of the law, did not "push the envelope" too far and Muslim religious authorities incurred relatively little cost in permitting these transgressions.

Likewise, the model helps explain why the Church was less permissive than Muslim religious authorities for much of their shared history. It provides the counter-intuitive result that high-dependence religious authorities may be *more* permissive than low-dependence authorities during the period in which the latter is catching up with custom. Indeed, Islamic authorities accommodated custom relatively quickly, permitting *hiyal* soon after they were employed. On the other hand, Christian authorities reinterpreted interest law numerous times, slowly catching up with custom.

The model also illuminates aspects of printing history. For one, there were numerous reasons why the Church would have wanted to control the spread of the press – most prominently, the success of the Reformation was dependent on the Reformers' ability to circulate vast amounts of literature. Yet, the Church was amongst its greatest supporters (Febvre and

Martin 1958). The model suggests that after European rulers regained suzerainty over their lands in the mid-thirteenth century, the decrease in dependence permitted them to support the economically productive actions of the Universities, particularly the writing and copying of non-religious tracts (Schachner 1962). This provided a setting in which, after the invention of the printing press, there was widespread demand for books yet no Church-held monopoly on supply, allowing the press to spread without opposition from the Church.

On the other hand, acceptance of printing was delayed for centuries in the Islamic world. The potential costs incurred by religious authorities for permitting the press were substantial, as it diminished their monopoly power over the educational and legal systems. In response to disapproval from religious authorities, the political authorities, dependent on the RAs for legitimacy, forbade the press despite its early arrival in the Ottoman Empire and its potential as a source of revenue (Savage-Smith 2003). It was only when printing became sufficiently profitable to political authorities (largely in combating Western advances) that the costs of diverging from religious dictates were not sufficient to obstruct its permission (Robinson 1993). In terms of the model, an inhibitive equilibrium emerged and persisted for centuries, with the "escape" occurring only after a dramatic change in the parameter set.

Was the "Gate of *Jihād*" Really Closed?

This paper tackles an important route through which religion directly impacts economic outcomes: the perpetuation of laws inhibiting economically productive actions. By refraining from attributing anything inherent in religion as the force underlying the economic divergence, this framework encourages a reconsideration of traditional notions of conservatism in the Islamic world. The most influential of these ideas is that the "gate of independent reasoning (*jihād*)" was closed in the tenth century. Until recently, historians generally agreed that in this period some informal consensus arose that independent reasoning, an important method of reinterpretation in the first three Islamic centuries, was no longer an acceptable means of finding truth (Schacht 1964).

Some recent scholarship disputes this notion. For example, Hallaq (2001) notes in great historical detail that the gate of *jihād* did not close in theory or in practice, though its practice became increasingly rare in the medieval period. In this light, I propose an alternative metaphor: the "gate of *jihād*" may have been closed, but the gate was *not* locked. Ali that was necessary

for the gate to be opened was a sufficient number of individuals attempt to push it open. But, due to the incentives supported by the prevailing institutions, few had incentive to "push the envelope" (the gate), and observed behavior led to the *appearance* that the gate was closed and locked. Indeed, if the gate were not really locked, we would expect to see *jihād* in aspects of law which fostered better economic outcomes, such as those studied by Hallaq. However, the overwhelming cost of pushing the gate open when such pressures did not exist was the reason that the gate *seemed* locked. In turn, once inhibitive equilibria emerged in the tenth century, beliefs in the gate's closure were supported. This insight allows us to view Islamic legal and economic history through a different lens by looking beyond the scope of observed actions to understand the institutions, behaviors, and incentives underlying them. Contrary to the predilections of many previous scholars, this paper turns purely cultural explanations (based on the "conservative nature" of Islam) of the divergence between Western European and Middle Eastern economies on their head – while we certainly see conservatism in the Islamic world, this phenomenon can be understood as a *result* of the institutional structures and not as a *cause* of economic stagnation.

Paul Sharp (Copenhagen) receives the D. McCloskey/Shakespeare Award for best introduction to a paper at the Congress from Price Fishback (Arizona). Photo credit: Summer La Croix (Hawaii)



A.S.A. Paper Summary for the Cliometric Society's Newsletter
 "Democracy Under the Tsars? The Case of the *Zemstvo*"
 Steven Nafziger, Department of Economics, Williams College
 September 15, 2008

In 1864, Tsar Alexander II issued the *Statutes on Provincial and District Zemstvo Institutions* as part of a larger effort to modernize Russia after its defeat in the Crimean War and the ensuing emancipation of the peasantry.¹ This act established a new local government institution – the *zemstvo* – in 34 of the 50 provinces of European Russia. These *zemstva* (pl.) were founded to carry out local administrative functions such as tax collection, ensuring military provisions and grain stores, supporting other government institutions, and running fire and crop insurance programs. The *zemstvo* also received authorization to provide a number of public goods and services to the rural population in order to support the "the local economic and welfare needs of each province."² This led to *zemstvo* involvement in the expansion of rural education and health care, in the support of local artisans and craftsmen, in encouraging credit and cooperative organizations, and in providing veterinary and agronomic services to farmers. To finance these programs, the founding statutes also granted *zemstva* the authority to set property tax rates.

Overall, the *zemstva* were a response to what one historian has called the "problem of provincial under-institutionalization" in Imperial Russia (Robbins, 1987, p. 16). But did this institutional reform have any effect on Russian economic development in the half century prior to the October Revolution? This paper makes a small step towards addressing this question by considering the relationship between the political structure of the *zemstvo*, how the institution raised revenues, and what they spent their funds on. Utilizing a new district-level dataset, I find suggestive evidence that local residents – especially the recently emancipated peasantry – were able to express their preferences over the provision of public goods and services through the *zemstvo*.

¹ See *Polnoe sobranie zakonov Rossiiskoi Imperii* [PSZ] (Series II, Vol. 39, No. 40457, 1864). The *zemstvo* statute was part of a sequence of reforms that dramatically altered rural Russian society and economy. These so-called "Great Reforms" ("Velikie reformy") included the emancipation of the peasantry, land reforms transferring property rights to the newly freed peasants, the founding of a new State Bank, the installation of a new judicial system in the countryside, military reforms, and other changes in the state's administrative structure.
² See PSZ (Series II, Vol. 39, No. 40457, Clause 1, 1864).

What potentially connected the preferences of the local population and the political structure of the *zemstvo* was that the different *soslovié*, or social estates, all received a fixed share of representation in the institution. *Zemstvo* legislative assemblies were elected at the district level by three curiae of voters: rural property owners, urban property owners, and communal peasant villages. The 1864 *zemstvo* statutes fixed the electoral share of each curia in each district, thereby guaranteeing the newly emancipated peasantry some political voice in the assemblies. The elected assemblymen (*glasnye*) chose district executive boards (*upravy*) and representatives to provincial *zemstvo* assemblies that also elected a provincial executive committee. Together, these legislative and executive bodies dictated revenue and expenditure decisions and decided on *zemstvo* programming.

Therefore, rather than simply passing local fiscal and administrative authority to the central ministries and the land-owning elite – as had been the case under serfdom – the *zemstvo* system possessed at least some nominally democratic characteristics. That did not mean that assemblymen were responsive to their constituents' interests, or that representatives were held accountable through competitive curia elections. Moreover, in 1890 a conservative reform to the *zemstvo* law lowered the electoral shares of the peasant and urban curiae while increasing the representation of the landed nobility. Peasants retained seats in the district assemblies and the possibility of election to executive positions, but the ability to express their policy preferences under the norm of majority decision-making may have been reduced.

Did the political structure of the *zemstva* actually influence the provision of public goods in Tsarist Russia, especially for the previously "disadvantaged" peasant majority? Or was the institution simply an arena for the local landed elite to exercise autocratic or seigniorial authority under a new guise? The predominant view among contemporaries was that the peasantry detested the *zemstvo* as simply a way for the local elite to impose more taxes and suffering upon them. In his short story, "The Muzhiks" (1915, p. 306), Anton Chekhov describes this mood among villagers: "The accused the *Zemstvo* of everything – of [their tax] arrears, of oppression, of famines, although not one of them knew exactly what the *Zemstvo* was." But other evidence suggests that peasants played an active, participatory role in the *zemstvo*. For example, Filipp Mikhailovich Mikhailov, a peasant from the village of Kurmachkas in Ardatov district of Simbirsk province, was elected as a representative to the provincial *zemstvo* assembly in 1883, little more than twenty years after the end of serfdom (*Zhurnaly Andatovskogo*, 1884, pp. 106-

223). A recent literature on the political economy of public good provision in developing countries has emphasized the powerful effect on the level and direction of local government activity of endowing underrepresented groups with political authority (e.g. Pandey, 2003). Exploring the relationship between peasant political representation and *zemstvo* activity offers the chance to investigate this possibility in the surprising context of Tsarist Russia.

Unfortunately, there have been no empirical studies of the *zemstvo*, especially as to whether the formal political structure influenced the provision of public goods and services. To better understand what the *zemstvo* did and whether its activities were "democratic" in any way, I collected a number of cross-sections of district spending and revenue data from the 1870s to the 1900s. I matched these district *zemstvo* fiscal characteristics to information on the statute shares of assembly representation from the different curiae and to a variety of other demographic and economic data. Table 1 summarizes the growth in *zemstvo* revenues and expenditures in the decades leading up to the Revolutions of 1917. The importance of property taxation is evident on the revenue side, while spending on healthcare and education occupied a growing portion of *zemstvo* budgets. Was this increase in expenditures on these public goods – which likely benefited the peasantry more than other groups – a sign of the political "voice" offered by the *zemstvo*'s electoral structure? After outlining the organizational and political structure of the *zemstvo* and quantifying *zemstvo* activities, I consider this question in detail.

The main section of the paper investigates whether allocating shares of district *zemstvo* assembly seats to specific groups was related to differences in the level or allocation of revenues and expenditures. If the formal quotas failed to translate into assemblymen accountable to their constituents, or if the representatives were unable to affect policy outcomes once elected, then the legal shares should have little relationship with *zemstvo* activity. However, the possibility of log-rolling and greater absenteeism among the landed gentry and urban classes may have made the amount of legislative seats granted to the peasantry an important determinant of political authority in the *zemstvo*, even if peasant representatives were typically a minority.

To evaluate which of these possibilities holds, I utilize the new district-level panel dataset on *zemstvo* spending and revenues, the shares of assembly seats granted to each curia, and other socio-economic information from several cross-sections. I focus first on *zemstvo* data from 1903 and estimate a series of econometric models where the outcome variables are the log of per capita *zemstvo* expenditures or revenues, in total or by category (or the shares of different

categories in total expenditures). The explanatory variable of interest is the log of the shares of the assembly seats assigned to the peasant communes. A sample of results from estimating simple OLS models with provincial fixed effects is presented in Table 2. The estimates indicate that even after controlling for numerous other possible determinants of *zemstvo* expenditures, the peasant seat share still emerges as a significant correlate. Greater peasant representation in the *zemstvo* increased expenditure levels, especially on public education (which a number of historians have cited a public good in high demand among the peasantry – see Eklof, 1986). Similar results hold for models of revenues and for various other specifications.

The models of Table 2 assume that the electoral shares are uncorrelated with any remaining unobservable determinants of *zemstvo* activities. The statutes of 1864 stated that the shares of assembly seats were supposed to be allocated according to population and property distributions. Although the main result still holds if additional proxies for these factors are included in the specifications, there might be some remaining problems with unobservables. I adopt two strategies to deal with this issue. Panel data methods employ the 1877 and 1903 cross-sections to control for unobservable district characteristics that were fixed over time. This approach leads to mixed results, but this may be the result of data issues. I then return to the 1903 cross-section and instrument for the share of peasant seats with the portion of serfs among the population of 1857 and a number of other variables defined before 1864, associated with the assignment of electoral quotas, and plausibly excludable from the second stage of the regression. First-stage results imply that lower portions of serfs were associated with higher peasant shares, which may have resulted from *zemstvo* reformers distrust of the newly freed serfs. The results from the instrumental variable model are similar to those of Table 2, lending further support to the notion that peasant representatives did influence *zemstvo* activities.

The paper is just the first step in a substantial research program on the economic history of the *zemstvo*. I find evidence that the formal political structure of the institution was associated with variation in spending and revenue patterns – the *zemstvo* did show signs of some amount of democratic voice supporting the provision of public goods and services. While this paper contributes towards a better quantitative understanding of the *zemstvo*'s role in Russian economic history, much remains to be done. What is missing from this story is a more complete picture of how the *zemstvo* functioned internally. Who was actually elected to the institution? How were budgetary and program decisions made? These questions must be addressed before

moving on to consider how the *zemstvo* affected the welfare of Russians over the late-Imperial period.

Works Cited

- Dobroty I Raschody Zemstv 34-Kh Gubernii Po Smetam Na 1903 i. 1906. and 1913*. multiple vols. St. Petersburg: Statisticheskoe Otdelenie, Departament Okladnykh Sborov, 1908-1915.
- Eklaf, Benjamin. *Russian Peasant Schools: Officialdom, Village Culture, and Popular Pedagogy, 1861-1914*. Berkeley, CA: University of California Press, 1986.
- Pande, Rohini. "Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India." *The American Economic Review* 93, no. 4 (2003): 1131-1152.
- Polnoe Sobranie Zakonov Rossiiskoi Imperii*. St. Petersburg, Russia, multiple years.
- Robbins, Richard G. *The Tsar's Viceroys: Russian Provincial Governors in the Last Years of the Empire*. Ithaca, NY: Cornell University Press, 1987.
- Shornik Svedeni Po Rossii, 1890*. Vol. X. *Statistika Rossiiskoi Imperii*. St. Petersburg, Russia: Central Statistical Committee, Ministry of the Interior, 1890.
- Veselovskii, Boris. *Istoriia Zemstva Za Sorok Let*. 4 vols. St. Petersburg: O.H. Popova, 1909-1911.
- Zhurnaly Ardatovskago Uezdnoago Zemskago Sobraniia Simbirskoi Gubernii. Ocherednoi Sessii 1883 G. I Eksremnykh Sozyvov Na 11 Ianiaria I 12 Iunia 1883 Goda*. Nizhii Novgorod, Russia: Roitskii and Dushin, 1884.

Table 1: *Zemstvo* Revenues and Expenditures (millions of current rubles)

	Income		Expenditures		
	Property Taxes	% of total	Total	Education	Healthcare
1871	15.6	72.7	21.5	1.6	2.1
1880	26.8	73.7	36.3	5.0	6.4
1886	28.1	67.8	41.5	6.7	9.2
1903	64.6	64.9	99.5	19.1	30.2
1906	83.4	67.1	124.2	25.3	35.9
1913	155.4	62.3	249.4	87.7	70.2

Note: Numbers refer to the sum of district and provincial revenues and expenditures for just the 34 provinces with *zemstva* in 1903. The spending totals for 1871 and 1880 do not include Samara province (hence the differences between total income and expenditures). Property tax income in 1871 and 1880 is defined slightly more broadly than the years that follow (hence, the larger portion of total income). Data for 1871 and 1880 are budgeted rather than actual totals. Finally, the difference in total spending and income for 1913 reflects extra expenditures on items budgeted in 1912. Sources: 1871 and 1880 are taken from Veselovskii (Vol. 1, 1909), 1886 is from *Shornik* (1890, pp. 226-233), and 1903-1913 are from *Dobroty* (1908, 1909, and 1915).

Table 2: Determinants of District *Zemstvo* Expenditures, 1903 - Baseline Model

Dependent Variables (All in logs of kopek spent per capita):	Total Spending	Medical Care	Education	Roadwork	Admin. Expenses
Log (% Peasant electoral share, 1890)	0.295*** (0.0523)	0.115** (0.0538)	0.425*** (0.0836)	0.555 (0.344)	0.151*** (0.0412)
Log (% Peasant population, 1897)	1.918*** (0.387)	1.861*** (0.337)	2.527*** (0.570)	0.545 (0.870)	1.271*** (0.328)
Log (Mean male daily ag. wage (kopeks), 1884-1900)	0.119 (0.174)	0.113 (0.160)	0.340 (0.273)	0.211 (0.376)	0.307*** (0.133)
Log (% Peasant land in grain cultivation, 1885)	-0.176*** (0.0426)	-0.237*** (0.0596)	-0.0325 (0.0697)	-0.352** (0.162)	-0.115*** (0.0460)
Log (% Males working in agriculture, 1897)	-0.00665 (0.0664)	0.0466 (0.0564)	-0.129 (0.0907)	-0.363* (0.197)	0.109* (0.0574)
Log (% Population born outside province)	0.0509* (0.0285)	0.0426 (0.0315)	0.0516 (0.0465)	-0.104 (0.0780)	0.0472** (0.0227)
Log (% Population in urban areas)	0.106*** (0.0299)	0.0986*** (0.0301)	0.142*** (0.0410)	0.132* (0.0748)	0.0411** (0.0172)
Log (Size of the district (in <i>desiatina</i> = 2.7 acres))	-0.172*** (0.0349)	-0.157*** (0.0316)	-0.0933* (0.0540)	-0.177 (0.108)	-0.266*** (0.0371)
Contains provincial capital (1 if yes)	-0.144 (0.0861)	-0.319*** (0.0916)	-0.0568 (0.110)	0.0143 (0.190)	-0.0415 (0.0449)
Log(Number of rural societies)	-0.0139 (0.0403)	-0.00852 (0.0411)	-0.0421 (0.0502)	0.0335 (0.0972)	-0.0792* (0.0420)
Constant	0.00169 (2.556)	2.063 (2.324)	-4.018 (2.493)	-3.872 (2.552)	-8.796** (3.745)
Observations	357	357	357	357	357
Provincial Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R ²	0.206	0.234	0.128	0.098	0.344

Note: *** p<0.01, ** p<0.05, * p<0.1 Regressions are estimated by OLS with provincial fixed effects. Robust and clustered (by province) standard errors are in parentheses. The explanatory variables are described in the text and summarized in Table 6. All "%" variables are first converted to percentage points - i.e. 80% = 80 - before taking logs. Two districts were missing observations.

The Battles against Animal Diseases: Science, Policy, and the Origins of Economic Regulation in the United States

Alan L. Olmstead and Paul W. Rhode

Abstract: The Bureau of Animal Industry founded in 1884 was the key player in the battle to combat animal diseases in the United States. A series of spectacular successes made the BAI a world leader in the control of animal diseases. By 1940 it had rid the nation of seven major animal diseases and had established a template that would be copied around the world. The struggle to found the BAI was embroiled in a political controversy that lasted almost a decade. The debates and votes defied the usual norms of American politics, with many participants eschewing their customary party and ideological lines. In fact, H. R. 3967 was the *only* significant bill passed in the century following the Civil War in which a majority of party in power (in this case the Democrats) opposed the bill! The paper analyzes the political economy of the legislation and traces how changes in scientific knowledge and the disease environment helped shift opinion. Our discussion adds significantly to the understanding of the origins of modern economic regulation in the United States because the BAI legislation confronted many of the same issues that would arise in the debates on the Interstate Commerce Act passed in 1887.

The recent outbreaks of avian influenza, SARS, mad cow disease, foot-and-mouth disease, and other communicable diseases in human and animal populations remind us of how vulnerable human health and the economy are to threats from an inherently unstable and fragile biological environment. As events in the daily news indicate, Americans care passionately about food safety. Western Europeans and the Japanese, if anything, feel even stronger. Today, in struggles against contagious diseases and contaminated food products, nation-states and international agencies draw on institutions—research systems, monitoring networks, and legal regimes—that were developed during past food crises. In the United States, the epizootic crises of the late nineteenth and early twentieth centuries were the crucibles in which the modern-day agencies and programs to control animal diseases were forged.

In this period, a number of highly destructive animal diseases were spreading in the United States and Western Europe, sometimes at alarming rates. Improvements in transportation reduced costs and increased speed, contributing to a growing trade in animals. In addition, the increasing concentration of animals in dairies and stockyards, and the growing attention to herd improvement that required the intermingling of breeding stock all contributed to the worsening of the disease environment. Many of the very actions undertaken to improve animal quality led to the rapid spread of diseases. At the same time, the discovery and gradual acceptance of the germ theory of disease was revolutionizing the understanding of human and animal health.

