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Book review

The Bigger Bell Curve: Intelligence, National Achievement, and The Global Economy

IQ and the Wealth of Nations

Richard Lynn and Tatu Vanhanen; Praeger, Westport, CT, 2002, 256 pp, ISBN 0–275–97510-X, US\$64.95 (hdbk)

This is a book that social scientists, policy experts, and global investment analysts cannot afford to ignore. It is one of the most brilliantly clarifying books this reviewer has ever read. *IQ and the Wealth of Nations* does for the study of human diversity and achievement among nations what *The Bell Curve* did for IQ and achievement in the USA. The central thesis is that the IQs of populations play a decisive role in the economic destinies of nations. With concise logic, Richard Lynn (professor emeritus of psychology at the University of Ulster in Northern Ireland), and Tatu Vanhanen (professor emeritus of political science at the University of Tampere in Finland), systematically document their stunningly straightforward and yet greatly overlooked hypothesis.

IQ and the Wealth of Nations analyses the relationship between national IQ scores and measures of economic performance. In one analysis of 81 countries, for which direct evidence on national IQs is available, mean national IQ correlates 0.71 with per capita Gross National Product (GNP) for 1998, and 0.76 with per capita Gross Domestic Product (GDP) for 1998. Other analyses consistently demonstrate national IQs predicting both long-term (1820–1922) and short-term (1950–1990; 1976–1998) economic growth rates measured variously by per capita GNP and GDP (mean $r_s \sim 0.60$). Regression analyses of the 81 countries, and then of 185 countries, including 104 whose national IQs are estimated by averaging those from adjoining countries, shows the national differences in wealth are explained first, by the intelligence levels of the populations; second, by whether the countries have market or socialist economies; and finally, by unique circumstances such as, in the case of Qatar, by the possession of valuable natural resources like oil.

The book has a lucid, expository style. Chapter 1 reviews the various theories advanced over the last 250 years to explain why some countries are rich while others are poor. These include climate theories (temperate zones are said to be best), geographic theories (an East–West Axis is said to be best), modernization theories (urbanization and division of labor are said to be good), dependency theories (exploitation and peripheralization of poor nations are said to be bad), neoliberal theories (market economies are said to be good), and psychological theories (cultural values like thriftiness, the Protestant Ethic, and motivation for achievement are said to be good).

While some of these theories almost certainly account for some of the disparities between countries, IQ scores turn out to be the single best predictor.

Chapters 2–4 discuss the nature of general intelligence, defined as a single unitary construct underlying performance on many specific cognitive tasks. A review of the literature shows that an individual's intelligence is an important determinant of his or her educational attainment, earnings, economic success, and other significant life outcomes. In the United States and Britain, the correlation between IQ and earnings is approximately 0.35, an association the authors argue is causal because: IQs predate earnings, are moderately heritable, are stable from 5 years of age onwards, and predict not only the earnings obtained in adulthood, but educational level and many other positive outcomes along the way. It makes sense that intelligence determines earnings because more intelligent people learn quicker, solve problems more effectively, can be trained to acquire more complex skills, and work more productively and efficiently. Nations whose populations have high IQ levels also have high educational attainment and relatively large numbers of individuals who make significant contributions to national life, including the social infrastructure conducive to economic development. Conversely, nations with low levels of intelligence have low levels of educational attainment and relatively few individuals who make significant positive contributions to the social infrastructure. Low intelligence leads to a number of unfavorable social outcomes including crime, unemployment, welfare dependency, and single motherhood.

Chapter 5, the “Sociology of Intelligence,” provides the first analyses of IQ at the group level, analyzing sub-divisions within nations such as those of cities, districts within cities, and regions. For example, studies carried out using the 310 administrative districts of New York City in the 1930s, found correlations of 0.40–0.70 between average IQ scores (gained from tests administered to children in schools) and measures of per capita income, educational attainment, welfare dependency, juvenile delinquency, mortality, and infant mortality. Similar studies carried out in regions of the British Isles, France, and Spain in the 1970s corroborate these relationships.

