India: The Emerging Global Power

John Thomas
La Sierra University
TransResearch Consortium

Jacek Kugler
Claremont Graduate University
TransResearch Consortium

Ronald Tammen
TransResearch Consortium

Using China as a benchmark, we assess the prospects and challenges facing India's rise to global power status. The overall population size, growth and cohort composition favors rapid economic growth. India's prospects are constrained by the failure to integrate women into the work force and the persistent religiously driven division. Consistent with China's experience, increasing FDI and economic openness improves economic growth prospects; as would further moves towards a postmaterialist values. Of serious concern for both China and India are environmental challenges. The most prosperous regions will be seriously affected as forced migrations from neighboring even more affected societies increase. Barring unexpected events, India will likely reach parity with the US and China by 2050 and emerge as the dominant global power at the end of this Century.

Keywords: power, economic development, trade, finance, FDI, labor, environmental degradation, emerging markets, China, India

INTRODUCTION

The goal of this paper is to answer a fundamental question: Will India become a global power? And if so, when? We can turn to the past for a possible answer. A very similar query emerged during the Cold War when most analysts focused on the USSR and the Warsaw Pact as the main potential competitor to the United States and NATO. Few then realized, and some to this day still do not, that this was not the case. Organski and Kugler's War Ledger (1980), ends with the then controversial conclusion that China and not the USSR could effectively challenge the United States in the early part of this Century. Their forecast based on population and productivity has materialized.[1]

Here we explore whether India will become a global power or even the preeminent global power by the end of this Century. India is the second Asian giant waking up from a long power slumber. Tadeusz Kugler (2013) shows that a massive population is the necessary but not sufficient precondition for global power.

As was the case of China before 1960, India's enormous human potential remains hidden. To date India has not converted this potential into activated global influence. The reason, as Organski (1958) argued, is that actual power is reflected by the aggregate productivity of populations, not just potential.

Global powers are the very few nations that at any point in time, tower over their competitors and largely determine international norms that control trade, and political interactions. Currently, only the United States, the European Union (EU) and China hold the status of global power[2]. Russia, despite its nuclear global reach, is no longer capable of extending conventional capabilities globally as the USSR once did. Likewise, the United Kingdom, a perennial global power, lost that rank after WWII. Some argue that the EU lacks the military capability and political coherence to rank among global powers. Others dismiss China because currently it lacks global reach. Key structural conditions will answer this question for us including mobilization, population, and productive capacity.[3] Where does India fit into this picture?

STRUCTURAL FACTORS

To determine if India has the potential to join the great powers in this Century, we trace the demographic, then the productive capabilities and finally the value structures of India.

Demographic

The size of a population determines in large measure the potential capacity of any nation. Consider first in Figure 1 the population potential India has in store.

FIGURE 1
**TOTAL POPULATION OF INDIA AND CHINA: 2000-2100**
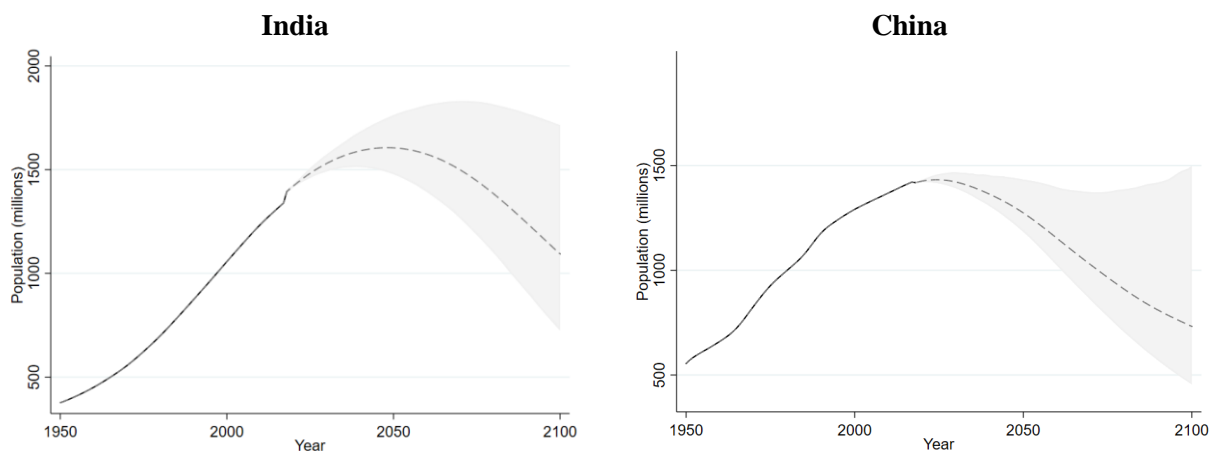
Note. Data from Institute for Health Metrics and Evaluation (IHME). Global Fertility, Mortality, Migration, and Population Forecasts 2017-2100. Seattle, United States of America: Institute for Health Metrics and Evaluation (IHME), 2020. Retrieved from https://vizhub.healthdata.org/population-forecast/

China and India are the two most populous countries in the world. Both nations are approaching a population size of 1.5 billon. The Western competitors – EU and USA - each fall below 0.5 billion.[4] In 2021, the population of China was about 40 million larger than that of India. Because of much higher fertility rates and a large young cohort base, India will overtake China by 2025. Today, China and India together account for about 36 percent of total world population and almost 70 % of Asia's population. There is no doubt that these two Asian giants are now massive regional powers. China is a rising global contender and is likely to become the dominant global power by the 2050-2075. Based on population alone, India has the potential to match or overtake China in the second half of this Century.

Figure 1 shows the likely demographic changes that will take place in the next 75 years. The forecasts of population expansion and decline vary substantially. China – in large part due to the recently amended one child policy adopted in 1979, and the population's preference for males– has reduced the number of women able to reproduce. Even if fertility patterns are reversed – and that is a very large if – China will lose between one third to one half of its current population by the end of this century. India on the other hand will continue to expand until about 2075 and then start a slower reduction that will likely trim the population close to one billion by Century end. Western powers face less uncertainty. The EU is likely to preserve close to half billion population while the United States likely will maintain its population at above 300 million.[5] All estimates indicate that India will soon be home to the largest global population and will increase its advantage until Century end.

