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“ The changing demographic landscape presents both challenges and opportunities, as societies must adapt to shifts in population growth, aging, and workforce dynamics.

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China's Response to Changing Demographic Situation

With Pakistan closely aligned to China and with developing economic relations between the two countries, the question arises whether Pakistan could get involved in helping China to the latter's developing demographic situation. My answer is "yes." Pakistan has one of the world's youngest populations and it could be

trained to do work for China.

Both parts of the Chinese economy – the government and private enterprises – have begun to respond to some fundamental changes in the country's demographic situation. The size of the country's population is now declining and that means fairly rapid aging of the population. China is running out of children and the youth, while those that are old are seeing a significant increase in their proportion in the population. Some China experts call the new economic situation as the "silver economy." China's "aging society is expected to deplete the vigor and vitality of the world's second-largest economy in the coming decades. But the adverse effects of demographic change are already apparent for Chinese businesses that cater to children. Many are scaling operations or changing course."

In 2022, China's population declined for the first time since 1961, the year Chairman Mao Zedong's imposed constraints on population increase were removed by his successor, Deng Xiaoping. Births fell to 9 million in 2023, down 6 percent from the previous year. And the number of preschool children plummeted nearly 12 percent according to China's Ministry of Education. Deaths outnumbered births starting in 2022, a trend that has continued since then. The number of 60-year-olds topped 290 million, or one in every five Chinese people. The country's National Health Commission estimates that the Chinese elderly population will grow to more than 400 million by around 2035.

The country has tried for years to deal with its demographic crisis. China is not unique in facing this demographic situation. North America, Western Europe and Russia are also faced with this situation. China fully lifted the Mao-era one-child policy and offered a range of incentives to persuade people to have more children.

There is now evidence from other countries that tried the same approach that it does not work to produce higher birth rates. China's recent economic problems with declining rate of growth in the national income have given young people more reason to question whether they can afford bigger families. When I worked as the Director of World Bank's China Operations from 1987 to 1994, I questioned the Chinese officials who worked with me with the state lifting the one-child policy, they were likely to go for larger families. The response was that the real constraint was the availability of living space. The Chinese rulers are concerned that fewer babies will lead to a smaller labor force will reduce tax revenues and add to the expenditures on health care.

This change in the age composition of the population has meant that some of the facilities that were established to take care of children have been changed to look after the old. A *New York Times* story told of the adjustments made by Li Dongmei who operated a series of kindergarten schools for young children shut her schools for children and began to offer a variety of classes for seniors. A number of local firms are also making adjustments to the changes in the demographic situation. The Chinese cybersecurity firm, 360 Security Technology, which was making smartwatches for kids that allowed parents to contact their children and monitor their whereabouts and internet use has also made changes. In 2019, citing "the advent of an aging society," the company introduced smart watches for seniors with features such as blood pressure and heart rate monitors, location tracking for concerned family members and one-click emergency calling.



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Sustainable Development Goals - Investment Mapping

Pakistan, currently is confronted with host of development problems, endeavoring to address the woes of political uncertainty, economic instability, structural inequalities, disparities and impact of climate change. The country's performance toward achieving the Sustainable Development Goals (SDGs), is grossly lacking with only six years to go. It has slipped twelve places on the SDGs Index 2024 compared to 2022 with current ranking at 137 out of 166 countries and a low score of 57.02.¹

The UN estimates a global annual gap of \$2.5 trillion in the \$5-7 trillion investment required to achieve the SDGs, Pakistan's annual financing gap for the SDGs is around \$3.72 billion. The country requires an additional 16.1 percent of the GDP from the public and private sector to achieve the SDGs by 2030.² Between \$7 billion to \$14 billion are required alone for climate adaptation as per Nationally Determined Contributions. Apart from funding by the government, the role of private sector is fundamentally imperative to mobilize investment resources for sustainable economic growth and SDGs' achievement.

The United Nations Development Program (UNDP), in order to spur private capital and align necessary investment to SDGs, launched the SDGs Impact initiative to enable the potential investors make informed and conscious investment decisions. Under this initiative, Sustainable Development Goals Investment

Map module has been developed as market intelligence system for the private sector to tap viable investment opportunities.

In all, 32 countries including India, China, and Indonesia have already prepared and successfully leveraged their respective SDG Investor Maps to attract private sector investments. Following the experience of these countries, Pakistan also prepared a market-intelligence driven and evidence-based, SDG Investor Map in 2023 to incentivize foreign and domestic investment. The Map identified various investment opportunity areas in the priority sectors of food and beverages, transportation, renewable energy, healthcare, consumer goods, infrastructure, and services to guide private sector in formulating SDG's related projects and avail innovative financial tools.

This indeed is a laudable initiative but the major challenge for the government continues to be the absence of a conducive policy, regulatory and institutional framework and lack of a facilitative implementation mechanism to mobilize private sector and stakeholders. The government must, therefore, undertake the following measures to harness the full potential of this mapping exercise for robust and sustained socio-economic growth:

- Provide a conducive policy, regulatory and institutional framework by harmonizing, aligning and adjusting the existing sectoral policies and institutions especially in the seven priority areas to support and attract private sector investment and access various global green financing mechanisms;
- Upgrade governance through capacity and competence development, transparency and accountability system;

- Enhance and deepen financial markets responsive to green financing mechanisms through fiscal and macro-economic policy framework and encourage increased level of financial flows from banks and financial institutions (micro-credit, insurance, other investment tools);
- Assist and capacitate private sector in building investment projects in the identified areas and pitch for global investment funding like GISSD- global investment for sustainable development, carbon markets and trading; and
- Carry out advocacy especially in association with the Chambers of Commerce and Industries to incentivize and attract in particular SMEs to explore the potential for viable investment.

