

## How Can India Avoid Losing Its Race to Prosperity? \*

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### Abstract

Despite bursts of optimism about India's economic reforms and growth, its performance continues to lag behind China's. Although development is not a race among countries but only each country's individual race to beat poverty and increase the well-being of its own population, comparison with other countries highlights what is possible and should spur action. This paper points out some obstacles that India must overcome to reach prosperity, including poor quality of education, low female participation in the labor force, bad infrastructure, and poor governance. It identifies dysfunctional politics as the main cause, and suggests some ways to overcome that.

### 1. India Versus China?

India's economy moved beyond the maligned "Hindu growth rate" starting in the 1980s, and its pace picked up further after the reforms of 1991. China's economy also accelerated over a similar period. This led to inevitable comparisons between these two giants; see for example Emmott (2008). The comparisons usually favor China, and its economic growth has indeed been amazing. But recently many India-

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optimists have pointed to its favorable demographics and other features, to argue that India will win this race over the coming decades and emerge as one of the world's top economic powers.

My purpose in this paper is to take a second look and offer a more sobering assessment. The Indian economy indeed has many things going for it. But I will argue that other obstacles, especially its low-quality education, infrastructure, and governance, offset the advantageous demographics, and its dysfunctional politics offsets the advantages of democracy. Unless these obstacles are surmounted in the near future, China is likely to retain and even expand its economic lead over India.

I begin with a caveat. Economic development of countries is not a zero sum game or a race. A country's paramount concern should be the economic well-being of its citizens, not their well-being relative to some other country's. Faster development of other countries generally helps rather than hinders this primary goal. As other countries get richer, your country benefits from the concomitant expansion of trade, investment, and technology transfer. Except in military conflicts, relative sizes of economies should not be a concern. Any "race to prosperity" should be a race against time, to relieve poverty and improve your own citizens' well-being as fast as possible, not a race against other countries. That is why the title speaks of "its" race: India should race against poverty and toward prosperity, not against China.

However, comparisons across countries serve a valuable purpose. By showing that faster rates of development are feasible, they can inspire and spur your country to aim higher: "If others can do it, why can't we?" Hopefully, such thinking will make you take a hard look at the reasons for your country's worse performance, and thence to policy reforms that yield better results. Of course reform does not mean simple imitation of what worked elsewhere; policies have to be tailored to fit the specifics of each country's circumstances. In the concluding section I will suggest some such measures to speed India's development.

Well-being, even the economic aspect of it, is multi-dimensional, and conventional measures such as GDP per capita capture only a part of it. China has done better in some of these dimensions, and India in others. However, China's big gain in the GDP-per-capita dimension has also yielded other successes such as faster poverty reduction. The Human Development Report combines many of these other dimensions of well-being into indexes, of which the "inequality-adjusted human development index" is quite comprehensive. In the latest issue (UNDP 2016, Table 3), this ranks China 90 in the world, and India 131. Thus it is difficult to argue that although India is poorer, its development is higher in its human aspects.

Finally, I admit that nothing I say is really new; the sobering facts are well known.<sup>i</sup> But they are not universally accepted; therefore it seems useful to set them out in one place, to focus attention and to spur action.

## 2. GDP comparisons

India's catching up to China will be a long-term process, if it happens at all. The point can be made using a simple thought experiment. Suppose the two countries start level in year 1, as they almost did in early 1980s.<sup>ii</sup> Then suppose China grows at 10% for the first ten years and at 3% for the next ten, while India's growth goes the other way round. In year 21 the levels are equal again. But in the meantime India has lost a huge amount of output, namely the roughly parallelogram-shaped area between the two growth paths shown in Figure 1. This adds up to approximately seven years' worth of GDP. That could have been used for highly productive investments in education, health and infrastructure, and for poverty alleviation. Indeed, a substantial fraction of China's GDP has gone into such investments.

Reality is even worse; the second decade of the above scenario is nowhere on the horizon. Despite occasional bursts, India's growth has barely matched China's

for a quarter century, as Figure 2 shows. The gap between the levels continues to widen, similar to the first decade of the scenario depicted in Figure 1, and the loss of output continues to cumulate. China has indeed used its output for productive investments in infrastructure and other forms of capital, and that has given it a good base for further growth and for further divergence from India.