Beyond population size, it is important to consider the relative size of the working population. Figure 2 shows anticipated cohort comparisons between India and China, India has the potential to become the preponderant global power largely because it has entered the "window of opportunity" defined by the sum of cohorts between 15 and 65 which will expand until 2050. In China, on the other hand, the 15-65 cohorts peak in 2020 and will continue to decline. This will increase the "dependent burden" driven by a combination of low fertility and growing longevity.[6]

FIGURE 2
POPULATION COHORT COMPARISON INDIA-CHINA, 1950 – 2100
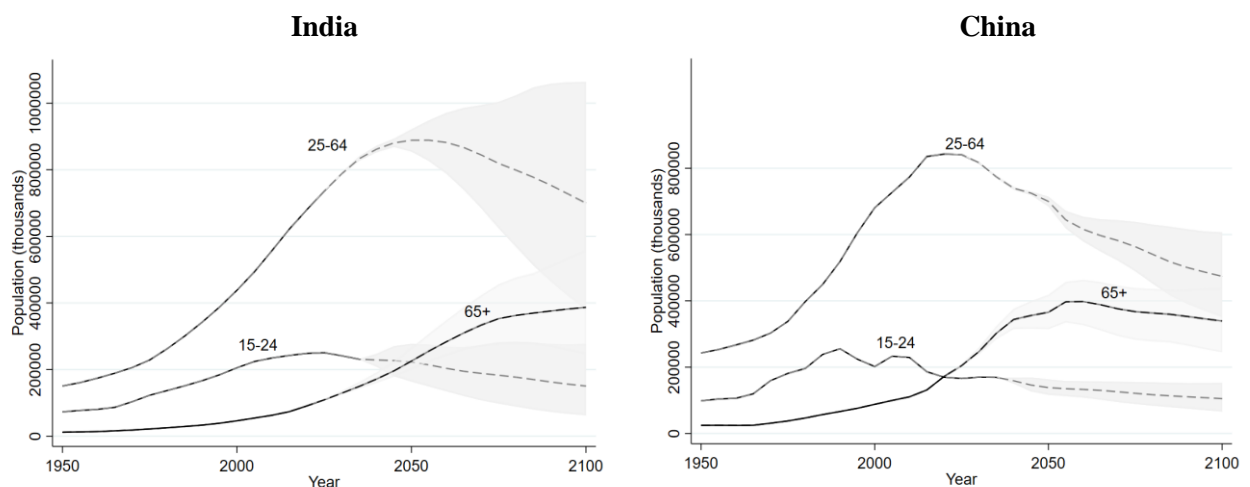
Note. Data from United Nations, DESA, Population Division (2019). *World Population Prospects 2019.* *https://population.un.org/wpp/*

Recall that that during the rapid expansion of the window of opportunity between the late 1960's and 2020, China had a very favorable demographic structure resulting in an abundance of cheap labor. Driven by birth restrictions, China's population between 25 and 65 exploded while cohorts between 0 and 24 declined and the cohort of 65+ continues to rise. Starting around 2000, India's "window of opportunity" is underway. The population between 15 and 64 is sharply increasing and will reach a peak around 2050 and decline afterwards at a much slower rate than in China. The Indian cohort between 15 to 24 will decline less precipitously than in China, and the older cohort of 65 plus will rise far less rapidly. Based on cohort characteristics, India can envision a time based on the Chinese formula of greatly enhanced prosperity. This depends of course on India's ability to manage education, employment, and the rural to urban transition.

The EU and US are aging. Despite its one-third larger population, the EU has a working population like that of the United States. As age dependence increases, both will reduce the proportion of active to dependent population. To reverse this trend, Western societies can sharply increase immigration, but current policies favor added restrictions.

In sum, India is the only potential global power that still can take advantage of the population "window of opportunity" that will persist until the end of this century.[7] Effectively managed, the demographic cohort trends favor India to become the predominant Asian global power, and beyond.

Economic

King, in King and Barnett (1936) was the first to estimate power by a nation's gross output in a successful effort to anticipate the ability of England to overcome an expected challenge from France. After much debate, national output is now measured by GDP. Unlike GNP, GDP approximates the total economic activity of a society but excludes profits from foreign investments.[8] Organski (1958) argued that power is the ability of one nation to persuade or impose its preferences on another. We believe GDP is a valid approximation of national power because money is fungible. Nations that seek to expand or are under pressure by competitors will allocate much to their military. In peacetime defense allocations will decline as governments reallocate defense investments to accelerate economic growth, build infrastructure or expand social services. Moreover, unlike most competing power indicators GDP can be forecasted with some accuracy.[9]

To provide a rough comparison of current and future power, Figure 3 provides two direct comparisons between the performance of China and India until the end of this century. We focus on the Asian giants because they are emerging now. The Western societies had similar patterns starting in 1820 when the industrial revolution took place first in Britain and then in the United States – but have now settled into much slower growth. Moreover, given the population differentials between the EU, USA and two Asian giants, India and China will emerge by century end as the two largest global societies.

FIGURE 3
INDIA AND CHINA: GDP PROJECTION - 1950-2100
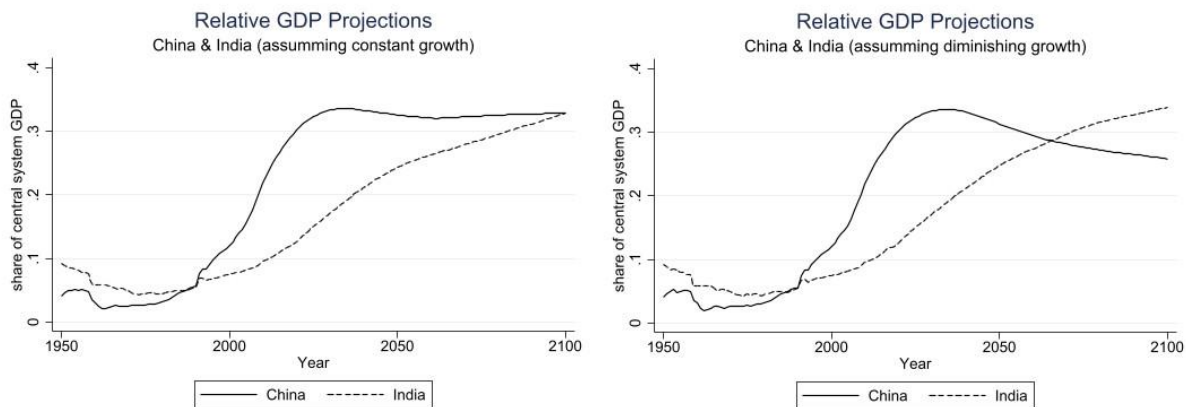
Note. Data for estimations is from (1) United Nations, DESA, Population Division (2019). *World Population Prospects 2019. https://population.un.org/wpp/*; (2) OECD (2018), GDP long-term forecast (indicator). Doi: 10.1787/d927bc18-en (Accessed on 16 September 2021); (3) P. Christensen, K. Gillingham, & W. Nordhaus (2018) Uncertainty in forecasts of long-run economic growth. Proceedings of the National Academy of Sciences 115 (21) 5409-5414; DOI: 10.1073/pnas.1713628115 and (4) Maddison Project Database, version 2018. Bolt, Jutta and Jan Luiten van Zanden (2018), "Maddison style estimates of the evolution of the world economy. A new 2020 update"

Figure 3 estimates of China's future growth are relatively stable because as the income of a society rises, the rate of growth is far more predictable than at much lower rates. The trajectory of India on the other hand is far less certain. If India takes advantage of the window of opportunity provided by demographic factors and follows the path that China took after 1960, India will likely overtake China around 2075. If India follows a far slower pattern (see Figure 3) consistent with many other promising

developing societies, the overtaking will be delayed until the end of this Century. Political factors will play a major role in determining which pattern will be followed.