Reference

¹ <https://twitter.com/IlhanNiaz> > status

² IMF, "Pakistan spending needs for reaching the sustainable development goals (SDGs)," 2021. Available: Pakistan: Spending Needs for Reaching Sustainable Development Goals (SDGs) (imf.org)



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Climate Change— Decarbonizing Cement

The world's infrastructure stock—buildings; roads, power houses...— is expected to double by 2060. If we just stick with additional buildings this rate is equivalent of building Lahore every month; or New York every month. This means that cement production will be increasing at

this rate every month. Catalyzing cement decarbonization will therefore be necessary for achieving net zero by the time table currently agreed by the nations of the world.

Cement is the glue that holds the globalized world together. But producing it requires huge amounts of fossil fuel. According to a 2023 Study in *Nature* the cement producing industry is responsible for about 8 % of global greenhouse-gas emissions. Efforts to tackle this, so far, has centered on reducing fuel quantity and increasing its efficiency. However, some companies have begun using a technology which can be a win-win for both climate change and the cement industry. The technology is to create **carbon-negative** materials by storing excess carbon dioxide in concrete.

The technology is to capture carbon from the atmosphere and combine it with "ground olivine rock" to create a rock powder or slurry. This can be used as an inert industrial ingredient in building materials -like concrete. This process, known as **accelerated mineralization**, can be done within an hour and can potentially bring the carbon footprint of concrete down by 70 %. This means that we are not only storing carbon, but are also substituting some of the (kiln made) clinker which is the big carbon emitter in concrete. This process does not require high temperature to make; it gives off heat, which we can capture and use as energy.

Some companies are storing carbon directly into fresh concrete during mixing. Once injected, the gas undergoes mineralization, permanently binding to the concrete. By this form of concrete, they can reduce emissions by 3% to 5%.

One major road block in scaling up technologies is getting past specifications in codes and regulations.

US is leading under the Federal BUY CLEAN INITIATIVE seeking the procurement of lower carbon construction materials. Other countries can follow or lead more aggressively.

Pakistan can do its share of reducing emissions by adopting this technology. It is a doable solution with positive results for both construction cost and emission reduction.



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Importance of Primary Education in Pakistan

Primary education in Pakistan holds immense importance, shaping the lives of millions of children and setting the stage for their future. At its core, it's more than just schooling; it's about giving children a chance to dream, learn, and grow into individuals who can uplift themselves, their families, and their communities.

Imagine a young girl in a rural village. Her access to education not only helps her learn to read and write but also opens up a world of possibilities. Instead of being confined to traditional roles, she can aspire to become a teacher, a doctor, or even an entrepreneur. For boys and girls alike, primary education is the first step toward breaking the cycle of poverty that has trapped generations. With education, they can secure better jobs, improve their living conditions, and help their families thrive.

But it's not just about economic gains. Education builds confidence, helping children understand their rights and their potential. It empowers them to voice their opinions, make informed choices, and dream big. In a country like Pakistan, where many children face hardships like poverty, child labor, and gender discrimination, primary education offers a lifeline.

Take the story of a boy from a remote village, where schools are few and far between. Attending a primary school means traveling long distances, often on foot. But for him, it's worth it because that small classroom represents hope. It's where he learns that his dreams matter and that he can shape a different future for himself.

Despite its critical importance, many children in Pakistan face significant barriers to accessing education. Some schools lack basic facilities, while others are too far away for rural children to attend regularly. Teachers may be overburdened, and resources like textbooks are often scarce. For girls, the barriers are even steeper, as societal norms sometimes keep them away from schools. But the impact of education on these children's lives is undeniable—offering them a way out of poverty and into a brighter future.

Ultimately, primary education in Pakistan is about much more than textbooks and classrooms. It's about transforming lives, building communities, and ensuring that every child, no matter where they come from, has the chance to realize their full potential.



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The Youth of Pakistan: A Potential Powerhouse Sans Education

Introduction:

Youth are the backbone of any nation's future progress and socio-economic well-being, and this is especially true for Pakistan, which has one of the world's highest youth populations. Approximately 64% of the population is under 30, and around 29% is between the ages of 15 and 29, making Pakistan a youth-dominant country. This presents the country with both a tremendous opportunity and a significant challenge. The youth's energy, potential, and dynamism can serve as a powerful engine for socio-economic development. However, this youth bulge comes with extreme challenges. This is particularly so, as Pakistan has one of the highest numbers of out-of-school children (OOSC), which threatens to undermine the potential of this demographic dividend.

This article explores the implications of Pakistan's growing youth population and how it can pave the way for a brighter future while addressing critical challenges.

Challenges:

Pakistan is home to 71 million children aged five to 16. An estimated 36 per cent, or 25.3 million, of these children are out of school. Among the out-of-school children, 53 per cent are girls and 47pc are boys. This makes Pakistan a country with one of the world's highest numbers of out-

of-school children (OOSC). Disparities based on gender, socio-economic status, and geography are also significant; according to a recent UNICEF report, in Sindh, 52 per cent of the poorest children (58 per cent girls) are out of school, and in Balochistan, a staggering 78 per cent of girls are out of school.

All indicators point towards the fact the education system has failed to provide easy access to education, ensure the quality of education or respond to children's local circumstances and needs, despite government claims otherwise. Access to education suffers from various barriers including economic factors, cultural barriers, and inadequate infrastructure. Girls are especially vulnerable to cultural norms, further restricting their education opportunities. A report on the performance of the education sector released by the Pakistan Institute of Education – a subsidiary of the education ministry – has revealed a harrowing state of affairs in the education sector, particularly concerning the lack of infrastructure. According to the report, many of the schools, especially those located in the rural areas lack even the basic facilities such as toilets, potable water, and electricity among other basic facilities, which show the dismal state of affairs. There is also a growing disparity of standards between public and private schools with the overall reputation and credibility of governmental schools at a low ebb.

Other Issues faced by the Youth include:

1. Limited Economic Opportunities:

With low literacy rates and a large population of out-of-school children, a significant portion of the youth may struggle to find stable and meaningful employment. Without basic education and skills, they may be restricted to low-wage, informal jobs, perpetuating cycles of poverty.

2. Skill Mismatch:

As industries evolve with technology, especially in sectors like IT, manufacturing, and services, a lack of education can result in a skill mismatch. This means the youth may not have the necessary skills for available jobs, leading to higher unemployment and underemployment.

