

SECTION II -- ABSTRACTS AND PARODY

Abstracts from the 27th Annual Cliometrics Conference, May 15-17, 1987.

Loren Brandt and Thomas J. Sargent (Hoover Institution), "Interpreting New Evidence About China and US Silver Purchases"

The present paper summarizes some recently compiled evidence about events in China which was not available to Friedman and Schwartz. This evidence indicates, first, that the total Chinese money supply did not decline but continued to grow rapidly following the US silver purchase; second, that Chinese aggregate economic activity did not suffer marked or prolonged depression; and third, that there was no widespread contagion of banking panics in China during the first half of the 1930s.

This evidence is sufficiently inconsistent with important aspects of Friedman and Schwartz's interpretation that we have been prompted to offer an alternative interpretation of the observations. Our interpretation differs most significantly from theirs in positing a shorter causal chain extending from the rise in the international price of silver to a fall in the Chinese price level, a chain which did not require or involve a fall in the supply of money in China. We interpret the observations on the Chinese price level and the money supply in light of a model of a free banking regime under a commodity standard, a model under which increases in the supply of money (consisting largely of small denomination evidences of intermediated private indebtedness) need not lead to increases in the price level. It is our view that the banking system of China in the early 1930s approximated a version of free banking. Various privately owned banks issued bank notes (which were subject to reserve requirements) as well as deposits (which were not), which they converted into silver on demand. There was no government deposit insurance, either explicitly or implicitly via a government "lender of last resort". Finally, there was free entry into banking.

S.N. Broadberry (UBC & University College, Cardiff), "Crowding Out or Crowding In? The British War Economy 1939-45"

Traditional analysis of war expenditure by governments focusses on the issue of crowding out through financial markets. We note that for Britain during World War II, however, the transfer of resources from the private sector to government was achieved by direct controls on private spending. To the extent that government spending raised aggregate demand, money finance ensured that interest rates remained low, so that the traditional financial crowding out which is often alleged for the 19th century, did not occur. Quantitative estimates of the impact of controls are presented.

Scepticism on the importance of crowding out is also matched by scepticism on the importance of crowding in. A traditional Keynesian "folk view" of World War II is that it demonstrates the success of Keynesian policies of increased government spending to bring unemployed resources back into productive use. This view, which concentrates on aggregate demand, is too simple. There were also changes on the supply side of the economy during the special circumstances of war.

Charles W. Calomiris and R. Glenn Hubbard (Northwestern University), "International Adjustment Under the Classical Gold Standard: Evidence for the US and Britain, 1879-1914"

Links between disturbances in financial markets and those in real activity have long been the focus of studies of economic fluctuations during the period prior to World War I. We

emphasize that domestic autonomy was substantially limited by internationally integrated markets for goods and capital. Such findings are important for studying business cycles during the period; for example, when prices are flexible, observed cyclical movements can be related to a credit-market transmission of deflationary shocks.

Recent studies of the classical gold standard have revived interest in the process by which macroeconomic shocks were transmitted internationally during this period. The principal competing approaches - the "price-specie-flow" mechanism and the more modern "internationalist" view - differ according to the means by which international equilibrium is reestablished after a disturbance occurs in capital, money, or commodity markets. We present and interpret separate pieces of evidence on gold flows, interest rates, and selected commodity prices, all of which shed light on the alternative assumptions employed in the price-specie-flow and modern approaches. We employ a monthly data set for the US and Britain for the pre-World War I frameworks. Using the "structural VAR" approach of Bernanke and Sims, we compare the actual historical importance of shocks and the observed patterns of short-run adjustment to shocks with the prediction of each of the two models. The evidence supports the "internationalist" view of close international linkages over the "specie-flow" view of circuitous linkages and domestic autonomy in money and capital markets.

Martin J. Eisenberg (University of Pennsylvania), "Politics, Compulsory Attendance, and Schooling Investment: The Iowa Way"

The causal relationship between attendance levels and compulsory schooling laws, passed in all 50 states and territories between 1852 and 1929, is investigated. Did higher attendance rates lead to the passage of the laws or did the laws result in higher attendance rates? To control for heterogeneity across state laws arising from different age coverages, minimum attendance periods, and enforcement mechanisms, these questions are investigated for one state, Iowa. Roll-call votes in the Iowa General Assembly on compulsory attendance bills in 1888 and 1902 are analyzed to identify the coalition that supported the law. Legislators from districts with high attendance rates were not part of the coalition. Instead, religious pietists, who believed the state's role was to uphold social values, joined other legislators, from districts where the opportunity cost of children's time was large and attendance was below trend, to pass a compulsory attendance law. Iowa's law, moreover, is found to have an impact on public school attendance rates at the county level. The law accounted for 63% of Iowa's increase in attendance rates between 1903 and 1908.

James Foreman-Peck (University of Newcastle upon Tyne), "Some Measures of Foreign Investment and Exploitation for Britain and India Before 1914"

International exploitation, widely thought to be a consequence of empire, occurs when one nation gains at the expense of another. The sources of exploitation may be found in bargaining power (neoclassical) or unjust expropriation of rights. Most manifestations of exploitative relations will leave traces in national balances of payments by influencing prices, rates of return on investment, or transfers. This paper uses the method of balance of payments reconstruction to assess the evidence that British and Indian external economic relations show signs of exploitation when the British Empire was at the height of its power. Simulations show that the value of the United Kingdom's overseas capital stock in 1913 is extremely sensitive to the procedure adopted for determining invisible exports, broadly defined to include possible illegotten gains from empire, but rates of return on foreign investment cannot be driven much higher than 8% on credible assumptions. The inference from this result that British external economic relations in general were not exploitative is supported by a reconstruction of the Indian balance of payments. Though

the rate of return on foreign (British) investment seems to have been high in the 1830s, subsequently profits seem to have been well below British overseas yields. Even counting the Home Charges and other non-commercial transactions as part of the returns does not raise the rate to levels that could be described as exploitative in 1913. Only when the impact of these transfers on the exchange rate between the early 1870s and 1895 is taken into consideration, might returns, broadly interpreted, attain exploitative levels.

