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research update

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Research and Statistics Branch

Research Update No.4 rounds out the year by revealing the latest rankings for competitive industrial performance worldwide. The findings from two international conferences on African industrial performance and opportunities are featured in this number, while the personal perspectives column offers an approach to putting the least developed countries (LDCs) on the fast track to economic prosperity.

Going from strength to strength as an internationally recognized benchmark for comparative economics since its launch four years ago, UNIDO's 2007 Industrial Development Scoreboard ranks 100 countries according to competitive industrial performance. The blending of industrial development indicators with manufacturing value added, manufacturing exports per capita, industrialization intensity and export quality makes it a unique tool for measuring economic performance in both developed and developing countries.

Emanating from a meeting of internationally renowned economists in Tokyo, the experiences of Africa and Asia provide economic insights by comparing productivity and growth in the two continents. A candid assessment emerges of policy options in the crucial areas of foreign direct investment and technology diffusion.

In honour of the late Indian economist Sanjay Lall, an international conference in New Delhi offers the latest thinking on the potential for cooperation between India and Africa in industry, trade and investment. As well as looking at cooperation from a macro-economic perspective, opportunities are identified in six specific sectors of industrial activity crucial for African development.

With an 80-year gap in manufacturing value added between the world's poorest nations and other developing countries, UNIDO statistician Shyam Upadhyaya tackles the issue of identifying a viable solution for bridging the divide. Drawing on statistical analysis from the Research and Statistics Branch, he suggests an approach for LDCs to catch up with the rest of the Third World in 25 years and with industrialized nations in 50 years.

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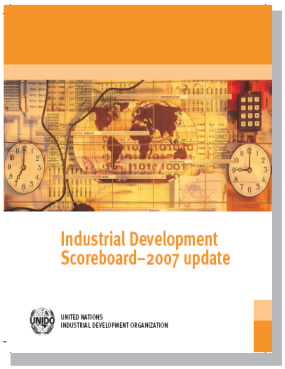
Industrial Development Scoreboard 2007, *by Frank Bartels*



The latest version of UNIDO's Industrial Development Scoreboard has just been published, updated for the benchmark years 1993, 1998 and 2003. This year's compendium of the competitive industrial performance indices of 100 different economies reveals, in terms of regional grouping of countries and over the years, a persistent pattern of performance, with industrialized countries leading the rankings and transition economies tightly grouped in the middle ranks. Developing countries show a wider variation in their positions, with the tiger economies of East and South-East Asia leading Latin America and the Caribbean, South Asia and sub-Saharan Africa.

With the publication of its *Industrial Development Report* for 2002/2003, UNIDO launched the Scoreboard as a measurement of industrial capacities and technological capabilities at the aggregate level of the economy. Carving out a niche alongside such prestigious indices as the WEF Technology Index, UNDP Technology Achievement Index and RAND Science and Technology Capacity Index, the Scoreboard has been the subject of analysis and reporting by, for example, Daniele Archibugi, Director at the Italian National Research Council and Alberto Coco, of the Harvard University Center for European Studies. In less than five years, the Scoreboard has established itself as an internationally recognized benchmark for comparing economic performance in export, manufacturing and technological terms.

The Scoreboard is based on a calculus from two sets of components: industrial development indicators and the Competitive Industrial Performance (CIP) index. The latter benchmarks competitive industrial activity at country level against the backdrop of liberalization and globalization. A combination of four variables is used to capture different aspects of competitive performance:

- **Manufacturing value added (MVA) per capita**: the basic indicator of a country's level of industrialization, deflated by population to adjust for the size of the country

- **Manufacturing exports per capita**: the ability of countries to produce goods competitively and, implicitly, keep abreast of changing technologies

- **Industrialization intensity**: the simple average of the shares of MVA in gross domestic product and of medium- and high-technology (MHT) activities in MVA, with the former capturing the role of manufacturing in a country and the latter the technological complexity of manufacturing

- **Export quality**: the simple average of the shares of manufactured exports in total exports and of MHT products in manufactured exports, with the former capturing the role of manufacturing in export activity and its technological complexity, as well as the ability to make more advanced products and move into more dynamic areas of export growth

The Scoreboard comprises technical notes, raw data based on industrial statistics, CIP variables, CIP component indices, CIP-sorted rankings and CIP ranking.

