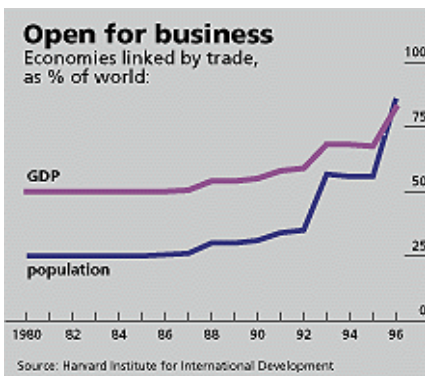


Nature, nurture and growth



FOR the first time in history, almost all of the world's people are bound together in a global capitalist system. This momentous development

forces us to think anew about the world economy. In the past, differences in policies across regions of the world resulted in vast differences in economic performance; in the future, policies are likely to be more similar. As a result, large parts of the developing world will narrow the income gap between themselves and richer nations. But this process of convergence, by itself, will go only so far. With or without markets, many developing countries will be left far behind.

Adam Smith understood the limits of convergence, and the role that geography plays in defining those limits, better than many modern economists. He noted that sea-based trade is less expensive than overland trade, a fact that is still true despite the advent of railways, cars and air travel.

So it is upon the sea-coast, and along the banks of navigable rivers, that industry naturally begins to subdivide and improve itself, and it is frequently not till a long time after that those improvements extend themselves to the inland part of the country. All the inland parts of Africa, and all that part of Asia which lies any considerable way north of the Euxine and Caspian seas seem in all ages of the world to

have been in the same barbarous and uncivilised state in which we find them at present.

Smith attributed England's relatively high productivity to the advantages of natural geography and policy. England, he pointed out, had fertile soil, a long coastline and many navigable rivers. It also had secure property rights and the rule of law. Since Smith's time, economic development has continued to reflect the interplay between these two mutually reinforcing factors.

Policy can influence geography—for instance, through investment in transport and communications. And geography influences policy. Throughout history, coastal states, with their long engagements in international trade, have been more supportive of market institutions than landlocked states, which have tended to organise themselves as hierarchical (and often militarised) societies. Mountainous states, as a result of physical isolation, have often neglected market-based trade. Temperate climes have generally supported higher densities of population and thus a more extensive division of labour than tropical regions. Until this century, the burden of disease and low agricultural productivity in sub-Saharan Africa kept population densities among the lowest in the world, with the exception of coastal trading regions and a few mountainous areas (such as the Ethiopian highlands and the Great Lakes region) where high elevations reduced the incidence of infectious disease.

Smith understood that the physical isolation of the interior of Africa placed profound burdens on the region's development. Living a century before Pasteur and Koch, however, he could not fully appreciate the toll of infectious disease in the tropics.

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Malaria, schistosomiasis, filariasis, onchocerciasis, and a plethora of other lethal and debilitating maladies are restricted to tropical and sub-tropical climates. Pests and diseases wreak havoc with crops and herds. Other special features of tropical ecology also hinder agricultural development. Torrential rains in equatorial regions tend to leach the soils of nutrients. Exceptional cases, such as Java (Indonesia's most populous island), usually reflect exceptional circumstances—in Java's case, a highly fertile volcanic soil.

Over the past 200 years, this interplay of capitalism and geography has produced inequalities of income greater than any seen before in history. Europe and North America were twice blessed. They had the most productive economic systems—reinforced, and partly caused, by their very favorable geographical conditions. In contrast, the tropics and great land-based empires were twice cursed, with weaker economic institutions and, as a rule, poorer geographical endowments. In 1913 western Europe and its offshoots in North America and the Pacific had a mere 17% of the world's population, but produced 48% of its income. This century the interaction of geography and policy—nature and nurture in economic development—has continued.

Lessons can be drawn from this experience. In recent studies carried out by the Harvard Institute for International Development (HIID)*, global patterns of growth during 1965-90 were shown to depend on four factors: initial conditions; physical geography; government policy; and demographic change. Initial conditions matter in the sense that, other things being equal, poorer countries tend to grow faster than richer ones. Physical geography matters in several ways. Landlocked countries grew more slowly than coastal economies (being entirely landlocked was found to subtract roughly 0.7 percentage points from a country's annual growth). And tropical countries grew 1.3 percentage points more slowly each year than those in the temperate

zone, even after allowing for other differences. This seems to reflect the cost of poor health and unproductive farming.

Statistical tests suggest that richer, non-agricultural tropical countries (eg, Hong Kong and Singapore) do not suffer a geographical deficit of this kind. Air conditioning is probably the great equaliser in labour productivity in manufacturing and services. In essence the tropics may face a kind of poverty trap. At low incomes, most of the population is stuck in low-productivity tropical farming. If the country can escape to higher incomes via non-agricultural sectors (eg, through a large expansion of manufactured exports), the burdens of the tropics can be lifted.

