An Accelerating Bangladesh and an Emerging India—Some Selected Economic Comparatives

Hafizur Rahman

Abstract Bangladesh completed its fiftieth birth anniversary in 2021. Before being partitioned in 1947 as the eastern part of Pakistan, modern Bangladesh was a major political segment of Bengal of undivided India. A homogenous population, overwhelmingly Muslim majority inherits the 'sunny signs' of tolerance, peace-loving, hardworking, competitive, and material wellbeing. India, on the other hand, a much-diversified non-homogenous country majority being Hindu still retains the imprint of Muslim rule—the marvelous "Taj Mahal" one of the Seven Wonders of the World. Today's India is the fifth-largest economy in the world with around 1.4 billion population having a good technological and professional base. A comparison between these two sovereign countries may always remain debatable. Since both societies are striving for a common goal of a higher standard of living for their citizens, an attempt to compare the relative performance in the area of economic development using some universal indicators may shed some light on policy implications. This may generate a spirit of healthy enthusiasm and competitiveness among the citizens of these two countries and the people living around them in particular and other developing nations in general. After all, we are living in an era when science and technological developments made the entire world a global village and when mutual research, feedback, collaboration, and cooperation are increasingly warranted for a better world.

Keywords Standard of living · Measurements · Universal indicators · Economic growth · Poverty reduction · Employment · Productive efficiency · Inflation

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1   Introduction

For the first time in human history, global wealth has increased so much so that 1%[1] of the world adult population is now a dollar millionaire. While India is at the forefront of this list especially in Asia, curiosity arouses how its neighbors like Bangladesh, Nepal, Pakistan, and Sri Lanka are doing. Bangladesh is being in the stage of take-off for pre-condition for development, researchers and policymakers are increasingly interested to have an insight into the underlying economic parameters and the socio-economic evolution that both India and Bangladesh are currently going through.

2   Literature Review and Proposed Relationships in the Conceptual Model

In his article "The Paradoxes of the Bangladesh Miracle", Arvind Subramanian mentioned about Bangladesh achievements in its citizens' average standard of living due to Bangladesh's success in "becoming a leading textiles and clothing exporter, trailing behind China & Vietnam". He attributed part of Bangladesh economic success to the role of nongovernmental sector. In his own words "while Pakistan is seen as a failing state, and India as a flailing state, Bangladesh is a fledgling state, though more effective than its South Asian neighbors". Among additional factors he mentioned were the existence of plentiful labor, foreign aid, remittances, Multi-Fiber Agreement (currently abolished) and "the programs established by the United States and the European Union".

Coface For Trade in its latest Economic Studies updated in February 2021 indicated the following strengths and weakness of Bangladesh:

The strengths are:

- Competitive garment sector and cheap labor
- Remittances from expatriate workers
- Moderate level of public debt
- A third of population under the age of 15
- Financial inclusion through microfinance & mobile services.

Whereas the weaknesses are:

- Economy vulnerable to changes in global competition in the textile sector
- Low participation of women despite progress made
- Recurring and growing political, religious and social tensions
- Business climate shortcomings and lack of infrastructure
- Vulnerable to climate risks

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[1] 2020 marks the year when, for the first time, more than 1% of all global adults are dollar millionaires"—page 18 Global Wealth report 2021—June 2021, Research Institute, Credit Suisse.

- Fragile banking sector, many non-performing loans on banks' balance sheets.

In her article titled "With risks looming over, are we over relying on pent-up demand?" in 2021, Dr Rumki Majumder, Associate director of Deloitte India pointed out some of the problems Indian economy is currently facing due to the severe effects of Covid-19. In her own words "India lost 22.7 million jobs during April-May 2021, with the workers in the low and semi-skilled, and informal sectors bearing the brunt. Close to 17.2 million daily wage earners lost jobs as against 3.2 million salaried employees". With no sign of quick recovery of Covid-19 & Delta both India & Bangladesh economies are expected to experience significant economic slowdown. It appears that they are in the same "cognitive dissonance" that was existing in February 2021.

In its March 31, 2021 overview, World Bank in India observed "after growing at very good rates for years, India's economy had already begun to slow down before the onset of the COVID-19 pandemic. Between FY17 and FY20, growth decelerated from 8.3% to 4.0%, with weakness in the financial sector compounded by a decline in the growth of private consumption……. The economy is expected to rebound—with a strong base effect materializing in FY22—and growth is expected to stabilize at around 6–6.5% thereafter". In its March 30, 2021 overview, World Bank in Bangladesh observed "Bangladesh has made remarkable progress in poverty reduction, supported by sustained economic growth. It has been among the fastest-growing economies in the world over the past decade, thanks to a demographic dividend, strong ready-made garment (RMG) exports, and stable macroeconomic conditions……Resolving longer-term structural challenges could accelerate the post-COVID-19 recovery…….With the right policies and timely action, Bangladesh can accelerate its recovery from the economic downturn and continue to progress to-wards upper-middle-income status".

Author Nimish Adhia in his article entitled "The History of Economic Development in India since Independence" analyzed the rationale why initially Indian leaders chose the strategy of rapid industrialization by creating heavy industries as they were influenced by the "socialistic society". He believes that Indian progress in the last half-century remains below its potential when compared with the performance of China & South Korea during the comparable period. He elaborated how a policy of "liberalization, privatization, and globalization" made India today's India.

Table 1 briefly compares Bangladesh and India.

3   Research Methodology

The study is based on secondary data collected from international agencies (World Bank, IMF, ADB), country official sites, as well as reputable websites. The large body of data has been taken to verify data integrity for comparison and underlying analysis. A T-test is used to compare different sets of data of India and Bangladesh. With the null hypothesis ("there is no difference between certain characteristics of a

Table 1 Some numbers at a glance

Indicators/Classification	Bangladesh	India
Ranking as a developing Market Economy	38th	46th
Birth of the nation	1971	1947
Ranking in the world in terms of GDP Nominal Terms	41th	6th
GDP (Nominal) (billions of Dollars)—2021 projected	$352.91	$3049.70
GDP Per capita Nominal	$2,122	$2,191
GDP Per capita PPP	$5,812	$7,333
Ranking of GDP per capita (Nominal)	148th	144th
GDP per capita Purchasing Power Parity	135th	128th
Population in million (estimated in 2021)	166.3	1390.0

population"), a p-value is used to accept or rejects the null hypothesis. Excel Software was employed to calculate p-value and other statistical results throughout this paper.

4 Economic Growth

4.1 Measurement of Economic Growth

Economists and statisticians track economic growth by gross domestic product, known as GDP. However, some economists raised limitations and biases in the GDP calculation.[2] While GDP method considers the value of goods and services of a nation including "income from foreign investments", it does not show the economic health of a nation. Gross National Product (GNP) measures the total income accruing to the population over a specified amount of time (excluding income of non-residents within a territory). The Bureau of Economic Analysis (BEA) used GNP as the primary indicator of US economic health until 1991. In 1991, the BEA began using GDP, which was already being used by most other countries.[3] Both GDP & GNP are measures of productivity and not of welfare or happiness.