Productivity and growth: Views from Tokyo, *by Anders Isaksson*

A conference of internationally renowned economists marked the formal launch of a research collaboration agreement between UNIDO and Japan's Institute of Developing Economies (IDE) this autumn in Tokyo. Hosted by the International House of Japan, UNIDO and IDE organized a three-day conference on productivity and growth in Africa and Asia (9-11 October 2007). It provided the venue for the signing of a Memorandum of Understanding between UNIDO Director-General Kandeh Yumkella and IDE President Takashi Shiraishi, as well as a keynote lecture by Professor Shujiro Urata on the role of foreign direct investment (FDI) for economic growth. The agreement envisages joint research projects and exchange of researchers between UNIDO and IDE.

The Conference featured presentations by researchers of the calibre of Barry Bosworth, Brookings Institution, John Fernald, Federal Reserve Bank of San Francisco, Sanghoon Ahn, Korea Development Institute, Carl-Johan Dalgaard, University of Copenhagen, Tsutomu Miyagawa, Gakushuin University and Kevin Fox, University of New South Wales. Presentations from UNIDO were made by RST researchers Frank Bartels, Nobuya Haraguchi, Thiam Hee Ng and Tetsuo Yamada, as well as by the author. The programme also included contributions from IDE researchers Takahiro Fukunishi, Etsuyo Michida and Tatsufumi Yamagata.

As well as offering economic perspectives on Africa and Asia, the Conference included a special session on the data situation in developing countries and its consequences for productivity measurement.

One of the highlights was discussion of the role of international integration—in the context of FDI and trade—for technology diffusion. Important findings included that FDI was more likely to flow to an industrialized than a developing country. Political instability, lack of production inputs and poor productivity performance were seen as exerting negative influences on FDI decisions. Another insight gained was the importance of cross-border flows of people, in addition to goods and capital, for technology transmission.

The discussion on productivity measurement brought out the contrast between state-of-the-art measurement methodology, as practiced in industrialized nations and the realities of trying to apply it in developing countries. The demanding application of detailed growth accounting in China and India formed a particular focus. While both countries had approximately the same allocation between capital deepening and total factor productivity (TFP) growth—with China enjoying superior output growth—the sources seemed to differ. In China, growth was chiefly driven by industry, whereas, in India, the main source was services.

A panel on policy options for sustained growth in Africa focused on two issues: first, what was learnt in terms of policy implications from the conference and, secondly, what should be considered in more depth.

The panel concluded that labour costs were not commensurate with low productivity, which implies considerable expense to train workers or, simply, not to invest in Africa. A few large Japanese firms had managed the former because they could afford the costs, while many more had been forced to abstain from locating their business there.

African firms might benefit by learning from China and other Asian economies in terms of reducing inefficiencies, rather than spurring technical progress. One of the participants pointed to the lack of TFP growth and capital deepening as two serious obstacles to African development.

Among the most important policy options were investment in infrastructure and health, strengthening of the financial sector, international integration and industrial diversification. Experimentation and replication of policy were suggested as potential options. A general, yet fundamental, conclusion was that knowledge of African economies and their structures was insufficient and that much more needed to be learnt about key bottlenecks to productivity and growth.

Indian-African cooperation in industry, trade and investment, *by Thiam Hee Ng*

Economic cooperation between India and Africa was the focus of the first Sanjaya Lall Memorial Conference, organized by UNIDO, in cooperation with the Government of India, United Nations Conference on Trade and Development (UNCTAD) and International Trade Centre (ITC), in New Delhi (10–14 September 2007).