R.G. Gregory, V. Ho, L. McDermott and J. Hagan (Australian National University), "The Australian Labour Market During the Thirties"

In Part 1 we compare some of the Australian outcomes with those of the US labour market. In the US there is no centralized wage setting system and trade unions are not as extensive or as powerful. During the early years of the depression trade union membership in the US covered only 9.5% of the non farm labour force. There are two major conclusions to Part 1.

First, the macro wage outcomes for each country were much the same, despite the different institutional frameworks. Both countries exhibited considerable flexibility in nominal wages, but virtually no flexibility in real wages. Between 1929 and 1932 nominal wages fell something on the order of 20 to 25% in each country, but despite unemployment rates of 19% or higher, real wages were either constant or marginally increased.

Second, almost all of the labour market adjustment to the reduced level of labour demand in Australia seems to have fallen on the unemployed. For each percentage point reduction in output about one percentage point of the workforce was laid off. Average hours of work per week for the employed workforce were not significantly affected by the depression and labour productivity per hour did not fall. In the US, however, each percentage point reduction in output was associated with less than half a percentage point reduction in employment. There were two adjustment mechanisms that kept employment in the US higher than it might otherwise have been. First, there was a large fall in average hours worked per week; second, labour productivity per hour worked also fell. These adjustments are consistent with a strong degree of job sharing and labour hoarding. Indeed, given the output fall between 1929 and 1933 it appears that job sharing and labour hoarding may have kept an extra 14% of the labour force in work. These phenomena are not observed to any significant degree in the regulated Australian labour market and may be attributable to the different institutional framework. From the point of view of allocating jobs during a depression, the different degree of job sharing between the two countries was far more important than the different responses of each country to government job creation schemes or the development of other unemployment support schemes to share the income loss.

In Part 2 we discuss the pattern of unemployment in Australia, but at some future date it is hoped to draw out comparisons with other labour markets. There are two major conclusions which reinforce the view that the Australian labour market was very poor at job sharing. First, unemployment duration during the depression was typically quite long, and once unemployed, workers found it difficult to obtain a new regular job. Fifty percent of the unemployed in 1930 had not found a regular job by 1933. Second, it is quite clear that unemployment was primarily visited upon the lower socio-economic groups who clustered together in particular parts of Australian cities. There, in June 1933, over 40% of the male labour force was unemployed. In other areas the male unemployment rate was less than 8%.

Putting all these points together, a picture emerges of a regulated labour market in Australia which produced real and nominal wage flexibility of a similar degree to the US, but

deviated considerably in its ability to adjust hours of work and labor productivity per hour. Despite the emphasis of public discussion on equality of sacrifice and sharing the burden, very little sharing of jobs happened in Australia. The system seemed to divide the labour force into two distinct groups: the employed who maintained real wages, hours per week, and tended to keep their jobs and the unemployed who tended to remain without work for long periods of time.

T. J. Hatton (University of Essex and Australian National University), "The Demand for British Exports 1870-1913"

The paper examines and assesses the main forces influencing trends and fluctuation in the demand for British exports 1870-1914. The demand for exports has been seen as a factor influencing the growth of the economy and, more importantly, the key element in generating the distinctive trade cycle of the period. From the literature three major variables can be identified: the growth and fluctuations of income in 'core' industrial countries, British overseas lending, and relative prices.

To test for the impact of these variables a demand equation is estimated for aggregate exports and for three separate commodity groups: cotton textiles, iron and steel, and coal. In the aggregate the influence of income and relative prices can be identified, but that of overseas lending appears to be weak. These results are supported at the disaggregated level though not very strongly for coal exports. The models were tested for structural change from 1890 as is suggested in the literature and this was found both in the aggregate and for iron and steel.

The results overall indicate the dominance of the world trade cycle in determining fluctuations in exports. They suggest a relative price elasticity of about -2 which is consistent with the views of several historians. Finally, the results indicate that the direct impact of overseas lending in generating demand for exports was very limited, contrary to the widely held view.

William J. Hausman (College of William and Mary) and John L. Neufeld (University of North Carolina at Greensboro), "The Relative Economic Efficiency of Public versus Private Electric Utilities at the Turn of the Century"

The issue of whether society is better served by enterprises that are publicly owned or by those that are privately owned is both of current interest and has a heritage going back to the Progressive era in the US. We here survey the debate on the issue and consider the specific case of relative efficiency in public versus private electric utilities in 1897-8. The US Commissioner of Labor undertook a study of the water, gas, and electric utility industries and in 1899 presented the results of the investigation. From the data presented, we have selected a sample comprised of all electric utilities using coal as a source of power. In order to address the issue of relative efficiency we have used a nonparametric linear programming technique to estimate frontier production functions. This technique has the advantages that no specific functional form is assumed, multi-dimensional output measures may be used, and inefficiency may be decomposed into its components (allocative, overall technical, pure technical, congestion, and scale). Only the technical components of inefficiency were estimated for this paper. The results indicated that in terms of overall technical efficiency, pure efficiency, and congestion, municipal plants were significantly more efficient than private plants. In terms of scale there was no significant difference. We consider some alternative explanations for this rather surprising outcome and choose not to present any strong conclusions until allocative efficiency and other issues can be considered.