Enlightened local and state animal health officials often enacted measures to control and stamp out diseases. But problems such as externalities, imperfect information, and economies of scale in enforcement hindered such efforts. Contagious diseases paid no heed to political boundaries and local and state initiatives were often overwhelmed as diseases re-infected recently cleansed areas. In addition, animal owners frequently spread contagions by knowingly moving suspect animals out of control areas. Aggressive jurisdictions were penalized by the inattention of others. Costly legal disputes and beggar-thy-neighbor policies were predictable outcomes in the absence of national standards. The push for federal intervention was further enhanced when foreign governments banned or restricted the entry of American products due to the threat of contagious bovine pleuropneumonia (CBPP), foot-and-mouth disease (FMD), trichinosis, and hog cholera (swine fever), and other diseases.

Many Americans became convinced that only the federal government could enforce the collective action needed for success. Preventing the spread of contagious diseases required creating an authority with the power to act immediately to impose quarantines, enter private property without warrants, and destroy animals. Crisis conditions called for the "one man power principle," suspending time-honored checks and balances. Not everyone agreed. Special interests, most notably Texas ranchers, opposed any legislation that might threaten their access to northern markets. In addition states rights and civil rights issues galvanized the opposition. The stakes were enormous and farmers, railroads, meat packers, middlemen of all sorts, public health advocates in the medical community, veterinarians, and consumer groups chose sides. Fierce battles to give state and federal animal health officers the power to inspect, regulated the movement of animals, and condemn animals were fought in the press, state capitals, the halls of Congress, and the courts. On occasion, vigilantes took the law into their own hands interrupting trade, destroying property, and murdering government agents.

Gradually scientific advances provided a better understanding of specific diseases, emboldening animal health advocates and their political allies. At the same time the threat increased as diseases spread into new locales. After nearly a decade of failed attempts, disease control advocates in Congress succeeded in creating the Bureau of Animal Industry in 1884. This was a historic achievement. Political scientists, Gary W. Cox and Matthew D. McCubbins, have spent decades making sense of the federal legislative process. Their analysis in *Setting the Agenda* concludes that the Speaker of the House of Representatives will not allow significant bills that are expected to gain the approval of the Senate and President to come to a floor vote unless a majority of the majority party in the House supports the bill. Out of the thousands of bills that Cox and McCubbins analyzed, the 1884 legislation to establish

the BAI was unique. H. R. 3967 was the only significant bill passed in the century between the Civil War and 1970 in which a majority of party in power (in this case the Democrats) opposed the bill! At the time, the participants in the debate recognized that something unusual was going on. Our analysis of the decade-long debate over the establishment of the BAI demonstrates the crucial role of animal disease crises—specifically the discovery that CBPP had breached the Appalachians, crossing into the livestock-producing regions of the Midwest, as well as false alarms about an FMD outbreak in Kansas—in pushing the enactment of this formative federal legislation in 1884.

The Bureau's history represents one of the most neglected aspects of U.S. agricultural development. The agency became the central player in fight against animal diseases in the United States, and by the 1940s it had led efforts that eradicated seven major animal diseases from the United States: CBPP (1892), fowl plague (1929), FMD (1929), glanders (1934), bovine tuberculosis (1941), dourine fever (1942), and cattle tick fever (1943). In addition BAI scientists spearheaded the quest to understand and control scores of other diseases enzootic in the United States including scabies in sheep (related to mad cow disease), and hog cholera; and the agency's quarantine network repeatedly blocked the entry of other diseases.

Our discussion adds significantly to the understanding of the origins of modern economic regulation in the United States, because many of the issues and important players were the same as those associated with the formation of the Interstate Commerce Commission in 1887. The ICC is often considered the first major federal regulatory body, yet the formation of the BAI occurred several years earlier and in an important sense blazed the way.

The BAI's campaigns against animal diseases would spawn many controversies, but few were as intense as that associated with the agency's creation. Two diseases, Texas fever and CBPP played crucial roles in this legislative struggle. Texas fever, which was enzootic to the Lower South, was an old problem, leading to regional and distributional conflicts. By the late 1870s the battle lines were largely fixed. CBPP, by way of contrast, was an emerging threat. The contagion was recently introduced from Europe and began to spread in the 1860s and 1870s among northeastern herds. Advances in transportation sped the diffusion of both diseases, contributing to the urgency for regulation. But there was a tension because efforts to build national institutions with the power necessary to meet the CBPP threat inevitably became entangled with the long-standing struggles over Texas fever. Reflecting this tension was a congressional debate that pitted legislators demanding a powerful new federal bureaucracy, with "one man power," to protect the cattle industry from disaster

against officials charging that the problems were overblown and the proposed laws bestowed dictatorial powers.

The existing histories of the BAI and of specific animal diseases offer little hint of the Bureau's birth pains. Two insider accounts provide the foundations for most subsequent treatments. Fred Powell picks up the legislative story of the BAI's origin in 1883, noting that to build grass-roots support, the Commissioner of Agriculture brought together a group of livestock breeders in Chicago in November, 1883. Powell then tells us that a sub-group of this meeting took on the task of drafting a document for creating a bureau of animal industry. At this point, Powell notes that "Favorable action of Congress soon followed...." Not Quite! U. G. Houck is more informative. He devoted two paragraphs to the "serious opposition" in Congress centering on issues of states' rights and political patronage. He further noted that the margin of victory in the House of Representatives was slim; the bill passed by a vote of 155 to 127.1 This account also falls short because Chester Arthur's signature on H. R. 3967 on May 29, 1884 marked only the end of the first round of a legislative battle that had lasted six years and the beginning of a second round that would last even longer. In light of the analysis of Cox and McCubbins, H. R. 3967 represented a truly exceptional piece of legislation.

In the decades after its formation in 1884, BAI scientists became world leaders in advancing the understanding of animal (and human) diseases and in devising extension programs that brought the new scientific breakthroughs onto American farms. Historians of science and technology often focus on the scientific advances of which there were many. However, perhaps the BAI's most significant achievement was to develop political alliances and incentive-compatible programs to gain widespread support and compliance. This required considerable acumen. The agency gradually built coalitions with industry groups and local governments, it developed educational campaigns, it experimented with pilot programs to improve its methods and technologies, and it fine tuned compensation schemes. Without well-designed extension programs many of the scientific breakthroughs would have had little effect because of market failures arising from the need for collective action. In fact, in the early twentieth century, the same science and the same technologies were available to all the developed nations, but many lacked the political resolve and infrastructure to devise successful control or eradication programs. This was especially true in the case of bovine tuberculosis.

¹ Ulysses Grant Houck, *The Bureau of Animal Industry of the United States Department of Agriculture: Its Establishment, Achievements and Current Activities* (Washington, DC: By Author, 1924), pp. 32-37.

There were several common elements in these varied efforts to create national legislation and to enforce animal disease regulations. Both public policy and the public's support for control measures evolved rapidly as scientists advanced the understanding of diseases, improved diagnostic methods, and in some cases offered cures. The link between science and public policy ran in both directions because the BAI's leaders were actively directing fruitful research efforts. In the later part of the nineteenth century, although the powers of state governments to control animal diseases increased, there was a far more rapid growth in the federal authority. Classic problems of asymmetric information and large negative spillovers across state lines generated a need for an agency with regional and national powers. The highly contagious nature of some diseases, and the enormous dangers that they posed, created the need to bypass time-honored checks and balances, concentrating vast power in the hands of a few unelected bureaucrats—what contemporaries dubbed the “one man power principle.” The proposals for such changes engendered heated opposition and only began to gain acceptance after an acrimonious national debate that lasted well over a decade.

Experiments with private initiatives and state and local regulations to prevent the spread of contagious diseases were often ineffective and sometimes counterproductive. As one example, the piecemeal state and local pure-food campaigns aimed at controlling bovine tuberculosis, paradoxically, contributed to a wider geographic dispersion and more rapid increase in the overall incidence of the disease. This problem was not limited to bovine tuberculosis because it was all too common for stockmen to knowingly sell diseased animals to unsuspecting buyers. Local and state inspections and quarantines might help, but if neighboring jurisdictions did little or nothing, a reservoir of the disease remained to re-infect cleansed areas. State and local efforts to restrict trade had a further complication. Drovers often claimed (sometimes with merit) that the threat of disease was simply a ruse, and that state trade barriers were simply an attempt to limit competition.

Initially the BAI's mandate was limited by a Congress concerned with protecting state's rights, fearful of a powerful and potentially arbitrary bureaucracy, and divided by regional factionalism. However, a series of serious disease outbreaks, coupled with scientific advances and spectacular successes by the new Bureau, inspired confidence and silenced at least some critics. Step by step Congress and the courts expanded the Bureau's authority, giving it inspection and police powers to set standards, restrict internal and international trade in animals and animal products, quarantine whole states, condemn animals, shut down stock yards, and certify healthy animals for consumption and export. To detect diseases in their early stages and restrict the flow of contagious animals, the BAI established inspection stations at major

railheads, stockyards, and packing plants. When a disease did erupt, the Bureau rapidly dispatched teams of veterinarians to limit its spread, often by shutting down commerce and destroying the host animals. The agency tracked disease conditions around the world and operated extensive quarantine and inspection depots at American and foreign ports. The underlying logic was that it was far more efficient to fence off and monitor one national frontier than to police dozens of state borders.

American constitutional and economic history has devoted considerable attention to the federal government's emergence as a regulator of economic activity. In this literature the first significant federal economic regulatory initiatives date to the passage of the Interstate Commerce Commission Act (1887) and the Sherman Anti-Trust Act (1890). There is no mention of the establishment of the Bureau of Animal Industry in 1884 and the subsequent rapid expansion of its powers. This omission seems unjustified for several reasons. First, the livestock industry, while smaller than the railroad industry, was not much smaller. There were \$1.85 billion invested in livestock inventories and \$2.62 billion in railroads in 1880, and the two industries were closely dependent on one another.

The interregional and international trade in livestock and meat was growing rapidly in the 1870s and 1880s. Second, the debate to create a federal bureaucracy with powers to regulate diseased livestock preceded and in many ways anticipated the problems confronted in the creation of the ICC. For this reason our analysis of the controversy surrounding the birth of the BAI sheds light on the growth of regulation more generally. In both the arenas of animal health and railroad regulation, the expansion of federal power involved extensive debates over several sessions of Congress, and both engaged many of the same legislators (e.g. John Reagan of Texas) and interest groups (e.g. railroads, farmers, and shippers). Elizabeth Sanders and others have depicted farmers and agricultural interests as driving forces behind much of the nineteenth regulatory legislation, including the ICC. The struggle to create state and federal authorities to regulate the animal trade represents an early case of farmers organizing for a national cause; the episode also highlights the enormous schisms within the agricultural community. There are other parallels as well. For example, in both cases, a Supreme Court decision limiting the power of state governments to interfere with interstate commerce intensified demands for federal action. The U. S. court system, especially the U. S. Supreme Court, was also deeply involved during this period in creating a national market by defining the authority of the states and the federal government in interstate commerce. The debates surrounding the formation and early operations of the BAI played an important role in delineating the new balance between state and federal powers.

Public Economics and the American Revolution

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Over the past century and a half the history of America's Revolutionary era has undergone several revisions. The 19th century Whig interpretation of George Bancroft has yielded to the Progressive and Imperial School renditions of Charles Beard and Lawrence Gipson, only to be succeeded by the Neo-Whig revival of Bernard Bailyn, Gordon Wood and others in the post World War II period.

Since the 1980's, attempts have been made to apply the theories of public economics to at least some of the alternative historical interpretations. Public economics or, more narrowly, public choice theory has been applied explicitly to Beard's analysis and, implicitly, to Gipson's Imperial School approach. Problems have, however, arisen due both to a lack of clarity within public economic theory and difficulties in the application of public economic theory to the Revolutionary era.

This paper examines the evolving historical interpretations of 18th century America, theoretical issues in public economics and the recent literature applying public economics to the period. An alternative interpretation of public economics in the Revolutionary is then offered.

Historians and the American Revolution

The most critical period in the formative years of the new American republic began in 1763 with the end of the French and Indian War. The efforts of Parliament to raise revenues from its North American colonies following that costly war initiated what John Adams regarded as the true American revolution, a revolution in perception and thought, distinct from the war for independence which followed some thirteen years later. (Adams, pp.172-173) The ratification of the federal Constitution in 1788, apparently resolving a broad range of conflicts over public finance and governance in general, marked the close of the formative era.

The central economic issues prior to the war for independence concerned not only the colonial distribution of the British Empire's benefits and burdens, but also the significance of Crown economic policy in stimulating revolutionary sentiment. During the war, determining the array of viable revenue alternatives was the pressing issue in funding the military effort. After 1781, with victory largely assured, the revenue issues remained while controversy surrounded the repayment of war debts and the nature of the new republic's national responsibilities.

Through most of the 19th century, the American interpretation of these economic issues was colored by patriotic sentiment and Whiggish idealism. To the extent British taxation or mercantilist trade policies were important, opposition to such policies was a matter of principle rather than a pragmatic reaction arising from economic self-interest. The same general interpretation applied to the war era and the constitutional debates of the 1780's. The ultimate consensus reflected in the Constitution of 1787 embodied principled patriotism, not a balance of competing economic interests. (Morgan, p.312; Savers, p. 263)

By the early 20th century the principled patriot interpretation was yielding to a less flattering view of American colonial resistance. Charles Andrews and Lawrence Gipson of the Imperial School of Anglo-

American history, supported in part by elements of the new Progressive School, argued that the American colonies benefited from the mercantile policies of the British Empire (Egnal and Ernst). For many in this generation of historians, the colonists' opposition to imperial power rested on principle largely when it suited their interests. Principles which proved inexpedient were changed. (Morgan, p.311) The unpalatable image of American colonists as "avaricious" "deadbeats" (Savers, p. 263) was tempered somewhat by the Progressive School's economic interpretation of the distribution of political power within the colonies. The impending revolution was not just about "home rule" but "who shall rule at home" (Becker as quoted in Egnal and Ernst p. 6) Though the north's merchants and the south's planters, adversely effected by enforcement of British policies after 1763, struggled to bolster their economic interests, the struggle spread beyond the economic elite to the "lower orders" pursuing their political rights. The elites fought for economic gain, the lower classes fought for liberty. (Egnal and Ernst, p.5) As the interpretation was extended beyond the Declaration of Independence, the characterization remained generally unflattering. Americans resisted taxation after independence as fiercely as they had resisted British taxation. Again, the Progressive historians tempered this apparent unprincipled inconsistency by interpreting the post-Revolutionary debate over political reform as an extension of the pre-War debate over British policies. The struggle for liberty against the economic elites turned the constitutional debates of the 1780's into a class conflict culminating in victory for the counterrevolutionary elites with ratification of the Constitution. (Jameson)

The centerpiece of the Progressive School's interpretation, Charles Beard's An Economic Interpretation of the Constitution of the United States was viewed as an attack on a sacred American icon. The framers of the Constitution, Beard argued, were members of a propertied aristocracy who constructed the Constitution to consolidate their economic and political power.

Following World War II, however, further research began to question whether the framers could be accurately characterized as the propertied elites described by Beard.

The 1950's saw principled patriotism return to fashion with the neo-Whig School's restoration of 19th century historical interpretation. (Greené)

By the 1980's, with the Progressive School itself an historical artifact, one of Beard's principal antagonists, Forrest McDonald, offered a reappraisal of Beard in an introduction to a new edition of An Economic Interpretation of the Constitution, noting that some historians were presenting "Beard interpretation<s> with the dollar signs removed." (Beard (1986), p.xxiii-xxiv) Nevertheless, the majority of historians remained opposed to Beard. However, among economic historians Beard's interpretation of the Constitution retained its appeal. (Whapples) Moreover, the linkage between economic interests and political actions was attracting public choice theorists within economics and political science to Beard's analysis. (McGuire and Olsfeldt).

Public Goods, Private Goods and Public Economics

Among other concerns, public choice theory examines the efforts of individuals and groups to benefit themselves through the use of government. The benefits may be private goods, as may be inferred from Beard's analysis of Constitutional delegates voting in support of their private interests, a conclusion reinforced by McGuire's later research. (McGuire 2003) They may also derive from public goods. Recent literature on funding under the Articles of Confederation suggests "public good" provision by the Federal government was undermined by free riders obtaining communal benefits without payment. (Dougherty and Cain; Baack). Others comment on "public good" provision in the absence of government. (Leiner)

Specifying the nature of public goods and determining their proper provision have not proved to be simple tasks. In the 19th century, public goods, exemplified by national defense and public health, were defined as collectively consumed services, notable for their indivisibility and capable of being enjoyed even in the absence of payment.

By the mid 20th century public good theory coalesced into its modern form. Public goods are defined by Musgrave (1959) as "services that must be consumed in equal amounts by all" and for which even those unwilling to pay for the services "cannot be excluded from the benefits". (Musgrave, p. 8.) Samuelson (1954) (1955) has by this time provided a general equilibrium analysis of public goods. Samuelson's principal concern is that public goods are collectively consumed. This alone is sufficient to deny the possibility that the market will provide a "decentralized spontaneous solution" for public goods comparable to that which is theoretically possible for private goods. (Samuelson (1954), p. 388.) In addition, Samuelson demonstrates that there is no unique optimal amount of public good provision which can be determined independently of the level of private good provision.

Musgrave continued the 19th century tradition of defining public goods both in terms of collective consumption and non-excludability of all potential beneficiaries. (Musgrave, p.389.) For Samuelson, however, non-excludability was an afterthought. Analytically non-excludability and collective consumption are two separate sources of market failure. However, despite some support for Samuelson's treatment, the mainstream follows Musgrave in combining the two characteristics to define public goods.

The Musgrave definition complicates the analysis of public goods. Efficient provision of public goods requires addressing both sources of market failure. The Coase (1974) critique of lighthouses as the classic public good example implies that addressing the free rider problem to secure some market provision of lighthouses is sufficient to undermine the case for market failure, despite remaining collective consumption concerns. However, efficient provision of public goods requires not only contending with excludability but also attaining the proper correspondence between individual public good valuations and individual payments for the public goods. In this context someone not paying for a public good which gives them no value is not a free rider

while someone paying for a public good which accords them benefits in excess of their payment becomes a free rider.

Public Goods, Free Riders and Funding the Revolution

Recent literature on 18th century American economic policy has followed the rational choice approach in presenting economic interpretations of the Articles of Confederation. The following two cases reflect the difficulties in constructively applying public good theory to the Revolutionary era.

Baack (2001), for example, adopts the terminology of public economics in assessing the adequacy of the Articles to provide public goods and cope with attendant free rider problems. Bound by the Articles, the national government relied upon requisitions, initiated by the Continental Congress, mandating states to fulfill revenue quotas, based upon the relative land wealth of each state, to fund its activities, most notably the war for independence. Lacking enforcement powers, the national government could only resort to exhortation and moral suasion when states failed to comply. Independence is identified by Baack as a public good. The requisitions are treated as essentially voluntary contributions to create that public good. Resistance on the part of the states, and their citizens, to funding the requisitions becomes free riding.

However, asserting these relationships does not make them appropriate. No definition is provided for either "public good" or "free rider". Nor is any definition provided for "independence", which may well have implied a range of "home rule" outcomes entailing a variety of interpretations over "who will rule at home". Moreover, at various times and places during the Revolution, independence was probably more a public bad than a public good when loyalist sentiments prevailed. With "independence" ill-defined, implying that the actual separation from Britain achieved by the Treaty of Paris characterized either the "independence" anticipated by the requisition-paying citizenry or some optimal level of the public good "independence" is problematic.

