

Colin Clark

COLIN CLARK was born in 1905 in London. He was educated at Winchester and Oxford, receiving his B.A. in 1928, M.A. in 1931, and a D. Litt. (Oxon) in 1971. After receiving his first degree, he took part in a social survey of Merseyside and was on the staff of the British Economic Advisory Council from 1930 to 1931. He was a lecturer at Cambridge University between 1931 and 1937. From 1938 to 1952 he served in various high-level Australian government positions, including Under-Secretary of State for Labour and Industry, Financial Advisor to the Treasury, and Director for the Queensland Bureau of Industry. In 1953 he returned to the University of Oxford as Director of the Institute for Research in Agricultural Economics, remaining in this post until 1969. He is presently Department of Economics Research Consultant at the University of Queensland, Australia.

Among his publications are *The National Income, 1924–31* (London: Macmillan, 1932); *National Income and Outlay* (London: Macmillan, 1937); *A Critique of Russian Statistics* (London: Macmillan, 1939); *Conditions of Economic Progress* (London: Macmillan, 1940, 1957); *The Economics of 1960* (London: Macmillan, 1942); *Growthmanship* (London: Institute of Economic Affairs, 1961); with M. R. Haswell, *Economics of Subsistence Agriculture* (London: Macmillan, 1964); *Starvation or Plenty?* (New York: Taplinger, 1970); *Population Growth and Land Use* (London: Macmillan, 1967, 1977); *Poverty before Politics* (London: Institute of Economic Affairs, 1977); with Jan Carruthers, *The Economics of Irrigation* (Liverpool: Liverpool University Press, 1981); and *Regional and Urban Location* (St. Lucia: University of Queensland Press, 1982).

His numerous books and articles have been directed toward quantitative international studies of national products, a questioning of capital investment as a determining factor in growth, a study of limitations of taxation and proposals for its reduction, analysis of agriculture's role in developing countries, and a recognition of the beneficial effects of population growth.

Development Economics: The Early Years

DURING MY YEARS AT CAMBRIDGE from 1931 to 1937 I was first occupied with studies on British national product or, as it was generally then called, national income. The last available study, by Bowley and Stamp, published in 1927 related only to 1924, and nothing had been done to bring the information up to date.

It has only recently become known that an official British government study of national income had been prepared, also relating only to 1924, but with some interesting figures of factor distribution, not yet available elsewhere.¹ Publication was suppressed, however, on the extraordinary grounds that industrial employers had complained that these figures would be used against them in wage negotiations.

My first publication on British national product, covering the years 1924–31, appeared in 1932; a more thorough study, which appeared in 1937, also made provisional attempts at long-period historical comparisons and at quarterly information for recent periods.² This publication, however, caused a break in the international studies which I had already commenced and which were to conclude in the publication of *The Conditions of Economic Progress* in 1940.³

At that time, and for many years afterwards, it was believed that the key factor in economic growth was the accumulation of capital. As early as 1937 I began profoundly to question this doctrine, in the concluding paragraphs of the book *National Income and Outlay*. We know now that such an accumulation is a *necessary* but not a *sufficient* condition for economic progress, an important logical distinction. On this more below.

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Work on *The Conditions of Economic Progress* and the outlining of all of its chapters were undertaken one bright spring day in 1935. I was

1. *Inland Revenue Report on National Income 1929*, University of Cambridge, Department of Applied Economists, 1977.

2. *The National Income, 1924–31* (London: Macmillan, 1932); *National Income and Outlay* (London: Macmillan, 1937).

3. London: Macmillan, 1940, 1951, 1957.

engaged to be married, and my future wife had pointed out to me, gaily but firmly, that I was leading an unduly leisured life.

Those who knew Keynes personally are now considerably diminished in number—it was Keynes who recommended me for the University Lectureship in Economic Statistics at Cambridge in 1931. I was present at the seminar where Keynes first released his biography of Jevons, and was much encouraged by the phrase that Jevons was the first to bring to economics “the prying eyes and fertile controlled imagination of the natural scientist”—natural science having been my own background. (It was also in this paper that Keynes made the aggressive comparison that “Jevons chiselled in stone, where Marshall knits in wool.”) It has always been my profound conviction that economics should be based on the empirical observation and classification of what has actually been happening, with theory occupying only a secondary position. It was on this principle that I wrote *The Conditions of Economic Progress*, which, I was told, had some influence on economic thought (a clandestine translation even circulated in wartime Japan).

From my earlier work in the British government’s Economic Advisory Council, I had come to appreciate that laws of economics are to be deduced from comparative observation, rather than from a priori postulates. The Economic Advisory Council was a large unwieldy body with a few economists among scientists, businessmen, and bankers, and its early discussions were confused and purposeless. In time, however, Keynes came to dominate its proceedings. I prepared a number of statistical reports for the council, in which Keynes took a considerable interest.

Soon the Economic Advisory Council’s principal concern was with attempts, entirely unsuccessful, to counter the rapidly spreading effects of the great world economic depression of the 1930s. In my position on the Economic Advisory Council staff, one of the first observations I was able to demonstrate was that, at that time (in 1930), the rise in unemployment in Britain could be fully accounted for by the loss of exports. This in turn could be fairly fully accounted for by the heavy loss in purchasing power of the primary-producing countries, due to the extreme fall in the prices of their goods on the world market. Britain’s two principal export markets then were India and Australia.

Keynes at that time had just completed his lengthy book, *A Treatise on Money*, now almost totally overshadowed by his subsequent *General Theory*. He was soon drastically to modify many of the ideas in the earlier book. It was indeed fascinating to watch, in Whitehall and in Cambridge, the progressive development of his ideas which later reached the world in the *General Theory*.

Most British economists at that time—but not Keynes—were in a mood of extreme pessimism, probably the still prevailing aftermath of the suffering of the First World War, in which so many of their friends had died. Their pessimism was not only about the impossibility of countering any of

the effects of the world recession, but about Britain's economic situation even before it started. On the crude information then available, I was able to show that productivity per man-hour in British industry had shown a moderate advance in the 1920s. Leading economists of that time just refused to believe this simple fact.

It was not long, however, before the principal economists—led by Keynes—not to mention the politicians, reached what seemed to them the obvious conclusion that the best thing to do about the world depression was to unload some of its consequences onto other countries by abandoning the long-established British tradition of free trade, and by restricting imports by tariffs or other means. That a secondary consequence of such action might be a further fall in British exports did not occur to them. There is a clear and sinister resemblance to the present situation.

