

The NEWSLETTER

of

September 1985 Vol. 1 No. 1

THE
CLIOMETRICS
SOCIETY

Report on the World Congress

The first World Congress of Cliometrics was held at Northwestern University from May 30th to June 2nd. Over 90 participants attending from around the world created a lively discussion of topics ranging from Eleventh Century tax assessments to Twentieth Century oil cartels, and from Japanese rice merchants to Scottish entrepreneurs. There were 28 papers presented and the abstracts of these papers are enclosed. The addresses of the authors are included; you may wish to contact them.

On Thursday evening there was a plenary session where Jonathan Hughes gave a talk, "Cliometrics: Memories and Predictions." After he spoke there were comments by Robert Fogel, Peter Temin, and Jeffrey Williamson. Williamson's response to read a letter he "will" receive. The speech and letter are reprinted here.

The major business conducted at the Congress was the adoption of an organizational statement for the Cliometrics Society. The following statement was approved by the members present.

- A. The purpose of the Cliometrics Society is:
 1. To maintain and circulate a membership list.
 2. To offer a reduced subscription rate to *Explorations in Economic History* for its members
 3. To organize an annual Cliometrics Conference and to promote future World Congresses
 4. To carry out other activities at the direction of the Board of Trustees
- B. The Board of Trustees will consist of a secretary/treasurer and five elected Trustees selected from among the members by ballot. Each year one Trustees will be elected for a five year, non-renewable term.
- C. The Society will be chartered or Incorporated.

Membership List

We have included and updated the membership list with this mailing. We hope that most of the errors have been removed, but if your listing is incorrect, please let us know. The editors of *EEH* and *JEH* have told me they find the list quite useful for selecting referees and finding people to review books. We have had more than the usual problems in getting the list into an organized form on the computer. For a small fee, we are now able to provide any member with a copy of the latest update of the enclosed membership list on a floppy disk that can be used with D.Base III. We can also print out a set of mailing labels.

Samuel H. Williamson, Editor

Explorations in Economic History (EEH) Subscriptions

Members of the Cliometric Society receive a discount on their subscription to *EEH*. For 1986, North American members will pay \$34 for a Society membership and subscription, while members from the rest of the world will pay \$42.50 for both. (The non-members subscription rates will be \$43.50 and \$56.00 respectively.) Several members did not receive some of their issues this year. We have had several communications by phone and mail with Academic Press, trying to straighten things out. If, in spite of their recent assurance of having solved all the problems, you have missed any 1985 issues of *EEH*, please write to the Society office and explain.

Renewals for both *EEH* subscriptions and Cliometrics Society memberships will be sent out in December.

Newsletters

Starting with this mailing, we plan to maintain a schedule of three newsletters a year, one each in September, December and April. We invite you to forward to us any news that you think would be useful to the members.

It is the plan that each year the September issue will include the abstracts of the U.S. Cliometrics Conference and the December issue will contain the annual membership renewal and the ballot for trustees. This year's December issue will include the abstracts of the Canadian Cliometrics Meetings, which will be held in October. In future issues we would like to add announcements of other meetings and perhaps their abstracts as well.

A regular feature of the *Cliometric Newsletters* is to be a classified section where members can place ads free of charge offering information to trade, seeking data sets, looking for sources, etc.

To give you an idea of ads you might want to place, I have sought out four such ads that appear here. If you are interested in placing an ad in the December issue, the only requirement is that it be received at the Society office by November 15th. Please keep the text of your ad to a minimum. Of course the Society is not responsible for the accuracy of the information in the ads.

Other features of future issues may include invited columns on issues that should interest the members, such as what computer programs might have special usefulness for cliometric research, a description of a new data set that is available, or an annotated bibliography of a particular subject in the field. The *Newsletter* will not be publishing articles.

Classifieds

NEEDED: Information on British Cotton Firms, 1795-1850. Would like to acquire additional information on set of all cotton firms in Lancashire region engaged in hand or power weaving during above period: Previous activities, physical and financial scale, output mix, markets, prices, etc. are of interest. Will trade from extensive current data set on the subject. Donations will be gratefully received. John Lyons, Dept. of Economics, Miami Univ., Oxford, OH. 45056, USA

FOR TRADE: I have daily stock prices on major stocks for London for the entire 18th century. Will exchange for comparable data for any part of the 18th or 19th century in any other stock exchange. Larry Neal, Box 64, David Kinley Hall Dept. of Economics, Univ. of Illinois, Urbana, IL. 61801, USA

WANTED: Information on scattering of holdings in agricultural land. Examples in detail, and proffered explanations (inheritance, egalitarianism, risk aversion). World-wide, any period. Don McCloskey, Dept. of Economics, Univ. of Iowa, Iowa City, IA. 52242, USA

FOR TRADE: will exchange rural/urban cost of living differentials (especially quality adjusted rents) in England, early 19th century for similar data from any other country undergoing industrialization. Jeffrey Williamson, 216 Littauer Center, Harvard Univ., Cambridge, MA. 02138, USA

THE CLIOMETRICS SOCIETY

DEPARTMENT OF ECONOMICS
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September 14, 1984

Dear Cliometrician,

Enclosed you will find a complete list of the members of the Cliometric Society, their addresses, and their fields of interest. Alas, it took us two weeks to get the computer to print it out for us, which is why this letter is late. We think most of the bugs are out now. We realize that no classification system will be able to categorize everyone's work, particularly for a group as diversified as economic historians. It should, however, provide some help to you in finding others that have interests similar to yours. At your request we will provide all or part (sorted as many ways as you want) of the enclosed list on mailing labels. Our only charge will be the cost of the labels, or if you choose, send us your labels and we will print directly on them. A third alternative is for you to send us a diskette and we will copy the list on it for your computer. The list has been generated on an IBM PC using D-Base III.

AN AGREEMENT HAS BEEN REACHED WITH ACADEMIC PRESS

Academic Press has just informed us of its new (1985) rates for a subscription to Explorations in Economic History. For the United States and Canada the rate will be \$79.00 (US) for institutions \$39.50 (US) for individuals. For the rest of the world these rates will be \$96.00 (US) and \$52.25 (US) respectively. The Society has negotiated a reduced rate for its members. Starting with volume 22, the charge for being a member of the Society and receiving Explorations in Economic History will be \$34.00 (US) for residents of the United States and Canada and \$42.50 (US) everyone else. Either way these rates are high, however, it was the best we could do at this time. The fee for membership alone will remain at \$3.00 (US). Please use the enclosed form when sending in your fees either for the membership alone or for the combined membership and subscription. They will be due in December each year.

THE WORLD CONGRESS WILL BE AT THE END OF MAY

1) The First World Congress of the Cliometrics Society will be held at Northwestern University in Evanston, Illinois from Thursday May 29, 1985 through Sunday, June 1, 1985. An international steering committee has been formed to help organize the Congress and to promote participation from around the world.

Committee members are: Akira Hayami, Keio University; Donald McCloskey, University of Iowa; Joel Mokyr, Northwestern University; Don Paterson, University of British Columbia; Jonathan Pincus, Australia National University; Gianni Toniolo, Universita Degli Studi Di Venezia; G.N. Von Tunzelmann, University of Sussex; Kozo Yamamura, University of Washington; and Samuel Williamson, Miami University.

2) This is the official call for papers to be considered for presentation at the World Congress. Anyone who wishes can submit a paper. The papers should not be finished products or works already published, but working papers or reports on work in progress. What we request is an abstract and at least part of the paper for our consideration to be sent with the enclosed form. It must be received by December 1, 1984 and if it is selected, the final draft should be finished and to us by March 1st, 1985. By the end of January everyone will be notified as to whether their paper has been selected.

Clometrics conferences are different from most scholarly meetings. The papers are circulated to all participants well in advance. There are no presentations since everyone will have read the papers, therefore, the sessions are devoted to discussion. If you wish to attend the Congress but not submit a paper, please return the enclosed form as well.

3) It is our desire to include as many interested members as we can, but attendance will be limited by space and the budget. You must be invited to attend. We will cover most or all of the expenses including travel if we can raise the funds. We may not know about our finances until December, so please request an invitation based on the premise that participants will have their way paid.