Nominal GDP is calculated at market or official exchange rate, whereas GDP PPP (purchasing power parity) considers cost of living. Both methods are not free from their underlying drawbacks.

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[2] Investopedia "What are the Best Measurements of Economic Growth?—By Sean Ross, Updated June 30,2021.

[3] Investopedia "What are the Best Measurements of Economic Growth?—By Sean Ross, Updated June 30,2021.

4.2   Gross Domestic Product (GDP)

Table 2 shows that the GDP of India is more than ten times larger the GDP of Bangladesh. The t-test results in Table 3 shows a significant difference between both countries (P-value is lower than 0.05).

More specifically, India's average GDP growth (4.3%) was lower than Bangladesh (11%). India's highest annual growth was posted in the year 2017 (15.5%) followed by a significant decline in 2018 (1.9%). Both countries were severely impacted by Corona Virus—19, resulting in a negative growth (8.6%) for India in 2020.

Table 4 reveals the breadth and depth of Corona Virus impact as of August 13, 2021. Death and total cases per million population indicate that severity of Corona Virus was more than two times higher in India than Bangladesh while vaccination campaign (tests per million population) in India was seven times extensive than Bangladesh. With 12% population of India, Corona specific death in Bangladesh was 6% equivalent to total fatalities in India. Total deaths officially recorded as of August 13, 2021 were 4,357,429. Total cases in India were 23 times larger than in Bangladesh indicating the intensity of the pandemic. Bangladesh experienced a moderate growth of 7% during the pandemic period of 2020–2021. Except in 2012, the annual GDP growth of Bangladesh was higher than 10% in seven consecutive years (out of nine), with the highest being in 2014 (15%).

Except 2017, India's GDP growth was below 10% in 8 out 9 comparable years. This suggests that GDP growth in Bangladesh was continuously more progressive than India during the last decade (Fig. 1).

Table 2 GDP (current US$)—in billion

Year	Bangladesh	Percent change	India	Percent change
2011	$128.6		$1823.0	
2012	$133.4	4%	$1828.0	0.3%
2013	$150.0	12%	$1857.0	1.6%
2014	$172.9	15%	$2039.0	9.8%
2015	$195.0	13%	$2104.0	3.2%
2016	$221.4	13%	$2295.0	9.1%
2017	$249.7	13%	$2651.0	15.5%
2018	$274.0	10%	$2701.0	6.3%
2019	$302.6	10%	$2871.0	1.9%
2020	$324.2	7%	$2623.0	−8.6%
Average (2011–2020)	**$215.2**	**11%**	**$2279.2**	**4.3%**

Source: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=BD

Table 2A GDP (Projected) –In Billion US Dollar

Relative GDP Size - Projected
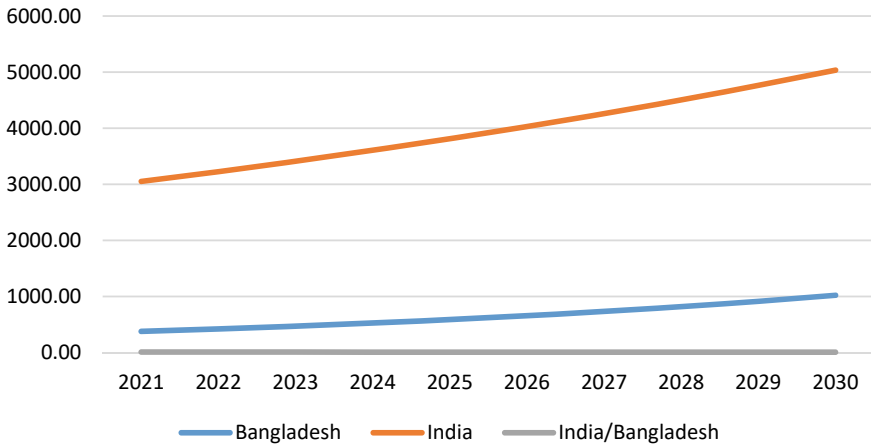
Table 3 T-test of GDP
assuming unequal variances

	Bangladesh	India
Mean	215.195	2279.2
Variance	4983.128517	162,574.4
Observations	10	10
Hypothesized mean difference	0	
df	10	
t Stat	15.94515598	
P(T ≤ t) one-tail	9.70455E−09	
t Critical one-tail	1.812461123	
P(T ≤ t) two-tail	1.94091E−08	
t critical two-tail	2.228138852	

Table 4 Corona virus effect in India & Bangladesh as of August 13, 2021

Country	Total cases	Total death	Total recovered	Active cases	Total cases/1M pop	Deaths/1M pop	Tests/1M pop
India	32,155,827	430,762	31,330,507	394,558	23,049	309	350,844
Bangladesh	1,405,333	23,810	1,273,522	108,001	8,440	143	50,098
Bangladesh/India	4%	6%	4%	27%	37%	46%	14%

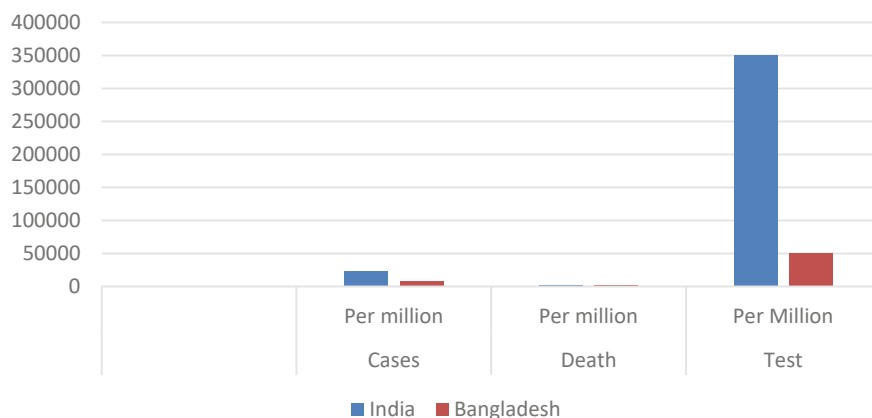Source: https://www.worldometers.info/coronavirus/

Fig. 1 Corona virus effect in India & Bangladesh as of August 13, 2021

4.3 GDP per Capita

Table 5 and Fig. 2 show that during 2011–2020, GDP per capita in India grew 3% on average while Bangladesh witnessed an impressive 10% growth. It is confirmed from Table 2 above that during the same period, average GDP growth in India was 4.3% compared to 11% in Bangladesh. From a governance point of view, GDP per capita is a good indicator where Bangladesh achieved better performance in terms of percent change of GDP per capita during 2011–2020. The increase began in the year 2013 and peaked in 2014. India posted the highest growth in 2017 while Corona 19 effect was severe in 2020 giving a reverse growth of 10%. It is observable that