### 3. Demographics

Probably the strongest item favoring India's economy over the next few decades is its demographic dividend. A large proportion of its population will be in the working age range; the proportion of dependents, especially the elderly, will be relatively smaller. China, by contrast, will experience an aging population with a large proportion of dependents much sooner along its development path than most economies did in history. Table 1 shows the contrast.

Unfortunately this advantage is negated by India's very low rate of female participation in the labor force: only 27% compared to 64% in China. (The rates for males are very close in the two countries: 80% in India and 78% in China.)<sup>iii</sup> When this difference is factored in to calculate the implied proportion of population that is economically active, India's demographic dividend disappears and China comes out ahead, as Table 2 shows.<sup>iv</sup>

A recent study by McKinsey Global Institute measures female contribution to GDP in several countries.<sup>v</sup> India, at about 18%, fares among the worst; China has over 40%. (Only Pakistan fares worse than India, at about 12%.)

Indian women do work in their homes, performing valuable tasks such as cooking, cleaning, raising children, and taking care of the elderly in multi-generation extended families, which are not included in conventional GDP. But if more of them participate in the market economy, the country can reap the benefit of specialization by comparative advantage, leading to more efficient labor allocation and higher

productivity. Alas, India's female participation in the labor force actually went down from 36% in 2005 to 27% in 2017. <sup>vi</sup>

#### 4. Education

India has a first-rate record in tertiary education. Some universities have centers of excellence in research and teaching; the Institutes of Technology have done an outstanding job of training workers for the technology sector, including some who have gone on to top positions in the best firms in the U.S. But by contrast, primary and secondary education, which must produce the large numbers of manufacturing and service workers for the country, has an abysmal record. <sup>vii</sup> Laments about poorly qualified teachers who are often absent from their classrooms anyway, poor physical facilities and equipment, rote learning, and so on are too well known to need repetition here. I offer just a few prominent statistics.

Table 3 shows the U.N. Human Development Index for some countries at roughly comparable stages of development; India lags behind them all. Some of the problems with quality may be due to the rapid expansion of coverage, and these may get resolved in the future. Indeed there is evidence of some progress over the decade covered, but the other countries seem to be progressing even faster.

A much-cited report found that 50% of 10-year-olds could not read at level expected of 6-year-olds, while over 60% could not do simple division. <sup>viii</sup> In a world where even basic tasks such as operating simple machines and delivering goods require some facility with numerical controls and hand-held computers, this offers dismal prospects for India's labor productivity in the coming decades. Jointly with the demographic data of the previous section, it says that although India will have the world's largest working-age population, it will be an inefficiently utilized and low-productivity work force.

## 5. Transport and related costs

India's transport infrastructure also compares unfavorably to China's in all its aspects, as we see from Table 4. The contrast at the most modern levels – high-speed rail tracks and expressways – is especially dramatic.<sup>ix</sup> The data are for the period 2011-12, and I have not been able to find more recent comparisons. Both countries are building roads, rail tracks, and airports rapidly; therefore the picture is sure to have changed in the last five years. But the changes are unlikely to alter the comparison significantly in India's favor. If anything, the opposite is more likely to be the case.

For many years India also suffered the crippling disadvantage of its system of state and local taxes, which required lorries carrying goods over long distances to spend an absurdly large fraction of their time waiting at state and city borders to get tax clearances, and greatly raised internal transport costs.<sup>x</sup> Finally the passage of the Goods and Services Tax (GST) should remove this obstacle, but the complexity of the tax as it was enacted, and problems in its efficient implementation, cast doubt on whether this will bring significant benefits to economic performance. Some initial evidence is good, showing that formalization of enterprises is speeding up,<sup>xi</sup> but more detailed and rigorous econometric research on this issue is awaited.