Note that when China and India were at parity neither nation played a major role in the international system. Today China has emerged as the main global challenger to the United States, but India will join the very small global power group in the second half of this century.

As a proportion of global GDP, the Asian giants have made major strides. Until 2000 the Asian giants combined accounted for less than 10 percent of global GDP. By 2025 this total rose to 40 percent and by 2100 is expected to be over 60 percent of the global output held by the two Asian giants. Shifts of such magnitude are unprecedented. The twin drivers of massive population differentials and productivity per capita growth will frame the future of global politics.

At this point, it is useful to provide temporal portraits comparing the capabilities of the two Asian powers. As Solow anticipated, the convergence among developing societies is directly related to the starting income per capita when technological transfers increase. In simple terms, as the size of families shrink allowing female participation in the economy and a larger investment in the next generation, productivity rises far more rapidly among the relatively poor than among those that have already achieved a higher base level.[10]

Looking across the first 50 years of this century population shifts are far slower than GDP changes. In advanced societies, fertility hovers around zero and can be negative while economic growth falls between 2-4 percent. In the less developed societies fertility rates can exceed 5 percent and economic growth can reach 8 percent allowing for a very slow per capita increase. The cycle of poverty and fertility is well established.

One way to reverse this cycle is to reduce population growth. China first imposed birth control in 1962 followed by the 1975 one child policy. This policy produced a very low population growth rate that will lead to a rapid decline of the total population[11]. India's far less stringent birth control measures, dropped from 6 to slightly above 2 by 2020. The population momentum of previous cohorts along with increased longevity will preserve population growth until the last quarter of this century. At that point, population decline will take place. The main reason for these changes emanate from policies that allow the participation of women in the workforce along with urbanization. This leads to increases in per capita income. Policies that attempt to reverse such trends are both expensive and ineffective.
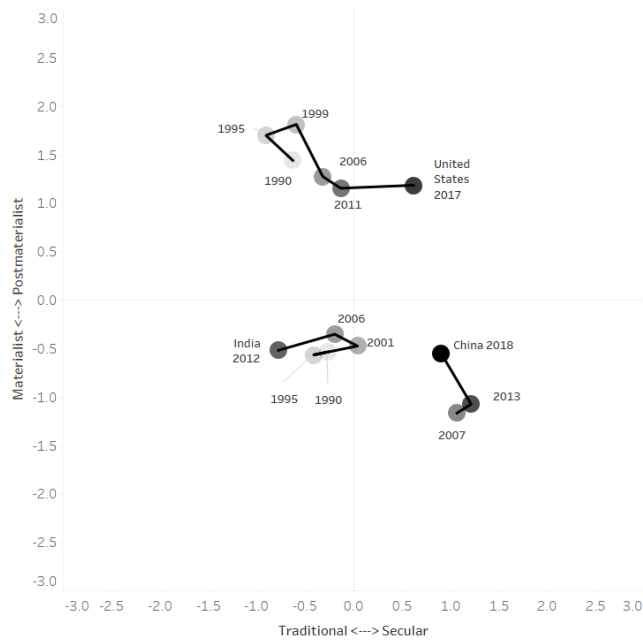
Values

Value satisfaction is a key element that alters interactions among nations. Nations satisfied with the international structures relate to each other not unlike domestic politics where trust and the rule of law regulate interactions. Dissatisfied nations on the other hand act as in anarchy, disregard international norms and simply seek to maximize their interests. In between fall nations that on some dimensions accept international regulations while rejecting constraints in different areas.

Persistent satisfaction with common norms generates trust among competing societies. Zack and Knack (1998) show internal personal trust accelerates growth within nations as transactions are more reliable and any disputes are settled by legally agreed to norms. In a similar vein, Organski (1958) introduced the notion of the status quo arguing that satisfaction with international norms accelerates transactions and minimizes the likelihood of security breaches among nations.

Multiple measures of satisfaction and trust are now available. Measures that correlate alliances are widely used.[12] Cooperative behavior with economic and military agreements among competing parties, and more recently network analysis has been used to determine the strength of links between states. [13]

We propose that satisfaction is derived from common values held by societies. Regardless of levels of economic exchange or security commitments, nations will coalesce to support others when they share similar values. A very innovative approach to measure cross national values has been developed by Inglehart and Wetzel (2005) who show that Religion-Secular and Materialist-Post materialist dimensions account for most of the cross-national value variation. We contend that dyads that hold similar values are relatively satisfied and will produce stable long-term structures that increase trust and reduce the likelihood of confrontations.[14] Figure 4 below shows the value changes of the global powers in the last two decades.

FIGURE 4
VALUES HELD BY GLOBAL POWERS

The three global powers fall into distinct quadrants. India is squarely in the-Materialist-Traditional quadrant moving toward Post-Materialist values. China falls in the Materialist-Secular quadrant. The United States surprisingly still falls in the Traditional – Post Materialist quadrant.[15] India and the United States are drifting towards the Post-Materialist quadrant where Japan and most other Western societies are located. Based on aggregate values a shift towards China is unlikely. These gross assessments effectively reflect ongoing global relations.

A more detailed look at values for China and India at the provincial level further discloses the differences between the two Asian giants. Figure 5 show the distribution of Materialist-Post-Materialist and Traditional-Secular values broken down by provinces in each nation. The values by province are in the quadrants defined previously. The circle sized approximates the economic capacity of each unit. The color overlay indicates the level of government political capacity to extract revenues given available resources for each state – this indicator impartially measures the ability of governments to implement chosen policy (Tammen et.al, 2012).

