

ENHANCING COMPETITIVENESS AS A KEY FACTOR IN IMPROVING LIVING STANDARDS

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Since the beginning of recorded history, humans have improved their conditions by – among other factors – modifying their surrounding environment and making the most of scarce resources. Technical progress occurred first with the agricultural revolution and with the industrial revolution later, eased food and energy constraints and allowed humans to prosper. However, continuous industrial expansion and population growth have put tremendous pressure on the environment and an excessive environmental footprint. If not addressed, environmental degradation may hinder further economic progress, compromise the prosperity built over centuries, and threaten life across the planet.

With the Fourth Industrial Revolution (4IR), humanity has entered a new phase. The 4IR has become the lived reality for millions of people around the world, and is creating new opportunities for business, government and individuals. Yet it also threatens a new divergence and polarization within and between economies and societies. This year also marks the tenth anniversary of the beginning of the global financial crisis, which has had social and economic consequences of a magnitude unprecedented in recent generations.

Although the linkages between biological ecosystems and human actions are complex, it is possible to distil the causes of these three environmental emergencies into two predominant human activities: energy use and food production.

The first environmental emergency – climate change – is caused primarily by emissions of greenhouse gases, which are largely attributed to energy use. The United States Environmental Protection Agency estimates that more than three-fifths of both US and global GHG emissions are a by-product of one of the following types of energy use: electricity generation, heating, fuel transformation and transportation. The other two sources of emissions are industrial processes (including chemical, metallurgical, waste management and mineral transformation processes, as well as a small portion of fossil fuels burned for energy), which account for one-fifth of the country's emissions, and agriculture and deforestation, which together account for the remaining one-fifth share of total emissions. The second environmental emergency – the nitrogen cycle – is caused, for the most part, by industrial agriculture, which overloads the soil with nitrogen and phosphorus from animal manure and chemical fertilizers. The causes of the third emergency – biodiversity loss – are more difficult to identify because they intertwine with many of the ecological factors. Among them are practices related to food production (i.e. over-fishing and deforestation for agriculture land use), by-products of energy production (i.e. chemical pollution, indirect effects of climate) [1; 2].

As discussed above, there are constraints to achieving growth through the accumulation of factors of production. In contrast, the environmental impact of total factor productivity growth is significantly less taxing. To some extent, sustainability and total factor productivity growth go hand in hand: there is some evidence that failing to address the environmental tipping points will affect productivity. Environmental-driven total factor productivity losses may even outweigh the costs associated with transitioning to a low-carbon economy through different channels.

It is possible to decompose economic growth into three elements: (1) growth in labour force,

(2) growth in physical and natural capital inputs, and (3) total factor productivity growth (TFP) growth, the «unexplained part» of GDP growth, which encompasses all non-physical inputs, such as technological progress, human capital, and institutional and cultural factors (Table 1).

Table 1. Total factor productivity growth (TFP) growth

Total factor	
Climate change	Rising temperatures and modified rain patterns, caused by climate change, will reduce crop yields and intensify crop volatility, resulting in lower agriculture productivity. Other potential channels through which climate change could reduce productivity include capital depreciation due to infrastructure damage from extreme weather events and a fall in both labour supply and workers' output due to higher temperatures. In addition, these effects will likely exacerbate poverty by the fact that the effects of climate change will disproportionately penalize farmers in developing countries that depend on producing staples for their livelihoods.
Pollution	The negative effects of pollution on productivity are mainly manifested through health. A large body of research shows that exposure to chemicals and air pollution increases the incidence of non-communicable diseases and mortality rates.
Water	Episodes of water shortage have proven to have an extremely negative effect on productivity in agriculture, as well as for smelting, chemical and mining activities
Energy	Despite increasingly efficient electric vehicles, growing installed capacity of solar and wind farms and energy-saving appliances, nonrenewable resources still account for over 80% of global energy consumption. In the short run, the lack of alternatives to meet the global demand for energy, a push towards non-fuel energy may lead to an increase in production costs in most sectors and therefore hurt productivity. For example, modern agriculture requires significant fuel consumption for tillage and harvest operations. Similarly, an increase in transport costs due to a surge in fuel costs would make current manufacturing value chains less feasible.