3. Social Inequality:

The disparities in access to education, particularly for marginalized groups like rural populations, girls, and low-income families, could widen social inequality. This may lead to increased frustration and a lack of social mobility for underprivileged youth.

4. Political and Social Instability:

Disengaged and uneducated youth can become vulnerable to radicalization, extremism, or social unrest, as they may feel excluded from economic and political processes.

Conclusion:

The future of Pakistani youth hinges on the country's ability to address its deep education crisis, particularly the high number of out-of-school children and the low literacy rate. Addressing these issues will require a multi-faceted approach including a sustained and strategic focus on improving access to education, particularly for deprived communities, and addressing the root causes of children dropping out of school, such as poverty, gender inequality, and cultural resistance. Increasing education budgets, improving school infrastructure, and implementing policies which encourage school attendance, especially for girls and marginalized communities.

While the challenges are daunting, there are clear opportunities for growth and development. With sustained investment in education, vocational training, and technology-driven learning, Pakistani youth can still emerge as a productive and innovative force in both the national and global economy.



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The Siege that Altered the Policy Course of Saudi Arabia

On the early morning of November 20, 1979 during King Khalid's reign, a group of ideologically hardened rebels known as the al-Jamaa al-Salafiya al-Muhtasiba (JSM) successfully laid the siege to Grand Mosque in Mecca trapping thousands of pilgrims in the Haram. This outfit was led by Juhayman al-Otaybi, the architect of the siege and his brother-in-law and more importantly Imam Mahdi claimant, Mohammed ibn Abdullah al-Qahtani – Juhayman hailed from an influential Saudi family, he was the grandson of Sultan bin Bajad al-Otaybi who was amongst the key personalities who united Saudi Arabia, but denounced the government for Saudi society's westernization. By virtue of his status, Juhayman was able to gravitate both funds and zealots as he capitalized on the pre-existing tensions within the Saudi social fabric caught between puritanical interpretation of Islam and modernity.

Regionally this was a momentous time, US President Jimmy Carter brokered the Camp David Accords between Egypt's Anwar Sadat and Israel's Menachem Begin, while the phantasmagoria of Ruhollah Khomeini's Iranian Revolution was still fresh in the minds of the international community. Juhayman had met Qahtani at the University of Medina and became convinced he encountered Mahdi due to Qahtani's devoutness and more interestingly how his facial features matched the description

of Mahdi in the Hadith. Mahdi is central to Islamic belief as well as pivotal to the end of times prophecy. Mahdi is said to reveal himself when there is moral bankruptcy, dwindling reverence to God.

The JSM had smuggled arms and ammunition in coffins and under their clothes, placed them around the mosque's courtyard. The outfit's snipers took position at the top of the minarets, sniping the personnel of the Saudi police and National Guard. JSM rebels also used the labyrinth of chambers and rooms beneath the Grand mosque as a bolt hole. Eventually fatwa was acquired to use deadly force inside the sacred site and ergo the Saudis were assisted by the French Groupe d'intervention de la Gendarmerie nationale (GIGN). Holes were drilled in the floor of the mosque to smoke out the rebels who were later picked up by government snipers. Qahtani was killed, while Juhayman along with 60 zealots was arrested, they were hanged in 8 different cities. The siege protracted for two weeks, killing a total of 255 pilgrims, rebels and security personnel.

This watershed sent shockwaves across the Saudi government who decided to appease the stringent clerics, by embracing greater degree of conservatism, strengthening the Faustian bargain between the monarchy and the clerics. In doing so, entertainment sources like cinemas and music shops were banned, a string of measures like the removal of female news presenters, prohibition of publishing pictures of women in newspapers, led to a somewhat erasure of women from public life. Moreover, gender segregation was strictly enforced and hours of religious education were ramped up in the curricula. King Khalid granted greater influence to religious scholars and religious police was also given increasing power. In addition, there was a grave realization regarding how the holy sites in the country are susceptible to extremist perils, ergo counter-

terrorism and security measures were beefed up. The siege socially and politically defined the subsequent decades in the country. While, paradoxically Juhayman's mission was fulfilled to a prominent extent as King Khalid espoused conservatism over modernity, a trend which got challenged by the current Crown Prince, Mohammed bin Salman Al Saud as he aims to modernize the Saudi society.



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Hierarchical Multilevel Model: Analyzing Think Tanks from Interns to Board of Directors

A think tank is an institution known for its focus on policy and research, operating independently or under the auspices of government or semi-government entities. The core purpose of a think tank is to identify policy issues, conduct research on global or national matters, evaluate ideas, and make recommendations. Typically, think tanks assemble teams of skilled individuals to produce high-quality research. These teams often include top experts from various fields, junior analysts, and researchers.

In addition to their research efforts, some think tanks contribute to community service by training young people from academic backgrounds. The goal is to develop these individuals into not only skilled professionals but also responsible citizens with strong moral values.

Research outputs from these think tanks often include research papers, reports, opinion pieces, and visionary statements. Typically, think tanks operate within a hierarchical structure. A key characteristic of such a hierarchy is that individuals maintain both independent attributes and those inherent to the hierarchical organization. To produce effective researchers, it is crucial to foster individual thinking while promoting teamwork.

Hierarchical data requires advanced analysis techniques beyond simple ordinary least squares regression due to the dependencies that arise. At a higher level, multilevel modeling is employed to capture various variations and gain deeper insights into the data. Hierarchical structures are pervasive, observed in scenarios such as clustering among infants, teeth within a mouth, infants within pregnancies, students within specific courses, and so forth.

When applying a multilevel model, regardless of the specific technique used, it is essential for the investigator to clearly distinguish between level-1 explanatory variables, which change with each observation, and level-2 variables, which remain constant for all observations within the same level-2 unit but vary among different units. Hierarchical data structures allow for the exploration of complex relationships where a level-2 characteristic can modify the effect of a level-1 covariate on the outcome. Multilevel methods facilitate the exploration of such cross-level effects and the testing for cross-level interactions. It is also possible to have hierarchies with more than two levels of organization.

