Development of India and Pakistan after World War II: Problems and experiences

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India and Pakistan entered the ranks of lower-middle-income countries in 2007 and 2008, respectively, and they are two of the most important developing countries with huge population in the world (World Bank, 2021). Historically, both India and Pakistan belonged to British colonies, with similar levels of economic development and culture. Problems and experiences from their development can contribute to development theories and be learnt by other developing countries.

1. Comparison of development between India and Pakistan

After independence, India experienced consistently accelerated GDP growth rate with occasional trend breaks (Ahmad et al., 2018). While maintaining an average annual growth rate of 5%, the GDP growth rate goes down to -5.34% and -7.96% in 1979 and 2020 respectively. In contrast, after the rapid growth in the 1960s and 1980s, Pakistan's GDP growth rate gradually declined, and dropped to 0.53% after the COVID-19 (World Bank, 2021).

Different GDP growth trends in the two countries have affected the growth of GNI per capita. In figure 1 of appendix A, Pakistan had a GNI per captia close to the average level of lower-middle-income countries (LMCs) in the 1990s, but due to its lower economic and income growth rate compared to India and other developing countries, India surpassed Pakistan in 2008-2009 and constantly moving closer to the average level of LMCs, and Pakistan has been at about half the level of India and LMCs since the 2010s.

In terms of poverty, India and Pakistan both have relatively large income inequality, low level of urbanization and more than one-fifth of the population is in absolute poverty.

Table 1. Selected data on economic development and poverty in 2020*

	India	Pakistan
GDP (current US$)	2,622,983,732,006.45	263,686,552,686.208
Population, total	1,380,004,385	220,892,331
Urban population (% of total population)	34.926	37.165
GNI per capita, PPP (current international $)	6,390	4,770
Gross savings (% of GDP)	30.20	17.23
Gini coefficient	0.357 (2011)	0.316 (2018)
Poverty headcount ratio at national poverty lines (% of population)	21.9 (2011)	21.9 (2018)

*Source: World Bank, Database World Development Indicators. Last Updated: 11/23/2021

In terms of capital, we mainly focus on the gross capital formation of India and Pakistan (measured in current U.S. dollar). Gross capital formation includes gross fixed capital formation and inventory and it measures total capital. In detail, this number in India was 5,810,161,322 dollars in 1960 and 745,459,792,472 dollars in 2020 (World Bank, 1960 & 2020). For Pakistan, it was 507,349,853 dollars in 1960 and 40,624,904,024 dollars in 2020 (World Bank, 1960 & 2020). In comparison, apparently India has higher capital, but neither exceed the average of 1,985,080,009,734 dollars among all the LMC countries in 2020 (World Bank, 2020). Talking about gross capital formation as a share of GDP, this number of India has increased from 15.7% to 28.4% throughout the 60 years (World Bank, 1960 & 2020), while the increase of Pakistan is relatively subtle, only from 13.5% to 15.4% (World Bank, 1960 & 2020). And take the average of all LMC countries as a benchmark, which is 15.9% in 1960 and 28% in 2020 (World Bank,

1960 & 2020), it seems that India has a better development status because its capital takes up more proportion of its GDP.

TABLE 2. Selected data on capital formation in 1960 and 2020*

1960	India	Pakistan	Average LMCs
Gross capital formation (measured in current $)	5,810,161,322	507,349,853	Non
Gross capital formation (\% of GDP)	15.7%	13.5%	15.9%
2020	India	Pakistan	Average LMCs
Gross capital formation (measured in current $)	745,459,792,472	40,624,904,024	1,985,080,009,734
Gross capital formation (\% of GDP)	28.4%	15.4%	28%

*Source: World Bank, Database World Development Indicators. Last Updated: 11/23/2021

In India, government expenditure on education is consistently above 3% of total GDP after 1995, while in Pakistan it is consistently below 3% and most teaching facilities are poor. Teachers' professional capacity is also a serious problem, as the 2005 National Education Census (2008) shows that 26% of teachers in Pakistan have not received formal teacher education, and only 37% have received primary teacher qualification training and junior secondary teacher qualification training, and the Pakistan National Education Evaluation System (2009) indicates that "the overall professional level of teachers in the country is low and teacher education quality of teacher education is not assured. United Nations Educational, Scientific and Cultural Organisation [UNESCO] and United States Agency for International Development [USAID] (2006) thought that "the inherent shortcomings of Pakistan's centralized and controlled administration and lack of commitment to education policy are the root causes of slow educational development."

