HUMAN DEVELOPMENT INDEX OF THE PROVINCES

The human development index (HDI) is considered as a better measure of development than just per capita GDP. The HDI has three components, namely, measures of health, education and per capita income (in purchasing power parity terms) respectively. The HDI is computed annually for 188 countries by the United Nations Development Program (UNDP).

Pakistan is one of the countries which performs better in international ranking of countries in terms of per capita income than in the HDI. According to the latest HDI ranking of UNDP for 2015, Pakistan is ranked 147th. It has fallen one place in relation to the ranking in 2014. The ranking in per capita income is significantly better at 133rd.

There have been occasional attempts at deriving the HDI at the Provincial level in Pakistan. This was first done for the Pakistan Human Development Report of UNDP for 2003. In 2008, the Pakistan Bureau of Statistics (PBS) estimated the HDI for each Province. However, there has been no attempt to update index values for recent years.

The need for an update has arisen following the setting up of the 9th National Finance Commission (NFC). In the last NFC award, multiple criteria were used for the first time for distribution of transfers from the divisible pool to the Provinces. One criterion was the level of backwardness. The HDI was used as one criterion to measure of backwardness of a Province.

The objective of this report is to estimate the HDI at the provincial level after 2008 up to 2014. IPR has been able to accomplish this following the publication of its recent report on the **Growth of the Provincial Economies.** This report contains estimates of the GDP of each Province from 1999-2000 to 2014-15.

The report is organized as follows. Section 1 briefly presents the methodology for construction of the HDI. This is presented in greater detail in the Technical Annexure. The first Section also describes the sources of data. Section 2 gives the estimates of the HDI of each Province for the latest year, 2013-14, for which

full information is available. Section 3 presents the trend in the magnitude of HDI from 2001-2002 to 2013-14. The objective is to determine if there has been a convergence or divergence among the Provinces in the HDI values. Finally Section 4 summarizes the Key findings.

I. METHODOLOGY AND DATA

One indicator is used for each of the three dimensions of the HDI as follows:

Health: life expectancy (in years)

Education: Mean years of schooling of population aged 10 years and above

Income: per capita GDP (measured in PPP$)[1]

Equal weights are given to the three indicators by UNDP.

The detailed methodology is given in the Technical Annexure. The sources of data are as follows:

Life Expectancy: National Institute of Population Studies.

Mean Years of Schooling: Labor Force Survey of the PBS

Per capita GDP (inPPP): from World Bank and IPR Report (2015)

II. THE HDI OF PROVINCES

The estimated magnitude of the indicators for the latest year, 2013-14, are given in table 1 below:

Table 1 Magnitude of Human Development Indicators by Province, 2013-14		
Life Expectancy (Yrs)	**Mean Years of Schooling (Yrs)**	**Per Capita GDP (PPPUS$)**
Punjab	66.7	5.18	4899
Sindh	67.2	5.43	6216
Khyber-Pakhtunkhwa	66.8	4.45	4706
Balochistan	63.2	4.12	2860
Pakistan	66.4	5.07	5089

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[1] The source for Pakistan as a whole is given in the data base on World Development Indicators of the World Bank.

Following the application of the methodology, the index values[2] are given in Table 2. The Province of Sindh has the highest value in all indicators, while Balochistan has the lowest values.

	Table 2 Components of the Human Development Index, 2013-14			
	Health Index	Education Index	Income Index	HDI
Punjab	0.739	0.410	0.524	0.542
Sindh	0.747	0.430	0.560	0.565
Khyber-Pakhtunkhwa	0.740	0.352	0.517	0.512
Balochistan	0.684	0.326	0.441	0.462
Pakistan	0.734	0.397	0.530	0.537
Source: Derived				

The index values are calibrated with the maximum and minimum values used by UNDP in its global rankings of countries. Therefore, it is possible to see, from the above results, how each Province fares in international comparisons. Pakistan, as a whole, falls in the category of countries with a low level of human development. The disaggregation to the Provincial level reveals that Sindh is at the medium level of development while the three other Provinces are at the low level of development.

III.   TREND OF HDI

The values of the HDI for each Province have been computed for three years-2001-02, 2007-08 and 2013-14 respectively. The magnitudes are presented in Table 3. The ranking are robust and have remained unchanged since 2001-02. Sindh ranks first, followed by Punjab, Khyber-Paktunkhwa and Balochistan.

