Research Objectives and Results, 1952-2002

My major objective has been to explain differences in the growth performance and income levels of nations. I developed a comparative and historical perspective, using a quantitative macroeconomic approach in the tradition of Colin Clark and Simon Kuznets. The influence of my work (15 books and 120 articles) is attested by frequency of citation and translation, and its impact on other scholars trying to measure and understand processes of economic growth, convergence and divergence.

I have played a major part in building up a quantitative historical record of economic growth performance and the causal influences which are measureable. I have developed a network of former students and other researchers in different parts of the world who have constructed or improved macroeconomic accounts for many countries. I have tried to promote consistency and comparability in statistical treatment, with transparent description of sources and methodology.

My work covers three fields: (i) interpretation of the economic performance of advanced capitalist countries; (ii) explanation of economic backwardness, retardation and catch-up in the rest of the world; (iii) analysis of the pace and pattern of world economic development, and interaction between major parts of the world economy.

(i) Interpreting the Development of Advanced Capitalist Countries

My early years were spent in the north of England in the 1920s and 30s where there was massive unemployment and poverty, and the outlook for capitalism seemed bleak. This aroused my interest in economics and an urge to understand processes of economic growth, stagnation and collapse (see my autobiographical essay, "Confessions of a Chiffrephile", 1994). Until the early 1960s, my interest was concentrated on the advanced capitalist countries.

In the 1950s and early 1960s, I worked in Paris, as head of the economics division of OEEC and OECD. My first book, *Economic Growth in the West* (1964) was an analysis of the postwar performance of West European capitalism, when growth of output, consumption, productivity, investment and employment surpassed any recorded historical experience. In this period, there was substantial reduction in the income gap between Europe and the world productivity leader, the United States. I attributed this in large part to improvements in domestic economic policy, reduction of barriers to international trade, and effective institutions for close international cooperation. Their impact was reinforced by the increasingly euphoric expectations of investors as the potential for rapid growth became apparent. I developed a detailed supply-side analysis of the special opportunities for catch-up in European countries, emphasising the difference between their growth potential and that of the lead country (the USA), which operates closer to the technological frontier. This approach remained a basic feature of my subsequent assessment of growth in other parts of the world.

This first book contained detailed appendices presenting standardised and comparable estimates of output, investment, labour force participation, employment, working hours and productivity for 12 countries back to 1870. A similar framework of comparable historical statistics has remained a hallmark of my work. I hoped that transparency of this kind would facilitate the research of others in this field.

A major purpose of *Phases of Capitalist Development* (1982) was to find the reasons for the sharp deterioration in Western performance after 1973. The emphasis was again historical and comparative, but went further back in time. It identified five "phases" of development within the capitalist epoch since 1820, with a scrutiny of earlier epochs in order to highlight their specific features. In interpreting the nature of the marked slowdown after the 1950-73 "golden age", I refined my earlier analysis by use of synchronous and standardized annual indicators. This was an advance on the work of Kuznets, who often used broader comparisons of overlapping decades for somewhat different periods, with less detailed emphasis on comparability and synchronicity. I explained the relation between my approach and that of earlier interpreters of the broad sweep of economic development (Smith, Malthus, Ricardo, Marx and Schumpeter), differentiating my "phase" analysis from the business cycle approach of Juglar, Tugan-Baranowsky and the National Bureau of Economic Research. I also emphasised the difference between my approach and the long wave analysis of Kondratieff, Schumpeter's cyclical schema and Kuznets' "secondary secular movements". The indicators I use are more representative of macroeconomic performance than the partial indicators of output and prices used by earlier analysts.

After careful scrutiny of the historical record, I found very little evidence for accepting the Kondratieff notion of long waves, and rejected Schumpeter's schema of major clusters of innovation in favour of a more gradualist interpretation of the diffusion of technology. In interpreting breaks in the momentum of development, I emphasised the role of "system shocks" which were in some degree historical accidents, but whose impact was reinforced by changes in expectations, and fashions in economic policy.

A significant finding of the study was the rejection of the idea of staggered "take-offs" throughout the nineteenth century which had been espoused earlier by Rostow and Gerschenkron. The improved array of historical national accounts now available suggests that the acceleration in growth in the capitalist epoch was much more synchronised than had hitherto been thought, and that earlier stress on an industrial revolution in the eighteenth century was exaggerated.