Looking ahead, India is already better at enrolling in schools at all levels. in 2019, India's secondary education enrollment rate was 73.8%, compared to Pakistan's 44.9% (World Bank, 2021), this will open up the literacy gap in the coming years. Whereas in 2018, the literacy rate of the population aged 15 years and above was 74.4% in India and 57% in Pakistan, it can be inferred that within the last two decades, Pakistan's educational penetration has been lower than India's and the overall national quality is lower than India's. In India, education was an unimaginable luxury for the poor between 1985 and 2000, with only about 60% of students completing elementary school, and after 2010, the rate has stabilized between 80% and 90%. And primary school enrollment rates in both countries have steadily increased at the same time with similar frequency.

Today, the literacy rate for females over the age of 15 is 1:1.53 for males in Pakistan and 1:1.25 in India, indicating that both countries face inequities in education between males and females today, but more serious in Pakistan. This is also reflected in the ratio of male to female enrollment in secondary schools in both countries, where the ratio of male to female enrollment in secondary schools in India was 1.01:1 in 2013 compared to 1.36:1 in Pakistan (World Bank, 2021), which also indicates that India is expected to achieve greater equality in the level of education between males and females.

TABLE 3. Selected data on health in 1960 and 2010*

	India		Pakistan	
Life expectancy at birth, female (years)	70.95		68.287	
Life expectancy at birth, male (years)	68.464		66.337	
Life expectancy at birth, total (years)	69.656		67.273	
	India		Pakistan	
	1960	2019	1960	2019
Mortality rate, infant (per 1,000 live births)	16.1	2.83	18.53	5.57

*Source: World Bank, Database World Development Indicators.

Depending on the data, we can know that India and Pakistan life expectancy has an upward trend, and women's life expectancy is longer than men's life expectancy. And Life expectancy in Pakistan was higher than in India until 2003, after which India overtook Pakistan. Since 1991, India's child universal malnutrition decreased from 61.9 to 34.7 percent; Pakistan's child malnutrition was also reduced from 53.9 to 37.6 percent (World Bank, 2021).

Pakistan's infant mortality rate from 1960 to 2019 decreased by 12.96 percent; India's infant mortality rate from 1960 to 2019 dropped by 13.27 percent. India's five-year-old child mortality (per 1,000 live births) has dropped significantly. In 1960, India's mortality rate of 5 years old was 24.14 percent, and Pakistan was 25.24 percent. In 1970, the position of the two countries has changed, and India is 14.26 percent, Pakistan is 14.19 percent. In 2019, it has achieved significant progress, especially in India. India's mortality rate of 5 years old in 2019 is 3.43 percent, Pakistan is 6.72 percent (World Bank, 2021).

2. Growth theory application

Generally speaking, India has a better development than Pakistan despite they were on the similar starting line. Figure 1 and figure 2 show that economic growth and income level are related to changes in the savings rate. Therefore, Harrod-Domar growth model (Harrod, 1939) (Domar, 1946) can explains part of the reasons of development difference.

$$\Delta Y/Y = s^G/c - \delta$$

Assuming India and Pakistan have the same rate of capital depreciation, how fast capital is accumulated and how efficiently it is converted into output determine economic growth. In the equation, thsoe two measure are net saving ratio s and capital-output rate c respectively. Looking at the two graphs in appendix A, the savings rates of Pakistan and India are both lower than the average level of low- and middle-income countries. After the 1990s, the savings rate of India has risen rapidly, which is about 15% behind Pakistan and close to the average level. As a result, India has a higher GNI per capita PPP, GDP growth rate. (Before the COVID-19).

