

Critique of Productive Capacities Index (PCI)

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Executive Summary

Productivity is fundamental to a nation's economic development. The United Nations Conference on Trade and Development (UNCTAD) has developed the Productive Capacities Index (PCI) covering 192 countries, which serves as a blueprint for stimulating economic growth by identifying and addressing areas of improvement. This analysis emphasizes the imperative of incorporating key indicators and metrics for a more exhaustive evaluation of productive capacities. The exclusion of essential factors may lead to a reduction in the precision of the PCI. Specifically, Pakistan's placement at 156th in the index could see a significant adjustment with the inclusion of the proposed indicators, thereby providing a more accurate representation of its economic capabilities. The core argument of this paper is that an integrated and comprehensive method of assessing productive capacities is crucial for enhancing the accuracy and utility of the index, thereby enabling more targeted and effective economic policies and interventions.

Recommendations

- To enhance the accuracy and utility of productive capacities assessment, an integrated and comprehensive method should be adopted. This approach will enable more targeted and effective economic policies and interventions, ensuring optimal utilisation of resources and increased sustainable economic development.

Introduction

“Productive capacities are the productive resources, entrepreneurial capabilities and production linkages that together determine a country's ability to produce goods and services that will help it grow and develop”. (*UNCTAD 2023*)

Productivity is very important for every country. there are so many definitions of productivity around the globe. As per Bureau of Labor statistics-USA, productivity is simply an economic performance measure, which is the comparison of the amount of goods and services produced. In the Organisation for Economic Co-operation and Development (OECD) opinion, productive is a ratio between the input volume and output volume which is pretty much similar to the Bureau of Labor Statistics' definition. In general, productivity enhances a country's economic growth by adding value to the GDP of the country.

United Nations Conference on Trade and Development measure the capacities productive index (PCI). Initially released by UNCTAD in 2021, the updated index (2nd Generation) is an enhanced data-driven tool to help countries improve their development policies.

“No nation has ever developed without building the required productive capacities, which are key to enabling countries to achieve sustained economic growth with accelerated poverty reduction, economic diversification and job creation.” (*UNCTAD Secretary-General 2023*)

Productive Capacities Index (PCI) Methodology

It follows a robust, revised methodology and updates the data for the period 2000 to 2022. This index is based on eight sectors along with the 42 indicators. It shows the ranking of countries in a very unique and novel way. 1st version of PCI-21 was from 2000 to 2018 and had 193 countries involved. 2nd version PCI- 23 was released in 2023 which covers 194 countries for the period 2000-2022 and incorporated newly collected data. The basic methodology used by UNCTAD is Principal Component Analysis (PCA) to find out these productive capacities index with the target of putting countries on the right track to achieve their long-term development goal and international targets like SDGs. There is a total of 8 PCI components which shows 3 development stages for 194 countries and these stages include least developed countries, other developing countries and developed countries. Denmark had the highest rank of 70.3 in this index while the last is Niger with only 16.9 PCI

number¹. South Asia is involved in this ranking, Pakistan is on 156 number. India has 108 and Bangladesh is on 136 number.

With all these projections and index capacities, countries could get a vision to improve their economic performance and also fight with international challenges. Appendix I shows the complete list of PCI indicators, Sources/formulas, data processing steps and components. However, there are a few indicators which were not included in the PCI, but all these indicators might have a strong relationship with the country's economic performance. Similarly, there should be two more components, the climate and tourism index, added to the PCI which are also very important for improving the economic growth of the country.

Labour Force

The labour force is defined as those individuals who are employed or looking for employment. It is considered as the backbone of the economy. Labour force boosts economic growth. A large and skilled labour force can enhance productivity and competitiveness. It also attracts investment and increases economic growth. A long-run relationship exists between the labour force and economic growth therefore it is an important indicator in the productive capacities index².