Alan Heston (University of Pennsylvania), "The Camel and the Wheel Revisited"

The paper evaluates some of the arguments developed by Richard Bulliet in *The Camel and the Wheel*, in particular the causation he sees between the disappearance of wheeled transport in the Middle East and the extension of camel transport and camel-based military regimes. The alternative explanation offered is that the introduction of wheeled carts to North Africa and the Middle East by the Romans was not based on cost advantages of the carts. Even if the roads were charged totally to military expenditure, the ox-cart does not appear to be a cheaper form of freight transport than the pack camel in places where both can be used. This is inferred from contemporary evidence in India and Pakistan where all three forms of transport are available: ox and camel carts, pack camels, as well as trucks and the like. Also, the evidence that Bulliet uses is reviewed and it does not appear to be in contradiction to the thesis developed here. In particular, the fact that the wheel disappears in North Africa and the Middle East between 300 and 700 A.D. is to be explained by the fact that its introduction by the Romans was not economically justified in the first place; thus when the Roman Empire declined, the area reverted to wheellessness.

Daniel M.G. Raff (Harvard Business School) and Lawrence H. Summers (Harvard University and NBER), "Did Henry Ford Pay Efficiency Wages?"

This paper examines Henry Ford's introduction of the \$5 day in 1914 in an effort to evaluate the relevance of efficiency wage theories of wage and employment determination. Our general conclusion is that the Ford experience is strongly supportive of the relevance of these theories. Ford's decision to dramatically increase wages is most plausibly portrayed as the consequence of labor problems of the kind stressed by efficiency wage theorists. The structure of the \$5 day program is consistent with the predictions of efficiency wage theories. There is vivid evidence that the \$5 day resulted in substantial queues for Ford jobs. Finally, significant increases in productivity and profits at Ford accompanied the introduction of the \$5 day.

Barbara N. Sands (University of Arizona), "Farmers' Risk in the Post-Bellum South: An Econometric Comparison of Alternative Models"

This paper uses some recently suggested econometric procedures to resolve an on-going debate in US economic history. Because Cox test procedures extend classical hypothesis testing to allow direct comparison of non-nested models, they are argued to be of immense potential importance for a field like economic history. The economic history debate described herein, with three competing non-nested hypotheses regarding farmer behavior in the post-Civil War South, provides a good demonstration of the procedures' use. Altogether, nine different models describing cotton acreage choice in the late nineteenth century American South are examined. In comparing the nine models, both classical hypothesis testing and tests based on the Cox procedure are reported. The major finding is that while one model does seem to fare better than all others in general, its performance vis-a-vis individual models is still imperfect. What this means for both this specific historical problem and economic history in general is discussed in the paper.

Donald F. Schaefer (Washington State University), "Agricultural Displacement at the Southern Frontier: A Test of the Phillips Hypothesis"

U. B. Phillips asserted that planters in the antebellum South 'encroached' upon yeomen (non-slave holding) farmers, forcing them to move, withdraw from commercial agriculture, withdraw from agriculture, or become slave holders. In this paper the behavior of southern

farmers is examined to see if it is consistent with the Phillips hypothesis. Using a sample of farm operators drawn from the 1850 and 1860 manuscript censuses, it is shown that yeomen and tenant farmers did have a higher propensity to migrate than farmers who were slave holders. An alternative to the Phillips hypothesis, namely that yeomen moved to avoid proximity to slaves, was also tested, but the data did not support this alternative hypothesis. The data also failed to support the contention that yeomen farmers withdrew from commercial (cotton) agriculture. A transition matrix for farm operators showed that non-slave holding farmers did move up the agricultural ladder to slave holders. Empirical work is not yet complete on the question of whether yeomen farmers withdrew from agriculture. Preliminary results suggest that agricultural withdrawal was relatively minor. The difficulty of inferring motives from behavior is emphasized throughout this paper.

MULLAH'S MODEL OF WORMS

(Editor's Note: *Some days after the Cliometrics Conference the following was received at the Society's office. We presume it came from a member of the Jayhawk Tribe; however, we did not notice if it was delivered by mail truck or camel. We thought it should be published for the members so they could determine its significance to the field.*)

In time Mullah Nasra Deen returned from the Illini oasis of hospitality, thought, and statuary and passed long hours in his village reflecting upon the events that had transpired at the annual gathering of the philosophers of the counterfactuals. The one thing that stood out most in his mind was the aphorism uttered so blithely by the scholar from the great desert of the Southwest: "Never open a can of worms larger than the Universe." Never before had anyone, save the Mullah and the illustrious writers of the great texts, had such insight - much less the audacity - to deliver the message in the very temple of the anti-maximists. Indeed, as has been recorded, the immediate impact of that proverb was so great that the Mullah, through one of his followers, awarded a prize to its author.

The gracious Mullah, not wanting to squander the valuable time of the members of that funnily-named tribe, the Cliometricians, and not wishing to cause any delay in the nightly rituals, awarded the prize without providing a full specification. So that the history of the ceremony might be complete, the following passages are recorded, showing as they do the wisdom behind the Mullah's creation.

It would be easy to think that the Mullah was so overwhelmed by the aforementioned proverb that he gave as a prize the first thing he could find. But nothing could be farther from the truth. The Mullah thought long and hard about the appropriate nature of a prize for such eternal wisdom. He took long, solitary walks in the gardens, forests, and among the statuary, offering homage to the Sunsinger and the Fu-dogs, and often seeking inspiration from the Ape-Carrying Woman. And, as he had rarely done in the past, he consulted with several of the high priests of various tribes, such as the Hoosiers, Brits and Canucks, asking each in turn: "What shall be given to the bearer of such a wonderful thought?"