Sincerely,



Samuel H. Williamson
Secretary/Treasurer

SHW:pa

Climetrics: Memories and Predictions

Jonathan Hughes

I am flattered to be asked to say a few words on this night about our little revolution in Economic History. I shall try to do some justice to the topic, although any one of a dozen here tonight, who also were "present at the creation" could do the job as well. They are the members of my marvelous cohort, defined as everyone 50 or over plus former child wonders. I need not read the roll: look at the footnotes in the JEH or EEH and you'll still see their names despite the stage being now crowded with people under 50, under 40, and, God help us, even under 30. Indeed, for several years now I have felt like a mere onlooker, albeit a very proud and satisfied onlooker, as the tide of Climetric development wildly plunged on its destined course. I am personally a very low-tech economic historian these days, resisting even the word processor on the simple-minded ground that I don't need anything to make my work go faster, I need better ideas. I still write my work in pen and ink. Even if it is too late for fundamental improvement, one must always hope, and try. We will end up as museum pieces. But it's still fun. I treasure, in this regard, a letter from the great Sir John Hicks, who wrote that he so much enjoyed my contribution to his own Festschrift because it was one of the two or three pieces in it he could understand. Time and technique march on, relentlessly.

I

Now let us slip back to the dawn of Climetrics. It was incredibly good luck to be young and "into" Economic History in the 1950's. We felt, I suppose, as did Belzoni when he stumbled into the tombs in the Valley of the Kings -- treasures everywhere. In those early years of Climetrics it seemed

like you could hardly miss. Pick any topic in Economic History. Did it make sense as theory? If not, why not? Were there data available? If so, BINGO.

The main piece of "bad news" was the discovery of how difficult and time-consuming the work was: no quick, weekend papers flowing effortlessly from a sudden theoretical illumination. A second problem was how blatant and indefensible (and unavoidable) the errors seemed to be. Once when I was deflected about something of mine in print found, with much fanfare, to be wrong, my Purdue colleague, Vernon Smith, said something very wise: "The only people who don't make mistakes are those who do nothing." I'm sure there were plenty of times when all of us wished we had done nothing. The problem with Climetrics, with quantification, was that you could now be shown to be precisely wrong. A terrifying prospect.

At first there was hostility to the new modes of thought. One has to remember that mainstream Economic History in the early 1950's was largely innocent of overt uses of theory and quantitative techniques. So Climetrics was seen by some to be a conspiracy of young technicians against respectable scholarship. I don't mean that such work had not been done in the field. As has been said many times, Climetrics was a revolution just waiting to happen. Much work of our sort had already been done, and was being done, but not by those who presided over the field called Economic History, our rightful place in the universe of scholarship. The question concerned our work being accepted by those who called themselves economic historians. Not all of the senior men opposed us. It should be emphasized that many of our senior colleagues welcomed the new departures with open arms, and minds, and like Arthur Cole, Hal Williamson, Alex Gerschenkron, Carter Goodrich, Herman Krooss, did much to encourage the new work. Others, however, were hostile.

One problem at first lay in access to publication in the main Economic History Journal in this country, really the only one in 1957, since EHJ, in its first avatar, had vanished. This proved not to be a serious problem. There was a (locally) famous little palace revolt, a change of editors, and then papers were no longer rejected simply because they contained long tables and equations. I remember thinking at the time, the summer of 1957, that Greek letters would not be objected to so long as they were not in mathematical structures.

Other problems were more deepseated, and not subject to mechanical, or political solutions. Some scholars, including a couple of eminent theoretical types I knew, believed that quantitative methods should not be applied to history, that the thing was sacrilege, unnecessary, and that some of the more flamboyant practitioners were merely showing off their new-fangled learning. I can say, knowing the pioneers of Cliometrics at the time, that no one was showing off. Most of their learning was self-taught, and they were too afraid of being found to be precisely wrong to show off. The struggle with this problem was a long and vigorous one, but we fortunately had the people involved who could do it.

I suppose such experiences of the 1950's and early 1960's would now seem absurd. It also might be hard now to believe the excitement in one's own work, or reading the quantitative efforts of others in Economic History. The early meetings of the Cliometrics Society at Purdue were just amazing in this regard. What is now commonplace was then utterly novel, and the intellectual excitement was intense. The first step in any process of discovery is the most difficult one, but it is the only necessary step, after all, and can be the most intellectually rewarding. There was plenty of stumbling around, but

there was a feeling of destiny-in-the-making too. No one could have stopped it.

The reason for that is the competitive market in this country for ideas and reputations. There always, hopefully, will be a Purdue waiting out there to host those who want to blow away any "establishment" that resists change and innovation. England was at first a contrast. In Oxbridge there was much sniffing and cold-shouldering of this upstart discipline. My own favorite story, which I now relate, was an event that took place at Max Hartwell's North Oxford chateau in 1962.

I had received a degree from Oxford in 1955, and I knew personally many of the Oxbridge establishment, as it then existed, in Economics and Economic History. I was back in Oxford again, in the fall of 1962, bubbling with news of what was happening over here in our subject, of the Purdue seminars, and the new departures being made. It honestly had not occurred to me that some scholars would not want to know. Max was all ears and enthusiasm when he heard my reports. He gave a little party for me. In polite attendance was an Oxford historian of towering reputation whose work I much admired. Max took me over to him and said, "_____, this is John Hughes." To which the Great Man replied, with exquisite Oxford rudeness, "Yes I know, and I hope it's not too late to erect a Gordon granite around him." I obviously had been endowed in his mind with the reputations of my more brilliant colleagues and was treated, accordingly, like some kind of a Typhoid Mary. My year there was a failure as a missionary, but our twins were born that year and so I scarcely had time to pout, in any case.

But change came even to Oxbridge, and quickly too. The next year Bob Fogel was "on the road" in Britain, selling Cliometrics door to door. So were Lance, then Stan Engerman. Soon enough the Cliometricians and Cliometrics

only imagine what such people would think of the proceedings of Cliometrics meetings, where only he (she) who is ignored can escape without an attempted roasting, or at least a heavy singe. Many observers in the early days thought Cliometrics was some kind of weird scholarly civil war: The dead kept rising up, Phoenix-like, to strike again. I once overheard Peter Temin wondering aloud if someone shouldn't be right the first time? I don't know the answer. It would be nice to be right the first time, but it is a goal that seems to elude the grasp of most of us. The answer to anyone who charges that Economic History is not "scientific" because the experiments cannot be repeated is: "Oh yeah, try publishing errors and see how quickly you get caught."

I think, looking back, that what was really important about the Cliometric revolution was the spirit of irreverence in it: nothing was sacred. All historical questions were open. All analytical techniques were legal. Moreover, new subjects were (and are) being constantly drawn in. Was sharecropping really exploitation? What has been the contribution of the female labor force to American industrial growth? Was there really wage discrimination against immigrants that enhanced late 19th century industrialization? These and many similar issues have been raised in the same spirit as the best of the early Cliometrics. To mention the two most famous ones: "Were Railroads Really Indispensable?" "Was Slavery Going to Die of Its Own Wickedness and Inefficiency?" I have often said that Bob Fogel should have charged a licensing fee for the privilege of criticizing him. He could have been rich by now, and escaped from the working classes once and for all.

III

As a few of my relatives and close friends know, I have recently committed the sin of writing a textbook. I did it for the money. Therefore,

in the process of writing the first edition, I set out to be as conventional as possible and "tell the story" of American economic development. I won't bore you with an account of my miseries in that effort, but I do want to say that one is hardpressed by now to find any of the "old story", as presented, say, by H.J. Faulkner in 1947, that has been left untouched by Cliometrics. If you wrote an American Economic History text now without the contributions of Cliometrics you wouldn't really understand very much about American Economic History. That's the long and the short of it, only a quarter of a century after the first Clío meetings at Old Purdue back in 1960.

I think some of those at the early meetings may have believed this would ultimately be true. I know Lance did. He was a true believer from the beginning. But then he knew the terrain better than most of the rest of us did. Others believed weakly, and some even in 1960 wondered what in the world all this was? I was myself fairly weak-kneed, but willing.