Another important and powerful aspect of multilevel methods is the ability to specify explanatory variables at any level of the hierarchy as either fixed or random, each with different interpretations of the estimated effects. Specifying a variable as fixed assumes

that its effect is constant, allowing for comparisons between categories or values of the variable.



Figure 1: A Random Hierarchical Structure of Think Tank

Hierarchical multilevel model will take the form,

Level 1 model is of intern level, the specific linear model is taken form as,

$$Y_{ijklmnop} = \beta_0 + \beta_1 X_{ijklmnop} + u_{ijklmn} + \varepsilon_{ijklmnop}$$

Level 2 model is of research assistant level, the specific model is taken form as,

$$u_{ijklmn} = \gamma_0 + \gamma_1 Z_{ijklmno} + \tau_{ijklmn}$$

Level 3 model is of research associate level, the specific model is taken form as,

$$\tau_{ijklmn} = \psi_0 + \psi_1 W_{ijklmnp} + s_{ijklmnp}$$

Level 4 model is of wing head level, the specific model takes form as,

$$s_{ijklmnp} = \theta_0 + \theta_1 V_{ijklmnop} + t_{ijklmnop}$$

Level 5 model is of director of operations, education, and learning, the specific model takes form as,

$$t_{ijklmnop} = \lambda_0 + \lambda_1 U_{ijklmnop} + v_{ijklmnop}$$

Level 6 model is of vice chairman level, the specific model takes form as,

$$v_{ijklmnop} = \pi_0 + \pi_1 Q_{ijklmnop} + \omega_{ijklmnop}$$

Level 7 model is for the chairman level, the specific model takes form as,

$$\omega_{ijklmnop} = \xi_0 + \xi_1 M_{ijklmnop} + g_{ijklmnop}$$

Level 8 model is for the board of directors level, the specific model takes form as,

$$g_{ijklmnop} = \alpha_0 + \alpha_1 R_{ijklmnop} + k_{ijklmnop}$$

Statisticians predict a project's success or failure in terms of profit and loss. To do this, they employ either classical statistical thinking or Bayesian statistical thinking. Classical statistics, also known as the frequentist approach, treats model parameters as fixed quantities. In contrast, Bayesian thinking considers unknown parameters as random variables, which are estimated using both data and prior information about similar data or events. Updating current estimates with prior information is a conceptual and complex task, achieved through Bayes' theorem. Prior information can be strong and quantitative or weak and less influential on data estimates. If no historical information is available to serve as prior information, weak priors also known as non-informative priors are used, while strong prior information is referred to as informative priors.

In the previous example of a think tank involved in policy-making and training, if individuals from certain backgrounds have demonstrated weak or deceptive performance in the past, such data can serve as prior information to predict the outcomes of upcoming projects. This prior information helps refine predictions and improve decision-making, particularly in scenarios where past data reveals patterns of weak or strong performance.

In a multilevel model, the Bayesian approach estimates the distribution of random effects

and coefficients at each level by combining observed data with prior beliefs about the parameters. The prior knowledge may come from historical data, expert judgment, or previous studies. This is particularly useful in think tank analysis, where data from previous projects or similar institutions can inform the current model.

For instance, in the context of a think tank, past performance data from interns or research assistants might serve as prior information. This information can be integrated into the Bayesian model, which can then update these beliefs as new data from current projects are collected, refining predictions over time.

The model defines different levels of hierarchy, starting from the interns (level 1) up to the board of directors (level 8). For each level, parameters β_0 , γ_0 , ψ_0 , and random effects are estimated, reflecting the variability at that level.

Prior distributions are assigned to each parameter and random effect. For example, weak informative priors are used for lower-level individuals (interns), while more informative priors are applied at higher levels (e.g., research directors), reflecting the greater influence of senior positions on the think tank's overall outcomes. These priors could take the form of normal distributions for fixed effects or inverse gamma distributions for variance components, depending on the nature of the data and parameters. Bayesian multilevel models use Bayes' theorem to combine the prior distributions with the observed data, producing a posterior distribution for each parameter. This posterior distribution reflects updated beliefs about the parameters after accounting for both the data and prior information. Once the posterior distributions are computed, Bayesian inference provides estimates of the parameters, including credible intervals that quantify uncertainty. These

intervals are crucial for understanding the possible range of outcomes for each level of the hierarchy, from interns to directors. Posterior predictive checks are often employed to evaluate the model's fit, ensuring that it adequately represents the data and captures key trends at all levels of the organization.

The model also allows for the exploration of cross-level interactions. For example, the effect of a level-1 variable, such as an intern's skill set, on project success may depend on a level-2 variable, such as guidance from research assistants. Bayesian analysis can estimate the strength of these interactions, providing deeper insights into how different roles within the think tank influence one another.

Bayesian models naturally account for uncertainty in parameter estimates. This is especially valuable in organizations like think tanks, where decision-making often involves ambiguity and incomplete information. The use of prior distributions helps formalize this uncertainty and enables decision-makers to adjust their predictions as new information becomes available. Think tanks, like many organizations, have hierarchical data structures where individuals and outcomes are nested within larger units (e.g., interns within departments, departments within think tanks). The multilevel model accommodates these dependencies, capturing the relationships within and between levels. This enables a nuanced understanding of the contributions of different levels to overall performance.

One of the strengths of Bayesian multilevel models is their ability to "borrow strength" across levels. For example, information from higher levels (such as directors) can inform estimates at lower levels (such as interns), reducing the uncertainty in

predictions where data may be sparse. This pooling effect is especially useful when some levels have more data than others, which is often the case in organizational studies.

Multilevel Bayesian models also allow for the inclusion of random slopes and intercepts at different levels. For instance, in a think tank setting, the effect of an intern's research quality on project success might vary across different departments, and this variation can be modeled explicitly. Bayesian multilevel modeling makes it possible to estimate these complex relationships, offering richer insights into organizational dynamics.