Job Opportunities

More job opportunities indicate a dynamic and growing economy where businesses grow positively, the chance of the creation of new jobs and contributing to overall prosperity. This growth trajectory not only increases economic activity but also improves the overall well-being of individuals and communities by strengthening income levels, enhancing workforce skills, and driving sustainable development³. Unemployment signifies the share of the labour force actively seeking but unable to secure employment. Elevated unemployment rates suggest human capital underutilisation and economic inefficiency, resulting in diminished output and income. Implementing policies that foster job creation and workforce development is paramount for sustaining economic growth and fostering social stability.

Food Expenditure

Food expenditure is defined as consumer spending on essential food items, playing an essential role in household budgets and overall consumer demand. It serves as a fundamental

¹ Index numbers varies from 1- 100.

² Shahid, M. (2014). Impact of labour force participation on economic growth in Pakistan. *Journal of Economics and Sustainable Development*, 5(11), 89-93.

³ Ananda, A. A. (2022). Factors Affecting Economic Development and Job Opportunity in Samarinda. *Indonesian Journal of Multidisciplinary Science*, 2(1).

indicator of economic activity and consumer confidence, with higher levels of food expenditure typically associated with increased economic growth and stability. It is important to add this indicator because, currently, the world confronts significant challenges regarding food security, posing threats to the availability and quality of vital natural resources such as arable lands, freshwater, and natural habitats⁴.

Biodiversity

Biodiversity encompasses the rich variety of life forms and ecosystems found on Earth. It plays a critical role in providing essential ecosystem services like pollination, nutrient cycling, and climate regulation, which are vital for agricultural productivity, water quality, and resilience to environmental changes. Preserving biodiversity is crucial for sustainable development and ensuring the health of ecosystems. Economic growth exacerbates biodiversity loss through increased resource consumption and higher emissions. However, an examination of international biodiversity and sustainability policies reveals that most prioritize economic growth. Despite efforts to enhance resource use efficiency, absolute global reductions in resource use and pollution remain elusive. This raises concerns about the emphasis on economic growth in these policies, as insufficient attention is given to strategies for decoupling growth from biodiversity loss⁵.

Ocean resources

Ocean resources encompass fisheries, minerals, energy sources, and transportation routes, supporting economic activities like fishing, shipping, tourism, and offshore energy production. Sustainable management of these resources is vital for ecosystem health, livelihoods, and economic growth.

Income level

Income level denotes the monetary earnings acquired by individuals or households from diverse sources. Elevated income levels typically align with enhanced living standards, augmented purchasing ability, and enriched quality of life. Nonetheless, income inequality may impede economic growth and social harmony by constraining upward mobility opportunities and amplifying social disparities.

⁴ Gerbens-Leenes, P. W., Nonhebel, S., & Krol, M. S. (2010). Food consumption patterns and economic growth. Increasing affluence and the use of natural resources. *Appetite*, 55(3), 597-608.

⁵ Otero, I., Farrell, K. N., Pueyo, S., Kallis, G., Kehoe, L., Haberl, H., ... & Pe'Er, G. (2020). Biodiversity policy beyond economic growth. *Conservation letters*, 13(4), e12713.

Malpractice Rate

Malpractice entails professional misconduct or negligence leading to harm for individuals or organisations. A significant malpractice rate, especially in sectors such as healthcare or finance, has the potential to undermine institutional trust, escalate costs, and impede investment. It is imperative to tackle malpractice through regulatory frameworks and accountability mechanisms to uphold trust and foster economic stability.

Educational institutions

Educational institutions serve as pivotal platforms for nurturing human capital, driving innovation, and honing workforce capabilities. A proficient and knowledgeable workforce is indispensable for fueling economic expansion, boosting productivity, and sustaining competitiveness in the global arena.

Climate and tourism indexes offer valuable perspectives on environmental conditions, climate resilience, and tourism appeal. A positive climate index signifies environmental sustainability and adaptability to climate shifts, crucial for enduring economic progress. Meanwhile, a robust tourism index signals a nation's allure as a tourist hotspot, stimulating revenue, employment opportunities, and economic advancement within the tourism industry.