Keynes's principal opponent on the free trade issue was Lionel Robbins, recently appointed professor in the London School of Economics. But while Keynes was feeling his way toward a policy of increased public investment and temporary toleration of budget deficits, Robbins took the opposite position, based on a most improbable theory developed by Austrian economists, that the right solution in such a time of extreme depression was further to restrict consumption.

Lord Robbins has recently expressed regret for the position he then took, and Professor Hayek, while maintaining his general theory, agrees that in Britain's peculiar circumstances in 1925–31 of an overvalued exchange rate, a general expansion of demand would have been the right policy.

It is now all too clear what should have been done then: we should have accepted Keynes's policies for expanding demand and also preserved free trade to enable other countries to share the benefits. Such a policy would have necessitated a devaluation of the exchange rate. This came about in any case in September 1931, but neither Keynes nor Robbins had advocated it. The only public figure advocating exchange devaluation at that time was the trade union leader Ernest Bevin, who later became well known in the Churchill and Attlee governments. Britain then (unlike its present position) still figured prominently in world trade, and such a policy might have had a chance of inaugurating world economic revival.

What was going on then in Britain was similar to what was happening in all the other advanced economies. They were so fully occupied with their own problems that they had not the smallest thought to spare for the troubles of the poor and developing countries.

There is considerable truth in the saying that it is important to have information, but more important to have information in time. Strange though it may seem, *The Conditions of Economic Progress* was almost the only source of information at the time about the comparative real products of different countries. At the beginning of 1941, in making an assessment of the comparative economic resources of the belligerents at that

time (including the German-occupied territories), the *London Times* had to quote from a Queensland Bureau of Industry publication. It appears that this dearth of information may have continued for some years after the war.

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My first concern with the economics of the developing countries began with a casual but profound conversation with Austin (now Sir Austin) Robinson. The right opening for a lecture course in economics, he said, was to tell your class that per head real income in India was only about a quarter, or at any rate some low fraction (we had very little idea in those days) of per head income in Britain. What were the causes of this situation?

Austin and Joan Robinson had spent some time in India, where he had held the position of tutor to the crown prince of Gwalior in the 1920s. At that time about a quarter of India was ruled by hereditary princes, with only indirect supervision by the British authorities. Both of the Robinsons developed an active interest in India's economic problems. They were commissioned to prepare a report on the highly complex issue of the financial position of the princely states in a proposed reorganization of the Indian government.

During the years since that time, India and other developing countries have occupied most of Austin Robinson's attention. Joan Robinson, on returning to Cambridge in 1928, was first occupied with her extensive study *The Economics of Imperfect Competition*, much of which she later wanted to disavow, but then turned her attention to macroeconomics, with considerable though not exclusive attention to the developing countries, and finally to China.

It was not long after this initial conversation with Austin Robinson that I was appointed supervisor to V. K. R. V. Rao, then a keen but unknown student, subsequently to have a highly varied and prominent career, including the vice chancellorship of Delhi University, and a position in the Indian central government as minister of transport. Rao was then undertaking a thesis which eventually appeared as *The National Income of British India, 1931-32* (excluding the princely states, about which little information was available).⁴ We saw nothing incongruous about embarking on such a study in Cambridge, where much of the reference material was found to be available, supplemented by a few postal questionnaires on some technical points.

This, however, was not the first study of Indian national income. The first was an approximate order of magnitude obtained, as long ago as 1869, by Dadabhai Naoroji, a most unusual scholar who contested an

4. London: Macmillan, 1940.

election as a radical and won a seat in the British Parliament, which he was constitutionally entitled to do. A number of subsequent studies before Rao's showed that per head real income in India, while probably advancing, was doing so at an extremely slow pace.

I was asked by the Indian Planning Commission for a report on the prospects for economic development, which I prepared in November 1947, a few months after India had attained independence. I had two most interesting interviews, one with Lord Mountbatten, the governor general who had skillfully administered the transfer of powers, and one with Mahatma Gandhi, who was to be assassinated a few weeks later. Gandhi (nobody will believe this) proved to be a convinced free-market economist, strongly critical of the price controls, rationing, and compulsory purchase of farm crops which the Nehru government was then introducing. The right solution, he said, was to raise the price of food, then everyone would have to work harder. The source of India's troubles was that the people were thoroughly idle.

Examination of the extremely scanty information available in 1947 suggested that the long-term rate of growth of real product per head in the past had been of the order of magnitude of 0.5 percent a year. Most Indian economists at that time were expecting no better for the future—indeed, even less if there were to be no substantial capital inflow from abroad. In fact, in spite of all the mistakes which have been made, the per head growth rate subsequently attained has been about three times the rate then expected. Population growth may after all have been a beneficial factor.

Among other research workers in Cambridge whom I supervised at that time were Alexander (now Sir Alexander) Cairncross, who was working on nineteenth-century British investment history, and Richard (now Sir Richard) Stone, who had spent a number of years in India in his younger days, where his father was a judge. At this time, however, he expressed profound skepticism about Rao's attempt to obtain a measure of Indian national product.

Since those days India has been the developing country with which I have had the closest connection. I have visited India more than a dozen times, sometimes on official business, sometimes unofficially. I have also been asked to prepare official economic reports on Sri Lanka in 1947 and on Pakistan (then including Bangladesh) in 1952. I have paid only very short visits to any African or Latin American countries.

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As in the case of India, we can hardly start on the economics of a developing country without some information, however approximate, about national product. Information about imports and exports is generally available, but this does not get us very far. The other main source of

information is the census. But even the advanced countries are now discovering, to their dismay, that at this date there is still significant underenumeration in the census. This is probably very much worse in the developing countries—after all, the average uninformed man still thinks that the census has something to do with military service or taxation—so we cannot obtain accurate estimates even of rates of population growth.

It is true that the quality of census taking varies considerably from one country to another. The worst example of all was Nigeria, where the census results were deliberately falsified for the sake of gaining additional seats in the Federal Assembly.

The economist hopes to obtain census information about the distribution of employment. But the Indian census has been one of the worst in the world not only because of the obscurity of its definitions, but also because of the frequency with which they have been drastically changed. On the face of it, however, the Indian census seems to show that the proportion of the labor force engaged in agriculture has changed little, if at all, since the first census in 1881—a sure sign of the extreme slowness of economic growth.