Even presuming the population favored independence, the requisitions paid for military actions, not independence. The probability that military force would secure independence varied as the war progressed. The value placed on the uncertain outcome of independence by the states and their citizens undoubtedly fluctuated as well. It is highly unlikely that the states' evaluation of this good corresponded in any meaningful way to Congressional requisitions apportioned according to a fixed standard derived from state land wealth. Nor is there any reasonable likelihood that the state revenue allocated to the requisition was collected from the citizenry in a manner reflecting their willingness to fund the revolutionary cause. Indeed, quite the opposite seems to have been the case, at least with regard to confiscation of loyalist and pacifist property. (Becker(1980), pp. 117-184) Reliance by many states on inequitable and inefficient tax systems further reduced the

correspondence between the beneficiaries of independence and tax contributions. (Becker (1980), pp.115-117) Thus it is also highly unlikely that Baack's use of the term "free rider" appropriately characterizes state resistance to Congressional requisitions. States resisting payment of their full share of a Congressional

requisition may not have valued the probability of independence, however defined, sufficiently to justify full payment. The fact that Congress and the states initially favored war funding through paper emissions rather than taxation suggests that many believed support for the war would significantly decrease if citizens were forced to pay for it explicitly. (Becker (1980), p. 168) One should not infer, as Baack does, that the use of paper emissions meant that all the states "got a free ride". (Baack, p. 640) Government's unwillingness to raise taxes for war does not make all its citizens free riders in any meaningful sense. No doubt free riding occurred in the Revolutionary requisition process, but it would seem to be inextricably entwined with behavior reflecting an unwillingness to pay more for the prospect of independence than it was actually worth.

The same issues are raised in another series of articles dating from 1997 to 2002. Debating the merits of the Articles of Confederation, Dougherty and Cain (1997) offer a "simple public goods analysis" to illustrate the difficulties in raising revenue under the Articles of Confederation requisition procedure. (Dougherty and Cain, p. 201) Public goods are defined as non-excludable and non-rival with the "war effort and reducing the national debt" offered as the era's "clearest examples". (Dougherty and Cain, p. 203) Each public good increases with each dollar spent to field another soldier or each dollar of debt retired. For Dougherty and Cain, the protection provided by the military would seem to be the basis of the public good, not the outcome of independence specified by Baack. As for debt repayment, its characterization as a public good is not fully explained. Since the debt could as easily be eliminated by repudiation as repayment, perhaps the international credit standing of the nation and its constituent states is the underlying public good. Dougherty and Cain also note that the Articles of Confederation requisition process was essentially voluntary.

With this prologue in place, Dougherty and Cain then attempt to "clarify" the incentive problem presented by the lack of enforcement powers under the Articles of Confederation. Assuming away all "norms of cooperation, reputation and external factors" as well as any suggestion that the requisition process was more than a one time event, they construct a rational choice model depicting public good provision based upon voluntary contributions whose outcome is, predictably, suboptimal. (Dougherty and Cain, p. 204) No attempt is made to portray the desirable amounts of the public goods nor the appropriate requisition shares required for their provision. The requisition process may have over or under produced the public goods. The actual requisition shares paid by the states may have been too much or too little. The model shows only that, under stylized circumstances, voluntary provision of public goods elicits free rider behavior.

Framing a Public Economics Reinterpretation of the Revolutionary Era

Alternative economic interpretations of the Revolutionary era which reframe the evolving historical debate in terms of public economic theory offer the possibility of clarifying the issues raised by the recent public choice literature on the period. The conclusion that 18th century Americans indulged in free riding is more convincingly supported by the Imperial School literature than the recent public choice interpretations alone.

Gipson argues that, contrary to the "national tradition" initiated by Thomas Paine during the Revolutionary period and propagated by George Bancroft and other Whig historian in the 19th century, the colonies not only benefited from their relationship but were undertaxed relative to their financial circumstances and relative to their British counterparts. (Gipson, pp. 3-19) The same free riding behavior continued after the Revolution. "The Americans," William Graham Sumner had concluded earlier, "would not pay any taxes which were levied upon them by a Parliament in which they were not represented, and they would not pay any which were levied by a 'creature of their own making'; that is, they would not pay at all." (Sumner, v.1, p.25)

Bancroft's interpretation precluded the possibility of free riding: the British Empire was a vast mercantile monopoly created by conquest for the benefit of the British metropolis. The colonies, as Paine had noted a century earlier, would have done as well or better without any connection to Britain. The connection was a curse, a public bad not a public good. As for the Revolution, it was a struggle for justice, a public good to be collectively enjoyed by all: "Fidelity to principle pervaded the masses". (Bancroft, p.14)

The remaining revisions to the evolving interpretations of the Revolutionary era can similarly be reinterpreted in a public economics framework. For the Progressive historians a critical issue in the colonial period, as in the Constitutional debate, was the distribution of private benefits. Following the Seven Years' War, for example, the controversial question arose: "Who are to benefit most from the exploitation of Western territories now cleared of the French...American or British investors, farmers, land speculators and fur traders?" (Beard 1944, p. 92)

Gordon Wood's neo-Whig interpretation argues that the Revolution arose not from existing tyranny but from the expectation of tyranny. The connection with Britain had been beneficial but was becoming a curse. The Revolution was for principles, principles which themselves were evolving and continued to evolve after the war. The same fidelity to principle still pervaded the masses, as it had in Bancroft's interpretation, except that the principles are changing and with them expectations of the blend of benefits to be generated by America's new government and other institutions. Wood's interpretation poses a singular challenge to researchers embarking on a public choice analysis of the era. Nevertheless Wood's approach can still be placed in the framework of public economics.

Conclusion

Public economic theory can serve as the basis for reframing the historical debate over the Revolutionary debate. The richness of the historical analysis, clarified within a theoretical framework, creates the possibility of a coherent fiscal history of 18th century America. The resulting interpretation becomes one in which the pursuit of self-interest expands beyond the desire for private goods in motivating political behavior, as in the Beard analysis, to include the demand for public goods in affecting political choices.

Personality Interests at the Constitutional Convention: New Tests of the Beard Thesis

Jac C. Heckelman and Keith L. Dougherty

Charles Beard's *An Economic Interpretation of the Constitution* (1913/2004) is perhaps the single most controversial, yet seminal, work on the Constitutional Convention. Rather than merely celebrating the framers, Beard critically studied their motivation. He posited a radical view which scholars continue to debate to this day, almost a full century later (Barrow 2000, McGuire 2003, Gibson 2007). In fact, according to one noted political historian, "Beard's book is the most important work ever written on the American founding" (Gibson 2007, 15). The central tenant of Beard's thesis is that the movement for the Constitution was pushed through by men who "derived economic advantage from the establishment of the new system" (Beard 1913/2004, 324). This occurred because "large and important groups of economic interests were adversely affected by the system of government under the Articles of Confederation, namely those of public securities, shipping, and manufacturing, money at interest; in short capital as opposed to land" (Ibid., 63). Beard identified the former as "personality" interests, and the latter as "realty" interests. In various other places, Beard also specifically included western land speculators and slave owners as part of the personality group. According to Beard, personality interests comprised a large majority of the delegates to the Convention and subsequently created a new document reflective of their collective interests.

Prior to Beard's work, most studies of the Constitutional Convention argued that the framers were disinterested statesmen who tried to enact various principles of democracy. Beard challenged this view by arguing that delegates to the Constitutional Convention owned particular types of property that largely affected the issues they supported.

Although much has been written about the Beard thesis, few empirical tests of his thesis have been undertaken. One impediment to testing his thesis stems from the lack of data on delegate votes. Because delegates voted in state blocs and wanted to maintain secrecy, the Convention journal and Madison's notes recorded only the vote of the state blocs. They did not record the votes of individual delegates. Therefore, matching delegate characteristics to specific votes requires making inferences on how the delegates voted.

We test two versions of the Beard thesis, which we refer to as the narrow and broad versions. Beard argued that delegates voted in two coalitions at the Convention: those who primarily owned assets in real estate (realty interests) and those who primarily owned assets in securities and other liquid investments (personality interests). The narrow thesis takes Beard's argument about two coalitions, personality and realty, literally. The broad version claims that delegate voting was affected by their personal economic interests at the margin, when controlling for other factors, and is most closely associated with the work of Robert McGuire and Robert Ohsfeldt (McGuire and Ohsfeldt 1984, 1985; McGuire 2003). Only the broad version has been subject to econometric testing (McGuire and Ohsfeldt 1984, 1986; McGuire 2003, Heckelman and Dougherty 2007). However, each of these tests have been constructed based on the same set of 16 diverse clauses originally analyzed by McDonald (1954), some of which appear to have little connection to Beard's thesis.

Beard claimed that his economic view of the Constitution should apply to issues directly related to economic interests as well as the vote on the overall adoption of the Constitution. As such we first infer delegate votes on four clauses directly related to paper currency and the payment of federal debts – clauses that Beard himself (p. 32) described as key votes for those who pushed for the Constitution. Specifically, we infer votes regarding

1. Proposal by G. Morris (PA) to strike "and emit bills on the credit of the United States" from the list of explicit powers of the federal legislature. See Article I, Section 8 of the Constitution.
2. Proposal by Randolph (VA) to add "all debts contracted & engagements entered into, by or under the authority of Congress, shall be as valid against the United States under this constitution as under the Confederation". See Article VI, clause 1 of the Constitution.
3. Proposal by Wilson (PA) and Sherman (NY) to add "nor emit bills of credit" to the list of prohibitions on the states. See Article I, Section 10, clause 1 of the Constitution.
4. Proposal by Wilson and Sherman to add "nor make anything but gold or silver coin a tender in payments of debts" to the list of prohibitions on the states. The vote refers to state debts owed to the federal government. See Article I, Section 10, clause 1 of the Constitution.

as voting yea and there were only four delegates in attendance.

As detailed in Heckelman and Dougherty (2007), it appears McDonald may have adopted the state recorded vote as the default position for each delegate unless he found direct evidence to contradict. We do not make such assumptions in our coding, and subsequently, have several delegate votes left uncoded for the four clauses under consideration in this study. We infer a vote position only when we find evidence to support a particular position and error in favor of no code when we are uncertain. Still, we have been able to infer roughly 60% of all delegate votes on these clauses. As part of our analysis, we check robustness of our empirical results to alternative samples and discard specific vote inferences that might be considered somewhat questionable. The results largely remain the same, suggesting our findings described below are generally robust.

We use these inferred votes, as well as the vote on the final passage of the Constitution, to determine whether delegates voted in coalitions as described by the narrow thesis. We do not find a statistical difference between the percentage of "personality" delegates supporting these four personality votes and the percentage of the remaining delegates supporting the same votes, nor is the percentage favoring the Constitution among delegates in the personality class significantly different from the percentage favoring the Constitution not in the personality class. These results suggest that Beard's claim is not well supported.

Significant differences do emerge, however, for four of the five personality categories Beard identified. Delegates classified as securities holders, or merchants and shippers, were significantly more likely to support personality interests on currency and debt, whereas land speculations and slave owners (who we interpret to be more like realty interests) were significantly less likely to support personality interests on these votes. Only the classification of money lenders proved irrelevant. Thus Beard may have been correct in asserting that delegates with personality interests voted differently than others but perhaps he was less aware of the potential differences across the various personality groupings. Furthermore, we believe he may have conflated some aspects of the realty and personality groups. Breaking down personality interests into the separate categories did not, however, provide support for Beard regarding support for the overall Constitution.

As noted, a key issue entails how to infer individual delegate votes. We proceeded in three basic steps. In the first step, we compared state level votes with attendance records. By the rules of the Convention, the position of each state (yea, nay, divided) was determined by a simple majority of the state's delegates (Jillson 1988). Hence, if there were only two delegates from a given state in attendance, we automatically coded both of the delegates from the state as voting the same as their state's vote. Consider, for example, vote #1 to strike the clause explicitly granting the federal government the power to issue currency (see Table 1). For this vote we coded the delegates from New Hampshire and Georgia as yeas because both New Hampshire and Georgia voted yea and only two delegates from each of these states were in attendance.

In the second step, we assumed delegates voted consistent with their statements and inferred additional votes using delegate statements in debate (Farrand 1966), diaries and written correspondences (Hutson 1987; Kaminski and Saladino 1981), and other sources. Explicit statements about how a delegate voted were inferred from these documents and used in place of a delegate's vote. For example, we coded George Read of Delaware as a yea on vote #1 because he "thought the words, if not struck out, would be as alarming as the mark of the Beast in Revelations" (Farrand 1966, 2: 310). We also assumed that whomever made or seconded a motion voted in favor of the motion.

After completing this step for all remaining delegates on which we could ascertain stated positions, in the third step we then went back to attendance records to see if we could infer additional votes based on the state's vote, given the votes already inferred through speeches and manuscripts. For example, only three of the delegates from New Jersey (William Livingston, David Brearly, and Jonathon Dayton) were in attendance for vote #1. Because we inferred that Livingston had voted yea while New Jersey was recorded as having voted nay, Brearly and Dayton must have then voted nay to ensure that the majority of the delegation voted the same as the vote recorded for their state. Similarly, Pierce Butler of South Carolina seconded the motion so he was coded as a yea, but Charles Pickney gave the power to emit bills as part of the "Pickney plan," so he was coded as a nay. The remaining two delegates from this state (Charles Cotesworth Pickney and John Rutledge) were then coded yea since South Carolina was recorded

We then use pooled logit regressions analysis to test the broad version of Beard's thesis that the votes on these four clauses were affected by economic interests on the margin, once controlling for other potentially relevant factors. "Beardian" determinants used include several explanatory variables previously collected by McDonald (1954) and McGuire (2003) including the value of public and private securities held by each delegate (to represent personality), and whether or not a delegate was a debtor or owned agricultural land (to represent reality). We supplement these variables with controls such as a Federalist dummy to capture a delegate's ideological preferences toward strong federal government, the total value of debt held in each state (based on the Loan Office Certificates, IOUs used for conscription, and debts owed to veterans, as reported in the *American State Papers* Volume 1 (Finance): 231), the population of the delegate's home state (including districts enumerated separately in the 1790 census), and regional classifications.

Our estimates indicate a delegate increased his likelihood of voting yea by 5.8 percentage points for every \$1,000 in public securities he owned. Given that many delegates had several thousand dollars worth of public securities, this statistically significant variable also represents a quantitatively important effect.

Being a debtor did not have a statistically significant impact, but delegates owning agricultural lands were estimated to be 31 percentage points less likely to have supported these personality motions compared to an otherwise identical delegate without agricultural land. The latter is consistent with Beard's notion that those who owned realty were less likely to support these votes.

Overall, the results tend to support the broad view that owning personality or realty had an important marginal effect on votes related to paper currency and repayment of debts. Our results provide little support for a strict interpretation of the Beard thesis. This is partly because various sub-categories of personality were not interchangeable. Delegates holding large amounts of securities and those who were merchants, manufacturers or shippers were much more likely to vote for restrictions on state and federal currency and strict enforcement of debt repayments, whereas those who speculated in western lands or owned slaves were significantly less likely to support these issues. The final category of money lenders appears to have favored the clauses at

roughly the same rates as non-money lenders.

Furthermore, delegates that Beard classified as owning personality were no more likely to support final passage of the Constitution than those without such classification. Among Beard's sub-categories, only slave owners were significantly different from other delegates, and they were less likely to support the Constitution – contrary to Beard's classification. These results provide evidence against Beard's claim that those who owned personality were unified in their push for the Constitution.

However, just because there is little evidence to support a narrow version of the Beard thesis does not mean that economic interests did not matter at the Constitutional Convention. In our examination of a broad version of the Beard thesis, we find that both the value of the public securities owned by a delegate and whether a delegate owned agricultural land had significant marginal effects (in the hypothesized directions) on the decision to support personality clauses. In contrast, neither the value of private securities nor the status of being a personal debtor had significant impacts on inferred voting behavior at the margin. Hence, our regression results provide moderate support for the broad thesis that economic interests affected delegate voting on the margin.

Our analysis adds to the body of empirical work begun by McGuire and Ohsfeldt (1984, 1986) and stands in contrast with the view held by some historians that the American framers were disinterested statesmen who used the Constitutional Convention solely to promote various philosophical views (Collier 1986; Wood 1987; Bailyn 1992, 371-377). Such historians claim that high federalists made up the bulk of the delegates at the Convention and strove to avoid the influences of personal advantage or a particular faction. Although it is still possible that delegates strove for such goals, the results of our study suggest that delegates were not entirely impartial in their behavior – whether intentional or not. The delegates' personal economic interests, measured by public securities and agricultural land, affected their behavior on the margin.

Bailyn, B. (1992) *The Ideological Origins of the American Revolution*. Harvard University Press, Cambridge.

- Barrow, C. (2000) *More Than a Historian: The Political and Economic Thought of Charles A. Beard*. New Brunswick: Transaction Publishers.
- Beard, C. A. (1913/2004) *An Economic Interpretation of the Constitution of the United States*. Macmillan Company, New York.
- Collier, C. (1986) *Decision in Philadelphia: The Constitutional Convention of 1787*. Random House, New York.
- Farrand, M., ed. (1966) *The Records of the Federal Convention of 1787*. Yale University Press, New Haven, CT.
- Gibson, A. R. (2007) *Understanding the Founding : The Crucial Questions*. University Press of Kansas.
- Heckelman, J. C. and K. L. Dougherty (2007) "An Economic Interpretation of the Constitutional Convention of 1787 Revisited," *Journal of Economic History* 67: 829-848.
- Hutson, J. H. (1987) *Supplement to Max Farrand's the Records of the Federal Convention of 1787*. Yale University Press, New Haven.
- Jillson, C. (1988) *Constitution Making: Conflict and Consensus in the Federal Convention of 1787*. Agathon Press, New York.
- Kaminski, J. P. and G. J. Saladino, eds. (1981-1995) *The Documentary History of the Ratification of the Constitution: Commentaries on the Constitution, Public and Private*. Vols. 13-18. State Historical Society of Wisconsin, Madison.
- McGuire, R. A. (2003) *To Form a More Perfect Union: A New Economic Interpretation of the United States Constitution*. Oxford University Press, Oxford.
- McGuire, R. A. and R. L. Ohlsfeldt (1984) "Economic Interests and the American Constitution: A Quantitative Rehabilitation of Charles A. Beard," *Journal of Economic History* 44: 509-19.
- McGuire, R. A. and R. L. Ohlsfeldt (1986) "An Economic Model of Voting Behavior over Specific Issues at the Constitutional Convention of 1787," *Journal of Economic History* 46: 79-111.
- Wood, G. (1987) "Interests and Disinterestedness in the Making of the Constitution" in Richard Beeman et al. eds., *Beyond Confederation: Origins of the Constitution and National Identity*. University of North Carolina Press, Chapel Hill.



