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REBIRTH OF A FALLEN LEADER:
ITALY AND THE LONG PERIOD DATA

by

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"No country is permanently strong, nor is any permanently weak."

Han Fei, as quoted by Arthur F. Burns

Since the end of the middle ages there are three clear cases in which a nation first assumed economic leadership of the world and then lost its primacy to a successor. Somewhere between 1870 and 1913 the United Kingdom lost to the United States the leading position it had held since the end of the eighteenth century. In the late seventeenth or the eighteenth century the Dutch Republic gradually fell from first place, where it had been since the end of the sixteenth century. And the Dutch, in their turn had taken over from the Northern Italian cities which had led the economy of the western world even from before its early renaissance, while the remainder of Europe was only gradually extracting itself from the late middle ages.¹

This paper will review briefly some attributes of the Italian economic preeminence, resting on activities such as Venetian and Genoese transportation and trading, Florentine banking and Milanese cloth production. It will also recapitulate some of the story of the period of decline.

The bulk of the numerical data it will examine are, of course, more recent, beginning with about 1870. Some spotty

figures for earlier centuries have survived from sources such as tax records. But systematic estimates of macrodata, even of a fairly rough variety, are rarely available for such early periods.

Using the numbers now generally employed to study long run movements in productivity, several issues will be examined. First, we will see whether a country once displaced from a position of leadership is thereafter condemned to perpetual decline or inferiority, either relative or absolute, in labor productivity and, hence, in per capita income. We will see from the Italian example that this is not so. In a period of world productivity growth, ex-leaders also increase their productivity and may even enjoy spectacular achievements in this area. We will report just how much productivity growth the Italian economy was able to achieve in the course of a century. Moreover, we will find that in some respects even the comparative Italian position relative to other industrial countries has improved over this interval.

A second issue to be considered here is the role of lending by a country that is losing its economic leadership. Whether or not it is a coincidence, it is true that each of our three ex-leader countries was a major banker to the world not very long before the country's decline began, and continued this role well into the period of decline. The natural question is whether investment abroad of resources that could have been used in capital formation at home contributed to or even was a primary instrument of decline. Put the other way, one may ask whether capital flowed abroad because decline at home had reduced profitable investment opportunities. Which induced which -- did

decline stimulate export of capital or vice versa? The answer here is far from clear but the available evidence is of considerable interest.

On the Earlier Period

My discussion, then, will focus on two periods with a gap of some three centuries between them. The first of these encompasses the late middle ages, the Italian Renaissance and the early Baroque, while the latter is the period since 1870 for which Maddison's data are available. I will start off with the first of the two periods.

The Italian Renaissance has been said to extend almost exactly two centuries beginning about 1330, from the age of Dante, Giotto and Aquinas, to the establishment of Spanish control under Charles V. Revisionist historians have provided evidence disputing the impression among nonspecialists that this was a period of continuing and perhaps unprecedented prosperity. On the contrary, the evidence seems to indicate that the Italian economy had reached a peak perhaps just about 1300 and that it was already showing clear signs of decline in population and in wealth well before the black death struck in 1348. The pace of technological innovation and innovation in business procedures is widely judged to have slowed and to have consisted largely of further development of items introduced during the high middle ages.² The following passage indicates the sort of (spotty) evidence adduced for the view that the Italian Renaissance occupied what was, largely, a period of depression.

Florence in the time of Dante had more than 100,000 inhabitants, but no more than 70,000 in the time of Boccaccio, and approximately the same number in the time of Michelangelo....To turn to another kind of figures, the incoming and outgoing wares subject to tax in the port of Genoa were valued at 3,822,000 Genoese in 1293. The figure fell to 877,000 in 1424. In 1530 it was still more than one million short of the 1293 level, in spite of the fact that the purchasing power of the pound had greatly declined in the interval. Again, the aggregate capital of the main house and seven of the eight branches of the Medici bank in 1458 was less than 30,000 florins, whereas the capital of the Peruzzi bank in the early fourteenth century had risen above the 100,000 florin mark. Yet the Medici company in the Renaissance towered above all other Florentine companies, whereas the medieval Peruzzi company was second to that of the Bardi. Similarly, the combined fortunes of the three richest members of the Medici family in 1460 were valued at only fifteen per cent more than the fortune of one Alberti merchant a hundred years earlier. (Lopez [1953], [1969] pp. 105-6).

Still, it is generally agreed that by the fifteenth century the economy of Europe, and notably that of the leading cities in the north of Italy, had staged a substantial recovery, whether or not it approached the degree of prosperity attained at the peak of the thirteenth century.

More to the point for our discussion, in all of this time, from the high middle ages through the end of its renaissance, in periods of prosperity and depression, Northern Italy stood as the undisputed (or near undisputed) economic leader of Europe. With the possible exception of the Flemish Netherlands (centering first on Bruges and later on Antwerp) no one seems to have been in a position to challenge the Italian preeminence. In the words of de Roover, one of the leading authorities on the subject, "The Italians were the first to master the new techniques [of the 13th century commercial revolution]. As a result, foreign trade in

Western Europe became virtually an Italian monopoly. Italian supremacy did not break down until well into the sixteenth century, long after Italy itself had declined..." (de Roover [1953] pp. 80-82) or as Molho has written "Professor Roberto Lopez has rightly suggested that Italy's place in the early modern era was comparable to England's during the Industrial Revolution (Molho [1969] p. viii).

As in the case of The Netherlands and the U.K., the precise dates of Italy's fall from economic primacy is impossible to determine definitively and is under dispute by specialist historians. At the beginning of the sixteenth century the opening of a rival sea route to the East was a heavy blow to Venice and the battles between Charles V of Spain and the Holy Roman Empire against Francis I of France, recurrence of the plague and other catastrophes weakened the economies of other Italian cities. Yet by the end of the sixteenth century even the foreign trade of Venice had achieved a substantial recovery (Atkinson [1960] p. 150). According to Cipolla, "At the beginning of the seventeenth century, Italy, or rather Central and Northern Italy, was still one of the more highly developed regions of Western Europe, with an exceptionally high standard of living for that time. Towards the end of the same century, that is around 1680, Italy had become a backward and depressed area; her manufacturing industry had collapsed, there were too many people for the available resources; agriculture had become by far the predominant section of the economy." (Cipolla [1970] p. 196).

Of course, no systematic data are available for so remote a period but Cipolla provides spotty statistics indicating for the

major Italian manufacturing centers that there was over the course of the seventeenth century a cataclysmic fall in the output of woolen cloth, silk and metallurgical products. (Cipolla [1970] pp. 196-201 and [1975] p. 9). For example, in Venice the output of woolen cloth fell from over 22,000 "cloths" in 1589-1600 to less than 3,000 in 1690-1699. In Florence the corresponding figures were 15,000 in the earlier period and 100 (!) in the latter. According to Domenico Sella the countryside, while also badly hurt by crop failures and the plague, managed to recover from its seventeenth century catastrophes and made "impressive progress toward a modern complex market oriented economy." But he concludes nevertheless that "What is worth stressing about the Lombard cities is that their economy and notably their manufactures failed either to recover even a fraction of their past prosperity or to generate replacements. Milan, Como and Cremona exhibited no resilience, remaining essentially centers of administration and consumption into the late 19th and even early 20th centuries" (Sella [1975]).

The Record Since 1870

I will return presently with some comments on this renaissance record. But first let me report the picture that emerges from the more recent data provided by Maddison [1982] and others.