## 6. Governance

Evidence from many countries over the last several decades has highlighted the importance of good institutions in development success. This “invisible infrastructure” of institutions is if anything even more important than physical infrastructure of transport and communication networks.<sup>xii</sup>

It is well established that good institutions are especially important for progressing across and beyond the middle-income level – escaping from the “middle-income trap.” It is possible for a poor country to get to a middle-income

level with mediocre institutions, but growth beyond this level requires much better institutions (Rodrik 2003, p. 17). To understand why, we need to understand the nature of different stages of growth and institutions appropriate for each stage (World Bank 2017, Spotlight 6, pp. 159-162). Low-income countries begin to grow as surplus labor moves from agriculture to industry. This is a relatively simple process; family and village circles can accomplish the transfer of workers into small enterprises, based on relational governance in close networks. Once the gains from this early industrialization process are exhausted, however, new sources of growth are needed – capital accumulation beyond what families and friends can provide, reallocation of resources from less efficient to more efficient firms, entry of new high-productivity firms and exit of older, less-productive firms, and so on. All these things require transactions with third parties outside close circles of repeated relationships and trust, and therefore high-quality supporting institutions of property right protection and contract enforcement.

India is at exactly this crucial stage of attempting an escape from the middle-income trap; therefore improving the quality of institutions is essential and urgent. Unfortunately the country's progress on this front is at best very slow. Table 5 shows the data. The situation is mediocre, not abysmal: India compares reasonably well with China and Brazil. But China does significantly better in the Ease of Doing Business ranking, and India's prospect for surpassing China, let alone reaching the best levels, does not seem realistic.

## 7. Corruption

India's rating for corruption in the World Bank's governance indicators is similarly mediocre, comparable to China and better than Brazil.<sup>xiii</sup> But in its race to prosperity, it must do better. Corruption is a kind of tax on business and citizens, but more pernicious because of its uncertainty and capriciousness. It is well known that uncertainty is a strong deterrent to acquisition and improvement of property, investment, and innovation.<sup>xiv</sup>

India's economic reforms that got rid of many distortions and restrictions of the license raj have paradoxically increased the rent that remains at the disposal of politicians and bureaucrats, and therefore increased corruption in many regulatory matters. Some of this corruption may have been initiated and facilitated by the "supply side" – citizens and corporates seeking this rent – rather than the "demand side" – politicians and bureaucrats exploiting their power to award the rent. This is not surprising. Although givers of bribes as a collectivity lose money to the takers, any one of them individually hopes to benefit greatly by outbidding others. So the game between them is a prisoners' dilemma, leading to an outcome that is bad for them in the aggregate. I will outline below a proposal for resolving this dilemma.

An eminent scholar of corruption and its control around the world, Mungiu-Pippidi (2011), argues that corruption is essentially a governance system characterized by particularism, where some subset of the population is favored based on ethnicity, class, caste or some such distinction, as opposed to ethical universalism, where everyone is treated equally under the law. As such, corruption is the default state in most societies, and almost impossible to eradicate. I have drawn an analogy with acute life-threatening diseases versus chronic conditions (Dixit and Mankar, 2018). It is a mistake to think of corruption as a cancer: unless every malignant cell is eliminated, survivors will multiply until the body is overwhelmed. Instead it should be thought of like overweight or obesity. The fight against that is hard and long; victories are small; sometimes you backslide. But keeping up the fight will eventually produce a significantly fitter and healthier you. We should speak and think of controlling corruption, not eliminating it 100%.

Some general principles, learned from experience of many countries, can guide these efforts. Summarizing findings from Dixit (2017) and Dixit and Mankar (2018), I would like to make three points: (1) Bottom-up social coalitions can often work better than centralized formal anti-corruption agencies. For example, a coalition of youth has made significant dents in the Sicilian mafia's extortions. (2)



Social sanctions and economic incentives, including simple measures like naming and shaming, can work better than penalties of law. For example, diamond and cotton merchants in the United States have used such internal measures to sustain honesty in contracts. (3) Idealism of youth to work for and patronize clean businesses can be harnessed, so that clean firms attract the best workers and high-paying customers and become more profitable. There are already some welcome signs of such a trend in India. In Section 10 I will offer some suggestions to capture these ideas into a business community institution to fight corruption.

## 8. Implications for trade and investment

These deficiencies of physical and institutional infrastructure have affected India's ability to attract trade and investment. India's own economic performance does depend on how well it compares in matters of infrastructure and governance with other developing countries, especially China. When investors and firms from advanced countries are looking for destinations for their plants, value chain sources and trade partners, among other considerations they compare transport, power supply, security of property and contract, and absence of corruption in alternative host countries. If India cannot emerge as a good or the best destination, its own growth will suffer. Thus a race to provide good conditions for foreign investors and traders does affect India's own absolute economic performance, even though we are not interested in any comparisons or race in outcomes per se.