They are so keen on numbers in Edinburgh, they even sell them in shops. Eugene White (Rutgers), Chris Simms and Patrick Wallis (both LSE). Photo credit: Tim Leunig (LSE)

**Alexander Hamilton, Central Banker:
Crisis Management during the U.S. Financial Panic of 1792**

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The Panic of 1792, the first crisis to strike the financial system of the newly-formed United States, was an episode of crucial economic and political importance. Had the Panic fomented a prolonged economic downturn, the highly polarized nascent nation might have disintegrated under the strain. Despite the Panic's importance and an extensive early historical treatment of it (1917), most historians and economists have paid the crisis little attention.¹ Not until its fourth edition in 2000 did Charles Kindleberger's *Manias, Panics and Crashes* mention the Panic, and then only as an entry in an appendix that lists major financial crises throughout the world dating back to Thirty Years War.²

Our understanding of history as well as economic theory and policy are at stake. As an historical event, the Panic did not derail the development of the U.S. financial system, although it might have done so. During Alexander Hamilton's tenure as first U.S. Treasury Secretary, and largely as a result of his strategies and tactics, the United States experienced a successful financial revolution. When Hamilton left office in 1795, the United States had six key institutional components that characterize modern financial systems: stable public finances and debt management; stable money; an effective central bank; a functioning banking system; active securities markets; a growing number of business corporations, financial and non-financial. When Hamilton accepted his post in 1789, the new nation enjoyed none of those six components. Combined with the salutary effects of the Constitution, the U.S. financial revolution fueled decades of virtually uninterrupted economic growth that strengthened the nation's initially weak and fractured polity.³ Although deeply divided along ethnic, religious, economic, and ideological fissures, early Americans agreed, largely for the sake of peace and prosperity, to give the new Constitution a chance. In 1812-15, 1832-33, and 1861-65, however, it became clear that not all Americans were fully wedded to the union. A major early economic shock could have ended the national experiment almost before it began.⁴

Comparative history also suggests that, had it not been dealt with as effectively as it was, the Panic of 1792 might have destroyed America's financial revolution and with it the country's relative prosperity and political peace. Earlier in the eighteenth century, John Law had attempted to modernize

France's financial system but his efforts backfired when he failed to prevent the collapse of the Mississippi Bubble in 1720. At the same time, across the English Channel the collapse of the related South Sea Bubble also led to financial crisis. The British financial system, however, was more developed than that of France, having begun the modernization process in 1688 versus France's 1715. A wounded but robust British financial system survived the shock, although legislation passed during the crisis stunted the development of Britain's corporate sector for a century. Armed with its (mostly) modern financial system, Great Britain won all of its wars save one between 1688 and 1815, traversed the first industrial revolution, built a worldwide empire, and preserved constitutional government. Devoid of a modern financial system, France lost its wars with Britain, suffered through a protracted and bloody political revolution, lost a colony to slaves, and endured Bonaparte's dictatorship.⁵

In the United States, financial and economic wounds resulting from the crisis of 1792 healed quickly, but political rancor continued unabated. Emboldened by the Panic, Thomas Jefferson, James Madison, and their Republican followers continued to critique the policies of Federalists George Washington and Hamilton to the ends of their days. When they assumed leadership of the U.S. government after 1800, the Republicans even undid elements of the Federalist financial revolution, only to come to regret the folly and to reinstitute what they had allowed to be undone.⁶

Apart from the heated political fallout, the Panic actually strengthened the financial revolution. Among other things, it led directly to a more effective securities trading and clearing system, and to the founding in 1792 of what would become the New York Stock Exchange. Further, because the panic was successfully contained, the U.S. financial system (especially in the Northeast, an entity more comparable to the Great Britain or England in size and economic structure than the entire United States) continued to develop so rapidly that it would come to equal, even surpass, that of Britain by the 1830s. Energized by the Federalists' financial revolution, the U.S. economy grew substantially faster in terms of product per person than did that of Britain, despite its industrial revolution, from the 1790s to the 1830s.⁷

The panic of 1792 is also important for economic theory and policy. What should a responsible authority do in an asset-price bubble? Should the authority attempt to prick and slowly deflate the bubble before it becomes too large and bursts? Or, recognizing that bubbles may not be surely known and recognized until after they have burst, should the authority wait watchfully and then move quickly when the bubble bursts to contain and minimize the potentially bad economic effects that might ensue? Alan Greenspan as chairman of the Federal Reserve System was the responsible authority after the stock market crash of 1987 and after the Internet and telecom market bubble collapsed beginning in 2000.

Greenspan has argued for the latter view of watchful waiting and then pouncing to contain the fallout of a collapse, an approach his successor, Ben Bernanke, also employed in the wake of the subprime mortgage fiasco in the summer of 2007. Today, central bankers in the United States and abroad can draw on a long history of central banking, crisis containment, and lender-of-last-resort theory, and have done so effectively to contain recent crises.⁸

Treasury Secretary Hamilton was the responsible authority in 1792. The central bank he founded, but could only influence rather than control because he was a strong believer in central bank independence, had just opened when the 1792 crisis began. In its first weeks and months of operation, in fact, the Bank of the United States rapidly expanded credit, thus probably acting to make the crisis inevitable. While watchfully waiting as the bubble grew, Hamilton attempted to induce the nation's banks, few and mostly new, to gradually restrain credit creation to contain the bubble before it popped. But the banks stepped on the monetary brakes too hard, precipitating a burst.

Hamilton then moved quickly to minimize the economic fallout. Like Greenspan (and possibly Bernanke) two centuries later, he was successful. Unlike Greenspan and Bernanke, Hamilton could not rely on history, but rather had to invent central-bank crisis containment techniques and lender-of-last-resort theory on the spot. Among other things, Hamilton invented what would later be termed Bagehot's rules for how a central bank should act in a crisis some seven decades before Walter Bagehot rediscovered them.

In this paper, we employ newly compiled data on early U.S. securities prices, government documents on U.S. sinking fund operations in 1791-1792, and the written correspondence of Hamilton and others, some of which has only recently become public, to describe the financial crises of early U.S. history and demonstrate that Hamilton deserves credit for first developing several important modern central banking crisis management techniques.

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The first Bank of the United States faced only one systemic financial crisis, in 1792. Despite the fact that the value of U.S. government's debt fell 25 percent during two weeks in March—equivalent to a drop of more than \$2 trillion today—few have ever heard of this panic. Why? Treasury Secretary Alexander Hamilton innovative crisis management stopped the meltdown cold, allowing the U.S. economy's remarkable expansion to continue unabated.

History rhymes rather than repeats, but the similarities between the Panic of 1792 and the Panic of 2007-8 (which is what financial historians will eventually call it) are numerous and deep. Both were

ultimately caused by excessive credit creation and highly leveraged entities speculating in new classes of assets, government bonds and corporate equities in 1792, and securitized subprime mortgages in 2007-8. Both crises summoned forth dark humor and satire, as well as the inevitable calls for financial reform.

More importantly, both summoned forth innovative policy responses. The collapse of the Treasury debt market in 1792 led Hamilton to make a series of bold moves. First, on March 19 he asked the nation's banks, few in number then, to "boldly accommodate" borrowers, particularly those needing to pay federal taxes, and assured the panicked banks that he would not withdraw the Treasury's deposits with them for at least three months. Second, Hamilton the same day urged the Bank of the United States to issue "post notes," a near-money redeemable in 30 days, and authorized these notes to be accepted by collectors of customs duties "upon equal terms with cash."

Third, and also on March 19, Hamilton launched a series of open-market purchases of government debt for the sinking fund that would continue for several weeks in the securities markets of New York and Philadelphia. He had to persuade his fellow sinking fund commissioners—John Adams, John Jay, Edmund Randolph, and Thomas Jefferson—to authorize the liquidity injections. Only Jefferson, Hamilton's political rival, demurred, but he was outvoted by the others. Doubting Thomas justified his opposition by indicating he thought the securities to be purchased were worth less than even the depressed markets said they were.

Further open market purchases of public debt were authorized on March 26, April 4, and April 12.

Fourth, on March 22, Hamilton asked William Seton, cashier of the Bank of New York, the city most engulfed by panic selling and rising bankruptcies, to invite dealers to collateralize their holdings of public securities at prices Hamilton specified, e.g. "Six percents at *par*," for bank loans instead of dumping them on the market at fire-sale prices. Then they could write checks on the loan proceeds to settle their engagements. But for these accommodations the dealers would have to pay a penalty rate of 7 percent instead of the usual 6 percent charged for bank discounts. That would give the borrowers an incentive to repay the bank as soon as the panic subsided.

Hamilton's bold plan entailed risks. If prices continued to fall, the Bank of New York might get stuck with collateral of dubious value. To allay that fear, Hamilton promised the bank that six months later he would "take off your hands at the rate specified" any collateral that had not been redeemed, while confidently indicating that he doubted he would have to do that. On March 26, New York's "Large Dealers in Stock" agreed to accept Hamilton's plan and further pledged not to withdraw specie from banks three months.

Seven decades before Walter Bagehot, Hamilton had discovered Bagehot's precepts for a lender of last resort in a crisis: lend freely on what in ordinary times is considered good collateral, but charge a penalty rate of interest to encourage the borrowers to repay when the crisis subsides. And by encouraging dealers in stock to collateralize their illiquid securities for bank credits instead of dumping them on the market, Hamilton foreshadowed Benanke's tactics in 2008.

Fifth, Hamilton on March 25th received word from Europe that Dutch bankers had lent the United States \$1.2 million at 4 percent. He authorized news of the loan to be spread among panicked market participants for the calming effects it might have.

Sixth, on March 28th Hamilton directed the Bank of the United States in Philadelphia not to draw money from other banks without his prior authorization. Apparently the Bank had determined to compete with other banks rather than co-operate with them in a crisis. This was a definite no-no, and Hamilton put a stop to it.

By mid April, the open market purchases were completed. On April 16, Cashier Seton in New York reported to Hamilton that the purchases were "well timed" and that upwards of 80 dealers had taken advantage of them. But he fretted that "the great and universal distress which prevails...is such that it would be utterly impossible to make purchases equal to the relief." Hamilton knew better. By mid April, he noted that hoarded specie was returning to the banks, and that "the declension of Stock may be considered as arrested." The Panic of 1792 was over, and securities markets began to function normally once again.

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The Panic of 1792 barely phased the U.S. economy. Industrial production and GDP grew every year from 1790 to 1796.⁹ The financial system remained remarkably stable after April 1792. The United States did not suffer a bank failure until 1809, or another systemic peacetime financial crisis until 1819. In part, early U.S. financial stability resulted from similar crisis-management interventions by Hamilton's successors, Oliver Wolcott and Albert Gallatin, who had witnessed and understood the beneficial effects of Hamilton's actions in 1791 and 1792, and acted in conjunction with the B.U.S. to alleviate later crises when they threatened.¹⁰

If Alan Greenspan was the central-bank "maestro" of recent decades by not allowing the crash of 1987, the Russian/LTCM crisis of 1998, the collapse of the securities-market bubble after 1999, or the 9/11/2001 terrorist attacks to have any major negative effects for the US economy, Alexander Hamilton in 1791 and 1792 was the "virtuoso." Unlike Greenspan, Hamilton did not have a history of financial

crisis management to draw on, although he was a penetrating student of financial history. Hamilton went about inventing modern crisis management tactics in what can only be regarded as a masterful way. In doing so, he saved the financial revolution that was a component of his larger plan to enhance the economic and political power of the young United States.

At the same time, Hamilton's crisis management in 1791 and 1792 may illustrate the moral-hazard problem inherent in financial crisis management. By coming to the aid of the markets in 1791, Hamilton may have encouraged the speculative bubble of 1792 by making market participants believe that there was something like a "Hamilton put" on the table. Two centuries later, it was said that Greenspan's actions in dealing with the Asian, Russian, and LTCM crises of the 1990s created a "Greenspan put" that fueled the so-called dot.com bubble of the late 1990s. When that bubble collapsed, Greenspan's Fed drove interest rates to such low levels that it was accused of fueling a housing bubble that collapsed in 2006 with major financial ramifications in 2007. And now in 2008 Bernanke's measures are being castigated by some observers for creating both moral hazards and more inflation. Effective management of a financial crisis, in other words, may sow the seeds of other problems. After 1792, however, the United States did not suffer another financial crisis until 1819, despite all the turmoil of the French-Revolutionary and Napoleonic-War eras. Evidently the moral hazards of Hamilton's interventions in 1791 and 1792 were not large; it helped that major speculators like Duer lost almost all their wealth and ended up in debtors' prison, a cruel reminder to all who would try to get rich quick.¹¹ In contrast, Duer's recent counterparts, leaders of major financial institutions suffering large losses from unwise risk-taking, walk away with large severance payments after being fired from their jobs.

Regrettably Hamilton, who led a busy yet short life, never wrote down for the benefit of posterity a definitive account—based on his thinking, actions, and results of those actions—of how a responsible authority ought to act in a financial crisis. Nor did others, such as U.S. Treasurer Samuel Meredith or New York banker William Seton, who knew much of what Hamilton was thinking, doing, and directing others to do, publish accounts of what happened in 1791 and 1792.

Because the Americans of the 1790s did not describe or codify their experiences, central banking history credits British writers with developing central-bank crisis management theory. John Wood's recent history of central banking in Britain and the United States notes, as have others, that Sir Francis Baring, English merchant banker, applied the term "*dernier resort*" to the Bank of England in 1797. A few years later, in 1802, English banker Henry Thornton laid down a rule of behavior he thought proper for the Bank of England.¹² Those early English writers, who may have been influenced by what the

Bank of England did and did not do in English financial crises of their era, are often thought to have been the anticipators of Bagehot,¹³ who more clearly laid down the rules for central bank crisis containment in 1873. Until recently, no one could have been aware that Hamilton had formulated the essence of Bagehot's rules in 1792. Since British investors were active in the U.S. markets in 1792, it is possible that accounts of their experiences made their way back to England. But there appears to be no evidence in the writings of Baring or Thornton that they were aware of the U.S. events.

Hamilton's role in establishing the New York Stock Exchange (NYSE) was also forgotten long ago. On May 17, 1792, 24 of New York's broker-dealers met under a buttonwood tree in Wall Street and signed an agreement to trade with each other on preferential terms. No fewer than 10 of the 24 Buttonwood signers were named in Seton's account of those from whom he bought securities at Hamilton's direction in April. Some of the securities dealers also likely cooperated with each other and with the B.O.N.Y. to implement Hamilton's March 22 plan to alleviate the crisis by extending bank credit on securities collateral. It seems possible that by fostering a spirit of cooperation during crisis among members of the New York financial community, Hamilton's plan paved the way to the foundation of the NYSE. The brokers' club of May 1792 definitely introduced an improved trading technology for securities markets. Hence, the Panic of 1792 very likely resulted in institutional changes with long-run benefits for the development of U.S. securities markets.¹⁴

Like the Continental Army in which he had served during the Revolution, Hamilton in 1792 snatched victory from the jaws of defeat. Unlike the American revolutionary successes, however, Hamilton's victories during the financial crisis 1792 have taken more than two centuries to come to light.

Notes

- ¹ Joseph Stancil Davis, *Essays on the Earlier History of American Corporations* (Cambridge, Mass., 1917), 1278-345. More recent discussions of the Panic include David I. Cowen, *The Origins and Economic Impact of the First Bank of the United States, 1791-1797* (New York, 2000), 82-136; David I. Cowen, "The First Bank of the United States and the Securities Markets Crash of 1792," *Journal of Economic History* 60 (Dec. 2000): 1041-60; Cathy Matson, "Public Vices, Private Benefit: William Duer and His Circle, 1716-1792," in William Pencak and Conrad E. Wright, eds., *New York and the Rise of American Capitalism: Economic Development and the Social and Political History of an American State, 1780-1870* (New York, 1989), 72-123; Robert Sobel, *Panic on Wall Street: A History of America's Financial Disasters* (New York, 1968), 8-31; David Sterling, "William Duer, John Pintard, and the Panic of 1792," in Joseph Freese and Jacob Judd, eds., *Business Enterprise in Early New York* (Tarrytown, N.Y., 1979), 98-132.
- ² Charles F. Kindleberger, *Manias, Panics and Crashes: A History of Financial Crises* (New York, 2000), 225; Edwin Perkins, *American Public Finance and Financial Services, 1700-1815* (Columbus, Ohio, 1994).

³ Since the publication of Perkins's *American Public Finance*, a number of scholars, including Peter Austin, Howard Bodenhorn, David Cowen, Farley Grubb, Eric Hill, James Kameel, Richard Kilbourne, Christopher Kingston, Naomí Lamoreaux, Paul Lockard, Sharon Murphy, Ronald Michener, Peter Rousseau, Richard Sylla, Daniel Wadward, Ta-Chen Wang, Jack Wilson, and Robert E. Wright have published a slew of papers, articles, books, and dissertations describing America's financial revolution in considerable detail, largely supplanting earlier financial histories by Dewey, Knoss, Sobel, Sundenski, and others.

⁴ Numerous studies attest to America's early diversity. Good starting places for readers interested in such issues are David H. Fischer, *Albion's Seed: Four British Folkways in America* (New York, 1989) and Owen Ireland, *Religion, Ethnicity, and Politics: Rethinking the Constitution in Pennsylvania* (University Park, Pa., 1995).

⁵ In addition to Kindleberger's *Manias*, readers interested in those episodes can also consult Stuart Banner, *Anglo-American Securities Regulation: Cultural and Political Roots, 1690-1860* (New York, 1998); Edward Chancellor, *Devil Take the Hindmost: A History of Financial Speculation* (New York, 2000); Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* (New York, 2003).

⁶ Discussions of the early U.S. political system are too numerous to list here. The best overview of the emergence of the first party system is still probably Stanley Elkins and Eric McKittrick, *The Age of Federalism* (New York, 1993). Many important studies, including Joseph J. Ellis, *Founding Brothers: The Revolutionary Generation* (New York, 2001), neglect the Panic. For specific discussions of the political implications of the Panic, see Howard Rook, *Artisans of the New Republic: The Trademen of New York City in the Age of Jefferson* (New York, 1984), 24 and Robert E. Wright and David I. Cowen, *Financial Founding Fathers: The Men Who Made America Rich* (Chicago, 2006), 83-86.

⁷ Richard Sylla, "Comparing the UK and US Financial Systems, 1790-1850," Working Paper, 2006.

⁸ The Greenspan Fed was not always reactive, however. Among other things, Greenspan warned of "irrational exuberance" in December 1996, in advance of the late 1990s bubble, and the Fed added liquidity to the markets in 1999 in anticipation of a potential Y2K problem. Mark Carlson, "A Brief History of the 1987 Stock Market Crash with a Discussion of the Federal Reserve Response," FEDS Working Paper No. 2007-13, SSRN: ID982615, code38088.pdf, Jeffrey Frankel, "Responding to Financial Crises," KSG Working Paper No. RWP07-010, SSRN: ID963133, code385205.pdf, Robert Kuttner, "The Bubble Economy," *American Prospect* 18 (1 Oct. 2007). An excellent non-technical overview of current monetary policies worldwide is Frederic Mishkin, *Monetary Policy Strategy* (Cambridge, Mass., 2007).

⁹ Davis, "A Quantity-Based Annual Index"; Johnston and Williamson, "What Was the U.S. GDP Then?"

¹⁰ See Cowen, *Origins and Economic Impact*, 153-59.

¹¹ Bruce Mann, *Republic of Debtors: Bankruptcy in the Age of American Independence* (Cambridge, Mass., 2003).

¹² John H. Wood, *A History of Central Banking in Great Britain and the United States* (New York, 2005), 27, 44.

¹³ The Bank of England in the eighteenth century never reported that it had made any attempts to alleviate financial crises with lender of last resort interventions. But in the latter part of the century it may have intervened in that way without admitting it. Michael C. Lovell, "The Role of the Bank of England as a Lender of Last Resort in the Crises of the Eighteenth Century," *Explorations in Entrepreneurial History* 10 (Oct. 1957): 8-21.

¹⁴ We compared Seton's list with the Buttonwood agreement signers as given in Walter Werner and Steven T. Smith, *Wall Street* (New York: Columbia University Press, 1991), 212. Richard Sylla, "Origins of the New York Stock Exchange," in Goetzmann and Rautenhorst, eds., *Origins of Value*, 299-312.

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The current migration process has been the object of extensive research dealing with the impact of this labor outflow on the economies of sending nations: conditions in the labor market, levels of poverty and inequality, returns to education, external adjustment.... By contrast, historical studies of the first period of mass migration (1870-1913) focus almost exclusively on labor market questions, namely from the perspective of international wage convergence (Haton and Williamson, 2005). In a previous paper, we established the role of remittances in easing the external adjustment of peripheral nations within the gold standard (Esteves and Khoudour-Castérès, 2008). In this paper, we continue to advance our knowledge of the relevance of remittance flows before World War I, by analyzing their effects on financial development.

Recent literature relates remittances to financial development in developing countries, mostly by increasing the demand for savings, hence for financial products and services (Giuliano and Ruiz-Arranz, 2005; Aggarwal, Demirgüç-Kunt and Martínez Pería, 2006; Martínez Pería and Moizesowicz, 2007). Our purpose is to investigate how significant were remittances in promoting late nineteenth century financial development, particularly in peripheral countries, with relatively limited access to international lending. Following up on the practice in the historical literature, we provide new estimates of remittances based on indirect evidence from the emigration process itself, combined with business cycles and contemporary information on the typical average *per capita* remittances sent by nationals working abroad. We include the majority of the European nations involved in the emigration phenomenon before 1914. This new data set is then used to compare the size and cyclical properties of workers' remittances, as well as their relation to other international capital flows. Finally, we relate remittance flows to measures of domestic financial development, such as the aggregate level of bank deposits and bank credit.

1. Remittances and Financial Development: Substitutes or Complements?

Current discussions on the relation between workers' remittances and financial development are based on the question of knowing if both variables are substitutes or complements. On the one hand, the substitutability hypothesis puts forwards the idea that remittances partially offset the lack of financial development in emigration countries, by allowing poor people to invest in high-return projects despite their difficulties to obtain credit. On the other hand, the complementarity hypothesis claims that remittances and financial development foster one another. In other words, while a higher degree of financial development allows migrants to send money home faster, safer and above all cheaper, large amounts of remittances

stimulate the interest of financial institutions and public authorities, bringing about higher levels of competition between financial intermediaries, as well as institutional reforms aiming at channeling remittances towards productive investment.