<i>Missing Indicators</i>	<i>Link with productivity</i>	<i>Validity to come under this PCI</i>	<i>Citation</i>
Labour Force	Labour represents the human factor which contributes to producing goods and services. When individuals are unemployed, they reduce their spending, resulting in reduced business investments in capital and labour. This hampers effort to expand operations to meet consumer demand.	Labour force or human capital development is an important indicator to measure the productivity of any country. many studies reflect that the labour force can enhance the economic performance of the country which is why it is important to add in the PCI.	ILO., (2023) ⁶ Federal Reserve Bank of Dallas., (2013) ⁷ Shahid, M. (2014) ⁸ Center for American Progress., (2023) ⁹
Job availability	Quality employment opportunities play a pivotal role in empowering individuals by enhancing skill development, ensuring higher and more consistent incomes, and introducing a sense of fulfilment and potential. They serve as a cornerstone for economic growth, both in the short run and long run, as they contribute to strengthening human capital alongside technological advancements and investments, thereby	The availability of quality jobs remains one of the most pressing problems in developing countries. Adding job availability is an important indicator as if people of a country have jobs, it will improve their living standard which will lead to a better economic performance of a country.	World Bank., (2023) ¹⁰ Nicolas Pologeorgis., (2023) ¹¹ Steffica Warwick., (2023) ¹²

⁶ <https://www.ilo.org/global/topics/dw4sd/themes/employment-rich/lang--en/index.htm>

⁷ <https://www.dallasfed.org/~media/documents/educate/everyday/labor.pdf>

⁸ Shahid, M. (2014). Impact of labour force participation on economic growth in Pakistan. Journal of Economics and Sustainable Development, 5(11), 89-93.

⁹ <https://www.americanprogress.org/article/investing-in-workers-can-further-ease-inflation-and-boost-economic-growth/>

¹⁰ <https://www.worldbank.org/en/topic/jobsanddevelopment/overview#1>

¹¹ <https://www.investopedia.com/articles/economics/12/employability-labor-force-economy.asp>

¹² <https://www.weforum.org/agenda/2023/09/12-experts-explain-world-needs-more-good-jobs-leaders/>

	elevating overall living standards.		
Food Expenditure	The correlation between economic growth and food security is a widely explored topic among Western researchers in the field of food studies. If there is availability of food to live and grow, they will contribute to the GDP growth of the country.	Food expenditure is an important indicator to add to PCI as food expenditure is vital for the economic growth of the country. if people can buy food, they will tend to contribute to the GDP growth of the country. moreover, food wastage hurts the GDP of the country.	CM, J. (2022) ¹³ Mudrak, R., Lagodienko, V., & Lagodiienko, N. (2020) ¹⁴
Biodiversity	Human population growth and economic expansion significantly influence biodiversity. Nations experiencing rapid population growth often face high rates of deforestation, whereas those with slower population growth tend to exhibit lower rates of deforestation.	Natural capital is the cornerstone of all economic endeavours and human welfare, representing the most crucial asset on our planet. Yet, our current demands on natural capital are unsustainable, leading to unprecedented and widespread biodiversity loss. This decline poses substantial but often underestimated risks to the economy, the financial sector, and the overall well-being of present and future generations.	Saleem, S. (2010) ¹⁵ Aude Brezac., (2010) ¹⁶ OECD., (2021) ¹⁷
Ocean resources	OECD Projections indicate that the value added by ocean-based industries worldwide could potentially double in size, increasing from USD 1.5 trillion in	It is important to add the Ocean economy named as blue economy in PCI because of its growing growth. The blue economy plays a significant role in enhancing the	OECD., (2022) ¹⁸ Milton L. Asmus., (2018) ¹⁹

¹³ CM, J. (2022). Impacts of food wastage on economic growth. *World Food Policy*, 8(1), 118-125.

¹⁴ Mudrak, R., Lagodienko, V., & Lagodiienko, N. (2020). Food affordability and economic growth.

¹⁵ Biodiversity and economic growth. *World Environment*, 111.