It is customary on these occasions to end with a bit of a warning. I shall not. I see no signs of methodological parochialism in the new work, of any narrow mindedness among the young hotshots. I think they are doing their work beautifully. Every issue of the journals forces me to rethink things -- a real curse for the textbook writer. History must be revised. I sympathize with the editors of the Great Soviet Encyclopedia with "the truth" coming upon them like colors from a multiple Roman candle every time the leadership changes. For us, the truth changes mainly quarterly. Worse, I've been making revisions from unpublished manuscripts which will "ring the bell" when they see print. Right now our field is too hot even to wait for things to be published.

We are in excellent shape. Hurrah for Cliometrics. At Clío L, in twenty-five years, the assembled scholars should be so lucky as we are

invaded Britain in force. "We" did succeed there, although I certainly did not. I'm sure the early Cliometric missionaries in Britain can match my story. Let it be said, though, that the recently-famous — or infamous — Davis-Hughes exchange-rate paper had been published in the EHR in 1960 by its editor, Hrothgar (now Sir John) Habakkuk. We had some friends there, and of course, even then Robin Matthews, Brinley Thomas and others were doing their parts to advance quantitative Economic History in the old country. Indeed, as I have pointed out elsewhere, the English had more than their share of the precursors of Cliometrics. The problem was how to get into the right British skulls at the "commanding heights" of the profession there. I recall an item in the TIS when one R. Fogel was thought to be a candidate for the Chichele Professorship, that he represented a group that were not historians at all, but merely people who were "good at sums".

Early Cliometricians were accused of being narrow in their interests, of having concern only for those questions in Economic History that could be studied numerically. It was no more true back then than it is now. The point then was the range of questions that had never been studied because of the sheer magnitudes of the computational efforts involved. Who wanted to do a million or so computations on a desk calculator to see how fast the carrying capacity of the British steam fleet had grown before 1860? With the computer you could now do thousands of computations routinely. With econometric techniques numbers could be estimated for variables that previously were unknown, and, practically speaking, unknowable. By modern standards our cohort was untrained in quantitative technique. What most of us had was enough knowledge of simple economic theory to "see the window" that led to new historical knowledge, and the nerve to "go for it", blunders and mistakes be

damned. To continue carrying the ball, Ph.D. training of our students would produce the necessary technicians, and Wow, did it ever!

The growth of Cliometrics was amazing. I have always thought that we were fortunate, in our timing in the history of Economics, in the personalities of the early Cliometricians, and for Stan Reiter's jazzy literary monstrosity, which raised interest as well as eyebrows among the learned classes. I must repeat here a comment made by Allen Wallis. He said of the combination of theory, history and statistics in "The First 1,945 British Steamships", that it was "a new academic way of life". That was in 1976 when he accepted the paper for JASA. In 1960, at Clio I, we had a hard time putting a conference together, a year later it was easier. In rapid succession we recruited from Harvard — Fishlow, David, then Temin, then Zevin, then Jeff Williamson — then more and more, cleverer and cleverer, from graduate programs all over the country. With these young recruits the future clearly belonged to Cliometrics. But the future came in a hurry. With Bob Fogel's railroads success quickly became sensation. Bob gave us the "big band sound". The years of the 1960's were heady indeed, and before very long one could no longer keep up with Cliometrics and have time to do anything else.

We had some amusing public-relations troubles in public places because of our root in economics. In that subject no advance is at once the last word, but rather, is typically an opening for a free-for-all. Quoting the young Vernon Smith again (as he corrected the mathematical errors in the manuscript of a critic's attack on him, so that his own riposte would be the more telling): "A controversy in the journals is worth five or six separate papers." Historians, on the other hand, came from a tradition in which published work could be "magisterial", and in which a printed error could be scandalous. They could not easily comprehend how a public onslaught on a scholar's work might actually enhance that scholar's reputation. One can

out, by the way, that an obscure Irish-American has written on this topic but we can find no trace of either him or his work. Apparently, this scholar would only communicate in Greek.

What Accounts for the Peculiar Retirement and Life Cycle Saving Behavior of Americans? A profound change in household behavior took place in the late 1980s, at least according to Roger Handson and Richard Krutch. While the quality of their data has been questioned, it suggests that Americans retire at age 17 and re-enter the labor market at age 57. This odd behavior generates, according to Handson and Krutch, double-peaked saving behavior with maxima at age 9 and 97. Much more research needs to be done on this issue. While Handson and Krutch are clearly the ones to do the job, they retired to an avocado farm in the summer of 1997 just before the Great Avocado Blight. (The reader will note that Handson and Krutch themselves exhibited behavior completely inconsistent with their theory: they retired exactly when their theory predicts they should have re-entered the labor force! When queried on this point, Krutch replied: "no theory was ever meant to apply to academic behavior in California -- the Midwest, perhaps, but never California.")

Why Did Watsonville Starve? In the Fall of 1939, the Great Avocado Blight hit Watsonville, California. It is now a matter of record that excess deaths rose to 2.53 and outmigration surged to 13.67. Econometric analysis shows quite clearly that those farmers specializing in avocados had higher outmigration rates (most becoming policemen in Bakersfield, but a large number migrating to Jerusalem where they operate felafe! stands to this day). Why did Watsonville starve? It certainly seems foolish to have specialized in a tropical fruit that has no nutritional value whatsoever, but the more important question is: Why didn't Watsonville industrialize? No doubt the answers are complex and deeply rooted in the behavior of absentee landlords living in the Middle East, but could the lack of industrialization be explained by some bizarre coincidence of the Dutch Disease with the Avocado Blight?

There are some topics which we urge you to avoid entirely since there are researchers already busy at work on them. Some of these follow below:

Did Monetary Forces Cause the Great Crash of 1999? Following the Great Avocado Blight of 1939, the Bank of Watsonville failed. Chase Manhattan followed, and the Great American Banking Panic was on. Professor P.T. Amin has received four consecutive grants from JSF to work on this problem and its relation to the 70-year moon spot theory. We have yet to receive an acceptable report from Professor Amin. This may be explained in

part by his inability to construct a relevant and believable counterfactual: none of us here at JSF can imagine a world without avocados.

What Explains the Puzzling Demographic Behavior of 19th Century France? For two hundred years, historical demographers have been puzzled by the relatively low birth and migration rates in 19th century France. The noted economist, David Paul Peter-John, has now developed two brilliant hypotheses to account for this behavior. These hypotheses are: First, the French were unfriendly towards foreigners. Second, they didn't like each other much either. Both of these hypotheses seem to have survived the most rigorous econometric testing, including a breath-taking application of triple-selectivity, while exploiting an extraordinary application of trinomial functional forms to a village intertemporal sample of 18 (drawn from 9 years) which has been truncated from below, above and in the middle. Peter-John's results appeared in the latest issue of CLIGUES, pp. 1-317, with an accompanying 400 page appendix. Should you be interested, some of Peter-John's early work appeared in CLIGUES.

A final word of advice. If you wish to improve your chances of funding with JSF in the future, do not ask for computer support. We at JSF feel if it can't be handled with a Mikimoto-PC, then it isn't worth funding. And when traveling internationally, be sure to use Japanese carriers.

Sincerely Yours,

Y. Watanabe

Yasukichi Watanabe
Director, Social Science Division
Japan Science Foundation

cc: Mr. Don Newcomb

tonight. We've had good and challenging work to do, and have been able to do it. My cohort now begins to grow old. I hope it remains productive for many years yet. But youth must be served. So I ask the new Young Turks of Cliometrics to think of us charitably, forgive us our sins, and then hope and pray that they may have as good a run of it as we have had. We made out like gangbusters and loved it. Thank you.

May 30, 2010
Tokyo, Japan

Professor Williamson Jeffrey
Emeritus Rest Home
2102 Massachusetts Avenue
Cambridge, Massachusetts 02138

Dear Professor Jeffrey:

Mr. Don Newcomb of the National Science Foundation has passed your research proposal on to us here at the Japan Science Foundation. Apparently you were unaware that NSF had fallen victim of budget cuts initiated in 1985 and accelerated thereafter. As you must know, these budget cuts managed to eliminate the total U.S. federal debt outstanding in just two decades. However, as we say in Japan, there is no such thing as a free shushi and public support of academic research in America disappeared in the great austerity push.