The interaction between remittances and financial development in today's developing countries

The main arguments in favor of the substitutability hypothesis are presented by Giuliano and Ruiz-Arranz (2005), who show that the impact of remittances on growth is stronger when financial markets are under-developed. By contrast, a high degree of financial development reduces the role of migrants' transfers in spurring investment. Indeed, remittances help to release credit constraints in countries where credit markets are imperfect. When potential investors, who lack credit histories and collateral assets, do not have access to formal sector loans, they can benefit from the financial contribution of a friend or a relative living abroad, namely through remittances. On the contrary, when capital market imperfections are limited and access to credit is readily available, small entrepreneurs can rely on the financial sector, and remittances are not as useful as in shallower financial systems. The substitutability hypothesis is supported by Calderón, Fajnzylber and López (2007), who find that the effect of remittances on growth is inversely related to financial depth in developing countries.

On the contrary, the complementarity hypothesis argues that there is a positive interaction between remittances and financial development. High levels of financial development help migrants to send more money home and, in turn, a significant inflow of remittances contributes to promoting "financial democracy" (Terry and Wilson, 2005). Such interaction should therefore lead to a virtuous circle, where an increase in remittances brings about a higher level of financial development that allows migrants to send more money. Mundaca (2005) finds that the more developed the financial sector, the higher the impact of remittances on growth. Efficient financial institutions help to channel remittances towards productive investment projects, particularly in the case of small and medium-sized businesses. When remittances enter the official financial sector, mainly private banks, the potential credit supply increases allowing to finance private initiatives at a lower cost.

In the same way, financial development has positive repercussions on the amount of remittances sent by migrants to their home country. Broad and deep financial markets contribute to reducing transfer costs, hence to increasing remittance flows, while a stable and reliable banking system leads migrants to prefer to send money through formal channels (Aggarwal, Demirgüç-Kunt and Martínez Pería, 2006). By contrast, inefficiencies in the financial sector, that is, delays in money transfers, high intermediation costs or unfavorable exchange rates tend to curb remittance inflows (Rathia, 2005).

Finally, the complementarity hypothesis puts in evidence the role of remittances in strengthening financial markets in developing countries (Aggarwal, Demirgüç-Kunt and Martínez Pería, 2006; Martínez Pería, Mascaró and Moizesowicz, 2007). In the first place, migrants' transfers help recipients to benefit from financial services and products, like bank accounts and debit or credit cards, contributing to the consolidation of financial intermediaries. In the second place, if the average amount of remittances received by migrants' families is above their immediate needs, there might be an increase in demand for savings deposits, even when

remittances are sent through money transfers operators or informal channels. In the third place, the fact that migrants' families receive stable and significant amounts of money eases their access to loans, making possible the expansion of the domestic credit market. In the fourth and last place, high levels of remittances in developing countries have spurred the interest of financial intermediaries interested in capturing the largest possible share of the market. As a result, competition between money transfer operators and banks has significantly increased, compelling them to invest in improving functional efficiency.

The interaction between remittances and financial development in European countries before WWI

There is very little information in the existing literature on the effects of remittances on the European financial sector. It is nevertheless possible to infer that the substantial amount of money sent by migrants to their families contributed to promoting financial development, at least in the European periphery, hence confirming the complementarity hypothesis. Such process followed a triple dynamic of institutionalization, densification, and bankarization.

In the first place, the increase in remittance flows between the Americas and Europe gave rise to a gradual process of "institutionalization"; that is, the implementation of a structured network of professional financial intermediaries on both sides of the Atlantic. Informal transfer channels were quite common during the nineteenth century. For instance, migrants used to send banknotes or even coins through ordinary mail (Semningsen, 1978). They could also entrust an envelope with money inside to a friend or family member who traveled back home, or carry themselves their savings when coming back –temporarily or definitively– to their country of origin (Douki, 2001; Magee and Thompson, 2006a). But as migration flows increased, the demand for official transactions became more pressing, and new actors appeared on the financial market.

In the second place, the strong demand for remittance services contributed to the "densification" of the financial sector, through a double process of deepening and widening. In order to capture market share, banks and post offices began to open more branches, especially in emigration-intensive areas, and to offer more services. In some cases, new banks appeared and specialized in remittance activities. In other cases, foreign banks entered the domestic market in order to take advantage of the remittance market. This increase in competition brought about a decline in intermediation costs, benefiting remittance recipients.

In the third place, remittance inflows fostered the "bankarization" process in emigration countries, as migrants and their families began to require faster and safer international transfer channels, which notably implied the possibility of realizing account-to-account transfers. This resulted in a higher demand for deposit accounts both in sending and receiving countries. Concurrently, and insofar as recipients were able to save part of the additional income represented by remittances, the need for savings accounts arose. This was encouraged by the strategy of many European migrants that consisted in spending some years in the New World in order to accumulate enough money to buy a farm or a small business when going back home (Magee and Thomson, 2006b). Financial institutions, in particular savings banks, adapted to this new clientele by offering attractive interest rates (Douki, 2001). The upshot was a significant rise in the number of bank account owners.

Data on remittances

Quantitative information on remittances before World War I is fragmented, both in terms of countries and periods. As a result, most annual flow series are estimated using migration figures and contemporary information on the average amount of remittances sent by emigrants, in particular through bank and post offices. This is notably the case for Austria-Hungary (Morys, 2005), Italy (Balletta, 1978; Morys, 2005), Portugal (Mata, 2002), and Spain (Prados de la Escosura, 2006). When such information exists, we use it.

But, faced with the lack of available information and even estimations, we chose to estimate our own series following and adapting the methods used by our predecessors. First, we calculate the stock of migrants abroad. As usual in the literature, we consider that migrants sent money home only during the five first years. After that, either they had come back or decided to permanently settle. Therefore, the stock of migrants abroad, M_t , is defined as follow:

$$M_t = \sum_{s=t-5}^t E_s$$

where E_t is the annual number of emigrants. Knowing that most migrants in our sample went to the United States, our estimations are based on the number of immigrants in the United States.

Then, we calculate the annual average amount of remittances per capita from contemporary sources. Means (1923) provides information on U.S. remittances to Greece through National Bank of Greece for the period 1913-1920, and Semningsen (1978) gives estimates for Norway in 1905. We then extrapolate the average amount of remittances to the previous years by using the nominal wage index in the United States (Williamson, 1995). We consider that Scandinavian immigrants in the United States had similar behaviors and that the average amount of remittances in Denmark and Sweden was the same than in Norway.

In total, our sample includes seven countries: Denmark, Greece, Italy, Norway, Portugal, Spain, and Sweden.

II. Empirical model

Preliminary evidence shows a positive and significant effect of the intensity of emigrants' remittances on conventional measures of financial development, particularly when we measure the latter with the level of *per capita* deposits in the commercial banking system. The model described on Table 1 studies this relation controlling for persistence in financial development (lagged deposits per capita), the possible influence of foreign capital inflows, and the usual idiosyncratic markers for country and time-specific effects. One would expect that both remittances and foreign capital flows to show up with positive and significant effects, albeit for probably different reasons. Remittances are frequently mentioned in the literature as helping financial development through an increase in the demand for financial services – namely deposits (Aggarwal, Demirgüç-Kunt and Martínez Peria, 2006; Martínez Peria, Masecaró and Moizesowicz, 2007). Foreign capital, especially FDI, is a frequent channel for better technology and managerial practices, as foreign financial firms either set up new banks or buy local institutions (Battilossi, 2006). Both expectations are confirmed and the estimated elasticities are similar. A 1% rise in per capita remittances or foreign capital inflows yielded an approximately double effect on financial development.

Table 1: Financial development, 1880-1913

	(1)	(2)	(3)
Constant	0.0638*	0.3032***	0.8809***
Lag Dep.	-0.0325	-0.0819	-0.1912
	0.9936***	0.9752***	0.7138***
Remittances	-0.0148	-0.0271	-0.1158
	0.0143	0.0313***	0.0238*
Capital inflows	-0.0098	-0.0107	-0.0121
	0.0064	0.006	0.0192*
	-0.0079	-0.0094	-0.01
Country FE	No	Yes	Yes
Year FE	No	No	Yes
N	144	144	144
r2	0.990	0.990	0.994

Notes: Dependent variable: deposits in commercial banks per capita.
All variables in per capita terms. Robust standard errors in parenthesis.

Table 2: Financial development, 1880-1913(lagged effects)

	(1)	(2)	(3)
Constant	0.0519*	0.2013**	0.4526**
Lag Dep.	-0.0273	-0.0877	-0.1744
	1.0026***	0.9722***	0.8172***
Lag Remittances	-0.0103	-0.0246	-0.0863
	0.0139	0.0522***	0.0425**
Lag Capital inflows	-0.0094	-0.0135	-0.0188
	0.0027	0.0003	0.0048
	-0.0062	-0.0062	-0.0078
Country FE	No	Yes	Yes
Year FE	No	No	Yes
N	109	109	109
r2	0.990	0.990	0.994

Notes: Dependent variable: deposits in commercial banks per capita.
All variables in per capita terms. Robust standard errors in parenthesis.

Naturally, we need to concern ourselves here with problems of identification, namely because there is also evidence that superior financial services attract a larger share of remittances to the institutionalized financial system (Terry and Wilson, 2005; Orozco and Fedewa, 2006). And a similar concern is obviously present in the case of foreign capital flows. As a preliminary attempt to identify causality we ran the model in Table 2 lagging the effects of remittances and foreign capital by 10 years. Interestingly, only the coefficient of

remittances remains significant, while even doubling in magnitude. Whilst we do not want to suggest from here on the irrelevance of foreign capital in promoting local financial development, such relation begs for further inquiry into the heretofore largely ignored significance of emigrant money. We develop this line of research in the paper through two approaches. We study and compare the evolution and cyclical properties of foreign capital and remittances flows and we also provide more detailed evidence (quantitative and narrative) of the relation between these flows and the development of formal financial sectors along the European periphery before 1914.

References

- Aggarwal, Reena; Asli Demirgüç-Kunt and María Soledad Martínez Pería (2005). "Do Workers' Remittances Promote Financial Development?" *Policy Research Working Paper 3957*, The World Bank.
- Balletta, Francesco (1978). "Emigrazione Italiana, cicli economici e rimesse (1876-1976)." *In* Rosoli, Gianfausto, ed. *Un secolo di emigrazione italiana, 1876-1976*. Roma: Centro Studi Emigrazione: 65-96.
- Barilossi, Stefano (2006). "The Determinants of Multinational Banking during the First Globalisation 1880-1914." *European Review of Economic History* 10(3): 361-88.
- Douki, Caroline (2001). "Le territoire économique d'une région d'émigration: campagnes et montages lucquoises, du milieu du XIXe siècle à 1914." *Revue d'histoire moderne et contemporaine* 2/3: 192-246.
- Estèves, Rui and David Khoudour-Casteras (2008). "A Fantastic Rain of Gold: European Migrants' Remittances and Balance of Payments Adjustment during the Gold Standard Period." *Mimeo*.
- Giuliano, Paola and María Ruiz-Arranz (2005). "Remittances, Financial Development, and Growth." *IMF Working Paper 05/234*, International Monetary Fund.
- Hatton, Timothy and Jeffrey Williamson (2005) *Global Migration and the World Economy. Two Centuries of Policy and Performance*. Cambridge, Mass: MIT Press.
- Magee, Gary and Andrew Thompson (2006a). "Lines of Credit, Debts of Obligation: Migrants Remittances to Britain, c. 1875-1913." *Economic History Review* 59.3: 539-77.
- Magee, Gary and Andrew Thompson (2006b). "The Global and Local: Explaining Migrant Remittances Flows in the English-Speaking World, 1880-1914." *Journal of Economic History* 66.1: 177-202.
- Martínez Pería, María Soledad; Yira Mascara and Florencia Moizesowicz (2007). "Do Remittances Affect Recipient Countries' Financial Development?" *In Remittances and Development: Lessons from Latin America*, Fajnzylber, Pablo and Humberto López, eds. Washington DC: The World Bank: 171-215.
- Mata, Maria Eugénia (2002). "As crises financeiras no Portugal contemporâneo: uma perspectiva de conjunto." *In* Matos Campos, Sérgio, ed. *Crises em Portugal nos séculos XIX e XX*. Lisboa: Centro de História da Universidade de Lisboa: 38-55.
- Mears, Eliot (1923). "The Unique Position in Greek Trade of Emigrant Remittances." *Quarterly Journal of Economics* 37.3: 535-40.
- Morys, Mathias (2005). *The Classical Gold Standard in the European Periphery: A Case Study of Austria-Hungary and Italy, 1870-1913*. PhD dissertation, London School of Economics and Political Science.
- Mundaca, Gabriela (2005). "Can Remittances Enhance Economic Growth? The Role of Financial Markets Development." *Mimeo*, University of Oslo.
- Orozco, Manuel and Rachel Fedewa (2006). "Leveraging Efforts on Remittances and Financial Intermediation." *INTAL-ITD Working Paper 24*, Inter-American Development Bank.
- Prados de la Escosura, Leandro (2006). "La posición exterior de la economía española, 1850-1935." *Mimeo*.
- Raïra, Diip (2005). "Workers' Remittances: An Important and Stable Source of External Development Finance." *In Remittances: Development Impact and Future Prospects*. Nairobi, Samuel Munzele and Diip Raïra, eds. Washington DC: The World Bank: 19-51.
- Semmlingsen, Ingrid (1978). *Norway to America. A History of the Migration*. Minneapolis: University of Minnesota.
- Terry, Donald and Steven Wilson (2005). *Beyond Small Change: Making Migrant Remittances Count*. Washington DC: Inter-American Development Bank.
- Williamson, Jeffrey (1995). "The Evolution of Global Markets since 1830: Background Evidence and Hypotheses." *Explorations in Economic History* 32(2): 141-96.

Fluctuations in Overseas Travel by Americans, 1820-2000

Despite the fact that international tourism has long been a growing part of the U.S. economy, not much has been written about its economic history. Elsewhere we have described the robust rise in overseas travel over the long term and the notable changes in its composition that occurred.¹ This paper is about the fluctuations in travel around that long term upward trend.

It should not be too surprising that there were substantial fluctuations in the numbers of travelers, especially before World War II. This, after all, is an industry that has been noticeably affected by episodic events, such as war, civil disruption, famines, and natural disasters, as well as by technological advances in transportation, communication, finance and other service industries that cater to travelers. These are not, for the most part, predictable events, or readily subject to measurement, and their functional relation to travel is not completely understood in all cases. Thus it seems unlikely that one model could account for all the fluctuations in travel. Nevertheless, given the importance of tourism in general, its share of the nation's export of services, and its likely greater importance in the future, an attempt to understand these fluctuations in travel is long overdue. As Gregory Clark (2007) argued, "Anyone who has visited the British Museum or the Sistine Chapel, for example, has had a foretaste of the relentless tide of tourism set to be unleashed on the world by another few decades of strong economic growth. Even the high-income demand for unique and individualized travel and dining experiences is now catered to on an industrial scale."

As we show, despite the impact of a myriad of episodic events the fluctuations in travel can be explained in part by changes in the direct price of travel, changes in per capita GDP in the U.S., and by periods of armed conflict in Europe. Some of the remaining variation can be explained by events specific to individual periods of fluctuation, but some remains as yet unexplained, suggesting the need for further research.

¹ See Brandon Dupont, Alka Gandhi and Thomas Weiss, 2008 "The American Invasion of Europe: The Long Term Rise in Overseas Travel, 1820-2000," NBER, Working Paper No. 13977 for details about the data used here and about the numbers of early travelers.

A Chronology of Fluctuations in Overseas Travel

The history of overseas travel by Americans was characterized by numerous fluctuations around a strong upward trend. Most of these frequent fluctuations were part of the more general business cycle variation in the economy, but beyond that there were a number of major downturns and upsurges. These major swings can be seen in both the number of travelers and in the percentage of the population that traveled overseas (Only the latter are shown here in figures 1a and 1b).

Statistics for the eighteenth and early nineteenth centuries are sparse and incomplete, but a comprehensive series begins in 1820. Those data indicate that prior to World War I there were major downturns in the 1830s, 1840s and 1890s, and serious but briefer downturns in the 1860s, 70s and 80s. On the upside, there were recoveries to the trend in each of those downturns, and in three instances – in the 1850s, 1880s, and the decade and a half leading up to World War I – upsurges in travel went well beyond mere recovery to the trend. Travel abroad was severely reduced during World War I, with the number of travelers falling from nearly a quarter of a million in the years just prior to the War to less than 50 thousand in 1918. Immediately after World War I travel resumed rather quickly and the upswing lasted until the Great Depression. The demand for foreign travel did not fall initially with the onset of the Depression, as the number of travelers going abroad in 1930 was 4 percent higher than the figure for 1929.² Thereafter, however, overseas travel plummeted. The decline was proportionately greater than the decline in GDP or employment, with the number of travelers in 1933 being 56 percent below the peak of 1930 and 58 percent below the 1929 figure. Recovery was slow as well, slower too than the upswing in the economy generally. By 1940 travel to Europe was discouraged by political disturbances and the onset of fighting in World War II, and the number of overseas travelers fell even further during the War, reaching a nadir of 57,000 in 1943, a level not seen since the 1880s. Recovery of travel after World War II was held in check initially by the shortage of shipping capacity and by government restrictions on who could travel to Europe immediately after the War. Once the restrictions

² Hal Lary and Associates, 1943. "The United States in the World Economy," Bureau of Foreign and Domestic Commerce, Department of Commerce, Economic Series No. 23. Washington, D.C.: U.S. Government Printing Office, p. 76.

were lifted growth was very rapid: for the entire post-war-period 1946 to 2000 it rose at 8.5 percent per year. During this sustained boom fluctuations in travel were less noticeable than those that had taken place in earlier times. Measured by the share of the population traveling overseas, in the last 5 decades of the century there were only four slight downturns - in 1961, 1974-75, 1986 and 1991 - and in each case recovery was rapid.³ Travel in the post-war period is characterized most clearly by a strong upward trend.

Factors Influencing Overseas Travel

While the long term rise in travel might be explained to a large extent by a handful of variables, most notably the growth of population and income, many more variables influenced the fluctuations. Moreover, it seems that changes in the growth of population and income could not have played much of a role in explaining the fluctuations -- except of course during the more severe economic downturns, such as the Great Depression -- because both of those variables increased too steadily to generate short-run swings in travel. Other factors that were less important to the long term rise had to have played a larger role in generating the many ups and downs in overseas travel. Only some of these variables, however, are measurable. Fluctuations in the value of the dollar and variations in passenger fares were two such influences that are amenable to measurement. Other factors less easily measured include: improvements in the quality of ship travel, improvements in the supply and quality of hotels and restaurants abroad, the publication of guide books, as well as the growth and evolution of the package tour industry, and the myriad changes that were taking place in travel and tourism within the United States, (that is to say substitute goods and services).

Over the entire period 1820 to 1999, the dollar appreciated against the British Pound at an annual rate of 0.6 percent per year, but almost all of this took place after World War II. In the period since 1950, the dollar appreciated at 1.11 percent per year, but did not do so steadily. For the period since World War I, we also have evidence on the French Franc, which depreciated considerably from around \$20 per franc to \$4 shortly after the War, rallied to about \$7.00 per franc during the Great Depression, and then declined to values of less than

³ There was a negligible downturn of 120,000 travelers, about 1.5 percent, in 1981.

\$1.00. The large depreciation of the franc did not statistically account for growth in travel over the post World War I period, but those large changes in the value of the franc, as well as some of the short term changes in the British Pound from year to year, could have generated some variation in the volume of travel.

Passenger fares too would seem to have been an important determinant of overseas travel. Indeed, since tourism is likely a luxury item, one might expect it to have a rather high demand elasticity. Ocean passenger fares did not change much before World War I, but there were short-term fluctuations that might have contributed to the ups and downs in travel. After World War II, airline passenger fares declined substantially in real terms, but fluctuated very little, except for an upturn in fares in the 1970s.