At long last the answer was revealed. As is so often true, the proverb itself contained the answer: A Can of Worms was the only just dessert! The obvious point of the proverb, that one should not open a can of worms that was too big, masked a more subtle idea, but one which far better explains behavior. To wit, one should open cans of worms! Indeed, why would you need to be warned against opening one too large, unless there was sufficient motivation to open one at all. And why be warned, unless you were opening so many, that contrary to all the known laws of probability and moral sentiments, you would eventually find one in the tail of the universe that was larger than the universe. By implication, one would open a can of worms because, *a priori*, the contents were thought to be valuable. This is the marvel of such aphorisms as that before us now: upon reflection they yield yet more wisdom, albeit in smaller and smaller doses.

Once having settled upon the appropriate prize *in theory*, the Mullah began his more important and difficult task, to determine what a can of worms is in reality. All ancient philosophers were familiar with worms, and the Mullah was no exception, but this left unresolved other aspects of the trophy, its size, shape and substance.

How large a can of worms should be offered? Clearly, it could not be larger than the universe for then it would be quite difficult to award a second should another of the Clioms devise an equally fine maxim. The possibility of finding a third or fourth such sized can seemed even more imponderable, so for practical reasons the Mullah quickly decided to

award one that was significantly smaller than the universe. One of the priests, perhaps he from the far coast, spoke out that being significantly smaller than the universe is not sufficient. One could readily imagine a can of worms smaller than the universe, yet too large to get into the room, much less store beneath your seat on the great silver birds that proved so necessary to bring about the wisdom in the first place. Fortunately, the oasis was filled with those who had spent a great deal of time thinking about this very issue of defining small and large, and the matter of size was quickly dispensed with.

The trickier aspects of the prize had yet to be resolved, and time for the awards ceremony and nightly rituals was drawing nigh. As everyone knows, the Mullah lived in an age "before cans" (circa 300 to 700 B.C.), or perhaps, as some have argued, in an era in which the can had disappeared from his part of the world. Whichever the case, the Mullah was not familiar with the genre, and discovered to his dismay that the Illini oasis had no such artifact. They had paper cups and returnable bottles, but no cans. What, indeed, is a can? What is this thing of which we should open some number, always in the hope that it will not be too large? And, how do you construct a can made of worms? Can worms be trained to wriggle constantly in the pattern used to construct the can? And, if the can is made of worms, are there enough worms in the universe to ever construct a can bigger than the universe?

It was suggested by the scholar from the Hawkeye tribe that Aristotle, Plato, or Aquinas had already written on a related topic, and that if the Mullah could not find those journals in his village, he might check the libraries in some other villages. Since this broader issue did not have to be resolved before the banquet, the Mullah put it aside and resolved that upon returning to his village he would consult the seminal article about the number of angels that could dance on the head of a pin, to see how that author reached a conclusion.

One among them, the scholar with four legs and an ice pack, claimed he had recently been to the market, that wonderful institution the Mullah had given them some years before, and could report that it was working as well as possible. There he had seen an item, a bottle of camel milk, which was not made "of" milk in the same way as an oxcart is made of wood, but rather is filled with milk, and suggested that perhaps a can of worms was not made of worms, but was a can filled with worms. The Mullah was greatly relieved, for now he had but one detail to work out.

What remained was the overriding question about the nature of a "can." What is it? What does it look like? What is it made of? Many canny suggestions were made by those around him. One of the high priests from the windy city suggested that a can was a vessel designed to hold things, which explains why the word was followed by the preposition "of." Another, probably from the Aussie tribes, argued that the vessel must be broad and wide because the idea that it could contain something bigger than the universe implied that it must be capable of holding the universe, and the known tribes were spread far and wide. He who peddles the journals of the historical explorers felt that the vessel must be tall so as to encompass the heavens and stars which might also be part of the universe. Yet a third view, held by he who had studied the potato in great depth, was that the vessel must be wide and tall, perhaps shaped like a rectangle, so that it could encompass the farthest flung tribe and the most deviant star.

The matter of the can's substance produced an equally bewildering array of suggestions. Those familiar with some older technologies argued that a can was made of paper, some thought of wood, and a small minority felt it could be made of glass. The chief spokesman of this latter group, he from the camp of the-canned coach, stressed that - like so many things that seem hard to understand at first glance - his view can be readily explained by "traction" costs. In this case, since worms would be less likely to escape because it is

harder to crawl up glass than wood or paper, the glass can would survive in the long run. A different justification, put forth by he who was slightly oiled, held that throughout history there was no highway tax on glass, and it was also very light, so it seems reasonable to assume that it could be carried with zero marginal cost, and would drive out competing containers. Others countered that glass was more fragile and so while it might be a choice where one could transport the cans by oxcart over smooth roads, where camels were the primary means of transportation, only risk-preferred drivers would carry glass cans. A small sect of Leatherans, a group that has had a long history of schooling, held fervently to the belief that such a wondrous thing must be made of a special material, namely Iowa pigskin, and should never be made out of these more common materials.

One of the few distaff members said she too had been to the market, and while she spent a long time watching the higgling and haggling, at no time had she encountered any such thing as a can. (The reliability of her evidence, or lack of it, was supported by her own admission that she had not seen any invisible hands, either.) This market study was of major consequence. While it could have resulted in interminable discussion about the fates of the fabled and competing isms, the Mullah saw its practical virtue. The failure to see any can at the market implied to the Mullah that a can was probably not made of any of those materials discussed. For if a can made of a known substance, such as paper, wood, or even glass was as desirable as the notion of a can of worms has suggested, the market would have produced one. Thus, a can must be made of something else.

