UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS

PRS NEWSLETTER

October 2020 - Issue 7

FOREWORD

Dear Readers,

The seventh issue of the PRS newsletter comes at a time when many countries are facing a second wave of COVID-19, and when uncertainty seems to be the only certainty. The pandemic's aftershocks will likely transform economies and societies around the globe, and UNIDO will continue to work together with its Member States to ensure a smooth transition to the 'new normal' and to strengthen countries' resilience to deal with future pandemics, economic fallouts and other global challenges.

This newsletter summarizes the work PRS has carried out from July to September, and highlights the most important milestones achieved and relevant research results published. Although COVID-19 continues to dominate the headlines, PRS has not neglected other crucial issues, such as Industry 4.0 and the contribution of advanced digital production technologies to environmental sustainability, the role science, technology and innovation (STI) can play in attaining the sustainable development goals (SDGs) and the continued significance of manufacturing as an engine of growth, particularly in developing countries. These and many other interesting topics are addressed in this issue.

I would like to take this opportunity to warmly welcome Fernando Cantu Baldazu, Chief Statistician, to the team. He now leads the Statistics Division following Shyam Upadhyaya's retirement in April. We wish both him and Shyam all the best on their new journey!

This will be the last version of the PRS newsletter in its current format – our future E-newsletters will be issued monthly and will therefore be shorter and easier to navigate. We look forward to continuing to share glimpses of our work with you in the months and years to come.

If you have questions related to the newsletter, please contact us at prsnewsletter@unido.org.

Hiroshi Kuniyoshi
Deputy to the Director General and Director ad interim of the Department of Policy Research and Statistics, EPR/PRS

POLICY

POLICY provides strategic industrial policy advice to Member States in support of accelerating their industrial development. In close collaboration with the Research team, it identifies, designs, implements and evaluates policies aimed at expanding and diversifying Member States' productive capacity.

TURNING HEALTH CHALLENGES INTO INDUSTRIALIZATION OPPORTUNITIES FOR DEVELOPING COUNTRIES

Developing countries should take a two-pronged approach to recovery policies to turn the impacts of the COVID-19 pandemic into long-term industrialization opportunities. They should 1) increase investments in innovation and manufacturing capabilities, and 2) identify strategic sectors, e.g. niche industries, that can safeguard independence in times of temporary global value chain (GVC) disruptions and open up opportunities to upgrade in GVCs. The challenge, however, is not simply to increase R&D spending, but to fortify the dynamics of interaction and collaboration between firms and research organizations within the national innovation system. Economic considerations will not suffice to ensure long-term prosperity; the inclusion of societal and environmental considerations in policy design will also be necessary.

TECHNOLOGICAL REVOLUTIONS, CHANGES IN LIFESTYLES AND SUSTAINABLE INDUSTRIAL DEVELOPMENT IN LATIN AMERICA AND THE CARIBBEAN IN A POST-COVID-19 WORLD

PRS's Fernando Santiago participated in a webinar organized jointly by UNIDO and the Latin American Network for the study of Learning Systems, Innovation and Skills Construction (LALICS) entitled: "Technological revolutions, changes in lifestyles and sustainable industrial development in Latin America and the Caribbean in a post-COVID-19 world". The webinar served as a platform for over 100 researchers, policymakers and practitioners to discuss pressing health and economic challenges as well as opportunities and the structural problems the Latin America region faces. UNIDO, in accordance with its mandate to promote sustainable and inclusive industrial development, will undertake to assist member states in the region to achieve a fast recovery and to build capacities to improve the lives of local populations.

DEVELOPMENT OF A STRATEGIC PROGRAMME FOR UNIDO'S APPROACH TO SCIENCE, TECHNOLOGY AND INNOVATION FOR THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOAL 9

In collaboration with the Republic of Korea, this project will assist UNIDO in more effectively participating in debates and efforts to promote the contribution of science, technology and innovation (STI) and industrial development to the achievement of the sustainable industrial development goals (SDGs). The project will support the creation of a policy and research engagement programme at UNIDO on how to leverage STI for the achievement of inclusive and sustainable industrial development (ISID) and the SDGs. It will furthermore strengthen UNIDO's contribution to the Technology Facilitation Mechanism and other selected forums on STI within and outside the UN system. The intended strategic contributions are two-fold: 1) via substance through research, capacity development and policy-oriented work, and 2) via contributions to strategic activities, including workshops and meetings.

