HS–8: The World Economy, 1–2001 AD

Tables HS–8 show levels of population, GDP and per capita GDP in 20 countries, 7 regions and the world for eight benchmark years in the past two millennia. There are also 5 analytical tables showing rates of growth and shares of world population and GDP. HS–7 explained the derivation of estimates for 1950–2001. Earlier than this, it is useful to distinguish between estimates for 1820–1950 and those for the centuries before 1820 where the documentation is weaker and the element of conjecture bigger.

Population Movement 1820–1950

For West European countries and Western Offshoots, population estimates for this period are based mainly on censuses dating back to the eighteenth century for Scandinavia and Spain and the early nineteenth for most other countries. The sources are described in HS–1 and HS–2. For Western Europe, annual estimates, adjusted to a midyear basis are shown for all countries back to 1820. For Western Offshoots, they are shown separately for the indigenous population and those of European/African origin at decade intervals for 1820–1870, with annual estimates for the total population thereafter.

For Eastern Europe, annual estimates are shown from 1920. Before the first world–war, these countries were divided between the Austro–Hungarian, Ottoman, Russian and German Empires. Derivation of estimates in the territory corresponding to present boundaries is possible, but they are too rough to warrant presentation on an annual basis. Estimates for the territory of the former USSR are also too rough to warrant annual presentation before 1920. Population sources are described in HS–3.

For Latin America annual estimates are shown back to 1900 for 23 countries. The 1820 and 1870 estimates in Maddison (2001) for the smaller countries are revised and augmented from the *Cambridge History of Latin America*, Engerman and Higman (1997) and other sources cited in HS–4.

For Asia annual estimates are shown from 1913 for the 16 core countries, and for benchmark years 1820, 1850 1870 1890 and 1900. For China, India, Indonesia and Japan annual estimates are shown back to 1870. For other countries there are estimates for benchmark years 1820, 1870, 1900 and 1913. In most cases the sources in HS–5 are the same as in Maddison (2001).

For Africa, the statistical basis is weaker than elsewhere. I show no annual estimates before 1950, but give detail for the sample countries for 1820, 1870 and 1913 in Table 6–10 of HS–6.

Population Change 1–1820 AD

For the centuries before 1820 the most comprehensive evidence is for population and it is of greater proportionate importance for analysis as per capita income growth was much slower then and economic growth was largely extensive.

Demographic changes, e.g. increases in life expectancy, changes in average age which affect labour force participation, changes in the structure of the labour force, are important in providing clues to per capita income development. A striking example is the urbanisation ratio. Thanks to the work of de Vries for Europe and of Rozman for Asia, one can, for some countries, measure the proportion of population living in towns with more than 10 000 inhabitants. In the year 1000, this ratio was virtually zero in Europe (there were only 4 towns with more than 10 000 inhabitants) and in China it was 3 per cent. By 1800 the West European urban ratio was 10.6 per cent, the Chinese 3.8 per cent. When countries are able to expand their urban ratios, it indicates a growing surplus beyond subsistence in agriculture, and suggests that the non–agricultural component of economic activity is increasing. These changing differentials in urban ratios were used to buttress other evidence on per capita progress in China and Europe in Maddison (1998). The Chinese bureaucracy kept population registers which go back more than 2 000 years. These records were designed to assess taxable capacity, and include information on cultivated area and crop production, which was used by Perkins (1969) to assess long run movements in Chinese output per capita. Bagnall and Frier (1994) made brilliant use of fragments of ancient censuses to estimate occupational structure, household size, marriage patterns, fertility and life expectation in Roman Egypt of the third century.

Serious work on historical demography started in the seventeenth century with John Graunt (see Prologue). Modernised techniques and similar types of evidence have been used to make retrospective estimates of population for other European countries for periods before census material was available. Investigations of this character have been carried out by *a)* the Office of Population Research in Princeton University (established in 1936); *b)* INED (Institut National des Études Démographiques) founded in the 1950s to exploit family reconstitution techniques developed by Louis Henry; *c)* the Cambridge Group for the History of Population and Family Structure (established in the 1970s) has carried out a massive research project to reconstitute English population size and structure on an annual basis back to 1541 (Wrigley *et al.*, 1997). This kind of analysis has been sharpened by the application of massive computing power.

Research on Japanese population history has blossomed under the leadership of Akira Hayami and Osamu Saito. Ester Boserup's (1965) analysis of the interaction between demographic pressure, agricultural technology and intensity of labour input in Asia has helped discredit simplistic Malthusian interpretations. There has been a flood of publications on Latin American demography and the shipment of slaves from Africa. As a result of these efforts we are better placed to measure long term changes in world population. The most detailed and best documented are those in McEvedy and Jones (1978). This was the source of my estimates for Africa (see also the masterly analysis of African development in McEvedy, 1995).

Appendix B of Maddison 2001 provided source notes and estimates for 20 countries and 7 regions for benchmark years between the first century and 1700. In this study more country detail is shown for Western Europe, Western Offshoots, Latin America back to 1500 and for Africa back to the first century. There are some changes in the regional totals for Africa (see Table 6–1), but none for other regions.

GDP Growth 1820–1950

Before the second worldwar, only 10 countries had official estimates of national income, assembled without international guidelines to provide comparability. None of these are suitable for our purpose, but there are retrospective official estimates of fairly recent vintage which I used for Austria from 1830, Norway from 1865, Netherlands from 1913, Canada from 1926 and the United States from 1929.

There were non–official estimates in pre–war years. Colin Clark (1940) made a comprehensive survey, but all those he cited have now been superseded. In the past 60 years, work on retrospective national accounts has been undertaken by a large number of scholars who have generally linked their

series to official post–war estimates. The initial thrust for these exercises in quantitative economic history was given by Simon Kuznets. His very long career included creation of official US accounts in 1934 and 5 monographs of historical accounts for the United States in 1941–61. These set high standards of scholarship with meticulous and transparent description of sources and methods. These characteristics have permitted succeeding generations of scholars to stand on his shoulders. His persuasive power and influence stemmed from professional integrity and depth of scholarship. He was free from partisanship, open to new ideas and willing to comment sympathetically in detail on the work of others. His influence was reinforced by his style of analysis–use of ideas that could be clearly expressed in literary form, and implemented with relatively simple statistical techniques. He encouraged a band of scholars all over the world to consider that such an enterprise was feasible, exciting, important and rewarding. He encouraged comparable studies for Australia, China, France, Germany, Italy, Japan, Sweden and the United Kingdom. To facilitate this research he helped found the International Association for Income and Wealth in 1947, persuaded the US Social Science Research Council to finance comparative research in other countries, and played a major role in the creation of the Yale Growth Center, which produced basic growth studies for Argentina, Egypt, Korea, Sri Lanka, Taiwan, and the USSR. Between 1953 and 1989 he published 8 volumes containing 70 analytical essays comparing the results which emerged from these quantitative studies and assessing their significance for the study of "modern economic growth". The temporal horizon of this new generation of Kuznetsian scholarship was concentrated on developments since the mid–nineteenth century.

Several university centres are now active in this field, sponsoring their own research and strengthening international networks by holding workshops. Kazushi Ohkawa organised a 14–volume study (1966–1988) of Japanese growth at Hitotsubashi University. The University now has an ambitious comparative project on the quantitative economic history of China, Indonesia, Korea, Taiwan and Vietnam. In the Netherlands, the University of Groningen has been active in this field since 1982. Its Growth and Development Centre has played a major role in international studies of productivity levels and in developing an international database on economic growth. It has published research studies on GDP growth in Brazil, Germany, Indonesia, Japan, Korea, Mexico, the Netherlands, Taiwan, Thailand, and a six–country comparison for Latin America. It maintained close links with Jan Luiten van Zanden's team working on Dutch growth in the University of Utrecht and with the University of Leuven's research on long–run growth in Belgium. It is also linked with the COPPAA group (Comparisons of Output, Productivity and Purchasing Power in Asia and Australia), based in Brisbane, which has carried out a number of studies of comparative performance of economies in the Asia–Pacific region, and was associated with the research of Maddison (1998) on China and Sivasubramonian (2000) on India. Scandinavia has a long history in this field. There have been five rounds of research in Sweden since 1937, and Olle Krantz has made annual estimates of GDP growth since 1800. Riitta Hjerppe supervised a 13 volume study for Finland which was completed in 1989. Svend Aage Hansen produced the second major study of Danish growth in 1974, with annual GDP estimates back to 1818. There is now a Nordic Group, which is revising the Scandinavian historical accounts to enhance their comparability. The International Association for Research in Income and Wealth (IARIW) has held conferences and workshops on measurement of comparative GDP growth and levels of performance, problems of methodology and definition since 1949, and has published its quarterly *Review of Income and Wealth* since 1968. Its membership has always included official statisticians, established scholars working on historical accounts, and younger researchers serving their apprenticeship in this field and has played a major role in developing a standardised approach and extending the range of countries for which studies are available. The European Historical Economics Society (EHES) has also been active in promoting research on quantitative economic history since 1997 when it created the *European Review of Economic History*.

The vitality of recent research activity is clear from Table 8–1 which shows amendments to my estimates since publication of Maddison (2001). The proxy estimates I use for Bulgaria, Poland, Romania and Yugoslavia for 1870 to the 1920s were derived from David Good and Tongshu Ma (1999). Their approach is a variant of that developed originally by Wilfred Beckerman (1966) as a shortcut cross–section technique to measure comparative income levels. Nick Crafts (1983) was the first to use it for diachronic analysis (see Maddison, 1990).