Foreign direct investment can benefit the economy, not only by augmenting domestic capital accumulation, but also by bringing modern technology and management practices that domestic technical people and managers can learn, and improving the workers' skills. Table 6 shows the data on inflows of foreign direct investment. India's record shows some improvement in recent years, but still lags far behind China, and shows nothing like the acceleration that Brazil and Vietnam have achieved.

Perhaps the biggest new phenomenon in international trade over recent decades has been the growth of global supply chains, and many developing countries and even middle-income countries have benefited from participating in this form of production and trade. Table 7 shows some comparisons for one measure of this, namely the import content of gross exports. We see that India has largely missed out on these chains. China in fact seems to be progressing beyond the stage of relying on supplying and processing intermediate inputs to Western OEMs, and going on to design and production of its own, technologically increasingly sophisticated, products and services.

## 9. Dysfunctional politics

Can we pinpoint a cause for India's patchy economic performance? The media and public debates offer different single-cause explanations, but like most complex social phenomena this one is likely to have many interacting causes. However, when policies on so many different issues – education, labor force participation, infrastructure, governance – are defective, it is plausible that the policy making process carries a share of the blame for the faults in all of them. Here I want to focus on one feature of the process that is surely very important: India's dysfunctional politics.

I do not mean to blame democracy per se, although authoritarianism, especially of the populist kind, is having a resurgence around the world. Research linking the type of political regime to economic outcomes shows mixed results. A wide-ranging survey (Gerring, Bond, Barndt and Moreno 2005) found significant or even slightly negative effect of democracy on growth; another (Przeworski and Limongi 2000) concluded that political institutions matter for growth, but the effect is not captured by a binary distinction between democracy and authoritarianism. However, a recent paper (Acemoglu, Naidu, Restrepo and Robinson 2018) argues forcefully that "Democracy does cause growth." Another line of research, for example Alesina and Rodrik (1992) and Weede (1996), looks at the variance in

economic performance. The finding is that democracies show smaller variance. They operate under many constraints, and therefore may not perform brilliantly but are saved from terrible mistakes. Authoritarian regimes follow the whims of one or a few top rulers, and you may get a Lee Kuan Yew or a Mobutu Sese Seko, so the variance is large.

My distinction is between types of political processes in democracies. The renowned political scientist James Q. Wilson captured this brilliantly and memorably in his remarks comparing Europe and the United States: “Policy making in Europe is like a prizefight; when one fighter knocks the other one out, he is declared the winner and the fight is over. Policy making in the United States is like a bar-room brawl: Anybody can join in, the combatants fight all comers and sometimes change sides, no referee is in charge, and the fight lasts ... indefinitely.” (Wilson 1989, pp. 299-300)

India’s political process seems even worse than that in the United States. The country spans a huge spectrum of regional, religious, caste, and language difference. An election is imminent constantly in one state or another; therefore national parties constantly change their positions and promise all kinds of favors to compete with local parties. And even at the national level, the opposition opposes just for the sake of opposing, so your policy position depends on whether your party is in power. A recent article in *The Economist* gave examples of such shifts in Mr. Modi’s policies, but other parties have performed similar somersaults. “In some cases Mr Modi has adopted policies that he sharply criticised while in opposition. He had dismissed Aadhaar, a Congress-initiated project to issue all citizens with a unique, biometrically certifiable identity number, as nothing but a gimmick. In practice his government has made Aadhaar cards mandatory for everything from mobile-phone lines to food subsidies. The BJP repeatedly stymied Congress’s attempts to replace a quaint hodgepodge of local taxes with a national goods and services tax, only to bring in the GST itself, with great fanfare, last year. Mr Modi also frequently disparaged Congress programmes to boost rural incomes as wasteful vote-buying.

But his government has raised spending on these, while several BJP-run state governments are offering massive loan relief to indebted farmers.”<sup>xv</sup> Some of these shifts are acceptance of good policies; others are examples of distortionary subsidies. But such shifts more generally create uncertainty and instability in the minds of traders and investors both at home and abroad. They will therefore react with caution and delay, harming growth.

This dysfunctional politics is reflected in India’s lowly 14.29 rating on the World Bank’s governance indicator for “Political stability and no violence” (Table 5).<sup>xvi</sup> While those ratings can be criticized on many grounds, and the distinction of 10 or even 15 points in the rating can be put down to various errors of measurement and judgment, we should frankly and honestly admit that India’s record is indeed poor.