The figures, generally starting from 1870, show an overall Italian performance which in absolute terms must be judged dramatically successful, though in comparative terms it is in

most respects about average for the sixteen industrialized countries for which these data are available. Figure 1 shows indices of GDP for four countries with 1870=100. Since this graph is in semilog form, the slopes of the curves are the growth rates. We see that here Italy is at the bottom, only pulling ahead of the U.K. after 1960. But, as we know, GDP is not a very useful indicator of a nation's prosperity or the welfare of its inhabitants. Above all, its significance depends on the size of the nation's population. Figure 2 shows that as a matter of fact Italian population did not grow with extraordinary rapidity. Until about 1910 it expanded slightly more slowly than that of Germany or the U.K., and throughout the 110-year period depicted it expanded more slowly than that of the USA.

Much more to the point is what happened to labor productivity. Figure 3 provides the information, showing the (natural log of) real GDP per man-hour for six countries. Japan and Australia are included because their productivity levels were, respectively, the lowest and highest in Maddison's sample of 16 countries in the initial year, 1870. The U.K. and The Netherlands are included in the graph as former economic leaders, a category in which, besides Italy, one can also possibly include Australia and probably at some future date, the USA.

Several conclusions follow immediately from the graph. First, it shows that the period in question has brought with it a good deal of catching up with the leader. In 1870 the ratio of GDP per person-hour of the most productive country to the least productive country in Maddison's sample was almost eight to one. By 1979, that ratio for the most productive country (the U.S.) to

the least productive among the 16 countries (still Japan) had fallen to less than two to one.³

Second, the graph indicates that there is no universal fate for all former leader countries. Throughout most of the period the U.K. (like Australia) continued to fall behind more and more of the 16 countries, falling from second place in 1870 to twelfth place in 1979. Italy also fell slightly behind, slipping from ninth to eleventh place. But The Netherlands started up strong (in third place) and rose even further (to second place).

This suggests that the Italian performance continued to be weak in this past century, but there is more to the story. Stylized Figure 4 shows the GDP per person hour as a percent of that of the world leader for eight countries in 1870 and 1979. We see that while in 1870 Italian GDP per person-hour was about 34 percent of the leader's, by 1979 it had risen to about 70 percent of the leader's.

When we look at saving and investment, obviously a major contributor to growth in labor productivity, Italy's relative performance continues to be somewhere in the middle. Figure 5 shows that this was true in the 1970's when Italian saving and investment rates exceeded those of the USA and the U.K., but fell short of those of Germany, France and Japan. Figure 6 shows a similar pattern for the century preceding 1979 where the Italian performance is just about midway between the U.K.'s and that of the USA (the sample of countries for which one has estimates of capital stock for the entire period is extremely small).

On the other hand, between 1913 and 1978 Italy's investment

performance seems to have been quite outstanding. According to Maddison, the ratios of tangible nonresidential fixed capital stocks in 1978 to the corresponding figures in 1913 were the following:

<u>Country</u>	<u>Italy</u>	<u>France</u>	<u>Germany</u>	<u>Japan</u>	<u>UK</u>	<u>US</u>
Net capital stock ratio	NA	5.5	7.6	10.3	3.6	5.7
Gross capital stock ratio	8.6	NA	NA	NA	3.5	5.9

Thus, since Italy's gross capital stock grew nearly ninefold in these 65 years, its investment record in this period was surpassed only by Japan.

Exports presumably depend heavily on productivity growth so it should not be surprising that the Italian relative export performance is not dissimilar to its comparative productivity record. Figure 7 shows the growth in exports of 13 countries over our 110-year period. It reports the ratio between each country's 1979 exports and its 1870 exports, both calculated in dollars of constant purchasing power.⁴ Italy's figure once more falls somewhat below the middle, with Sweden, France, Germany and the U.K. all having experienced a slower average growth rate in exports. Figure 8 shows the details of the time path of exports for four countries. Figure 9, however, offers a different perspective on exports. Based on data provided by Matthews, Feinstein and Odling-Smee ([1982] p. 435), it represents the shares of world manufacturing exports accounted for by the six countries indicated. The most remarkable

observations that emerge from the graph are the precipitate decline in the U.K.'s share of world manufacturing exports (from over 40 percent of the total in the 1880s to about 9 percent in 1973) and the dramatic rise of Japan's share (from nearly zero to over 13 percent) while that of Italy rose from about 2 percent in the 1880's to about 7 percent in 1973.

So far I have dealt only with comparative accomplishment. But it is only when we look at the Italian record by itself that we can recognize just how much it has been able to achieve. In terms of labor productivity the record is impressive enough. Over our 110-year period real Italian GDP per person hour rose more than 1200 percent, that is, to more than 13 times its 1870 level. But even this incredible result is overshadowed by its export record. In that period real Italian exports actually increased 63-fold from their 1870 level, that is, they rose by about 6200 percent! Surely nothing like that had ever occurred before in human history. Indeed, these magnitudes are so enormous that it is extremely difficult for their meaning to be grasped by our intuition. Clearly, economic decline is a concept which has not the slightest applicability to Italy since 1870.

What Can We Learn From the Data

The most important message that emerges from the evidence is, surely, the one I have just offered. The nineteenth century brought with it a break in economic history, ushering in an era of prosperity whose like had never been seen before. At the end of the eighteenth century standards of living in even the most prosperous of countries had not progressed much beyond what had

been achieved in ancient Rome, and in some respects had probably not reattained that earlier level.

Italy was among the main beneficiaries of the unprecedented explosion of productivity and standards of living that the industrialized nations have achieved since then. Of course, we have all recognized that this has occurred, but few of us have begun to grasp its magnitude. A thirteenfold increase in yield per hour of labor is a number that is easy to report but its substance still remains to be digested.

Beyond this it is tempting to look to an analysis of causes for lessons from the history I have just summarized so briefly and superficially. What explains Italy's early mastery of the commercial revolution and its economic leadership in the thirteenth century? What caused its economy to "fail" in the sixteenth? To what can we attribute the industrial revolution in the eighteenth century and Italy's role in it in the nineteenth and twentieth? Speculation over such questions can sometimes yield suggestive hypotheses that stir the imagination but I think that, ultimately, they must prove dead ends. Events such as these are the products of tangles of influences great and small, economic and cultural, which neither intuition nor sophisticated econometric analysis can ever be hoped to untangle.

Not that hypotheses are lacking. Many are persuasive, if pedestrian. For example, high taxation has been cited as a principal contributor to the Italian decline (e.g., Cipolla [1975] pp. 9-10) and to the Dutch (see e.g., Wilson [1968] p. 232 and [1969] pp. 118-121), though it can hardly be considered to have been a serious problem during Britain's climacteric.

Similarly, extraordinarily high wages have been said to have impeded the competitiveness of the first of these two countries during their decline and in all three it has been argued (and disputed) that a significant role was played by a decline in entrepreneurship, with those who in earlier eras would have been happy to go into business now preferring to live as country gentlemen.⁵

Sometimes, also, the literature offers hypotheses which are rather more unexpected and are therefore more stimulating to the imagination. Thus, it has been suggested that Italian precocity in banking and commercial techniques was stimulated by the presence of the papacy, whose large international financial transactions were only paralleled by the borrowings of various kings to finance their military enterprises.⁶ Another illustration is the suggestion that the early advent of the industrial revolution in England owes something to the English institution of primogeniture, which provided a continuing supply of impecunious younger sons of the nobles, some of whom went into business and by their example gave to entrepreneurship a degree of respectability denied to it, for example, under the ancien régime in France.

But these are all informed conjectures. There is little prospect of obtaining rigorous evidence which unambiguously supports their acceptance or rejection or even does so with a degree of probability whose magnitude can be estimated reliably. We have no hope of establishing "the causes" of the great depression of the 1920s and 1930s. How much more forlorn then

must such a hope be for events of the nineteenth, let alone the sixteenth century?

Rather than seeking to unravel causes, it seems to me a more promising procedure to seek to use the historical data as well as theory and current evidence to answer questions of the comparative statics variety. That is, rather than trying to disentangle a complex mix of influence upon a particular event one pursues ceteris paribus issues, asking how some historical variable would have been influenced, all other things equal, if some particular parameter had been changed, say, by public policy. In the next section I turn to just such an issue providing some more or less miscellaneous observations which can, perhaps be regarded as prologue to a serious analysis.