Table 5 GDP per capita (US$)

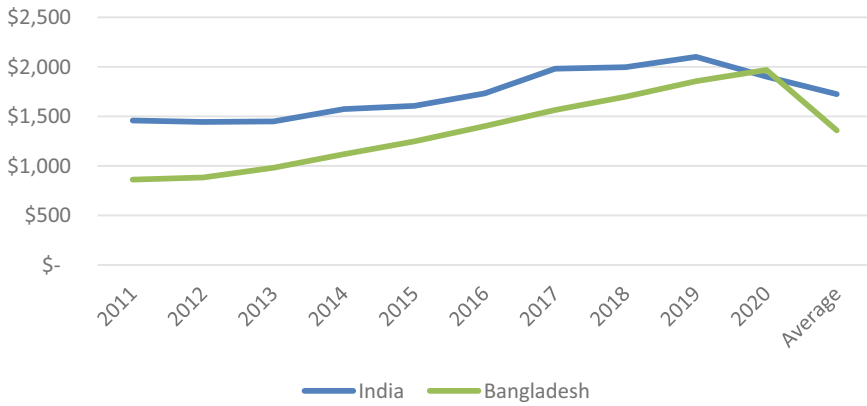| Year	India	% change	Bangladesh	Percent change
2011	1458		862	
2012	1444	−1%	883	2%
2013	1450	0%	982	11%
2014	1574	9%	1119	14%
2015	1606	2%	1248	12%
2016	1733	8%	1402	12%
2017	1981	14%	1564	12%
2018	1997	1%	1698	9%
2019	2101	5%	1856	9%
2020	1901	−10%	1969	6%
Average	1725	3%	1358	10%

Source: World Bank

Fig. 2 GDP per capita

while GDP growth was −8.6%, GDP per capita decline was steeper (10%). Except 2012 & 2020, Bangladesh growth in this important indicator was never less than 9%. In terms of dollar value of GDP per capita, India consistently exceeded Bangladesh (including average value over the decade of 2011–2020) except in the year 2020 when Bangladesh GDP per capita of $1969 was marginally higher (4%) than India ($1901) as the World Bank data above reveal. While consistent higher dollar value for India indicates its strength of GDP growth, Bangladesh should accelerate its efforts to achieve higher GDP growth by sector including more effective birth control measures through incentives. As GDP per capita (nominal) is obtained after value of goods and services of a country are divided by the population, it is important to examine its underlying demographic dynamics i.e., birth rate, death rate and the resulting net change in total population.

As seen in Table 6, the p-value in t-test shows a statistically significant difference between India & Bangladesh as far as GDP per capita is concerned.

Table 6 T-test of GDP per capita assuming unequal variances

	India	Bangladesh
Mean	1724.5	1358.3
Variance	63,863.38889	162,614.9
Observations	10	10
Hypothesized mean difference	0	
df	15	
t Stat	2.433352647	
P(T ≤ t) one-tail	0.013969785	
t critical one-tail	1.753050356	
P(T ≤ t) two-tail	0.02793957	
t critical two-tail	2.131449546	

Table 6A Per capita income (projected) – In US Dollar

Year	Bangladesh	India
2021	2259	2184
2022	2497	2284
2023	2759	2389
2024	3050	2498
2025	3370	2612
2026	3724	2732
2027	4116	2857
2028	4549	2987
2029	5027	3124
2030	5555	3267
% change 2021-2030	**182%**	**72%**

Fig 2A Per capita income (projected) –In US Dollar India/Bangladesh t-test of GDP per capita assuming unequal variances

	India	Bangladesh
Mean	2693.576858	3664.310879
Variance	123522.4781	1167440.987
Observations	10	10
Hypothesized mean difference	0	
df	11	
t Stat	−2.701738271	
P(T ≤ t) one-tail	0.010296341	
t critical one-tail	1.795884819	
P(T ≤ t) two-tail	0.020592682	
t critical two-tail	2.20098516	

5 Calculation of GDP—Expenditure Method

The expenditure method is the most commonly used approach for estimating GDP which is:

$$GDP = C + I + G + (X - M)$$

Where C = Consumer spending on goods and services; I = Investor spending on business capital goods; G = Government spending on public goods & services; X = exports; M = imports.

Let us examine how the above components of GDP reflect in the case of Bangladesh & India during the period of 2011–2020.

5.1 Consumer Spending on Goods and Services

Table 7 and Fig. 3 show that on average, Bangladesh share of consumer consumption to GDP was 11% higher than India. During pandemic crisis (2020), consumer spending to GDP remained strong in both economies. During the decade, Bangladesh contribution of consumer spending to GDP was in the range of 74.67–79.04% while India's share ranged from 67.12 to 71.68% (remained robust at 71.48% in 2020 during pandemic). The p value in Table 8 is less than 0.05, revealing a significant difference.

However, World Bank data show that shares of consumer spending to GDP in 2019 were 81.83% for United States, 56.02% for China, 83.11% for United Kingdom, 94.59% for Pakistan, and 74.62% for Vietnam. Therefore it is not rational to identify

Table 7 Consumer spending on goods & services (% GDP)

Year	Bangladesh	% change	India	% change
2011	79.04		67.31	
2012	78.75	−0.37%	67.12	−0.27%
2013	77.95	−1.01%	67.91	1.17%
2014	77.90	−0.06%	68.56	0.97%
2015	77.83	−0.09%	69.44	1.28%
2016	75.03	−3.60%	69.59	0.21%
2017	74.67	−0.48%	69.52	0.09%
2018	77.17	3.34%	70.20	0.97%
2019	75.25	−2.49%	71.68	2.12%
2020	74.87	−0.51%	71.64	−0.07%
Average	76.85		69.30	

Data Source: The World Bank
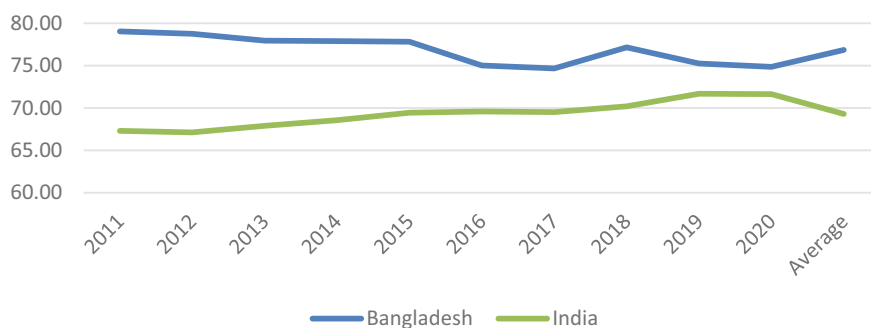
Fig. 3 Consumer spending (% GDP)

Table 8 T-test of consumer spending assuming unequal variances

	Bangladesh	India
Mean	0.768816892	0.692957672
Variance	0.000311951	0.000258741
Observations	10	10
Hypothesized mean difference	0	
df	18	
t stat	10.04170272	
P(T ≤ t) one-tail	4.18829E−09	
t critical one-tail	1.734063607	
P(T ≤ t) two-tail	8.37658E−09	
t critical two-tail	2.10092204	

a certain ratio to be considered ideal. The ratio varies with the underlying cycle of the individual country's economic dynamism.