Perhaps there is some reason to hope that parties and politicians when in power will do the right thing, or that the “deep state” of non-partisan civil servants and high-quality economic advisers will keep policies on the right track no matter what party or politician is in power, but it would be unwise to rely on that.

## 10. What is to be done?

It is easy for me to point out the many and interacting problems that confront the continuation of India’s economic development, it is far harder to identify good solutions. As the famous American essayist H. L. Mencken wrote, “For every complex problem there is an answer that is clear, simple, and wrong.” Therefore it is with considerable hesitancy that I offer some suggestions. I also want to emphasize at the outset that I believe these are required actions, but probably not enough on their own: in the jargon of formal logic or mathematics, they are necessary conditions but not by themselves sufficient conditions for success.

### a. Improving the political process and dialogue

To mute India's never-ending political brawl, all central and state elections can be synchronized and coordinated to take place only once every five years. This will allow unhindered operation of the actual process of governing and policy making for at least three or four years before the next round of elections looms. It will also make it harder for national parties to make selective appeals and promises to separate special interests one at a time. When all political favors must be promised simultaneously, opposition parties and the media can spot and criticize mutually inconsistencies and illogicalities in the policies. This may help a little in improving India's rating for "Political stability and no violence" in the World Bank's governance indicators (Table 5). There is indeed some recent discussion of such an electoral reform, but that itself has become a politically contentious debate in the usual way.

#### b. Controlling corruption

Equally important is "Control of corruption." We have seen some progress in the last several years in many matters of petty bribery; technology and reforms have made it simpler, faster, and corruption-free to buy a train ticket or to get a passport.

All politicians profess to be against corruption, but it is hopeless to expect the government to take any firm or rapid action against it by passing and enforcing strong laws. After all, politicians and bureaucrats are the main beneficiaries from corruption. Therefore it is imperative for citizens and businesspeople to join together and take collective action to help combat corruption. The immediate reaction to such a proposal is that when an official or politician demands a bribe, an individual citizen or businessperson is helpless. Individually they are indeed helpless, but in collectivity they have a lot of power. In fact the situation is a classic "prisoners' dilemma." Collectively they are handing over money to the officials and politicians, but each is tempted to improve his or her own chances of getting the resource or license (for example construction or spectrum rights) by upping the

bribe. They need collective action to resolve the dilemma. <sup>xvii</sup> Some admirable efforts of this kind have indeed been made; a notable example is the Lokpal movement. But in my opinion the success of these efforts has been limited because they were led by idealists, not by businesspeople with good organizational and management skills. If top people of the latter type can be persuaded to take an active role, anti-corruption fights will have a much better chance of success. Even then, the process will be slow, and success partial.

Dixit and Mankar (2018) propose a business community institution to take such collective action. The first step is to generate accurate, publicly available information about which firms are the best when it comes to resisting corruption. This should be done using a transparent and research unit, with good objective oversight to ensure that it does not itself get corrupted or prone to bias, to confer ratings on businesses, rather like the Michelin star system for restaurants. Then a social coalition with traditional media and social media will build momentum among the brightest young Indians to work for and buy from the best-rated businesses. Some sanctions, such as ostracism in business and social contacts, can also be imposed on the worst offenders. In time, such a movement can generate a race among businesses to achieve and sustain the top three-star ratings, and change the whole culture to one where corruption is regarded as a stigma and clean dealing as a virtue.

#### c. Using states as laboratories for reform

India's states have powers to set their own policies in many matters, and these powers can be expanded to some extent. This makes them useful laboratories for policy experimentation. States can in a sense compete among themselves, and the best policies can be imitated elsewhere. Instead of a national policy that runs the risk of failing nationwide, any mistakes or failures in one state's policy are limited in their effect. This argument is developed by Muralidharan (2013); Panagariya (2014) also advocates empowering the states.

At the level of the great question of what produced the rise of the West, Muralidharan points out (using research by Joel Mokyr) that China was more developed than Europe in the 15<sup>th</sup> century, but China was a unified empire with uniform policies subject to whims and errors of the central authority, whereas Europe had multiple political entities trying different approaches, and success of one state was copied by others. Similarly in the US in the 1990s, the Clinton administration let states experiment with welfare reform and incorporated some of the best practices into Federal laws, although the results of that are still being debated.