Bayesian models generate full posterior distributions and can provide probabilistic predictions rather than point estimates. This is valuable for decision-making in think tanks, where policy recommendations or project proposals often rely on forecasts of uncertain outcomes. The ability to generate prediction intervals based on hierarchical data allows for more informed, data-driven decisions.

Example Application in Think Tank Analysis

Suppose a think tank is assessing the likelihood of success for a new research initiative. A multilevel Bayesian model could be used to analyze data from past projects, accounting for various hierarchical factors such as intern contributions, guidance from research assistants, and overall leadership by department heads.

At Level 1, intern-level data (e.g., skill set, and work hours) would inform the contributions of individual team members. At Level 2, the management skills and previous project experience of research assistants could be modeled. Higher levels (e.g., directors and board members) would provide strategic guidance that impacts the project's overall

trajectory.

Bayesian inference would combine this multilevel data with prior knowledge (e.g., past performance trends) to produce a posterior distribution of the probability of project success. Decision-makers could then use these results to allocate resources more effectively, identify potential risks, and maximize the think tank's overall research output.

Bayesian multilevel models are powerful tools for analyzing hierarchical data in organizational settings like think tanks. By integrating prior information with current data, these models allow for more precise estimation, accommodate the complexities of nested structures, and enhance predictive power. This approach provides think tanks with valuable insights into their operations, helping them optimize decision-making processes, predict project outcomes, and improve overall performance.

Unfortunately, due to a lack of understanding of the field of statistics in Pakistan, many organizations hire statisticians but fail to fully utilize their expertise. Statisticians are often relegated to the role of data analysts, which limits their contributions. This narrow view overlooks their potential to drive strategic decision-making, predictive modeling, and evidence-based policy recommendations. As a result, the broader capabilities of statisticians such as designing experiments, developing complex models, and applying advanced statistical methodologies remain underutilized, hindering organizations' ability to make informed and data-driven decisions. This not only wastes valuable talent but also limits the effectiveness of projects and initiatives that could benefit from robust statistical insights. Embracing the full potential of statisticians could significantly improve the quality of research, forecasting, and policy development

within organizations.

Pakistani society is encapsulated by a famous saying: "The problem with the world is that the intelligent people are full of doubts, and the stupid ones are full of confidence." Charles Bukowski.



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Exploring Digital Twin Technology: The Future of Innovation and Efficiency:

A digital twin is a virtual representation of a physical thing, system. This virtual model is dynamically updated with real-time data from its physical counterpart, allowing for analysis, simulation, and optimization in a virtual environment before making changes in the real world. Digital twin technology can also be used to replicate processes or run simulations in order to collect data and predict how they will perform.

Digital twins have the potential to provide more agile and robust operations. According to research, 70 percent of C-suite IT leaders at large corporations are already researching and investing in digital twins, and 75 percent of business enterprises have already used digital twin technologies with at least medium levels of complexity. These include organizations from a wide range of industries, including automotive, aerospace, and defense, as well as technology, retail, and consumer products. Logistics, infrastructure, and energy companies are more likely to be

creating their initial digital twin concepts.

Since it might be utilized in a wide range of industries, including automotive, healthcare, and power generation, it has already been used to address a wide range of issues. Such challenges include fatigue testing and corrosion resistance for offshore wind turbines, as well as improved race car efficiency. A digital twin enables users to look into ideas for extending the product lifecycle, improving manufacturing and processes, and developing and testing new products. In such circumstances, a digital twin can realistically represent an issue, allowing a solution to be developed and evaluated within the program rather than in the actual world.

Applications:

Manufacturers utilize digital twins to optimize manufacturing processes, decrease downtime, and anticipate equipment breakdowns. In healthcare, digital twins can model specific organs or complete bodies, assisting doctors in better understanding patient health, simulating treatment plans, predicting how a patient will respond to medications, and even planning difficult surgeries more precisely. Urban planners and developers are using digital twins to create and manage smart cities. They can minimize traffic congestion, improve public services, and optimize energy use by developing virtual duplicates of buildings, transport networks, and infrastructure. In aerospace, organizations and firms such as NASA and Boeing have long employed digital twins to develop and test spaceship and aircraft concepts before constructing actual prototypes. Similarly, in the automotive industry, digital twins assist in designing more efficient vehicles and monitor fleet performance in real time, allowing for proactive service.

Benefits:

Enhanced efficiency by assisting businesses to test changes in a virtual environment before adopting them in the real world. Predictive maintenance: In areas like manufacturing and energy, digital twins can forecast when machinery or systems are likely to fail and enable businesses to do maintenance before issues arise. Digital twins deliver real-time data and analytics, allowing businesses to make well-informed decisions based on reliable simulations and projections.

Challenges:

While digital twin technology has enormous potential, it is not without challenges. Accurate digital twins require vast amounts of real-time data, strong AI models, and a lot of computing power. Security is a major concern, as digital twins rely on networks that must be kept safe from cyber threats. In the future, we may see digital twins for everything from entire ecosystems to individual health profiles, fundamentally altering how we interact with the physical world.

Conclusion:

Digital twin technology represents a significant change in the way we build, monitor, and optimize systems and objects. Its applications range from manufacturing and healthcare to smart cities and beyond, with limitless potential. As technology advances, digital twins will become an increasingly important element of industries, driving innovation, improving efficiency, and enhancing decision-making processes.



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Afghan Envoy's Act of Disrespect Sparks Diplomatic Tensions

On September 17th, 2024, during the Rehmat-ul-Alameen Conference in Peshawar, Khyber Pakhtunkhwa (KPK), while all the other attendees stood in respect of the national anthem of Pakistan, Afghan Consul General in Peshawar, Hafiz Mohibullah Shakir, and his colleagues remained seated, showing blatant disrespect to the host country. This act was deemed contrary to the essence of diplomatic conduct and faced widespread backlash across the country as a violation of diplomatic etiquette. The act was condemned to such an extent that experts demanded Shakir be declared *persona non grata* (an unacceptable or unwelcome person) and expelled from the country.