India, as expected, has a far lower level of political performance and productivity per capita than China. In India, Uttar Pradesh is the most highly mobilized province. Far richer states like Maharashtra, where Mumbai is located, or Tamil Nadu perform politically at lower levels[16]. A similar pattern emerges in China. Beijing, Guizhou, and Henan have relatively low incomes, but they have very high political capacity. Shanghai is the exception as this affluent state is also politically effective suggesting a possible power breaker. Hong Kong, the most economically affluent province in China, has relatively low political influence [17]. Note finally that Xinjiang province where the Uighur opposition is centered also has relatively high political performance This suggests that the government is expending substantial resources to coerce this population. In general, income does not directly relate to political influence.

FIGURE 5
INDIA AND CHINA PROVINCE – VALUES

Values Plot: China (2013)

Values Plot: India (2012)
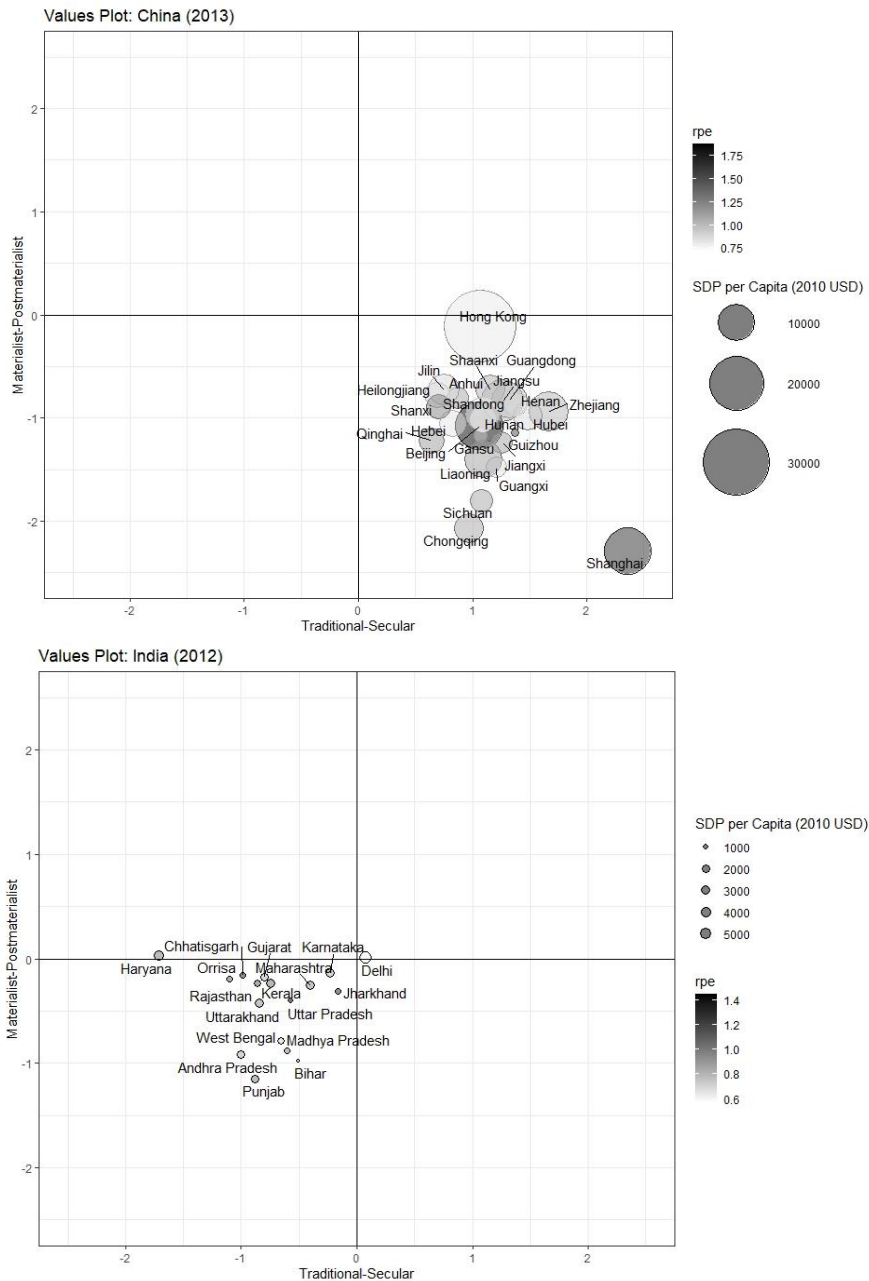
Taken in sum, India has lower political capacity and is far less affluent than China. In value terms – except for Gujarat - India's most affluent provinces are becoming increasingly Post Materialistic and Secular. Value shifts suggest that affluent Indians are adopting values held by the EU. China on the other hand, after the absorption of Hong Kong, is squarely in the Secular-Materialistic quadrant.

A fundamental implication derived from these more detailed country portraits is that India and the EU are drifting towards each other suggesting that as values converge more cooperation will emerge.

PATHS TO GLOBAL STATUS

China was unusually successful in overcoming the education, urbanization, and the female inclusion challenges as it rose into global power status. To fulfill India's promise it must overcome major largely domestic challenges that still inhibit its path to global status.

Participation

India remains divided by caste and religion that in turn reduces female participation during a period of rapid urbanization. The persistent influence of the caste system and religion continues to prevent equality of access to education and the labor market. The most visible distortion is the very low participation of women in the workforce. The female labor force participation rate across India has declined from 30 percent in 1990 to 20 percent in 2019 and remains among the lowest in the developing world (Statista, 2020). Only fewer than one out of four women over the age of 15 are in the labor market.

Figure 6 shows that these trends are related to urbanization and technological change in rural areas. Traditional rural agriculture required high female participation, but as more modern rural technologies are adopted and populations move to cities, labor participation of females in rural areas where 65% of the India's population still resides declined substantially.[18] As the specter of underemployment in rural areas expands, political clashes are likely to increase.