Take other source of development such as labor force, human capital and technological progress into consideration, Solow neoclassical growth model (Solow, 1956) help to understand the development in India and Pakistan more comprehensively.

$$Y = K^a(AL)^{1-a}$$

In addition to capital accumulation, it can be seen that the explosive population growth of India and Pakistan has provided sufficient impetus for economic growth, and scientific research and education have improved labor productivity. If we put A before K, we will find that with the advancement of technology and management, the efficiency of capital allocation and output will also be greatly improved.

$$\frac{\partial Y}{\partial L} = K^a A^{1-a} L^{-a}$$

However, labor has diminishing marginal returns. Without ensuring that the growing population receives good medical care and education, the generation of human capital will be very slow, and the rapidly growing population will become a burden, leading to a series of consequences such as poverty, environmental damage, and rising crime rates. We see that Pakistan did not manage the balance between population growth and economic development after the 1990s, and its development indicators have gradually lagged behind India and other LMCs.

3. Suggested policies

According to Shen and Xu (2020), India is a consumer economy driven by domestic demand, but the consumption structure needs to be optimized. Also, India should develop its manufacturing industry in order to accumulate capital as well as reverse the situation of trade

deficit. What's more, failure of the financial system is also one of the reasons for India's economic downturn, which needs effective credit support to recover the economy. For Pakistan, Zheng and Li (2021) suggest that the severe debt crisis suffered in recent years has obviously restrained the country's economic growth, therefore it is necessary to improve financial efficiency and the financial market system. Lastly, the financial market affects external financial costs, so investment should be promoted even more, and maintaining a stable interest rate and accumulating reserves can not only meet investment needs, but also ensure that people actively save money instead of blindly investing outside (KHAN, M. A. , 2018).

Pakistan's education department released the Minimum Standards for Quality Education in 2017 to improve the reality of low enrollment and poor quality of education for children in Pakistan (Qiao, H. Y., 2018), but Pakistan still faces the problem of significant regional disparities in educational attainment, with provinces such as Islamabad and Sindh as educationally advantaged areas and areas such as Balochistan as educationally weak areas, and teacher resources from educationally advantaged areas should be tilted towards weak areas (Munawar, A. et al., 2019). The Pakistani government should also provide pre-service and in-service training for teachers, ensure the quality of teacher education, but also strengthen the management of educational institutions.

From the perspective of health care, although the medical and health system in the two countries is improved, it is obvious that the medical and health system of Pakistan is behind India's medical system. In order to further strengthen the improvement of Pakistan's health care system, the following recommendations are given. The first aspect is to actively promote the reasonable and effective configuration of medical resources, such as the three-and-hazardous tribe, scientifically, and scientifically promote the combined reform of Chinese and Western medicine. The second aspect is to deepen the reform of public health system, such as reforming and improving epidemic monitoring and evaluation systems, and formulating legal and policies for epidemic response.

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Appendix A. Figures

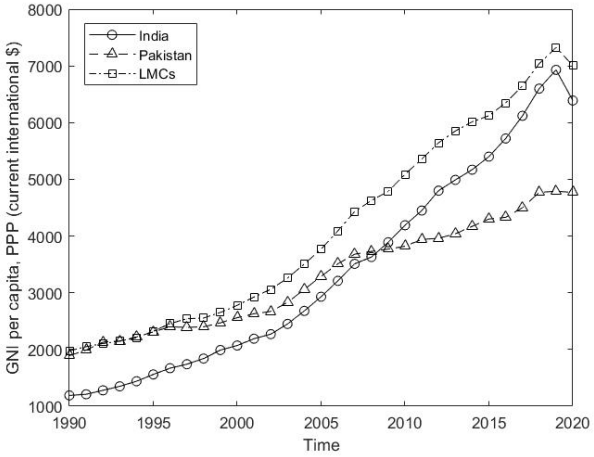

Figure 1. Comparison of GNI per capita, PPP in past 30 years
Source: World Bank WDI