All these suggestions made great sense to the Mullah, and while he saw good reasons to choose a rectangular vessel made of an unknown substance, he was too humble to think that he knew for sure, and felt that his prior beliefs could be misleading him as they had at other times. So his ignorance, humility, and a desire to be fair to all the assembled advisors left him with quite a few possibilities, including combinations that the original adherents had not even envisioned. For example, those who argued for the cylindrical can also believed it should be made of paper; those in favor of the wide can were partial to wood; and the rectangularites leaned toward glass; the Mullah suspected that the two features were separable. In short, he had three shapes for the can, and three practical substances (the unknown substance was deemed impractical). After mulling it over, and with heavy heart, he dismissed the Leatheran suggestion as well. He felt that while their schooling had instilled a deep knowledge of ACTS I and II, they were not so good at analogies, much less oxymorons, and they were known not to think as clearly on SATs, the day on which this episode transpired.

With the banquet about to begin, he consulted with one last high priest, he who had arrived in the long swing, and who suggested a test for deciding among the competing models of a can of worms. Thus was devised the Box Test, which in later years would be revised and expanded by those with other names. The essence of the test was to find a box small enough to fit under the seat of a great silver bird, and then try to fit the models into the box. That model of the can of worms which best fit into the box would be judged as the best version significantly smaller than the universe. With the evidence available to him in those years before the invention of the ouija board, the Mullah concluded that the best model was a small, cylindrical one made of paper.

The entire experience gave the Mullah a new and more favorable view of the tribespersons from the West. While the long history of mankind makes clear that the members of that funnily-named tribe would not produce such enlightening proverbs in abundance, there was some chance, no matter how small, that others among them could produce such wisdom. And, as he had learned on the Indian Railway, repeated sampling does occasionally give you an unusual result. Thus he feels that a sample of the Clioms' wisdom should be chosen from among the many bits put forward each year when the great

silver birds are called upon to deliver the tribespersons to the appropriate oasis, and to this end suggests that the prize become an annual one. While the can of worms, or as well-specified a model of one as could be constructed on the spot, seemed appropriate for that first award, a more classical award seems more fitting in the long run. While that prize should perhaps be small enough to fit under the seat of the great silver bird, it should simultaneously be an efficiency prize, large enough to call forth such a supply of proverbs as to allow the Mullahs to pick and choose. Such an award would, of course, be second in importance to the great Clio prize, if for no other reason than that award committee solved first the question of the can. More importantly, as the keepers of administrative wisdom know, better to be unctuous than punctuous.

*Submitted humbly by the faithful and
obsequious servant of the Mullah*

ABSTRACTS

from the Fifteenth Conference on the Use of Quantitative Methods in Canadian Economic History, McMaster University, 20-21 March 1987

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Morris Altman (University of Ottawa), "Railroads as an "Engine" of Quebec Economic Growth".

The role played by railroad construction in the growth of Quebec and Ontario manufacturing in the period 1870-1910 is examined in this paper. Census material and the Sessional Papers of the parliament of Canada are my primary sources of data. I find that railroad related manufacturing, although not to that of Ontario. Indeed, I find that without Quebec's railroad related manufacturing growth, the growth of manufacturing in Quebec would have been relatively more retarded than it actually was. Thus, railroads played a much more important role to Quebec's industrial development than it did to Ontario's and also to that of the United States. Moreover, that railroads were so important to Quebec's industrial development speaks against the received view that railroad construction in Canada represented a net drain of the economic resources of Quebec towards Ontario and the Canadian West. To further examine the issue of the discrimination suffered by Quebec through railroad construction, I analyse data on federal and municipal government subsidies for railroad construction. Here too I find that Quebec was a net beneficiary.

Isabel B. Anderson, (University of Saskatchewan), "Measuring Structural Change with Incomplete Historical Data: The Case of Canadian Manufacturing".

The paper identifies the nature of the problem of estimating structural change in an historical context. The mathematics of input-output analysis suggests that existing information, even when temporally incomplete, can be used to estimate changes in the parameters of an economic system over time, and thus to estimate structural change. Applying the idea, estimates of the structural changes that occurred in Canadian manufacturing during the period from 1932 to 1945 are made and analyzed. The results are compared to the results obtained by using simpler, but more cumbersome techniques of analysis.

Rusty Bitterman (University of New Brunswick), "The Use of a Production/Consumption Approach for Rural Microanalysis: A Nineteenth Century Cape Breton Example".

The creation and application of procedures for estimating the production and consumption of agricultural goods on a macro scale has become commonplace in North America. The use of this same approach for probing microanalytic questions has received less attention. This paper explains the fabrication and use of such a procedure for exploring the relationship of individual households to the agricultural economy in a rural nineteenth century Cape Breton community.

The results of this study indicate the presence of a more complex economic and social fabric in this rural community than had previously been assumed. The self-definition of most household heads as farmers and the absence of a significant landless population has fit neatly into a historiography that has tended to characterize the countryside as a mosaic of self-sufficient households grounded in an economic independence derived from access to agricultural land. Analysis of the production and consumption of agricultural goods indicates that many households in this community failed to raise sufficient foodstuffs to sustain themselves. These results, which are echoed by similar studies conducted elsewhere in the Maritimes, raise important questions concerning social relations in the countryside and rural markets in foodstuffs and labour.

Elizabeth Bloomfield (Guelph University), "Industry in Ontario Urban Centres 1870: Accessing and Analyzing the Manuscript Schedules of the 1871 Census of Canada".

A project to make the unpublished industrial data of the 1871 census accessible to researchers in several disciplines, including economic history, has been based at the University of Guelph for the past year. A databank containing 6,825 records has been created, accounting for 64 per cent of the total industrial production of Ontario in 1870, 33 per cent of the total production of Canada.