Saving and Investment, Domestic and Foreign

The theory of international economics typically proceeds on the assumption that capital is highly mobile among countries. Moreover, it is generally assumed, upon very defensible grounds, that in the absence of significant externalities capital will tend to flow to where it will do the most good, not only in terms of the profits of the investors, but also for the general welfare of the world economy. In addition, it seems to be believed widely that this free flow of capital best serves the interests of the investing country. Indeed, there is a result, the factor price equalization theorem, which has the counterintuitive implication that (where its premises hold) a country cannot increase the relative real wages of its labor force by using capital accumulation to raise its relative labor productivity.

All this is by way of background to the central question of this section--could renaissance Italy have helped to preserve its economic leadership by investing a larger proportion of its savings at home rather than exporting as much capital as it did.

Here, history is suggestive in a number of respects. First, it indicates that there is indeed a very close correlation between a nation's investment rate and its productivity growth. A graph in Maddison ([1982] p. 55) shows for five countries for the past century that there was an extraordinary similarity in the time paths of per capita capital stock and per capita output. The Italian case, which at first glance appears to be an exception, in fact only shows an unusual deviation between the time paths of capital and output in the last decades of the nineteenth century. Had say, 1905, been selected as the base year for Italy its two curves would have been as similar as they are for the other countries. Figure 10, taken from the economic report of the President for 1983 shows for the decade of the 1970s how closely relative productivity growth and relative investment were associated from country to country in that recent period.

While these observations are consistent with the hypothesis that investment is a prime determinant of productivity growth, the direction of causality is, of course, far from being settled. It can perhaps be argued that at least to some degree the influence runs the other way, with rapidly rising productivity and the attendant profit opportunities serving to attract investment resources, particularly from foreign savers.

Here some historical observations are suggestive. Returning to Figure 5 we note as a basis for comparison the remarkable correlation between savings rates and rates of capital formation in the six countries represented. Now, the data in the graph all refer to the period of the 1970s, which far exceeded the late middle ages, the renaissance and the 17th and 18th centuries in terms of mobility of capital and of methods of communication that facilitate surveillance of investment conditions in one country from another. This suggests strongly that investment at home still has the superiority in attractiveness to a country's savers that Adam Smith pointed out in the eighteenth century.

This is pertinent to our inquiry because of the noteworthy fact that all three of our former leader countries became heavy lenders to foreign nations either during their period of decline or some time before the decline had begun. The United Kingdom, according to data provided by Feinstein [1982] was sending abroad some 30 percent of its savings in the decade 1870-79, and by 1905-14 this figure had reached 50 percent.

Similarly, Holland even in the seventeenth century had provided significant amounts of investment abroad, and by the eighteenth there was "...an extraordinary growth of foreign investments. ...Against a local yield of 2 1/2 per cent, a Dutch investor willing to lend abroad could be sure of 5 per cent or 6 per cent and many did." Funding was provided to Scandinavia, Germany, France, Spain, Poland, Russia and above all, to England (Wilson [1969] p. 36). We need hardly be reminded of the role of the Italian bankers in the high middle ages and the renaissance. Thus, according to Lopez "...in the early 14th Century the

English king owed the Bardi company [600,000 florins] according to English documents, which probably underestimated the debt, or 900,000 florins according to Villani, who may have overestimated it. In addition, the English king owed the Peruzzi company a sum two thirds as large". (Lopez [1969] p. 106). To evaluate the magnitude of these figures, we note that "...within a generation [after 1303 the Florentine communal debt] had increased to the grand total of 450,000 florins, and this was in excess of the amount that the city could hope to raise from all revenue sources over a sixteen-month period." (Becker [1969] p. 124).

Samuel Berner tells us of "...the extraordinary intrusion of Genoese capital into Spanish finances, and the subsequent flight of Genoese investments from the bankrupt Spanish empire, first into greener Italian pastures and then into France and the rest of Europe. After 1528 [the year Anrea Doria allied Genoa with Spain] the Genoese assumed the role once played by the great German banking houses in Hapsburg finances." (In Krantz and Hohenberg [1975] p. 21). We also know that the debts of the Spanish monarchs owed to Italians were enormous by contemporary standards. Thus, according to Atkinson ([1960] p. 155), "In 1560 [Philip II of Spain] himself estimated the royal indebtedness at some seven times the national revenue; by 1574 he was paying interest to his German and Genoese bankers in excess of his total incomings."

It is true that, unlike the Dutch who were financing England, Holland's chief economic rival, the Italians were providing funds to nations who dissipated them in military

enterprises rather than using them to build up their industrial capital, nations which were not serious economic competitors to Italy. Also, much of the financing provided to Spain by the Northern Italian cities went directly into the Spanish possessions in Southern Italy: Naples, Sicily, etc.

Yet the basic question remains: did extraordinary amounts of lending by nations about to cede their leadership constitute a prime cause of their decline? Or was it merely a rational response to that decline which was ascribable to other sources, so that the loans may actually have contributed to the nation's welfare, both in the short run and the long? In terms of the comparative statics sort of question with which this section began, would the countries we are discussing have been able to counteract their decline, at least partially, by a deliberate reduction in their capital exports?

I do not pretend to have an answer, but I can offer several suggestive pieces of evidence, not all of them, unfortunately, unambiguous.

First, we do know that relative real wages in different countries do change with the passage of time and that they are at least sometimes correlated with relative rates of accumulation of capital. For example, real wages in the U.K. have been estimated to have been, toward 1860, about 1 1/2 times as high as the French and about 2 1/2 times as high as the German.⁷ By 1970, according to the U.S. Bureau of Labor Statistics (unpublished figures) relative British real wages had fallen to 85 percent of the French wages and 58 percent of the German. Now, Maddison's estimates indicate that over the period 1870-1979 the British

capital stock also grew far more slowly than the German or French. Similarly, from the Bureau of Labor Statistics wage data for 1970 and 1980 just cited we find that the percentage wage increases over the decade were (listed in order of magnitude) U.S., 137 per cent; U.K., 377 per cent; Italy, 415 per cent; Germany, 418 per cent; France, 453 per cent; and Japan, 577 per cent, which has a perfect rank correlation with those countries' net fixed investment as per cent of GDP, as shown in Figures 5 and 10.

Of course, correlation does not imply causation. Yet the figures are suggestive and stimulate the inference that more rapid accumulation of capital does increase relative real wages^B as well as relative real productivity. In turn, this may appear to imply that the countries which were about to lose their leadership might have been able to ameliorate their problems by keeping more of their capital at home.

Yet there is a good deal to be said on the other side. As was noted earlier, Wilson's estimates were that at the beginning of the 18th century a Dutch investor could obtain abroad a relatively safe return twice as high (and more) as he could obtain at home. While returns on domestic investment in Britain just before World War I were apparently substantially higher, on the average, than returns from investment abroad, yields on investments involving similar risks, according to McCloskey ([1981] pp. 100-102, 134-135), went (slightly) the other way (though they were approximately equalized at the margin). I have not been able to find any such estimates for renaissance Italy,

which would, in any event, have to be viewed with considerable skepticism. But it is surely implausible that the Italian bankers would have accepted the risks of foreign lending if higher returns had been available to them at home.

These observations all seem to lend their weight to the view that relatively declining countries send their funds abroad because their decline makes it profitable to invest elsewhere, rather than causation running the other way, with lagging domestic investment bearing heavy responsibility for the decline.

We obviously end up with the issue unsettled, as it is elsewhere in the literature, with observers from Keynes to N.F.R. Crafts arguing that "with the choice of an American or a German net investment rate, by 1911 Britain could have enjoyed a [far] higher standard of consumption even if she had foregone all property income from abroad," (Crafts in McCloskey [1981] p. 130) a position most vehemently rejected by McCloskey [1981] pp. 131-135).