Table 8-1. **Amendments to GDP Estimates in Maddison (2001) for 1820-1950**

Western Europe	*Western Offshoots*	*Eastern Europe and former USSR*	*Latin America*	*Asia*	*Africa*
		Amendments and New Estimates			
France 1820-70	Australia 1820-70, and 1911-38	Hungary 1870-1900	Cuba 1929-50	Jordan 1820-1950	Algeria 1880–1950
Netherlands 1820-1913			Jamaica 1820-1950	Malaysia 1911-50	Egypt 1886-1950
Portugal 1851-1910			Uruguay 1870-1913	Palestine 1820-1950	Ghana 1891-1950
Spain 1850-1950				Philippines 1902-50	Tunisia 1910-50
Switzerland 1851-1913				Sri Lanka 1820-1950	
				South Korea 1913-50	
				Syria 1820-1950	
				Turkey 1820-1950	
				Vietnam 1820-1950	
		Amended and New Proxy Estimates			
Greece 1820-1913	New Zealand 1870-1913	Albania 1870-1950	Caribbean 1820-1950	Arabia 1820-1950	Algeria 1820-80
Switzerland 1820-51, and 1914-24		Bulgaria 1870-1924		Iran 1820-1950	Egypt 1820-86
		Poland 1870-1929		Iraq 1820-1950	Ghana 1820-91
		Romania 1870-1926		Lebanon 1820-1950	Morocco 1820-1920
		Yugoslavia 1870-1912		North Korea 1820-1950	Tunisia 1820-1910
					South Africa 1820-1912

GDP Growth before 1820

Western Europe: Per capita GDP growth rates prior to 1820 in Maddison (2001) are unchanged for Germany, Greece, the Netherlands, Portugal, Spain, Sweden and 13 small territories, but *levels* for 1500–1700 for these countries are affected by the amendments for 1820. In the case of France, the 1700–1820 growth rate is unchanged, but for the second half of the seventeenth century I assume stagnant per capita income because of hunger crises and the depressing influence of more or less continuous warfare, as noted by Boisguilbert and Vauban.

Western Offshoots: There are changes in the "multicultural" per capita GDP estimates 1700–1820 for Australia, Canada and New Zealand, as specified in detail in Tables 2–1 and 2–5; estimates for earlier centuries are unchanged.

Eastern Europe: Per capita GDP growth rates prior to 1820 are unchanged (0.1 percent a year), but the level for 1500–1700 is higher due to use of the Good–Ma proxies for the nineteenth century. There was no significant change for Russia.

Latin America: More detailed scrutiny of the evidence for the Caribbean sugar colonies led to upward revision of their per capita GDP and population levels in 1700–1820. See Table 4–1 for a more detailed sub–regional specification for 1500–1820 than in Maddison (2001).

Asia: GDP estimates for China, India, Indonesia and Japan in Maddison (2001) are unchanged, but I was able to make a more detailed scrutiny for West Asia thanks to recent work by Sevket Pamuk (see Tables 5–6 and 5–8). This raised the 1820 per capita GDP level for this group and its rate of growth 1700–1820. However the level estimates for 1700 and earlier are unchanged.

Africa: I have made more detailed sub–regional conjectures of long–run per capita GDP movement than in Maddison (2001), and presented a detailed analysis of the forces affecting the contours of demographic development. See source note HS–6, and Tables 6–1 and 6–2.

Crosschecking Measures of Comparative Levels of Performance before 1950

In this study, the bulk of the evidence consists of measures of inter–temporal change in GDP volume in individual countries, moving backwards from 2001. These are merged with measures of comparative GDP levels in the reference year 1990 at 1990 prices. The derivation of the inter–spatial estimates is explained in the source notes to HS–7 and in Table 7–2. A more comprehensive survey of the array of level estimates available for years between 1970 and 1990 can be found in Maddison (1995) pp. 162–179. This indicates the range of variance between the results of the successive ICP and PWT rounds and compares the attributes of alternative aggregation procedures (Paasche, Laspeyres, Fisher, EKS and Geary–Khamis). Heston and Summers (1993) compare the GDP growth rates implicit in ICP cross–section estimates of the relative standing of countries at different points of time with direct measures of inter–temporal GDP growth. They do not suggest that deviations between implicit and direct measures cast serious doubt on the latter. But such deviations are obviously a useful crosscheck.

I am satisfied that the 1990 benchmark estimates I used are the best presently available, with the possible exception of those for Eastern Europe and Africa, where the results of the OECD (2002) and PWT 6.1 exercises were too recent to be fully digested here (see Table 6–11). My 1990 benchmark can be subjected to comprehensive review when the World Bank's ICP exercise for 2004 becomes available.

However, updates of the 1990 benchmarks are less important than crosschecks on their validity as measures of relative performance in the distant past. It is clear that patterns of expenditure have changed radically over the long–term (as illustrated by the comparison of British expenditure patterns in 1688 and 1996 in Table 1), and there have also been big changes in relative prices and output structure. Some of these changes may have had a similar impact across countries, but this certainly needs to be investigated.

The most promising crosschecks on my estimates of relative standing in the past have come from binary comparisons of countries which have a significant weight in the world total. Some of these I have done myself, and there are several others which confirm my findings, e. g. those of Broadberry, Toda and van Zanden cited below.

It would also be useful to have ICOP or ICP type multilateral cross–section studies for different points of time in the past. It would not be possible replicate the detail or systemic rigour of modern ICP exercises (prices for more than 2000 items for 200 categories of expenditure), but real wage analysts have accumulated quite a lot of material on price structures which could be mobilised for this purpose. It would be useful and probably feasible to construct such a measure e. g. for 1900 or 1870, using reduced information, on the same lines as PWT estimates for countries where there has been no ICP exercise.

In the absence of such measures, Leandro Prados has made proxy estimates of PPPs and per capita income relatives for benchmark years since 1820, using econometrics, but no information on relative price structures. The results are too shaky to be a serious challenge to my estimates of relative levels in 1820 (see Table 8–2).

There are some authors (Paul Bairoch, Susan Hanley and Kenneth Pomeranz) whose judgement of the relative standing of major Asian countries and Western Europe is very different from mine. I give my reasons for disagreeing with them below.

Finally, I would like to comment on the real wage literature, some of which contradicts my view of West European development over the past few centuries.

a) Confirmatory Crosschecks

i) Stephen Broadberry (1997*a*): provides the most important of the binary cross–checks because he scrutinises the relative standing of the two successive lead counties (the United Kingdom and the United States) for benchmark years between 1870 and 1990. He found US productivity in manufacturing ahead of the United Kingdom by the middle of the 19th century, whereas I found that US productivity leadership at the aggregate level (GDP per man hour) began several decades later. At first sight these judgements seemed incompatible. As a test, Broadberry (1997*a*) made an ICOP type analysis of performance in 9 sectors and aggregate GDP in the two countries for 1870–1990 using 1937 value added weights. His results were compatible with my aggregate comparison with 1990 expenditure weights.

Broadberry, 1997*b,* compared UK and German performance for the same period with 1935 weights. He arrived at a similar confirmatory result, reconciling my estimate of the relative standing of the two countries in terms of aggregate GDP using 1990 expenditure weights, with his aggregate of value added by sector, using 1935 weights.

ii) Yasushi Toda (1990): presented a binary comparison of Japanese and Russian urban consumption levels in 1913 and Japan/USSR in 1975–6. He had a matched sample of 46 items at Japanese and Russian prices for 1913, and 110 items for 1975–6. He found the Japanese real per capita consumption level below that in Russia in 1913 and significantly higher in 1975–6. He had no explicit measure of growth, but the implicit differential in growth rates was very similar to what I found for per capita GDP for this period.

iii) Jan Luiten van Zanden (2003) expressed his concern that distortions may arise in using 1990 benchmarks back to 1820 because of changes in relative price structures. As a test, he compared Dutch growth to his new estimates of Javanese GDP growth for 1815–1880 and made PPP adjustments to compare *levels* of per capita income in the 1820s. He concludes that "in the 1820s per capita GDP in Java was about one third of Dutch per capita GDP" and that my estimates of relative levels of the two economies in 1820 are "by and large correct". He also makes comparative estimates of real wages, food consumption patterns, life expectation, and comparative physical stature of Dutch and Indonesians. These "direct indicators" show a narrower gap. He suggests that the relationship between real wages and average per capita GDP is highly variable and dependent on many factors such as the length of the working year, distribution of income, relative prices etc.

b) Conflicting Interpretations

i) Leandro Prados (2000) offers proxy estimates of per capita GDP levels relative to the United States for 17 benchmark years between 1820 and 1990. For 1880 he shows estimates for 23 countries but the coverage drops to 6 countries in 1820. He restricts the coverage to OECD countries, Argentina and Russia. He makes no use of inter-temporal measures of change in real GDP to estimate past levels of performance, nor does he measure price structures. Instead he backcasts an econometric relationship between purchasing power parity converters and exchange rates which prevailed in 1950-90.

He has 89 ICP or OEEC direct measures of this relationship to support the 155 estimates he shows for 7 reference years from 1950 to 1990 (see his tables 3 and 9). The gaps are filled by a structural equation, which attributes spreads between PPPs and exchange rates to four variables: *a)* openness of the economies as measured by the ratio of foreign trade (exports and imports) to GDP; *b)* the ratio of net

capital inflows to GDP: *c)* the size of the country in terms of its surface area and population; and *d)* a periphery dummy (in cases where per capita income is less than half of the average level). His cross–section relatives are derived from estimates of these four items for the years he covers, and knowledge of the exchange rates prevailing in those years. With this information he infers the Paasche PPP for a given year in the past for each of the countries. He applies these PPPs to convert estimates of nominal GDP in each country from national currencies into US dollars of the year in question. For years before 1950, he has no ICP or PWT (reduced-information) measures of PPPs. He assumes that the PPP/exchange rate relationships for 1950-1990 are a good guide to the situation in 1820-1938.