FIGURE 6
INDIA'S FALLING FEMALE LABOR FORCE PARTICIPATION
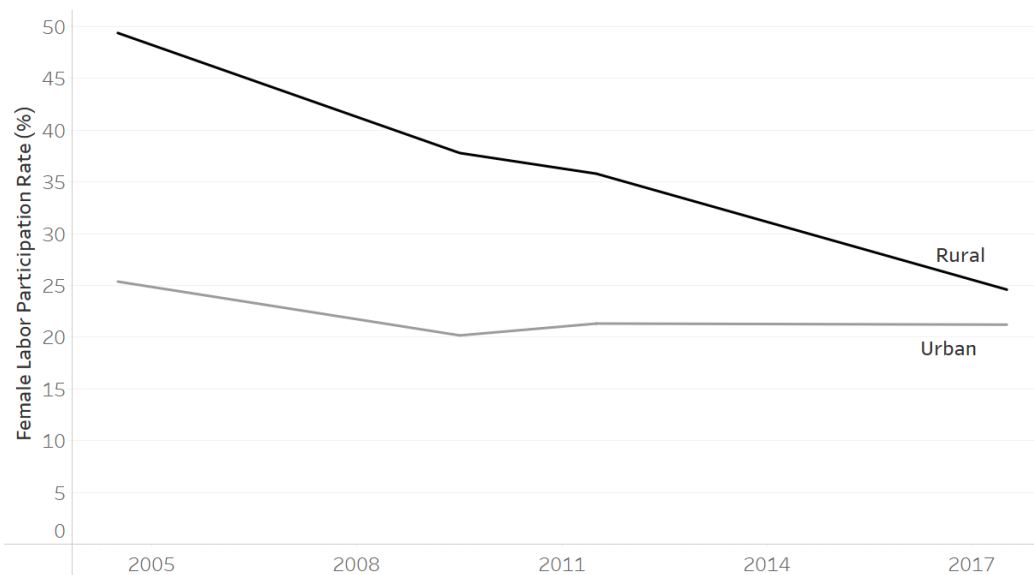
Note. Data from India's National Sample Survey Office (NSSO).

Workforce participation among men is minimally affected by caste and religion. However, cast structure and religious conservatism play a role in women labor participation. The connection between labor force participation, education, and economic growth is strong.

Table 1 reports Gallup surveys between 2009 and 2012 show that in India the breakdown of labor force participation controlling for education by gender is very large. In China, gender gaps between primary and secondary school graduates are close to 10 percent and almost disappeared at the tertiary education level. In India a 50 percent plus gap remains for primary and secondary graduates that is to 45 percent among tertiary graduates. This is a major drag on the economy, as almost half of the Indian population is not fully

participating in the workforce (World Bank, 2020a). In China, these differences are far less pronounced allowing for the very fast growth rates registered in the last few decades.

TABLE 1
LABOR FORCE PARTICIPATION RATES IN CHINA AND INDIA

	China		*India*	
	Women	**Men**	**Women**	**Men**
OVERALL	**70%**	**83%**	**25%**	**80%**
Primary/early secondary education	**70%**	**83%**	**25%**	**82%**
Secondary education	**69%**	**81%**	**20%**	**67%**
Tertiary Education	**81%**	**82%**	**34%**	**78%**

2009 -2012

Figure 7 shows that regional differences in the female rate participation rate. Counterintuitively, rural regions allow for higher female participation than urban centers suggesting that secular equality values have not been widely accepted.

FIGURE 7
REGIONAL DISTRIBUTION OF FEMALE LABOR PARTICIPATION
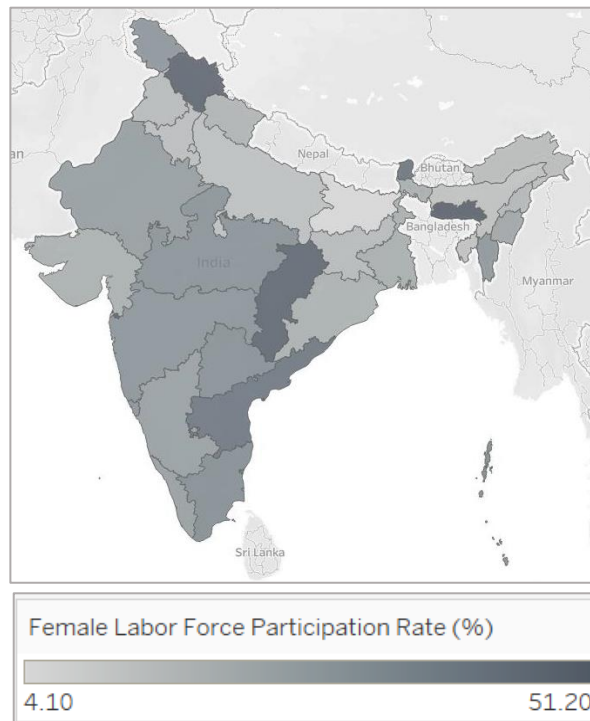
Note. Data from the National Sample Survey Office (NSSO).

Over time, the ongoing rural to urban migration will transform India from a semi-traditional rural society to an urban population with access to education.

Governments can augment growth rates by supporting reductions in fertility rates and opening education and employment opportunities (Organski et al., 1984; Feng et al., 2000). But the exclusion of women from the work force, the persistent minimization of opportunities for Muslim minorities, and the

lack of equality among a broad sector of its population based on cast and religion, is a major drag on economic development. Equalizing opportunity for India's massive human work force could greatly expand the effectiveness of the "window of opportunity". Failure to do so will result in slower economic performance lowering growth projection[19].

FDI

To understand the impact on economic growth of inflows of FDI as a percentage of GDP, consider the path that India and China have taken since 1980, shown in Figure 8 (World Bank, 2020b).

FIGURE 8
FDI OF INDIA AND CHINA 1980-2019
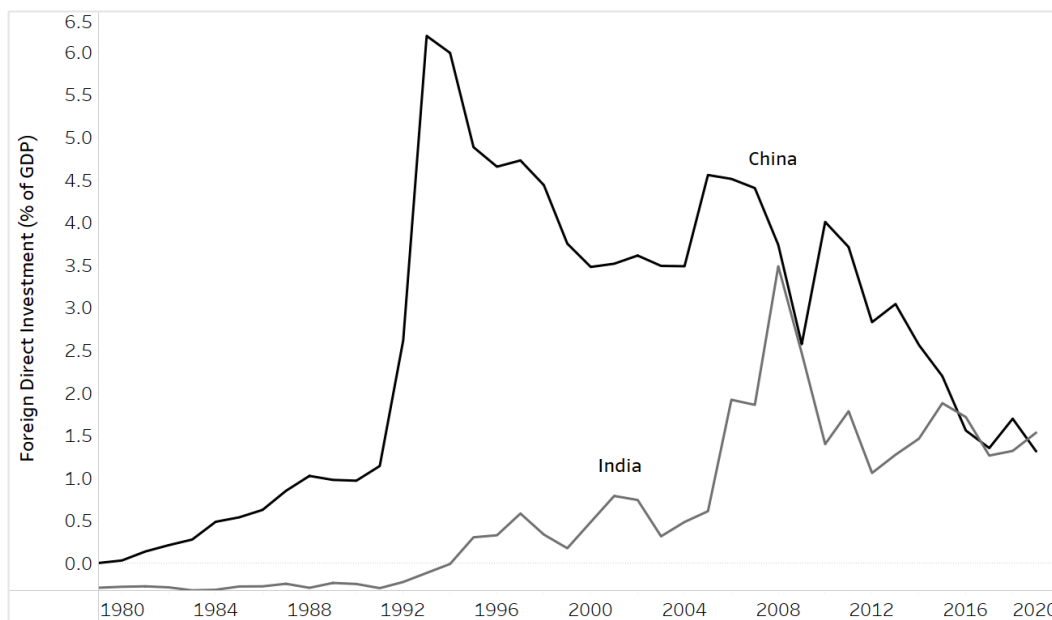
India never reached the FDI levels of 4-6 percent of GDP that China attracted early in its growth path. India's high point took place in 2008 when FDI reached 3.8 of the GDP Performance. India expects to raise FDI GDP from 1.8 percent to 3-4 percent annually by 2025 (Suneja, 2020). The push to attract $100 billion dollars of FDI inflows appears possible because of the several newly implemented laws such as the Good and Services Tax (GST)[20], the Insolvency and Bankruptcy code (IBC)[21] and the Digital India Initiative (DII) that will transform India into a digitally empowered society and knowledge economy.