¹⁶ https://www.longfinance.net/media/documents/biodiv_axa.pdf

¹⁷ <https://www.oecd.org/environment/resources/Executive-Summary-ENV-Policy-Paper-no-26-Biodiversity-Natural-Capital-and-the-Economy.pdf>

¹⁸ <https://www.oecd.org/ocean/topics/ocean-economy/>

¹⁹ https://www.iai.int/admin/site/sites/default/files/uploads/Presentation_Aug.18-Milton-class-1.pdf

	global value added in 2010 to an estimated USD 3 trillion by 2030.	Productivity of any country.	
Unemployment	According to Okun's law, a country's gross domestic product (GDP) needs to expand by approximately 4% annually to bring about a 1% decrease in the unemployment rate.	High unemployment rates pose a significant challenge in developing countries, indicating an inefficient utilisation of labour resources. This issue holds paramount importance due to its adverse impacts on both individuals and society as a whole so it is important to add this indicator in the PCI.	Ryan furhmann., (2023) ²⁰ Amerah M, Khasawneh M (1993) ²¹ IMF., (2010) ²²
Income level/ Income Inequality	Combining classical and modern viewpoints, Galor and Moav (2004) introduced the concept of a unified growth model. They found that the impact of income inequality on economic growth differs according to the stage of a country's economic development. In the initial phases, inequality can stimulate growth as returns on physical capital surpass those on human capital. Later on, inequality reduces economic growth due to credit constraints.	Various studies show that income inequality and economic growth have a strong relationship however the impact of income inequality on economic growth differs according to the stage of economic development of the country. so, it is important to add this indicator in the PCI.	Topuz, S. G. (2022) ²³ Chengfang Shen & Xindong Zhao (2023) ²⁴
Malpractice rate	Between 2014 and 2020, U.S. inflation increased by	Malpractice is a global phenomenon. It remains a major	Elijah, A. (2007) ²⁵

²⁰ <https://www.investopedia.com/articles/economics/12/okuns-law.asp>

²¹ Amerah M, Khasawneh M (1993) Unemployment in Jordan: dimensions and prospects. Center for International Studies, pp. 1–56.

²² International Labor Office, Global Employment Trends, January 2010.

²³ Topuz, S. G. (2022). The Relationship Between Income Inequality and Economic Growth: Are Transmission Channels Effective?. Social Indicators Research, 162(3), 1177-1231.

²⁴ Chengfang Shen & Xindong Zhao (2023) How does income inequality affect economic growth at different income levels? Economic Research-Ekonomska Istraživanja, 36:1, 864-884,

²⁵ Elijah, A. (2007). Effects of corruption and economic reforms on economic growth and development: lessons from Nigeria. In African economic conference.

	<p>approximately 15%, whereas the expenses to settle the average paid medical malpractice claim reported to the National Practitioner Data Bank (NPDB) surged by 42%. This surge in loss costs, exceeding the pace of general inflation, is identified as social inflation. Over the decade ending in 2021, social inflation contributed to between \$2.4 and \$3.5 billion, constituting 8 to 11 percent, of all medical malpractice losses incurred by physician-focused insurers.</p>	<p>long-term major political, economic and social challenge for the world. That is why it is important to add this in PCI so that countries a high risk can find a way to tackle this issue which is affecting the country's development</p>	<p>Uddin, I., & Rahman, K. U. (2023)²⁶</p>
<p>Educational Institute</p>	<p>Education, recognised as a pivotal element of a nation's human capital, enhances the productivity of each worker and enables economies to ascend the value chain, transcending manual tasks and rudimentary production processes.</p>	<p>Education stands as a pivotal factor influencing economic growth, employment opportunities, and individual earnings. Neglecting the economic aspect of education jeopardises the prosperity of forthcoming generations, with far-reaching consequences for poverty levels, social inclusion, and the sustainability of social security systems.</p>	<p>World Economic Forum (2016)²⁷ Woessmann, L (2015)²⁸</p>
<p><i>Indexes</i></p>			

²⁶ Uddin, I., & Rahman, K. U. (2023). Impact of corruption, unemployment and inflation on economic growth evidence from developing countries. *Quality & Quantity*, 57(3), 2759-2779.