Not only have these previously unpublished data been made machine-readable, but coded details of location and Standard Industrial Classification have been added. They are now verified, consistent, comparable, retrievable and capable of being aggregated geographically or by industrial sector. It is possible to compare the computer's aggregations with the totals published for census districts and industrial types in the 1870s: the published totals tended to understate our numeric data, by as much as 15 per cent.

The databank is being subjected to statistical analysis to investigate several questions in the history of Canadian economic and social development. Does the industrial structure of Ontario in 1870 illustrate "concurrent phases of capitalist growth," in which handicrafts, manufactories and factories co-existed? Were there significant differences between sectors? Were the large factories more or less productive than the manufactories and craftshops? Did increases in scale and mechanization achieve internal economies? We are also interested in exploring the relationship between industrialization and urbanization: what were the critical factors and stages in the concentration of industry in urban centres? How, precisely, did industrial growth affect general urban development?

Louis P. Cain (Loyola University of Chicago), "A Subsidiary Tale: Thomas & Betts Ltd".

This paper investigates the history of the Thomas & Betts Company's involvement in Canada. Starting from a simple agency relationship in the late 1920s, to the establishment of a quasi-independent firm today, the Canadian experience of what began as an electrical conduit fittings company has been typical of the way in which many manufacturing firms have undertaken direct foreign investment. The paper will also discuss the company's operations with respect to both Canadian electrification in the 1920s and 30s and the Canadian housing initiatives of the 1930s.

Barry R. Chiswick (University of Illinois at Chicago), "Earnings in Canada: The Roles of Immigrant Generation, French Ethnicity and Language".

This paper, co-authored with Paul W. Miller, is an analysis of the determinants of earnings of adult men in Canada focusing on the effects of nativity, ethnicity, and language skills. The data are for a one-in-fifty sample of the population from the 1971 and 1981 Censuses of Canada microdata files. Among other findings, the earnings of immigrants catch up to that of the nativeborn, but it appears to take longer in the 1981 census than in the 1971 census. The earnings disadvantage of French Canadians has diminished and the impact of bilingualism has changed.

Tanis Day (Ph.D in progress Queen's University), "Measuring the Standard of Living Within the Home".

Census income data is used in combination with income information from Family Expenditure Surveys to get distributions of family incomes, with

and without unearned, wives and childrens incomes. These are combined with data on ownership and prices of goods used in the household. The total is a picture of spending habits and standards of living by income quintile; how this changed through the decades and how it did or did not depend on the employment status of the wife.

Trevor J.O. Dick (University of Lethbridge), "Inequality and economic Growth in Canada, 1870-1914".

In this preliminary paper, progress along three different avenues of research that bear on the documentation of inequality over the period 1870-1914 in Canadian economic history will be reported. First, the reconstruction of price and wage data and their regional variation will be examined. Second, the wage data will be used to construct pay ratios (Skill differentials) as a further measure of inequality. Third, the possibilities of developing a new approach to data interpretation wherein the data are used to document inequality in the distribution of individual welfare will be considered. The emerging results of this work will be compared with the conventional wisdom of the existing literature.

Ruth Dupre (Ecole des Hautes Etudes Commerciales), "Agricultural Policy in Quebec From 1867".

Writers have often stressed and praised the rural vocation of the province of Quebec well into the 20th century even though the rate of urbanization reached 50 per cent as early as 1921. With the exception of the 1930s, agriculture expenditures always represented less than 10 per cent of the total provincial government budget. However, government activity included, there seems to have been a large number of regulations in favor of the agricultural sector; milk price support at least from the 1930s, prohibition of margarine from 1949 to 1961, etc. Loans were also offered by the Quebec Farm Credit Bureau. The purpose of this research is thus to explore the Quebec Government regulatory activity in agriculture and to integrate it into spending and lending in order to get a more accurate picture of the evolution of agricultural policy in Quebec since 1867. The findings should be useful to those interested in public policy and economic historians.

Alan G. Green (Queen's University), "Productivity Differences Between Canadian and American Manufacturing: 1900-1939".

This paper compares the growth of manufacturing in Canada and the U.S. from 1900 to 1939. The comparison is done by measuring relative

productivity trends over this period. Two measures of efficiency have been employed -- partial (output per worker) and total factor productivity. The evidence is the product of three years of research. The results show that Canadian efficiency converged towards U.S. levels over the period, when a total factor productivity measure is employed. These results differ from the extant literature on the Canadian experience.

Daniel H. Hara (Ph.D. programme Carleton University), "Economic Motivation for Cooperative Marketing".

The paper examines the decision of prairie wheat farmers to form the Canadian Wheat Pool during the 1920's. The question is interesting because the Pool represented a rejection of the private market system for wheat, despite the substantial market share of farmers' cooperative companies at the time. The paper takes the position that there were sound economic reasons for farmers joining the Pool. It may provide a modern policy rationale for grain marketing boards.

A theoretical model of mixing and grading is presented. The model proposes that any good for which quality can be measured on a cardinal index (such as protein content), and which is sold in discrete grades, is price inelastic with respect to quality. The implication drawn for wheat is that farmer's total revenues are dependant on the quality of grades marketed internationally by Canada.

Evidence is presented that the incentive to dilute the quality of grain by private grain dealers created a welfare loss between the farmer and the foreign consumer. This welfare loss could be captured by a vertically integrated operation, such as the Pool.

Having presented an a priori case for the Pool's formation, the individual farmer's decision to join the Pool is then examined. It is proposed that the individual farmer's benefit from the Pool would be modified by such considerations as their protein content, the size of their crop, country elevator competition at the local railway shipping point, length of growing season, and the density of shipping points.