5.2 Investor Spending on Business Capital Goods

Table 9 and Fig. 4 show that on average, India's share of business investment to GDP was 12% higher than Bangladesh. This explained part of the reason why average GDP per capita in India was higher that Bangladesh ($1725 against $1358—Table 5 and Fig. 2). But a closer look of data in Table 9 suggests that Bangladesh consistently improved its share of business investment to GDP while India's performance showed a mixed signal. Except for the years 2014, 2017 & 2018, India's share of business

Table 9 Business investment (% of GDP)

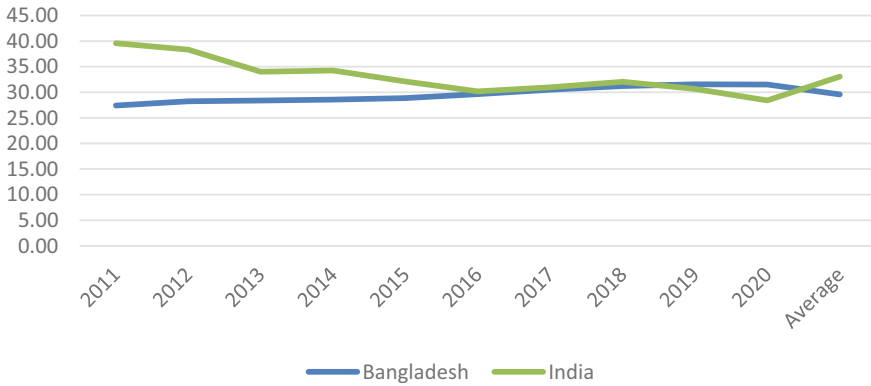| Year	Bangladesh	% change	India	% change
2011	27.42		39.59	
2012	28.26	3.1%	38.347	−3.1%
2013	28.39	0.5%	34.023	−11.3%
2014	28.58	0.7%	34.268	0.7%
2015	28.89	1.1%	32.117	−6.3%
2016	29.65	2.7%	30.173	−6.1%
2017	30.51	2.9%	30.982	2.7%
2018	31.24	2.4%	32.07	3.5%
2019	31.57	1.1%	30.664	−4.4%
2020	31.54	−0.1%	28.42	−7.3%
Average	29.60		33.06	

Data Source: The World Bank

Fig. 4 Business investment (GDP %)

investment to GDP declined. While 2020's unexpected performance in India was largely due to pandemic, a decline of 4.4% in 2019 is a case India should examine. On the other hand, Bangladesh consolidated its share of business investment at 31.5% in the years 2019 & 2020 compared to India's rate of 30.7 and 28.42% respectively that gave Bangladesh its dividend when World Bank reported a higher GDP per capita than India. To be more competitive Bangladesh should strive for larger business investment as a percent of GDP in future. As seen in Table 10, a p-value less than 0.05 suggests a statistically significant difference between India & Bangladesh.

Table 10 T-test of investment as % of GDP assuming unequal variances

	Bangladesh	India
Mean	29.6042	33.0654
Variance	2.298687956	12.75246982
Observations	10	10
Hypothesized mean difference	0	
df	12	
t Stat	−2.821251096	
P(T ≤ t) one-tail	0.007712048	
t critical one-tail	1.782287556	
P(T ≤ t) two-tail	0.015424096	
t critical two-tail	2.17881283	

5.3   Government Expenditure (% of GDP)

Table 11 and Fig. 5 show that on average, Bangladesh share of government expenditure to GDP was about half of India. In other words, Bangladesh governance expenditure was more cost effective than India, every year from 2011–2020. In India, a 12% higher government expenditure to GDP in 2020 compared to 2019 was attributed to severe pandemic effect. In Bangladesh, NGOs provide significant services for public health and community activities that is one of the reasons why Bangladesh share of government expenditure to GDP was significantly lower than India. However, World Bank data show that shares of government spending to GDP in 2019 were 13.97% for United States, 16.8% for China, 19.07% for United Kingdom, 11.73% for Pakistan, and 6.5% for Vietnam. The above data indicate that Bangladesh performance was closer to Vietnam's. A volume and diversity of government services impact directly

Table 11   Government expenditure (% of GDP)

Year	Bangladesh	% change	India	% change
2011	5.10		11.08	
2012	5.04	−1%	10.684	−4%
2013	5.12	2%	10.295	−4%
2014	5.34	4%	10.441	1%
2015	5.40	1%	10.428	0%
2016	5.89	9%	10.309	−1%
2017	6.0	2%	10.767	4%
2018	6.36	6%	10.789	0%
2019	6.27	−1%	10.228	4%
2020	6.10	−3%	12.601	12%
Average	5.66		10.862	

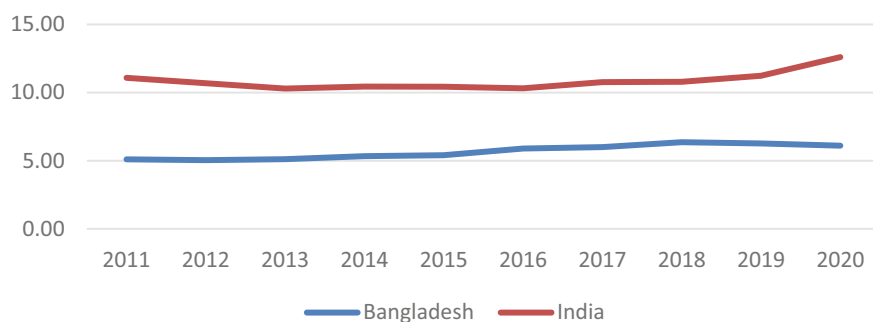Data Source: The World Bank

Fig. 5   Government expenditure (% of GDP)

Table 12 T-test of
government expenditure as %
of GDP assuming unequal
variances

	Bangladesh	India
Mean	5.661	10.8622
Variance	0.265245111	0.471614844
Observations	10	10
Hypothesized mean difference	0	
df	17	
t stat	−19.16068698	
P(T ≤ t) one-tail	3.0117E−13	
t critical one-tail	1.739606726	
P(T ≤ t) two-tail	6.0234E−13	
t critical two-tail	2.109815578	

the level of share of government expenditure to GDP. A cost-effective government
operation is increasingly considered a popular slogan by the extreme proponents
of small government. It may be noted that in the article "Get Society Rich Quick:
The Ideal Level of Government Spending", https://thinkbynumbers.org/economics/
ideal-level-of-government-spending/ **(April 17, 2012),** a reference was made to the
relationship between size of government and economic growth based on data of
twenty three long standing members of the Organization for Economic Cooperation
and Development. It reveals that "a 10% increase in government expenditure as a
share of GDP reduces the annual rate of growth by about 1%". The P-value in Table
12 reveals a significant difference between India and Bangladesh.