Economic policies, according to our work, proved crucial in three different ways. First, openness was decisive for rapid growth. Open economies grew 1.2 percentage points per year faster than closed economies, controlling for everything else. Second, prudent fiscal policy is crucial. Fast-growing countries tend to have governments with high rates of saving and low spending relative to GDP. Each rise of ten percentage points of GDP in government saving was found to raise the overall GDP growth rate by one percentage point. Third, the rule of law delivers growth. Good government is not just a moral concern, or a basis for social stability and political legitimacy. Corruption, government breach of contract, expropriation of property, and inefficiency in public administration are found to harm growth. On a ten-point scale ranging from the worst case (North Korea equals 1) to the best (Singapore and Hong Kong equal 10), each point up the scale was associated with 0.2 percentage points of growth.

Demography is the fourth factor. All developing countries are moving from high birth and death rates to low ones. In most cases, death rates fall first, as medical advances reduce infant mortality and

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extend adult lives even before there is a change in fertility. The first phase, therefore, is faster growth of population. This is followed by a fall in birth rates, as households adjust to longer life expectancy and lower infant mortality. (Fertility choices also interact with levels of development. As mothers' time in the labour force rises in value, families tend to have fewer children.)

East Asia is passing through this transition earlier and faster than most other developing regions. Its rapid population growth is already abating, and more of the population is now of working age. In South Asia and sub-Saharan Africa, birth rates have been much slower to fall. The result has been a bulge in the population of dependent children: more mouths to feed, without a corresponding increase in the number of workers. During 1965-90, these differing patterns contributed to higher per capita growth in East Asia than in the two poorer regions, by as much as 0.6 percentage points per year.

The HIID study also suggests how tropical South-East Asia overcame the disabilities of the tropics to achieve rapid growth. Partly it was a matter of luck. Java's soils and North Thailand's rice-growing regions are relatively productive. Malaysia worked hard to shift out of rubber and into palm oil. But more importantly, South-East Asia relied on manufactures rather than tropical agriculture as the path out of poverty. Taiwan, Hong Kong, Singapore, Malaysia, Thailand, and Indonesia all created profitable conditions for labour-intensive manufacturing exports, through realistic exchange rates, moderate tariffs, duty-free access for exporters to capital and intermediate goods, attention to infrastructure such as ports and telecoms and so on.

The table compares East Asia with three laggard regions: South Asia, sub-Saharan Africa and Latin America. Economic policy rather than geography explains most of East Asia's relative success. Changes in policy—towards openness, fiscal rectitude, and

the rule of law—could make a huge difference to the prospects of the other regions. But lurking behind these results is some bad news: for much of the world, bad climates, poor soils and physical isolation are likely to hinder growth whatever happens to policy. Africa suffered a shortfall in growth due to poor geography and poor health of an estimated 2.3 percentage points a year.

All this suggests that the already fast-growing East Asian economies should be able to continue to catch up with the richer economies, though supercharged growth should gradually taper off as they succeed in narrowing the gap. (Japan is the clearest recent example of this.) The developing world will enjoy a significant acceleration of overall growth. This already seems to be happening. During 1978-87, per capita incomes in the developing world grew by 2.1% a year. During 1987-92, this increased to 3% a year. It has since risen further, to 4.4% a year during 1992-96.

While much could go wrong with Asia's growth machine, HIID's central forecast is that the region will continue to grow rapidly in the next 30 years. East Asia will grow more slowly over this period than it has done over the past 30 years. But South Asia should enjoy faster growth than before, partly because it is finally adopting reasonable market-based policies after decades of statism and partly because the demographic transition is now proceeding apace there, so that the proportion of workers in the population will gradually increase.

The implications of this forecast are remarkable. Asia's share of world output will rise markedly. Two hundred years ago, the advent of modern capitalism sent Asia's share in world GDP plummeting. By 2025, the world will have come full circle. Western economic supremacy was built upon the West's nearly exclusive hold on capitalism. Capitalism has now become common property. So too can economic prosperity become common property—at least for

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those regions not impeded by fundamental geographical barriers.

Asia's prospects are bright in part because geography poses no such insuperable obstacles. China lies almost entirely in the temperate zones. Infectious diseases, while endemic, are not out of control. Life expectancy is already roughly 70 years. China's main geographical problem is that hundreds of millions of peasants live in the interior, hundreds of miles from the coast. Infrastructure linking coast and hinterland is grossly inadequate. It is no accident that perhaps 150m people are on the move, migrating from the slower-growing hinterland to the dynamic coastal provinces.

India's geography is less favourable, lying half within the subtropics and half within the tropics. Yet parts of tropical India might be more promising for long-term development than large parts of the northern, subtropical regions. The tropical states of India typically have populations close to the great ports of the southern coasts, while the northern populations are mainly in the great Gangetic plain. Vast populations in Uttar Pradesh and Bihar are hundreds of miles from the nearest port.