It is now universally recognized (though I do not think that this was the case when I was writing *The Conditions of Economic Progress*) that economic advance leads to a declining proportion of the labor force being engaged in agriculture. However, some of those engaged in formulating policy in some developing countries have treated this relationship as if it were reversible—that is, as if the creation of industrial employment would automatically enrich the country. What a disastrous error. India, under the guidance of a leading scientist, followed a most peculiar line of reasoning. Population, he pointed out, was increasing, therefore we need more food. To produce more food we need fertilizer. So far, correct. Then we must produce the fertilizer—the possibility of importing was apparently not considered. And to construct fertilizer plants we need steel. Therefore as much as possible of our available resources should go into building large steel works. Perhaps because of the extraordinary conditions under which it is produced, steel attracts emotional attributes which prevent rational discussion. Once when I was asked in India whether further investment in steel works should be undertaken, I replied that this was a problem in comparative religion.

India is far from being the only developing country which has made such errors. There is some truth in the lampoon that the real needs of a developing country are a steel works, an airline, a six-lane highway, and an invitation for the president to address the Washington Press Club. One consequence of such follies is that the world is now hopelessly overcapacitated with both steel works and airlines, and it will take a long time to absorb the surplus.

The worst of all cases of such misjudgment was in Mao's China. Somebody had told Mao, and he wrote in his book, *Socialist Upsurge*, that

about one-third of China's agricultural labor force was redundant and should be transferred to other employment. This was in fact attempted in the Year of the Great Leap Forward, 1958, when Mao apparently believed (at any rate for a time) what had been told him about the harvest having been doubled in a single year. The result was what now has been admitted to have been a disastrous famine.

We do not know why Mao obtained his misinformation—at one time he appeared to have some Indian advisers!

A simple reference to the already abundant information collected by J. L. Buck in the 1930s (*Chinese Farm Economy*, University of Nanking Press) would have shown that the Chinese farm economy was usually one of labor shortage rather than underoccupation, apart from the two cold months of December and January. After all, to put it simply, if you are going to cultivate a country the size of China with hand hoes—very few draft animals and still fewer tractors were available—you are going to need the labor of something like 600 million people.

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There has been a great deal of misunderstanding about the supposed surplus of agricultural labor force in developing countries. This arises from the practice of looking at the data on an annual basis. Once we analyze monthly labor requirements, we find that the cultivator in the developing countries—after long months of enforced idleness in which the climate is too dry or too cold, as the case may be, for agricultural operations—is often faced with periods of serious labor shortage, particularly in the rice planting and harvesting seasons. This is true of China, where in most regions unoccupied labor is found only in the two coldest months of the year. In the more advanced rural economies, however, as in Japan, these seasonal fluctuations in labor requirements can be reduced to a very low level by careful diversification of crop and livestock production.

In 1935 I began studying the agricultural outputs of the developing countries and presented a preliminary paper to that year's meeting of the British Association for the Advancement of Science. This led to the preliminary international comparison of agricultural outputs per worker in *The Conditions of Economic Progress*, and a more thorough and up-to-date study, begun in some time I spent at the Food and Agriculture Organization in 1951, eventually published in *Journal of the Royal Statistical Society* in 1954.⁵

There are enormous international differences in agricultural productivity, whether measured per man or per hectare. My work was taken as a

5. "World Supply and Requirements of Farm Products," *Journal of the Royal Statistical Society*, vol. 117, no. 3 (1954).

basis by Hayami, who proceeded to make international comparisons for the years around 1960 on three different price-weighting systems. It is now clear, from the work of Yujiro Hayami and Vernon W. Ruttan,⁶ that we must distinguish the situation in countries where the limiting factor in agricultural production is land, and fertilizers, insecticides, and the like may be regarded as “land supplements,” from the situation where the limiting factor is labor, which can be successfully supplemented by machinery. One of Professor John Kenneth Galbraith’s activities as U.S. Ambassador in India was to persuade people to regard fertilizer as a “land substitute.”

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We come now to our central subject, namely the international comparison of real incomes. International comparisons of money wages had been available for some time. The problem was to obtain comparable information on prices.

After a highly tentative effort by the British Board of Trade (the government department then responsible for statistics) to make some international comparison of real wages in 1904, the first systematic study appears to have been that of the International Labour Office (ILO) in the 1920s, based on wage data, related to preliminary international comparisons of prices. These price comparisons did not go much beyond staple foodstuffs, fuel, and rent. The International Labour Office was encouraged in its efforts by the Ford Motor Company, which was establishing branches all over the world. Its executives thought it their duty to attempt to pay comparable real wages everywhere, taking relative prices into account.

In the statistical office in Paris in 1935 I was surprised to observe on the staircase a cupboard full of what appeared to be discarded clothing. “Now you can see our difficulties,” a French statistician explained to me. Ford Motor Company, wishing to bring clothing into its comparisons, actually delivered specimens of the garments to be included in the index. Conspicuous among these was a crudely colored, thick, checked shirt. In Detroit it was specified as the working costume of a manual worker doing heavy work. In Paris at the same time, however, it was regarded as an ultra-fashionable garment, purchased only by rich young men at specialty shops.

The Ford-ILO enquiry ran into worse troubles when publication of the results became a political issue. Not surprisingly, Italy appeared at the lower end of the table. The bombastic Mussolini, who had recently seized absolute power, said that he could not tolerate Italy being internationally

6. *Agricultural Development: An International Perspective* (Baltimore, Md.: Johns Hopkins University Press, 1971).

insulted in this manner. Other countries also showed themselves sensitive about their relative positions in the table, so the work was abandoned. In any case, the work covered only price comparisons among the advanced countries, with no information on the developing countries.

However, I had to take this work as a basis. The ILO prepared some further information on rents, and I was able to obtain some information on international comparisons of prices of what were then called "luxury goods" (though they certainly would not be so called now). These improved price comparisons, with index numbers on alternate and "ideal" bases, were published in *Weltwirtschaftliches Archiv* in 1938.⁷

For reliable information on this subject we have had to wait right up to the present day. In 1954, under the auspices of the Organisation for European Economic Co-operation (now the OECD), Milton Gilbert and Irving Kravis prepared comprehensive comparisons (covering capital goods and public expenditure as well as private consumption) on the comparative purchasing power of money in a number of the leading industrial countries.⁸ Even on this evidence alone it was clear that to assume that the purchasing power of currencies could be equated to their exchange rates would lead to misleading results. With few exceptions, the purchasing power of the currency of a country of low real per head income must be *higher* than indicated by its exchange rate. This case was first clearly set out by Roy Harrod in *International Economics* in 1933.