The propositions concerning the individual farmer's decision to join the pool are then tested using cross-sectional data from the Pools' first contract period in Saskatchewan. The percentage of wheat acreage signed up to the Pools for 160 sub-districts is regressed against data on protein, farm size, growing season, and shipping points gathered from a variety of sources.

Ann Harper-Fender (Johns Hopkins University), "Organization of the Hudson's Bay Company, 1821-1831".

The Hudson's Bay Company evolved to survive and did so more than three hundred years. This paper will focus on the Company immediately after its 1821 agreement with the North West Company to amalgamate their activities for twenty years. As long as the Hudson's Bay, monitoring of employee behaviour was relatively easy. Once competition forced the posts and traders inland, employees became more dispersed and room for opportunistic behaviour increased. The Company did not resolve this problem prior to the 1821 agreement. I contend that the Company underwent significant organizational change after that agreement, change that emulated somewhat the North West Company but did not copy fully the Montreal company's form. Using information garnered from the Company's journals and account books, I argue that the Company initiated or further developed (1) a financial incentive system, (2) an alignment of posts to districts and departments so as to recognize joint production, and (3) an information system that permitted effective allocation of reward and blame.

Jennifer Ariadne Hawkins (Econolynx International Ltd.), "The Role of Canadian Chartered Banks in U.S. Banking Crises: 1870-1910".

The purpose of this paper is to examine the role played by Canadian Chartered banks in the five major U.S. banking crises that occurred over the period 1870 to 1910. In particular, the hypothesis that is investigated is whether agencies of Canadian chartered banks significantly and permanently increased their position in U.S. financial markets during these crises. The reason for believing that this hypothesis may be true is that during these crises these banks may have been sheltered from the liquidity problems faced by competing U.S. banks by their relationship with unaffected parent Canadian banks.

The analysis of this hypothesis not only includes a thorough qualitative assessment but also a quantitative one. Regression analysis is performed on data collected from reports filed by Canadian chartered banks to the Canadian Inspector General of Banks over this period.

M. Huberman (Trent University), "Determinants of Union Growth in Canada, 1900-1940".

This research examines the determinants and the pattern of union growth in Canada, 1900-1940. In testing the applicability of the economic model, the research will separate the growth and determinants of Canadian

and international unions, at the national and industry levels. Available data only go back to 1911, but from the Labour Gazette and other sources a series of union membership can be constructed for the important 1901 to 1910 period.

Jose E. Igartua (Universite du Quebec a Montreal), "Histoire Sociale des Travailleurs de l'Alcan au Saguenay, 1925-1940".

L'histoire social des travailleurs de l'Alcan au Saguenay, 1925-1940: etude preliminaire des niveaux de vie"

La communication comprendra deux parties. La premiere sera consacree a la presentation generale du projet de recherche: problematique, sources principales (dossiers du personnel, roles d'evaluation, registre de population) et etat actuel des analyses.

La deuxieme partie sera consacree a une premiere analyse des salaires et du niveau de vie, tels qu'on peut les estimer a partir des donnees sur les salaires contenues dans les roles d'evaluation. On tentera de distinguer les salaires par categorie professionnelle et d'en suivre l'evolution durant la periode.

Kris Inwood (University of Guelph), "Effective Transportation and Tariff Protection: The Canadian Iron Industry".

The tariff's influence upon the growth of industrial activity has attracted considerable discussion; unfortunately, no firm conclusions have emerged. We simply do not know how, if at all, public policy affected the Canadian iron industry or indeed any other industry in the nineteenth century. In this paper I report and consider rates of effective policy and transport protection for the iron industry. The estimated rates of protection and an international comparison of production costs lend support to the view that government policy and transportation changes hastened the industry's growth. The measure of effective tariff protection provides some assurance that industry's growth did in fact follow an increase in the rate of protection. The measure of effective transportation and comparison of production cost confirm that the iron industry would not have attracted investment without the shelter of the 'National Policy'.

Donald G. Paterson and Ronald A. Shearer (University of British Columbia), "The Financial Crisis of 1857: An Abstract".

The financial crisis of autumn 1857 began in the United States and first spread to Canada and later to Great Britain. The rapidity with which Canadian financial and commodity markets were affected was novel; this was the first major financial major crisis involving telegraph communications and railway transport. A consequence for Canada was that very little of the wheat harvest was marketed and remaining timber stocks went unsold. "The month of October is passing rapidly away ... No portion of our vast (wheat) crop has yet been sold; none of it has yet left our ports, (Morning Chronicle, 10th Oct. 1857)". Over the next two years the Canadian economy plummeted into a severe depression.

In this paper we focus on the financial crisis in Canada and how it spread from the United States. First we trace the origins of crisis in the United States and detail how the growing integration of Montreal financial markets with New York facilitated rapid transmission. One Aspect of this was the sudden unavailability of short-term bills used to finance Canadian-US trade. This had a pronounced influence in foreign exchange markets; new evidence on the operation of the Montreal foreign exchange market will be presented. Second we describe the reaction of the Canadian banks: the suspension of new loan activity (and the subsequent inventory accumulation). Canadian banks reacted also by, in some instances, settling interbank clearing through sterling accounts in London. Third, we document how the Canadian banks, long in advance of the crisis, had been moderating money supply growth; the economy had not been carried away by a sustained economic boom in the middle years of the decade as often imagined. Nevertheless, when the crisis came the reduction of the money supply was major.

Despite the severity of crisis and despite the vulnerability of the Canadian financial sector there were no major bank failures and no official suspensions of specie payment. A theme of this paper examines this behaviour.