Here is not the place to go into all the issues which systematic examination of the topic would entail. One should indeed ask how much British real wages would have been raised (if they were raised at all) had the British resources that were invested abroad instead been kept at home. As a suggestive exercise I have calculated what would have happened to U.K. capital stock today if some or all of its foreign investment between 1875 and 1913 had been kept at home. Using the Feinstein data on British investment rates for the period which I cited earlier, it was easy to determine, ceteris paribus that if all of the capital exports had instead been invested in Britain the

domestic capital stock today would be about 50 percent greater than it actually is. If, instead, half of capital exports had been retained at home the capital stock would have increased by one third. Would that have increased British real wages sufficiently to have offset the opportunity cost in terms of the foregone superior foreign earnings on British capital? I leave the subject taking refuge in the Scottish verdict -- "not proven."

Concluding Comment

Let me close by returning briefly to my central topic--the century-long revival of the Italian economy. There can be no question that Italy's economic performance since 1870 has been remarkable and that in the last quarter-century it has been spectacular. Some other industrial countries have outstripped even these high standards, but that does not detract from the Italian achievement. It is not about to resume the position of economic leader of the world; but it certainly has reentered the small company of nations that constitute its vanguard.

Footnotes

*Princeton and New York Universities. This is a revised version of a paper written in memory of my former fellow student Professor Vittorio Marrama of the Università Degli Studi di Roma. I am extremely grateful to the Division of Information Science and Technology, the Exxon Education Foundation, the Joint Council on Economic Education and the C.V. Starr Center for Applied Economics for their generous support of this work.

1. At least three other candidate leaders may come to mind but none of them really served as an economic target to be emulated by others. Spain in the 16th century drew heavily upon the resources it derived from The Netherlands and (probably to a surprisingly smaller extent) from the gold and silver it obtained from the Americas. This permitted it to finance large scale military adventures but it never brought prosperity to the country itself, except, perhaps, for a brief period before the middle of the 16th century. By the beginning of the 17th century the Belgian economy had been damaged severely by Spanish terror (to a large extent by the emigration of many of its most enterprising inhabitants), the Dutch Republic had been lost to Spain through military defeat, and the flow of American precious metals was insufficient to prevent Spain from sinking into decrepitude, because the country itself had never developed any substantial economic base of its own.

The area that is now Belgium is the second alternate candidate leader. Throughout the late middle ages, particularly when it was part of the possessions of the Dukes of Burgundy, its cloth production and some of its other activities made it a

rival to Italy. But despite a few uprisings of varying success it remained effectively ensconced in a feudal hierarchy; its cities, despite the "ancient liberties" they were able to accumulate, never achieving the autonomy of the Italian cities. It is possible to consider the Dutch Republic of the 17th century to constitute the realization of the economic destiny of the Belgian portion of the low countries.

The third possible candidate for the position of deposed world economic leader is a curious case -- Australia which, according to Maddison's figures ([1982] p. 212), in 1870 had an output per labor hour 1.6 times as large as the U.K.'s. But Australia's prosperity is probably ascribable to very special circumstances, such as the gold discoveries and the opening of its vast territories to sheep farming, where a large proportion of land to labor yielded a correspondingly large output-labor ratio. Surely, it was first the U.K., then the U.S. and Germany, and never Australia, that the industrializing world sought to emulate at the end of the 19th century.

2. It had been pointed out that ideas such as da Vinci's probably were of little interest to his contemporaries and were generally not utilized in practice. There was a burst of innovation, that is, in adoption of inventions, in the late 16th and 17th centuries (as, for example, the lens, the telescope and the pendulum). But that was already the age of the Baroque and the period of the ascendancy of the Dutch Republic.

3. Using a similar graph, Matthews, Feinstein and Odling-Smee [1982] (pp. 32-3) have already noted this narrowing of intercountry differences in productivity.
4. These data are also available for Japan, but since its 1870 exports were virtually zero, their 3000-fold increase between 1870 and 1979 is not as impressive as it sounds, and is, in any event, not readily representable on the same graph with the more modest (!) ratios for the other countries.
5. For references in the Italian case see Molho's "Commentary" in Krantz and Hohenberg [1975], p. 17 and in the same volume, Cipolla, pp. 9-10. The dispute on the role of British entrepreneurship in that country's decline has given rise to an extensive and vehement literature involving such eminent writers as David Landes and D.N. McCloskey.
6. The impression is often given that the territorial ambitions of the popes, their resistance to foreign domination of Italy and their claims to power over sovereigns, foreign and domestic (thus note the extreme illustrative case of Innocent III and his relation to Frederick II in Italy and King John in England) was a source of near perpetual military turmoil in Italy and, hence, an impediment to its prosperity. Here we see that the popes may also have helped to stimulate the Italian economy.
7. Landes [1969], p. 12. However, as Landes warns about the data, "caveat lector."

8. As already pointed out, this conflicts with the widely noted factor price equalization theorem which tells us that relative real wages will not be affected by relative growth of capital stocks in different countries. However, that theorem breaks down if the production functions are not perfectly homothetic, and surely there is little reason to believe that they are.

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GDP; Semilog Scale; Indices: '1870-1979