Globalization and the Fourth Industrial Revolution have created new opportunities but also disruption and polarization within and between economies and societies. In this context, the World Economic Forum introduced last year the new Global Competitiveness Index 4.0, a much-needed new economic compass, building on 40 years of experience of benchmarking the drivers of long-term competitiveness.

The Global Competitiveness Report series, first launched in 1979, features the Global Competitiveness Index 4.0 (GCI 4.0). As the decade concludes and we look towards the dawn of the 2020s, the GCI 4.0 offers insights into the economic prospects of 141 economies. Drawing on these results, the report provides leads to unlock economic growth, which remains crucial for improving living standards. In addition, in a special thematic chapter, the report explores the relationship between competitiveness, shared prosperity and environmental sustainability, showing that there is no inherent trade-off between building competitiveness, creating more equitable societies that provide opportunity for all and transitioning to environmentally sustainable systems. However, for a new inclusive and sustainable system, bold leadership and proactive policy-making will be needed, often in areas where economists and public policy professionals cannot provide evidence from the past. The report reviews emerging and promising 'win-win' policy options to achieve the three objectives of growth, inclusion and sustainability [3].

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sustainable system, bold leadership and proactive policy-making will be needed, often in areas where economists and public policy professionals cannot provide evidence from the past. The report reviews emerging and promising ‘win-win’ policy options to achieve the three objectives of growth, inclusion and sustainability.

The computation of the GCI 4.0 is based on successive aggregations of scores, from the indicator level (the most disaggregated level) to the overall GCI 4.0 score (the highest level). At every aggregation level, each aggregated measure is computed by taking the average (i.e. arithmetic mean) of the scores of its components. The overall GCI 4.0 score is the average of the scores of the 12 pillars [3; 4].

For individual indicators, prior to aggregation, raw values are transformed into a progress score ranging from 0 to 100, with 100 being the ideal state.

With a 2019 GCI score of 84.8 out of 100, Singapore is the country closest to the frontier of competitiveness. The country ranks first in terms of infrastructure, health, labour market functioning and financial system development. Going forward, in order to become a global innovation hub, Singapore will need to promote entrepreneurship and further improve its skills base.

Among the G20, the United States (2nd, down 1 place), Japan (6th), Germany (7th, down 4) and the United Kingdom (9th, down 1) feature in the top 10, but they all have experienced erosion in their performance. So has Canada (14th, down 2). Korea (13th, up 2), France (15th, up 2) and Italy (30th, up 1) are the only advanced economies to improve this year. Argentina (83rd, down 2 places) is the lowest ranked. Among the BRICS, China is by far the best performer, ahead of the Russian Federation, 32 places ahead of South Africa (60th) and some 40 places ahead of both India (68th) and Brazil (71st).

Led by Singapore, the East Asia and the Pacific region is the most competitive in the world, followed by Europe and North America. Hong Kong SAR (3rd) and Japan (6th) also feature in the top 10. Viet Nam (67th) is the country whose score improves the most globally. But the region is also home to economies with significant competitiveness deficits, such as Cambodia (106th) and Lao PDR (113th).

The United States (2nd overall) is the leader in Europe and North America. Despite dropping one position it remains an innovation powerhouse, ranking 1st for business dynamism and 2nd for innovation capability. The Netherlands (4th), Switzerland (5th), Germany (7th), Sweden (8th), the United Kingdom (9th) and Denmark (10th) all feature in the top 10. The region’s most improved country is Croatia (63rd).

In Latin America and the Caribbean, Chile (33rd) is the most competitive economy thanks to a stable macroeconomic context (1st, with other 32 economies) and open markets (68.0, 10th). It is followed by Mexico (48th), Uruguay (54th), and Colombia (57th). Brazil, despite being the most improved economy in the region is 71st; while Venezuela (133rd, down 6 places) and Haiti (138th) close out the region.

In Middle East and North Africa, Israel (20th) and the United Arab Emirates (25th) lead, followed by Qatar (29th) and Saudi Arabia (36th); Kuwait is the most improved in the region (46th, up 8 places) while Iran (99th) and Yemen (140th) lose some ground. The region has caught up significantly on ICT adoption and many countries boast well developed infrastructure. Greater investments in human capital, however, are needed to transform the countries in the region into more diversified, innovative and creative economies.