Held under the auspices of the recently established UNIDO Centre for South-South Industrial Cooperation (UCSSIC), the gathering was inspired by the work of the late Professor Lall, who played a key role in shaping a coherent analytical approach for international organizations to industrial development and FDI, as well as to measuring the distance to technological frontiers and the required technological efforts and capabilities and small and medium enterprise competitiveness and development. Inaugurated by Indian Minister for Commerce and Industry Kamal Nath, the event attracted 28 senior civil servants, policy makers and private sector representatives from Cameroon, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Senegal, South Africa, Sudan, United Republic of Tanzania, Uganda and Zambia.

The Conference had two main objectives. The first was to expand and disseminate knowledge of the latest developments in industrial, investment and trade policy thinking to African policy-makers and private sector representatives. The aim was to strengthen the capacity of African policy-makers to implement industrial, investment and trade policy at national level.

The second was to facilitate South-South cooperation between India and Africa as well as identify new opportunities for economic cooperation between India and Africa. By bringing together civil servants and private sector representatives, the aim was to help establish the basis for greater cooperation and networking. Six sectoral sessions took place, on cluster development strategies, information and communication technology (ICT) applications in industry, cost-effective housing technologies and building materials, renewable energy, pharmaceuticals and leather.

During the course of the Conference, African participants were particularly interested in

establishing links with Indian training and development institutes for skills development and capacity-building in the leather and renewable energy sectors. They were also keen to work with such business organizations as the Indian Pharmaceutical Alliance, Confederation of Indian Industry and Federation of the Indian Chambers of Commerce and Industry for expansion of trade and technology transfer through investment.

Statistical profile of LDCs, *by Shyam Upadhyaya*

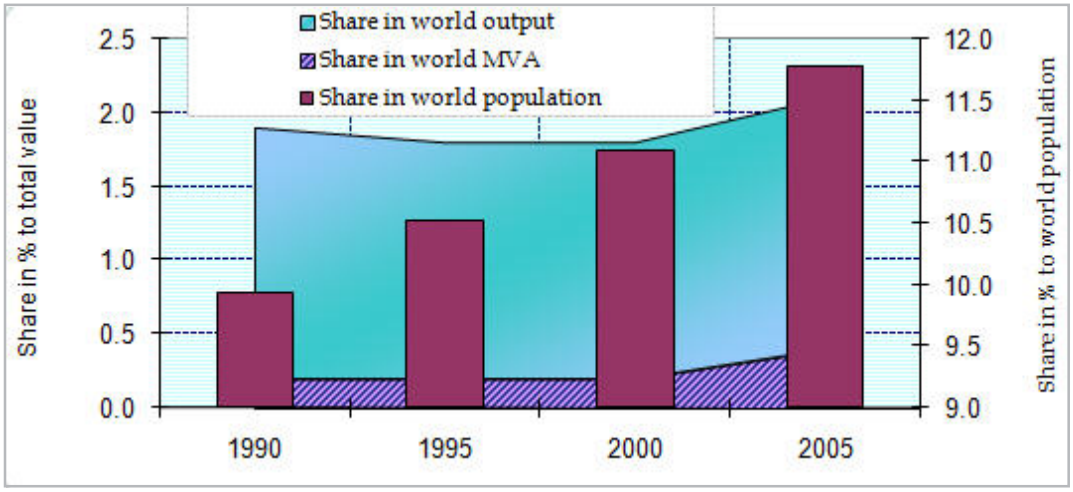
The current level of MVA per capita in the world's poorest nations lags more than 80 years behind that in other developing countries in terms of prevailing average annual growth rates. However, they could catch up with those countries in just 25 years and with the industrialized world in 50 years. The key to success, according to a new RST statistical analysis, is to increase LDCs' MVA per capita at the current growth rate of China or transition economies.

The contribution of manufacturing to the economy has been considered as one of the key indicators of economic development in assessing LDCs. Manufacturing applies modern technology to production processes, develops skills and generates employment and self-employment, thereby significantly reducing dependency on such traditional sectors as agriculture. To gauge the impact of manufacturing on LDCs, UNIDO has compiled a statistical profile to highlight the role of MVA in overall economic development as well as its relation with other socio-economic indicators.