This letter should serve to inform you that JSF is now considering research proposals in economic history. Indeed, your proposal was tentatively considered by our Economics Panel which met just last month. While the Panel was impressed by a submission from a man of your age, it felt that a multi-sectoral, multi-regional, multi-factoral computable general equilibrium model of food scarcity, urban decay, inequality, accumulation, fertility, mortality and military conflict to be much too narrow and, to be quite frank, irrelevant. The Panel also felt that the model was unrealistic in the extreme. We urge you to make better use of the far superior and empirically relevant Keynesian model. After all, supply side models only hold interest nowadays to historians of thought and ultra-radical graduate students.

We urge you to consider a revised proposal with somewhat different content. The topics of interest to the JSF Panel are among the following:

What Accounts for the Amazing Decline in Heights Among the English? It has been shown that the height of English males aged 20-29 fell from 5'9" tall in 1985 to 2'8" tall in the year 2000. An Emeritus Professor living in the Chicago area has projected that English males will be 6" high in the year 2050! Given their great advantage in repairing and maintaining micro-computer hardware, we fear that these tiny Englishmen will soon dominate the world high tech export market. Since their tiny size gives the English an unfair competitive advantage, we need more research on how to make the Japanese shorter. There is some urgency attached to this issue since our plan target is to overtake English shortness by the year 2015.

Did Late 20th Century America Fail? The historical evidence confirms unambiguously that American entrepreneurs failed. Some American economists insist that rising protection in booming Asian markets may have been a partial source of the demise, but they are wrong. It is quite clear that the main forces at work were sociological and not economic. It has been pointed

Hary Hackinon
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Poor Law Policy, Unemployment and Pauperism

This paper argues that in-door pauperism statistics can be used to supplement English unemployment and real wage data for 1860-1910. Adjusted for changes in poor law policy, rates of in-door pauperism, disaggregated by sex, age and region, provide a coherent record of destitution. Pauperism returns suggest more regionally diverse, and cyclically less volatile levels of unemployment than do existing series. They also indicate that real incomes of the very poor rose after 1870, but for many groups these gains were not maintained. I estimated time series regressions for aggregates of male and female able bodied and not able bodied in-door pauperism for the 10 census divisions of England, using the ratio of in-door to out-door pauperism, in-door relief per pauper, and salaries per pauper to capture changes in the operation of the poor law, and measures of unemployment, output, wealth, and population change to proxy the economic conditions experienced by the very poor. Economic variables were strongly related to cycles in pauperism, while the link between measured poor law policy and numbers relieved was extremely tenuous. In the midland and northern divisions the male able bodied series are quite similar to the trade union unemployment returns, indicating that overall economic conditions were closely tied to the employment possibilities of skilled workers in export oriented industries. In the south - most strongly in London - the divergence between pauperism and trade union unemployment is far greater, with only the broadly based booms of the early 1870's and late 1890's having a pronounced effect on numbers relieved in-doors. The long run trends in adult pauperism also sharply diverge between regions. In the south, outside London, pauperism fell steadily from the 1870's. In the north, decreases were much smaller with gains concentrated before 1890. In London, pauperism, especially male pauperism, rose throughout the period, increasing sharply after 1900. These results cast considerable doubt on the relevance of real wage series (indicating 20-40% increases in average living standards) for those on the fringe of working class existence.

* * *

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Daniel K. Benjamin
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Did FDR Prolong the Great Depression?

During the Great Depression the federal government embarked on an unprecedented program of public relief. The program was widespread, providing benefits to roughly 5 million households each month (roughly 18% of all households) and paid benefits comparable to the lower end of the private sector wage labor market. The presence of these large programs naturally

raises the question of their effects on private sector labor supply, and the potentially adverse effect they might have had on the ability of the private market to generate economic recovery through job creation. This study estimates the effect of the public relief programs on private employment.

After developing a general model of interdependent public and private labor markets, we specify two alternative types of relief programs. The specifications differ in the characterization of the political process that underlies the administration of the programs. Within the obvious theoretical limits on our ability to represent political factors governing relief expenditures, we model explicitly the political forces as well as the labor market forces at work in the two markets.

This version of the paper estimates the model with data from the two largest relief programs: the Federal Emergency Relief Administration and the WPA. Although the estimates are sensitive to specification of the equation system, we find fairly reasonable coefficient values for the supply of and demand for relief cases and the supply of and demand for private employment. The estimates indicate a significant effect of the relief programs on private employment (an effect that appears to be relatively stable across specifications). The effect is, in fact, too large, as the estimated coefficients imply that an increase in relief case loads of 1 percent will lead to a larger than 1 percent decline in private employment.

We should stress that these are preliminary results. Keeping all the qualifications in mind, we do find evidence that the relief programs did have a negative effect on private employment. Barring significant expansionary macroeconomic effects of government expenditures per se, it appears as though FDR may very well have prolonged the Great Depression.

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Waterways, Railroads, and Public Choice
in the Nineteenth-Century United States

Did government and private enterprise in the nineteenth-century United States share a common "developmental" approach to transportation improvements? Why did the railroad become the dominant U.S. transportation mode during the second half of the century? The answers to these two questions appear to be related to one another.

First, while governments in the United States sometimes attempted to maximize economic growth, they often did not act as if they were attempting to maximize the social rate of return on funds invested in transportation improvements; rather, they acted to maximize the well-being of their most powerful constituencies. Criteria to measure rational economic decision-making on the part of government bodies are established, and four canal projects--the Erie, the Pennsylvania Mainline, the Louisville and Portland, and the Des Moines Rapids--are evaluated to determine whether public bodies

followed these criteria; in general, it seems they did not. Governments tended to take away rents from the successful parts of these projects and redistribute them for political purposes, rather than acting on the signals those rents conveyed; moreover, local interests often manipulated government policy to create or maintain profitable bottlenecks in the waterway system.

Second, railroad and waterway projects differed in the political "inputs" they required. Consequently, railroads could be built easily by private, profit-maximizing entrepreneurs, while waterway projects were emmeshed more often in the non-profit-maximizing political process. The political inputs are described briefly for the two modes. The railroad's eventual dominance reflected not only lower resource costs of the conventional sort, but also greater freedom from political constraints.

The analysis has clear implications for (1) the growing literature on rent-seeking behavior, (2) social savings calculations which ignore the political inputs required for railroad and waterway projects, (3) explanations of the railroad's ascendancy, and (4) the view that governments tried to set private and social costs to equality.

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The Opening of Railways and the Decline of Commercial Cities -
The Case of Ōtsu City in Japan: 1860-1894

The introduction of railway traffic usually tends to change not only the total growth of output in the economy but also the regional and/or inter-industrial distribution of income. Some regions (or industries) will surely be benefited by the new means of rapid transit, but some may, on the other hand, suffer a loss caused by the change in the routes of commodity flows in the region.

This paper attempts to describe and focus on this kind of change in the case of Ōtsu City, one of the pivotal commercial cities in West Japan for the rice distribution in the late nineteenth century. Here we will consider the impact and influence of railroads on the financial sector, on conventional transportation facilities, and on the size and the composition of commodity flows.

Section I explains the major changes in railway routes that occurred in the neighborhood of Ōtsu City between 1860-1894. In the next section we examine the change of commodity flows and the rate of net profit of the banks in the same prefecture. In the final section we discuss the possible relationship between the attitudes of the Chamber of Commerce in Ōtsu - especially a petition for nationalization of railways - and the business decline in Ōtsu City.

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Protection, Economic War and Structural Change:
The 1930s in Ireland

The paper describes how trade theory can yield some insights into Irish economic developments during the 1930s. First, a version of Ronald Jones's specific factors model is applied to the post-1932 context, when a combination of industrial tariff protection and controls on capital inflow was imposed by the newly-elected De Valera government. It is shown that, from an employment-creation perspective, such a policy mix was inconsistent. Thus the ineffectiveness in practice of the controls on capital was good for employment, if welfare-decreasing in the purely allocational sense. The model is then developed along Green-Corden lines to allow, within agriculture, for the pro-fillage policy of the government.