RESEARCH

RESEARCH provides solid empirical analyses on themes and global trends related to UNIDO's mandate to identify the sources and determinants of sustainable industrial development and economic growth, leading to improved industrial competitiveness in the context of the global economy.

CORONAVIRUS: THE ECONOMIC IMPACT – A HEALTH PANDEMIC OR A PANDEMIC FOR THE ECONOMY? APRIL 2020 AND SOME EARLY EVIDENCE OF FIRMS' PERCEPTIONS

The economic impact of the pandemic has left no country unscathed. A comparison of data for April 2020 vs December 2019 shows that industrial production fell by 20 per cent, on average. The distribution of these decreases is heterogeneous across countries. Forty-three out of 46 countries experienced a lower level of trade in goods, with only Israel China and Chile recording an increase.

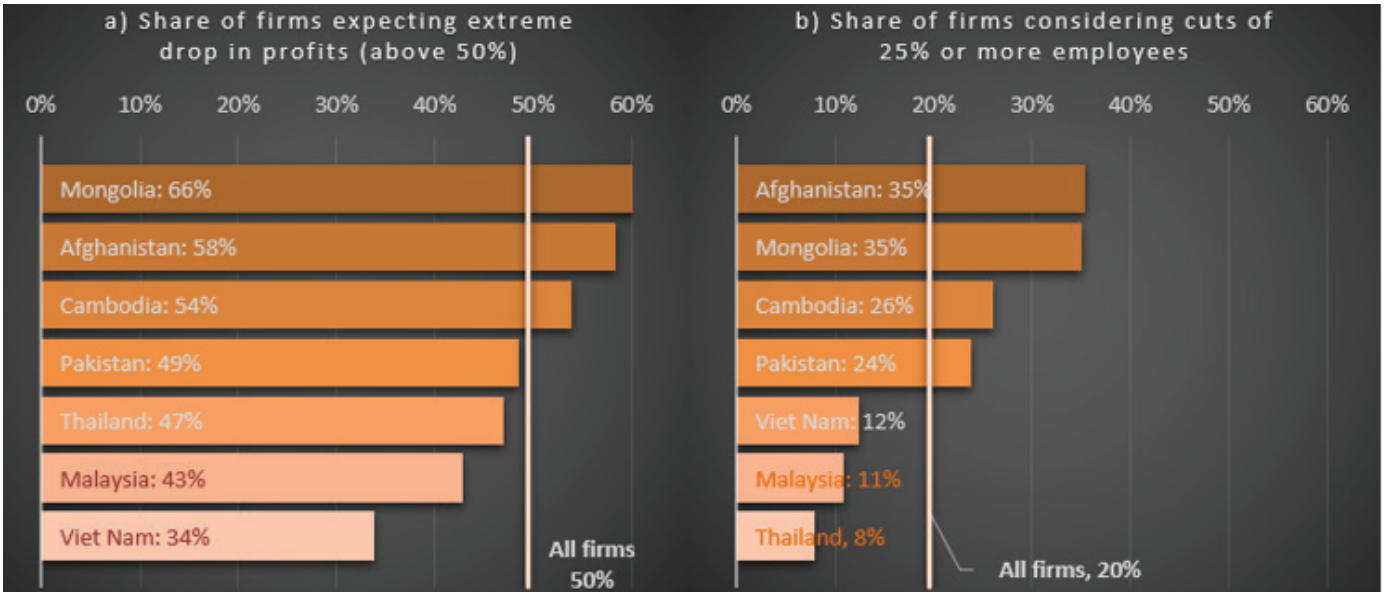
According to the results of pilot firm-level surveys across manufacturing firms in emerging economies in Asia, firms' expectations about future profits and employment growth are less dispersed and paint a gloomy picture. Half of the firms surveyed expect a drastic decline in company profits (50 per cent or higher) for 2020. The two biggest challenges reported by firms are 1) contraction in demand, and 2) payment of wages (particularly in labour-intensive industries, such as textile and apparel). Differences also exist across firm size, with SMEs expecting a larger decrease in profits and more job cuts than larger firms (for which value chain disruptions pose a far greater problem).

Governments around the globe have mobilized efforts to cushion the immediate effects of the crisis. Our results show that SMEs are less likely to receive government support—in addition to the fact that they generally face more obstacles than large firms in access to finance — which calls for improved policy responses to address SMEs' specific problems. Our analysis also sheds light on the absence of a visible strategy and policies to support business resumption and reorientation. How developing countries tailor these measures today will affect their prospects for building resilient, inclusive and sustainable post-crisis industrialization.