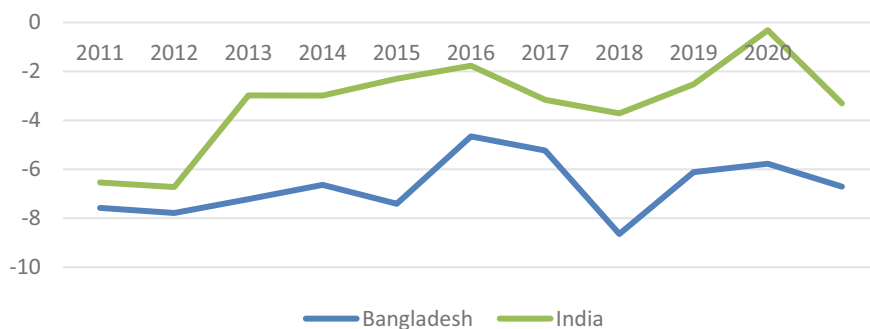## 5.4 Net Export of Goods and Services (% of GDP)

Table 13 and Fig. 6 show that on average during the decade India's share of net
export of goods and services to GDP was 51% higher than Bangladesh (both had
negative contribution—India being −3.30% and Bangladesh −6.7%). This indicates
the face of relative strength of Indian economy compared to Bangladesh. During
the pandemic year of 2020, the net impact of export & import (goods & services
together) to GDP was only −0.316 for India compared to −5.77 for Bangladesh. In
other words, Bangladesh's performance in this important indicator was significantly
lower than India and policy makers in the country should analyze in depth all the
variables responsible for this weak performance and address the issue.

As seen in Table 14, the p value shows a statistically significant difference between
India & Bangladesh in terms of net export of goods & services to GDP.

Table 13 Net export of goods & services (% of GDP)

Year	Bangladesh	India
2011	−7.579	−6.54
2012	−7.787	−6.725
2013	−7.221	−2.982
2014	−6.634	−2.986
2015	−7.412	−2.297
2016	−4.655	−1.766
2017	−5.232	−3.159
2018	−8.643	−3.716
2019	−6.116	−2.628
2020	−5.773	−0.316
Average	−6.705	−3.301

Data Source: The World Bank

Fig. 6 Net export of goods & services (% of GDP)

Table 14 T-test of net export of goods & services as % of GDP assuming unequal variances

	Bangladesh	India
Mean	−6.7052	−3.3015
Variance	1.5610404	3.942251611
Observations	10	10
Hypothesized mean difference	0	
df	15	
t Stat	−4.588175229	
P(T ≤ t) one-tail	0.000177608	
t critical one-tail	1.753050356	
P(T ≤ t) two-tail	0.000355217	
t critical two-tail	2.131449546	

6 Remittances

Table 15 and Fig. 7 show that Bangladesh share of personal remittances to GDP was about four & half times less than of India. From 2011–2020, Bangladesh experienced positive changes while except three years, India saw negative changes in this indicator. It suggests that Bangladesh foreign wage earners' mark in the economic growth was continuous and encouraging. During the pandemic year 2020 both in India and Bangladesh,changes shares of personal remittances received were second highest and the highest respectively (in the comparable decade). At $83.149 billion, India topped the global list while Bangladesh's $21.75 billion showed that India in 2020 earned 3.8 times higher remittances compared to Bangladesh. It is interesting to note that Migration Data Portal https://migrationdataportal.org/themes/remittances reports that "in terms of remittances as a share of gross domestic product, by contrast,

Table 15 Personal remittances, received (GDP %)

Year	Bangladesh	Change	India	Change
2011	0.648		3.43	
2012	0.67	3%	3.76	10%
2013	0.69	3%	3.77	0%
2014	0.72	4%	3.45	−8%
2015	0.75	5%	3.28	−5%
2016	0.73	−3%	2.73	−17%
2017	0.74	1%	2.60	−5%
2018	0.75	1%	2.92	12%
2019	0.76	2%	2.90	−1%
2020	0.83	8%	3.17	9%
Average	**0.728**		**3.20**	

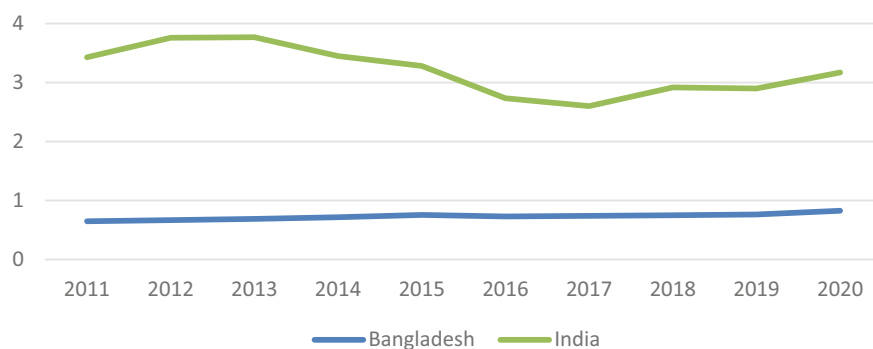Data Source: The World Bank

Fig. 7 Personal remittances, received (GDP %)

Table 16 T-Test of personal remittances received as % of GDP assuming unequal variances

	Bangladesh	India
Mean	0.728	3.2007
Variance	0.002656667	0.167249789
Observations	10	10
Hypothesized mean difference	0	
df	9	
t Stat	−18.96996322	
P(T ≤ t) one-tail	7.23348E−09	
t critical one-tail	1.833112933	
P(T ≤ t) two-tail	1.4467E−08	
t critical two-tail	2.262157163	

the top five recipients in 2020 were smaller economies: Tongo (38), Lebanon (33%), Kyrgyz Republic (29%), Tajikistan (27%) and El Salvador (24%)".

The P value in Table 16 reveals a significant difference of personal remittances, received to GDP between India and Bangladesh.

7 Employment Data

Table 17 and Fig. 8 show that with more than seven times larger average labor force (2011–2020), India's average growth (0.20%) was lower than Bangladesh (1.6%). India's highest annual growth was posted in the year 2019 (1.48%) followed by a significant decline in 2020 (−4.66%). Both Bangladesh & India were impacted severely by Corona Virus resulting in a slightly steeper decline for India than

Table 16A Personal remittances projected (current US$ - in Million)

Year	Bangladesh	India
2021	19564	84740
2022	20528	87574
2023	21541	90504
2024	22603	93531
2025	23718	96660
2026	24888	99893
2027	26115	103234
2028	27403	106688
2029	28755	110256
2030	30173	113945
% change 2021-2030	**39%**	**37%**

Bangladesh in 2020 (-4.66% in India compared to -4.2% in Bangladesh). Table 17 further reveals that Bangladesh consistently witnessed around 2% labor force growth while Indian performance in this indicator was barely 1% in the time window of 2011–2020. Job creation in Bangladesh peaked in 2017 (5.9%) when it absorbed greater percent of its labor force in service sector while India had its highest growth in 2019 (1.48%). A relatively higher employment growth in Bangladesh during a decade of 2011–2020 helped it to launch the pre-condition for takeoff for development while India needs to strengthen its efforts for job creation. The p-value in Table 18 reveals that employment data of India and Bangladesh would have occurred under the null hypothesis.