Chapters 6–8 (and their appendices) provide the critical core of the authors' analyses. These chapters describe in detail the variables and procedures by which the very testable hypotheses are tested and confirmed. The main IQ data are those published from 81 countries in the scientific literature over the previous 70 years. These are standardized to a British mean IQ of 100 with a standard deviation of 15, along with adjustments made for the secular increases in IQ which average 2.5 points a decade since the 1930s. The IQ data turns out to be highly reliable and valid. For example, in 45 countries for which there are two or more IQ measures, the inter-correlation is 0.94; in 38 countries for which there are data from international studies of achievement in mathematics and science, the correlation with IQ scores is 0.87.

The widespread, though rarely stated, assumption of economists and political scientists that the people of all nations have the same average level of intelligence turns out to be seriously incorrect. To the contrary, the evidence clearly reveals that there are considerable national differences in average intelligence level. The highest average IQs are found among the Oriental nations of North East Asia (IQ = 104), followed in descending order by the European nations of Europe (IQ = 98), the nations of North America and Australasia (IQ = 98), the nations of South and South West Asia from the Middle East through Turkey to India and Malaysia (IQ = 87), the nations of South East Asia and the Pacific Islands (IQ = 86), the nations of Latin America and the Caribbean (IQ = 85), and finally by the nations of Africa (IQ = 70).

One of the most surprising aspects of these data is how few nations have IQs as high as the British average of 100 (only 15 out of 81, or less than 20%) and how many nations have IQs of 90 or less (40 out of 81, almost 50%). The mean IQ of the 81 nations based on averaging the seven regional IQs listed earlier is 90, a serious problem if the book's conclusion is correct that $IQ = 90$ is the threshold for having a technological economy. However, even if all the IQs turn out to be underestimates, it is likely that the rank-order among the nations will remain highly similar.

The range of IQs can be considerable within a geographic or political boundary. For example, in Latin America and the Caribbean, IQs range from 72 in Jamaica to 96 in Argentina and Uruguay and appear to be determined by the racial and ethnic make-up of the populations. Some racially mixed countries were assigned IQs proportionate to the IQs known for the various groups that make up the country. Thus, the national IQ for South Africa is given as 72 based on the weighted average for Whites, Blacks, Coloreds, and Indians (e.g. Owen, 1992).

For some (not all) analyses, 104 of the countries had their IQs estimated by averaging those from the most appropriate neighboring countries. For example, Afghanistan's IQ was estimated by averaging those from neighboring India ($IQ = 81$) and Iran ($IQ = 84$) to give an IQ of 83. The tables provided in *IQ and the Wealth of Nations* will be invaluable for researchers wishing to analyze subsets of the data or to extend them with additional data. Of course, the authors are aware that their data on both national IQs and economic indicators are only estimates and will contain errors. Their stunning results, however, leave little doubt that the margins of error were small enough to make the exercise meaningful. Error variance is typically randomly distributed and so works to diminish the strength of the associations between variables.

Although the correlations between IQs and economic performance are high, some countries had higher or lower per capita incomes than expected from their national IQs. These results are also informative. An analysis of those countries that deviate most from a regression line shows that a major additional factor for economic success consists of whether countries have market or socialist economies. A third contribution to wealth is the unique circumstances a country finds itself in.

Some of the countries with a large positive residual, and therefore a higher per capita income than would be predicted from their IQs, are Australia, Austria, Barbados, Belgium, Canada, Denmark, France, Ireland, Qatar, Singapore, South Africa, Switzerland, and the United States. With the exception of Qatar, South Africa, and Barbados all of these are technologically highly developed market economies and their higher than predicted incomes could be attributed principally to this form of economic organization. Qatar's exceptionally high per capita income is principally due to its revenue from oil exporting, which is actually managed and controlled by corporations and people from European and North American countries. South Africa's much higher than expected per capita income derives from the high performance of the industries established and managed by the country's European minority. Similarly, Barbados's high positive residual can be traced to its well-established tourist industry and financial services, which are owned, controlled and managed by American and European countries.