Secondly, a simple model which predicts the sectoral destination of the foreign capital is developed. The model's predictions are circumscribed by the degree of capital inflow should be positively related to the degree of effective protection it received, adjusted for the share of capital in value added, and negatively related to the ratio of the shares of labour and capital. Finally, the standard partial equilibrium approach to estimating gains and losses from tariffs is applied to the so-called 'economic war' between Ireland and Britain (1932-8). The outcome tentatively supports the claim that Ireland 'won'.

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Exchange Rates and Economic Recovery in the 1930's

Currency depreciation in the 1930's is almost universally dismissed or condemned. It is credited with providing little if any stimulus for economic recovery in the depreciating countries and blamed for transmitting harmful beggar-thy-neighbor impulses to the rest of the world economy. In this paper we argue for a radically different interpretation of exchange-rate policy in the 1930's. We document first that currency depreciation was beneficial for the initiating countries. It worked through both the standard supply- and demand-side channels suggested by modern variants of the Keynesian model. We show next that there can in fact be no presumption that currency depreciation in the 1930's was beggar-thy-neighbor policy. Rather, an empirical analysis of the historical record is needed to determine whether the impact on other countries was favorable or unfavorable. We conclude provisionally on the basis of this analysis that the foreign repercussions of individual devaluations were in fact negative - that the depreciations considered were beggar-thy-neighbor. As we point out, however, this finding does not support the conclusion that competitive devaluations taken by a group of countries

were without benefit for the system as a whole. We argue to the contrary that similar policies, had they been even more widely adopted and coordinated internationally, would have hastened recovery from the Great Depression.

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From Tax Exemption to Tax Favoritism? The Hungarian Nobility's Holdings of Agricultural Land ca. 1910

From the signing of the Golden Bull in 1222, the Hungarian nobility enjoyed not only the right of rebellion against an unjust sovereign, but tax exemption as well. Although they lost this tax exemption in 1848, by the time of Millenium Celebration in 1896 the land tax system was characterized by enough anomalies to prompt the forming of an official inquiry into the relation between land rent and the land tax. On the basis of results of this inquiry, a reform of the land tax cadaster was ordered, to be carried out in 1909.

The assessment procedure in the tax cadaster reform was to determine the type and quality of each plot of land, and then estimate -- according to a uniform formula to be applied throughout the country -- what that plot of land would produce under ordinary management. That figure was the "cadastral net income", and the tax owing on the land was a fixed percentage of this cadastral net income.

Applied consistently and fairly, the assessment procedure should have produced taxable valuations which were a nearly perfect proxy for market value of the land. Yet economic historians have still alleged a bias in the taxation system favoring the aristocracy through systematic underassessment of their lands. An analysis of the records of some 30,000 properties of over 100 hold (43 acres, approximately), published in an Addressbook of Landowners compiled from the results of the 1909 revision of the land tax cadaster, reveals no apparent bias of the type alleged.

Descriptive statistics of the distribution of land by value also form an important part of the paper. Most studies of the distribution of landownership in Europe have had to content themselves with using only areas of holdings as their measure. Value, however, is the preferred measure for studies of wealth, and the previous finding of no apparent bias in the tax assessment procedure allows the use of cadastral net income as a proxy for value. On the basis of these data, I make an estimate that the Hungarian nobility could not have owned more than about 15% of the total value of land in the country, a surprisingly small figure, given their political and social dominance.

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Mid-Nineteenth Century American Agriculture in the Northern States

Our paper is a study of the role of northern agriculture in American economic development in the middle of the nineteenth century. This topic is one almost totally ignored by cliometricians. There are, however, abundant good data from which to paint a quantitative picture of economic and social life for a large segment of the American population at mid-century.

The data are from the manuscripts of the federal censuses of agriculture and population for 1860. The sample, drawn from a pool of twenty northern states, contains data for approximately 21,000 rural households, of which almost 12,000 operated farms. In these households lived 107,857 free persons and 658 slaves. Farms from the agricultural schedules were matched, where possible, with households in the population manuscripts using the name of the farm operator as the key. The population data include information on the age, sex, color, literacy, occupation, and birthplace of each member of the household and their wealth in real and personal estate. The agricultural schedules provide data on the value of the farm, its livestock and implements, the number of improved and unimproved acres, the number of head of different livestock, and the crop production in the 1859 crop year.

These data are used to model the response to public land policy within the structure of the Fogel-Rutner analysis. This relates cheap land to fertility differences, migration, wealthholding, and farm formation. We then examine the consequences of that farm formation for the commercialization of agriculture, interregional trade, farm income, and profitability.

Among our findings are that East-West fertility differences were confined to farm families and largely explained by the greater percentage of married farm women in the West, that people moved more frequently and in greater numbers than supposed from an examination of the published census data, that public land policy promoted equality of opportunity as Alexis de Tocqueville alleged, that wealthholding showed a pronounced life cycle effect and is consistent with a bequest motive for children to enter farming, that commercialization of agriculture extended almost across the whole range of farm sizes and throughout the northern states in 1860 and the railroad was crucial in this process, and that northern agricultural profitability compared favorably with that for slavery but led to per capita income levels that were only about half those in manufacturing. The reported results encapsulate some of the conclusions from our forthcoming monograph (To Their Own Soil: American Agriculture in the Antebellum North, Iowa State University Press, forthcoming, 1986) and various published journal articles.

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The International Kuznets Cycle Reconsidered

New estimates of construction activity in Italy from 1861 to 1913 reveal a typical Kuznets cycle, with peaks in the early 1860s, early 1870s, late 1880s, and early 1910s, and troughs in the late 1860s, late 1870s, and late 1890s. Construction activity in Italy seems positively correlated both with labor exports and with capital imports; capital formation apparently drove migration, rather than vice versa, and the construction cycle in Italy was clearly not attributable to a demographic cycle. The parallel long swings in Italy and the New World appear rather to have been generated by a cycle in the exports of British savings surplus to domestic British investment opportunities; alternative models of the international Kuznets cycle, which stress the pull of New World investment opportunities or general technical change, do not appear to fit the evidence once the sample is extended to include the Italian case.

British interest rates were admittedly high when capital was flowing out of Britain, and low when it was not; but foreign interest rates did not follow the cycle in British rates. This suggests that the risk premium the British associated with foreign lending increased sharply in the wake of the Baring crisis, and then gradually declined almost to zero by 1913.

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Financing the French Revolution:
A New Look at the Assignat Inflation

One of the most important inflationary episodes in European history was the assignat inflation of the French Revolution. This paper examines this much neglected subject, applying modern models of hyperinflation and time series methods. Previous studies have alternatively praised the assignats for generating the revenue the new regime needed for survival and attacked them for undermining the Republic. These conflicting assertions are examined by determining empirically which, if any, of the revolutionary governments pursued optimal revenue-creating rates of inflation. The data used in this study is drawn from the abundant information collected by government officials during and after the revolution.