Variation in fares, however, do not capture all of the changes in the costs of travel. Ocean liners were improved over time in a variety of ways, and such improvements were not necessarily reflected in the fares.⁴ And, for both air and ocean passenger travel, fares did not capture fully the changes in technology that made travel more appealing, and less costly in terms of time. Travel overseas went through several major shifts. Until World War II, people traveled to and from their destinations by sea. World War II marked a turning point in the mode of travel used by travelers, and in the time required to travel. Whereas steam ships took more than 3 days to reach Liverpool from New York in the years after World War II, the journey by airplane was measured in hours. There were changes as well within the ocean-going and airline eras. In the former, there was a shift from sail to steam shipping, while in the latter there was a change from propeller to jet propulsion. In both cases, there were reductions in the length of time it took to cross the oceans, as well as improvements in the regularity of schedules. But, these technological changes would not seem to have fluctuated; progress went in only one direction. And although technological progress may have been faster at some times than at others, it is unlikely these phenomena had much of an influence on the variation in travel, and this is indeed what we find (See Table 1). The major impact of the shift from ocean to air travel is dealt with by splitting our overall sample into periods that separately represent travel by ship (from 1852 to 1914) and by air (post-World War Two).

⁴ Emory Johnson and Grover G. Huebner, (1920) *Principles of Ocean Transportation*, New York and London: D. Appleton and Company, p. 337

We treat the intervening period from the First to the Second World War as a separate case because of the unique fluctuations in travel that occurred then.

Quantitative Analysis

In our analysis, we attempt to explain the variation in the share of the population that traveled overseas in any year, rather than the absolute number of travelers. In order to identify those fluctuations in travel to be explained, we decomposed the number of travelers per 1,000 population into its cyclical and trend components using the Hodrick-Prescott filter. The variable of interest in this paper is the cyclical component of travel. Our dependent variable is, in other words, a measure of the short-term departures from the underlying long-term trend in travel.

To facilitate our analysis of these fluctuations, we have broken the time series into subperiods, the ocean travel era from 1852 to 1914 and the air travel era from 1946 to 2000.⁵ The intervening period from 1915 through the Second World War was treated separately for several reasons. Most noticeably it contained some large and unusual fluctuations that distort the overall picture of fluctuations in travel over the long-term. During World War II, there were significant increases in per capita GDP,⁶ but because of travel restrictions there were large declines in travel to Europe.⁶ Also for this subperiod the shift from sea to air travel began, albeit slowly, and we are lacking data on passenger fares for both ocean and air travel. Despite these difficulties, our crude estimating equation for this period, which controls for the effects of World Wars I and II, explains a significant portion of the variation for the period.

The estimated coefficients for our models are reported in Table 1. The models estimated for the ship era, from 1852 to 1914, express fluctuations in the number of travelers as a function of ocean fares, the U.S. dollar/British pound exchange rate, growth in per capita real GDP, changes in average ship speed, changes in the steamship share of gross total shipping tonnage and a dummy variable for the American Civil War. These models do not fit the data quite as well as those estimated in the postwar period but do a reasonably good job of

⁵ While data on some variables are available from 1820, we start at 1852 because we want to include ocean passenger fares, which are not available until that year.

⁶ We find that the effect of GDP per capita is large and negative. See Table 1.

explaining fluctuations in travel. In particular, and not surprisingly, we find that the direct price of ocean travel as measured by ocean fares is somewhat important in explaining the short-term fluctuations in travel. All else constant, we find that a one standard deviation increase in ocean fares leads to about a four percent decline in the number of travelers, on average, from 1852 to 1914. Not unexpectedly, the short-term fluctuations in travel are barely affected by annual changes in the speed of ship travel or the gradual increase in the importance of steam ships within this period, or by changes in the Dollar/Sterling exchange rate. The impact of per capita GDP is fairly large but not very precisely estimated.

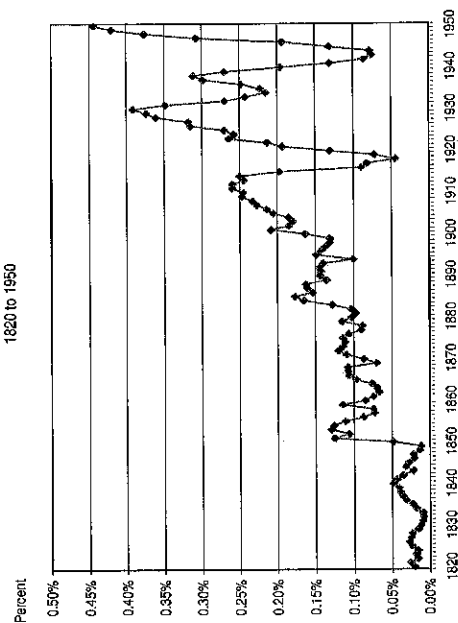
The models estimated for the aircraft era, from 1946-2000, express fluctuations in the number of travelers as a function of a similar set of explanatory variables including changes in average airfare, changes in per capita GDP, exchange rates, increases in average speed of travel and controls for war during this period. Both the direct price of travel as measured by our air fare variable and per capita GDP exert larger and more precisely measured effects in the postwar period. The other variables had no significant impact. In general, the model gives a better fit for the air travel era, which is not surprising given that prior to the First World War there were much wider fluctuations in annual numbers of travelers per 1,000 population.

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Figure 1A
American Overseas Travelers as a Percent of U.S. Population
1820 to 1950



Sources: For travelers, Brandon Dupont, Alka Gandhi and Thomas Weiss, "The American Invasion of Europe: The Long Term Rise in Overseas Travel, 1820-1999," Appendix Table 1. For population, the figures for 1820 to 1929 are from Historical Statistics, 1975, Series A7: Total Resident Population (and included armed forces residing in the U.S.). The figures for 1930 to 2001 are for the Civilian Resident Population, and exclude the armed forces at home and abroad. (Historical Statistics, 1975, Series A8 and Stat. Abs., 2003, Table 2).

Note: A longer version of this paper, which includes additional data on U.S. travelers, is available from the authors.

Table 1: OLS Results for Fluctuations Model

Dependent Variable = Cyclical Fluctuations in Number of Travelers (derived from H-P Filter)	1820-1914	1914-1940	1940-1950	1820-1999
Constant	1.142* (0.580)	0.094 (0.113)	0.123*** (0.050)	-0.020 (0.079)
Dependent Variable, t-1		0.638*** (0.125)	0.481*** (0.119)	0.394*** (0.093)
ln(Ocean Fares)	-0.170** (0.066)			
Δln(Air Fares)		-0.409* (0.210)		
Δln(Ship Speed)	0.052 (0.586)			
Δln(Steam Share of Shipping)	0.009 (0.159)			
Δln(Air Speed)		-0.307 (0.271)		
Δln(Per Capita GDP)	0.405 (0.326)	0.613* (0.362)	-1.512*** (0.572)	-0.705* (0.360)
ln(Exchange Rate (\$£))	-0.041 (0.178)	0.027 (0.057)		-0.032 (0.059)
ln(Exchange Rate (\$¥))		-0.057 (0.049)		
Civil war	-0.040 (0.083)			-0.059 (0.123)
World War I			-0.474*** (0.131)	-0.454*** (0.122)
World War II			-0.491*** (0.150)	-0.295*** (0.142)
Korean War		-0.044 (0.034)		0.038 (0.132)
Vietnam War		0.015 (0.023)		0.011 (0.092)
R-squared	0.356	0.533	0.626	0.524
Adj. R-squared	0.257	0.434	0.565	0.502
DW / LM / F-Stat	2.09 / 1.70	2.06 / 0.44	1.79 / 0.36	1.93 / 1.02

Statistically significant at the ***1% **5% and *10% level
Note: The longer version of this paper includes additional specifications and is available from the authors.

Cigarette Money and Black Market Prices around the 1948 German Miracle

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'To paraphrase an old maxim – "money isn't everything" – but in Frankfurt, cigarettes are'
New York Herald Tribune¹, 5/17/1947

Cigarette money is one of the most popular examples of the use of commodity money in modern times. Yet our knowledge rests mostly on mentions of it by contemporary scholars or on qualitative evidences of its wide use either in WW II prisoners' camp (Radford, 1945), or in post WW II Germany or Austria (Rosen, 1947; Kindleberger, 1949; Friedman 1951).

In Germany, cigarettes were used as money from 1945 to 1948 although the Reichsmark retained its legal status. The prohibition of barter by the War Economy Ordinance of 1942 made trades using commodity in payment unlawful. Hence commodity money could only have been used in the illegal sector. But still it was a sizable phenomenon as the US occupation authority gauged it to 20% to 50% of trades of consumers' goods. Up to now the lack of quantitative evidences on this episode was hindered by the absence of black market data. The paper resorts to such data to provide these quantitative evidences.

The first contribution of the paper is to provide a comprehensive history of the use of commodities as money in post WW II Germany by using new German and U.S. archives together with newspapers' articles to show that in an economy with multiple goods used as means of payment, the cigarettes were unique as regards to their market properties. To show this unique character, the paper starts with the premise that money should have a higher liquidity than any other goods, a feature that was recently proved by search models applied to money (Kiyotaki and Wright, 1989). Consequently, I use an original dataset of black market prices for 8 goods in 120 Bavarian locations out of 143 in July 1947 and June 1948 to measure their liquidity and find that the liquidity of cigarettes was far higher than any other goods, even when compared with fiat

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¹ "Cigarette is King in Frankfurt Black Market", by Edwin Harrich.

objects such as U.S. dollars. More precisely people who arbitrated among locations to complete black trades enjoyed a reduction of two types of market risks when trading with cigarettes: 1) the risk of not being able to buy the desired goods and 2) the risk to lose on the price paid because of spatial variation of prices.

While a few papers also studied this episode, they provided at best seldom mentions of the price range of cigarettes. Rosen (1947) is the sole to use black prices to study the demand for cigarettes in 1945 Austria. Drawing on time series, he showed that the evolution of the cigarettes' price on the Vienna's black market was correlated to the price of the U.S. dollar before the monetary reform of December, 1945 but not after. He interpreted this switch as an evidence of the use of cigarettes as money before that date. Rosen's analysis is however dubious in that he did not provided evidences that the dollar was a medium of exchanges in Austria and not just an asset. In the paper I rely on an analysis of the market's liquidity of eight goods and find that they differed sharply, both before and after the monetary reform.

Qualitative insights on cigarette money in post WW II Germany

Some background history. The emergence of commodity money has roots in the institutional and economic background of the German economy. On the institutional side, the Allies continued the system introduced during the war to deal with shortages of civil goods and to prevent inflation. Prices were set by a German price control authority and those controls were enforced by the German police, both of which being strictly monitored by the occupation armies. Goods were distributed through a rationing system that allocated the available production to consumers through the usual shops' network.

Two major shifts in the economic conditions affected adversely the efficiency of this system. On one hand the failure of the rationing system to provide an adequate standard of living (with less than to 1500 calories per day) created an incentive for Germans to establish and trade on black markets. On the other hand the fiat money lost its purchasing power not because of inflation but because of lack of goods available for sale. As the Nazi regime inflated the money stock during the war while keeping the prices nearly constant, the value of the Reichsmark in trade was very low. The end result was that those money units traded at a discount on post-war black markets (at about hundred times the legal prices) and that sellers insisted on being paid in kind.

Means of payment. Many scholars pointed the particular role played by cigarettes (Schmolders 1973; Hess, 1996; Bub, 2004), indicating that everybody accepted cigarettes in payment. Moreover newspapers wrote that cigarettes have a greater acceptability than the fiat money. For example, in December 1945, *Stars and Stripes* explained that "cigarettes buy potatoes, meat and other necessities because in this fantastic city-market Marks are considered hardly worth more than the paper they're printed on"².

However, the use of cigarettes as money did not preclude the use of other commodities in payments. Friedman (1951, p. 204) noticed that chocolate, candy bar and Cognac were also common medium of exchanges. And most of the U.S. army reports and scholars' articles did not even mentioned cigarettes' use. They rather emphasized that people "acquired most of the commodities they wanted against commodities they had to offer" (Lutz, 1949).

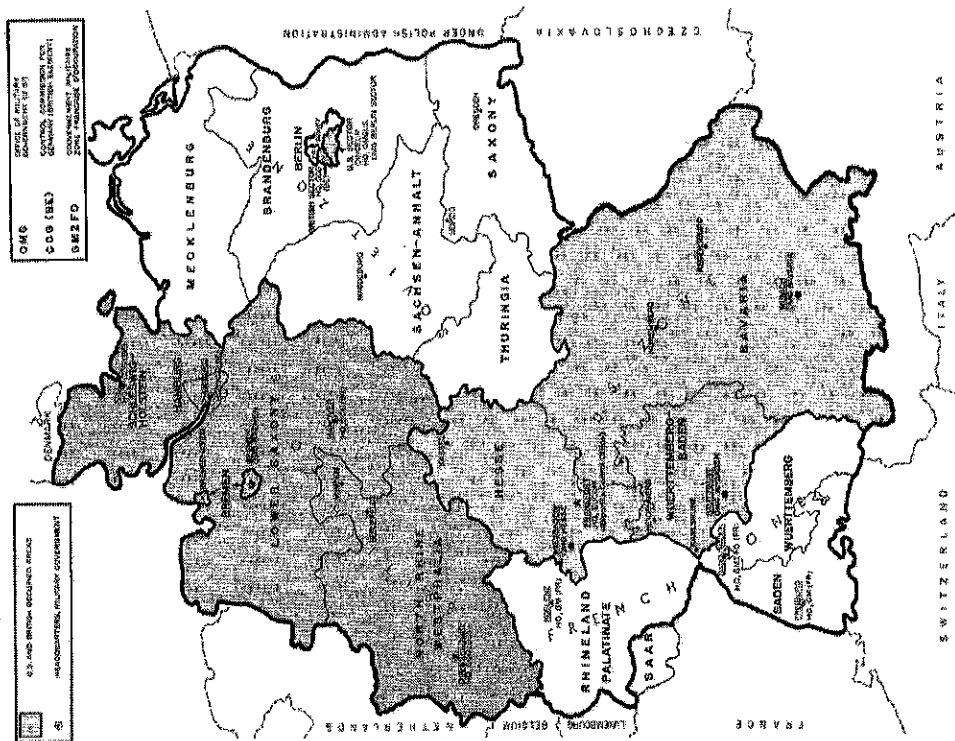
Trading patterns of unlawful trades. The modern theory of money hinges on the liquidity of the object(s) that is (are) used as money (Kiyoraki & Wright, 1989). The demand for those objects has roots in the way people foraged for food in the countryside (Diskant, 1989). Bignon (2007) showed that on the most popular illegal market structure trades were done in a disorganized fashion with mostly isolated pairs of traders, random search and huge time costs. The unlawful nature of those trades made credit difficult (Thurnwald, 1948) and so people used media of exchanges to reduce the cost of searching of a double coincidence of wants. This is best exemplified in the following example:

"In Germany, cigarettes lubricate the trade. For instance, if a Berliner has a large radio that he has decided to sell, he cannot conveniently lug it out into the country in search of a farmer willing to give him butter for it. Instead, he trades it to a black marketer for cigarettes and takes the cigarettes to the farmer. This has had advantage that he can dispose of the cigarettes bit by bit instead of having to accept a whole radio's worth of butter at one time. Meanwhile, the black marketer takes the radio to an American officer who gives him more cigarettes. With these he can get another radio or butter or whatever he needs to carry on his trade."

Herald Tribune, "The Cigarette Standard", February 28, 1947

² In Stars and Stripes, 12/30/1945, "New York Fifth Avenue is a Bargain Deal Compared to Berlin's Lush Black Market", by Jack Caldwell.

OCCUPIED AREAS OF GERMANY WITH ZONES AND LAENDER



Map 1: Post WW II Germany, the *Länder* and the occupied zones

Black market prices and cigarette money

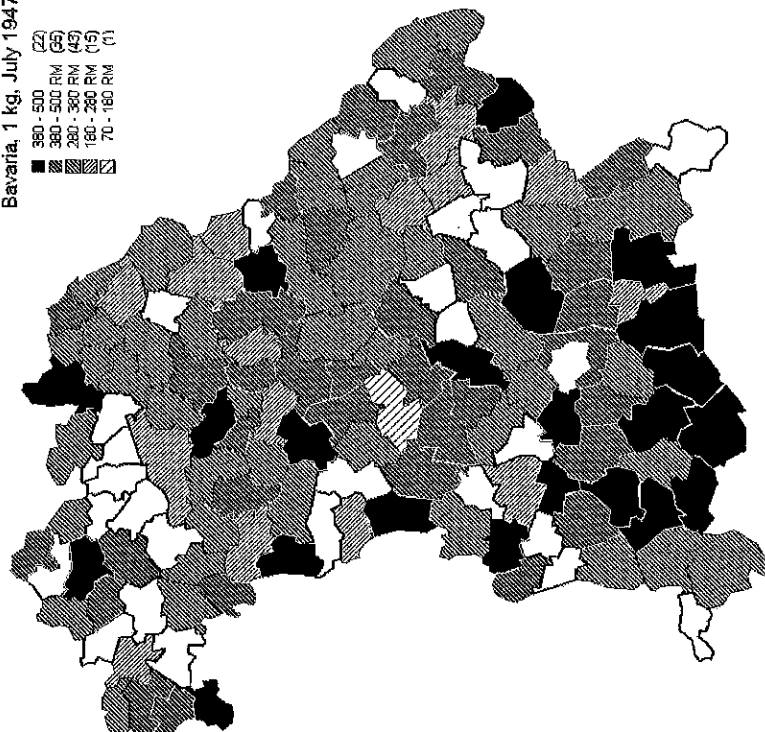
Data. The sample consists of black market prices of 120 out of 143 *Landkreise* (districts) in Bavaria (south of Germany, see map 1) at two dates, the 1st of July, 1947 and the 30th of June, 1948. 1947 prices are denominated in *Reichsmark* in 1947 and those of 1948 in *Deutsche Mark*. Those data were collected by the Economics division of the U.S. occupation forces of Bavaria (OMGB) that asked the local price office to give information on the representative black market prices of eight goods: butter, sugar, coffee, cigarettes, meat, flour, U.S. dollar and Military Payment Coupon. The Military Payment Coupons (hereafter MPC) were labelled in dollar and their original usage was for soldiers to pay in military shops.

Liquidity's measures. Two criteria are used to measure liquidity: 1) a coverage ratio measuring the probability that a given good is sold on those black markets and 2) the coefficient of variation of prices across locations. The first criteria indicated that cigarettes, like butter or coffee, benefited from a wide coverage while U.S. dollars and MPC – the two fiat objects – were quoted in only half of the counties. The coefficient of variation of relative prices measures the risk of using one good or another to pay for those trades. This measure is especially accurate when agents arbitrated between districts with goods rather than *Reichsmarks*. The notable feature is that this statistics is always lower when the relative prices are computed in cigarettes, even when compared with fiat objects such as the U.S. dollars that were perfectly homogenous in quality. This means that an agent who took cigarettes to trade in another district suffered from a lower spatial variation of prices than if he were holding other goods. This suggests that provided agents decided to carry on indirect barter, the best strategy was to pay with cigarettes.

Explaining price dispersion. The level of price dispersion indicated that the law of one price (LOP) did hardly hold on those markets. Three candidate explanations can be given to account for the sample's distribution of prices shown on map 2 and 3.

First it could have been that the LOP hold in each region but that interregional differences explained the level of price dispersion. To test for that possibility, I computed Moran's I statistics and show that there were no spatial autocorrelation in the data. Moreover as maps 2 illustrates, prices could have varied a lot between contiguous markets, which could be interpreted as a sign of market segmentation.

Illegal price of butter Bavaria, 1 kg. July 1947



Map 2: Price distribution of butter in Bavaria on July 1, 1947

The second explanation relies on the fact that markets were segmented, i.e. those prices only reflected the characteristics of each district. To rule out the possibility, I have collected data to proxy for the demand and the supply of those goods and regressed black prices on those variables. The results clearly show no association. The hypothesis of market segmentation must then be rejected and one must consider those markets to be integrated while having differing prices.

The third explanation relies on the consumer search theory (Baye et al., 2006). I show that there was an inverse relationship between the value of the goods traded and the incentive to search as measured by the price dispersion. The only outlier is cigarettes, which confirm that they had a special feature as compared to other goods.