Islamabad was swift with reacting to the incident. Foreign Office spokesperson Mumtaz Zahra Baloch criticized the act, conveying the country's protest to the Afghan authorities. "The disrespect of host country's national anthem is against diplomatic norms. This act of Acting Consul General of Afghanistan is reprehensible," she said in a statement.

The Afghan consulate in Peshawar, in order to soften the intensity of the backlash, tried to defend the decision of the acting consul general to remain seated by clarifying that it was due to the presence of music in the anthem. The spokesperson in an official statement clarified, "There was no intention to

disrespect or demean Pakistan's national anthem. The Consul General did not stand because of the music in the anthem."

The rigid Afghan Taliban government is intolerant of art forms like music, believing they conflict with their religious beliefs. They explained that the decision was not meant to disrespect Pakistan's anthem. "We have also banned the playing of Afghanistan's national anthem with music," said the Taliban Consul General. "Imagine a religious scholar standing up for music," he said.

Further fueling the fire, Khyber Pakhtunkhwa Chief Minister Ali Amin Gandapur acknowledged and supported the Afghan diplomat's decision to not stand up for the anthem.

In a similar incident, Iran also summoned an Afghan envoy for disrespecting their national anthem by remaining seated while it was played at a conference on Islamic unity in Tehran. This incident in Iran came shortly after the one in Peshawar, Pakistan. The Iranian Foreign Ministry strongly protested against the Afghan representative's actions, describing them as "unconventional and unacceptable."

Such incidents show the fragile and unfriendly diplomatic relations Afghanistan holds with its neighbors under the Taliban regime. Both Tehran and Islamabad have formally conveyed their grievances, pointing to the possibility of rise diplomatic tensions if such actions continue, especially at a time when relations between Pakistan and Afghanistan are already strained.



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Book Review - The God of Small Things

Arundhati Roy's Booker Prize-Winning novel 'The God of Small Things' received admiration from Daily Telegraph — 'It is rare to find a book that so effectively cuts through the clothes of nationality, caste and religion to reveal the bare bones of humanity'. The novel was published in 1997, and finds its relevance even today across South Asian societies.

Roy pens down the intricate pattern of human emotions by touching bare souls and reveals the latent nuances of less significance. She keeps a reader absorbed in the story with her fluid styled narrative until the last page is turned.

The book presents the multifaceted dimensions of human existence by rendering a story of an Indian Syrian-Christian family's philosophical, psychological, socio-economic and political dynamics.

Roy goes into existential and philosophical inquiry when she quotes "When you recreate the image of man, why repeat God's mistake?" It points to the power of change that humans possess to create something better rather than blindly adhering to established unjust and flawed traditions and systems.

The book delves deeply into the psychological realm by highlighting a character — Baby Kochama's mindset, reflecting its psychological trauma: "In the next room Baby Kochamma heard the noise and came to find out what it was all about. She saw Grief and Trouble ahead, and secretly, in her heart of hearts, she rejoiced."

The writer augments the importance of words and their relation with love by summarizing in a quote: "When you hurt people, they begin to love you less. That's what careless words do. They make people love you a little less."

When life becomes weary and souls dwell in darkness, a child character 'Estha' asks his mother, "If you are happy in a dream, Ammu, does that count?"

On account of patriarchy, Roy quotes: "For the time being they had no surname because Ammu was considering reverting to her maiden name, though she said that choosing between her husband's name and her father's name didn't give a woman much of a choice."

Moreover, Roy addresses the socio-economic challenges faced by her characters, stating, "They were not meant for a world that would take the small things away." This reflects the pervasive economic struggles that strip individuals of their dignity and agency.

The narrative also critiques political structures, as seen in the quote, "The past is never dead. It's not even past," which suggests that historical injustices continue to shape present realities.

The South Asian region has been affected by socio-economic hardship and political repression. The novel touches social and economic fabrics with respect to political changes i.e., colonial expansion and influence of communism, occurred in Kerala, India. South Asian communities resonate with the story because they have also been economically marginalized which negatively impact their upward mobility breeding patriarchy leading to gender-inequality, causing psychological trauma, fear, identity issues, stigma of mental health issues, etc. The essence of the story lives on.



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The Geopolitical Implications of BRICS Expansion

BRICS is an economic group, that meets annually on summits. It was initially formed in 2009 by 3 super powers i.e. India, China, Russia and a regional power. i.e. Brazil and later joined by South Africa in 2010. The economic bloc has the common goal to overcome the influence of The West or USA and provide economic alternatives to IMF and The World Bank. In January 2024, six more states officially joined BRICS i.e. United Arab Emirates, Saudi Arabia, Iran, Egypt, Ethiopia and Argentina, increasing the number of its members to 11. Its name was shifted to BRICS+ after new states joined in. The group solely represents 45% of the world population and 29.3% of the global GDP. The expansion of BRICS in 2024 coincides the conventional geopolitical theories of Mackinder (Heartland Theory 1943) and Spykman (Rimland Theory 1942).

Background

The acronym "BRIC" was first coined by an economist Jim O' Neill who perceived the growing power of 4 economic giants i.e. Brazil, Russia, India and China. However, the idea was not given much thought until 2008, when the global economic crisis highlighted the vulnerabilities of Western-led financial institutions. It prompted the major emerging economies Brazil, India, China, Russia and later South Africa to collaborate together in order to reduce the reliance on US dominated financial systems and challenge the Western

dominated political and financial system by promoting trade, investment and collectively addressing security concerns. The emerging market coalition acts as a counter-balance to G7 and Western alliances, and advocates for multipolarity.

The New Additions

The addition of new states in BRICS leverages it with key resources and geopolitical influence. Saudi Arabia and Iran have vast natural resources and such as oil, gas, minerals and agriculture capabilities. UAE, Iran and Saudi Arabia are among the world's largest gas and oil producers. Their addition helps BRICS to influence energy policy globally. By including these states, the geopolitical grouping can better integrate key routes, particularly those connecting Africa, South America and Middle East. By incorporating major players from different regions i.e. Middle East and Africa, BRICS built up its geopolitical presence across the continents.