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Consumer Behavior in the Nineteenth Century:
Ontario Workers, 1885-1889

This paper analyses cross sectional expenditure data for several thousand worker households in Ontario in the late 1880's. The data are organized by group averages representing the average experience of households classified by several dozen towns ranging in size from about 1000 to over 20,000 in population.¹ Applying multivariate regression analysis to the grouped data provides estimates of expenditure elasticities and of the effects of household size, family composition, owner/tenant status of household head, and rural/urban split.² Traditional Engel type hypotheses are confirmed. Owner occupied housing and sundries appear to have been luxuries at the low end of the expenditure distribution. Similar attribute effects appear to have been experienced by a wide range of households beyond the time and space limits of the Ontario workers surveyed.³

Using the theory of exact aggregation and assorted data describing the distribution of aggregate expenditure and the joint distribution of aggregate expenditure and household attributes, the aggregate food expenditure share for all Canadian households for 1888-89 is estimated.⁴ Using time series of the aggregate distribution statistics and the parameters estimated from the cross section, this aggregate food share is cast backwards to 1870 and forwards to 1914 to provide an historical time series.⁵ It is observed that the aggregate food share remains about .5 from 1870 to the late 1890's and then falls to less than .3 by 1914.⁶

NOTES:

- 1 The data was collected by the Ontario Bureau of Industries & published in its annual reports.
- 2 All households are assumed to face the same prices. Linear, semi-log and double-log functional forms are used.
- 3 Fragmentary budget data available for a variety of household types in Ontario, Quebec and the Maritimes from 1882 to 1902.
- 4 The details of this approach are spelled out in Dale W. Jorgenson, Lawrence J. Lau and T. W. Stocker, "The Transcendental Logarithmic Model of Aggregate Consumer Behavior," in R. L. Baseman and G. F. Rhodes, eds. Advances in Econometrics, Vol. 1, 1982, pp. 97-238.
- 5 Work on modern data sets pooling cross sectional micro data and time series macro data that allows for price effects strongly support the validity of this use of cross sectional information. See Jorgenson, Lau & Stoker (1982).
- 6 This result is in marked contrast to the constant share of about .35 alleged to prevail from 1870 to 1920 by O. J. Firestone, Canada's Economic Development 1867-1953, 1958, p. 82. The new time series relies in part on new estimates of total consumption spending derived from H. C. Urquhart, "New Estimates of Gross National Product, Canada, 1870 to 1926: Some Implications for Canadian Development," Queen's University, 1984 and supports an interpretation of Canadian growth wherein 1900 is a watershed.

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Price Controls in the United States and
The United Kingdom during World War II

This paper is concerned with the level of compliance with price controls achieved in the United States and the United Kingdom in World War II. First we examine a number of pieces of evidence that all point to the same thing: Controls produced less evasive activity in the United Kingdom. The evidence includes descriptive statements in the literature, and three quantitative measures, the ratio of an indirect estimate of "true" prices developed by Friedman and Schwartz to reported prices, the currency-money ratio, and the number of cases brought to court. We then consider a number of potential explanations for the difference in the levels of compliance, using the quantity theory of money as a general framework.

Our work suggests that explanations based on differences in monetary policy - in particular a suggestion by Friedman and Schwartz that controls were under less monetary pressure in Britain - do not work. This appears to be true when we simply apply our adaptation of the crude quantity theory to the raw data, and also when we estimate an explicit demand for money function. The particular function we estimate combines the approach to lagged adjustments popularized by Goldfeld, with the Friedman-Schwartz idea of using the rate of change of nominal income as a proxy for the nominal return on real assets, and seems to work well.

We therefore focus on differences in attitudes toward controls and in the structures of the control programs. Tentatively, our conclusion is that differences in public attitudes are only part of the story. Perhaps of more importance was the British decision to eliminate many of the points where evasion could occur, in part by introducing standardized products. In other words, the key difference was probably the willingness of the British to sacrifice traditional levels of economic diversity to achieve greater compliance.

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Self-Interest, Voting Behavior, and the Ratification
of the United States Constitution

Despite the importance of the ratification of the Constitution, little rigorous analysis of voting at the state ratifying conventions exists. This omission is surprising given Charles Beard's argument long ago that the contest over ratification represented the ultimate test of the role of economic interests. This paper presents the final results from our Constitution study

discussed earlier in a progress report (JH, June 1984). We have since calculated proxy estimates for total wealth for 1213 state delegates using data available in Forrest McDonald (1958) and Alice Hanson Jones (1977). These wealth estimates include, among others, estimates of the value of slaveholdings, the value of landholdings, and the value of household items. Because of measurement errors in the independent variables, four alternative measures, most of which were not utilized in the preliminary work, are employed here: 1) dummy variables; 2) quantitative variables; 3) asset share variables; and 4) instrumental variables. This procedure tests for the sensitivity of our results to measurement errors. These new results confirm, with substantially more reliability, the earlier preliminary results.

The behavioral model used to explain voting is based on the assumption that the delegates voted in a manner consistent with personal utility maximization. Logit analysis is used to estimate the relationship between delegates' votes at the conventions and their personal economic interests and characteristics of their states. These state variables are used to capture some of the effects of constituent interests on delegates' voting. Because voting at the state conventions was either for or against the Constitution as written, we avoid empirical problems related to strategic voting behavior inherent in an analysis of voting behavior at the Federal Convention in 1787.

Contrary to current wisdom, our results indicate that slaveholding delegates were significantly less likely to vote for the Constitution than were those with no slaves, ceteris paribus. Also contrary to current wisdom, public security holders were significantly more likely to favor the Constitution, as were delegates with private security holdings. Merchants and owners of western lands also tended to support the Constitution. Constituent interests, as proxied by state characteristics, also appear to have influenced voting. These findings are relatively robust with respect to changes in specifications, alternative measures of the independent variables, and changes in the sets of states, and are highly significant.

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Bargaining to a Joint Profit-Maximizing Dupopoly
Contract under Incomplete Information: A Case
Study From the North American Fur Trade, 1802-1821

This paper examines the bargaining between the Northwest Company (NWC) and the Hudson Bay Company (HBC) in light of two recent models of bargaining under incomplete information (Myerson, 1984 and forthcoming; Crawford, 1982). The bargaining process is examined by an analysis of two previously undisturbed bodies of correspondence: letters between the two companies and letters between the HBC and its London committee. Both parties clearly articulate that their purpose in bargaining is to achieve a joint-profit maximum.

A number of conclusions or findings are derived from this case study. The companies were able to achieve a joint-profit maximum through merger. But, the

bargaining process was so long and costly that much of the potential gain was dissipated through depletion of the animal stocks. This study also points out a number of factors which were critical in hindering the achievement of a joint-profit maximum: incomplete information, the commitment to a strategy which led to impasses or bargaining breakdown, the need for contract enforcement, the delineation of each party's rights under the law, and environmental changes.

Vince P. Crawford (1982), "A Theory of Disagreement in Bargaining," *Econometrica*, 50(3).

Roger B. Myerson (1984), "Two-person Bargaining Problems with Incomplete Information," *Econometrica*, 52(2):461.

(forthcoming), "Cooperative Games with Incomplete Information," *International Journal of Game Theory*.

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The Political Economy of Cartilization by the Texas Railroad Commission
1933-1972

For nearly 40 years, from 1922 through 1972, domestic crude oil production was controlled by market-demand prorationing of output among states under the auspices of the Interstate Oil Compact and the Texas Railroad Commission. The cartel is an important historical event. During the period of interstate prorationing, the Texas Railroad Commission became famous as the most powerful state regulatory agency in the world. Accordingly, its efforts have received considerable attention, but disagreement remains regarding the role of Texas and the nature of interstate coordination. A common view is that interstate regulatory efforts were importantly influenced by political pressures, but the nature of those pressures and their impact on prorationing have not been systematically examined.

This paper analyzes the Texas Railroad Commission and market-demand prorationing. The analysis reveals that the Commission followed a price stabilization policy at a level that protected high-cost producers and which removed price fluctuation as a source of uncertainty for crude oil firms. Within that general policy goal, however, the Railroad Commission used its discretion to award favorable quotas to politically-influential small producers. In its price and production decisions, however, the Railroad Commission had limited degrees of freedom. On the one hand, it was subject to pressure from Texas producers and the Texas Legislature, and on the other hand, producers in Kansas, Oklahoma, and other high-cost states and their governments pressured the Commission to constrain low-cost Texas production. They threatened to lobby for federal intervention. Beginning in the 1930s,

the Interior Department emerged as a bureaucratic competitor with the Railroad Commission for regulation of crude oil production.

Systematic incorporation of political and bureaucratic factors into the analysis provides new insight into the cartel behavior of the Texas Railroad Commission and the functioning of market-demand prorationing in the United States.

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Markets and Mortality in France, 1600-1789

This paper examines the evidence for a national market in grain before the Revolution as a possible explanation for the eighteenth century decline in the magnitude of subsistence crises in France. The measure of market integration is based on correlations of detrended prices across several regions. Because price correlations reflect correlated climatic shocks as well as the actions of a market, no unambiguous interpretation is possible from price data alone. Inter-regional correlations increased over the seventeenth century and declined for much of the eighteenth. Other data for the late eighteenth century show that the strength of price correlations was closely linked to geographical distance. We interpret these findings to mean that the market mechanism linking supplies and demands across regions was weak throughout the early modern era, though improving slowly. The high degree of inter-regional price correlation attained in the period 1675-1725 was due to the historical coincidence of frequent and severe climatic shocks affecting the whole of France (and much of the temperate North). The decline in subsistence crises could not have been the result of national marketing of grain, but it was almost certainly influenced by the more benign climate after 1720.