The 1982 study devoted greater attention than Maddison (1964) to the interaction between lead and follower countries in the process of technological transfer and catch-up. It analysed the historical succession of lead countries: the Netherlands, the UK and the USA, and the changes in the nature of leadership.

My third major contribution to analysis of advanced capitalist countries, *Dynamic Forces in Capitalist Development* (1991), was an update of the 1982 study. Inspired by the work of Ed Denison, it incorporated a more sophisticated growth accounting exercise, exploiting greatly improved estimates of capital stock to refine the analysis of productivity change and the pace of technological progress. It made a closer analysis of the impact of system shocks on official policy objectives in relation to inflation, employment and exchange rates. My 1995 paper, "Standardised Estimates of Fixed Capital Stock: A Six Country Comparison" (published in *Explaining the Economic Performance of Nations*) was a major improvement on Appendix D of Maddison (1991). It included annual figures on different types of investment and capital stock for a much longer time period.

I published four contributions to growth accounting methodology which analyse the role of "proximate" measurable influences and their interaction with deeper layers of causality. The first was "Explaining Economic Growth", *Banca Nazionale del Lavoro Quarterly Review*, September 1972. This was a detailed assessment of Denison's *Why Growth Rates Differ* (1967) and an exploration of its intellectual history. The second was "Growth and Slowdown in Advanced Capitalist Countries", *Journal of Economic Literature*, 1987, which explained my growth accounting approach and its application to the economic history of six advanced capitalist countries. A third piece was "Ultimate and Proximate Growth Causality: A Critique of Mancur Olson on the Rise and Decline of Nations", *Scandinavian Economic History Review*, 1988. These three concentrated on interpretation of the performance of advanced capitalist countries. The fourth "Causal Influences on Growth Performance" (chapter 2 of *Monitoring the World Economy, 1820-1992*) is discussed in section iii below.

(ii) Explanation of Economic Backwardness in the Non-Western World

From the early 1960s to the early 1970s, I worked mainly on problems of economic development. As Secretary to the Development Assistance Group in OEEC, I organised the first comprehensive statistics on capital flows (*The Flow of Financial Resources to Countries in Course of Economic Development, 1956-59*, 1961), was engaged in economic advisory work in Greece, Turkey, Brazil, Mexico, Pakistan and Ghana, and in research in the OECD Development Centre, the Twentieth Century Fund and the Harvard Advisory Service.

The major aim of my work in this field was to understand why the rest of the world is poorer than Western countries and to distinguish different types of non-Western experience.

As in the work on advanced countries, I attached great importance to establishing a corpus of historical statistics on growth performance and comparative levels of development. Differences in the level of development in the non-Western countries are very wide and there is great heterogeneity in their institutional heritage. In interpreting the reasons for "backwardness", I

explored the role of colonialism, indigenous social forces, institutions, property rights, religion and ideology.

My field experience of the complexity and variety of country situations made me chary of stylised generalisations about "the third world". For this reason, I concentrated first on country studies. I produced five of these, covering seven large non-western countries, which include more than half the world's population.

The first of these was *Economic Growth in Japan and the USSR* (1969). This combined a comparative quantitative survey of their development, with an analysis of their very different catch-up strategies between the 1860s and the 1960s. In preparing this study, I visited the USSR and Japan to see what material I could collect and to exchange views with policy analysts and statisticians. I was able to make contact with IMEMO (Institute for World Politics and Economics) and Gosplan in Moscow, where I had very fruitful discussions with Stanislav Menshikov and Valentin Kudrov. I spent longer in Japan where I had friends in Hitotsubashi University, particularly Kazushi Ohkawa, who was starting to publish 13 volumes on Japanese quantitative economic history. Saburo Okita (later Foreign Minister) opened the doors of government agencies such as the Bank of Japan, the Economic Planning Agency and the Ministry of Agriculture.

In 1996-98, I followed up my earlier work on the USSR with an article, "Measuring the Performance of a Communist Command Economy: An Assessment of CIA Estimates for the USSR", *Review of Income and Wealth*, September 1998 (which also appears on the website). In preparing this I benefitted from a fascinating seminar organised by the Groningen Growth and Development Centre in 1996 on the *Productivity Performance and Potential of the Former Soviet Union*. Papers were presented by six Soviet economists (including Yuri Ivanov from Goskomstat, Grigory Khanin an outspoken critic of Soviet statistics from the University of Novosibirsk, and my old friend Valentin Kudrov from the Russian Academy of Sciences), two American Kremlinologists formerly with the CIA (Gertrude Schroeder and Jim Noren), and two leading European experts (Mark Harrison and Alistair McAuley) and my colleagues from Groningen. Unfortunately most of the proceedings were not published.