²⁷ World Economic Forum (2016) Global Competitiveness Report 2015-2016

²⁸ Woessmann, L (2015) The economic case for education, *Education Economics*, Volume 24.

Climate index	Climate change impacts on economic performance extend beyond changes in average temperatures; it encompasses other extreme weather events like droughts, fires, and sea level rise, which are equally, if not more, significant. These effects shape "growth episodes," periods of rapid or slow economic growth experienced by countries over time. While all countries undergo these episodes, some sustain growth better than others, often due to their ability to manage and respond to shocks effectively	The climate index is very important in measuring the economic performance of any country. climate disasters event lead to poor economic performance of the country. Every country must transition to a zero-carbon economy, which involves significant changes in how we use land, plan cities, build infrastructure, invest in technology, create jobs, and ensure social fairness. That is why it is important to add this index to PCI.	Laurence Chandy., (2023) ²⁹ Renee Cho., (2019) ³⁰ Commission on growth and development., (2009) ³¹ Salman, A. and Choudhary, S.A., (2024) ³²
Tourism Index	Various studies indicate that tourism and economic growth have a positive relationship. The travel and tourism sector's contribution to gross domestic product (GDP) is anticipated to reach 10.8% by the end of 2026.	The Tourism Index is important because tourism now stands as a prominent economic sector, contributing 9.8% to global GDP and representing 7% of total worldwide exports (2021 data).	United Nations World Tourism Report (2014) World Travel and Tourism Council (2016)

²⁹ <https://carnegieendowment.org/2023/01/04/economic-development-in-era-of-climate-change-pub-88690#:~:text=While%20climate%20change%20may%20reduce,one%20of%20ongoing%20economic%20progress.>

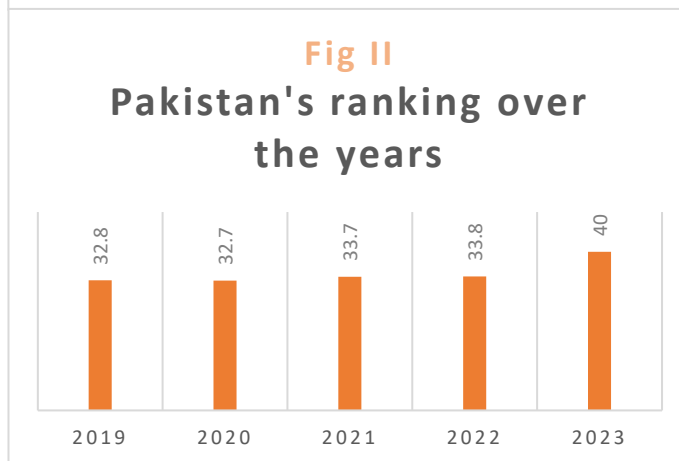
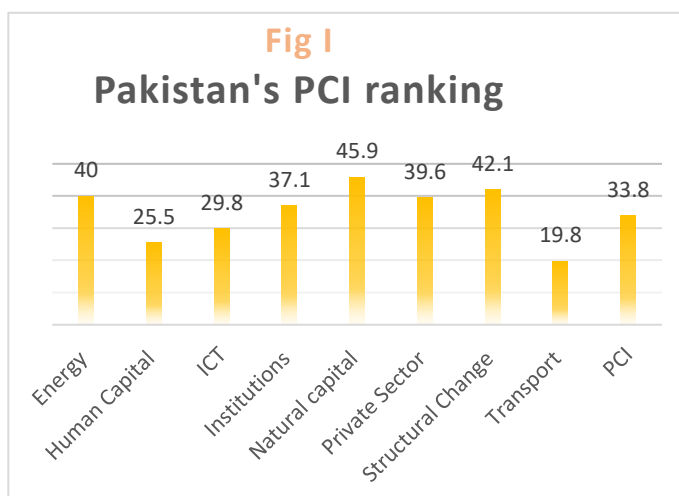
³⁰ <https://news.climate.columbia.edu/2019/06/20/climate-change-economy-impacts/>