He provides two pages of source notes, but shows only his results and none of the basic material on PPPs, his four variables and estimates of nominal GDP. Estimates of variables a and b are likely to be pretty shaky for the early years, and nominal estimates of GDP are often not available. This is the case for his benchmark country, the United States where he derived a nominal value by reflating the real GDP estimates for 1820–1860 with a cost of living and a wholesale price index.

Table 8–2 shows the Prados results for the 6 countries where his estimates go back to 1820. It compares his per capita relatives and mine for 1900 and 1820. It shows my estimates in 1990 international dollars, and his implicit absolute levels, derived by multiplying his relatives by my estimate for the United States. In the bottom panel I compare my estimates of per capita growth with his implicit growth rates. There are very big differences between his relatives and mine for 1820, smaller but appreciable differences for 1900. My growth rates for per capita GDP 1820–1900 are very different from his implicit rates. His growth rate for Australia is much slower than mine, but he shows much faster growth for the four European countries, with France and Denmark growing faster than the United States.

Table 8–2. **Comparison of Maddison Per Capita GDP Levels and Prados' Proxies, 1820–1900**

	Maddison per capita GDP in 1990 int. $	*Maddison per capita GDP % of US*	*Prados per capita GDP % of US*	*Implicit Prados per capita GDP in 1990 int. $*	*Maddison nominal per capita GDP % of US*	*Prados nominal per capita GDP % of US*
			1820			
Australia	518	41.2	102.2	1 285	n.a.	136.1
United States	1 257	100.0	100.0	1 257	n.a.	100.0
United Kingdom	1 706	135.7	96.5	1 213	n.a.	122.8
Netherlands	1 838	146.2	80.0	1 006	n.a.	95.9
France	1 135	90.3	71.3	896	n.a.	69.0
Denmark	1 274	101.4	51.3	645	n.a.	54.8
			1900			
Australia	4 013	98.1	97.6	3 993	104.5	99.3
United States	4 091	100.0	100.0	4 091	100.0	100.0
United Kingdom	4 492	109.8	91.7	3 751	91.9	92.3
Netherlands	3 424	83.7	71.5	2 925	45.6	50.2
France	2 876	70.3	76.8	3 142	52.6	66.6
Denmark	3 017	73.7	66.8	2 733	56.0	59.4
			1820–1900 annual average compound growth rate			
Australia	2.59			1.43		
United States	1.49			1.49		
United Kingdom	1.22			1.42		
Netherlands	0.78			1.34		
France	1.17			1.58		
Denmark	1.08			1.82		

Source: Maddison estimates from basic tables, column 5 from Maddison (1991c). Columns 3 and 6 from Prados (2000), Table 9. Col. 4 derived by multiplying my estimate for the United States by Prados' relatives in column 3. The United States is his benchmark country but he does not show his estimate in absolute terms. He shows estimates labelled "Maddison Revised", but I could not see from the description how he derived these and must therefore register a disclaimer. For Australia 1820, he refers to the white population, whereas my estimate includes aborigines (see HS–2 for white population).

ii) Paul Bairoch (1930-1999) was a very prolific quantitative historian, who published many comparative studies of GNP levels, urbanisation and labour force participation. A good deal of his analysis concentrated on the forces making for divergence in the growth of advanced capitalist countries and the third world. He argued (see Bairoch, 1967) that the third world was impoverished by the development process and policies of the rich countries. In Bairoch**,** 1981, pp 8, 12, 14, he showed the "third world" with a slightly higher average per capita GNP than the "developed countries" in 1750, and slightly lower in 1800. He showed China at more or less the same level as Western Europe in 1800, and Latin America ahead of North America. Bairoch's source notes were frequently cryptic and often cited "personal estimates" he did not publish. They were most exiguous for Asia or Latin America and his results for these continents must therefore be taken with a pinch of salt. The most detailed documentation of his estimates can be found in "Europe's Gross National Product: 1800-1975", *Journal of European Economic History*, Fall 1976. I commented on the quality of these estimates in Maddison (1990), p. 104.

Bairoch's last major work, (*Victoires et Déboires,* Gallimard, Paris, 1997, 3 vols., 2 788 pages) is a massive, comprehensive and fascinating survey of world economic history from 1492 to 1995. It is much less quantitative than most of his other work. He has a very small table P.4 on p. 111 of volume 1 comparing the aggregate per capita GNP performance of the "developed countries" (Europe, Western Offshoots and Japan) and the "third world" (Africa, Asia and Latin America) for 6 benchmark years between 1750 and 1995. As in his earlier work, the third world is credited with a higher level than the developed group in 1750, with minimal progress until after 1950, but he shows no country detail for the third world. Table XII.2 in volume 2, pp. 252–3, presents estimates for each of his 24 "developed countries" for 7 benchmark years from 1800 to 1913. The estimates for Europe are similar to those he presented in 1976 and are in 1960 dollars derived mainly from the OEEC (1958) study of purchasing power, augmented by the proxy PPPs in Beckerman (1966).

To me the most surprising and interesting part of his 1997 study is his discussion of the relative performance and interaction of the European and Asian economies between 1500 and 1800 (pp. 527–645). He suggests that Asia was probably somewhat more advanced than Europe around 1500 and that by the eighteenth century this advantage had disappeared. The Muslim advantage over Europe in the Abbasid caliphate peaked in the 10th century; Chinese superiority had been greatest in the 12th century; the peak for Moghul India was in the 16th century, and that of the Ottoman Empire around 1600. Stagnation or decline followed thereafter, whereas Europe made substantial progress from 1500 to 1800 (see pp. 642–5). This analysis is difficult to reconcile with his earlier position, or the estimates in Table P.4, but it is much nearer to my view of the relative performance of these two parts of the world economy between 1500 and 1800.

iii) Susan Hanley is a demographer and social historian who has concentrated mainly on the economic history of Tokugawa Japan. She is a member of the revisionist school which found evidence to warrant a much more positive view of economic performance from 1600 to the 1860s than that of an earlier generation of scholars. However, she is an unconstrained admirer of Japan, and greatly exaggerates its level of performance in the 1860s. In Hanley (1997) she asserted that "Japanese physical well–being in the 1860s was at least as high as in nineteenth century England". Her evidence for England is pretty flimsy. She admits that Japanese ate virtually no meat, but alleges that this was also the case in mid–nineteenth century England. She alleges that English working class diets in the mid–nineteenth century consisted largely of "bread and margarine" (i.e. at a time before margarine was invented). In fact, we can see from Table 1 (in the Prologue) that already in 1695 only 20 per cent of English food and drink expenditure consisted of bread or things made of meal or flour, and 35 per cent consisted of meat, fish, and dairy products.

In assessing the relative position of two countries at a given point in the past, it is always useful to consider their growth trajectories since that point. The historical accounts of both Japan and the United Kingdom are of high quality. Our basic tables show that per capita income has risen 28–fold in Japan since 1870. In Britain it rose 6–fold. If Hanley's judgement on nineteenth century levels were correct, Japan would now have a gigantic lead over the United Kingdom. In fact the two countries had a similar level of per capita GDP in 2001.

Table 8–3. **The China/West European Dichotomy, 1–2001 AD**

	China	*West Europe*
	Population (million)	
1	59.6	24.7
1000	59.0	25.4
1300	100.0	58.4
1400	72.0	41.5
1500	103.0	57.3
1820	381.0	133.0
1913	437.1	261.0
1950	546.8	304.9
2001	1 275.4	392.1
	Per Capita GDP (1990 int. $)	
1	450	450
1000	450	400
1300	600	593
1400	600	676
1500	600	771
1820	600	1 204
1913	552	3 458
1950	439	4 579
2001	3 583	19 256
	GDP (billion 1990 int $)	
1	26.8	11.1
1000	26.6	10.2
1300	60.0	34.6
1400	43.2	28.1
1500	61.8	44.2
1820	228.6	160.1
1913	241.3	902.3
1950	239.9	1 396.2
2001	4 569.8	7 550.3

Source: HS–1, HS–5, and HS–8 basic tables, Maddison (1998 and 2001).

iv) Kenneth Pomeranz (2000) presents a fascinating comparative picture of Chinese economic performance in the eighteenth and early nineteenth centuries. The comparison is mainly with Western Europe. There are many penetrating insights into the differences between these two areas. His main argument is that both were subject to Malthusian/ecological constraints, that Chinese performance was in many respects better than that of Europe before 1800. He suggests that Western Europe was "a non–too–unusual economy; it became a fortunate freak only when unexpected and significant discontinuities in the late eighteenth and especially nineteenth centuries enabled it to break through the fundamental constraints of energy and resource availability that had previously limited *everyone's* horizons". Pomeranz relies mainly on illustrative evidence and partial indicators of performance to back his judgement. There are only four tables with no attempt at macro–quantification (except for his comparison of life expectancy). He does not provide a chronological profile of development in Europe or China before and beyond his point of comparison. He has one passing reference to Needham, and little discussion of the forces affecting the divergent development of technology in China and Europe. His conclusions are very different from mine. In Maddison (1998) I concluded that Western Europe drew level with China in the fourteenth century and that its average per capita level was twice the Chinese in 1820 (see Table 8–3).

I find Pomeranz's judgements unconvincing. In 1800, the degree of urbanisation was three times higher in Western Europe than in China, the proportion of the population employed in agriculture was a good deal smaller, though the European diet included a much higher proportion of meat and dairy products. Chinese life expectation was two–thirds of that in Western Europe. Pomeranz stresses Western Europe's benefits from international trade, which augmented its supply of food and raw materials from the "ghost acreage" of distant lands. He treats this benefit as if it were a windfall gain. In fact, China turned its back on international trade in the middle of the fifteenth century, and the Ching dynasty forbade settlement on its own ghost acres in Manchuria.