Eurasia’s competitiveness rankings see the Russian Federation (43rd) on top, followed by Kazakhstan (55th) and Azerbaijan (58th), both improving their performance over 2018. Focusing on financial development and innovation capability would help the region to achieve a higher competitiveness performance and advance the process towards structural change.

In South Asia, India, in 68th position, loses ground in the rankings despite a relatively stable score, mostly due to faster improvements of several countries previously ranked lower. It is followed by Sri Lanka (the most improved country in the region at 84th), Bangladesh (105th), Nepal (108th) and Pakistan (110th) [5].

Led by Mauritius (52nd), sub-Saharan Africa is overall the least competitive region, with 25 of the 34 economies assessed this year scoring below 50. South Africa, the second most competitive in the

region, improves to the 60th position, while Namibia (94th), Rwanda (100th), Uganda (115th) and Guinea (122nd) all improve significantly. Among the other large economies in the region, Kenya (95th) and Nigeria (116th) also improve their performances, but lose some positions, overcome by faster climbers. On a positive note, of the 25 countries that have improved their Health pillar score by two points or more, 14 are from sub-Saharan Africa, making strides to close the gaps in healthy life expectancy.

Covering 141 economies, the Global Competitiveness Index 4.0 measures national competitiveness – defined as the set of institutions, policies and factors that determine the level of productivity (Table 2).

Table 2. The Global Competitiveness Index 4.0 2019 Rankings

Best Performer-2019					Worst Performer-2019				
Rank	Economy	Score	Diff. from 2018		Rank	Economy	Score	Diff. from 2018	
			Score	Rank				Score	Rank
1	Singapore	84.8	+1	+1.3	131	Lesotho	42.9	-1	+0.6
2	United States	83.7	-1	-2.0	132	Madagascar	42.9	n/a	n/a
3	Hong Kong SAR	83.1	+4	+0.9	133	Venezuela	41.8	-6	-1.3
4	Netherlands	82.4	+2	-	134	Mauritania	40.9	-3	+0.1
5	Switzerland	82.3	-1	-0.3	135	Burundi	40.3	+1	+2.7
6	Japan	82.3	-1	-0.2	136	Angola	38.1	+1	+1.1
7	Germany	81.8	-4	-1.0	137	Mozambique	38.1	-4	-1.7
8	Sweden	81.2	+1	-0.4	138	Haiti	36.3	-	-0.1
9	United Kingdom	81.2	-1	-0.8	139	Congo, Dem. Rep.	36.1	-4	-2.1
10	Denmark	81.2	-	+0.6	140	Yemen	35.5	-1	-0.9
11	Finland	80.2	-	-	141	Chad	35.1	-1	-0.4

Cross-regional disparities are more visible across the 12 pillars (Table 3). Regional gaps in Health, ICT adoption and Infrastructure stand at 38.4, 36.2 and 34.7 points, respectively; these are significantly higher than the overall gap of 28 points between the best-performing and worst-performing countries. To some extent, some of the largest cross-regional differences are concentrated in those pillars where most regions attain median scores relatively close to the ‘frontier’ (the best possible performance). In other dimensions, such as the Innovation capability pillar, cross-regional differences are comparatively smaller since even the most innovative regions are only half-way from the frontier. High regional score variance across pillars captures how difficult it is to build and manage a competitive ecosystem and perform well on all dimensions of competitiveness at the same time [6].

Combining the GCI scores at a regional level reveals significant differences in both median competitiveness levels across regions as well as dispersion of performances within regions. Overall, the results show that East Asia and the Pacific (17 countries) achieves the highest median score (73.9) among all regions, followed closely by Europe and North America (70.9, based on 39 countries). However, within the East Asia and the Pacific region the competitiveness gap between the best and worst performers is significantly larger (34.7) than in Europe and North America (28.9). This shows that, while many countries in East Asia and the Pacific have come a long way to bring their competitiveness up to a high level, there are a few that need to progress faster to bridge their gaps. For instance, comparing the lowest performers in East Asia and the Pacific and Europe and North America, Lao PDR’s score (50.1) remains about 5 points lower than that of Bosnia and Herzegovina (54.7). The Middle East & North Africa, Latin America and the Caribbean, and Sub-Saharan Africa present similar levels of dispersion in competitiveness performance. Contrasts are often stark even within sub-regions – in the EU, Germany’s overall competitiveness score (81.8) is 20 points higher than Greece (62.6) – or between two neighbouring countries. For instance, there are approximately 20 points between the GCI performance of the Dominican Republic (58.3) and Haiti (36.3), between Colombia (62.7) and Venezuela (41.8), and between Thailand (68.1) and Cambodia (52.1).