1870=100; Source: Maddison Table A8

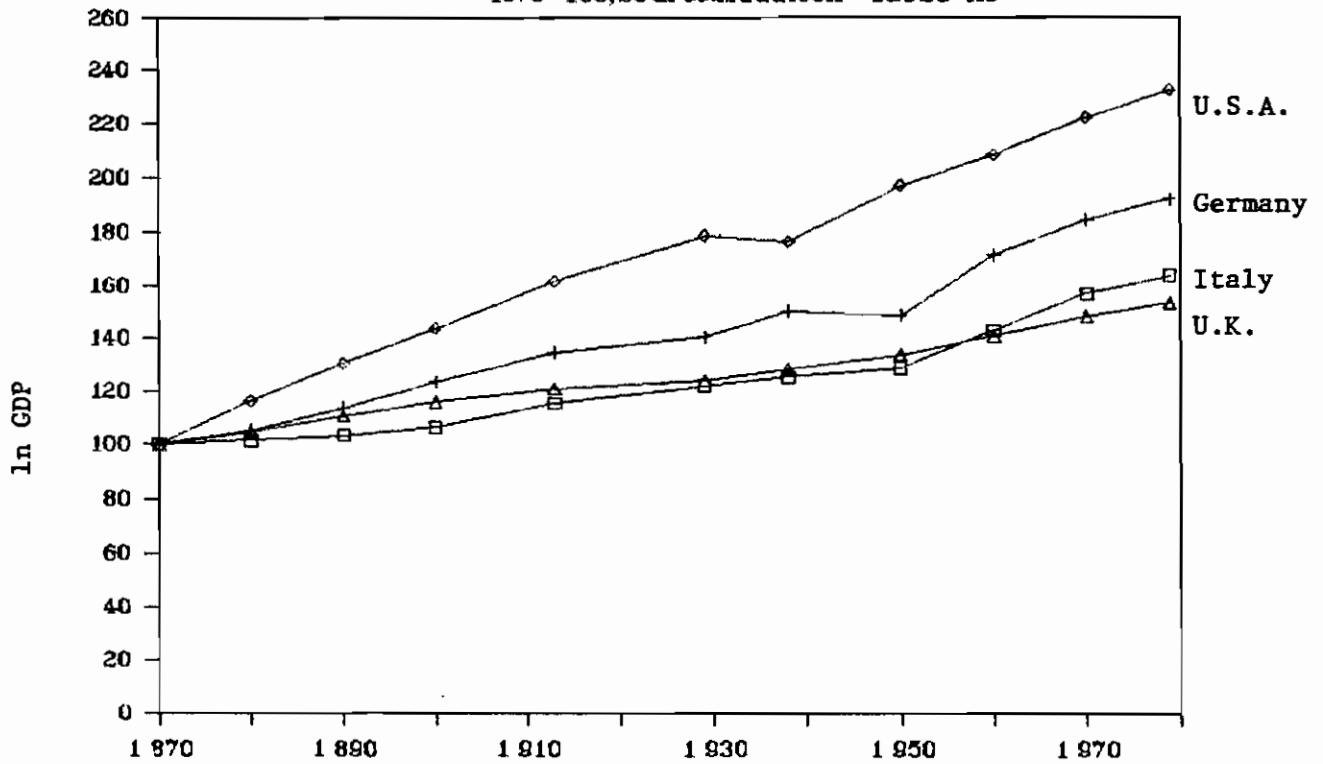


FIGURE 1

Population (Semilog Scale;Indices):1870-1979
1870=100;Source:Maddison Table B2

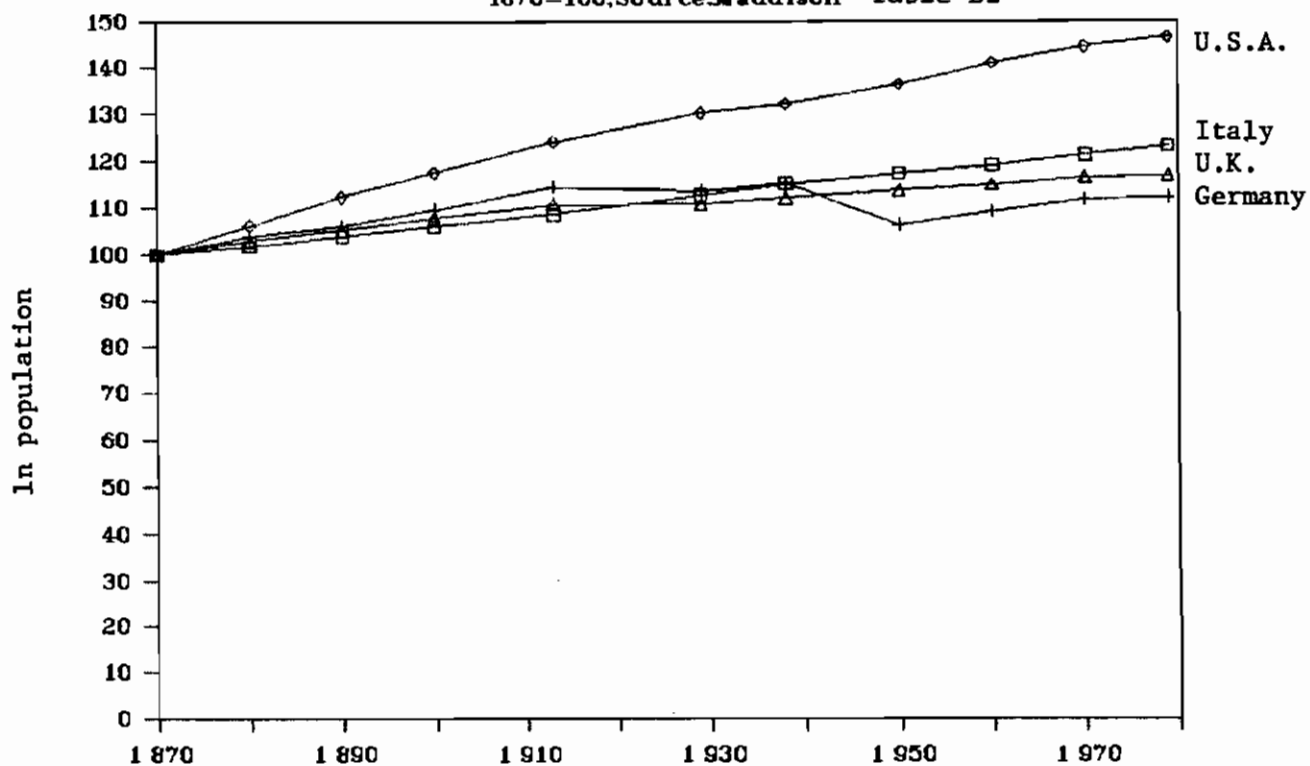
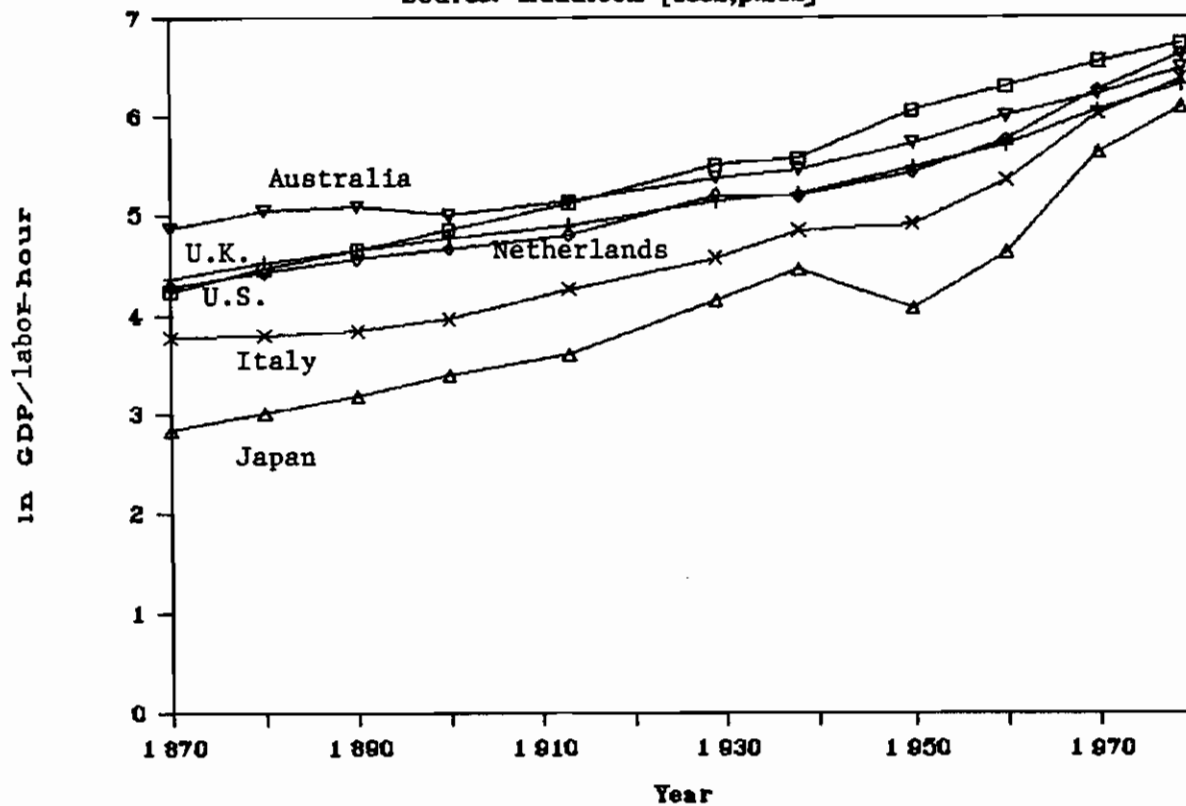