The Pomeranz position is stated with four degrees of nuance. On p. 49 he says "it seems likely that average incomes in Japan, China and parts of southeast Asia were comparable to (or higher than) those in western Europe even in the late eighteenth century." Elsewhere his position is more cautious, and he claims Asian superiority was characteristic only for "core regions". Thus on p. 17, he says "core regions in China and Japan circa 1750 seem to resemble the most advanced parts of western Europe". For China, his core region is the lower Yangtse (which had about 18 per cent of China's population). Here he is on firmer ground, but I think he still exaggerates Chinese performance. Research on Chinese economic history has increased substantially in quantity and quantity in the past two decades. Li (1998) has shown significant advances in productivity and income in the lower Yangtse area during the Ching dynasty. Ma (2003) shows its per capita land tax revenue was about 145 per cent of that for China as a whole in 1753. My estimate of Chinese and West European income levels in 1750 can be derived by interpolating between the estimates for 1700 and 1820 in Table 8c. If Ma's fiscal estimate is taken as a proxy for lower Yangtse per capita income around 1750, it would have been about 870 dollars compared to 1 080 for western Europe as a whole and more than 1 400 for the United Kingdom.

On p. 44, Pomeranz states that "Europeans were not ahead in overall productivity in 1750". This proposition I find completely implausible, because Chinese multi–cropping of rice, intensive water management and rural industry demanded much higher labour inputs, (particularly in the lower Yangtse region) than was the case in Europe. Ester Boserup has stressed increased labour intensity as the Chinese response to land shortage. Pomeranz's obsession with Malthusian constraints leads him to neglect this Chinese–European differential in labour inputs.

Pomeranz, p. 37 suggests that Chinese longevity was "quite comparable" to European. He cites an estimate of Chinese life expectancy of 32 years at age 1 for both sexes combined in Manchuria in 1792–1867 (from Lee and Campbell, 1997). He compares this with the Wrigley and Schofield (1981) estimate of English life expectancy at birth of 37 years for 1600–1749. Following a critique by Razzell, he suggests that Wrigley and Schofield got it wrong and that their figure should be reduced to "somewhere between 31.6 and 34.0", i.e. an average of 32.8. If this were a legitimate correction, it would mean that longevity in England and China were indeed "quite comparable". However, their estimate for England should be adjusted upwards, not downwards. Life expectation at age 1 in eighteenth century England was about 7 years higher than at birth, because 17 per cent of infants died before their first birthday (I am grateful to Jim Oeppen for this information). The Cambridge group rebutted Razzell's critique in their 1997 study (Wrigley, Davies, Oeppen, and Schofield). In Maddison (2001) I compared life expectation in different parts of the world in 1820. The average for Western Europe was 36 years and 24 for Asia at birth.

There are at least four views on the contours of long–run Chinese development and two on West European.

On China, Joseph Needham's view was that its technology gave it a lead over Western Europe from the second century AD. "Chinese evolution represented a slowly rising curve. Running at a higher and sometimes much higher level than Europe between the second and fifteenth centuries". Because of its meritocratic bureaucracy, its precocity in developing printing and the existence of a common written language, best–practice technology was more easily diffused than in Europe (a point

stressed by Justin Yifu Lin, 1995). China lost its leadership position because it had no counterpart to Europe's scientific revolution. Needham gave a graphical comparison of the contours of Chinese and European technological development in *Clerks and Craftsmen in China and the West* (1970), p. 414. It is similar in shape to my graph of Chinese and West European per capita GDP in Maddison, 2001, p. 42, except that Needham makes no allowance for Sung exceptionalism.

Mark Elvin's (1973) interpretation is that China made a major advance in the Sung dynasty (960–1280), and had high–level stagnation until the nineteenth century. I think Elvin is correct in stressing the special character of Sung experience. However, he did not attempt macro–quantification, and his qualitative judgement probably implies a bigger leap in the Sung than I find. I think Elvin overstates stagnation after the Sung. Between 1400 and 1820, Chinese population grew significantly faster than that of Western Europe, and its GDP growth was only slightly less than Europe's. China experienced extensive growth, whereas Europe had a mild degree of intensive growth.

My interpretation is a hybrid of Needham and Elvin. It is summarised in quantitative terms in Table 8–3 and in graphical form in Maddison (2001), p. 42.

The least plausible interpretation is that of Kang Chao (1986, pp. 87, 89, 216–220). He suggests that per capita grain output rose by half from the 1st to the 11th century, followed by a millennium of decline, with per capita output falling back to 1st century levels in 1949, because of Malthusian pressure of population on limited land resources. The sources for his estimates are not adequately documented, and their plausibility is not heightened when he throws in supposedly corroborative estimates of real wages which rise (in sheng of grain per person) from 120 in the first century to 800 in 1086 and fall to 12 in 1818!

My view of the contours of West European development is that there was a decline in per capita income after the fall of the Roman Empire, which has no counterpart in China, and a sustained process of slow per capita growth from the eleventh to the early nineteenth century. Thereafter there was a substantial acceleration of growth. The alternative view is that there were centuries of Malthusian torpor followed by an industrial revolution and a sudden take–off. Pomeranz's interpretation involves acceptance of this second view.

v) The Real Wage Literature and its Relation to National Accounts.

The serious study of real wages began with Thorold Rogers (1823–1890). His major works in this field were *A History of Agriculture and Prices in England* (7 vols. 1866–1902) and *Six Centuries of Work and Wages* (1884). Rogers was an active politician, as well as a prolific price historian and professor of political economy in Oxford. He was a Liberal member of parliament (1880–1886) and an advocate of political reform who argued that the condition of English wage earners could be improved by extending the franchise and encouraging trade union activity. Later generations of real wage analysts have generally followed his lead: *a)* adopting a very long–term perspective; *b)* giving almost exclusive emphasis to labour income; *c)* giving substantial attention to price history, *d)* reaching pessimistic conclusions. However, Rogers differed from some of his disciples in two important respects. He was not a Malthusian, and would certainly not have regarded real wages as a proxy for real GDP. For him low wages were the result of exploitation of the labourer by the ruling elite. He made a clear distinction between wage income and national income, as is clear in his citation of Gregory King's estimates of inequality (Rogers, 1884 pp. 463–465). He summarised his position, saying (p. 355) "society may make notable progress in wealth, and wages remain low, ...relatively speaking, the working man of today is not so well off as he was in the fifteenth century"

It is interesting to compare his work with that of his near–contemporary Michael Mulhall (1836–1900). Mulhall was a pioneer in comparative analysis of national income. His main concern was to measure aggregate value added (see Table 3 in the Prologue), whereas Rogers concentrated on one kind of income. Mulhall's temporal horizon was much shorter than that of Rogers, and he was not a social or political reformer. Mulhall's estimates all referred to nominal income, except for the United Kingdom, where he used wheat prices as a crude deflator. Rogers devoted massive effort to price history.

The Rogers–Mulhall dichotomy is interesting because real wage analysis and historical national accounts have continued to tread separate paths. Historical national accountants have progressed well beyond Mulhall. They have developed techniques for measuring real output and real expenditure, and have deflators for the components of these aggregates, but they almost never attempt separate deflation of the components of nominal income (see Maddison, 1995, pp. 120–123). Until recently real wage analysis had not progressed much beyond Rogers. It continued to ignore non–wage income, and used data for a small fraction of wage earners without indicating what proportion of the labour force were covered. National accountants take a macroeconomic view, have developed a standardised system (which defines coverage within clearly defined boundaries of activity) and there are fairly comprehensive crosschecks on consistency. However, their time horizon was, until recently, much shorter than that of real wage analysts.

In the 1920s–40s there was a coordinated European–US research effort with financial support from the International Committee on Price History. Some of the researchers (Beveridge and Posthumus) concentrated on price history, but there was also a substantial effort to measure long–term trends in real wages. It is clear from the account of Cole and Crandall (1964) that they had no guidelines on coverage and methodology. They measured wage rates rather than earnings, without indicating annual hours worked. There was no attempt to determine the relative size of non–wage income. Within the field of wage–income, sample coverage was usually quite small. The validity of the inter–temporal measures was questionable and there were no cross–country comparisons of wage levels. From 1939 to 1968, Jürgen Kuczynski (1904–95) provided a Marxist counterpart, producing 40 volumes on the deteriorating condition of the proletariat under capitalism. At that time there was some interaction with national accountants. Colin Clark (1940) used real wages as a real income proxy for 20 countries. Arthur Bowley (1869–1957) made a considerable effort to incorporate real wage and real income analysis into national accounts.

A third wave of interest in real wages was sparked in 1952–57, when Henry Phelps Brown (1906–94), Sheila Hopkins and other associates produced scholarly articles developing new annual measures of wages and prices in England from 1264 to 1954. (Phelps Brown and Hopkins, 1981) They synthesised the work of the pre–war group (Elsas, Hamilton and Pribram) on Austria, Germany, and Spain, and made new estimates for France. For England, they had daily wage rates for building workers hired by Oxford and Cambridge colleges, Eton school and some other employers in the south of England. For the most part, they had 15 or more quotations a year for craftsmen and 3 for building workers. Between 1500 and 1800 there were 82 years for which they had no wage estimates. They had no data on weekly or annual earnings or days worked. They did not discuss the representativity of their measure. Even if their coverage of building workers is assumed to be adequate, they represented only 5 per cent of the workforce in 1700. People employed in agriculture were 56 per cent of the total and most of them were producing and directly consuming the items which figure in the price index. Many others, such as servants, artisans, the clergy, and the armed forces received an appreciable part of their remuneration in kind. A large part of the working population were thus sheltered from the impact of price rises. In spite of these shortcomings, their findings attracted interest because of the long period they covered and their meticulous scholarship in providing detailed and transparent discussion of sources and methods. As there was no work in historical national accounts for this period, their results were readily accepted.