With such inputs by 2030 India would become the world's third largest economy with estimated nominal GDP of about $10 trillion. At this path, India is likely to overtake China by 2075.

If FDI continues under 2 percent, India will gain on China at a slower pace. It will not match Chinese GDP until 2100. At that point the demographic "window of opportunity" that drives massive growth would operate in parallel in China and India and this could signal significant competitive rivalries.

If India takes advantage of global investment opportunities, it stands at the cusp of one of the greatest phases of growth in its history. This leap requires attracting higher levels of FDI and taking the higher growth trajectory by rejuvenating the Indian economy after the pandemic. It must also repair the discriminatory socio-economic system of education opportunity and improve infrastructure.[22] With private sector investments remaining weak and banks unable to lend because of the challenges faced by its nonperforming assets, FDI remains the most likely route to make up the funding deficit. Some policies in

the right direction have been implanted. The "Make in India" movement has resulted in international companies choosing India as its global manufacturing hub attracting investors buying into the India story and thus increasing FDI inflows. Other key promising factors include the increase in the Global Manufacturing Competitiveness Index that shows the availability of talent especially engineering and STEM trained talent (Deloitte, 2016). Fast growth will require dynamic political leadership now rather than later.[23]

Trade

Trade openness is an essential to increase competitiveness and generate fast growth. By proactively reforming bureaucratic procedures, reducing red tape and easing norms for investing in India, the government has increased its trade openness significantly and has marketed this openness globally. Figure 9 (World Bank, 2020c) indicates that India has learned the lessons provided by China and is taking advantage of Indian low labor prices to increase its share of exports compared to GDP.

FIGURE 9
TRADE OPENNESS
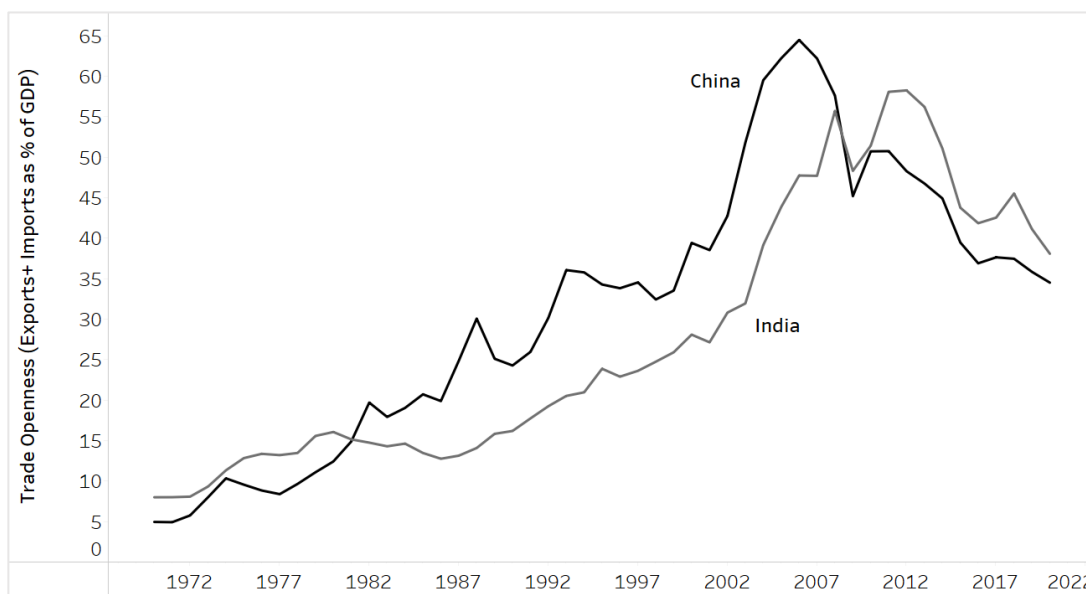
India reached the governmental planning goal of increasing the share of manufacturing in the country's GDP from 18 percent to 25 percent. These efforts have resulted in the private sector attracting large amounts of FDI that will provide jobs for about 10-13 million youth who join the work force every year. The growing retail sector is another large job creator as multinational corporations are spending billions in upgrading their back and front end in India.

Opportunities in the cyber world favor India's export opportunities. As the world turns at an exponential pace into its Fourth Industrial revolution India's digitization wave along with a collaborative and supportive private sector will heat up its economy (Schwab, 2016). As the physical, digital, and biological worlds start to converge these changes will transform entire systems of production creating opportunities for new technologies to transform India at all levels.

India is well positioned to benefit from these new initiatives. The Indian ecosystem, ranked among the top three nations in the startup world, has already produced more than two-dozen unicorns.[24] This has attracted significant investment from global investors who understand the huge market potential. The success of the Reliance Industries to attract FDI from global investors has shown that there is no better time than now to do business in India and its potential is growing.

Environment

Global warming creates a syndrome of challenges for all societies. Estimates based on satellite surveillance reveal that sea levels will likely globally rise by as much as 2 meters by 2100. India and China are most severely affected by rising sea levels and both nations are affected by declining snowfall that will restrict water flows from the Himalayas. Environmental degradation in these densely populated countries with low costal elevation can slow down growth substantially.

In the case of India, the future of Mumbai, India's technological and financial capital, will be severely affected by changes in sea level anticipated by the end of this Century.