Shift in Power Dynamics

The current world order based on the values of Western democracy and capitalism is facing opposition due to its drawbacks. Similar to the global economic crisis in 2008, one of USA's largest bank, the Silicon Valley bank faced a drastic shortage of reserves leading up to a similar situation in 2023. BRICS+ aims for a geopolitical realignment in the longer run, it advocates for more influence of developing nations contrary to the strategy opted by the US. The emerging power block aims to counterbalance the Bretton Woods System, dominated by the US and aims to construct a multipolar World Order. A key strategy adopted by BRICS is de dollarization. It has promoted the use of local currencies among the trade between member states. China's Yuan and India's

rupee is gaining influence in some bilateral trade agreement. Other than that, the inclusion of resource rich states in the economic bloc portrays their interests in "de-dollarization". Consequently, weakening the dollar's role in international energy markets. To strengthen the de-dollarization bids, BRICS+ has formed a New Development Bank that aims to fund the states in local currencies rather than the US. Dollar.

Risks for BRICS +

BRICS+ has the potential to face challenges including the trouble to form a new currency, internal conflicts, differing international alignments and political system. BRICS+ members often have different foreign policy orientations. China aims to counter the US because they are embroiled in a trade war, Russia is sanctioned by the US for its war in Ukraine and aims to counter balance it as well. However, India aligns with the US on certain matters, creating potential friction in the group. India and Brazil are democracies but China and Russia have an authoritarian dispensation, creating a point of conflict within the group. Several members out of the 11 members of BRIC+ don't have good bilateral ties. India and China, have faced military standoff at their border several times due their disputes. At the same time, Iran and Saudi Arabia are embroiled in a regional conflict and have often been involved in proxy wars.



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Cancel Culture: Combating Transgression or Justifying Oppression?

Cancel culture has emerged as a prominent phenomenon in today's digital world, characterized by public boycotts and social isolation directed at individuals, brands, or institutions seen as committing social wrongs. While it has been praised for empowering marginalized voices and promoting accountability, it raises important questions about its impact on public discussion and ethics.

A notable example of cancel culture's potential to harm is the case of Pakistani singer and actor Ali Zafar. In 2019, fellow singer Meesha Shafi accused him of harassment via Twitter. The accusation quickly spread, leading to a massive backlash against Zafar before the case even reached a courtroom. However, when the legal process concluded, Ali Zafar was acquitted. This case illustrates the dangers of cancel culture where public outrage can result in reputational damage before the facts have been fully examined.

Supporters argue that cancel culture is a necessary tool for social justice, allowing people to hold powerful figures accountable for their actions. This view emphasizes its role in challenging power structures and amplifying marginalized voices. However, critics contend that it can often lead to mob mentality, where accusations result in serious consequences without proper evidence.

The psychological and social aspects of cancel culture further complicate the discussion. Public shaming can harm the mental health of those targeted, raising ethical concerns about the effects of such actions. Additionally, the rapid spread of misinformation online can lead to reactions based on incomplete or inaccurate information.

As cancel culture has evolved, it increasingly reflects deeper societal divides and different cultural norms. Actions seen as unacceptable in one community may be viewed differently in another, highlighting the subjective nature of outrage. This shows the need for a more thoughtful approach, where empathy and critical discussion can foster understanding instead of division.

A major concern is that cancel culture can justify oppression while claiming to combat wrongdoing. While it aims to address transgressions, it can also create cycles of judgment and exclusion, especially when used without considering context or intent. This potential for misuse can turn it into a tool for silencing differing opinions, ultimately undermining the very goals it seeks to achieve.

Moving forward, it is essential to find a balance between holding individuals accountable and ensuring that efforts for social change do not cause harm. Encouraging open dialogue and emphasizing empathy can help reduce the negative effects of cancel culture while allowing for real social progress. By fostering an environment of understanding rather than condemnation, society can navigate the complexities of today's cultural landscape.



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AI: A Dual Tool

The intersection between state welfare, national security and artificial intelligence lies in the need for effective legal frameworks to regulate emerging AI technologies and how to tackle their prominent use and misuse.

The major impact of AI could be on National security of Pakistan. With the advanced AI technology, the rising internal threats like terrorism, extremism and external tensions with neighbouring countries could be alarming. One of the global incidents centering AI was in 2019, when cybercriminals used AI voice-generating software to impersonate the voice of a Chief Executive of an energy company based in the United Kingdom were able to obtain \$243,000.

To avoid any incidents like that the government needs to strengthen the security systems and introduce AI as a defence mechanism at national and international level. The recent advancement in AI could be a game changer in combating issues concerning security.

Pakistan has been confronting many internal challenges as well. With deteriorating condition in medical, climate and criminal domains, AI can be revolutionary, if introduced with proper legislation. It can be used to advance the years old court system, to manage finances and data in areas of banking, providing a helping hand to institutions like NADRA and FBR in data registration and tax collection. Moreover,

Agriculture which plays a key role in Pakistan's economy, could benefit from the latest machinery and advance mechanisms of AI and effectively strengthen the economy.

Some positive instances where AI has landed on the safer side in Pakistan are as follows:

- The FTC proposed new protections aimed at combating AI-enabled impersonation fraud which seems to be a promising step.
- National Centre of Artificial Intelligence (NCAI) is the latest technological initiative under the Government of Pakistan Vision 2025. It aims to provide a platform for AI researchers and product development.
- Another example is the security control system introduced by KPK government that collects data on motor vehicles, people and bikes entering the prominent locations of the city, providing a face recognition and alarm alert on any unusual activity.

Keeping these instances in view, the AI future looks promising. However, with the world advancing at such a rapid pace the government needs to enact the AI policy draft of May 2023 as soon as possible and provide legal security, confidentiality, access to AI platforms and protection of data.