The economic explanation for declining subsistence crises can only be valid at a regional level. Separate regional analyses of mortality showed that subsistence crises (a strong influence of prices on mortality) disappeared in the North, but were only partially mitigated in regions in the South and East. This accords with Usher's description of the progress of wholesale marketing in the eighteenth century. Finally, a comparative urban-rural analysis for Rouen, Toulouse, and Geneva found that Geneva was effective from early in the seventeenth century at insulating herself from harvest fluctuations. Rouen and Toulouse, on the other hand, continued to show mortality effects of high prices even after their rural hinterlands had nearly lost them. The uniform social distribution of deaths within the city of Rouen suggests that a migration-disease explanation is more plausible than starvation. Welfare policy may therefore have shifted the locus of crises from rural to urban areas as improving climate and improving regional markets reduced the risks of severe nutritional deprivation.

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The Agricultural Revolution and Long-Run Agricultural Supply
 Evidence from Mid-Nineteenth Century France

This paper interprets data from a sample of cantonal agricultural census returns from northern France in 1852 as evidence of an elastic long-run supply function. The data consist of approximately 150 cantons taken from a belt that extends from the Saar to the lower Loire River. When arrayed east to west, the data show characteristic "humps" in productivity, rents, wages, and prices near major urban points of demand, suggesting the formation of von-Thunen rings. In this paper I argue that one can use this cross-section to identify a supply curve, because transport costs and factor mobility were still low enough in 1852 to treat each district as an independent economic observation. The paper attempts three estimations: a supply curve relating crop yields in each district to the district price; a production function, and a cost-function. The cost function estimates point to an elastic supply, while the other two estimates are ambiguous, suggesting that the cross-section study must be supplemented by time-series analysis at the same level of aggregation.

On the assumption that supply was elastic, this paper interprets the elasticity in terms of increasing occupational specialization between 1800 and 1850. A shift in the allocation of family labour from domestic manufacture to farming would in the context of a family farm raised the rate of return to farm capital and land, given that domestic manufacture was more labour-intensive than farming. This provides a mechanism for the observed rise in productivity in the first half of the nineteenth century and is consistent with evidence suggesting a similar mechanism at work in early nineteenth-century America. The argument thus plays down the influence of independent technical change in raising productivity and emphasizes instead endogenous responses of farmers to changes in the level and pattern of demand for food as the primary mechanism responsible for rising food output during the first century of industrialization.

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Labor Mobility and Peonage in the Postbellum South

This paper develops new quantitative estimates of black and white mobility in the post-Civil War South. County-level Census data are combined into geographically homogeneous "blocks" that remain stable over time. Census counts of black and white populations can then be used to determine the levels and variability of population growth rates. Population growth rate variances,

especially for blacks, were too large to be accounted for by demographic factors, leaving inter-block migration as the only remaining explanation. Lower-bound estimates of the fractions of black and white populations moving each decade are computed. Economic factors are found to have influenced migration patterns at the block level. The evidence is not consistent with the "strong form" of the peonage hypothesis—that blacks were not free to move in response to economic opportunities.

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Changes in the Productivity of Labor in Southern Agriculture:
 1860 to 1880

This paper examines the changes in labor productivity in southern agriculture between 1860 and 1880, and it is part of a substantially longer paper that also examines changes in land, capital, and total factor productivity. The longer paper will be gladly sent to anyone requesting a copy.

The Parker-Gallman sample of southern farms in 1860 and the Ransom and Sutch sample of southern farms in 1880 are used to estimate the change in labor productivity. Labor productivity fell by 48 percent between 1860 and 1880, although if one assumes that Blacks withdrew 30 percent of their labor after emancipation, then the decline in labor productivity is reduced to 34 percent.

Much of the paper examines the difficulties involved in estimating the labor input on farms from the Ransom and Sutch sample and the data in the published census for 1880. The most serious difficulty arises from the lack of information on the age and sex structure of the farm households in the 1880 sample which makes the calculation of a quality adjusted measure of labor problematic.

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Firm Size and Economic Backwardness:
 A New Look at the French Industrialization Debate

Discussions of nineteenth-century French industrialization often turn on questions regarding the significance of smaller firms in hindering economic development. Critics of the French performance stress the retardative economic effects of the characteristically small scale of French firms, claiming that this resulted in an inability to exploit economies of scale and

prevented the adoption of technologies requiring large capital investments. Others, such as O'Brien and Keydet, see the growth of French industry in general as having been greatly underrated, alleging that in fact French industry performed quite creditably and often more efficiently than the British. Thus, it is argued, size was unimportant, and the presence of significant scale economies are generally dismissed.

The author proposes to test for scale economies in numerous industries using the French manufacturing census of 1861-65. Results for the cotton industry are presented as a first case. Cross-sectional estimates are performed using translog cost functions. Unlike other estimations, capital is treated as fixed and a variable cost function is estimated resulting in measures of scale economies at the point of operation. Calculations are made using both a value measure and a physical proxy for capital. In either case, the results are similar. Modest, statistically insignificant economies of scale are present over a wide output range for firms using steam power. It is not possible to reject the hypothesis that constant returns to scale prevailed over the observed levels of output.

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Productivity, Mechanization and the Labour Market
in the Cleveland Ironstone Industry, 1873-1914

Entrepreneurship, labour relations, and 'diminishing returns' have played perennial roles in discussions between economic historians about the decline of the economic growth rate and productivity change in the pre-1914 British economy. Evidence is reported here from the Cleveland ironstone industry; the major producing district of Britain's second most important extractive industry. The paper provides preliminary analysis from a larger project which has investigated the organization and development of the three extractive industries which provided the raw material inputs for pig iron production; Durham coal mining and Weardale limestone quarrying are the other two. In the absence of a comprehensive model, three partial elements are presented to illustrate: labour productivity, the provision and utilization of labour time by shifts offered to miners and those worked, and the diffusion of technology.

Labour productivity, defined as output per man year, is investigated within a framework 'exported' from Hirsch and Hausman's (1983) analysis of the contemporary South Wales and British coal industry. Regression results for Cleveland provide additional evidence for the possibility that higher wages were associated with reduced work effort on the part of workers paid by piece rates. 'Tighter' specification of the industry-specific variables, and the estimation of a simultaneous equation system, raise doubts which suggest the initially satisfactory model is not robust. However, analysis of the shifts worked by Cleveland miners also indicates a negative response to higher wage rates.

During the period two new drilling techniques were developed which offered alternative forms of extraction. The first was relatively capital intensive and labour saving; the second, capital saving, flexible and labour intensive. A rapid rate of technical diffusion is illustrated by estimation of diffusion curves. This indicates vigorous action by entrepreneurs in response to potential cost reducing techniques. Even though the industry was no longer expanding technological development and innovation continued; though the initial method of extraction had minimal sunk capital and did not act as a barrier to the adoption of new extractive methods. The incentive to innovate was increased by the problems inherent to extraction from a depleted resource base; this, rather than 'diminishing returns', was a major economic problem for firms in Cleveland.

Hirsch, B.T. and Hausman, W.J. (1983). Labour productivity in the British and South Wales Coal Industry, 1874-1914. *Economica* 50, 145-57.

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How Artificial Were the Tax Assessments of Domesday England?
The Case of Essex

Domesday Book (1086), which has been described as "probably the most remarkable statistical document in the history of Europe", has yet to be subjected to comprehensive statistical analysis. This paper, which is part of a larger study of Domesday data, is concerned with the basis for the assessment for geld (often called daungeld), a major non-feudal tax levied in England between 991 and 1162. The conventional wisdom on this question, which has its origins in the work of the Victorian scholar J.H. Round, is that Domesday assessments were "artificial" in the sense that they were imposed from above with little or no reference to the capacity of manors to pay this impost. Yet despite the longevity of this interpretation, there are good grounds for doubting its validity. It is hard to imagine an arbitrary taxation system surviving for almost two centuries, because it would generate widespread opposition that would be costly to suppress. It was this doubt which led us to test, using the Box-Cox extended model, the relationship between tax assessments and the capacity of manors to pay this tax. Our results suggest that the geld system in 1086 was not artificial but rather based upon either the income or total resources of manors.