The conclusions of Phelps Brown and Hopkins were extremely pessimistic. From 1500 to 1800, they suggested that real wages for building workers in southern England fell by 60 per cent. Their results were enthusiastically received by Braudel and Spooner (Cambridge Economic History of Europe, 1967, p. 429). They concluded that "from the late fifteenth century until well into the beginning of the eighteenth century, the standard of living in Europe progressively declined. Before this time, in the fourteenth and fifteenth centuries …conditions were better". This judgement was easily accepted in France because members of the Annales school were profoundly Malthusian. Le Roy Ladurie's judgement in 1960 was that Languedoc had suffered recurrent and prolonged population setbacks because limited land resources had set rigid limits to agricultural production. His inaugural lecture at

the Collège de France in 1973 restated this notion of *l'histoire immobile*. Wilhelm Abel (1978), the German historian, suggested that real living standards fell in Germany from the first half of the fourteenth to the first half of the eighteenth century.

The Phelps Brown analysis was also accepted by Wrigley and Schofield (1981) as a complement to their analysis of English demographic experience from 1541 to 1871. They found it convenient because it was "an approximate guide to fluctuations in the standard of living" in their period (pp. 312–313). They adjusted the results to interpolate gaps (pp. 638–41), they made some judicious comments on its deficiencies, but they took the real wage index to be a representative picture of living standards. In their analysis (pp. 402–412) of the relation between population growth and living standards they concluded that Malthus was right "Before 1800 matters fell out much as Malthus insisted they must..the faster population grew, the lower the standard of living and the grimmer the struggle to exist" A "decisive break" occurred during the industrial revolution. They rejected Boserup's view that "population growth in a pre–industrial economy tended to spark off changes in agricultural techniques which would allow productivity per head in agriculture to be maintained, albeit at the cost of longer hours of work, while at the same time encouraging changes elsewhere in the economy that would lead to a rise in output per head overall".

The Phelps Brown results have now been almost universally rejected as a proxy for the movement of real GDP per capita. Braudel reversed his judgement with characteristic insouciance. In Braudel (1985) p. 314, he stated that there were "clear continuities in European history. The first of these is the regular rise in GNP come hell or high water". Wrigley (1988) concluded his penetrating new analysis thus: "The single most remarkable feature of the economic history of England between the later sixteenth and the early nineteenth century was the rise in output per head in agriculture"(p. 39).

Jan de Vries (1993) joined the attack on the real wage approach. He questioned the representativity of construction worker experience, emphasised the large number of items omitted from the Phelps Brown price index, and contrasted its sombre and stagnant conclusions with his own evidence from probate inventories "All the studies I have examined for colonial New England and the Chesapeake, England and the Netherlands consistently reveal two features. With very few exceptions, each generation of decedents from the mid–seventeenth to the late eighteenth century left behind more and better possessions". He concluded that "economic growth began earlier than previously thought, that the transforming power of industry was felt later than previously thought , and that the century of the Industrial Revolution witnessed no sharp acceleration–not in production, not in consumption". In de Vries (1994) he developed the notion of an "industrious revolution" which is similar to Ester Boserup's (1965) analysis in the Asian context. It helps explain how intensified labour inputs overcame what were previously considered Malthusian constraints.

One reason real wage analysis remained primitive was that historical national accountants and their leading figure, Kuznets, showed no interest in it. Kuznets' (1973, pp. 139–140) speculations on the likely growth of European real per capita GDP between 1500 and 1750 contrasted sharply with the conclusions of Phelps Brown and his disciples, but he made no reference to their work. The two major historians of the national accounting tradition, Studenski (1958) and Stone (1997) made no mention of the real wage literature.

There was a fifth wave of real wage analysis in the past decade. This includes 2 articles on Asia; Feinstein, 1998, is the first rigorous and comprehensive measurement of real earnings of manual workers (1770–1870) by a historical national accountant since Bowley (1900); repair work on the second generation estimates by Robert Allen (2001), and new estimates by Jeffrey Williamson (1995) for 17 countries 1830–1988, which incorporate inter–spatial as well as inter–temporal comparisons.

The articles on Asia break new ground and are discussed below.

Özmucur and Pamuk (2002) present estimates of real wages of building workers in Istanbul for 1489–1914. They find a level in 1820 similar to that at the end of the fifteenth century (with some big dips in between) and about 40 per cent higher by 1910–14. They do not suggest that their measure is

a satisfactory proxy for per capita income, but as they have no estimates of the latter before the nineteenth century, they conclude from their evidence that the decline of the Ottoman empire in the sixteenth century was reversed, and it adapted successfully to changing circumstances from the seventeenth to the nineteenth century. Their research is well documented, their conclusions are cautious and Pamuk has also made tentative estimates for of GDP in Turkey and other parts of the Ottoman Empire back to 1820. This study throws new light on a region that has played a significant role in world history for centuries.

Parthasarathi (1998), is a cross–country level comparison of weavers' wages in South India and England in the eighteenth century. He also covers spinners and farm labourers where his evidence is much thinner. He converts weekly wages of weavers in both countries into grain units, assuming a lb of Indian rice equivalent to 1500 calories and a lb of British bread 1000 calories. In Britain weekly earnings of weavers bought 40 to 140 lbs of grain and in South India 65 to 160. He claims that labourers in South India were in a better bargaining position than their English counterparts because they operated as village collectives, appealing to even–handed political authorities in case of dispute. In England legislation prohibited combinations of workers. The article is useful in shaking up conventional views, but is certainly contestable. It may be true that individual workers in England had a weak bargaining position, but it seems likely that in Indian village "collectives" lower castes and untouchables were exploited by the brahmin elite. The sources of his Indian wage estimates are not very clear, and his assumption that British workers got their calories from wheaten loaves bought from bakeries is rather odd. They probably got quite a lot of calories from meat and potatoes, cheese and beer which were not available in south India. A good deal of their bread must have been home–baked.

Chronology

In surveying economic development over the last two millennia in Maddison (2001), it seemed logical to start with the year zero, as official celebrations treated the year 2000 as the beginning of a new millennium. In fact, there is no year zero in the Christian era which begins in AD 1, with I BC as the preceding year. In tables HS–8, I have bowed to convention, and substituted year 1 for year zero. This makes no difference to estimates of growth rates for the first millennium.

It is perhaps useful to consider changes in conventions for measuring time over these two millennia. The Julian calendar, with an average year of 365.25 days was inaugurated by the Roman dictator, Julius Caesar in 46 BC, on the advice of the Alexandrian astronomer Sosigenes. It exaggerated the length of the year by a tiny fraction, and was replaced in the Catholic countries of Europe on October 4th 1582, as decreed in a papal bull of Gregory XIII, on advice from the astronomer Clavius and others. The Gregorian year was a little shorter (averaging of 365.2425 days). 10 days (5–14th October) were dropped from that year to link the two systems. The Protestant countries of Europe started to adopt this calendar in 1700. The last European country to switch was the USSR in 1918.

England and its colonies changed over in 1752. Until then their year began with Lady Day, on 25th March. The British parliament endorsed the change in 1751, stipulating that the year would end on 31st December, and the new Gregorian year would start on 1st January. To complete the transition, 3rd to 13th September were omitted from the 1752 calendar (Wednesday 2nd September being followed by Thursday 14th). The previous anachronistic system meant that anything published from 1st January to 24th March was attributed to the preceding year.

There have also been changes in the dating and denomination of eras. The traditional Roman era began with the foundation of Rome (*ab urbe condita)* which was thought to have been in 753 BC. There was an era of the Emperor Augustus, dating from the battle of Actium in 31BC, and an era of the Emperor Diocletian dating from his accession in 284 AD. The Christian era was first proposed by Dionysius Exiguus in AD 532. He had been asked by Pope John the 1st to provide clear guidelines for calculating the date of Easter. He also suggested the creation of a Christian era to replace that of Diocletian (who martyred Christians). Dionysius believed that Christ was born in 1BC, and that the first year of the new era (anno domini) should be the following year which he called AD 1 (see Richards, pp. 106, 217–8 and 351). There was no symbol for zero in the Roman system of numeration, and the concept of zero as a number did not come to Europe until several centuries later. The Christian era does not seem to have been inaugurated by a papal bull, and did not come into general use until the eleventh century. The first author to use the concept systematically for his chronology was Bede in his *Ecclesiastical History of the English People,* completed in 731. He did not use the term *anno domini,* referring instead to a year in the era as *"anno dominicae incarnationis"*(see Colgrave and Mynors, 1969).

In fact, there is a precedent for starting the Christian era in year zero. Gregory King in his *Notebook,* p. 4, made a comprehensive survey and forecast of world population, using the concept of anno mundi, with continuous numbering since the creation which he assumed had occurred 5630 years before 1695. He provided an alternative numbering system for years before and after Christ, with a dividing point in the year 0. He did not use the terms BC and AD, but distinguished years *ante* and *post Christum*.