Class Structure and Economic Growth: India and Pakistan Since the Moghuls (1971) was a study with greater historical depth, analysing religious traditions, property relations and the social fabric in India over the past five centuries. It analysed the successive socioeconomic regimes in the Moghul empire, the British colonial period, and in India and Pakistan since independence. It showed the impact of different components of this heritage on the nature of economic policy since independence and its limited success in promoting economic growth and social welfare. When collecting material for the book, I lived in Pakistan for a year as an advisor on social policy to the Economic Planning Commission, and I spent several weeks in India. I wrote it in Harvard University, under whose auspices I had gone to Pakistan.

When I became a professor in the University of Groningen, I taught a course on Asian economic history. From an earlier visit to Java in 1967, I had the impression that there was little quantitative material on Dutch colonialism and Indonesian history. However, in 1982, on my first visit to the School of Pacific Studies at the Australian National University (the first of several short sabbaticals) I discovered an active group of historians in this field, and found there was a wealth of detailed quantitative information in Dutch archives, which was being processed by the KIT (Royal Tropical Institute) in Amsterdam. With help from Ann Booth in Canberra and Peter Boomgaard in Amsterdam, I used the historical evidence to produce my own brand of macroeconomic accounts. The modest outcome was "Dutch Income in and from Indonesia, 1700-1938", *Modern Asian Studies* (1989) which analysed the economic impact of Dutch colonialism in Indonesia, and compared it with that of the British in India. This was followed by a conference volume, *Economic Growth in Indonesia, 1820-1940* (1989), which I edited with my colleague, Gé Prince.

The Political Economy of Poverty, Equity and Growth: Brazil and Mexico (1992) applied a similar mix of quantitative and socioinstitutional scrutiny, analysing changes in economic policy and their impact, with main emphasis on experience since the 1920's. It was published by the World Bank, one of ten comparative volumes on Latin America, Asia and Africa. Originally, I had intended a much deeper temporal perspective, examining historical roots of economic backwardness in the centuries of colonial rule, and the impact of Spanish and Portuguese colonialism compared with that of the British in north America. Experience in the colonial period is examined in "Historical Roots of Modern Mexico, 1500-1940" in Maddison, *Explaining the Economic Performance of Nations* (1995) and in the unpublished paper, "Brazil 1500-1929", which appears on my website. My work on Brazil and Mexico was long in gestation. I went first to both countries in 1964, as an advisor on education, international skill transfers and manpower problems. In Brazil, I was invited by Roberto Campos, the Minister of Planning, who was effectively in charge of economic policy in 1964-67. I went to Rio frequently in these years and to Mexico City where I was a consultant in the Bank of Mexico working with Victor Urquidi. In both countries I had good access to statisticians constructing the national accounts and to the architects of economic and social policy. I renewed these contacts in 1987-91, when the World Bank study was in preparation.

The Chinese Economy in the Long Run (1998) covered a much longer period than my earlier books. It deals with three epochs of Chinese development: a) Dynastic China (Tang, Sung, Mongol, Ming and Ching) from the seventh century to the early nineteenth; b) the century of colonial agression and civil war from the 1840s to the 1940s; c) the resurrection of China in two phases of communist rule, under Mao and in the reform period since 1978.

For thirteen centuries, Chinese rulers entrusted the administration of the country to a powerful bureaucracy. This educated elite, recruited on a substantially meritocratic basis and schooled in the Chinese classics, was the main instrument for imposing social and political order in

a unitary state with twice the territory and more than twice the population of Western Europe.This system of government was cheap compared with the complex military feudalism of Tokugawa Japan and the multistate polity of Europe where political control and elite claims on income were dispersed amongst an array of countervailing forces. The bureaucracy, military and "gentry" represented about 2 percent of the population in China in the early nineteenth century compared with 6.5 per cent for the shogunal, daimyo and samurai elite in Japan. Fiscal levies were about 5 percent of GDP in China compared with 20-25 percent in Tokugawa Japan.