Patricia E. Perkins (St. Mary's College of Maryland), "Stockpile and Price Determination in the World Cobalt Market, 1947-1984".

The paper presents a summary of the importance of the U.S. stockpile of strategic metals in their world markets, using cobalt as an example. A model of the cobalt market incorporating the stockpile goal and inventory, as well as political and economic variables which are important to stockpile decision-making, is proposed, as a means of testing the hypothesis that U.S. government actions were a significant determinant of the cobalt price in the period under discussion.

Neil Quigley (Victoria University Wellington, NZ), "Variations in the Cost of Credit Within a Branch Banking Network: The Bank of Nova Scotia, Canada, 1890-1927".

Data on the average annual rate of interest realised on loans at each of 393 branches of The Bank of Nova Scotia in each year from 1890 to 1927 provide the primary basis for this analysis of temporal and spatial variations in the cost of bank credit in Canada, Newfoundland and the Caribbean. Overall, deposit and loan interest rates set by the Bank were unresponsive to macroeconomic conditions in Canada, and the Bank did not attempt to use loan interest rates to influence the demand for credit. Variations in the real returns to holding monetary assets and the real costs of bank credit which resulted from this inflexibility are examined, and the implications for the growth of bank deposits and loans at different times are assessed. Comparing temporal trends in the cost of credit at the smallest and largest branches of the Bank, and at branches in different regions, demonstrates the importance of competition in determining the responsiveness of local interest rates to macroeconomic conditions. It is argued that the bankers managed the branch network in a way that served as much to isolate changes in the demand for money in individual regions as to provide an integrated national credit market. Computation of the average costs of credit in different regions for the period as a whole suggests that, while regional variations did exist, they were sufficiently small to be explainable in terms of variations in the risks and costs incurred by the Bank. Thus, attention is focussed on intraprovincial variations in the cost of credit, since these were much larger than interprovincial variations and appeared consistently in each province. A multiple regression analysis is used to demonstrate that the average rate of interest earned on loans of each branch was inversely related to the size of the loaning business done at that branch, both within the branch network as a whole and at each branch over time.

Lawrence Schembri (Carleton University), "The Role of Canadian Chartered Banks in U.S. Banking Crises: 1870-1910".

The purpose of this paper is to examine the role played by Canadian Chartered banks in the five major U.S. banking crises that occurred over the period 1870 to 1910. In particular, the hypothesis that is investigated is whether agencies of Canadian chartered banks significantly and permanently increased their position in U.S. financial markets during these crises. The reason for believing that this hypothesis may be true is that during these crises these banks may have been sheltered from the liquidity problems faced by competing U.S. banks by their relationship with unaffected parent Canadian banks.

The analysis of this hypothesis not only includes a thorough qualitative assessment but also a quantitative one. Regression analysis is performed on data collected from reports filed by Canadian chartered banks to the Canadian Inspector General of Banks over this period.

Fazley K. Siddiq (Dalhousie University), "Problems of Measuring Wealth Inequality Over Time".

The complexities involved in making accurate estimates of historical distributions of income or wealth are quite well known. These include questions regarding not only the accuracy or availability of data but also the difficulty associated with determining an appropriate methodology to make the estimates -- one that would take into account the interplay of various social, cultural, political and economic considerations of the period of interest. In this paper, an attempt is made to examine the effect of changing socio-economic conditions as well as the changing role of the government over time which create various methodological problems in measuring as well as comparing wealth inequality between two time periods. Thereafter, comparisons of historical and recent distributions of wealth in Canada are made, keeping in mind the problems that are associated in making such comparisons. The period of interest spans from around the early days of Confederation to approximately the late nineteen seventies.

Gordon Sparks (Queen's University), "Canadian Business Cycles, 1870-1939: An Econometric Analysis Using the New National Accounts Estimates".

This paper extends the work completed by the authors on the Great Depression of the 1930's. In the paper on the Great Depression a simple Keynesian model was developed and tested. This paper extends the time period i.e. from 1870 to 1939. For this longer period we intend to add production analysis to the demand-side factors. Econometric methods will be used to examine issues in business cycle theory as they apply to Canada. The basic data source is the new g.n.p. estimates developed by M.C. Urquhart.

Anthony Ward (Ph.D. program University of British Columbia), "Settlement of the Canadian Prairies 1880-1910".

The Canadian Prairies were occupied at a later date than similar areas of the U.S. My paper seeks to analyse the reasons for this delay.

My central hypothesis is that given the technology available in the 1880's, a typical settler with limited labour and capital could use only a small portion of his 160 acre homestead.

The Canadian growing season of about 130 days left only about 15 days in which to reap and collect the year's harvest. Areas of the US which attracted settlers during 1880's, such as the Dakotas, have growing seasons of about 150 days permitting 35 days of harvest activity. Such farms could therefore cultivate more of their land, making them more profitable.

During the 1880's a number of technical changes occurred, which increased the amount of land a farmer could cultivate. The income achievable on Canadian Prairies farms therefore increased, to the extent that starting a farm on the Prairie became more profitable than taking a homestead in the U.S.

Stanley Winer (Carleton University), "Modelling the Canadian Tax System, 1870-1984".

The present study argues that all three basic influences - economic, political and administrative - must be taken into account in understanding the evolution of tax systems. Furthermore, these factors can only be linked systematically if we start with an explicit model of political choice. We explicitly derive an estimating equation from the theoretical model using a criterion function of the type that has been widely used in models explaining composition of totals (e.g., Beggs and Strong). This allows us to characterize revenue structure as the ratio of revenues from alternative sources.

We apply the model to Canada for the period from Confederation (1867) to the first world war. The empirical work is part of what will be a larger study covering the evolution of Canadian revenue structure up to the present.