ROBOTIZATION, EMPLOYMENT AND INDUSTRIAL GROWTH INTERTWINED ACROSS GLOBAL VALUE CHAINS

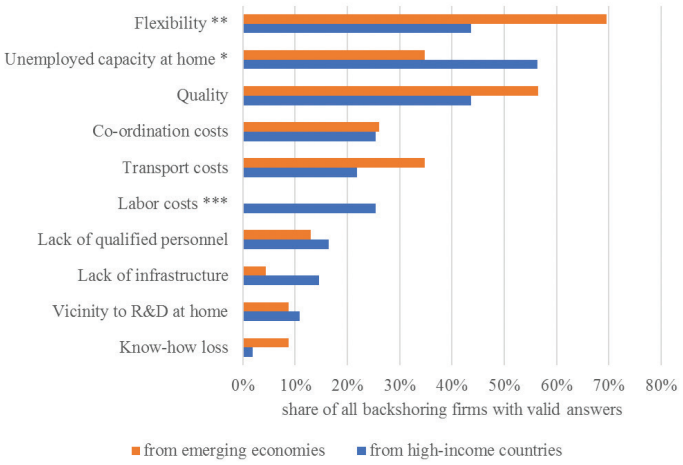
The global economy is currently experiencing a new wave of technological change, especially in the realm of artificial intelligence and robotics. One key concern in this context is the consequences of these new technologies on the labour market. This IDR Background Paper provides a comprehensive analysis of the direct and indirect effects of the rise of industrial robots and productivity via international value chains on various industrial indicators, including employment and real value added. The results indicate that the overall impact of the installation of new robots did not significantly affect the growth of industrial employment during the period 2000–2014, while the overall impact on the real value added growth of industries worldwide was positive and significant.

Not all industries are equally affected: textile and apparel firms expct to be hardest hit; chemical and plastic expect to be the least impact by COVID-19



INDUSTRY 4.0 AND THE CHANGING TOPOGRAPHY OF GLOBAL VALUE CHAINS

This Working Paper explores how new digital production technologies—also known as Industry 4.0 (I4.0)—might shape global value chains (GVCs). I4.0 is one of the drivers of backshoring, i.e. the movement of production back to home countries, and offers firms some of the flexibility that was lost in complex production chains. It also leads to higher productivity and quality to neutralize the labour cost advantages of offshoring locations. We find corroborating evidence for these claims using firm-level data. Moreover, evidence from case studies of firms in the Basque Country indicates a positive relationship between investments in digital production technologies and backshoring.



Motives for backshoring from emerging economies and high-income countries, 2013–2015

INPUT-OUTPUT PRODUCT SPACE ANALYSES: POTENTIAL FOR AND LIMITS OF USING OUTPUT DATA

This Working Paper outlines the theoretical underpinnings of the input-output product space (IO-PS) analysis approach. It explores the potential value various metrics can have in supporting industrial analysis, and addresses the potential benefits of using output data instead of trade data, which traditionally is used for IO-PS analyses. The IO-PS framework is applied to the case of the basic metals industry using both output and trade data, with a focus on Germany and Peru. We find that output data, in particular, can be useful in the initial value chain mapping phase. It is advantageous, however, if this mapping is then converted into trade codes before the IO-PS calculations are performed to benefit from the better coverage and granularity of the trade data compared to output data.

THE INCLUSIVE AND SUSTAINABLE DEVELOPMENT INDEX: A DATA ENVELOPMENT ANALYSIS APPROACH

Inclusive and Sustainable Industrial Development (ISID) calls for the full engagement of policymakers in industrializing countries to minimize the environmental footprint and enhance social inclusiveness. This study investigates the progress 118 countries have made towards achieving ISID (2005–2015) based on an input-oriented CCR (Charnes, Cooper and Rhodes) slack-based data envelopment analysis (DEA) model. Efficiency analyses were carried out using two approaches: 1) the ISID approach reflects countries' determination to promote industrialization and to sustain economic growth by reducing adverse environmental and social effects that manifest in the economy; ii) the ISIDsdg9 approach considers the same factors as the ISID approach, but focusses on indicators related to the industrial sector only. We find that Denmark, Sweden and Switzerland are ranked at the top in the ISID approach, and Czechia and Switzerland take the top positions in the ISIDsdg9 approach. Throughout 2005–2013, there is no sign of catching up between developed and developing countries in terms of progress towards ISID and ISIDsdg9.