Table 3. Regional performance (Competitiveness gap within regions), by pillar

	East Asia and the Pacific	Eurasia	Europe and North America	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa
Enabling Environment							
Institutions`	61.6	53.8	64.7	47.1	55.5	50.0	46.9
Infrastructure	74.8	67.7	79.7	61.3	70.5	59.2	45.0
ICT adoption	70.3	59.5	70.4	50.9	57.6	35.1	34.3
Macroeconomic stability	89.6	74.9	92.6	73.7	75.3	74.7	69.4
Human Capital							
Health	83.8	71.3	89.1	82.2	80.8	68.4	50.8
Skills	67.3	66.1	74.6	58.7	62.9	50.1	44.3
Markets							
Product market	62.2	56.1	60.0	51.6	56.7	45.8	49.3
Labour market	66.6	63.5	66.4	55.9	54.8	51.5	54.6
Financial system	74.3	52.0	70.9	60.3	63.7	60.0	50.8
Market size	67.9	50.3	60.1	51.2	59.9	67.7	40.4
Innovation Ecosystem							
Business dynamism	66.1	61.9	68.3	53.8	58.2	57.8	51.8
Innovation capability	54.0	35.5	58.1	34.3	41.3	36.3	29.4

The lowest median regional average is Sub-Saharan Africa's (46.3), where 17 of the 34 economies covered by the GCI are among the bottom 20 globally. However, many countries in this region have improved their competitiveness performance this year, helping Sub-Saharan Africa become one of the most improved regions (+2.3%). Only the score of the Middle East and North Africa region has improved faster than that of Sub-Saharan Africa, while East Asia and the Pacific follows closely behind, continuing its upward trend. These movements – combined with the fact that competitiveness gaps across regions remain large – highlight how the convergence of developing and emerging economies is ongoing but slow, and still requires decades before it can be completed. On the other side of the spectrum, Europe and North America is one of the world's slowest-improving areas. Although this region includes several advanced economies that have already achieved a strong competitiveness performance, there should be no complacency and advanced and developing economies alike should constantly improve their productivity with appropriate structural reforms. These developments – the 4IR and the consequences of the Great Recession – are redefining the pathways to prosperity and, indeed, the very notion of prosperity, with profound implications for policy-making. Concerned leaders are grappling for answers and solutions, aiming to go beyond short-term, reactionary measures. Table 4 depicts selected contextual indicators of Ukraine.

Table 4. Selected contextual indicators of Ukraine

	2018	2019
Selected contextual indicators		
Population millions	42.3	42.02
GDP per capita US\$	2,582.8	2,963.5
10-year average annual GDP growth%	-2.1	0.1
GDP (PPP)% world GDP	0.29	0.29
5-year average FDI inward flow% GDP	2.7	2.3
Social and environmental performance		
Renewable energy consumption share %	-	4.1
Environmental footprint gha/capita	3.0	-
Unemployment rate %	-	9.3
Inclusive Development Index 1-7 (best)	3.4	-
Global Gender Gap Index 0-1 (gender parity)	0.7	0.7
Income Gini 0 (perfect equality) – 100 (perfect inequality)	25.0	25.0

Ukraine loses two positions this year, falling to the 85rd globally. The economy has been in a recession since 2018 (5-year average FDI inward flow% GDP by 2.7% in 2018 and by 2.3% in 2019 on a yearly basis), leading to an increase in the unemployment rate (9.3%) and Income Gini (25). Despite recent efforts to stabilize the economy, resurging inflation (131th) and increasing deficits have led to a less stable macro-economic context (133th) that has undermined investors' confidence and led to capital flights.