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Infant Nutrition in Pre-modern Europe: A Model and Some Evidence

This paper is part of a larger study which examines long run changes in diet and their effects on economic growth in western Europe. The starting

point of the study is a relatively well established medical finding which proposes that inadequate protein consumption in early life retards mental development. Given this, I model mental development as an important input into economic growth, suggesting that poor nutrition may work against a society's economic progress. My hypothesis is that long run improvements in the European diet, particularly improvements in the protein quality of the diet, led to improvements in mental development and thus removed an obstacle to economic growth.

In this paper, I present a framework for studying the pre-modern infant diet. Because there is no direct evidence as to exactly what and how much infants ate, I estimate this parameter by considering the constraints on the infant's diet. These constraints take account of the limits on the child's ability to consume and his mother's ability to produce milk for him. With these in mind, I formulate hypothetical diets for an eight month old child, composed of breast milk and porridges of various grains. Next, using data on the chemical composition of foods, the diets are evaluated in terms of the calories and essential amino acids which they provide. The diet is compared to the recommended daily intakes of calories, protein, and essential amino acids for infants, then the adequacy of the various diets is assessed. The relative values of different diets are discussed, as are various ways in which the diets could be improved.

The analysis shows that there are nutritional differences between porridges made of different grains and pulses, and consequently, that the kinds of crops grown in a locale tell us something about the nutrition of infants in that area. It follows, then, that we can make inferences about infant nutrition in pre-modern Europe simply by examining the kinds of grains consumed in different areas at different times. Accordingly, the last section presents a summary of the changes in and patterns of crop cultivation in western Europe from the Middle Ages to 1750. The data is considered in light of the knowledge gained from the dietary analysis, and the results suggest that infant protein nutrition improved over the second millennium in western Europe and Great Britain.

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Random Walk Tests of the American Stock Market,
1871-1913

The stock market played a more important role in the allocation of industrial capital funds before World War I than has heretofore been reflected in the literature concerning the performance of the American capital market. In this paper, the quantitative record which seeks to assess market efficiency during this critical phase of accumulation is broadened by the use of the random walk tests of equity price formation. I argue that tests of the random walk hypothesis are capable of differentiating among capital markets on the basis of criteria that have been associated with market efficiency. This intuition motivates the tests performed in the paper: an examination of the

random walk model by decades over the period 1871-1913. The point of the research is to ascertain if the informational content of stock prices changed during this important period of security market development.

The monthly series of price changes in sectoral indexes and individual rail stocks are examined. I conclude that although the random walk describes the process of price formation before 1900 quite well, it fails to do so for the period 1900-1913. The appearance of serial correlation in the price change series after 1900 may be attributed either to the rapid sectoral broadening of the market after 1890, or to the institutional changes associated with the development of the investment banking sector that occurred at the same time. On the basis of the sample examined in this paper, the latter explanation appears to be more likely.

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The Supply of Canadian Money, 1842-1871:
Estimates and Implications

In this study we present estimates of the supply of Canadian money for the period 1842-71. The years at mid-century saw the rapid emergence of many mechanisms and institutions which were to become features of the modern macroeconomy. The Canada of this study is the British North American colony of the Province of Canada - roughly Ontario and Quebec. The estimates are constructed from macroeconomic data on bank note issues and deposits and are presented in quarterly form. They do not correspond exactly to an M1 definition of the money supply because of the lack of distinction between interest and non-interest bearing accounts in some bank data and the exclusion of coin. Also the note issue, in some unknown part, circulated outside the province, particularly in upper New York state. Adjustments are made to accommodate missing micro data and a substantial adjustment is made to account for the note issue of a large bank with an Imperial Charter which issued notes in Canada and several other jurisdictions - the Bank of British North America. For the period to 1856 the estimates are wholly new and for the subsequent period are a substantial revision to the monetary aggregates presented by Curtis. Component estimates are also presented for Canada East and Canada West. The structure of the money supply remains relatively fixed until about 1858 but thereafter deposits grow in importance.

The evidence of the money supply is that Canada experienced very rapid economic growth in the early 1850s and the period after the US Civil War. The estimates display a cyclical pattern and clearly marked are the depression phases of the international crises of the late 1840s, 1857/8, and the stagnation of growth associated with the Civil War. Economic growth was more evident in the west than the east. Seasonal variability increased over the period and this was particularly marked in the banknote series; this money supply pattern has been identified with the growing importance of agriculture.

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Portfolio Behaviour and Economic Development in the Late Nineteenth Century -
Notes on Great Britain and Germany: Hypotheses and Conjectures

It is widely acknowledged that technological progress is the ultimate agent of sustained economic growth. By its very nature the experimentation, innovation, and capital formation necessary to achieve technological progress is risky. Therefore a crucial aspect of the performance of capital markets is the degree to which systematic diversification is facilitated. The paper argues that differences in capital market operations help explain the differences in economic performance in Britain and Germany in the half century before 1914. The main evidence presented consists of the results of an analysis of a sample of 475 Scottish portfolios (including 198 of the very largest) based on probate inventory records for the period 1876-1913. The portfolios are analyzed implicitly and explicitly to determine the efficiency (in the sense of maximizing return for a given level of risk, where risk is measured by the expected variance of realized yield about trend yield) with which private wealth was held. It is argued that the Scottish portfolios exhibited highly inefficient risk-taking, causing risky assets with high expected yields to be systematically undervalued in Scotland (and by inference in Britain as a whole) relative to their values in efficiently diversified portfolios. Drawing on secondary sources for inferences about patterns of wealth holding in Wilhelmshagen, Germany, it is argued that, despite serious flaws, German capital markets, heavily influenced by the role played by large investment banks, offered opportunities for risk reduction through diversification superior to those found in Britain, causing entrepreneurs there to issue more risky assets and wealth holders there to hold them more willingly than was true in Britain. The paper concludes with a brief consideration of the information flows encouraged and permitted by the capital markets in the two countries.

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Retirement, Occupational Change, and Productivity
Decline of Older Male Workers in Late
Nineteenth Century American Industry

It seems that among social historians who study the experience of the elderly in America it is widely believed that old-age retirement is a twentieth-century phenomenon. As late as 1900, according to W. Andrew Achenbaum, David Hackett Fischer, Carolé Haber, and William Graebner, American men expected to work until they died. While these writers recognize that elderly workers who had become infirm, incompetent, or incapacitated were forced to drop out of the labor force, they argue that such nineteenth-century

"retirements" were involuntary and maintain that planned retirement for the older-but-able-bodied worker was unusual.

This paper is critical of this view. It advances three propositions about American industrial workers in the last quarter of the nineteenth century:

1. Retirement for working class males was not uncommon.
2. "Downward occupational mobility" reduced the income of many of those industrial workers who remained in the labor force beyond the age of 50.
3. Industrial workers anticipated a decline in their productivity as they aged.

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Development of the Rice Market in Tokugawa, Japan

Rice was of special importance in the Tokugawa Economy (1600-1868) not only as staple product but also the basic good which underpinned the feudal domain economy. The object of this paper is to clarify the structure and workings of the rice market in Tokugawa, Japan. The main topics discussed are as follows. First, total production of rice and its distribution in the early nineteenth century are estimated. Second, the commercial institutions and mercantile practices developed in Osaka concerning rice trade are examined, with special reference to domain storehouse and the Dojima Rice Exchange. Third, a simulation analysis on the workings of the futures rice market using spot and futures prices is developed, to reveal that hedging transactions of rice in Osaka operated effectively as a means for avoiding or reducing the risks from price fluctuations in the spot market during the latter half of the Tokugawa period. Finally, a correlation analysis concerning regional rice prices during 1751-1850, using the price data from sixteen regions, is attempted for the purpose of tracing the emergence of a nationwide rice market.

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