But empowering states is not a panacea, and has side-effects. In India, some state governments do enact policies conducive to economic success, but others are captured by factions based on religion, caste, ethnic or tribal identity, and so on, and implement distorting policies that are harmful to the state's overall economic performance. This is what James Madison warned in his famous Federalist No.10 (1787). In a relatively small polity, a faction is more likely to attain a majority and pursue particularistic policies that damage the general good. In a larger nation, different factions will balance each other and any one of them is less likely to attain and abuse power.

My conclusion is that allowing states to experiment and compete is on balance a good idea, but it should have rules and constraints, with enough central oversight to ensure that states do not misuse their powers to serve factional interests.

#### d. Streamlining regulation

India's regulatory quality is also rated mediocre in the World Governance Indicators. Some remnants of the license raj still persist, and new areas of resource allocation such as spectrum rights and drilling rights offer rich opportunities for

corruption. As much of this regulation as possible should have “bright lines,” so it is clear and publicly observable whether a company meets the requirements and qualifies for the license or permit.

Regulation is often treated as an ideological issue: government versus free enterprise, or planning versus markets. In practice even “pro-business” policies become pro-incumbent, where protection, subsidies and bailouts preserve existing monopolies or oligopolies at the expense of consumers. Regulations should instead be “pro-market,” fostering competition. To keep domestic monopolies on their toes, the country should remain open to foreign firms for trade and investment.

#### e. Improving the quality of education

The school system needs dramatic improvements. Heated debates go on all over the world on these issues. Are public schools better or some kind of private schools – charter, religious, ... ? What is the right set of carrots and sticks to ensure that teachers show up for work and actually teach properly? Are teachers’ unions necessary to ensure high quality or are they merely protecting bad teachers from dismissal? Does centralized testing improve standards or does it just lead to narrow “teaching to the test”? These questions offer India a great opportunity to experiment using variation across states and randomized controlled trials, to evolve the best policies and then adopt them countrywide. Academic researchers have conducted such trials on small scales; here I have in mind much larger ones that can show whether and how far the findings of the research are valid and scalable beyond the research level, and yield faster policy implementation for those findings that do have such broader applicability.

#### f. Female labor force participation

Fletcher, Pande and Troyer Moore (2018) discuss in detail several potential policies to improve female participation in India’s labor force. Here is a small



sample: (1) disseminating information about the financial benefits of work and job opportunities, (2) business training that increases female entrepreneurship, self-employment and borrowing to set up businesses, (3) removing legal barriers like restrictions on female working hours or differential skill levels, (4) quotas similar to those that have worked to increase female representation in the parliament and in village councils. Moreover, they argue that initial success in these measures have beneficial multiplier effects, by transmitting information and incentives to other female relatives and working to break down inhibiting social norms. Ensuring the safety of women at work, and in commuting from home to work and back, is also very important.

We may think that higher incomes per capita, and more and better education, will improve female labor force participation (FLFP). However, research shows (Fletcher, Pande and Troyer Moore (2018), Figures 2 and 6) that the initial effect of these changes is to lower that rate. The response is U-shaped; it is only beyond middle-income levels and at post-secondary education levels that FLFP increases. Of course higher incomes and better education are desirable on their own, but any consequent benefits in FLFP must be a longer-term consideration.

#### g. Improving physical infrastructure

India's physical infrastructure of roads, railways, air transport, power supply, communications technologies, and so on, is improving, but nowhere near fast enough for its overall economic ambitions. Accelerating the pace is important, but runs the risk that projects are launched without enough scrutiny and oversight, corruption becomes more prevalent and shoddy projects get through.

Good physical infrastructure is important, but to acquire it, the country needs simultaneous and equally big improvements in its "invisible infrastructure" – a well-educated and skilled workforce, good governance, low corruption, and so on. All

these improvements are strategic complements; having a few of them will probably do little good on its own.

## 10. Concluding comment

I have argued that India's economic performance and its future potential fall far short of its ambitions. I have described several deficiencies in its physical and institutional infrastructure, and in policies with regard to education, trade, investment and regulation, and identified its dysfunctional politics as a major cause of many of these. If my assessment turns out to be mistaken, I shall be delighted. If this essay serves as a wake-up call and leads to reforms that then prove me wrong, I shall be even more delighted!