The following two articles by UNIDO staff members are now listed as one of the most cited articles of the respective journals.

MANUFACTURING AS AN ENGINE OF GROWTH: WHICH IS THE BEST FUEL?

Journal: Structural Change and Economics Dynamics

https://www.sciencedirect.com/science/article/abs/pii/S0954349X17301194

By Nicola Cantore, Michele Clara, Alejandro Lavopa and Camelia Soare

THE IMPORTANCE OF MANUFACTURING IN ECONOMIC DEVELOPMENT: HAS THIS CHANGED?

Journal: World Development

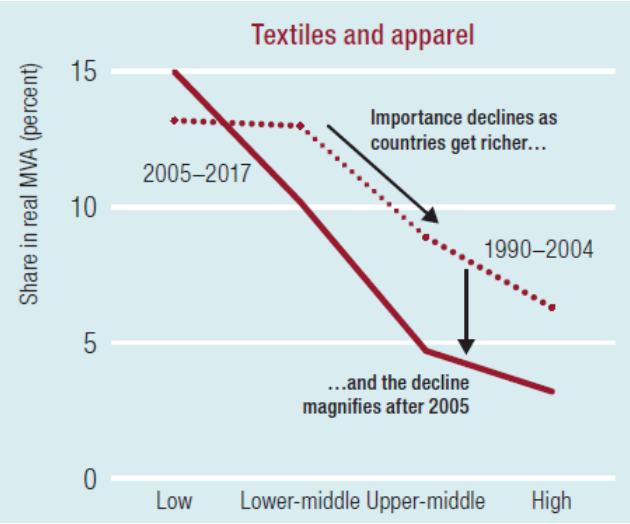
https://www.sciencedirect.com/science/article/abs/pii/S0305750X16302613?via%3Dihub

By Nobuya Haraguchi, Charles Fang Chin Cheng, and Eveline Smeets

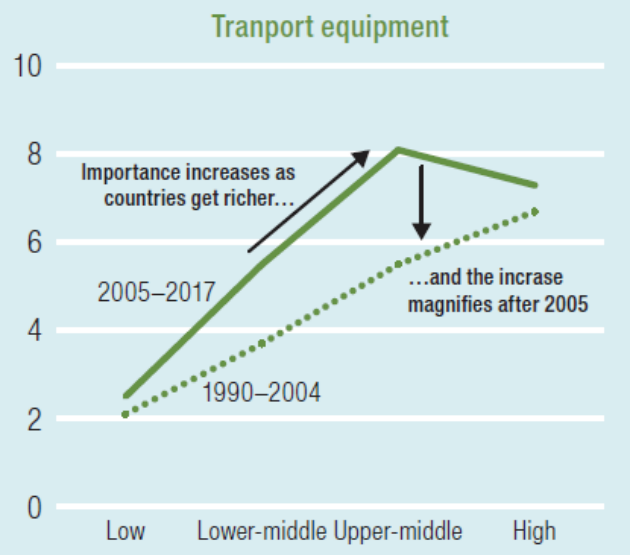
INDUSTRIAL STRUCTURE AND THE DIFFUSION OF ADP TECHNOLOGIES

The Industrial Development Report 2020 Brief No. 6 asserts that the diffusion of advanced digital production (ADP) technologies depends considerably on a country's productive structure and is highly heterogeneous across industrial sectors. Countries in which technology and digitally intensive (TDI) industries account for a larger share of total manufacturing value added (MVA) tend to experience faster diffusion rates and to accumulate greater technological experience. ADP technologies, in turn, affect the process of structural change. Structural change towards TDI industries, which are the engines of the Fourth Industrial Revolution, has accelerated ever since patenting in ADP technologies started taking off.