South-East Asia has the trade routes and the demonstrated potential to industrialise through export-oriented manufactures. Only Central Asia faces profound, and largely unsolved, geographical obstacles. Numerically, however, the Central Asian states represent a very small part of Asia's overall population, though a large part of its land area.

Geography poses far worse problems in other parts of the developing world, especially in Africa, but also in Latin America. There is little doubt that African growth will benefit markedly from the spreading transition to market-based, open economies. Within the past two years, perhaps a dozen African economies have passed the threshold of 5% annual

growth—still too slow, but much better than before. The data for 1965-90 suggest, however, that tropical Africa (which is home to nearly 90% of the population below the Sahara), suffered a geographical penalty of 1.3 percentage points compared with temperate-zone countries. Fourteen countries in sub-Saharan Africa suffer an additional growth shortfall, estimated at around 0.7 points a year, as a result of being landlocked. Poor health retarded growth by another 0.8 points a year. Part of this reflects Africa's poverty: development will reduce the penalty over time. Part, however, reflects the extraordinarily high incidence of infectious disease in tropical Africa, and that will be very difficult to solve.

If the growth equations are taken literally, they suggest that the long-run incomes of tropical countries would reach only 53% of temperate-zone economies, even if economic policies, other geographical features, and life expectancy were identical. The tropical shortfall is higher taking into account the indirect effect of the tropical environment on health. With around 2 billion people, the tropical regions already account for one-third of the world's population and their share will rise sharply: these regions have the fastest population growth in the world. The deep-rooted crisis of tropical development is therefore likely to pose one of the greatest challenges to global stability in the coming decades. How might it be addressed?

Much of the world's tropical population is still engaged in farming. This has long suggested to development economists that agriculture-led growth should play a key role in tropical development. At the very least, the evidence on growth in the tropics calls this view into question. Nowhere has tropical agriculture led the escape from poverty. In some ways, Indonesia may be an exception, but, if so, it is partly as a result of Java's specific conditions (Indonesia's efforts to replicate Java's success in the outer islands have so far failed). Sustained agriculture-led development, whether in the United States,

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Australia, Denmark or Argentina, has always been a temperate-zone affair.

In saying this, one needs to guard against a kind of geographical determinism. The tropics' difficulties do not imply that agriculture should be punished through overvalued exchange rates, agricultural export boards, or neglect of infrastructure. The case for vastly expanding scientific research on tropical agriculture is also strong. With time, information technology will give tropical and landlocked countries new opportunities to participate in the global economy. Nonetheless, the frustrating record of tropical agriculture may mean that we should begin to accept as normal a situation in which Africa and other tropical regions are fed by temperate-zone exports, and in which the tropics earn their way in the world through manufacturing and service exports rather than primary commodity exports.

The current pattern of the rich countries—to provide financial aid to tropical Africa while blocking Africa's chances to export textiles, footwear, leather goods, and other labour-intensive products—may be worse than cynical. It may in fact fundamentally undermine Africa's chances for economic development. The advice of the World Bank may also have to be rethought. Integrated rural development may sound equitable and effective, but it can be wishful thinking. If disease, poor soil, unreliable rainfall, pests, and other tropical ills so deeply harm tropical agriculture in large parts of Africa, then priority should go to industrial zones, ports, warehousing and customs facilities, and other infrastructural needs of manufacturing exporters.

International assistance for the tropics should turn away from general balance-of-payments support, and towards vastly larger international efforts to deal with tropical infectious disease and public health generally. Research spending on temperate-zone diseases is vastly greater than spending on tropical diseases (especially if spending is measured relative to years of life lost to disease). Worldwide public-health spending on a malaria vaccine, for

example, has been estimated at just \$60m in 1996. That for a disease which kills around 1m people, and affects between 200m and 400m others, every year. Of those deaths, 90% are in sub-Saharan Africa. Private spending, by, say, pharmaceutical companies, is similarly meagre, reflecting the poor prospects of selling treatments to the impoverished tropics.

Perhaps the toughest implication is that the world may have to contemplate vastly larger flows of migrants. The advanced countries prefer to believe that migration can be curbed by growth in poorer countries. But if it is true that, despite good policies, geographically disadvantaged regions are simply incapable of faster growth, then migration will expand. Already, many such economies rely heavily on flows of worker remittances: Bolivia, Burkina Faso, El Salvador, Ethiopia, Jamaica, Peru, the Philippines and Tanzania, to name a few. This list is likely to grow if it turns out that geographical conditions in many areas indeed raise insurmountable barriers to higher incomes.

Global capitalism is surely the most promising institutional arrangement for worldwide prosperity that history has ever seen. Long-cherished hopes for convergence between rich and poor regions of the world may at last be about to be realised. But the world will need wisdom and stamina to reap the potentially vast benefits. The world must be prepared to deal honestly and boldly with the laggard regions, paying special attention to the acute and unresolved problems of tropical development. And the world must learn how to manage an open, rule-based system, on the basis of shared principles that cover nearly the whole earth.