³¹ <https://www.uncclearn.org/wp-content/uploads/library/577590nwp0box353767b01public10gcwp060web.pdf>

³² Salman, A. and Choudhary, S.A., (2024). Climate Security Index: Analysing South Asia's Climate Resilience. <https://ipripak.org/climate-security-index-analysing-south-asias-climate-resilience/>

Pakistan's Stand in Productive Capacities Index

The productivity of Pakistani workers has increased by 40% over the past 30 years, while Vietnamese workers have seen a remarkable 328% increase in productivity during the same period. This means that Vietnamese workers' productivity grew 8 times faster than that of Pakistani workers. Worker productivity is crucial as it correlates with income growth and overall national economic expansion. Therefore, it's essential to understand Pakistan's productivity trends and identify measures that could enable Pakistani firms to achieve growth rates similar to those of Vietnamese firms.³³ As per the UNCTAD productivity index, Pakistan stands at 156 number in the productive capacities index³⁴. Figure I explain Pakistan's ranking of all eight components of the PCI



index. Fig II shows Pakistan's PCI ranking from 2019-2023. Pakistan is getting worse over the year in this index ranking.

Furthermore, the war including Russia Ukraine war and the Gaza conflict is affecting the global economy in three main ways. Firstly, it's driving up prices for essential goods like food and energy, leading to inflation that reduces people's purchasing power and slows down demand. Secondly, neighbouring economies are facing challenges due to disrupted trade, supply chains, remittances, and a significant increase in refugee movements. Thirdly, businesses are feeling less confident, and investors are uncertain, causing fluctuations in asset prices and making financial conditions stricter. It means that war plays a very important role in the economic growth of every country not domestically but globally as well.

³³ <https://blogs.worldbank.org/endpovertyinsouthasia/global-integration-can-spur-productivity-growth-pakistan#:~:text=Workers'%20productivity%20has%20practical%20implications.fast%20like%20Vietnamese%20firms%2C%20matters.>

³⁴ https://unctad.org/system/files/official-document/aldc2023d2_en.pdf

In the long term, the growth of developing countries hinges on their ability to enhance their productive capacity. This entails significantly increasing the inclination to invest and the efficiency of investment spending. Boosting the propensity to invest entails allocating a larger portion of the country's income towards financing Gross Fixed Capital Formation. Structural policies should be refined to attract more productive investments from foreign sources like Foreign Direct Investments (FDIs), as well as from both private and public domestic investors. Incorporating these indicators into the Productive Capacities Index (PCI) would enhance the credibility and effectiveness of its results, providing a more robust framework for countries to address their challenges thoughtfully and efficiently.

Conclusion

Productivity stands as a cornerstone of economic development for every nation, with various definitions and metrics employed globally to gauge its magnitude. Whether measured as the comparison of goods and services produced or as a ratio between input and output volumes, productivity remains instrumental in driving economic growth and bolstering a country's GDP.

The United Nations Conference on Trade and Development (UNCTAD) has introduced the Productive Capacities Index (PCI) as an enhanced tool to guide countries in refining their development policies. By analysing eight sectors and 42 indicators, the PCI offers unique insights into a country's development trajectory. However, while the PCI provides valuable data, certain indicators warrant inclusion to offer a more comprehensive understanding of a country's economic performance.

Factors like the labour force, job availability, food expenditure, biodiversity, ocean resources, road infrastructure, unemployment rates, income levels, malpractice rates, educational institutions, and climate and tourism indexes all play important roles in shaping a country's economic landscape. Each of these indicators offers critical insights into various aspects of economic performance, from workforce dynamics to environmental sustainability and resilience. Additionally, Pakistan's standing in the Productive Capacities Index reflects the importance of understanding and addressing productivity trends within the country. Despite a 40% increase in worker productivity over the past three decades, Pakistan lags, ranking 156th in the PCI. Efforts to boost productivity and attract investment, both domestic and foreign, are crucial for the country's long-term economic growth and development.