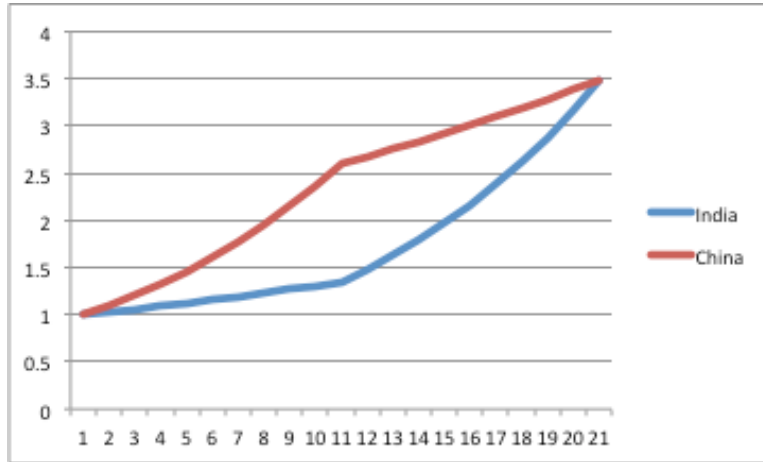
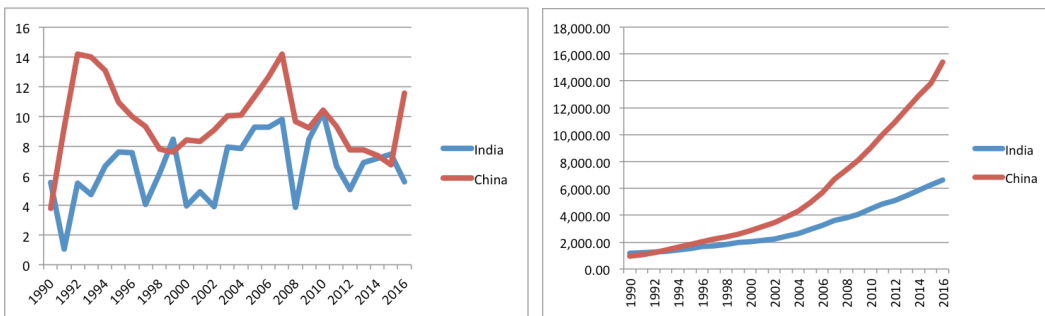


Figure 1: Hypothetical growth path comparison  
(Source: Author's spreadsheet calculations)



Growth rates

Levels per capita

Figure 2: Actual PPP GDP comparisons  
(Source: IMF World Economic Outlook)

	India			China		
	0-14	15-64	65+	0-14	15-64	65+
2010	30.1	64.6	5.3	18.0	73.4	8.6
2030	23.5	67.6	8.8	15.7	67.2	17.0
2050	19.8	65.5	14.7	13.1	60.1	26.7

Table 1: Population age distribution comparison  
(Source: US Census Bureau International Database)

	India	China
2010	35.1	52.2
2030	37.0	48.0
2050	35.8	42.9

Table 2: Proportion of population economically active  
(Source: Author's calculations based on the data in Table 1 and Endnote i.)

	2005	2010	2015
India	0.409	0.456	0.624
China	0.531	0.599	0.738
Brazil	0.614	0.662	0.754
Vietnam	0.470	0.509	0.683

Table 3: Education comparisons  
(Source: U.N. Human Development Index, <http://hdr.undp.org/en/content/human-development-index-hdi> )

		India	China
Rail	Rail network (1000 km)	63	91
	High-speed network (1000 km)	0	13
Road	Road network (mil km)	3.3	4
	National highways (1000 km)	71	130
	Expressways (1000 km)	0.6	74
Air	Airports	128	467
	Passengers (mil/yr)	142	406
	Cargo (mil tons/yr)	1.6	8.8

Table 4: Transport infrastructure comparisons

(Source: <http://www.managementparadise.com/article/4563/india-vs-china-an-infrastructure-comparison> )