Table 8a. **World Population, 20 Countries and Regional Totals, 1-2001 AD**
(000)

	1	*1000*	*1500*	*1600*	*1700*	*1820*	*1870*	*1913*	*1950*	*1973*	*2001*
Austria	500	700	2 000	2 500	2 500	3 369	4 520	6 767	6 935	7 586	8 151
Belgium	300	400	1 400	1 600	2 000	3 434	5 096	7 666	8 639	9 738	10 259
Denmark	180	360	600	650	700	1 155	1 888	2 983	4 271	5 022	5 353
Finland	20	40	300	400	400	1 169	1 754	3 027	4 009	4 666	5 176
France	5 000	6 500	15 000	18 500	21 471	31 250	38 440	41 463	41 829	52 157	59 658
Germany	3 000	3 500	12 000	16 000	15 000	24 905	39 231	65 058	68 375	78 950	82 281
Italy	7 000	5 000	10 500	13 100	13 300	20 176	27 888	37 248	47 105	54 797	57 845
Netherlands	200	300	950	1 500	1 900	2 333	3 610	6 164	10 114	13 438	15 981
Norway	100	200	300	400	500	970	1 735	2 447	3 265	3 961	4 503
Sweden	200	400	550	760	1 260	2 585	4 169	5 621	7 014	8 137	8 875
Switzerland	300	300	650	1 000	1 200	1 986	2 655	3 864	4 694	6 441	7 283
United Kingdom	800	2 000	3 942	6 170	8 565	21 239	31 400	45 649	50 127	56 210	59 723
12 Country Total	**17 600**	**19 700**	**48 192**	**62 580**	**68 796**	**114 571**	**162 386**	**227 957**	**256 377**	**301 103**	**325 088**
Portugal	500	600	1 000	1 100	2 000	3 297	4 327	5 972	8 443	8 976	10 066
Spain	4 500	4 000	6 800	8 240	8 770	12 203	16 201	20 263	28 063	34 837	40 087
Other	2 100	1 113	1 276	1 858	1 894	2 969	4 590	6 783	12 058	13 909	16 860
Total Western Europe	**24 700**	**25 413**	**57 268**	**73 778**	**81 460**	**133 040**	**187 504**	**260 975**	**304 941**	**358 825**	**392 101**
Eastern Europe	**4 750**	**6 500**	**13 500**	**16 950**	**18 800**	**36 457**	**53 557**	**79 530**	**87 637**	**110 418**	**120 912**
Former USSR	**3 900**	**7 100**	**16 950**	**20 700**	**26 550**	**54 765**	**88 672**	**156 192**	**179 571**	**249 712**	**290 349**
United States	680	1 300	2 000	1 500	1 000	9 981	40 241	97 606	152 271	211 909	285 024
Other Western Offshoots	490	660	800	800	750	1 250	5 847	13 795	24 186	38 932	54 815
Total Western Offshoots	**1 170**	**1 960**	**2 800**	**2 300**	**1 750**	**11 231**	**46 088**	**111 401**	**176 457**	**250 841**	**339 839**
Mexico	2 200	4 500	7 500	2 500	4 500	6 587	9 219	14 970	28 485	57 643	101 879
Other Latin America	3 400	6 900	10 000	6 100	7 550	15 118	31 180	65 965	137 453	250 756	429 334
Total Latin America	**5 600**	**11 400**	**17 500**	**8 600**	**12 050**	**21 705**	**40 399**	**80 935**	**165 938**	**308 399**	**531 213**
Japan	**3 000**	**7 500**	**15 400**	**18 500**	**27 000**	**31 000**	**34 437**	**51 672**	**83 805**	**108 707**	**126 892**
China	59 600	59 000	103 000	160 000	138 000	381 000	358 000	437 140	546 815	881 940	1 275 392
India	75 000	75 000	110 000	135 000	165 000	209 000	253 000	303 700	359 000	580 000	1 023 590
Other Asia	36 600	41 400	55 400	65 000	71 800	89 400	119 792	184 849	392 827	677 613	1 227 630
Total Asia (excluding Japan)	**171 200**	**175 400**	**268 400**	**360 000**	**374 800**	**679 400**	**730 792**	**925 689**	**1 298 642**	**2 139 553**	**3 526 612**
Africa	**16 500**	**32 300**	**46 610**	**55 320**	**61 080**	**74 236**	**90 466**	**124 697**	**227 333**	**390 034**	**821 088**
World	**230 820**	**267 573**	**438 428**	**556 148**	**603 490**	**1 041 834**	**1 271 915**	**1 791 091**	**2 524 324**	**3 916 489**	**6 149 006**

Table 8a. **Rate of Growth of World Population, 20 Countries and Regional Totals, 1-2001 AD**
(annual average coumpound growth rates)

	1-1000	*1000-1500*	*1500-1820*	*1820-70*	*1870-1913*	*1913-50*	*1950-73*	*1973-2001*
Austria	0.03	0.21	0.16	0.59	0.94	0.07	0.39	0.26
Belgium	0.03	0.25	0.28	0.79	0.95	0.32	0.52	0.19
Denmark	0.07	0.10	0.20	0.99	1.07	0.97	0.71	0.23
Finland	0.07	0.40	0.43	0.81	1.28	0.76	0.66	0.37
France	0.03	0.17	0.23	0.42	0.18	0.02	0.96	0.48
Germany	0.02	0.25	0.23	0.91	1.18	0.13	0.63	0.15
Italy	-0.03	0.15	0.20	0.65	0.68	0.64	0.66	0.19
Netherlands	0.04	0.23	0.28	0.88	1.25	1.35	1.24	0.62
Norway	0.07	0.08	0.37	1.17	0.80	0.78	0.84	0.46
Sweden	0.07	0.06	0.48	0.96	0.70	0.60	0.65	0.31
Switzerland	0.00	0.15	0.35	0.58	0.88	0.53	1.39	0.44
United Kingdom	0.09	0.14	0.53	0.79	0.87	0.25	0.50	0.22
12 Country average	0.01	**0.18**	**0.27**	**0.70**	**0.79**	**0.32**	**0.70**	**0.27**
Portugal	0.02	0.10	0.37	0.55	0.75	0.94	0.27	0.41
Spain	-0.01	0.11	0.18	0.57	0.52	0.88	0.94	0.50
Other	-0.06	0.03	0.26	0.88	0.91	1.57	0.62	0.69
Total Western Europe	**0.00**	**0.16**	**0.26**	**0.69**	**0.77**	**0.42**	**0.71**	**0.32**
Eastern Europe	**0.03**	**0.15**	**0.31**	**0.77**	**0.92**	**0.26**	**1.01**	**0.32**
Former USSR	**0.06**	**0.17**	**0.37**	**0.97**	**1.33**	**0.38**	**1.44**	**0.54**
United States	0.06	0.09	0.50	2.83	2.08	1.21	1.45	1.06
Other Western Offshoots	0.03	0.04	0.14	3.13	2.02	1.53	2.09	1.23
Total Western Offshoots	**0.05**	**0.07**	**0.44**	**2.86**	**2.07**	**1.25**	**1.54**	**1.09**
Mexico	**0.07**	**0.10**	-0.04	0.67	1.13	1.75	3.11	2.05
Other Latin America	0.07	0.07	0.13	1.46	1.76	2.00	2.65	1.94
Total Latin America	**0.07**	**0.09**	**0.07**	**1.25**	**1.63**	**1.96**	**2.73**	**1.96**
Japan	**0.09**	**0.14**	**0.22**	**0.21**	**0.95**	**1.32**	**1.14**	**0.55**
China	0.00	0.11	0.41	-0.12	0.47	0.61	2.10	1.33
India	0.00	0.08	0.20	0.38	0.43	0.45	2.11	2.05
Other Asia	0.01	0.06	0.15	0.59	1.01	2.06	2.40	2.15
Total Asia (excl. Japan)	**0.00**	**0.09**	**0.29**	**0.15**	**0.55**	**0.92**	**2.19**	**1.80**
Africa	**0.07**	**0.07**	**0.15**	**0.40**	**0.75**	**1.64**	**2.37**	**2.69**
World	**0.01**	**0.10**	**0.27**	**0.40**	**0.80**	**0.93**	**1.93**	**1.62**

Table 8a. **Share of World Population, 20 Countries and Regional Totals, 1-2001 AD**
(per cent of world total)

	1	*1000*	*1500*	*1600*	*1700*	*1820*	*1870*	*1913*	*1950*	*1973*	*2001*
Austria	0.2	0.3	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.2	0.1
Belgium	0.1	0.1	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2
Denmark	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Finland	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
France	2.2	2.4	3.4	3.3	3.6	3.0	3.0	2.3	1.7	1.3	1.0
Germany	1.3	1.3	2.7	2.9	2.5	2.4	3.1	3.6	2.7	2.0	1.3
Italy	3.0	1.9	2.4	2.4	2.2	1.9	2.2	2.1	1.9	1.4	0.9
Netherlands	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3
Norway	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sweden	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.1
Switzerland	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
United Kingdom	0.3	0.7	0.9	1.1	1.4	2.0	2.5	2.5	2.0	1.4	1.0
12 Country total	**7.6**	**7.4**	**11.0**	**11.3**	**11.4**	**11.0**	**12.8**	**12.7**	**10.2**	**7.7**	**5.3**
Portugal	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2
Spain	1.9	1.5	1.6	1.5	1.5	1.2	1.3	1.1	1.1	0.9	0.7
Other	0.9	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.3
Total Western Europe	**10.7**	**9.5**	**13.1**	**13.3**	**13.5**	**12.8**	**14.7**	**14.6**	**12.1**	**9.2**	**6.4**
Eastern Europe	**2.1**	**2.4**	**3.1**	**3.0**	**3.1**	**3.5**	**4.2**	**4.4**	**3.5**	**2.8**	**2.0**
Former USSR	**1.7**	**2.7**	**3.9**	**3.7**	**4.4**	**5.3**	**7.0**	**8.7**	**7.1**	**6.4**	**4.7**
United States	0.3	0.5	0.5	0.3	0.2	1.0	3.2	5.4	6.0	5.4	4.6
Other Western Offshoots	0.2	0.2	0.2	0.1	0.1	0.1	0.5	0.8	1.0	1.0	0.9
Total Western Offshoots	**0.5**	**0.7**	**0.6**	**0.4**	**0.3**	**1.1**	**3.6**	**6.2**	**7.0**	**6.4**	**5.5**
Mexico			1.7	0.4	0.7	0.6	0.7	0.8	1.1	1.5	1.7
Other Latin America			2.3	1.1	1.3	1.5	2.5	3.7	5.4	6.4	7.0
Total Latin America	**2.4**	**4.3**	**4.0**	**1.5**	**2.0**	**2.1**	**3.2**	**4.5**	**6.6**	**7.9**	**8.6**
Japan	**1.3**	**2.8**	**3.5**	**3.3**	**4.5**	**3.0**	**2.7**	**2.9**	**3.3**	**2.8**	**2.1**
China	25.8	22.1	23.5	28.8	22.9	36.6	28.1	24.4	21.7	22.5	20.7
India	32.5	28.0	25.1	24.3	27.3	20.1	19.9	17.0	14.2	14.8	16.6
Other Asia	15.9	15.5	12.6	11.7	11.9	8.6	9.4	10.3	15.6	17.3	20.0
Total Asia (excl. Japan)	**74.2**	**65.6**	**61.2**	**64.7**	**62.1**	**65.2**	**57.5**	**51.7**	**51.4**	**54.6**	**57.4**
Africa	**7.1**	**12.1**	**10.6**	**9.9**	**10.1**	**7.1**	**7.1**	**7.0**	**9.0**	**10.0**	**13.4**
World	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 8b. **World GDP, 20 Countries and Regional Totals, 1-2001 AD**
(million 1990 international Geary-Khamis dollars)