Table 17 Total labor force by year

Year	Bangladesh	% change	India	% change	Indian labor force X times larger than Bangladesh
2011	58,198,463		463,753,497		7.97
2012	59,278,816	1.9%	464,760,493	0.22%	7.84
2013	60,365,191	1.8%	469,135,490	0.94%	7.77
2014	61,481,328	1.8%	473,313,171	0.89%	7.70
2015	62,481,328	1.6%	477,296,180	0.84%	7.64
2016	63,705,497	2.0%	481,187,327	0.82%	7.55
2017	67,462,312	5.9%	484,539,161	0.70%	7.18
2018	68,844,397	2.0%	487,539,161	0.62%	7.08
2019	70,160,182	1.9%	494,732,703	1.48%	7.05
2020	67,225,702	−4.2%	471,688,990	−4.66%	7.02
Average	63,920,322	1.6%	476,794,617	0.20%	7.46

Data Source: The World Bank
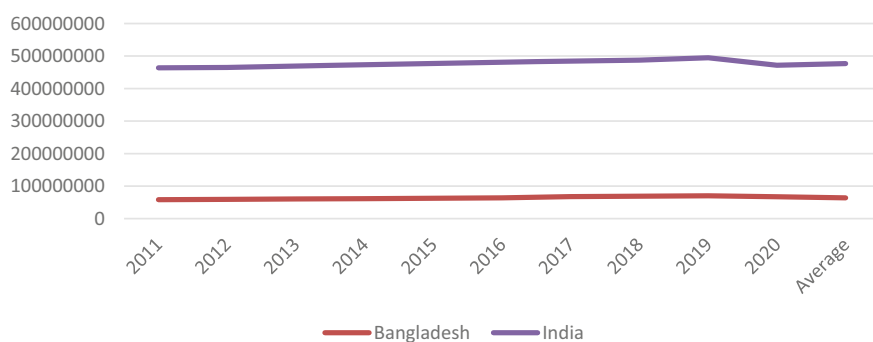
Fig. 8 Total labor force

Table 18 T-test of employment assuming unequal variances

	Bangladesh	India
Mean	63,920,321.6	476,794,617.3
Variance	1.79601E+13	1.03165E+14
Observations	10	10
Hypothesized mean difference	0	
df	12	
t stat	−118.6315904	
P(T ≤ t) one-tail	4.31423E−20	
t critical one-tail	1.782287556	
P(T ≤ t) two-tail	8.62845E−20	
t critical two-tail	2.17881283	

8 Inflation

Table 19 and Fig. 9 indicate that during the decade 2011–2020, average inflation was in the same level in both countries (over 6%). However, India's monetary policies in controlling inflation during 2014–2019 were more effective than Bangladesh. Nevertheless, during the pandemic year 2020 Bangladesh managed inflation better than India (5.7% against 6.6%) showing a 16% better performance. The P value in Table 20 reveals no significant difference in inflation between India and Bangladesh.

Table 19 Inflation, consumer prices (annual %)

Year	Bangladesh	Change	India	Change
2011	11.39		8.85	
2012	6.22	−45%	9.31	5%
2013	7.53	21%	11.06	11%
2014	6.99	−7%	6.65	−40%
2015	6.19	−11%	4.9	−26%
2016	5.51	−11%	4.95	1%
2017	5.7	3%	3.32	−33%
2018	5.54	−3%	3.95	19%
2019	5.59	1%	3.72	−6%
2020	5.69	2%	6.62	78%
Average	**6.63**		**6.33**	

Data Source: The World Bank
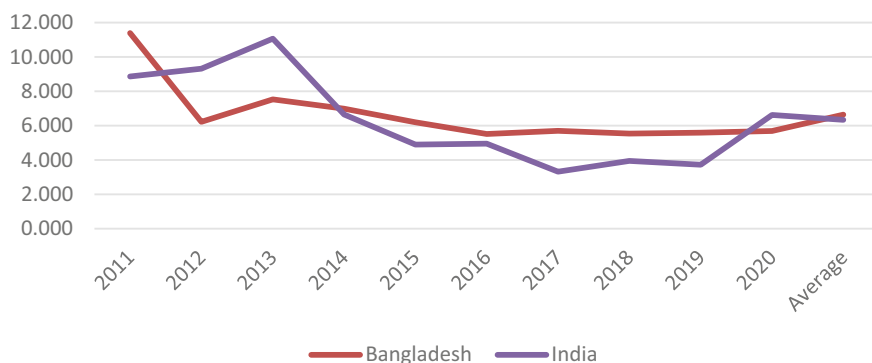
Fig. 9 Inflation, consumer prices (annual %)

Table 20 T-test of inflation assuming unequal variances

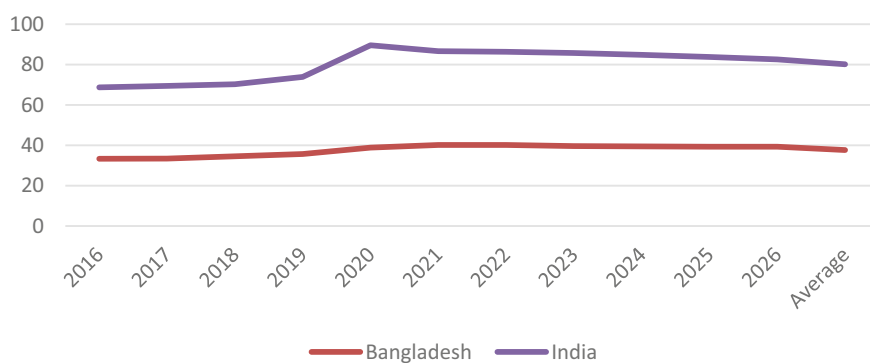|	Bangladesh	India
Mean	6.6357	6.3343
Variance	3.246499122	7.042391789
Observations	10	10
Hypothesized mean difference	0	
df	16	
t stat	0.297138527	
P(T ≤ t) one-tail	0.385091866	
t critical one-tail	1.745883676	
P(T ≤ t) two-tail	0.770183733	
t critical two-tail	2.119905299	

9   National Debt

Table 21 and Fig. 10 indicate that during the period 2016–2026, Bangladesh's average debt ratio to GDP is expected to be 213%, lower than India. Data developed by Aaron O Neill for 2020 and beyond up to 2026 indicate this fact. The data further suggest that debt burden will start declining marginally for both countries except for Bangladesh in the year 2021 as it is estimated to rise by 3.35%. During 2020 pandemic induced year national debt to GDP increased in both Bangladesh (8.88%) and India (21.21%). Both countries are managing their national debt as part of their macroeconomic policies to achieve overall economic development suitable to their strategies and priorities. For example, it is understood that USA being the top developed country is expected to have a national debt to GDP ratio at 106.7%. The P value in Table 22 reveals a significant difference between India and Bangladesh in terms of national debt to GDP.