As ADP technologies started taking off, TDI industries began playing a more prominent role in structural change

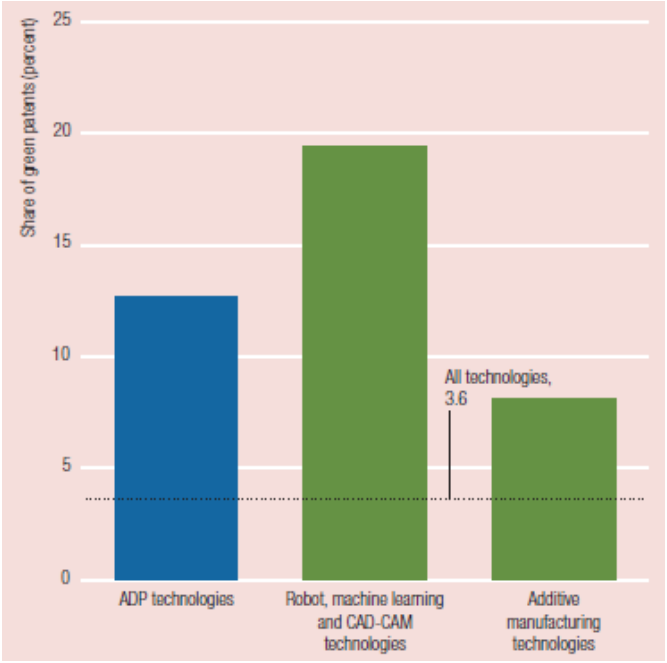


Patents for ADP technologies are greener than the average patent



THE CONTRIBUTION OF ADP TECHNOLOGIES TO ENVIRONMENTAL SUSTAINABILITY

The Industrial Development Report 2020 Brief No. 7 maintains that advanced digital production (ADP) technologies contribute to environmental sustainability through two main channels. By making production more efficient, especially in terms of energy, ADP technologies unlock efficiency gains in energy and material use, resulting in savings. Progress in production efficiency also entails lower emissions and less pollution. Secondly, new technologies fuel some of the product innovations that lie beneath environmental goods, which increase our quality of life while minimizing the impact on the environment. Patents for the development of ADP technologies are significantly "greener" than the average patent, as such products are often developed starting from sustainable materials and contribute to the reduction of emissions, waste and pollution.



Source: UNIDO IDR 2020, Figure 1.19, page 55

STATISTICS

STATISTICS compiles, stores, and disseminates reliable and internationally comparable data on inclusive and sustainable industrial development. It maintains an international industrial statistics database, and contributes to the improvement of statistical standards.

TRAINING COURSE ON COMPUTER-ASSISTED PERSONAL INTERVIEWING FOR INDUSTRIAL SURVEYS, CAMBODIA

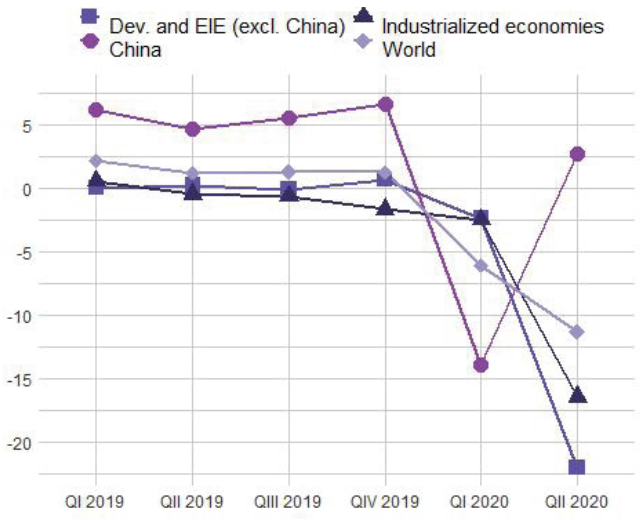
As part of the activities of Cambodia PCP's industrial statistics component, UNIDO, the National Institute of Statistics (NIS) of the Ministry of Planning (MoP), and the World Bank jointly organized the second training course on "Questionnaire design and use of computer-assisted personal interviewing (CAPI) survey solution for Cambodia Industrial Statistics Survey 2020". The training course took place from 24 to 28 August 2020 in Phnom Penh and included 23 participants from the NIS and MISTI (the Ministry of Industry, Science, Technology and Innovation).

The initiative on industrial statistics surveys using the CAPI system will assist in the collection of industrial statistics essential for monitoring the impact of development efforts as well as for informing industrial development policy.

This training course followed a first course which was successfully conducted in January 2020 in Kampong Cham Province. The third training is planned in the fourth quarter of 2020 and aims to complete the questionnaire's design in the CAPI system and ensure that it is ready for field data collection from 3,000 firms in early 2021.