FIGURE 10
ENVIRONMENTAL CHALLENGE: STEM INDIA
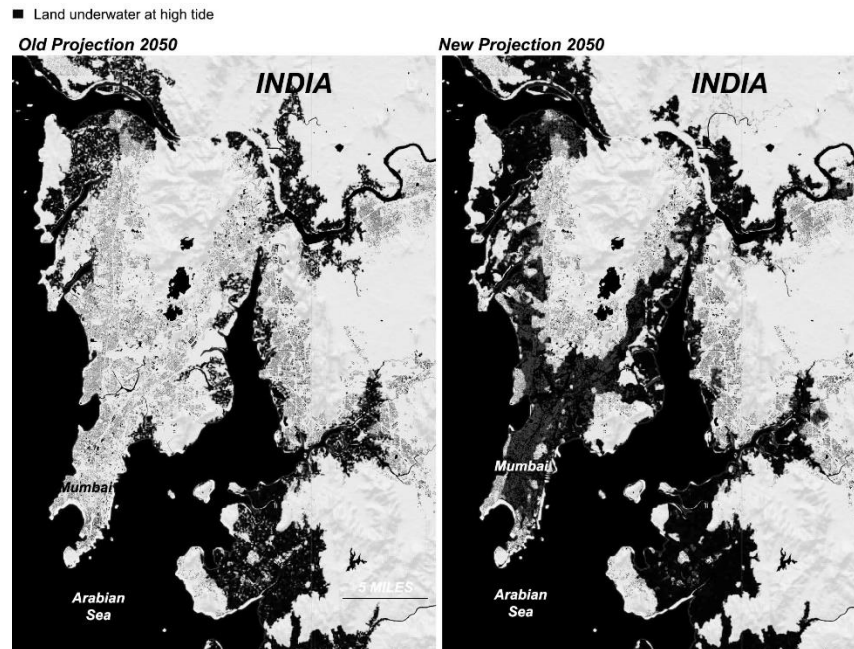
Note: Data from Kulp, S.A., Strauss, B.H. (2019). New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding. Nat Commun 10, 4844. https://doi.org/10.1038/s41467-019-12808-z and from Lu, Denise and Flavelle, Christopher (2019) Rising Seas Will Erase More Cities by 2050, New Research Shows. New York Times.

The critical 1/3 of Mumbai including the technical core close to downtown is expected to be under water (shown in Figure 10).

As seen in Figure 11, a similar fate is anticipated for China where high technology centers are also expected to be hit hard by rising sea levels. The two most affected areas are the Pearl River Delta where Guangzhou is located and Yangtze River Delta where Shanghai – a major center of financial and technological development - is situated.

FIGURE 11
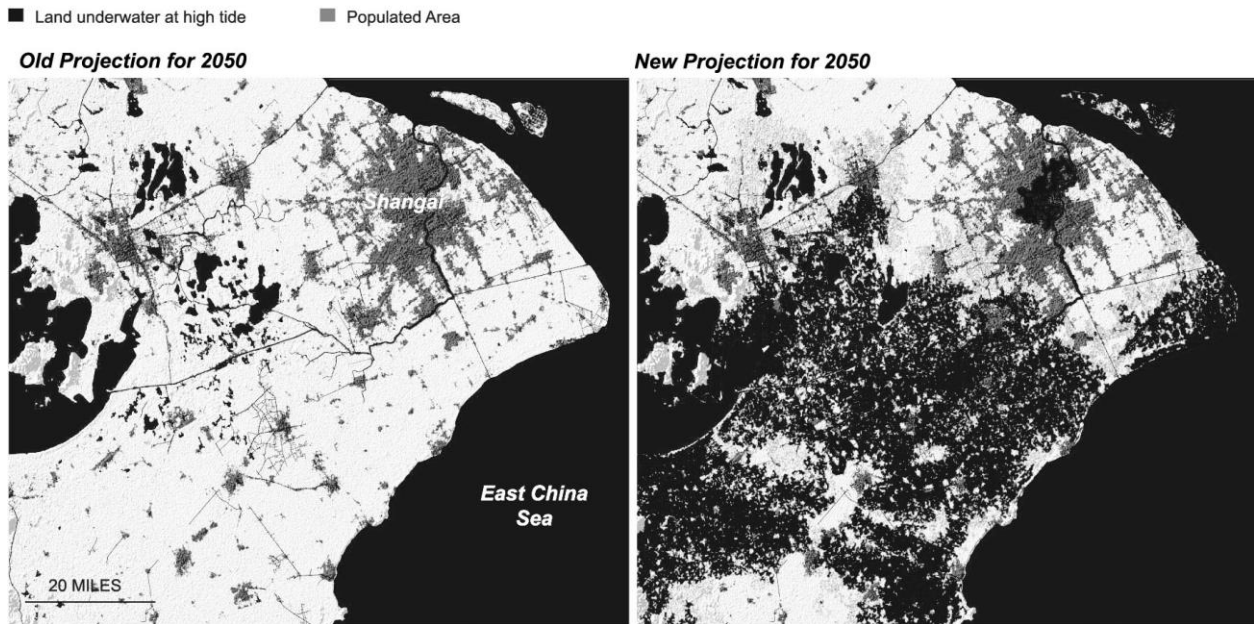**ENVIRONMENTAL CHALLENGE: STEM CHINA**

Note: Data from Kulp, S.A., Strauss, B.H. (2019). New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding. Nat Commun 10, 4844. https://doi.org/10.1038/s41467-019-12808-z and from Lu, Denise and Flavelle, Christopher (2019) Rising Seas Will Erase More Cities by 2050, New Research Shows. New York Times.

Projections are that about 630 million people in India and neighboring Bangladesh will be displaced by rising water. The distortion to the economy compounded by the internal and cross-national migration generated by such changes is difficult to estimate but certainly highly significant.

Political skill will be required to overcome environmental challenges that will not be fully apparent for 25 years or more. The more successful Asian society will no doubt emerge as the most influence member of the international community.

THE FUTURE

Despite its current understated international status, India will play a leading role in determining the level of global stability in this Century. India is becoming the most populated nation globally and will preserve this status among the global powers beyond 2100.[25] Most of the problems preventing fast growth in India can be traced back to political decisions. Improving political performance, attracting FDI, improving infrastructure, expanding education, incorporating women into the workforce, reducing constraints imposed by cast or religion, managing fertility and migration or dealing with environmental challenges fall squarely in the political arena.

If these challenges are met successfully, India will emerge as the preeminent global power later in the Century. Regardless of the rate of change, structural factors clearly indicate that the center of global politics, power, and influence, is shifting to Asia.

Such enormous changes in global politics are not without precedent. Power, influence, and economic leadership jumped over the Atlantic from Europe to the US following WW II. Today we are witnessing a similar dynamic building up for a leap over the Pacific.