Let us simplify the issue. The output of the two countries being compared consists in each case of some agricultural and industrial products which are traded fairly freely on world markets, and services and other products which can only be sold locally. We then have the proposition, which appears to be true in every case, that productivity in these service and related industries is not advancing, in time or between countries, so rapidly as in the first group of industries. When goods are freely traded internationally, wages and other factor incomes in the first group of industries will be, on the whole, adjusted to the relative exchange rates of the two countries' currencies. But the service and related industries in the more advanced country, while not so much above the poor country in relative productivity as are the industries trading in international markets, nevertheless will have to pay wages and other factor incomes comparable with the internationally trading industries. The relative prices of services of a given quality may therefore be expected to be higher in the higher-income country. This is found to be true, with some qualifications—productivity in service industries can sometimes advance quite rapidly, and factor incomes in the service industries are not always precisely

7. "International Comparison of National Income," *Weltwirtschaftliches Archiv*, vol. 47, no. 1 (1938).

8. *An International Comparison of National Products and the Purchasing Power of Currencies* (Paris: Organisation for European Economic Co-operation, 1954).

adjusted to those in manufacturing. But on the whole, depending on the relative importance of the different factors in the situation, the overall purchasing power of money in a low-income country must be higher than indicated by its exchange rate, and the difference in per head income therefore *less* than suggested by a crude comparison of national products converted on exchange rates.

It is only recently that the Gilbert-Kravis study has been supplemented by more complete work by Kravis and others, covering now a number of developing countries.⁹ Some of their results are surprising. In some cases, such as a comparison of per head incomes between India and the United States, crude comparisons of income per head based on the rupee exchange rate have to be adjusted by a factor of more than three.

The preparation of *The Conditions of Economic Progress*, from 1935 to 1939, was first interrupted, as stated above, in 1937 by the publication of a more detailed study of British national income; and a year later by a short study, *A Critique of Russian Statistics*, published in 1939.¹⁰ It sought to bring the U.S.S.R. into the comparison by valuing its agricultural and industrial output at prices prevailing in Western Europe, a method first suggested by Polanyi. The results came out low. At first I was inclined to give not a political but a Malthusian explanation (as indeed Keynes had done regarding the appalling Russian famine of 1921). Critics, however, soon pointed out that Russian population growth was slowing down. Indeed, Stalin suppressed the results of a census taken in 1937 (with the expected remarks about the census officials being fascists, Trotskyites, or whatever) because the result came out too low. The census was in fact not taken until 1939 and came out with a population only just in excess of that which Stalin had claimed several years earlier. The loss of life during the "collectivization" of agriculture and the subsequent famine, between 1929 and 1933, was estimated at an order of magnitude of at least 6 million.

Regarding the service industries, it became apparent to me at an early stage that, while we had a reasonable amount of information about agriculture, mining, and manufacturing and some about construction, we had virtually no information about output or about prices in the service industries, a large and increasing sector in the economy of every country.

9. Irving B. Kravis, Zoltan Kenessey, Alan Heston, and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power* (Baltimore, Md.: Johns Hopkins University Press, 1975); Irving B. Kravis, Alan Heston, and Robert Summers, *International Comparisons of Real Product and Purchasing Power* (Baltimore, Md.: Johns Hopkins University Press, 1978); Irving B. Kravis, Alan Heston, and Robert Summers, *World Product and Income: International Comparisons of Real Gross Product* (Baltimore, Md.: Johns Hopkins University Press, 1982); and Kravis and others, "Real GDP per Capita for More than One Hundred Countries," *Economic Journal* (June 1978).

10. London: Macmillan, 1939.

The rising employment in the service industries was apparent from census results, however, and in more recent times, in some countries, from social insurance statistics.

In 1932 I organized a study group in the Royal Statistical Society in *England on the service industries*. We were able to do little more than draw attention to the extraordinary gaps in our knowledge. Even now there are still many service industries on which we have virtually no information about productivity or prices. In national accounts as well as in international comparisons, such services (for example, teaching, government service, domestic work) can be included only on the basis of the number employed in them; that is, on the assumption that their productivity never changes, which clearly is untrue. Yet when we proceed from national to regional statistics, we find that services, if defined in the broad sense to include transport and distribution, amount to some 80 percent of the whole product of some of the most economically advanced regions.

The communist countries omit them altogether. Marxism, in view of the curious philosophical materialism on which it is based, denies that services can be regarded as a form of production—though an exception is made for services “incorporated” in material goods, such as transport, distribution, and restaurant services. But the services of housing, health, education, government, and the like must, according to this philosophy, be treated only as forms of consumption and not regarded as part of the national product.

Adam Smith had a curious definition, based on the durability of the product. A repair service, for instance was real because it produced something which lasted. But musicians could not be regarded as yielding a product because their performance was only enjoyed at the time.

But there have been many others besides Marxians who could not understand services as part of the national product. A favorite line of reasoning, if it can be so called, using the values of Edwardian England, took a rich property owner with an income of £5,000 a year, who employed a secretary at £500 a year, who in his turn employed a gardener at £50 per year. National income statisticians would regard their combined income at £5,550. But the true figure, it was said, should be only £5,000—because the other incomes were dependent on the first income. This reasoning is a sort of updated physiocracy. The physiocrats held that it was only agricultural output which mattered—a doctrine that lasted until well into the present century. In its revised form, this doctrine held that it was only material production which mattered.

I came across these ideas as late as 1938, in a fierce controversy in the New Zealand press. By the standards of that time, New Zealand was once one of the world's most advanced economies and had a relatively large service sector. New Zealand national product estimates at that time in circulation, prepared by methods of almost incredible crudity, and omitting almost entirely the service sector, were coming out far too low. When I

was able to make an independent investigation and to assure New Zealanders that their national product was much higher than they supposed, they were offended rather than pleased.

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That agriculture should show a decline in its relative importance in employment and in national product, with manufacturing showing first a rise and then a decline in favor of services, was a generalization first made as long ago as the seventeenth century by Sir William Petty. This was a principal subject of observation, with extensive studies of the available material, current and historical, in *The Conditions of Economic Progress*. I was unable to give full analytical explanations, which indeed even now partly escape us. We have to deal with the interactions of both income and price elasticities of demand for the products of the three sectors, and the labor required per unit of output of each. The productivity of labor in agriculture, we used to suppose, advanced fairly slowly and steadily. It accelerated greatly after 1945 in many countries, however, apparently because of an accumulation of technical improvements whose application had for various reasons been delayed. This acceleration in productivity had most unexpected effects on the proportion of the labor force required in agriculture and also on the world terms of trade for agricultural products, of which more below.