In the past 15 years, the share of LDCs in world population grew from 10 to nearly 12 per cent. Their share in total world output, however, remained less than 2 per cent throughout this period. At the same time, LDCs' share of MVA was little changed, accounting for some 0.4 per cent of the world total. LDCs also accounted for less than 0.5 per cent of total world trade volume. In short, population growth in LDCs has outstripped economic growth.

The result has been a very low level of MVA per capita in LDCs, equivalent to merely US $33 at the nominal exchange rate. This is nearly ten times less than the average in developing countries and 254 times less than in Japan, which has the highest MVA per capita.

Share of LDCs in world population and production



Source: UNIDO database, World Development Indicators, 2007.

LDCs and other country groups in world MVA and population (2007)

	Share in world population (in %)	Share in world MVA (in %)	MVA per capita (in US$)
Least developed countries	11.6	0.4	33
Developing countries (excl. China)	59.2	19.5	342
China	20.5	11.4	543
CIS	4.4	1.5	369
EU	7.1	22.9	3280
North America	5.1	26.7	5492
Japan	2.0	15.5	8383
Industrialized countries	20.3	69.1	3656

With a combined population of only 20 per cent, industrialized countries account for three quarters of the world's industrial production.

During 2000-2005, LDCs achieved higher MVA growth *per capita*, at 6.5 per cent annually, compared to 5.2 per cent between 1995 and 2000. As shown in the figure below, the increment in MVA growth rate per capita in LDCs, as well as in developing countries as a whole, excluding China, was significant. During the same period, China and the Commonwealth of Independent States (CIS) achieved an accelerated growth of MVA. The MVA growth rate was slower in the industrialized countries of North America and the European Union.

The current industrial growth rates of LDCs are still too low if they are to catch up with the pace of development in other countries. However, at some 10 per cent annual growth, they could begin to close the gap, which according to the UNIDO analysis, is an achievable pace in terms of industrial development.

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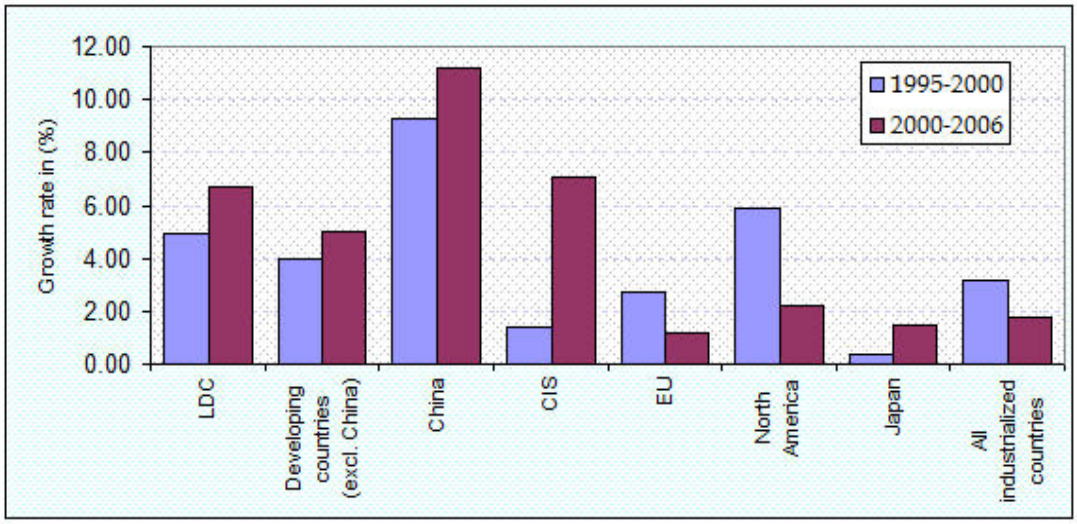
MVA growth by country and country-group, 1995-2000 and 2000-2006



Source: UNIDO database 2007 update.