Table 21 National debt to GDP (%)

Year	Bangladesh	% change	India	% change
2016	33.33		68.71	
2017	33.38	0.15%	69.46	1.09%
2018	34.57	3.57%	70.24	1.12%
2019	35.69	3.24%	73.89	5.20%
2020—Proj.	38.86	8.88%	89.56	21.21%
2021—Proj.	40.16	3.35%	86.6	−3.31%
2022—Proj.	40.16	0%	86.31	−0.33%
2023– Proj.	39.64	−1.29%	85.71	−0.70%
2024—Proj.	39.43	−0.53%	84.83	−1.03%
2025—Proj.	39.31	−0.30%	83.77	−1.25%
2026—Proj.	39.33	0.05%	82.57	−1.43%
Average	**37.62**		**80.15**	

Data Source: https://www.statista.com/statistics/438425/national-debt-of-bangladesh-in-relation-to-gross-domestic-product-gdp/
https://www.statista.com/statistics/271319/national-debt-of-india-in-relation-to-gross-domestic-product-gdp/

Fig. 10 National debt to GDP (%)

10   Corruption Perceptions Index

According to Transparency International, the lower the index, the better. In other words, the higher is the ranking the worse is the perception for corruption of the country in comparison. "It uses a scale of zero (highly corrupt) to 100 (very clean). Score and ranking are reversely related. For example, in the year 2020, India ranked 86 when its score was 40. On the other hand, Bangladesh ranked 146 when its score was 26. It is observed that in the world Ranking of Corruption Perceptions Index (CPI), Bangladesh consistently during the decade stood far above India. The above

Table 22 T-test of national debt to GDP assuming unequal variances

	Bangladesh	India
Mean	37.62363636	80.15
Variance	7.698645455	62.24184
Observations	11	11
Hypothesized mean difference	0	
df	12	
t stat	−16.86515239	
P(T ≤ t) one-tail	5.05219E−10	
t critical one-tail	1.782287556	
P(T ≤ t) two-tail	1.01044E−09	
t critical two-tail	2.17881283	

Table 23 World ranking of corruption perceptions index-CPI

Year	Bangladesh	India
2011	120	95
2012	144	94
2013	139	94
2014	145	85
2015	139	76
2016	145	79
2017	143	81
2018	149	78
2019	146	80
2020	146	86

Data Source: Transparency International

rankings suggest that while both the countries should make increased improvement in their CPI ranking, Bangladesh must address this good governance indicator on a priority basis since it is directly linked to its future economic health also (Table 23 and Fig. 11).

11 Poverty Headcount Ratio (% of Population)

It is evident from Tables 24, 25 and Figs. 12, 13 that within a window of sixteen years, Bangladesh was successful to reduce its poverty headcount ratio by 50% while within a period six years India reduced it by 41%. Both Bangladesh & India were able to achieve significant improvements in this important indicator. However, India has over 306 million people under national poverty lines. It remains a major challenge to Indian
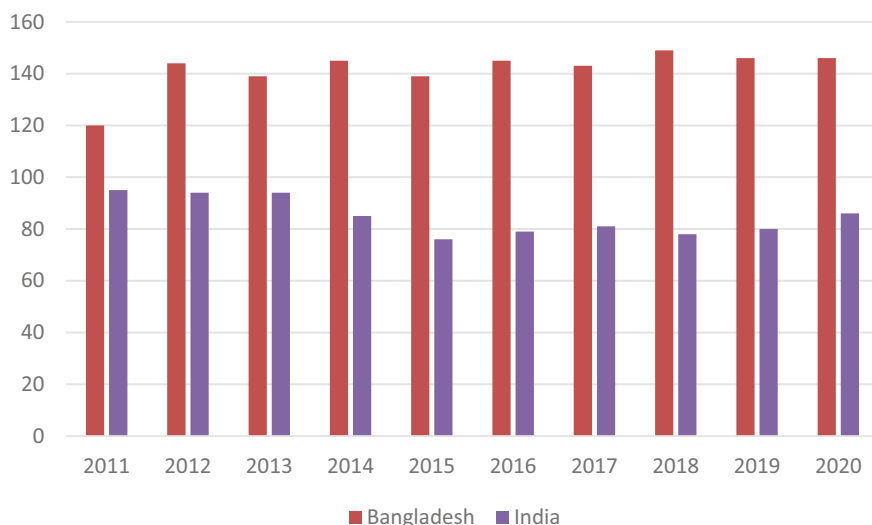
Fig. 11 World ranking of corruption perceptions index-CPI

Table 24 Bangladesh's Poverty Headcount Ratio at national poverty lines (% of population)

Year	Headcount ratio	% change (cumulative)
2000	48.9	
2005	40	−18%
2010	31.5	−36%
2016	24.3	−50%

Data Source: The World Bank

Table 25 India's Poverty Headcount Ratio at national poverty lines (% of population)

Year	Headcount ratio	% change (cumulative)
2004	37.20	
2009	29,80	−20%
2010	21.90	−41%