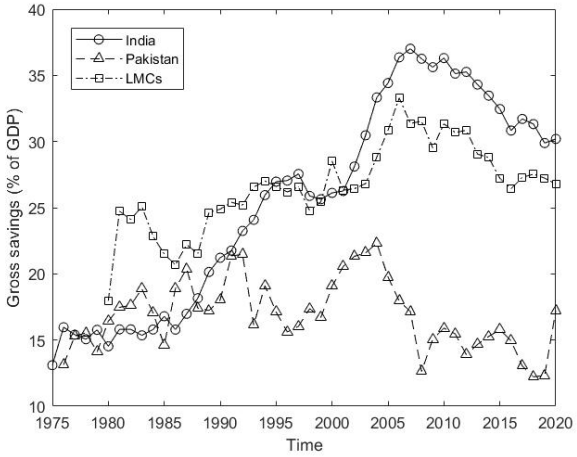

Figure 2. Comparison of gross savings (% of GDP)
Source: World Bank WDI

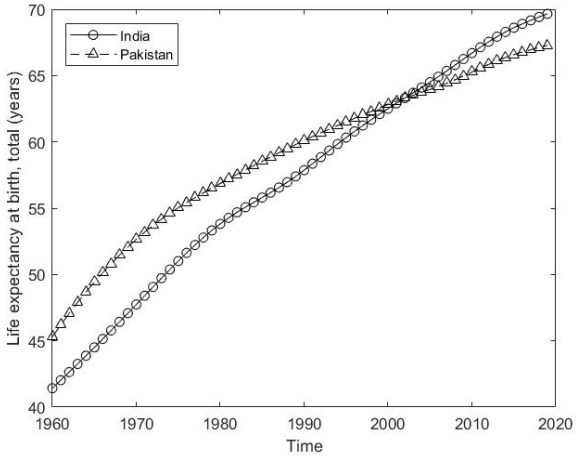

Figure 3. Comparison of life expectancy at birth, total (years)
Source: World Bank WDI

Appendix B. Data of Pakistan

Pakistan					
Year	GDP growth (annual %)	GNI per capita, PPP (constant 2017 $)	Total life expectancy (year)	Government expenditure on education(% of GDP)	Government expenditure on education (% of government expenditure)
1960	..	..	45.299	..	..
1961	5.987346	..	46.197	..	..
1962	4.482859	..	47.059	..	..
1963	8.688832	..	47.884	..	..
1964	7.569757	..	48.67	..	..
1965	10.41937	..	49.42	..	..
1966	5.789952	..	50.134	..	..
1967	5.400613	..	50.812	..	..
1968	7.233221	..	51.457	..	..
1969	5.5079	..	52.07	..	..
1970	11.35346	..	52.649	..	..
1971	0.468373	..	53.192	1.65422	..
1972	0.813406	..	53.699	1.56882	..
1973	7.064264	..	54.171	1.83042	..
1974	3.540192	..	54.613	1.88065	..
1975	4.211416	..	55.028	1.98008	..
1976	5.15619	..	55.421	2.23794	..
1977	3.947698	..	55.796	2.14983	..
1978	8.048534	..	56.158	2.20418	..
1979	3.758436	..	56.512	2.19807	..
1980	10.2157	..	56.86	2.13095	..
1981	7.920764	..	57.206	1.97245	..
1982	6.537487	..	57.546	2.01367	..
1983	6.778378	..	57.882	1.99577	..
1984	5.065206	..	58.213	2.06985	..
1985	7.592115	..	58.54	2.43543	..
1986	5.501654	..	58.863	2.67813	..
1987	6.452343	..	59.18	2.97746	..
1988	7.625279	..	59.493	..	..
1989	4.959769	..	59.799	2.36382	..
1990	4.458587	2841.108	60.1	2.51681	..
1991	5.061568	2897.668	60.393	2.56676	..
1992	7.705898	3033.316	60.68	2.54968	..
1993	1.757748	2993.511	60.96	2.38644	7.80285
1994	3.737416	3015.216	61.235	2.58931	9.37643
1995	4.962609	3080.786	61.505	2.79531	10.31327
1996	4.846581	3133.871	61.773	2.81057	10.06899
1997	1.014396	3062.757	62.039	3.0223	11.7534
1998	2.550234	3039.773	62.303	..	..
1999	3.660133	3097.349	62.564	2.61149	11.30733
2000	4.260088	3160.711	62.82	1.83782	8.48988
2001	3.554418	3183.551	63.066	..	..
2002	2.508338	3178.952	63.3	..	..
2003	5.777034	3303.055	63.522	..	..
2004	7.54686	3485.41	63.736	1.76759	11.22935
2005	6.518778	3631.121	63.951	2.04972	13.77751
2006	5.898984	3761.372	64.176	2.39551	15.2891
2007	4.832817	3838.638	64.42	2.63527	15.44552
2008	1.701405	3820.418	64.685	2.74623	14.09696
2009	2.831659	3829.372	64.969	2.59078	12.08263
2010	1.606689	3835.513	65.264	2.28687	11.86466
2011	2.748406	3873.461	65.562	2.22175	10.92461
2012	3.507033	3924.48	65.849	2.13628	11.04063
2013	4.396457	4006.328	66.117	2.49344	11.51398
2014	4.674708	4105.229	66.36	2.46593	11.30066
2015	4.731147	4207.01	66.577	2.65002	13.18728
2016	5.526736	4337.278	66.77	3.00292	15.06348
2017	5.554277	4495.951	66.947	2.89952	14.54478
2018	5.836417	4657.88	67.114	..	..
2019	0.988829	4596.194	67.273	2.50755	11.59168
2020	0.525527	4522.865	..	..	..