Looking ahead, enhancing productive capacity remains paramount for developing countries' growth trajectories. This necessitates a concerted effort to stimulate investment and improve the efficiency of investment spending. By incorporating a broader range of indicators into the PCI and addressing key economic challenges, nations can chart a path towards sustainable and inclusive development, thereby fostering economic resilience and prosperity for all.

Recommendations

- To enhance the accuracy and utility of productive capacities assessment, an integrated and comprehensive method should be adopted. This approach will enable more targeted and effective economic policies and interventions, ensuring optimal utilisation of resources and increased sustainable economic development.

Appendix I

<i>Components</i>	<i>Indicators</i>
Energy	<ul style="list-style-type: none"> • Access to electricity (% of population) • GDP per total energy supply (thousand 2015 USD PPP per toe) • Renewable energy consumption (% of total final energy consumption) • Total primary energy supply per capita • Total energy consumption (per capita) • Electric power transmission and distribution losses (% of output)
Human Capital	<ul style="list-style-type: none"> • Health expenditure, total (% of GDP) • Research and development expenditure (% of GDP) • Fertility rate, total (births per woman) • Health-adjusted life expectancy (years) • Researchers in R&D (per million people) • Expected years of schooling
ICTs	<ul style="list-style-type: none"> • Fixed broadband subscriptions (per 100 people) • Fixed telephone subscriptions (per 100 people) • Individuals using the Internet (% of population) • Mobile cellular subscriptions (per 100 people) • Secure Internet servers (per 1 million people)
Institutions	<ul style="list-style-type: none"> • Control of corruption • Government effectiveness • Political stability and absence of violence/ terrorism • Regulatory quality • Rule of law

	<ul style="list-style-type: none"> • Voice and accountability
Natural Capital	<ul style="list-style-type: none"> • Agricultural land (% of land area) • Extraction flows (% of GDP) • Forest area (% of land area) • Material intensity • Total domestic extraction of raw materials (t) • Industry (including construction), value added (constant 2015 US\$) • Total natural resources rents (% of GDP)
Private sector	<ul style="list-style-type: none"> • Domestic credit to private sector (% of GDP) • Patent applications (per capita) • Trademark applications (per capita) • Lending interest rate (%) • Logistics performance index: Overall
Structural Change	<ul style="list-style-type: none"> • Export concentration index • Economic complexity index • Industrial ratio (Industry and Services VA over total GDP) • Industry (including construction), value added (constant 2015 US\$) • Services, value added (constant 2015 US\$) • Agriculture, forestry, and fishing, value added (constant 2015 US\$) • Gross fixed capital formation (% of GDP)
Transport	<ul style="list-style-type: none"> • Air transport, freight (million ton-km per capita) • Km of roads (100km² land) • Air passengers (per capita) I • Km of rail lines (per capita) I • Air transport, registered carrier departures worldwide (per capita)

About the Authors

Dr. Aneel Salman holds the distinguished KSBL-IPRI Chair of Economic Security at the Islamabad Policy Research Institute (IPRI) in Pakistan. As a leading international economist, Dr Salman specialises in Monetary Resilience, Macroeconomics, Behavioural Economics, Transnational Trade Dynamics, Strategy-driven Policy Formulation, and the multifaceted challenges of Climate Change. His high-impact research has been widely recognised and adopted, influencing strategic planning and policymaking across various sectors and organisations in Pakistan. Beyond his academic prowess, Dr Salman is a Master Trainer, having imparted his expertise to bureaucrats, Law Enforcement Agencies (LEAs), military personnel, diplomats, and other key stakeholders furthering the cause of informed economic decision-making and resilience.

Sheraz Ahmad Choudhary is a Research Associate at IPRI. He is affiliated with the University of Sussex and his areas of expertise are Macroeconomics, Trade Public Finance, and Environmental Economics.