The bureaucracy had a very positive effect on Chinese agriculture. They nurtured it through hydraulic works. They helped develop and diffuse new seeds and crops by providing technical advice. They settled farmers in promising new regions. They developed a public granary and canal transport system to ensure imperial food supplies and mitigate famines. They commissioned and distributed illustrated agricultural handbooks, calendars etc. Land use was very intensive, with no common or fallow land. There was a heavy concentration on crops, with much less use of animal products than in Europe. Land allocation relied mainly on market forces with relatively free purchase and sale and an early disappearance of feudal restrictions. The most dynamic agricultural advances occurred in the Tang-Sung period when there was a massive shift in the regional centre of gravity, with a big rise in the proportion growing rice south of the Yangtse, and a relative decline in dry farming (millet and wheat) in the north.

Outside agriculture, the bureaucratic system had negative effects. The bureaucracy were quintessential rent-seekers. They dominated urban life. They prevented the emergence of an independent commercial and industrial bourgeoisie on the European pattern. Entrepreneurial activity was insecure in a framework where legal protection for private activity was so exiguous. Anything that promised to be lucrative was subjected to bureaucratic squeeze. Larger undertakings were limited to the state or to publicly licensed monopolies. Use of China's sophisticated shipbuilding and navigational knowledge to engage in international trade was forbidden early in the fourteenth century.

The other feature of this bureaucratic civilisation which had long-term repercussions on economic development, was the official Confucian ideology and education system. By comparison with the situation in Europe in the middle ages, its pragmatic and secular bias gave it the advantage. Official orthodoxy was probably most benign during the Sung dynasty. After the European Renaissance and the development of Galileian and Newtonian science, the balance of advantage changed. China failed to react adequately to the Western challenge until the middle of the twentieth century, mainly because the ideology, mindset and education system of the bureaucracy promoted an ethnocentric outlook, which was indifferent to developments outside China.

I estimate that Chinese per capita income rose by about a third from the tenth to the end of the thirteenth centuries. There was a significant rise in land productivity but the advance required

higher per capita labour inputs. From the fourteenth to the mid nineteenth century, the evidence suggests that per capita output stagnated, but there was extensive growth as China was able to accommodate a large increase in population, introduce new crops from the Americas (maize, potatoes, peanuts, sweet potatoes, and tobacco) and get futher gains in land productivity.

My judgement on the contours and chronology of dynastic China's development (i.e the rise in per capita income in the Sung and its stagnation from the fourteenth to the mid nineteenth century) is not unlike that of Mark Elvin, R. M. Hartwell, Eric Jones and Justin Lin. However, they do not attempt macroquantification, and their qualitative judgement probably implies a bigger leap in the Sung than I find. Some of them suggest that Sung China was trembling on the verge of an industrial revolution, which seems exaggerated. Some tend to overstate the degree of stagnation and the decline in "creativity" from 1300 to 1850. In this period, China managed (with some interruptions) to sustain per capita income levels, whilst increasing its population more than fourfold (compared with less than threefold in Europe). "Extensive" growth on this scale is not the same as stagnation.

My analysis suggests that the average West European level of per capita income drew level with the Chinese in the fourteenth century and was twice as high at the beginning of the nineteenth century. Recently, Kenneth Pomeranz (2000) has suggested that Europe did not overtake the Chinese level until after 1800. He is not alone in taking this position, which was first advanced by Paul Bairoch, but he provides a much wider variety of evidence to support his case. Pomeranz's evidence is mainly microeconomic. There are only four tables in his book with no attempt at macroquantification. He does not provide a chronological profile of development in Europe or China before and beyond his point of comparison. He has one passing reference to Needham, and no discussion of the forces affecting the divergent development of technology in China and Europe. I find Pomeranz's judgement unconvincing. In 1800, the degree of urbanisation was three times higher in western Europe than in China, the proportion of the population employed in agriculture was a good deal smaller, though the European diet included a much higher proportion of meat and dairy products. Chinese life expectation was two-thirds of that in Western Europe. Pomeranz stresses western Europe's benefits from international trade, which augmented its supply of food and raw materials from the "ghost acreage" of distant lands. He treats this benefit as if it were a windfall gain. In fact, China turned its back on international trade early in the fourteenth century, and the Ching dynasty forbade settlement on its own ghost acres in Manchuria

Between the 1840s and 1940s China's experience was catastrophic. Its economy suffered from a series of disasters, the Taiping rebellion, wars with British and French colonialists, three major invasions by Japan and civil war between the Kuomintang and Mao's communists. As a result per capita income in 1950 was less than one tenth of that in Western Europe, and threequarters of what it had been in 1300.