Table 5. The Global Competitiveness Index 4.0 2018-2019

Index Component	Ukraine-2018 (83)		Ukraine-2019 (85)		Best Performer-2019	Worst Performer-2019
	Score*	Rank/140	Score*	Rank/141		
1. Institutions	46,3	110	47,9	104	Finland	Venezuela
2. Infrastructure	70,1	57	70,3	57	Singapore	Haiti
3. ICT (information and communication technologies) adoption	51,0	77	51,9	78	Korea, Rep.	Chad
4. Macroeconomic stability	55,9	131	57,9	133	Multiple (33 countries) (Australia, Botswana, Chile and etc.)	Venezuela
5. Health	72,0	94	65,6	101	Multiple (4 countries) (Japan, Spain, Singapore, Hong Kong SAR)	Lesotho
6. Skills	68,9	46	69,9	44	Switzerland	Chad
7. Product market	55,3	73	56,5	57	Hong Kong SAR	Chad
8. Labour market	59,5	68	61,4	59	Singapore	Yemen
9. Financial system	48,7	117	42,3	136	Hong Kong SAR	Yemen
10. Market size	62,7	47	63	47	China	Gambia, The
11. Business dynamism	55,3	86	57,2	85	United States	Haiti
12. Innovation capability	39,0	58	40,1	60	Germany	Congo

* Scores are on a 0 to 100 scale, where 100 represents the optimal situation or «frontier». Arrows indicate the direction of the change in score from the previous edition, if available.

Local and foreign investors have moved over \$2.5 billion out of the country since last year, forcing the government to re-introduce capital controls. Business executives have also reduced their perceptions on Ukrainian's legal framework (i.e. the judicial independence score fell by 3.9 points and the country ranks 105h) and government's policy stability (ranking 88th, rose to 15 places), further discouraging private sector's investments [7; 8]. While stabilizing the economy remains the main priority, resolving the duality of labour market (61.4, 59th) and strengthening the financial system (42.3, 136th). Worsening macro-economic conditions and lack of progress on the Labour market and Financial system pillars have reduced the effect of the dimensions on which Ukraine has improved this year, including sounder business dynamism (+1, 85th), thanks to a significant reduction in regulations on starting a business, and Skills (+2, 44st). Education attainment is trending upwards (mean years of schooling increased ranking the country 51th) and recent efforts to upgrade curricula in secondary and tertiary education (+8, 54st) and vocational training (-2, 65th) have been judged positively by business leaders.

In 2019, Ukraine lost two positions in the Global Competitiveness Index (GCI) of the World Economic Forum (WEF) and dropped to 85th place out of 141 countries. According to the WEF annual report, the main regression was recorded in the financial systems sector, in which Ukraine's rating dropped by 19 positions to 136th place and in the healthcare sector by 9 positions to 101st place.

ICT implementation also deteriorated slightly, from 77th to 78th place, macroeconomic stability from 131st to 133rd place, and innovation opportunities from 58th to 60th place. At the same time, in the second year the country's position on the criteria of «product market» – from 73rd to 57th place, «labor market» – from 66th to 69th place and «institutional development» – from 110 to 104th place. In addition, Ukraine has managed to rise slightly in such indicators as education – from 46th to 44th place and the level of business development – from 86th to 85th place.

Ukraine maintained its previous position in terms of the volume of the domestic market – 47th place, and 57th in terms of infrastructure. According to the report, the average annual GDP growth rate over 10 years ceased to be negative and improved from -2.1% to 0.1%, while the growth of foreign direct investment over 5 years decreased from 2.7% of GDP to 2.3% of GDP. As reported, in 2012 Ukraine was 73rd in the GCI out of 144 countries, in 2013 it fell to 84th out of 148 countries, after the Revolution of Dignity it rose immediately to 76th out of 144 countries, but then rolled back to 79 -th position from 140 countries, and in 2016 – to the 85th position from 138. In 2017, the country rose to 81st place in the ranking of 137 countries, and in 2018 rolled back to 83rd position from 140 countries. Of the closest neighbors, Poland and Russian Federation remained in the same positions – 37th and 43rd place, Romania rose to 51st place (+1), Hungary to 47th (+1), Moldova to 86th (+2), Slovakia rolled back to 42nd place (-1). Belarus is not in the ranking [9].

Making technology and innovation part of an economy's DNA is challenging in itself but governments must also account for enabling this change through human capital investments and mitigating the unintended adverse impacts of technological advancements on income distribution and social cohesion through a holistic approach. In the Schumpeterian process of «creative destruction», creativity must be encouraged, and the destruction must be managed. Increased precariousness of workers, the skills gap, excessive market concentration, corrosive effects on the social fabric, regulatory loopholes, data privacy issues and cyberwarfare are all but a few of the potential negative effects that governments must mitigate.

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