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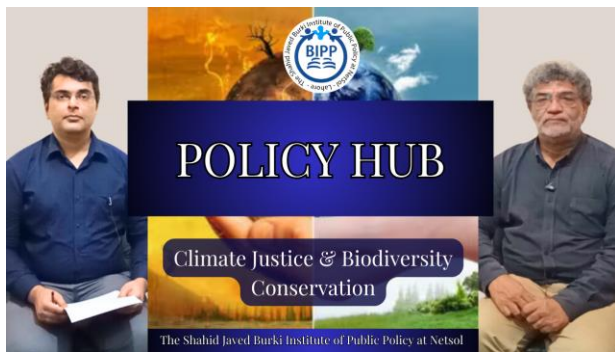
BIPP Round Up

On August 6 2024, Dr. Iftikhar Hussain Shah, Consultant at Burki Institute of Public Policy (BIPP), delivered an informative session on "Good Food Habits for Business Entrepreneurs". The session highlighted practical dietary guidelines for entrepreneurs, combining modern health practices with traditional wisdom from the Quran. Summarized recommendations were concerning healthy breakfasts, adequately balanced meals with proteins and high-fiber carbohydrates as well as the avoidance of sugar and coffee.



On August 12, a new episode of BIPP Policy hub was released featuring Dr. Syed Iftikhar Hussain Shah on "Climate Justice and Biodiversity Conservation." Click the link below to watch the full episode on BIPP's YouTube channel:

<https://youtu.be/fOn1dvW328U>

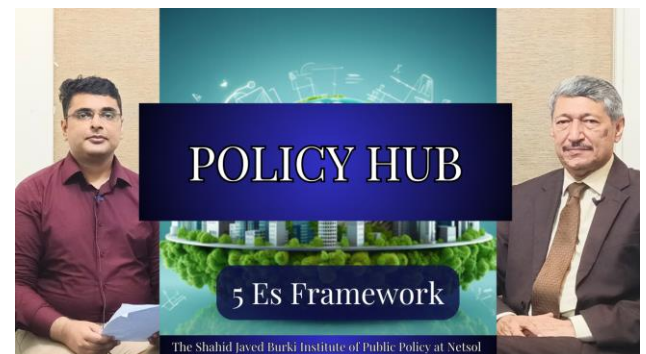


On August 13, BIPP staff celebrated Pakistan's 77th Independence Day by planting trees as part of plantation drive demonstrating commitment to environmental sustainability. The day ended with a salient occasion of the flag being hoisted symbolizing the nation as well as commitment to paving a brighter future.



In line with BIPP's mission to nurture future talent, the institute launched its Internship Program in August. The program offers hands-on experience in research domain. This initiative aims to provide practical learning opportunities while building core competencies, managerial as well as professional skills.

Lastly, on September 10, Dr. Suleman Aziz Lodhi shared valuable insights in the BIPP Policy Hub focusing on "5Es Framework," fostering our commitment to providing evidence-based recommendations to the stakeholders. Click the link below to watch the full episode on BIPP's YouTube channel: <https://youtu.be/HoWmyTVx4iU>





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The Ethical Dilemma of MrBeast's Viral Philanthropy

Jimmy Donaldson, known as MrBeast, has taken over the social media especially YouTube by storm. With his massive challenges, giveaways, and creative stunts, he has captured the attention of over 460 million subscribers, earning more than \$82 million from 2022 to 2023 alone. However, with popularity and influence come controversies, raises important ethical questions about his content and its impact, especially on younger viewers.

MrBeast's videos often feature extreme challenges, offering jaw-dropping prizes like huge sums of money, luxury cars, or even homes. These high-stakes competitions naturally appeal to his young audience, who are drawn to the thrill of winning big. From endurance challenges that test the limits of participants can handle to surprise giveaways that can flip people's lives upside down, his content really resonates with a generation that craves spectacle and instant rewards.

But what does this do to the minds of young viewers? Critics argue that the content may promote a materialistic mindset, where wealth and fame are seen as the ultimate goals, overshadowing values like hard work, kindness, or perseverance. For young viewers, success may start to associate through luck or outrageous stunts, rather than through genuine effort or talent. Psychologists state repeated exposure to such content could

encourage risky behaviour amongst children tempted to imitate dangerous challenges without considering the repercussions.

While MrBeast's philanthropy has earned him plenty of praise, there are some who question whether his charitable acts are entirely motivated by kindness or simply another way to generate views and revenue for example, his project to fund cataract surgeries for 1,000 people. It was undeniably a heart-warming initiative, but critics argue that filming these moments blurs the line between genuine altruism and using vulnerable people's stories to create viral content. In some cases, what appears to be charity can start to feel like it's more about boosting his brand than purely helping others.

MrBeast has also been embroiled in several controversies, including claims of unsafe working conditions during the filming of his Amazon show, *Beast Games*. Contestants reported chaotic and potentially dangerous situations, with some suffering injuries while participating in physically demanding challenges. Old videos resurfacing of MrBeast making insensitive remarks and using slurs have raised concerns about his accountability and values.

From a broader perspective, MrBeast's empire embodies the complex intersection of entertainment, commerce, and influence. His content isn't just about fun and games—it's shaping the mindset of millions of children. For this reason, it is crucial to evaluate the long-term effects his work may have on impressionable viewers. While he has initiated efforts to address internal misconduct and is implementing sensitivity training for his team, the real challenge lies in whether this response will be enough to curb future missteps.

To protect children from absorbing potentially harmful messages, parents, educators, and creators must play a role in guiding how this content is consumed. Children need to be taught the difference between real life and the exaggerated world of YouTube. Conversations around money, hard work, ethics, and risk-taking should be ongoing, helping kids develop a more balanced and thoughtful perspective.

Moving forward, MrBeast's success will depend on increased transparency and ethical responsibility, both within his operations and to the broader public. As a highly influential figure, it is his duty to ensure that his content has a positive impact, particularly on his younger audience. Having inspired millions, maintaining a strong sense of integrity and accountability will be key to preserving his lasting legacy.



Mission Statement

BIPP's mission is to improve the welfare of the citizenry with particular emphasis on identifying policy measures that will lead to inclusive, people-centered growth with equity, political stability and sustainable development besides fully harnessing the potential for regional and global integration of the country. BIPP primary areas of interest encompass social, economic, environmental and political development and security, trade and foreign policy-related issues.

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