FIGURE 2

GDP/ LABOR -hour 1870-1979*

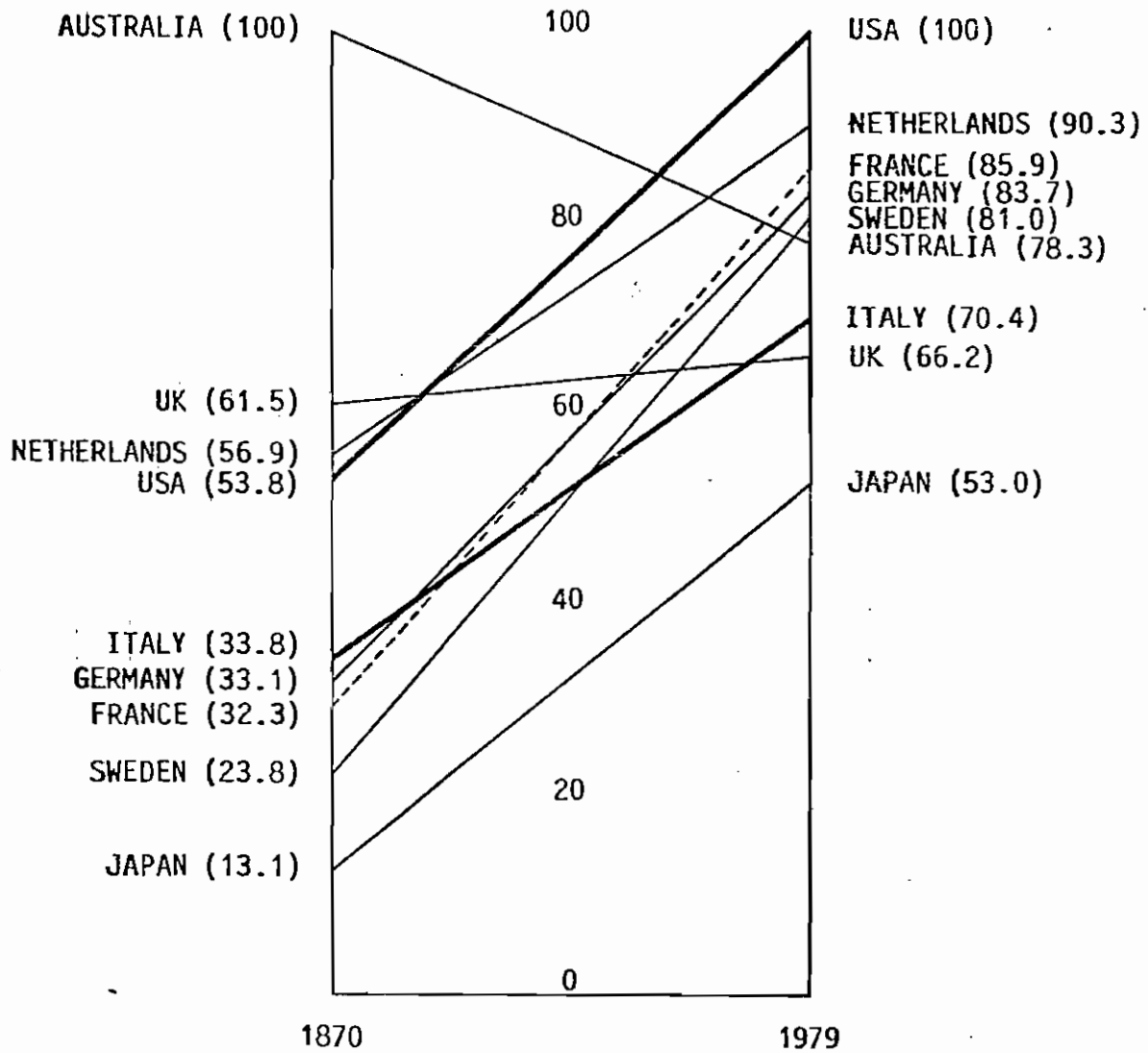
Source: Maddison [1982,p.212]



*Two early data points for Japan and one for the Netherlands are interpolated.

FIGURE 3

GDP/LABOR HOUR AS PERCENT OF WORLD LEADER; 1870, 1979

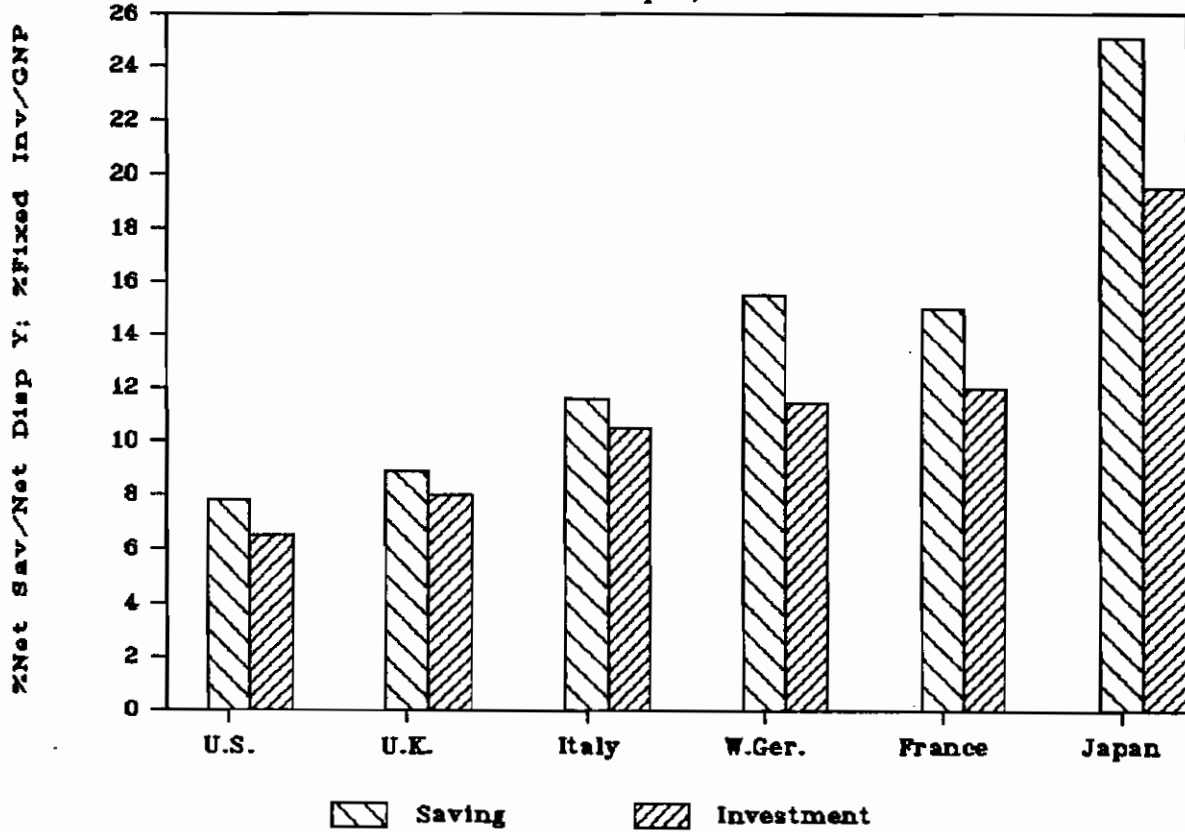


SOURCE: MADDISON, TABLE C10

FIGURE 4

Saving and Investment, 1970-80

%Net Sav/Net Disp Y; %Fixed Inv/GNP



Sources: Economic Report of the President, p. 82.

Saving: Blades and Sturm, p. 6.