Data Source: The World Bank

policy makers and needs adequate and appropriate planning to address the issue. A good number of economists give credit for Bangladesh's success in this respect to public private partnership especially to non- profit NGOs, Grameen Bank and RDS of Islami Bank Bangladesh Limited. In our recently published paper "A Comparative Rural Development Scheme of Islami Bangladesh Limited and Grameen Bank: A Cost Effective Institutional Mechanism to Rural Development for the Emerging Economics" (Please refer to the book The Importance of New Technologies and Entrepreneurship in Business Development: In The Context of Economic Diversity in Developing Countries Editors: Alareeni, Bahaaeddin, Hamdan, Allam, Elgedawy,
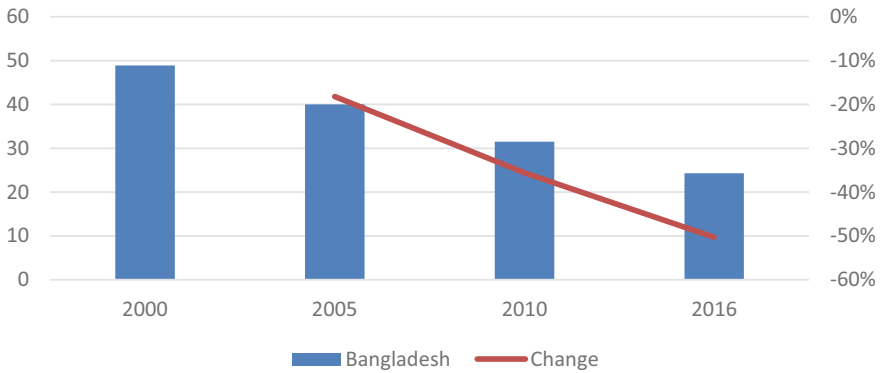
Fig. 12 Bangladesh's Poverty Headcount Ratio at national poverty lines (% of population)
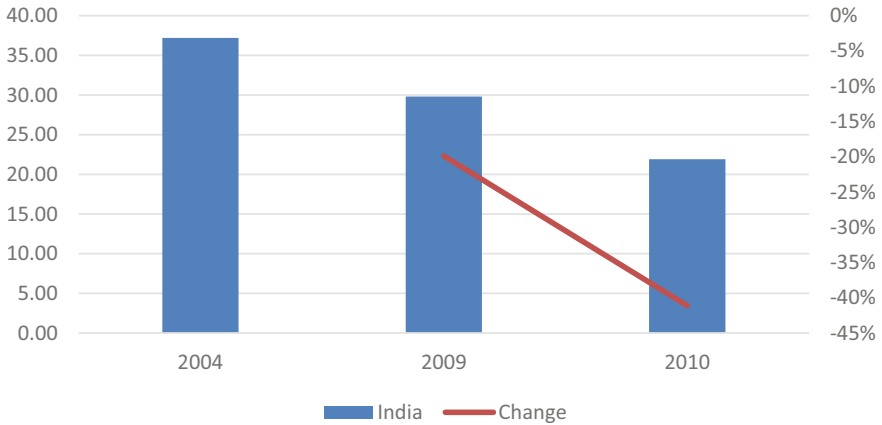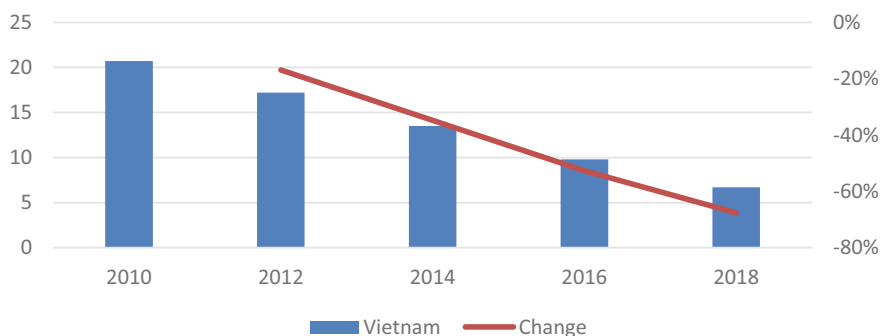

Fig. 13 India's Poverty Headcount Ratio at national poverty lines (% of population)

Isla-ISBN 978-3-030-69,221-6 (Eds.published by the Springer), it was suggested that Bangladesh being a Muslim majority country if mobilizes collection (voluntary) of zakat money (religious charity) and distributes through its several Islamic Bank networks, the measures are expected to play better result in poverty reduction of the country. For interest, I have presented data of a recent Asian important player Vietnam (Table 26 and Fig. 14) to compare its performance in poverty reduction to Bangladesh and India. It is interesting to note that Vietnam's performance in poverty reduction was impressive at 68% within a time frame of 18 years.

Table 26 Vietnam's Poverty Headcount Ratio at national poverty lines (% of population)

Year	Headcount ratio	% change (cumulative)
2000	20.7	
2012	17.2	−17%
2014	13.5	−35%
2016	9.8	−53%
2018	6.7	−68%

Data Source: The World Bank

Fig. 14 Vietnam's Poverty Headcount Ratio at national poverty lines (% of population)

12 Interesting Facts and Findings

Even in a market based free economy, the need for increased government spending became popular to the politicians as well as to the voters. It is the policy makers to determine the ceiling and the floor of the balance to achieve the optimum level of economic development. Therefore, the statement "a 10% increase in government expenditure as a share of GDP reduces the annual rate of growth by about 1%." by OCED needs a critical reevaluation for policy consideration.

13 Limitation

We have used components of GDP from the expenditure reported by the World Bank. Net export of goods and services was not reported by World Bank data base. We calculated the net export of goods & services from the reported export of goods and services and the reported import of goods and services. However, when individual component percent were added together, they exceed 100% both for Bangladesh (104–107) & India (108–112). World Bank has posted the following explanation that may explain the possible reason for this anomaly.

"Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.

Because policymakers have tended to focus on fostering the growth of output, and because data on production are easier to collect than data on spending, many countries generate their primary estimate of GDP using the production approach. Moreover, many countries do not estimate all the components of national expenditures but instead derive some of the main aggregates indirectly using GDP (based on the production approach) as the control total. Data on capital formation may be estimated from direct surveys of enterprises and administrative records or based on the commodity flow method using data from production, trade, and construction activities. The quality of data on government fixed capital formation depends on the quality of government accounting systems (which tend to be weak in developing countries). Measures of fixed capital formation by households and corporations—particularly capital outlays by small, unincorporated enterprises—are usually unreliable. Estimates of changes in inventories are rarely complete but usually include the most important activities or commodities. In some countries these estimates are derived as a composite residual along with household final consumption expenditure. According to national accounts conventions, adjustments should be made for appreciation of the value of inventory holdings due to price changes, but this is not always done. In highly inflationary economies this element can be substantial".

14 Recommendations for Future Research

The "Output Method" induced GDP calculation and the related analyses are omitted in this paper. Therefore, any future research project should focus on different value-added economic sectors i.e. agriculture, manufacturing, service and their sub sectors that may have specific policy recommendations to Bangladesh and India including any information of 'productive efficiency' identified therein.

15 Conclusion

Both Bangladesh and India after taking "economic liberalization" policies created effective tailwinds towards sustained economic growth. In order to consolidate the economic gains they are achieving, good governance and greater reduction of poverty are the other two major challenges they should address effectively. Politically Bangladesh is following a secular path while during Prime Minister Norendro Modi's rule, India is patronizing extreme Hindu nationalism(Modi's project to make Hindu India—the japantimes. Historically Bangladesh is a land where at the very dawn of everyday people wake up with a swearing sound of adhan (call for prayer, especially the Arabic statement for morning worship "prayer is better than sleep"). If Bangladesh can balance its political chemistry between secularism and its majority's

faith-based tradition and stimulate the economy (with 100% minority right protection) in a reasonably non corrupt environment, it is expected that it will accelerate its economic wheel better. It is possibly a high time to experiment that model cautiously which I would like to name "Democracy based Muslim humanism". For a vast non homogenous country a secular India without being a stooge of Big Brother global politics possibly is its best guide to move upward progressively and peacefully.

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