	1	*1000*	*1500*	*1600*	*1700*	*1820*	*1870*	*1913*	*1950*	*1973*	*2001*
Austria			1 414	2 093	2 483	4 104	8 419	23 451	25 702	85 227	164 851
Belgium			1 225	1 561	2 288	4 529	13 716	32 347	47 190	118 516	214 655
Denmark			443	569	727	1 471	3 782	11 670	29 654	70 032	123 978
Finland			136	215	255	913	1 999	6 389	17 051	51 724	105 298
France			10 912	15 559	19 539	35 468	72 100	144 489	220 492	683 965	1 258 297
Germany			8 256	12 656	13 650	26 819	72 149	237 332	265 354	944 755	1 536 743
Italy			11 550	14 410	14 630	22 535	41 814	95 487	164 957	582 713	1 101 366
Netherlands			723	2 072	4 047	4 288	9 952	24 955	60 642	175 791	347 136
Norway			192	304	450	1 071	2 485	6 119	17 838	44 544	110 683
Sweden			382	626	1 231	3 098	6 927	17 403	47 269	109 794	182 492
Switzerland			411	750	1 068	2 165	5 581	16 483	42 545	117 251	162 150
United Kingdom			2 815	6 007	10 709	36 232	100 180	224 618	347 850	675 941	1 202 074
12 Country Total			**38 459**	**56 822**	**71 077**	**142 693**	**339 104**	**840 743**	**1 286 544**	**3 660 253**	**6 509 723**
Portugal			606	814	1 638	3 043	4 219	7 467	17 615	63 397	143 234
Spain			4 495	7 029	7 481	12 299	19 556	41 653	61 429	266 896	627 733
Other			602	975	1 106	2 110	4 712	12 478	30 600	105 910	269 582
Total Western Europe	**11 115**	**10 165**	**44 162**	**65 640**	**81 302**	**160 145**	**367 591**	**902 341**	**1 396 188**	**4 096 456**	**7 550 272**
Eastern Europe	**1 900**	**2 600**	**6 696**	**9 289**	**11 393**	**24 906**	**50 163**	**134 793**	**185 023**	**550 756**	**728 792**
Former USSR	**1 560**	**2 840**	**8 458**	**11 426**	**16 196**	**37 678**	**83 646**	**232 351**	**510 243**	**1 513 070**	**1 343 230**
United States			800	600	527	12 548	98 374	517 383	1 455 916	3 536 622	7 965 795
Other Western Offshoots			320	320	306	951	13 129	65 558	179 574	521 667	1 190 472
Total Western Offshoots	**468**	**784**	**1 120**	**920**	**833**	**13 499**	**111 493**	**582 941**	**1 635 490**	**4 058 289**	**9 156 267**
Mexico			3 188	1 134	2 558	5 000	6 214	25 921	67 368	279 302	722 198
Other Latin America			4 100	2 629	3 788	10 024	21 305	93 950	348 539	1 109 727	2 364 808
Total Latin America	**2 240**	**4 560**	**7 288**	**3 763**	**6 346**	**15 024**	**27 519**	**119 871**	**415 907**	**1 389 029**	**3 087 006**
Japan	**1 200**	**3 188**	**7 700**	**9 620**	**15 390**	**20 739**	**25 393**	**71 653**	**160 966**	**1 242 932**	**2 624 523**
China	26 820	26 550	61 800	96 000	82 800	228 600	189 740	241 344	239 903	740 048	4 569 790
India	33 750	33 750	60 500	74 250	90 750	111 417	134 882	204 242	222 222	494 832	2 003 193
Other Asia	16 470	18 630	31 301	36 725	40 567	52 177	76 994	163 109	363 646	1 388 124	4 908 218
Total Asia (excluding Japan)	**77 040**	**78 930**	**153 601**	**206 975**	**214 117**	**392 194**	**401 616**	**608 695**	**822 771**	**2 623 004**	**11 481 201**
Africa	**7 096**	**13 720**	**19 283**	**23 349**	**25 692**	**31 161**	**45 234**	**79 486**	**203 131**	**549 993**	**1 222 577**
World	**102 619**	**116 787**	**248 308**	**330 982**	**371 269**	**695 346**	**1 112 655**	**2 732 131**	**5 329 719**	**16 023 529**	**37 193 868**

Table 8b. **Rate of Growth of World GDP, 20 Countries and Regional Totals, 1-2001 AD**
(annual average compound growth rates)

	1-1000	*1000-1500*	*1500-1820*	*1820-70*	*1870-1913*	*1913-50*	*1950-73*	*1973-2001*
Austria			0.33	1.45	2.41	0.25	5.35	2.38
Belgium			0.41	2.24	2.02	1.03	4.08	2.14
Denmark			0.38	1.91	2.66	2.55	3.81	2.06
Finland			0.60	1.58	2.74	2.69	4.94	2.57
France			0.37	1.43	1.63	1.15	5.05	2.20
Germany			0.37	2.00	2.81	0.30	5.68	1.75
Italy			0.21	1.24	1.94	1.49	5.64	2.30
Netherlands			0.56	1.70	2.16	2.43	4.74	2.46
Norway			0.54	1.70	2.12	2.93	4.06	3.30
Sweden			0.66	1.62	2.17	2.74	3.73	1.83
Switzerland			0.52	1.91	2.55	2.60	4.51	1.16
United Kingdom			0.80	2.05	1.90	1.19	2.93	2.08
12 Country Average			**0.41**	**1.75**	**2.13**	**1.16**	**4.65**	**2.08**
Portugal			0.51	0.66	1.34	2.35	5.73	2.95
Spain			0.32	0.93	1.77	1.06	6.60	3.10
Other			0.39	1.62	2.29	2.45	5.55	3.39
Total Western Europe	**-0.01**	**0.29**	**0.40**	**1.68**	**2.11**	**1.19**	**4.79**	**2.21**
Eastern Europe	**0.03**	**0.19**	**0.41**	**1.41**	**2.33**	**0.86**	**4.86**	**1.01**
Former USSR	**0.06**	**0.22**	**0.47**	**1.61**	**2.40**	**2.15**	**4.84**	**-0.42**
United States			0.86	4.20	3.94	2.84	3.93	2.94
Other Western Offshoots			0.34	5.39	3.81	2.76	4.75	2.99
Total Western Offshoots	**0.05**	**0.07**	**0.78**	**4.31**	**3.92**	**2.83**	**4.03**	**2.95**
Mexico			0.14	0.44	3.38	2.62	6.38	3.45
Other Latin America			0.28	1.52	3.51	3.61	5.16	2.74
Total Latin America	**0.07**	**0.09**	**0.23**	**1.22**	**3.48**	**3.42**	**5.38**	**2.89**
Japan	**0.10**	**0.18**	**0.31**	**0.41**	**2.44**	**2.21**	**9.29**	**2.71**
China	0.00	0.17	0.41	-0.37	0.56	-0.02	5.02	6.72
India	0.00	0.12	0.19	0.38	0.97	0.23	3.54	5.12
Other Asia	0.01	0.10	0.16	0.78	1.76	2.19	6.00	4.61
Total Asia (excl. Japan)	**0.00**	**0.13**	**0.29**	**0.05**	**0.97**	**0.82**	**5.17**	**5.41**
Africa	**0.07**	**0.07**	**0.15**	**0.75**	**1.32**	**2.57**	**4.43**	**2.89**
World	**0.01**	**0.15**	**0.32**	**0.93**	**2.11**	**1.82**	**4.90**	**3.05**

Table 8b. **Share of World GDP, 20 Countries and Regional Totals, 1-2001 AD**
(per cent of world total)