Since 1950, the Chinese economy has been transformed, and there has been significant catch-up in the reform period since 1978. A considerable part of the book is devoted to providing improved measures of performance in the Communist period. There is a detailed critique of Chinese official statistics which exaggerate growth but understate the level of real income. With appropriate purchasing power adjustment, I concluded that China is now the world's second largest economy, after the United States.

My five country studies provided an essential underpinning for comprehensive analysis of performance in different parts of the world economy - my third main venture into analytical economic history.

(iii) Analysis of the Pace and Pattern of World Economic Development and Interaction between Major Parts of the World Economy

I published several surveys of the world economy between 1962 and 2001, gradually broadening the statistical coverage and depth of historical perspective.

The first venture was "Growth and Stagnation in the World Economy 1870-1960", *Banca Nazionale del Lavoro Quarterly Review* (1962) which was concerned with the transmission of cyclical fluctuations in trade and the impact of trade on growth. It involved the construction of annual estimates of GDP, trade volume and unit values for the main trading countries, revising earlier trade volume estimates by Hilgerdt, and by Arthur Lewis.

Economic Progress and Policy in Developing Countries (1970) was an overall survey of postwar performance in the non-Western world, which provided the same kind of historical depth and comparative perspective as in Maddison (1964). At the time it was written, systematic estimates of real expenditure and purchasing power parity existed for only a handful of Western countries and none for non-Western countries. It included a major exercise to develop alternative measures of levels of economic performance, productivity and purchasing power from the output side for 29 countries. These estimates broke new ground and helped to illuminate the range of variance within a "developing" world whose characteristics were then often assumed to be relatively homogeneous.

In 1983 I compared the results of my 1970 output approach, which I called ICOP (international comparisons of output and productivity) to contrast with the ICP results of Kravis, Heston and Summers from the expenditure side. I argued that the ICP approach tended to exaggerate levels of output in poorer countries, and that manipulation of ICP expenditure results to produce proxy measures of real output by sector were misleading. Since then, members of the ICOP group at the University of Groningen have developed this approach much further (see "A Comparison of Levels of GDP Per Capita in Developed and Developing Countries, 1700- 1820", *Journal of Economic History*, 1983, *Comparisons of Real Output in Manufacturing*, with Bart van

Ark, 1988, and the eight papers in Maddison, Prasada Rao and Shepherd, eds. *The Asian Economies in the Twentieth Century*, Elgar, 2002).

The World Economy in the Twentieth Century (1989) was an essay in comparative economic history , using quantitative growth accounts to marshal much of the evidence. It involved a systematic confrontation of levels of performance and rates of growth across countries as well as an attempt to give an aggregate picture and examine interrelations between different parts of the world economy. Although there was heavy emphasis on measureable supply-side influences , strong emphasis was also given to the role of policy and institutions, both national and international. The sample of 32 countries covered about four-fifths of world output and population.

Monitoring the World Economy 1820-1992 (1995) had a much longer temporal scope, and was much more comprehensive in its coverage of the world economy. The three analytical chapters provided: 1) a broad survey of economic growth and levels of performance in different parts of the world economy since 1820; 2) a review of causal influences on growth and techniques of growth accounting; 3) an analysis of changes in the momentum of growth and the role of economic policy in different parts of the world economy since 1820. There was also a set of statistical appendices of much greater scope than in my earlier books which was intended to help and encourage basic research into quantitative economic history. It demonstrated what had already been accomplished by a whole generation of scholars in making intertemporal and interspatial comparisons for a large fraction of world economic activity, and indicated the types of problem where further research and sensitivity testing was needed.

Charles Feinstein's review in the *Journal of Economic Literature*, pp.1378-1380, (1996) indicates the scope and likely impact of the book: "the publication of this volume represents a magnificent extension of historical national accounts both in time and by region. In a prodigious sequel to his previous studies Angus Maddison now provides consistent estimates of GDP, population and GDP per capita for the period from 1820 to 1992. The main data set is based on 56 countries which together accounted in 1992 for 93 per cent of world output. The richness of this banquet can be contrasted with the thin gruel which was all that was available when Maddison published his first study of comparative growth (*Economic Growth in the West*: Allen and Unwin, 1964). At that time he was able to include estimates for only 12 countries, ten in Europe and two in North America: there were no data prior to 1870 and many omissions after that, and the supplementary information was similarly restricted. His splendid volume will surely stimulate subsequent studies in both theory and history and will thus contribute both to further advance in the coverage and reliability of national accounts data, and to better understanding of the processes of economic growth and of international convergence and divergence".