However, there appears to be a process of convergence. The most developed Province, Sindh, has the lowest annual growth rate in the HDI. The two relatively backward and smaller provinces, Khyber-Pakhtunkhwa and Balochistan, have the fastest growth rate. Punjab has an intermediate growth rate.

The observed convergence among the Provinces in HDI is the first evidence that fiscal equalization embodied in the last two NFC Awards has been successful in contributing to a reduction in regional disparities in Pakistan. The 9th NFC must continue and strengthen the process of fiscal equalization through the revenue-sharing formula.

A comparison can also be made with the HDI rankings derived of the Provinces for earlier years. The Province wise rankings are given in Table 4. There are major differences. Earlier ranking's have tended to

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[2] The index values range from 0 to 1. The higher the values of an index, the higher the HDI

place Punjab in the top position, rather than Sindh. In fact, PBS puts Sindh in the third position, even behind Khyber-Pakhtunkhwa. The basic problem is that, unlike the IPR ranking, UNDP and the PBS have based their estimates without proper quantification of the per capita GDP at the Provincial level.

	Table 3 Trend in HDI by Province			
	2001-02	**2007-08**	**2013-14**	**Overall Growth Rate(%)**
Punjab	0.456	0.508 (1.82)*	0.542 (1.08)	1.45
Sindh	0.495	0.537 (1.37)	0.565 (0.85)	1.11
Khyber-Pakhtunkhwa	0.414	0.477 (2.39)	0.512 (1.19)	1.78
Balochistan	0.374	0.437 (2.63)	0.462 (0.93)	1.78
Pakistan	**0.456**	**0.507** (1.78)	**0.537** (0.96)	**1.37**
*Annual Growth Rate in HDI **Source:** Derived				

The likelihood of Sindh having the highest HDI is enhanced by the fact that it has the highest level of urbanization, with a disproportionate presence of industry. It also has the primate city, Karachi, of Pakistan. However, as shown in Table 3, it appears that, especially after 2007-08, the improvement in HDI in the Province has been retarded by the disturbed law and order situation in Karachi.

	Table 4 Comparison of HDI Rankings of the Provinces			
	2003 UNDP	**2001-02 IPR**	**2008 PBS**	**2007-08 IPR**
Punjab	1	2	1	2
Sindh	2	1	3	1
Khyber-Pakhtunkhwa	3	3	2	3
Balochistan	4	4	4	4
Source: MOF, NFC Secretariat				

IV.   CONCLUSIONS

The HDI level and ranking of the Provinces of Pakistan have been updated for 2013-14. The rankings have remained the same since 2001-02. Sindh is ranked first, followed by Punjab, Khyber-Pakhtunkhwa and Balochistan.

There appears to be a convergence in the HDI values of the four Provinces. This has probably been facilitated by the fiscal equalization built into the last two NFC Awards. The 9th NFC must continue and strengthen this process.

TECHNICAL ANNEXURE

CONSTRUCTING THE HDI			
	Maximum	**Minimum**	**Variable**
Life Expectancy (Yrs)	83.2	20.0	L
Mean Years of Schooling (Yrs)	12.6	0.0	M
Combined Education Index	0.951	0.0	E
Per Capita Income (PPP$)	108211	163	Y

$$\text{Dimension Index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{MaximumValue} - \text{Minimum Value}}$$

HDI is the Geometric Mean

$$\text{HDI} = (\text{I}_{\text{life}}^{1/3}\ \text{I}_{\text{education}}^{1/3} \text{I}_{\text{income}}^{1/3})$$

Therefore,

$$\text{I}_{\text{Life}} = \text{Life Expectancy Index} = \frac{\text{L} - 20.0}{63.2}$$

$$\text{I}_{\text{educ}}{}^{1} = \text{Mean Years of Schooling I} = \frac{\text{M}}{12.6}$$

$$\text{I}_{\text{income}} = \frac{\ln(\text{Y}) - \ln 163}{\ln(108{,}211) - \ln 163}$$

EXAMPLE

Pakistan 2014

$$I_{\text{Life}} = \frac{66.4 - 20.0}{63.2} = 0.734 \quad \text{------------------------------} \quad (1)$$

$$\text{I}_{\text{educ}} = \frac{5.0}{12.6} = 0.397 \quad \text{------------------------------} \quad (2)$$

$$\text{I}_{\text{income}} = \frac{8.535 - 5.094}{11.592 - 5.094} = \frac{3.441}{6.498} = 0.530 \quad \text{--------------------------} \quad (3)$$

$$(0.734)^{1/3}(0.397)^{1/3}(0.530)^{1/3}$$

HDI= 0.53