Appendix C. Data of India

India					
Year	GDP growth (annual %)	GNI per capita, PPP (constant 2017 $)	Total life expectancy (year)	Government expenditure on education(% of GDP)	Government expenditure on education (% of government expenditure)
1960	..	..	41.422	..	..
1961	3.722743	..	42.027	..	..
1962	2.931128	..	42.637	..	..
1963	5.994353	..	43.252	..	..
1964	7.45295	..	43.873	..	..
1965	-2.63577	..	44.5	..	..
1966	-0.05533	..	45.136	..	..
1967	7.825963	..	45.779	..	..
1968	3.387929	..	46.428	..	..
1969	6.5397	..	47.081	..	..
1970	5.15723	..	47.737	..	..
1971	1.64293	..	48.398	..	..
1972	-0.5533	..	49.061	..	..
1973	3.295521	..	49.722	..	..
1974	1.185336	..	50.374	..	..
1975	9.149912	..	51.012	..	..
1976	1.663104	..	51.63	..	..
1977	7.254765	..	52.222	..	..
1978	5.712532	..	52.786	..	..
1979	-5.23818	..	53.319	..	..
1980	6.735822	..	53.814	..	..
1981	6.006204	..	54.268	..	..
1982	3.475733	..	54.686	..	..
1983	7.288893	..	55.074	..	..
1984	3.820738	..	55.441	..	..
1985	5.254299	..	55.801	..	..
1986	4.776564	..	56.169	..	..
1987	3.965356	..	56.553	..	..
1988	9.627783	..	56.963	..	..
1989	5.947343	..	57.4	..	..
1990	5.533455	1790.407	57.865	..	..
1991	1.056831	1768.859	58.353	..	..
1992	5.482396	1828.853	58.851	..	..
1993	4.750776	1880.995	59.349	..	..
1994	6.658924	1969.856	59.84	..	..
1995	7.574492	2082	60.32	..	..
1996	7.549522	2201.078	60.783	..	..
1997	4.049821	2249.545	61.233	3.36136	13.32223
1998	6.184416	2345.163	61.669	3.57256	14.15927
1999	8.845756	2509.046	62.093	4.41539	16.95983
2000	3.840991	2552.805	62.505	4.32479	16.73051
2001	4.823966	2634.935	62.907	..	..
2002	3.803975	2694.231	63.304	..	..
2003	7.860381	2856.486	63.699	3.61341	12.4108
2004	7.922937	3034.451	64.095	3.35254	11.19686
2005	7.923431	3222.757	64.5	3.18875	11.20846
2006	8.060733	3426.918	64.918	3.14285	11.69371
2007	7.660815	3646.929	65.35	..	..
2008	3.086698	3698.176	65.794	..	..
2009	7.861889	3933.116	66.244	3.27825	11.1912
2010	8.497585	4189.433	66.693	3.37769	11.83368
2011	5.241315	4361.091	67.13	3.79618	13.56491
2012	5.456389	4529.016	67.545	3.8675	13.99212
2013	6.386106	4758.303	67.931	3.84467	14.05018
2014	7.410228	5056.666	68.286	..	..
2015	7.996254	5401.491	68.607	3.28573	12.53117
2016	8.256306	5732.914	68.897	3.45098	12.75355
2017	6.795383	6116.06	69.165	..	..
2018	6.532989	6449.186	69.416	..	..
2019	4.041554	6650.054	69.656	..	..
2020	-7.96461	6060.015	..	..	..