Some of the countries with a large negative residual are Bulgaria, China, Hungary, Iraq, South Korea, the Philippines, Poland, Romania, Russia, Thailand, and Uruguay. Some of these are present or former socialist countries. Iraq has suffered from losing the Gulf War and a decade of UN trade sanctions. The Philippines have had a large amount of ethnic conflict, which other studies show results in decreased growth (across countries, a 1 S.D. increase in ethnic conflict is associated with a 0.30 S.D. decrease in growth rate; Easterly & Levine, 1997).

Chapter 9 contrasts IQ theory with its competitors, explains anomalies, and provides historical accounts of particular nations and regions. For example, two significant exceptions to the view that a tropical climate is detrimental to wealth are Singapore and Hong Kong, which lie in the tropical zone but are among the richest countries in the world. Two exceptions to the view that a temperate climate is beneficial are Lesotho and Swaziland, which lie slightly south of the Tropic of Capricorn, but are among the poorest countries in the world. The explanation for these differences can be understood in terms of intelligence theory: the people of Singapore and Hong Kong belong to the ethnic group with the highest IQs, while the people of Lesotho and Swaziland belong to the ethnic group with the lowest IQs. Historical vignettes are presented to explain how geographical isolation in central Asia (e.g. Tajikistan) may hinder economic development, and how economic fluctuations in Britain, Germany, and India have coincided with their governments' commitments to a market economy.

Modernization theories, according to which all nations would evolve from subsistence agriculture through to various stages of urbanization and industrialization, have worked for Western Europe and the Pacific Rim but have failed for the four remaining groups of nations (South Asia, the Pacific Islands, Latin America, and sub-Saharan Africa). *IQ and the Wealth of Nations* proposes that modernization theories worked for Western Europe and the Pacific Rim because these nations have appreciably the same or somewhat higher IQs than in the United States but they did not work for the other four groups of nations because these have lower IQs than those in the United States.

One of the most perplexing problems for the general theory is why the people of East Asia with their high IQs lagged behind the European peoples in economic growth and development until the second half of the twentieth century. China's science and technology were generally more advanced than Europe's for around two thousand years, from about 500 BC up to around 1500 AD. In engineering, for example, China had canal systems, including canal locks, centuries ahead of Europe. In agricultural technology, the Chinese were the first to invent the collar and harness for horses (250 BC), and the chain pump for lifting water for irrigation (80 AD). They also invented the wheel barrow (240 BC), which did not appear in Europe until 1250 AD. In printing and paper making, the Chinese invented making paper from bark (105 AD), printing from engraved wooden blocks (650 AD), printing with movable type (1040 AD), and color printing for paper money (1100 AD). In military technology, the Chinese invented the stirrup (475 AD) enabling soldiers on horseback to sit securely in the saddle and attack enemies with swords and lances, gunpowder (1044 AD), rockets (1200 AD), bombs producing shrapnel (1230 AD), small firearms shooting bullets from bamboo and metal tubes (1260 AD), and cannons (1280 AD). In Europe, gunpowder was not used until the 1300s. In marine technology, the Chinese built ships with rudders (2000 BC), and the magnetic compass for navigation at sea (1100 AD). Still other Chinese inventions included: cast iron (300 BC), iron chain supported suspension bridges (580 AD), spinning wheels (1035 AD), water powered mechanical clocks (1080 AD), and porcelain (840 AD). In mathematics, the Chinese invented the decimal point (1350 BC), and negative numbers (100 BC). In the fifteenth century Chinese inventiveness in science and technology came to an end and from that time on virtually all the important advances were made by Europeans, first in Europe and later in the United States, perhaps because while Europeans developed the market economy, the Chinese stagnated through authoritarian bureaucracy and central planning.