In all countries observed (except for the case of India mentioned above) the agricultural proportion of the labor force has been showing a long-period decline, but at varying rates. In many developing countries with high rates of total population growth, this *relative* decline may still mean a continued absolute increase in the number employed in agriculture. Economic development policies should therefore be prepared which take this factor into account—often they do not.

Conversely, the advanced countries faced substantial absolute declines in agricultural employment. This was true even in agricultural exporting countries such as the United States, where the absolute number employed in agriculture was at its maximum about 1920.

When working for the British government's Economic Advisory Council I had to prepare some information for a committee on emigration. At that time, the extraordinary idea prevailed that the right solution for the British unemployed was to send them to Australia and New Zealand to start farming. I still remember the committee's consternation when I found that even in New Zealand the absolute number employed in agriculture was declining.

Now that we have Kravis's latest results on international comparisons of purchasing power we can examine the international relativity of the prices of services, where such prices have been directly measured, though not of course where they have been valued by the crude method of

equating output to input of labor. Insofar as productivity in services rises less rapidly than in agriculture and manufacturing, we would to that extent expect services to be relatively low-priced in the low-income countries. We should expect the same, perhaps to a lesser extent, for the output of construction, which is a composite of goods and services. In the low-income countries covered by Kravis the results are somewhat mixed. Services and construction are found to be comparatively cheap in India, but not in Kenya, with uncertain results for the other developing countries. But at any rate examination of these results does not support the hypothesis that *no* improvement in service productivity is possible.

We can also get some idea of the relative productivity of the service industries if we have long-period data on comparative prices of commodities and of services within one country. Such data are available for Japan and France. Unfortunately, they point in different directions. The Japanese data going back to 1926 indicate service prices were keeping almost in line with commodity prices; that is, service productivity was advancing almost as rapidly as commodity productivity. For France, for the earlier years (the data go back to 1900) service prices were relatively low, indicating apparently service productivity rising less rapidly than commodity productivity, although there may be the qualification that factor incomes were not equalized between the commodities sector and the service sector.

It may be asked whether the Japanese figures should be called in question. But Japan has a high reputation for statistical precision. And the conclusion to which they point—that productivity has risen in commodity production—is on the whole supported by the international comparisons. We are left in the dark, however, when we attempt to gauge whether the quality of services has improved or deteriorated.

Combining national historical (including U.S.) and international comparisons, we reach the tentative conclusion that service productivity can (though it does not always) rise at a rate comparable to commodity productivity at lower-income levels, but in due course some sort of barrier is reached, with service productivity advancing less rapidly—that is, with the relative prices of services steadily rising.

The evidence points to a fairly high income elasticity of demand for services. However, there is a substantial price elasticity of demand too. Domestic service and restaurant service are two examples of services with high labor content, whose relative price must therefore rise as wages rise. It must be price elasticity of demand, in the advanced countries, which has almost terminated the demand for domestic service and checked the otherwise expected growth of the demand for restaurant service.

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In 1938 I was appointed to a position in the state government of Queensland, Australia, which combined acting as economic and financial

adviser to the state Treasury, supervising certain large public works, acting as state statistician, and various other duties. I also had discussions with the government of New Zealand at the same time. Both for Australia and for New Zealand it was clear to me that the cardinal issue in economic policy was what was to be expected in the future for the world terms of trade for agricultural exports, and I began a concentrated attack on this problem. The result was *The Economics of 1960*, written in 1940, published in 1942.¹¹ I expected then a very large postwar improvement in the world terms of trade for agricultural products. What happened in fact was a brief period of such improvement, peaking at a high level in 1951, followed by a steady decline.

It is worth tracing how little went right and how much went wrong in *The Economics of 1960*, as a warning to those engaged in long-period economic projections—though these are absolutely necessary for rational policy formation.

In the concluding section of this book I speculated on what is sometimes called the long or Kondratieff cycle. Kondratieff's original proposition related to price movement only, but subsequent thinking has related it also to movements of investment, international trade, and terms of trade for primary products. I think that there is something in the idea. I saw it then, and I see it now, as predominantly a cycle of investment. World investment, both internally within countries and across international borders, accelerates for various reasons until the world reaches a condition of "capital satiation," and in consequence for a long period investment is slowed down.

The expansion period is one of comparatively good terms of trade for primary products and conversely. A period of fifty years can be roughly fitted to the whole cycle, approximately half of "capital satiation" and half of "capital hunger," though the cycle is interrupted by wars and by demographic changes. The satiation phase I estimated then (and still do) as having started some years before 1929. But worldwide wartime capital destruction quickly brought this stage to an end and ensured a longer than usual period of capital hunger, beginning in 1945. I did not venture then to predict, though I might well have, that the next downward phase of the long cycle would begin in the mid-1970s.

One surprising prediction in *The Economics of 1960* was that Russia would become the world's largest importer of agricultural products, which is now nearly coming true—though much later than 1960. Another was that the declining trend of world fertility would be reversed and population growth again accelerated. This certainly took place in the 1950s—though this prediction was based on intuition rather than on formal analysis.

The main faults in the predictions were as follows:

11. London: Macmillan, 1942.

1. The income elasticity of demand for food in the advanced countries was overestimated. My figures were taken from observed income elasticities in household expenditure surveys. But these represent prices containing very large elements of costs of transport, distribution, and the like. Income elasticities of demand for food at farm gate are much lower. We should also consider the whole question of whether static cross-section studies give a valid indication of expected dynamic change.
2. Productivity per man-year of agricultural labor was estimated, on experience up to that time, with advances of the order of magnitude of only 1.5 percent a year. As mentioned above, this suddenly changed after 1945 in most of the advanced countries.
3. The possible rate of industrialization, or, to be more precise, the rate of growth of nonfarm employment, in the developing countries was very much exaggerated.