FIGURE 5

Capital Stock, Semilog Indices: 1870-1979

1870=100; Source: Maddison, Appendix D

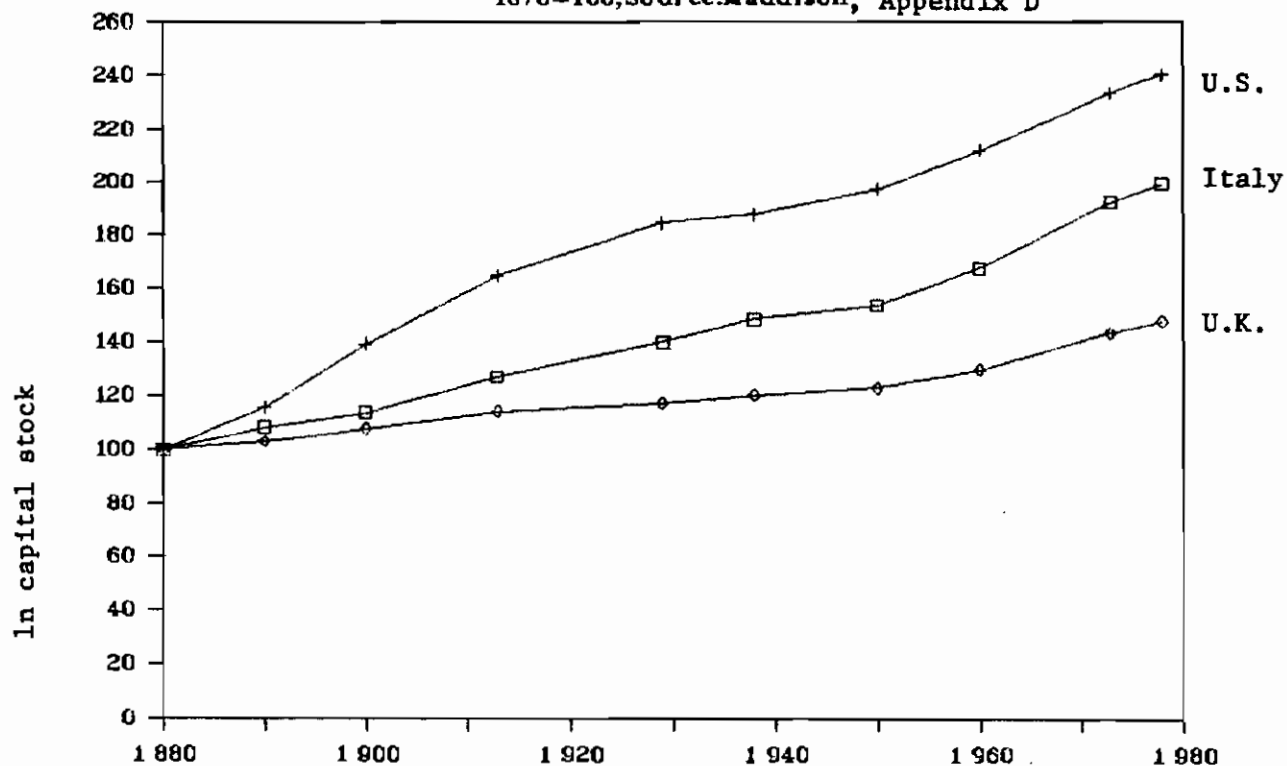


FIGURE 6

Ratio, Volume of Exports 1979/1870

Source: Maddison pages 248--253

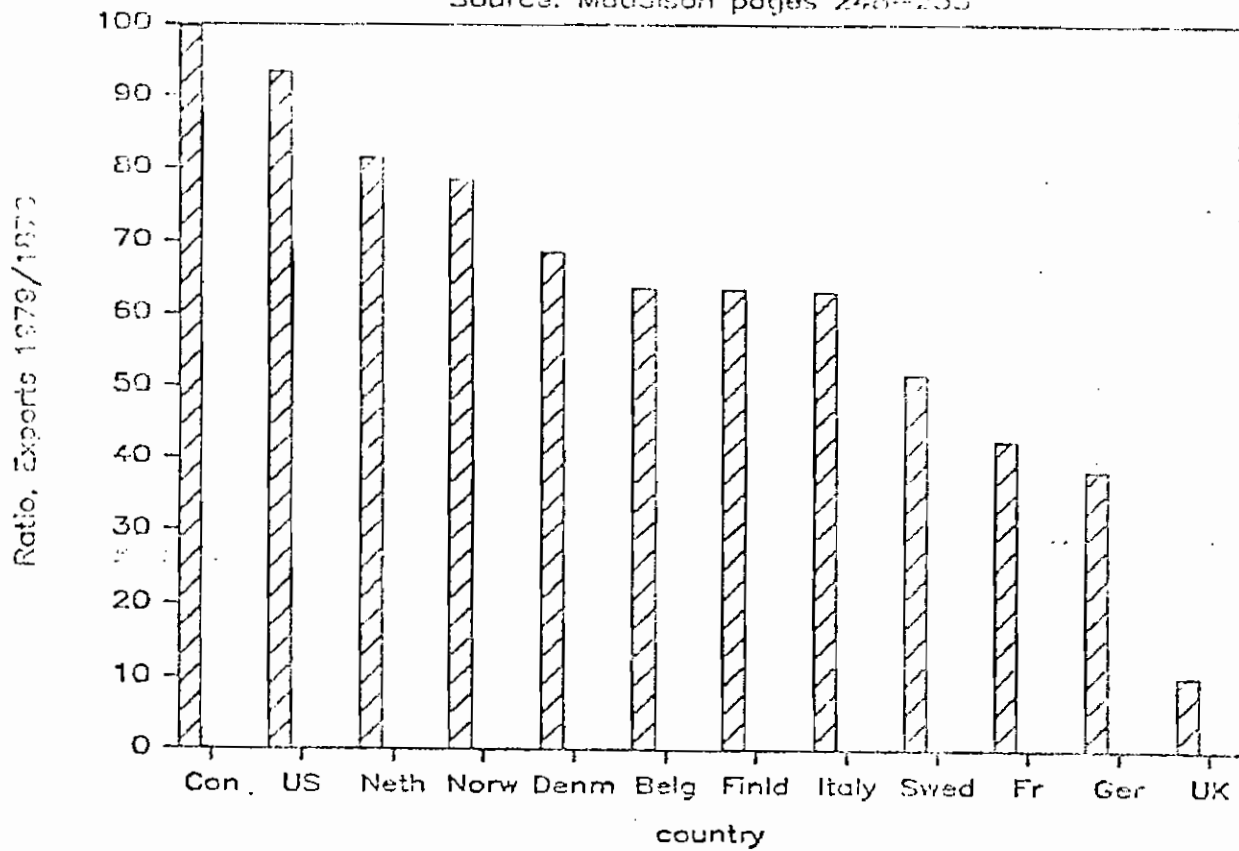


FIGURE 7

Exports, Semilog Scale, Indices: 1870-1979

1870=100; Source: Maddison Table F3

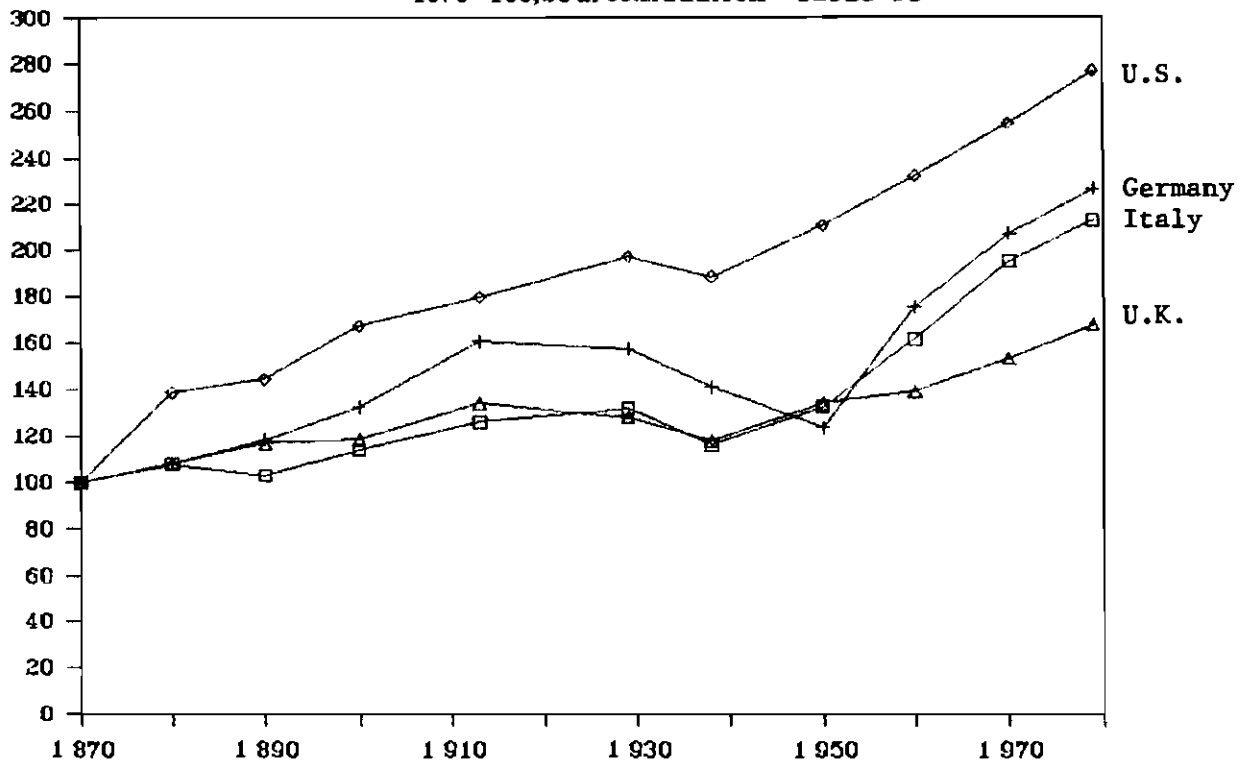