	1	*1000*	*1500*	*1600*	*1700*	*1820*	*1870*	*1913*	*1950*	*1973*	*2001*
Austria			0.6	0.6	0.7	0.6	0.8	0.9	0.5	0.5	0.4
Belgium			0.5	0.5	0.6	0.7	1.2	1.2	0.9	0.7	0.6
Denmark			0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.4	0.3
Finland			0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3
France			4.4	4.7	5.3	5.1	6.5	5.3	4.1	4.3	3.4
Germany			3.3	3.8	3.7	3.9	6.5	8.7	5.0	5.9	4.1
Italy			4.7	4.4	3.9	3.2	3.8	3.5	3.1	3.6	3.0
Netherlands			0.3	0.6	1.1	0.6	0.9	0.9	1.1	1.1	0.9
Norway			0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Sweden			0.2	0.2	0.3	0.4	0.6	0.6	0.9	0.7	0.5
Switzerland			0.2	0.2	0.3	0.3	0.5	0.6	0.8	0.7	0.4
United Kingdom			1.1	1.8	2.9	5.2	9.0	8.2	6.5	4.2	3.2
12 Country total			**15.5**	**17.2**	**19.1**	**20.5**	**30.5**	**30.8**	**24.1**	**22.8**	**17.5**
Portugal			0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.4	0.4
Spain			1.8	2.1	2.0	1.8	1.8	1.5	1.2	1.7	1.7
Other			0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7
Total Western Europe	**10.8**	**8.7**	**17.8**	**19.8**	**21.9**	**23.0**	**33.0**	**33.0**	**26.2**	**25.6**	**20.3**
Eastern Europe	**1.9**	**2.2**	**2.7**	**2.8**	**3.1**	**3.6**	**4.5**	**4.9**	**3.5**	**3.4**	**2.0**
Former USSR	**1.5**	**2.4**	**3.4**	**3.5**	**4.4**	**5.4**	**7.5**	**8.5**	**9.6**	**9.4**	**3.6**
United States			0.3	0.2	0.1	1.8	8.8	18.9	27.3	22.1	21.4
Other Western Offshoots			0.1	0.1	0.1	0.1	1.2	2.4	3.4	3.3	3.2
Total Western Offshoots	**0.5**	**0.7**	**0.5**	**0.3**	**0.2**	**1.9**	**10.0**	**21.3**	**30.7**	**25.3**	**24.6**
Mexico			1.3	0.3	0.7	0.7	0.6	0.9	1.3	1.7	1.9
Other Latin America			1.7	0.8	1.0	1.4	1.9	3.4	6.5	6.9	6.4
Total Latin America	**2.2**	**3.9**	**2.9**	**1.1**	**1.7**	**2.2**	**2.5**	**4.4**	**7.8**	**8.7**	**8.3**
Japan	**1.2**	**2.7**	**3.1**	**2.9**	**4.1**	**3.0**	**2.3**	**2.6**	**3.0**	**7.8**	**7.1**
China	26.1	22.7	24.9	29.0	22.3	32.9	17.1	8.8	4.5	4.6	12.3
India	32.9	28.9	24.4	22.4	24.4	16.0	12.1	7.5	4.2	3.1	5.4
Other Asia	16.0	16.0	12.6	11.1	10.9	7.5	6.9	6.0	6.8	8.7	13.2
Total Asia (excl. Japan)	**75.1**	**67.6**	**61.9**	**62.5**	**57.7**	**56.4**	**36.1**	**22.3**	**15.4**	**16.4**	**30.9**
Africa	**6.9**	**11.7**	**7.8**	**7.1**	**6.9**	**4.5**	**4.1**	**2.9**	**3.8**	**3.4**	**3.3**
World	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 8c. **World Per Capita GDP, 20 Countries and Regional Averages, 1-2001 AD**
(1990 international Geary-Khamis dollars)

	1	*1000*	*1500*	*1600*	*1700*	*1820*	*1870*	*1913*	*1950*	*1973*	*2001*
Austria			707	837	993	1 218	1 863	3 465	3 706	11 235	20 225
Belgium			875	976	1 144	1 319	2 692	4 220	5 462	12 170	20 924
Denmark			738	875	1 039	1 274	2 003	3 912	6 943	13 945	23 160
Finland			453	538	638	781	1 140	2 111	4 253	11 085	20 344
France			727	841	910	1 135	1 876	3 485	5 271	13 114	21 092
Germany			688	791	910	1 077	1 839	3 648	3 881	11 966	18 677
Italy			1 100	1 100	1 100	1 117	1 499	2 564	3 502	10 634	19 040
Netherlands			761	1 381	2 130	1 838	2 757	4 049	5 996	13 082	21 722
Norway			640	760	900	1 104	1 432	2 501	5 463	11 246	24 580
Sweden			695	824	977	1 198	1 662	3 096	6 739	13 493	20 562
Switzerland			632	750	890	1 090	2 102	4 266	9 064	18 204	22 264
United Kingdom			714	974	1 250	1 706	3 190	4 921	6 939	12 025	20 127
12 Country Average			**798**	**908**	**1 033**	**1 245**	**2 088**	**3 688**	**5 018**	**12 156**	**20 024**
Portugal			606	740	819	923	975	1 250	2 086	7 063	14 229
Spain			661	853	853	1 008	1 207	2 056	2 189	7 661	15 659
Other			472	525	584	711	1 027	1 840	2 538	7 614	15 989
West European average	**450**	**400**	**771**	**890**	**998**	**1 204**	**1 960**	**3 458**	**4 579**	**11 416**	**19 256**
Eastern Europe	**400**	**400**	**496**	**548**	**606**	**683**	**937**	**1 695**	**2 111**	**4 988**	**6 027**
Former USSR	**400**	**400**	**499**	**552**	**610**	**688**	**943**	**1 488**	**2 841**	**6 059**	**4 626**
United States			400	400	527	1 257	2 445	5 301	9 561	16 689	27 948
Other Western Offshoots			400	400	408	761	2 245	4 752	7 425	13 399	21 718
Average Western Offshoots	**400**	**400**	**400**	**400**	**476**	**1 202**	**2 419**	**5 233**	**9 268**	**16 179**	**26 943**
Mexico			425	454	568	759	674	1 732	2 365	4 845	7 089
Other Latin America			410	431	502	663	683	1 424	2 536	4 426	5 508
Latin American Average	**400**	**400**	**416**	**438**	**527**	**692**	**681**	**1 481**	**2 506**	**4 504**	**5 811**
Japan	**400**	**425**	**500**	**520**	**570**	**669**	**737**	**1 387**	**1 921**	**11 434**	**20 683**
China	**450**	450	600	600	600	600	530	552	439	839	3 583
India	**450**	450	550	550	550	533	533	673	619	853	1 957
Other Asia	**450**	450	565	565	565	584	643	882	926	2 049	3 998
Asian average (excl. Japan)	**450**	**450**	**572**	**575**	**571**	**577**	**550**	**658**	**634**	**1 226**	**3 256**
Africa	**430**	**425**	**414**	**422**	**421**	**420**	**500**	**637**	**894**	**1 410**	**1 489**
World	**445**	**436**	**566**	**595**	**615**	**667**	**875**	**1 525**	**2 111**	**4 091**	**6 049**

Table 8b. **Rate of Growth of World Per Capita GDP, 20 Countries and Regional Averages, 1-2001 AD**
(annual average compound growth rates)

	1-1000	*1000-1500*	*1500-1820*	*1820-70*	*1870-1913*	*1913-50*	*1950-73*	*1973-2001*
Austria			0.17	0.85	1.45	0.18	4.94	2.12
Belgium			0.13	1.44	1.05	0.70	3.54	1.95
Denmark			0.17	0.91	1.57	1.56	3.08	1.83
Finland			0.17	0.76	1.44	1.91	4.25	2.19
France			0.14	1.01	1.45	1.12	4.04	1.71
Germany			0.14	1.08	1.61	0.17	5.02	1.60
Italy			0.00	0.59	1.26	0.85	4.95	2.10
Netherlands			0.28	0.81	0.90	1.07	3.45	1.83
Norway			0.17	0.52	1.30	2.13	3.19	2.83
Sweden			0.17	0.66	1.46	2.12	3.06	1.52
Switzerland			0.17	1.32	1.66	2.06	3.08	0.72
United Kingdom			0.27	1.26	1.01	0.93	2.42	1.86
12 Country Average			**0.14**	**1.04**	**1.33**	**0.84**	**3.92**	**1.80**
Portugal			0.13	0.11	0.58	1.39	5.45	2.53
Spain			0.13	0.36	1.25	0.17	5.60	2.59
Other			0.13	0.74	1.37	0.87	4.89	2.68
Total Western Europe	**-0.01**	**0.13**	**0.14**	**0.98**	**1.33**	**0.76**	**4.05**	**1.88**
Eastern Europe	**0.00**	**0.04**	**0.10**	**0.63**	**1.39**	**0.60**	**3.81**	**0.68**
Former USSR	**0.00**	**0.04**	**0.10**	**0.63**	**1.06**	**1.76**	**3.35**	**-0.96**
United States			0.36	1.34	1.82	1.61	2.45	1.86
Other Western Offshoots			0.20	2.19	1.76	1.21	2.60	1.74
Total Western Offshoots	**0.00**	**0.00**	**0.34**	**1.41**	**1.81**	**1.56**	**2.45**	**1.84**
Mexico			0.18	-0.24	2.22	0.85	3.17	1.37
Other Latin America			0.15	0.06	1.72	1.57	2.45	0.78
Total Latin America	**0.00**	**0.01**	**0.16**	**-0.03**	**1.82**	**1.43**	**2.58**	**0.91**
Japan	**0.01**	**0.03**	**0.09**	**0.19**	**1.48**	**0.88**	**8.06**	**2.14**
China	**0.00**	0.06	0.00	-0.25	0.10	-0.62	2.86	5.32
India	**0.00**	0.04	-0.01	0.00	0.54	-0.22	1.40	3.01
Other Asia	**0.00**	0.05	0.01	0.19	0.74	0.13	3.51	2.42
Total Asia (excl. Japan)	**0.00**	**0.05**	**0.00**	**-0.10**	**0.42**	**-0.10**	**2.91**	**3.55**
Africa	**0.00**	**-0.01**	**0.00**	**0.35**	**0.57**	**0.92**	**2.00**	**0.19**
World	**0.00**	**0.05**	**0.05**	**0.54**	**1.30**	**0.88**	**2.92**	**1.41**