Country	World Bank's governance indicators						Ease of Doing Business ranking
	Voice and Accountability	Political Stability and No Violence	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption	
Denmark	98.03	74.76	99.04	92.31	97.60	99.04	3
United States	84.24	58.57	91.35	91.83	92.31	89.90	6
Brazil	61.58	30.00	47.60	46.63	51.92	38.46	125
China	6.90	27.14	67.79	44.23	46.15	49.04	78
India	58.62	14.29	57.21	41.36	52.40	47.12	100
Zimbabwe	19.70	24.29	11.06	2.39	8.17	8.65	159
Afghanistan	21.18	0.94	9.62	3.37	3.85	3.37	183

Table 5: Quality of governance

(Sources: World Bank, <http://info.worldbank.org/governance/wgi/#home> and <http://www.doingbusiness.org/rankings> )

	2004	2009	2014	2016
India	23.2	35.6	34.6	44.5
China	60.6	95.0	128.5	133.7
Brazil	15.0	25.9	73.1	58.7
Vietnam	2.0	7.6	9.2	12.8

Table 6: Foreign direct investment inflows (\$ billion)

(Source: UNCTAD World Investment Report,

<http://unctad.org/en/pages/DIAE/World%20Investment%20Report/WIR-Series.aspx> )

	2000	2005	2010	2014
India	15.3	25.1	33.7	21.0
China	50.6	48.0	40.1	29.3
Malaysia	60.5	56.5	51.7	39.1
Vietnam	39.1	45.1	46.6	36.3
Taiwan	39.4	44.2	49.0	43.1
S. Korea	35.3	38.1	44.3	37.9

Table 7: Value chains: % import content of gross exports

(Source: OECD data on Trade in Value Added (TIVA), <https://data.oecd.org> )

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## ENDNOTES

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<sup>i</sup> For discussion of some other forces that threaten India's climb to high-income levels, see Subramanian (2018).

<sup>ii</sup> Although even then China probably had better health and education, and less ethnic heterogeneity, than India; these may have been conducive to its faster development.

<sup>iii</sup> The data are taken from World Bank data sets, <http://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS> and <http://data.worldbank.org/indicator/SL.TLF.CACT.MA.ZS>

<sup>iv</sup> For a detailed description of low female participation in India's labor force, and analysis of the social, cultural and political reasons for it, see Fletcher, Pande and Troyer Moore (2018). See also a special briefing "Indian Women: A Job of Her Own", in *The Economist*, July 7, 2018.

<sup>v</sup> *The Economist*, April 28, 2018, "Womenomics: The Sky's the Limit."

<sup>vi</sup> *The Economist*, March 17, 2018, "Women in India: Stuck in the Back," chart 3.

<sup>vii</sup> China has also neglected or backslided in the quality of its rural schools; see Mundle (2018). But its record still looks much better than India's.

<sup>viii</sup> *The Economist*, December 11, 2008, "Special Report on India: Creaking, Groaning".

<sup>ix</sup> See Xu (2017) for a calculation of the substantial economic benefits of the high-speed railway network in China.

<sup>x</sup> World Bank, India Road Transport Efficiency Study, 2005. Available at <http://documents.worldbank.org/curated/en/922721468035082667/India-Road-transport-service-efficiency-study>

<sup>xi</sup> See Manish Sabharwal,

<sup>xii</sup> To the best of my knowledge, Rohini Pande should get credit for coining the term "invisible infrastructure."

<sup>xiii</sup> There are differences in the nature of corruption among these countries. China is authoritarian but quite decentralized; its corruption comprises collusion between local businesspeople and officials in different regions or cities. It is kept in check by

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the local officials' career concerns: their knowledge that party leaders higher up are watching and will punish the highly corrupt by denying them promotion (or worse).

<sup>xiv</sup> For an analysis and quantification of these effects, see Dixit and Pindyck (1994). In this regard China's centralized system may have an advantage; their top-level officials may be able to make credible promises, in the manner of a "one-stop shop" for licenses, permits etc., whereas in India's more chaotic system an investor never knows when another official or politician will turn up and demand another bribe or kickback.

<sup>xv</sup> The Economist, February 21, 2018. "India's BJP government looks ever more like the one it replaced."

<sup>xvi</sup> This indicator conflates two things that are often correlated, but imperfectly so. In India, violence is probably not a huge issue, so the lowly rating must be due to a judgment about political instability.

<sup>xvii</sup> For details of this argument, see Dixit (2015 a, b).