FIGURE 8

Share of World Manufacturing Exports

1881-1973 Source: MFO p.435.

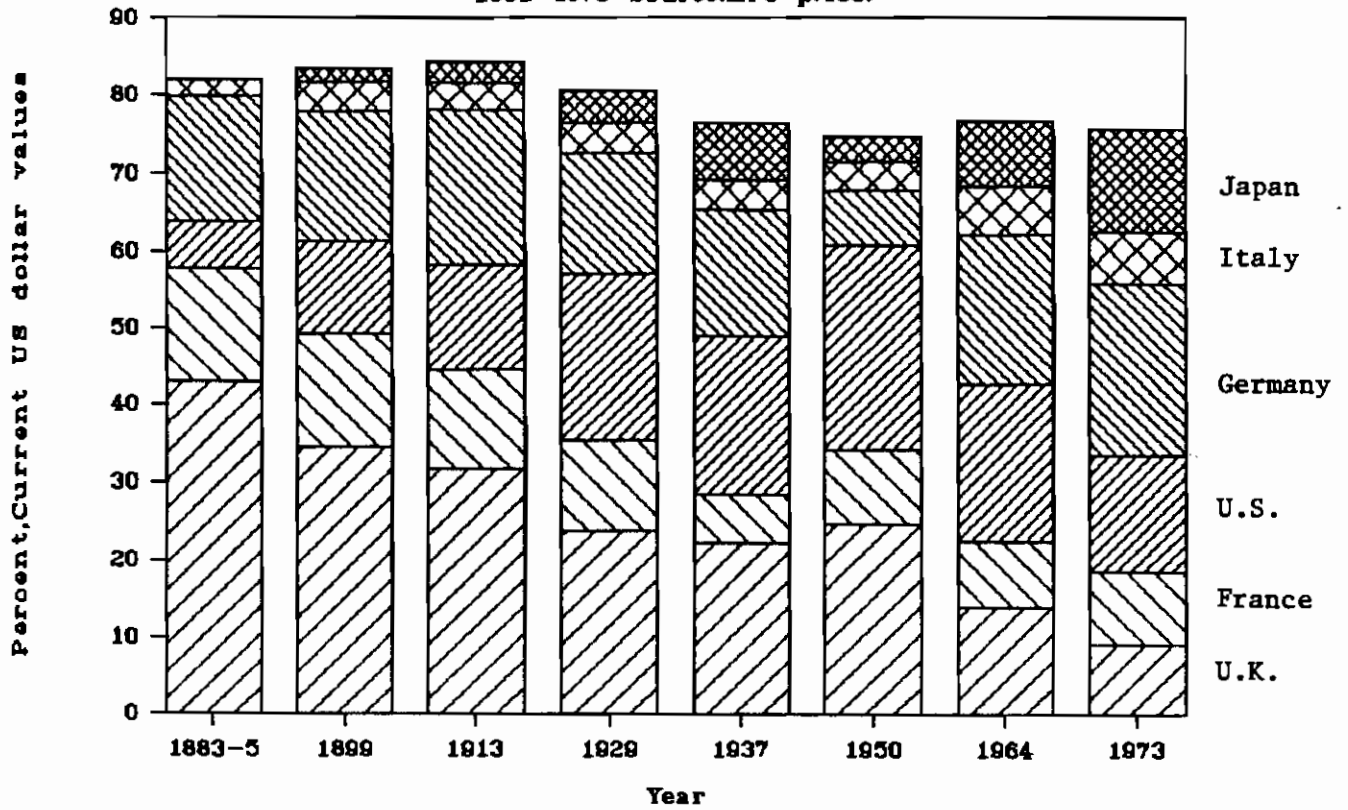
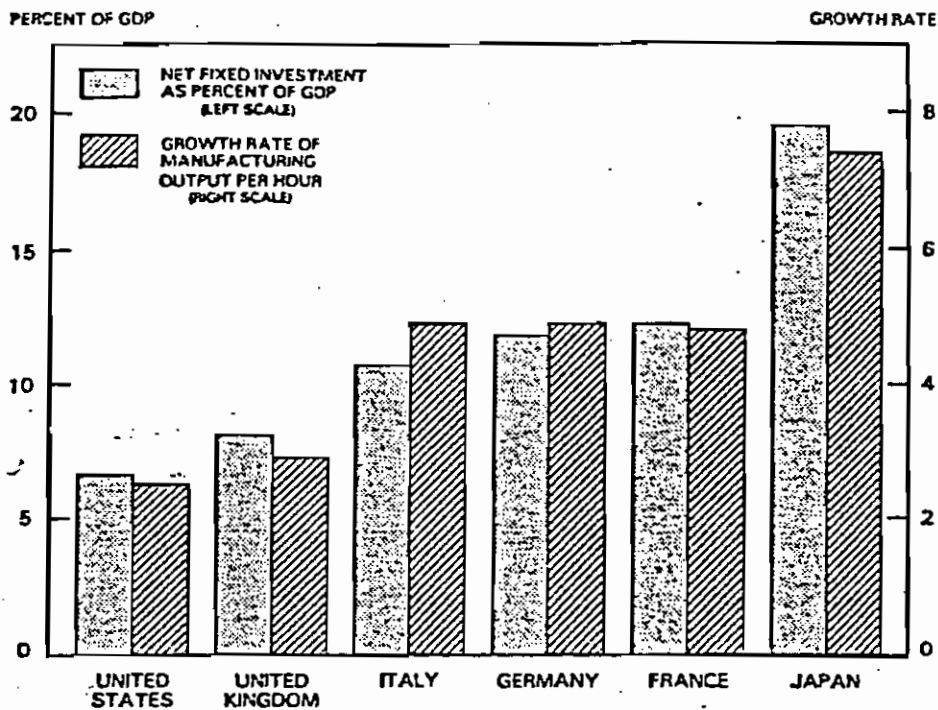


FIGURE 9



SOURCE: ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, Economic Report of the President, 1983, p. 82.

Figure 10

International Comparison of Investment and Productivity Growth, 1971-80