Soon I saw this third point as the most important issue. It was central to the economic report which I prepared for Pakistan in 1952. (This was a confidential diplomatic document not intended for publication; I have been told, however, that it was later published in full in the *Proceedings of the Pakistan Legislative Assembly*.) It appeared that, however favorable the circumstances, there was an upper limit to the absolute (not relative) rate at which nonfarm employment could increase. The comparative information which I had before me at that time related to Japan for the whole period since the beginning of industrialization in the 1870s, to Canada in the first decade of the present century, a period of unprecedented growth, and to the U.S.S.R. under Stalin. The conclusion I drew, principally on the Japanese evidence, was that there was an upper limit of 4 percent a year to the rate at which any country could advance its nonfarm employment, whether its rate of population growth was high or low. The U.S.S.R. was the exception which tests the rule. Stalin's attempt to force the pace after 1928 led not only to agricultural disorder and famine, but also to transport and industrial breakdown. "I will not drive and whip the country any further," Stalin is reported to have said in 1933. Rate of growth of nonfarm employment is, for developing countries, much more readily measurable than growth of nonfarm output. As far as we can predict a relation between the two, we may expect it to be nonlinear. Initially, economies of scale may be reached where difficulties of management, congestion of infrastructure, and other factors may have the opposite effect.

Subsequent evidence, however, has shown the 4 percent limit to be much too cautious. A number of countries have shown much higher figures than this in recent years, headed by the Republic of Korea with a steady 8 percent until recently, although this country now appears to be in a state of disorganization. Perhaps, however, such general improvement throughout the world in the rate at which industrialization could proceed

should have been expected. Education, transport, means of communication have all shown great advances in comparison with the experience of nineteenth-century Japan, taken as a base measurement.

[8]

As we became aware of the poverty of the developing countries and their need for rapid development, there was a tendency to think that this was mostly due to lack of capital and could quickly be put right by adequate transfers of capital. The famous Harrod-Domar formulation purported to show how a country could grow on its own capital accumulation—capital transfers from elsewhere were not considered. Output was seen as a simple Cobb-Douglas function of labor and capital inputs, each with its own exponent, but with the exponents adding up to one or approximately so, slight differences being allowed to account for economies of scale. All this reasoning was based on the fallacious assumption described above. Although capital investment was undoubtedly a *necessary* condition of economic growth, it must not also be regarded as a *sufficient* condition. The limits imposed by difficulties of organization, shortages of managerial skill, inadequate infrastructure, or other causes in fact imposed a maximum rate of growth of nonfarm employment somewhere between 4 and 8 percent a year, whatever the capital inputs.

It was in the 1950s, from Robert Solow in the United States and Odd Aukrust and Olavi E. Niitamo in Scandinavia, that we began to get long-period production functions based on some knowledge of the historical levels of capital input. The Cobb-Douglas function worked only with very large residual terms for a combination of effects which we still find difficult to classify—technical improvement, economies of scale, better organization, education, or whatever it may be.

Another question which exercised us then, and exercises us now, is whether capital transfers, such as they are, are best in the private or in the public sector. Examples of extravagance and waste in capital spending by the public sector in some countries have aroused suspicion.

The cardinal question here is political. Sir Dennis Brogan, professor of politics at Cambridge, coined the remarkable phrase that “Asian politicians like having their arms twisted.” What he meant was that politicians in developing countries come under such overwhelming pressure from their families, friends, or tribal associates for a share in what they regard as the loot that it is very difficult for them to refrain from diverting some of the funds under their charge—unless, as Brogan indicated, they were under even stronger pressure from international authority. The World Bank’s reputation stands high (I hope that this is merited) for the strictness with which it discounts local politics and sends its own accountants and

engineers to check every detail of the expenditure of the funds advanced by it.

For countries in the earliest stages of economic development, the most valuable investments are in infrastructure, particularly for transport, without which only a localized subsistence agriculture is possible, and for water supply, without which infectious diseases cannot be kept in check. Both roads and water supply must be public investments. We have the interesting paradox, pointed out by transport economists, that the poorer the country, the better the roads that it needs. For bad roads lead to a quicker deterioration of vehicles, which soon adds up to a capital loss much greater than the cost difference between the good and the bad road.

In those days also we tended to overstate capital requirements. I put the figure too high in a paper on capital requirements given at the Plenary Session of the United Nations Conference on Development at Lake Success in 1949. A normal capital-output ratio of four was widely believed in at that time. In fact, it is very rarely as high as this, even if housing and public investment are included. The experience of Japan, for which we have fairly good information over the whole cycle of development, shows the capital-output ratio rising to a maximum in the 1920s, followed by a fall. Many technical and organizational improvements can be capital-saving—a fact not recognized by the classical economists.

At a later date, an interesting conversation with the Polish director of planning led me to inquire into the capital requirements of agriculture. The Polish planning authorities at that time (in the 1960s) thought that capital requirements in agriculture were high relative to those in industry, and that the best policy for Poland's economic future might be to develop as an industrial and mining exporter and agricultural importer. (How wrong these plans seem to have gone!) I found that capital requirements per unit of output in agriculture, as it was generally then practiced, were indeed high in comparison with those of industry. But this was principally the consequence of the fragmentation of holdings into suboptimal units, with consequent unduly high requirements per unit of output for buildings, equipment, and livestock. In the case of agriculture, technical improvements and decline in employment may themselves be expected to bring about a substantial fall in the capital-output ratio.

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Nearly everyone then, as indeed most people now, tended to regard population growth as an adverse factor, using up limited supplies of capital to bring a growing population to a given level of capital stock per head, and leaving very little for "deepening" per head capital. A fundamental assault on this position was first made by Everett Hagen at the

1953 conference of the Association for Research on Income and Wealth—his paper in fact was not published until very much later. International comparisons indicated that geographical density of population on the one hand, and its rate of growth on the other, both tended substantially to reduce per head capital requirements. In other words, marginal capital requirements for the expansion of output seem to be very much less than average per head requirements.

Hagen made a further important point. Rapidly growing population has the effect, to use his curious phrase, of “absolving” the country from the consequences of errors in investment. Both public authorities and private investors are capable of making serious errors in their investment decisions, as we know all too well. But with growing population a mistaken piece of physical investment is much more likely to find an alternative use than in a state of stationary population.

Keynes reasoned in a similar manner, when he published *The End of Laissez-Faire* in 1926. Europe, he thought, was then approaching a state of stationary population, and he stated the proposition in the converse manner: the mistaken judgments of private investors had in the past done comparatively little economic harm, but they would become much more harmful with a stationary population and therefore more in need of government regulation—at that time it was believed that government regulation was always done with wisdom. By 1937, however, Keynes had ingeniously inverted his own argument. Free private investment, he considered, was inherently desirable, and this is much more readily obtainable under conditions of increasing population.