The failure of Japan to develop economically until the late nineteenth century is largely attributed to a regulated economy and isolation from the rest of the world. By 1867–1868 a revolution occurred and the new rulers embarked on a program to modernize Japan by adopting Western education and technology, and by freeing up the economy by transforming state monopolies into private corporations. Much of the Japanese economic success in the twentieth century was built by adopting inventions made in the West, improving them, and selling them more competitively in world markets. Japan thereby built up its motorcycle, automobile, shipbuilding, and electronics industries. Although it is sometimes asserted that the Japanese have not made any significant scientific and technological innovations of their own, this underestimates their technological achievements. *Philip's Science and Technology Encyclopedia* (1998) lists a number of important discoveries and technological innovations made by the Japanese: the fiber-tipped pen (1960), “bullet” trains traveling at 210 km/h, much faster than any Western trains (1964), laser radar (1966), quartz watches (1967), VHS video home systems (1976), flat screen televisions using liquid crystal display (1979), video discs (1980), CD-ROM (read only memory) disks (1985), digital audio tape (1987), and digital networks for sending signals along coaxial cables and optical fibers (1988).

African nations are at the other extreme to China and Japan in levels of national IQ and this may explain why they are such a major anomaly for modernization theory. The low rate of economic growth of African countries following their independence from colonial rule in the 1960s is one of the major problems in developmental economics. During the years 1976–1998, the average rate of economic growth per capita GNP of the 41 nations of sub-Saharan Africa for which data are available is much lower than in the rest of the world. Many of the African countries even suffered negative per capita growth rate since 1960 (see also Easterly & Levine, 1997). Several economists have quantified all possible factors such as climate, ethnic diversity, geography, mismanagement, unemployment and the like and compared the situation to elsewhere in the world, especially Asia, and have concluded that these factors do not provide a complete explanation and that there is some “missing element”. Some have identified the low level of “social capital”, i.e. the widespread corruption and lack of trust in commercial relationships, poor roads and railways, unreliable telephones and electricity supplies, and the prevalence of tropical diseases such as malaria. *IQ and the Wealth of Nations* suggests that the missing link is IQ, and that some of the factors identified by economists as contributing to the low economic growth in sub-Saharan Africa are themselves attributable to a low level of intelligence in the populations. For example, the poor telephone services and electricity supplies, the low agricultural yields, and the poor advice given by government advisory boards are themselves due to the low average levels of IQ. With a cognitive capacity of $IQ = 70$, the populations of Africa cannot be expected to match the rates of economic growth achieved elsewhere in the world.

In Chapter 10, the final chapter, various predictions are made. One clear prediction is that future growth is most likely in those countries with the largest negative residuals, that is, whose national IQ scores are high but whose present economic performance is weak. The countries of the former Communist Blocs—such as Russia, Poland, Bulgaria, and Romania, and the People's Republic of China, and Vietnam—are obvious possibilities. This chapter also lists some of the factors (both environmental and genetic) that might raise IQ scores, and so alleviate the problem. These include better nutrition, education, and health, and also ending the dysgenic fertility wherein the lowest IQ people produce the most children. For example, fertility figures from

countries such as Brazil, the Dominican Republic, and Nicaragua show that among parents with secondary education in the late 1990s, the average number of children produced lies between 1.8 and 2.2, while among women with the least education, it lies between 5.0 and 6.1. Thus, the least educated are having two to three times the number of children of the most educated. Since educational levels in these countries are to some degree correlated with intelligence, their demographic trend is strongly dysgenic.

The final conclusion of *IQ and the Wealth of Nations* is that national differences in IQ are here to stay, as is the gap between rich and poor nations. Hitherto, theories of economic development have been based on the presumption that the gaps between rich and poor countries are only temporary, and that they are due to various environmental conditions that could be changed by aid from rich countries to poor countries, and by poor countries adopting appropriate institutions and policies. It has been assumed that all human populations have equal mental abilities to adopt modern technologies and to achieve equal levels of economic development. The authors call for the recognition of the existence of the evolved diversity of human populations.

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