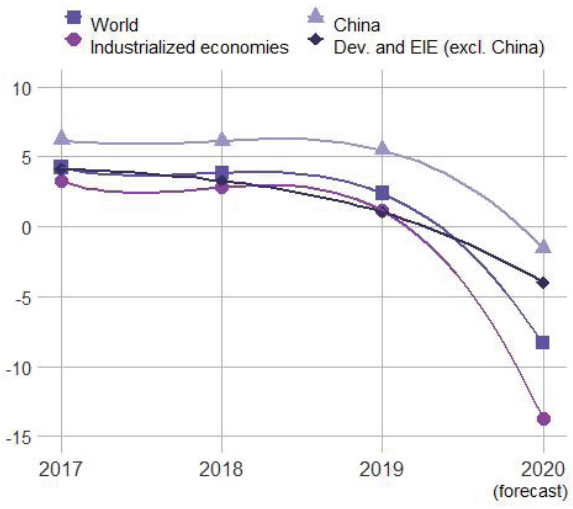
OVERVIEW OF WORLD MANUFACTURING OUTPUT

From March 2020 onwards, economic activity came to a halt in most countries around the globe to contain COVID-19. The World Manufacturing Report for the second quarter of 2020 confirms that industrialized economies registered a drop in production of 16.4 per cent, following a contraction of 2.4 per cent in the previous quarter. Nearly all industrialized economies suffered major declines in manufacturing output. The impact of COVID-19 on China's manufacturing sector was mostly concentrated in the first quarter of 2020, while a return to growth (2.8 per cent) was registered in the second quarter. Manufacturing output of developing and emerging industrial economies (excl. China), on the other hand, recorded a decline in output of 22.0 per cent in the same quarter.



Annual MVA growth rates by country groups, constant 2015 US$

UNIDO world manufacturing value added (MVA) forecasts indicate a drop of 8.4 per cent in manufacturing production in 2020, primarily due to national containment strategies with severe impacts on both demand and supply. MVA in industrialized economies is expected to decrease by 13.7 per cent in 2020, affecting both the United States (-15.0 per cent) and Europe (-14.3 per cent). China's manufacturing sector is expected to reduce its production by 1.6 per cent this year.



Growth of world manufacturing output, percentage change compared to the same quarter of the previous year

The indices are published in UNIDO's Quarterly IIP database, available at UNIDO Statistics Data Portal. Beginning with the year 2020, UNIDO also started publishing regularly updated monthly data on world manufacturing production in the monthly IIP database. The full report can be found here.

AN EVIDENCE BASED INDEX TO MEASURE THE INCLUSIVE AND GREEN INDUSTRIAL PERFORMANCE OF COUNTRIES

Since the early 2000s, industries around the globe have started showing an interest in measures they can take to achieve cleaner production and to lower their environmental impact. In a newly published paper in the Journal of Cleaner Production G. Halkos, J. Moll de Alba and PRS's V. Todorov make a significant contribution to the existing literature by developing a new index that provides policy-makers and scholars a user-friendly and evidence-based tool to measure and benchmark the performance of economies in terms of their inclusive and green industrial production.

By means of international data sources, we build up a composite index, the Inclusive and Green Industrial Performance (IGIP) index, which captures different dimensions of industrial socio-economic inclusiveness and green performance of the world's economies. We carry out an analysis of 83 economies in 2016 and find that industrialized economies (Switzerland, Denmark, Germany, the Czech Republic and Austria) significantly outperform other economies, despite remarkable differences in performance among the economies. Our analysis opens up new avenues for future research to support new approaches for the structural transformation of economies in line with the aspirations put forward by the international 2030 agenda for Sustainable Development and the Sustainable Development Goals (SDGs).

HOW COVID-19 IS CHANGING THE WORLD: A STATISTICAL PERSPECTIVE

UNIDO joined 30 other statistical programmes of international organizations to release Volume II of the report "How COVID-19 is changing the world: a statistical perspective". This publication, published by the Committee for the Coordination of Statistical Activities (CCSA), presents the wide-ranging impact of the COVID-19 crisis on the economic, social and environmental dimensions of sustainable development. UNIDO contributed with a section on up-to-date global and regional statistics on manufacturing production, which confirm a major collapse in manufacturing production across the world, but also reveal the uneven impacts of the crisis in different regions around the world. The full report can be found here.

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Editor: Niki Roudosakis, EPR/PRS/RPA

We dedicate our bulletin to the broader readership, and we welcome any feedback that could help us improve the future editions.

Got any questions or suggestions? Let’s talk: **prsnewsletter@unido.org**

UNITED NATIONS
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Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0 Email: unido@unido.org
Internet: www.unido.org