It is easy to be seduced into the argument that the challenges to India greatly outweigh the capabilities to address them. Make no mistake the challenges are formidable, even overwhelming. To those who slip into this state of mind, we refer you to the example of the US in the late 1800s and early 1900s that faced

similar obstacles to success as a nation: civil war, unequal growth, poverty, inequality, women's rights, race riots, severe epidemics, environmental destruction, and many other constraining elements.

ENDNOTES

1. This conclusion holds even if we disregard the fact that the USSR disintegrated in 1998.
2. In 2020 Britain abandoned all aspirations to global power status by abandoning the European Union. Likewise, following the collapse of the USSR in 1998, Russia lost global power status. Finally, as Japan a potential competitor during the 1980's lost ground as its population continues to shrink, this nation also departed from global competition (Kugler and Tammen 2022). None of the remaining developing nations has the potential to challenge these four global powers by the end of the Century. The possible exception is Africa. This less developed continent is undergoing a massive population growth and were it to coalesce into a Union like Europe, it could emerge as a potential global power late in this Century.
3. Prior to World War II the United States was not effectively mobilized while Germany, Britain, The USSR and Japan already engaged in conflict did so. Measured by military hardware, the actual power of these combatants was far superior to resources held by the United States. Once engaged however, the United States dramatically altered its profile and out produced the combined military output of all combatants. World War II demonstrated the importance of potential as opposed to active power when all sides were fully mobilized. Potential power is the measure that can be utilized to approximate the relative international influence of a nation. For extensions of this argument please see Kugler and Lemke (1986), Kugler and Arbetman (1989); Tammen et al 2012.
4. In 2021 the populations of great powers in millions were approximately: China 1450, India 1410, EU (without Britain) 450 and USA 320. India is expected to grow faster than all three competitors and is the only one that will maintain a population over 1 billion by Century end (United Nations, 2019).
5. Demographically the two Western superpowers cannot compete with the Asian giants. The EU population will remain unchanged until 2075 and decline slowly after that. The United States is expected to maintain its current population above 300 million or with previous migration patterns grow steadily reaching a population above 400 million by century end.
6. See Stowell (2021) for an exploration of the global implications of the gray tsunami currently expressed in Japan, Italy, or South Korea.
7. A broader comparison emerges when we consider the working age population of the global powers and the main potential future competitors based on size. The EU is not included but has a pattern similar to that of the USA. The cohort structure now favors India among all other competitors. Nigeria will reach this level by Century end.
8. Several indicators have been proposed to approximate global power or influence. Among them a frequently used measure is the CINC measure originally proposed by Singer (1966). This index aggregates three relative components: population military and economic capabilities. Each component is estimated by two equally weighted indicators. Previous work shows that CINC reflects and total outputs are highly correlated (Kugler and Arbetman, 1989). They differ when societies perceive threats or engage in conflict, like the USSR, Israel, or North Vietnam, where CINC assess them as far more powerful than GDP indicates for societies that commit large proportion of resources to the military. When threats diminish, the CINC capabilities of such societies drop disproportionally while GDP reflects reality far more accurately. Alternate measures based on military capabilities alone reflect power preparedness. For an extended discussion please see Kugler and Arbetman (1989); Kugler and Domke (1986); Tammen et.al. (2017).
9. A widely used alternative is the Correlates of War Composite Indicator of National Capability (CINC) composed of six equally weighted indicators - military expenditure, military personnel, energy consumption, iron and steel production, urban population, and total population (Singer et al, 1972; Singer, 1987). Previous work shows that this index is less reliable than GDP particularly when political controls are imposed in assessing outcomes of conflict Kugler and Arbetman (1989); Tammen and Kugler (2012).
10. POFED model Feng, Kugler and Zak (2000). In simple terms, it is far easier to double the outcome in a society whose population average income is 1000 than achieve the same in a society whose output is three or five times that level.
11. China's children per woman that was over 6 in 1960 dropped to 1.6 children by 2020.

12. Bueno de Mesquita (1981) proposed the widely used correlation of alliances as a measure of satisfaction. Signorino (1999) extended this work by developing the widely used S index compensating for differences and the size of alliances.

13. A number of scholars focused on security arrangements reflected in alliances (Altfeld and Bueno de Mesquita, 1979; Morrow, 1991), others stress economic interactions that generates "interdependence" and reduces the likelihood of conflict (Keohane and Nye, 1977) still others focused on military buildups that foreshadow the possibility of dyadic confrontations (Werner and Kugler, 1996; Werner, 1999) and still others argue that both the security and the economic dimension need to be considered to anticipate levels of cooperation among competing nations (Benson and Kugler, 1998) From a different perspective, Azar (1980) and his many followers use event data to show the level of cooperation among nations.

14. Value measures of satisfaction unlike alliance correlations, still the most widely used measure of satisfaction, frequently comingle robust alliances with fragile ones. Alliances like those between the United States and Britain are robust and built on long-term common values. Value differences also detect changes within alliances like NATO where changing values show that the Turkey-USA alliance is seemingly dissolving, but such changes are not reflected in alliance structures. Likewise, alliances like those between Saudi Arabia and the United States that hold antithetical values are fragile reflect only temporal economic and security concerns.

15. Yesilada, et al. (2017) show that Brexit resulted from persistent difference in values between the UK and the rest of the EU members. As integration in the EU community strengthened and most large members were moving strongly towards Post-Materialist and Secular values now held by Scandinavian countries, British values shifted towards the USA.

16. India and China have numerous provinces. China with 23 provinces, four municipalities, five autonomous regions, and two special administrative regions and India with 22 provinces.

17. This may be the reason why Hong Kong has been effectively incorporated into China without effective internal opposition or external support (see Khederlarian, 2022).

18. India 2010 had urbanized 30% and by 2020 approaches only 35% by contrast China's urbanization was 20% in 1980 almost 50% in 2010 and above 60% in 2020 (Statista, 2021).

19. Regional differences in women labor force participation are pronounced in India complicating efforts to achieve equality of opportunity.

20. Launched July 2015.

21. Passed May 28, 2016

22. A major roadblock to faster growth is India's aging infrastructure. The government has accepted this challenge and committed approximately $646 billion over the next five years to fix the country's infrastructure. That's about $129 billion every year for the next five years. As the aging infrastructure gets replaced, opportunities arise for global investments in infrastructure.

23. The modernization of agriculture is essential to move from a traditional to a modern economy. Attempts to do so in 2021 illustrate the political difficulty of such reforms.

24. Companies with over one billion dollars in valuation.

25. Africa will become the most populated continent by 2100. A unified Sub-Saharan entity like the EU would dwarf China and India. The likelihood of such an entity is unknown.

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