It was not until the 1960s that I began to develop the line of thought, published in *The Economics of Subsistence Agriculture* (with M. R. Haswell)¹² that improvements in agricultural productivity must be regarded as another *necessary* condition for industrial development. Both international comparisons and time series indicated that a rising proportion of the labor force in nonfarm occupations was only possible if agricultural productivity not only rose, but rose at an increasing pace (the nonfarm proportion of the labor force rising as a linear function of the *logarithm* of farm productivity). The only exceptions were when a developing country could produce what we labeled “food substitutes”—mineral or forest products, or occasionally manufactures, which could be exported to world markets—and would bring in food imports which could partially substitute for the productivity of the country’s own agriculture. This proposition of course is based on the simplest common sense. You cannot employ an industrial population if you cannot feed them. In addition, economic development necessitates an increasing volume of imports (though many planners seem to have neglected this issue). These have to be paid for, and

12. London: Macmillan, 1964.

in most developing countries (apart from the exceptions mentioned above) the only possible exports are agricultural products.

The central illustration of this principle was the early development of Japan, where rising agricultural productivity, supplemented from the 1890s onward by some manufactured exports, formed the basis for a rate of rise of nonfarm employment considerably greater than elsewhere.

The Japanese-American economist Nakayama objected to this whole concept. Although he was able to show some misstatement of agricultural output in the earlier years, his general case was thoroughly demolished by Yujiro Hayami and Saburu Yamada.¹³ This is much more than a simple problem in Japanese economic history, because it refers to the prime exemplification of the most important of all development principles, namely that (except for countries richly endowed with minerals) improvement in agricultural productivity is a prior condition for successful development.

13. In *Agriculture and Economic Growth: The Japanese Experience*, K. Ohkawa, ed. (Princeton, N.J.: Princeton University Press, 1969).

Comment

Graham Pyatt

OVER THE YEARS Colin Clark has written on a good many subjects, but these remarks on his contribution as a pioneer of development economics focus essentially on three areas in which his contribution is most often recognized. These are:

- The evolution of sector balance between agriculture, industry, and services as real incomes rise
- The international comparison of real incomes in terms of what has come to be known as purchasing power parity
- The determinants of agricultural productivity and the economic consequences of population growth.

For Colin Clark, these three subjects are not independent, and if his contributions to them are not integrated in a neat theoretical whole, then at least we can recognize that they were all present “one bright spring day in 1935,” as he tells us, when the initial outline of his seminal work, *The Conditions of Economic Progress*, was drafted in response to a gay chiding for indolence from his wife-to-be. And if I am less than critical here in commenting on these contributions, it is in part because I fear that Colin Clark has received less recognition than he deserves; and for the rest, perhaps because his contributions need to be appreciated in a perspective which cannot necessarily be taken for granted among today’s economists.

Something akin to this last point may have been in his mind when he wrote “the first edition [of *The Conditions of Economic Progress*] was written during the period 1935–39 and the preface to that edition, written in early 1939, deplored, perhaps in unnecessarily violent language, the continued preference of the English university economists for economics as a study based upon speculation and theoretical reasonings, rather than as a science based on the collection and examination of the actual facts of the economic world.”¹

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1. *The Conditions of Economic Progress*, 2d ed., 1951.

Those who have worked with Hollis Chenery over the years will be familiar with the calligraphy displayed prominently on his office wall: "If the facts do not fit the theory, then the facts are wrong." The issue identified by Clark remains, then, and it was not the last time that Colin Clark was to be proved wrong when he followed the quotation I have cited with the observation that "what was said [in the preface of the first edition] is now, fortunately, quite obsolete." I have never as yet had the opportunity to ask Chenery in what spirit one was meant to react to his wall hanging. But that there is continuity of a major intellectual tradition from Clark to Chenery in the investigation of patterns of development is not to be disputed. Any gap is in the data base, not in the approach.

Clark's insistence on empiricism as the proper basis for economics permeates his work, which demonstrates an enormous energy and diligence in the sifting and collation of data. As a champion of the empirical, who has more than once been able to debunk modish theories by confronting them with facts, Colin Clark may well be excused for not having maintained a more balanced view on the importance of a priori reasoning to the development of economic science. As it is, he would today most likely be categorized as an economic statistician, rather than as an economist. For his own part, I suspect, he would take more kindly to the label of "politikal arithmetician." Not only are the great seventeenth-century pioneers of this "arithmetik," Sir William Petty and Gregory King, obviously among Clark's heros, but also his approach to economics reflects a view of the subject which places it lexicographically as subservient to political science, which in turn is dominated by history and ultimately by moral philosophy. This is the context, then, for the remark in his paper that whether India should build more steel mills "was a problem in comparative religion." It also prompts the thought that intellectually Colin Clark is a historian among economists, and this is not the only sense in which a direct comparison with Simon Kuznets is appropriate.

Agriculture versus Industry versus Services

As time goes on and communities become more economically advanced, the numbers engaged in agriculture tend to decline relative to the numbers in manufacture, which in turn decline relative to the numbers engaged in services.

—THE CONDITIONS OF ECONOMIC PROGRESS, 3D ED.

This generalization by Clark is traced back by him to Sir William Petty (circa 1691) and might well be referred to as the Petty-Clark law (especially if phrased with more emphasis on tendencies, in much the same spirit as the caveats in Engel's original articulation of the law named after him). It is presented by Clark as "a wide, simple and far-reaching gener-

alisation” supported by massive empirical evidence and elements of a conceptual framework, drawing on income and price elasticities of final demand, the importance of intermediate goods, and stylized facts as to movements in labor productivity.

This contribution is so well known that two comments on it may suffice here. The first is that, as far as I know, the law still lacks a closed, formal, analytical exposition of its essentials, although it is of course implicit in many of the disaggregated macro models and a root of the rich vein of literature on patterns, as noted earlier. Second, in his paper Colin Clark is obviously concerned that the logic of the law has been perverted by some in drawing the incorrect inference that creation of industrial jobs will necessarily raise real incomes. I wonder whether Clark is quite fair here in failing to reference other, more acceptable, logic to support the conclusion that an early start on manufactures is in a country’s longer-term development interest. The cases of India and China, which he cites in his paper, strike me as being more persuasive in relation to autarky than to industrialization.