The World Economy: A Millennial Perspective (2001) provides a much deeper temporal perspective than Maddison 1995. It analyses changes in world income and population over the past

two millennia in a comprehensive way, identifies the forces which explain the success of the rich countries, explores the obstacles which hindered advance in regions and countries which lagged behind, and scrutinises the interaction between the rich countries and the rest. As with my earlier books, the causal analysis is supported by an extensive framework of macroeconomic statistics.

There are three analytical chapters : 1) the contours of world development over the past two millennia; 2) the impact of Western development on the rest of the world from the eleventh century, illustrated by the successive experience of Venice, Portugal, the Dutch Republic and the UK as pioneers in navigation, international trade, and capitalist development ; c) a survey of the world economy in the second half of the twentieth century. For the period 1820-1950, chapters 2 and 3 of Maddison (1995), are a useful supplement to Maddison (2001), where this period is covered in less detail.

Appendix B describes the statistical sources and procedures for quantifying levels of world population and income before 1820. The other five appendices deal in more detail with evidence for 1820-1998. In the past, quantitative research in economic history has been heavily concentrated on the ninetenth and twentieth centuries when growth was fastest. To go back earlier involves use of weaker evidence and greater reliance on clues and conjecture. Holes in the evidence have to be filled by proxy estimates in order to arrive at world totals. Nevertheless it is a meaningful and useful exercise because differences in the pace and pattern of change in major parts of the world economy have deep roots in the past. Quantification clarifies issues which qualitative analysis leaves fuzzy. It is more readily contestable and likely to be contested. It sharpens scholarly discussion, sparks off rival hypotheses, and contributes to the dynamics of the research process. It can do this only if the quantitative evidence and proxy procedures are described transparently, so that dissenting readers can augment or reject parts of the evidence or introduce alternative hypotheses.

The strongest and most comprehensive evidence is that for population, and the population component is of greater proportionate importance in analysis of centuries when per capita income growth was exiguous. Demographic material is also important in providing clues to he movement of per capita income over the long term. One striking example is the urbanisation ratio. When countries are able to expand their urban ratios, it indicates a growing surplus above subsistence in agriculture. Indicators of changes in or inter-country variance in life expectancy also throw light on changes in or inter-country differences in real income.

Another major purpose of the book was to revise, augment and update the analysis of world economic development since 1950. Maddison (1995) provided annual estimates of population and GDP for 56 sample countries representing 93 per cent of world output in 1992. Appendix C of Maddison (2001) shows annual estimates for 1950-98 for 117 countries, 7 regions and world totals. For Western Europe and Western Offshoots, the coverage is the same, for Latin America the annual coverage rose from 7 to 23 countries; Asia from 12 to 31; Africa from 10 to 42. For Eastern Europe

and the former USSR, where many new countries have emerged, coverage rose from 7 to 27 countries (see Appendix D for the years 1990-98).

Maddison (2001) retains the 1990 international dollar as the temporal and spatial anchor for measuring levels levels of GDP over time and between countries. This was also the benchmark in Maddison (1995), but there were significant revisions in all regions except Eastern Europe and the former USSR. The derivation of the revised 1990 level estimates is shown on pp.189-90, 199, 219-220 and 228.

For 1820-1950, I relied mainly on the time series for population and GDP in *Monitoring the World Economy* in 1995 (with revisions for the Netherlands, Portugal, India, Indonesia, Japan and Vietnam). Maddison (2001) gives estimates before 1950 only for benchmark years. Readers who want annual GDP figures for 1870 or 1900 onwards can merge the two sources as indicated on p. 267 of Maddison (2001). However, I have already done this for 21 advanced capitalist countries in the Historical Statistics section of this website.

(iv) Work in Progress

At present I am preparing a book, *Contours of the World Economy and the Art of Macromeasurement*, which should be published in 2003. The first part will be a long essay on the contours of the world economy, with a rather extensive treatment of African history since the Roman empire. The rest will be essays of the art of macromeasurement since the political economists of the seventeenth century (William Petty, Gregory King, John Graunt and Charles Davenant). The material is drawn from the Kuznets lectures I gave in Yale in 1998, the Wendt lecture at the American Enterprise Institute and the Abramovitz lecture at Stanford University in 2001.