Conclusion

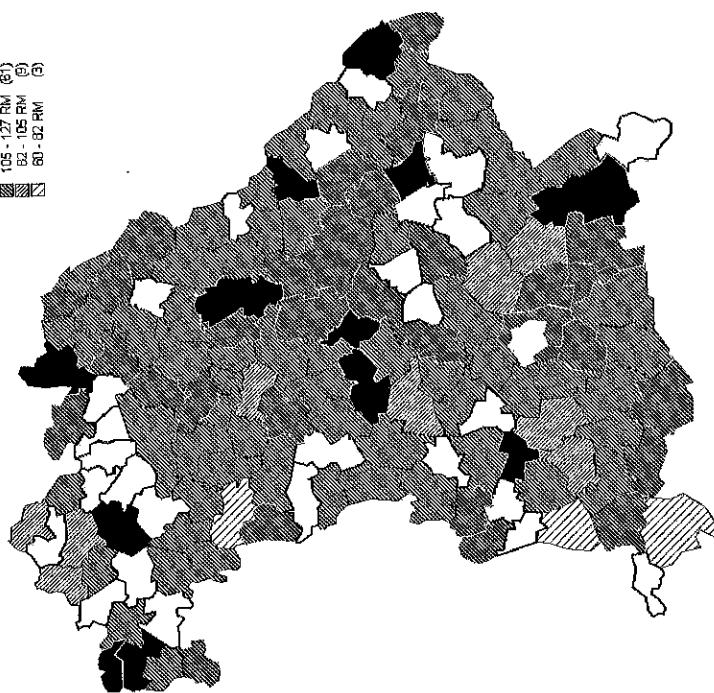
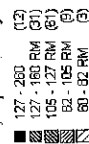
The paper uses new data on black market prices to provided evidences that cigarettes were indeed the money of the illegal sector. This does not imply that others goods were not medium of exchanges but rather that the contemporary newspapers were right in underlining its uniqueness. One striking fact was that the liquidity of cigarette was comparable in 1948 to its 1947 level although a monetary reform reintroduced a new (circulating) fiat money, the *Deutsche Mark*. This shall question the fact that people stopped using cigarette money after June 20, 1948.

References

- Baye M., Morgan J. and Scholten P., 2006, Information, Search and Price Dispersion, *Handbook on Economics and Information*, T. Henderschott ed., Elsevier press, Amsterdam.
- Bub K., 2004, AEG, Siedlerstolz und Schwarzmarkt - Von der Zigarette in der Nachkriegszeit, *Der Schuß aus dem Bild*, Topitsch K. and Brekerbohn A. eds., Munich.
- Bignon V., 2007, Black and Grey Markets for Illegal Exchanges in post WW II Germany, manuscript.
- Diskant J. A., 1989, Scarcity, Survival and Local Activism: Miners and Steelworkers, Dortmund 1945-8, *Journal of Contemporary History* 24, 547-73.
- Friedman M., 1951, Commodity Reserve Currency, *Journal of Political Economy* 51, 203-32.
- Hess H., 1996, The Other Prohibition: The Cigarette Crisis in post-war Germany, *Crime, Law and Social Change* 25, 43-61.
- Kindleberger C., 1949, Germany and the Economic Recovery of Europe, *Proceedings of the Academy of Political Science* 23, 68-81.
- Kiyotaki N. and Wright R., 1989, On money as a Medium of Exchanges, *Journal of Political Economy* 97, 927-54.
- Lutz F. A., 1949, The German Currency Reform and the Revival of the German Economy, *Economica* 16, 122-42.
- Rafford R. A., 1945, The Economic Organization of a P.O.W. Camp, *Economica* 12, 189-201.

- Rosen M., 1947, The Demand for Cigarettes in Austria, *Southern Economic Journal* 14, 186-91.
- Schmolders G., 1973, Die Zigaretten-Währung, *Festschrift für G. Schmolders*, G. Brinkmann ed., Berlin.
- Senn P., 1951, Cigarettes as Currency, *Journal of Finance* 6, 329-32.
- Thurnwald H., 1948, *Gegenwerts- Probleme Berliner Familien, Eine soziologische Untersuchung an 498 Familien*, Weidmannsche Verlagsbuchhandlung, Berlin.

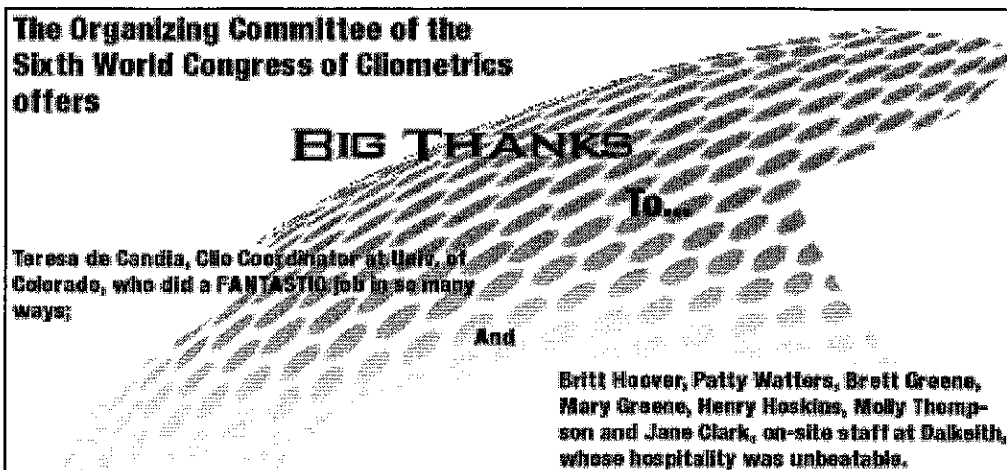
Illegal price of cigarettes Bavaria, 1 pack, July 1947



Map 3: Price distribution of cigarettes in Bavaria on July 1, 1947

Cliometric Society Statement of Operations

	Budgeted 2008	Actual 2007	Budgeted 2007
REVENUES AND SUPPORT:			
Dues - Regular	7500.00	6795.00	6975.00
Dues - Student	100.00	50.00	150.00
EEH Subscriptions	13875.00	13500.00	15300.00
EHES Dues collected by Clio	5250.00	7327.50	5775.00
Cliometrica Subscriptions	3375.00	4485.00	3250.00
Donations	2000.00	1922.50	2250.00
World Congress Receipts	0.00	0.00	0.00
Interest and other income	500.00	525.25	100.00
Total revenue and support	32600.00	34605.25	33800.00
EXPENSES:			
Salaries	1250.00	1925.00	1500.00
Newsletter	4250.00	4000.00	4000.00
Elsevier	13500.00	12823.85	14450.00
Clio member dues remitted to EHES	5250.00	6202.14	5500.00
Springer	3375.00	4553.23	3250.00
IEHA Dues	525.00	242.50	450.00
Director's Travel and Trustees Mtg.	1200.00	1171.22	1250.00
Bank, Credit Card, and Wire Fees	1400.00	1691.81	1350.00
ASSA Meetings	1100.00	1300.00	1300.00
Office Expenses	250.00	234.11	250.00
World Congress Debits	0.00	0.00	0.00
Transfers to Reserve Account	0.00	0.00	0.00
Other expenses	0.00	0.00	0.00
Eh.net dues	500.00	500.00	500.00
Total expenses	32600.00	34643.86	33800.00
CHANGE IN NET ASSETS	0.00	-38.61	0.00
TRANSFERS	0.00	0.00	0.00
NET (operating) ASSETS - Beginning of year	220.95	259.56	259.56
NET (operating) ASSETS - End of year	220.95	220.95	259.56



Letter from the Editor

Dear Colleagues:

It has been a busy year in economic history, as is clear from the contents of this *Newsletter*. The Sixth World Congress of Cliometrics was very well attended, as is clear from the large number of papers and comments summarized here. The EHA meetings at Yale were also marvelous: Those of you who missed EHA will surely enjoy the summary that will be forthcoming in the next issue of the *Newsletter*. The ASSA meetings promise to be insightful as well. You will find summaries of the papers to be presented at Clio and EHA sessions in the center of this issue.

I again invite all members to send along to announcements and summaries of local seminars and conferences. I am happy to include them here.

I am currently looking for authors who have books in press and under contract. I'd like to expand the "Book Excerpt" column of the *Newsletter*. Also, your suggestions of future subjects for our "Interview" column are appreciated. Please send suggestions (but not complaints) to mhansen@american.edu.

Best wishes for a happy conclusion to your fall semester and an even happier start to your new year,
Mary Eschelbach Hansen, Editor

Tattler continued...

have a minor, tedious question."

These days it's common for people at Clio to qualify a comment with "I am not an expert on this, but..." Macalester's Finest did, in fact, use that very qualifier: "I'm not an expert on this, but..." The problem? He was responding to a question about his own paper.

Regular readers of this column—if there are any—know that we hand out several special awards each year at Clio. This year we had three. The first reflects Clio's strong international dimension. We bring together people from all over the world to offer perspectives from their own country. So this year we introduced the *George W. Bush International Good Will Award*. It goes to Old King Coal who told us: "I'm an American Economic Historian; what the hell do I know?" The Tattler could tell that more than a dozen Europeans in the room did not know this was a rhetorical question.

We also had the annual *Robert A. Margo Quantitative Economic History Award*, which is self explanatory. This year's winner is a Meiji specialist who said: "If you're willing to suspend your disbelief, then I will tell you something interesting about my results." Dedicated Clioms are always willing to suspend their disbelief.

Our final special award is the *Deirdre McCloskey How Large is Large Award*, also known as the *Oomph Award*. Deirdre has been asking Clioms for years to define "how large is large." This year the current holder of the Clio Can explicitly asked: "How Large is Large?" And the man from far above Cayuga's waters answered: "73." So, now all you smart, econometric types out there know what to shoot for with your coefficients. If it ain't 73 or larger, forget it! Auntie Deirdre is weeping with joy.

Now for the main event. For you first-time readers, the Tattler's report identifies the Cliom who, in the heat of battle, utters the most universally profound insight at the annual conference. That person joins all past winners in the Clio Pantheon. As part of our

BHC Prizes

At the Business History conference annual meeting in Sacramento, April 10-12, 2008, BHC officers announced the recipients of BHC prizes and grants. More information on these prizes can be found at <http://www.thebhc.org/awards/index.html>.

Harold F. Williamson Prize: Bestowed every two or three years to a mid-career scholar who has made significant contributions to the field of business history. Memorializes the contributions of the late Harld F. Williamson. *2008 recipients:* Andrea Colli (Bocconi Univ.) and Regina Lee Blaszczyk (Penn and Hagley Museum and Library)

Hagley Prize: Awarded jointly by the Hagley Museum and Library and the Business History Conference to the best book in business history (broadly defined) written in English and published during the two years prior to the award. *2008 recipient:* Thomas K. McGraw (Harvard) for *Prophet of Innovation: Joseph Schumpeter and Creative Destruction* (Belknap Press, 2007)

Newcomen Article Prize: Recognizes the author of an article published in *Enterprise & Society* judged to be the best of those

ritual, we begin by reciting (chanting, really) the first winning quote: "Never open a can of worms larger than the universe." Yes, of course, *how obvious*, you say, but these things appear obvious only in retrospect. The Tattler also likes to repeat last year's winner, just to prove that when it comes to universally profound insights, the Clioms never lose their edge. Last year's winner was offered by a Stanford sociologist who informed the assemblage: "People want to reproduce themselves—and go to the grocery."

The second runner-up for most profound quote has almost all of the characteristics of a winner: It's short, to the point, and universally profound. The Cliom from Wabash, which as any Hoosier schoolboy knows is not actually *on* the banks of the Wabash, told the gathered: "You can decompose whoever you want." The Tattler liked that one, but others on the committee had problems with it. One problem was that some did not know what "decompose" meant, and others weren't sure they actually wanted to decompose anyone, even if they could.

Our first runner up is good, but it's not technically a comment; it was posed as a question. During Lou Cain's presentation, that divine diva from the banks of the Susquehanna asked: "If you were born in a city, and you lived in a city, then someday you would die, right?" (An aside: Many Clioms could learn something from Lou's demonstration of the art of concision. He replied, "Right.")

Finally. I'm delighted to report that this year's Cliometrics quote award went to one of Oxford's gifts to LSE who, at Clio some years ago, asked: "Where is North Dakota relative to South Dakota?" He did not win with that one. He outdid himself this year with: "Even if you show what you want to show, you have not shown what you want to show." How true.

Well, that's all the news that's fit to print from Haggisville. And by the way, this is the Tattler's last correspondence. As he rides off into the Carolina sunset, loyal readers, remember: Old Clioms never die; they just run out of data. Goodbye. ■

that have appeared in the volume previous to the year of the BHC annual meeting. *2008 recipient:* Per H. Hansen (Copenhagen Business School) for "Organizational Culture and Organizational Change: The Transformation of Savings Banks in Denmark, 1965-1990," December 2007

Herman E. Krooss Prize: Recognizes the best dissertation in business history written in English and completed in the three calendar years immediately prior to the annual meeting. *2008 recipient:* Lewis Hyman (Harvard) for "Debtor Nation: How Consumer Credit Built Postwar America," 2007

K. Austin Kerr Prize: Recognizes the best first paper delivered at the annual meeting of the BHC by a new scholar (doctoral student or those within three years of receiving the Ph.D.). Honors K. Austin Kerr, longtime professor of history at the Ohio State University and former President of the Business History Conference. *2008 recipient:* Paula Gajewski (Vanderbilt), "Expanding Connections between the New York Stock Exchange and the Employee Retirement Security Act"

Book Excerpt

Editors note: Bradley A. Hansen is the editor's spouse, but this book excerpt has been ruthlessly edited anyway.

Excerpted from *Institutions, Entrepreneurs, and American Economic History: How the Farmers' Loan and Trust Company Shaped the Laws of Business from 1822-1929*, forthcoming from Palgrave MacMillan, anticipated February 2009, by Bradley A. Hansen (Univ. of Mary Washington)

From its founding in 1822 until its merger with National City Bank in 1929, Farmers' Loan and Trust Co. was involved in forty seven Supreme Court cases [including *Stone v. Farmers' Loan and Trust Co.*, *Reagan v. Farmers' Loan and Trust Co.*, and *Pollock v. Farmers' Loan and Trust Co.*], 204 federal appeals court cases, and over 400 cases in state courts. The issues in the cases ranged from the legal duties of corporate trustees to taxation, railroad regulation, corporate reorganization, and barriers to interstate commerce. Some of the cases are still cited more than seven decades after the company ceased to exist as an independent firm... Moreover, the company's attempts to influence the law were not limited to the courts. In the year it was founded Farmers' obtained legislation making it the first corporation ever authorized to act as a trustee. It obtained numerous amendments to its charter during the nineteenth century, and it also sought to influence legislation on issues such as taxation, payment of state bonds, and transportation funding.

Farmers' Loan and Trust Company engaged in many of the usual types of entrepreneurship, such as introducing new products and opening new markets, but its frequent appearances before courts and legislative bodies are evidence of another type of entrepreneurship: institutional entrepreneurship. Its attempts to shape "the rules of the game" to its benefit were a central part of the company's strategy, a strategy that helps to explain its ability to survive and expand (North 1990: 3). This book tells the story of the Farmers' Loan and Trust Company with a focus on its role as an institutional entrepreneur.

The story of Farmers' Loan and Trust Company has interest in its own right as the history of a business that survived for over 100 years and became one of the country's leading financial firms. The story of Farmers' also sheds light on an overlooked aspect of American economic history: the role of trust companies in the development of corporate finance. Furthermore, telling the story of Farmers' Loan and Trust Company with a focus on its role as an institutional entrepreneur provides insights that extend beyond the particulars of Farmers' story. Viewing Farmers' story through the lens of institutional entrepreneurship yields insights on the nature of institutional change, the role of the entrepreneur in business history, and the development of the American economy...

Economists and historians have brought new theories and new evidence to the study of commercial banks, insurance companies, and stock markets. Trust companies, in contrast, remain understudied... The lack of attention given to trust companies is surprising given the significance of trusts in American business history...

Trust companies emerged in the 1820s and 1830s during a period of rapid innovation in American finance, when entrepreneurs

founded commercial banks, insurance companies, savings banks, building and loans, and trust companies to meet the country's need for financial intermediation. As the name implies, trust companies differ from other financial intermediaries because of their power to act as a trustee. In a trust, one person transfers property to second person to administer for the benefit of a third person...

Prior to the nineteenth century trustees were private individuals, not corporations... The Farmers' Loan and Trust Company was the first corporation to be explicitly chartered to act as a trustee. Its directors included such notable figures in American business history as Moses Taylor, Daniel Drew, Frederick Billings, and Cornelius Vanderbilt. It acted as a trustee for some of the country's most important corporations: the Erie Railroad, the Northern Pacific Railroad, and Western Union Telegraph, for example. It was the trustee for the \$250,000,000 loan taken by England after World War I. It survived for over one hundred years and weathered the many financial panics of the nineteenth and early twentieth centuries.

By the early twentieth century the directors of the Farmers' Loan and Trust Company were regarded as part of the "Money Trust" that controlled American industry through its use of interlocking directorates. Farmers' closest tie was with National City Bank. When the Clayton Act prohibited interlocking directorates, Farmers' and National City had to sever these ties. But the companies had been successful when working in tandem. In 1929, the two companies merged. Farmers' became City Bank Farmers' Trust and took over National City Bank's trust operations, while National City Bank took over Farmers' banking operations. The merger created the largest financial institution in the world. Ultimately, the Farmers' name was lost as National City Bank became Citibank, now Citigroup.

Farmers' prominent role in legal history and its notable role in financial history are not unrelated. Part of Farmers' success stemmed from its ability meet the demands for new services as the economy developed. But, in part, it created the environment for its own success by promoting legal-institutional change that supported its business. Rather than passively accepting the law as it was, the Farmers' Loan and Trust Company actively sought to shape the law to its advantage. Institutional change was a key part of Farmers' business, and a study of Farmers' history can lead to better understanding of institutional change, entrepreneurship, and American history...

What has been largely absent from both exogenous and endogenous theories of institutional change is what Schumpeter referred to as the creative response. North notes that entrepreneurs induce institutional change, but he does not focus on the activities of specific entrepreneurs. Schumpeter argued that economists needed to consider the specific creative responses of entrepreneurs. To Schumpeter the creative response, as opposed to an adaptive response, can be understood *ex post* but not predicted *ex ante*, and changes the future course of events. Putting the lamp out earlier in the evening was the adaptive response to higher prices for whale oil; turning petroleum into kerosene was the creative response.

Continued on page 71

Kevin O'Rourke (Trinity College Dublin) pointed out the most interesting part would be to analyze productivity in the various sectors during industrialization, and to what extent the catch-up took place in the cottage industry vs. the modern sector. **David Mitch** (UMBC) discussed causality issues: maybe the Indian development was not led by the service sector but growth pushed services? Other people in the audience raised concerns about the informal sector and the high level of aggregation in the service sector.

Rui Pedro Esteves (Oxford) presented his joint work with David Khoudour-Casteras (EPII). They quantify the impact of migrants' remittances on the economies of sending economies during the classical Gold Standard Era. In particular, they argue that substantial remittances lower the probability of a financial crisis. Many questions concerned the construction of the underlying remittance data. **Stephen Nafziger** and **Chris Minns** (LSE) suggested that the changing technology behind the transfers and time itself should be more explicitly accounted for in the analysis. **Donald Paterson** (Univ. of British Columbia) questioned the 'net' basis of the calculated remittances: Were these funds used to fund further migration?

John A. James (Virginia) and his co-authors **James McAndrews** (Federal Reserve Bank of New York) and **David F. Weiman** (Barnard College) examine data following bank panics in 1893 and 1907 during which payments in cash were suspended. They use published prices for the cost in other cities of payments in New York dollars. The price fluctuations faced by national banks suggest that restricting payments did not mitigate all the problems related to the underlying panics.

In the next session, David Mitch argued that the "payment by results scheme" implemented in Victorian England (1862-1890) was an attempt to increase the efficiency of the simultaneous and huge increase in educational spending. **Stephen Broadberry** suggested that Mitch look explicitly at the impact of Anglican schools. **Greg Clark** (UC-Davis) questioned the research question; he claimed that Mitch "is running away from what the public want to know." Mitch redirected the audience, stating that he was interested in the public finance component of the education debate.