The International Comparison of Real Income and Real Product

Colin Clark is undoubtedly a pioneer not only of development but also of national accounts, as evidenced by his considerable achievement in *National Income and Outlay* (1937). The two strands come together—I doubt if they were ever separate in Colin Clark’s thinking—in *The Conditions of Economic Progress*, where the comparison of real products over time and across nations is the initial focal point of the analysis, especially in the second (1951) and in the much expanded third (1957) editions. It is unfortunate that Kravis and others (1975)² do not address the intellectual history of work in this area, and hence the place of Colin Clark in it. However, I understand that Sir Richard Stone is taking up the matter, while Clark himself gives detailed earlier references in both the second and third editions of *The Conditions*. Be this as it may, the result of Clark’s monumental personal effort is a detailed set of estimates of national product in international (U.S.) and oriental (Indian) units for no less than twenty-nine countries. One cannot but be impressed by Clark’s magnanimity, then, to read on page 71 of the third edition: “After all the above text had been set up in type, a new and greatly improved comparison for five leading countries was published by Messrs. Milton Gilbert and Irving Kravis . . . while previous studies have referred to the prices of consumable

2. Irving B. Kravis, Zoltan Kenezsey, Alan Heston, and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power* (Baltimore, Md.: Johns Hopkins University Press, 1975).

goods and services only, this study also covers the prices of investment goods and of government services.” The breakthrough was made possible by the availability, thanks to the U.S. Department of Commerce, of national accounts at constant 1939 prices for 1950 and intervening years, and of the implicit price deflators. Colin Clark turns these new data to good effect (drawing also on Kuznets’s *National Product since 1869*) to produce long time series for many countries in his much larger sample.

Colin Clark had already pointed the way in his earlier editions,³ although the proper treatment of services remains a vexed question, even with the resources made available for primary data collection in recent years.⁴ Moreover, the need for shortcut or reduced information methods remains. It may yet prove appropriate to resurrect the techniques that Clark deployed in the early years to meet this need. It is undeniably correct to acknowledge Colin Clark as a pioneer not only in devising methods of computing purchasing power parity, but also in applying them to the understanding of development.

Agricultural Productivity and Population Growth

As I have noted previously, the three topics selected for discussion here are far from independent in Colin Clark’s thinking. After his statement, quoted above, on the relative size of agricultural, industrial, and service employment, Clark moves on to an appreciation of Petty’s understanding of these phenomena and their association with the significantly higher standard of living of the Dutch relative to the British and French in the late seventeenth century. “He [Petty] found good government to be a significant factor in their prosperity, but he specially goes out of his way to commend the economies arising from a dense population. After a century and a half of Malthusian propaganda we come to regard dense populations, including our own, with some suspicion; and have lost sight of the obvious fact that, until a certain degree of population density has been attained, no civilisation at all is possible” (*The Conditions of Economic Progress*, 3d ed., pp. 492–93). Economies in capital required through population growth are similarly referred to when Colin Clark cites Everett Hagen on the matter, presumably to strengthen a general argument—for which other pieces are assembled in Clark’s 1954 paper to the Royal Statistical Society⁵—that “Malthusian propaganda” is just that.

3. Indeed, his “international unit” for making international comparisons of national income first appeared in 1937 in an article in *Weltwirtschaftliches Archiv*.

4. World Bank participation in the International Comparison Project dates back to 1968.

5. “World Supply and Requirements of Farm Products,” *Journal of the Royal Statistical Society*, ser A., vol. 117.

These other pieces refer, on the one hand, to a detailed analysis of consumption and Engel's law and, on the other, to a similar investigation of levels and trends of labor productivity in agriculture. Both, of course, are in international units—and oriental units also, when possible. (It makes some difference.)

Colin Clark's basic point, here as elsewhere, is that international comparisons reveal enormous potential for growth in labor productivity within agriculture. In subsequent discussion of the paper before the society, Dudley Stamp and Sir Arthur Lewis, among others, queried the relevance of this as compared with the productivity of land, since it is land that is potentially in short supply. As Lewis put it, "If the world became short of food it would find all the labour or machinery needed for increasing supplies, but could it find the land?" Colin Clark's answer was to cite the contemporary Dutch case where "the area required for the support of one person was a little under one acre." Taken together with Professor Stamp's earlier comment in the discussion—"If we look for an increase in world food production the easiest way is to consider one of the still most underdeveloped of all the great agricultural countries, the United States"—the Malthusian specter of a world food shortage starts to evaporate.

And so it has proved historically, a fact in which Colin Clark may take some satisfaction, notwithstanding his failure to foresee the development of the United States as a major food exporter. Indeed, his prediction in 1954 was the exact opposite.

A further weakness in Colin Clark's analysis was the cursory treatment of low-income countries, which may well have been inevitable to a degree because of the relatively limited data available, but hardly commensurate with the numerical importance of their populations. In any event, we now know that productivity per acre is high by international standards in much of the Third World, and the evidence suggests that this may well have been true for many years. Yet subsistence has also been a problem. It is hard to concur, therefore, with the statement in the paper that, in postwar India, "population growth may, after all, have been a beneficial factor." Demand pressure may have raised total output, but hardly output per head.

In conclusion, I wish to make three general points.

First, Colin Clark has contributed enormously to our understanding of the facts of development. His personal productivity (without a computer!) has been staggering, and the generalizations he has extracted from these facts are proven foundations of development economics.

Second, there is implicit in much of his work a reluctance to develop theoretical constructs. Colin Clark would apparently much rather gather more facts, which is so admirable a trait in his historical work but, at some point, leads to a lack of final articulation in the numbers, as in his *National Income and Outlay* or his paper on "World Supply and Requirements of Farm Products."

Third, I return to Colin Clark's own hierarchy of disciplines, where political science lies above economics and below history. He has occasionally expressed himself most forcefully on the potential of politics to interfere with the smooth regulation of economic affairs, especially at the international level. But in his main works, at least, there is little on the political economy of development and the distribution of power or assets within a population. Colin Clark observes, as a historian, that potential exists—in agriculture, for example—but tells us little or nothing about how it might be realized. His contribution has indeed been to provide the facts, soundly based in economic concepts and in both a broad historical and international perspective. If we look elsewhere for what to do about these facts, we should not underestimate the contribution of a man who has played such an enormous role in providing a vantage point. Beyond that, Colin Clark's greatest contribution may be that his message for development is ultimately an optimistic one: not that it will happen, but that it could.