Maarten Bosker (Utrecht) presented joint work with **Jan Luiten van Zanden** (IISH) and **Eltjo Buringh** (Utrecht) that claims that Western Europe industrialized before the Arab World because of the superior urban system in the West. **Frank Lewis** wondered if high transport costs in the Arab world led to many small cities? **Mark Dincecco** was looking for information on the constraint of the executive and "the spirit of Douglas North." **Price Fishback** pointed out that warfare led to expanded city walls, and thus to larger cities.

Louis Cain (Loyola and Northwestern) presented joint work with **Sok Chul Hong**. They examine a one percent sample of Union Civil War veterans to assess the impact of urban living on survival rates. Once people pass childhood, city-born urban residents have better chances of surviving in cities than migrants from rural areas because the former have more immunity to transmittable diseases. By the time Cain explained his 100 lifetime-mobility dummy variables, he had convinced everybody

that he, indeed, had accounted for rural-urban migration. **Steven Nafziger** suggested that urbanization be measured with a continuous variable, and **George Boyer** (Cornell) raised the issue of Irish-born urban residents who had suffered long-lasting damages from experiencing severe famine during childhood. **Andrew Seltzer** advised to add a control for the answer to "Where did you spend the last winter?"

Guillaume Daudin (UL-I and Sciences Po) argued that market size and internal trade were at least as large in France as they were in England for many goods at the onset of the industrial revolution. Exploiting a rich trade database from 1794, Daudin calculates how many internal markets were larger than the British markets for specific goods. He rules out market size as the dominant reason for the why Britain was first to industrialize. **Tim Leuing** suggested that Daudin repeat this exercise for Britain, as many in the audience were calling for a benchmark for his numbers. Daudin insisted that this would be impossible due to a lack of data.

Kevin O'Rourke summarized work co-authored with **Sibylle H. Lehmann** (Trinity College Dublin). They show that the type of import tariff mattered for growth during the 1875-1913 period. Agricultural tariffs have a negative correlation with GDP growth while manufacturing tariffs have a positive correlation. **Joerg Baten** (Tuebingen) suggested that human capital should be included in the growth regressions. **Price Fishback** queried the use of GDP per capita in this context; O'Rourke defended the variable as "meaning something." The general discussion concentrated on the distinction between core and periphery countries in the Gold Standard system.

Andrew Seltzer presented work co-authored with **Jeff Frank** that explores a rich dataset on employment and earnings of **William Deacon's Bank** between 1890 and 1941. The bank began employing women in 1915 primarily in "back-office" positions. Wages were initially similar for men and women, but gender gaps emerged for workers with ten or more years of tenure. The addition of women to the banks tended to depress overall wages, but created promotion opportunities for men.

Elise Brezis (Bar Ilan Univ.) argued that there was a slave market in Korea that can be compared to slave trade in the United States. **Tim Leuning** (LSE) noted that Brezis can document only one slave transaction every 140 days, which cannot be considered sufficient to speak of an efficient market. Brezis assured that many more transactions had taken place but that not all the records have survived. **Frank Lewis** was concerned about the low mean age of male slaves (12 years). **Ann Carlos** felt the Korean case might be less "slavery" and more of an extreme caste system or bonded servant system because the young ages of slaves at sale suggested apprenticeship-like relations. **Stephen Morgan** (Nottingham) advised Brezis to explore the Imperial household records to address the consequences of the Japanese-Korean War. Brezis was directed to a 1998 history of Korean slavery that argued people were forced to sell their children or old parents into slavery in times of economic crisis.

Carsten Burhop (Max Planck Institut) troubled his audience by presenting a thoroughly revised version of his paper on the underpricing of initial public offerings on the German market, which made prepared comments on his extended abstract in

the conference booklet meaningless. Clioms recovered quickly. Caroline Fohlin noted that, while in the U.S. shares were sold at the same day that they were issued, in Germany as much as one year could pass. Stefano Ugolini said the variable used to proxy for a bank's reputation was faulty. Shareholder structure and the inexperience of bankers in 1870 were discussed.

Sun Go (UC-Davis) argued that the timing of the introduction of free schooling in different US districts was a function of local property value differences. Local property values determined "rate bills" and ultimately the education budget. Price Fishback queried the motivations of the actors in Go's political economy model: Why would they care about education in the adjacent counties? David Mitch wondered about the role of migration. Greg Clark suggested that Go think about the rise of a minimum education 'norm'.

Zorina Khan (Bowdoin) talked about incentives for inventors in Britain and the United States. Differences in the patenting systems resulted in patents for capital-intensive inventions in few industries in Britain and a broader patent structure in the United States. Stephen Broadberry argued that agriculture-related patents applications in the U.S. had different social origins than British inventors. Steven Nafziger worried if prizes for inventions mentioned in the paper merely captured the general level of sophistication in a society.

Marta Felis-Rota (LSE) presented new estimates of social capital stock in the 19th century for 23 countries. The measures have a strong positive relationship with GDP per capita. Steven Nafziger, Kevin O'Rourke and Christopher Kingston warned the author to be careful with vocabulary and to define social capital carefully. Joerg Baten noted that Nazi Germany had high levels of social capital in some respects but not in others. **Rick Steckel** (Ohio) suggested that Felis-Rota think about the fact that war might increase social capital but destroy human and physical capital.

Esther Redmount (Colorado College), **Arthur Snow** (Georgia), and **Ronald Warren** (Georgia) use data from a Massachusetts textile manufacturing firm in the 1880s to examine the transition from monthly to weekly payments of workers. The firm gave workers the option of weekly payment several months before the law required it. They conclude that workers work more hours with the more frequent payment schedule. Also, the change reduced the workers' need for high-interest, short-term borrowing from local establishments.

David Jacks (Simon Fraser) presented work co-authored with **Chris Meissner** (UC-Davis) and Dennis Novy on trade booms, trade busts, and trade costs. Nikolaus Wolf (Warwick) noted that changes in the elasticity of substitution over time could lead to changes in the composition of trade. Joerg Baten questioned the accuracy of the figures for Asia. Joshua Rosenbloom found it heroic to assume that no change in international specialization had taken place during the period under study, which would have led to a higher variety in traded goods. **Susan Wolcott** (Binghamton) discussed countervailing international trade and specialization. Many were concerned about the accuracy of price data and the methods used for deflation.

Heather Howard (Brigham Young) examines the emigration of Mormon households from the British Isles to Utah between 1854

and 1885. She uses household data recorded by the Perpetual Emigrating Fund Company that provided loans those converting. Adult baptism signaled both conversion to Mormonism and the intention to migrate. Howard finds that loans were determined by the financial needs of borrowers more than policies of occupational targeting.

William Troost (U. British Columbia) uses 19th century census data to examine the gender literacy gap among blacks in the U.S. South. Black men born in 1850 had higher literacy rates than females the same age. In later cohorts the situation reversed as female blacks took advantage of new educational opportunities. David Mitch suggested that change in the gender literacy gap might be caused by alterations in the occupational structure for black females. Susan Wolcott proposed the incorporation of wage data to proxy the incentive structure. She also noted that men are far more likely to require intellectual catch-up for "natural reasons." Christina Gathmann noted that changes in the black age-profile and at the abolition of slavery might be related.

Donald Smythe (California Western School of Law) investigates adoption of the Uniform Sales Act by states. In principle, the law made it easier for businesses to sell goods and services across states lines. Only thirty-four states adopted the legislation between 1906 and 1947. He finds the likelihood of adoption is driven by the importance of manufacturing in the state and the actions of neighboring states.

Joyce Burnette (Wabash) tests for wage discrimination by comparing the ratio of male-female wages to the ratio of male-female productivity. Her approach is motivated by a concern that commonly used decomposition methods confound discrimination and omitted variable bias. Burnette uses a data from US textile manufacturers in 1832 and does not find that women were underpaid relative to their marginal product. Audience members voiced concerns about endogeneity and the competitiveness of the textile industry. Tim Leunig and Price Fishback both recommended alternate datasets.

Felipe Tamega Fernandes (LSE) argued that from 1870 to 1910 the Brazilian government failed to implement the optimal tariff and sacrificed almost one percent of GDP per year in lost tax revenues. **Jeffery Williamson** (Harvard) called for Fernandez to use a general equilibrium model. After some discussion of the Brazilian labor market, Williamson was prompted to declare that "imperfect labor markets saved the day!"

George Boyer and **Jessica Bean** (both Cornell) presented their work on welfare reforms and household poverty in 19th century Britain. Price Fishback asked the authors to provide more information on what it meant to be poor. Jeffrey Williamson wondered if it was possible to disentangle the effects of the many policy changes that occurred around 1909. The audience discussed the effects of minimum wages, cash welfare versus payments in kind, and child labor laws.

John Tang (US Census Bureau) impressed his audience with new data on the role of financial conglomerates in industrializing Japan. Niko Wolf discussed the role of international trade, inspiring Peter Meyer, who wondered if firms with trade links might have had advantages. Carsten Burhop said that Japanese patents in the US and other countries should be included in the data set. Max Schulze (LSE) wondered about licensing

agreements. Stephen Morgan was interested in capital-intensive versus labor-intensive industrialization. Sumner LaCroix thought it might be interesting look at the time lag in the introduction of new products between Western countries and Japan.

Stacey Jones (Seattle Univ.) talked about changes in the occupations of American women. She argues that a reduction of teaching positions pushed women into medicine, law, and business, which had intergenerational effects. Price Fishback suggested using state-level data. Andrew Seltzer advised including marriage rates in the analysis. Greg Clark wanted an accounting of the quality of teachers. David Mitch discussed changes over time in expectations about education.

Jérôme e Sgard (Sciences Po Paris) presented research jointly authored with Vincent Bignon on bankruptcy in 19th century France. Of principal interest was the relationship between the number of bankruptcies and the number of firms, and also the bankruptcy rate and the GDP growth rate. Max Schulze suggested that the authors account for structural change. Dan Smythe wanted information on the legal framework. Eugene White (Rutgers) suggested a more sophisticated time series analysis. Pierre Pierre-Cyrille Hautcoeur noted that bankruptcies are a reflection of asymmetric information, and information systems were improving in the 19th century.

Alan Dye (Barnard) examines the addition of sugar to New Deal agricultural legislation. Sugar was initially omitted because it was feared that raising its price would induce large imports. At President Roosevelt's urging sugar was added to the list and a quota system was developed. Cuba was significantly impacted by the quota. Dye describes Cuba's participation in an international sugar cartel between 1931 and 1935 formed to reduce stockpiled sugar while stabilizing the falling price.

Dorothee Crayen (Tuebingen) presented her work with Joerg Baten. They proxy human capital development worldwide 1820-1940 with a measure of the decline in age heaping in self-reported data. Stephen Morgan questioned this measurement for the case of China. Max Schulze suggested they transform flow into stock measures, while Caroline Fohlin tried to arrange the sub-periods differently. Greg Clark advised not to trust Maddison's estimates for developing countries.

Melinda Miller (Michigan) discussed the positive impact of free access to land for former slaves in the Cherokee Nation. Greg Clark questioned Miller's choice of comparison group. William Troost wondered about property right issues, and **Douglas Puffert** (The King's College) wanted to know about racism in the Cherokee Nation. Others wondered whether occupants on the border of the Cherokee Nation married into the Nation to gain access to land.

Tomas Murphy (Universita Bocconi), in joint work with Sandra Gonzalez-Bailon, uses simulation to explore the causes of the demographic transition in France. They are able to explain fertility trends but not fertility levels. They explicitly consider how the French Revolution changed individual fertility decisions. Sumner LaCroix contended that the Revolution effect probably differed between rural and urban areas. Neil Cummins considered the model too simplistic to capture the heterogeneity of the French provinces. Rick Steckel reminded Murphy that there were dramatic changes in both social and legal

environment. Peter Meyer argued that books were very important in bringing about social change, and that Tommy should check if centers of fertility decline were also centers of publication.

Susan Wolcott examines microfinance in India with comparisons to lending in Bangladesh by the Grameen Bank. Wolcott highlights the cultural norm of ceremonial spending in India, which accounts for 20 percent of the debt of poor families. Bishnupriya Gupta was concerned about the inability of Indians to migrate to earn money to repay. Joshua Rosenbloom noted that ceremonial spending may have minimal general equilibrium effects.

Cris Minns (LSE) presented work authored jointly LSE colleagues Tim Leunig and **Patrick Wallis**. They exploit a new dataset matching apprentices to masters in pre-industrial London. They find very little evidence to suggest that common hometowns or kinships played a role in determining apprentice-master matches.

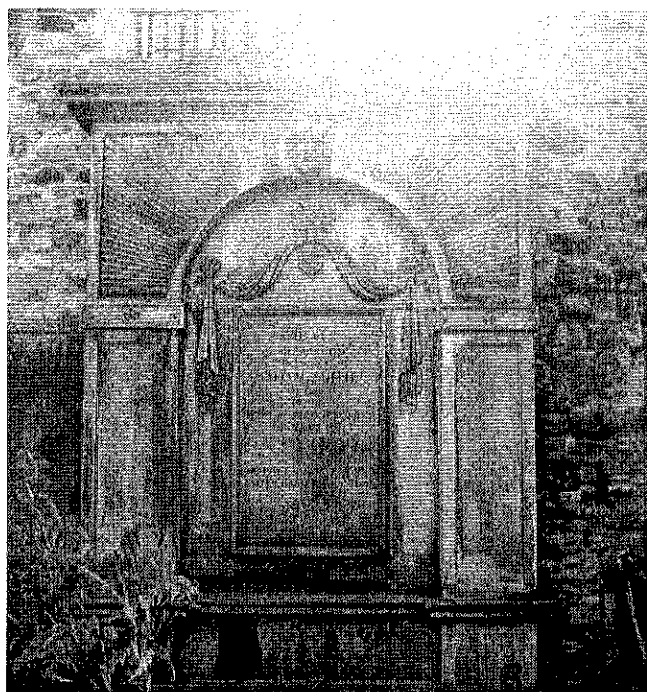
Greg Clark and **Neil Cummins** (LSE) presented new evidence on the changes in fertility in England. Using data from centuries of wills, they conclude that fertility fell among the rich before it fell among the poor. The highlight of the session was Greg Clark's pronouncement that "we throw our clothes on the floor and stand naked, ready to fight" in defense of his hypothesis that a change in the structure of the British population prompted the Industrial Revolution.

The Shakespeare-award winner **Paul Sharp** (Copenhagen) overwhelmed his audience with a very technical paper co-written with Niels Framrose Muller. They examine Malthusian preventive and positive checks in "cointegration space," which is work.

Eugene N. White (Rutgers) presented a paper written jointly with **Angelo Riva** (Paris X University) on the history of the Paris Bourse. The Paris Bourse was a forward market with 60-70 brokers where accounts were settled monthly. The market faced several failures as a result of defaults and attempted to make institutional changes. Failures continued despite the establishment of a common fund to protect the solvency of brokers. Brokers also faced competition from the unregulated "curb" market.

Nikolaus Wolf and Max-Stephan Schulze presented their research (co-authored with Hans-Christian Heinemeyer) on the impact of the borders created after WWI on trade in the former Hapsburg Empire. They create a new database on central European Trade and use it to argue that borders have a limited effect upon trade. They believe that much of the commonly observed border effects of trade reflect deeper cultural heterogeneities. Tim Leunig suggested that the authors construct a counterfactual around the question "was Wilson right?" Others queried the effect of industrial relocation and political changes.

The final evening's banquet in the Palace was plentiful and delightful. The traditional opening ceremony of the dinner included Scottish pipes recital, a very special toast with Scottish poetry, and a traditional quilt in honor of the local poet Robert Burns, and corresponding blessing of the haggis, which is the local food specialty made of ...well, you better investigate this bit yourselves. ■



Adam Smith's gravesite with invisible hand lighting. Photo credit: Summer La Croix (Hawaii)

Book Excerpt continued...

Developments in the theory of institutional change reinforce Schumpeter's point that the individual's creative response matters... Although Schumpeter emphasized the importance of entrepreneurship he was not concerned with institutional entrepreneurship...

The history of financial intermediation in the United States is a particularly appealing place to join together the study of institutions and entrepreneurship. Schumpeter regarded access to credit as the key ingredient for an entrepreneurial economy. The essence of entrepreneurship is a reallocation of resources to more productive uses. The entrepreneur believes that land, labor and capital will be more productive and therefore more profitable under his direction than under the current use. The creative response, entrepreneurs doing things in new and better ways, has been the driving force in economic growth. But to create growth, the entrepreneur first has to solve a problem. In order to innovate, the entrepreneur has to draw resources away from their current uses. To draw them away from their current uses he has to pay a higher price. In theory, paying a higher price for resources is not a problem; if the entrepreneur is correct the resources will be more productive and the payoff will be large. In actuality, paying a higher price for resources is a considerable problem because

New Archives

St. Louis Fed Introduces Digitized Archives

The Federal Reserve Bank of St. Louis recently introduced the Center for Economic Documents Digitization (CEDD). The Center's mission is to preserve the nation's economic history through digitization. This storehouse of documents includes U.S. government publications, Federal Reserve publications, photographs, manuscripts, and multimedia formats, all available on the St. Louis Fed's FRASER website: <http://fraser.stlouisfed.org>.

THE CLIOMETRIC SOCIETY

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the payoff only comes after the resources have been used. How is the entrepreneur to obtain the funds to draw resources away from their current uses in the first place?

The answer is credit. To draw resources away from their current uses entrepreneurs must be able to borrow the necessary funds to implement their innovations. Thus the key to economic development is entrepreneurship, but the key to entrepreneurship is well-developed financial markets...

Now let us take it in the other direction: Institutions are created by entrepreneurs. The United States developed institutions that promoted financial development, innovation, and economic growth, and underlying these achievements are the creative responses of the individuals and firms who shaped the institutions, who altered the rules of the economic game. Businesses can seek to alter the rules of the game by lobbying the legislature at the local, state, or federal level. They can also bring a controversy before the courts and argue for a particular interpretation of the law. And they can reinterpret the rules without seeking to formally change them. The Farmers' Loan and Trust Company did all of these. In the story of Farmers' the study of institutions and the study of entrepreneurship converge. ■

Documenting Louisiana Sugar, 1845-1917

Documenting Louisiana Sugar provides historians and social scientists with an innovative tool for examining plantation economy and agrarian society in the American South. Documenting Louisiana Sugar makes available two fully searchable databases that allow users to examine in micro and macro detail the evolution of one of America's definitive plantation crops, namely cane sugar. These can be freely accessed at www.sussex.ac.uk/louisianasugar. ■



First time participants in a Clio Conference. Front row (L to R): Julia Casutt-Schneberger (Zurich), Qing Ye (Queen's U. Belfast), William Troost (UBC), Ricardo Paixao (U. Sao Paulo), Jessica Bean (Cornell). Second row: John Tang (US Census Bureau), Riad Rezzik (Sciences Po Paris), Tomas Murphy (Universita Bocconi), Masato Shizume (Kobe), Dorothee Crayden (Tuebingen). Third row: Neil Cummins (LSE), Stefano Ugolini (Institut d'Etudes Politiques de Paris), Alexander Rathke (Zurich), Jean Luc Demeulemeester (Free Univ. Brussels), Melinda Miller (Michigan). Fourth row: Maarten Bosker (Utrecht), Patrick Wallis (LSE), Patrick Van Horn (Michigan-Dearborn). Fifth row: Ilja Kristian Kavonius (Helsinki), Sun Go (UC-Davis), Oliver Accominotti (Sciences Po Paris), David LeBris (independent). Back row: Andrew Newell (Sussex), Arto Kokkinen (European University Institute), Paul Sharp (Copenhagen). Also pictured: Claude Diebolt (Univ. Louis Pasteur) keeping order among the newbies. Photo credit: Sumner La Croix (Hawaii). Attending for the first time (but not pictured) were Stephen Morgan (Nottingham), Esther Redmount (Colorado College), Jerome Sgard (Sciences Po Paris), Donald Snythe (California Western School of Law), Arthur Snow (Georgia), Tobias Straumann (Zurich), and Ronald Warren (Georgia).