Human development in Philippine provinces over the long term

Income growth and human development

IN this chapter, the human development indices (HDIs) of 80 provinces of the Philippines, as well as Metro Manila, were computed for 1997 to 2015 using the most recent variant of the HDI as described in the 2015 *Human Development Report*. A previous report (2012/2013 Philippine Human Development Report) already showed how provinces progressed from 1997 to 2009. This Report extends that thread using statistics from 2009 to 2015.

We begin with a review of the distinct usefulness of HDI as an alternative measure for the well-being of nations as compared with per capita income.

Per capita income itself is one component of the HDI. As a result, a strong correlation exists between per capita income plotted on the horizontal axis and HDI plotted on the vertical axis for all the provinces from 1997 to 2015 [Figure 2.1].

To highlight the added information gained, we remove income from the HDI to produce a non-income HDI. This too is positively related to per capita income,¹ although there is now greater variation in the relationship [**Figure 2.2**]. However, once we compare the change in per capita income with that of non-income HDI, practically no correlation can be found as shown by the scatter plot in **Figure 2.3**.

These results reinforce those already obtained in the previous Philippine Human Development Report (PHDR) using 1997 and 2009 provincial per capita income and HDI figures (see 2012/2013 PHDR, Chapter 2). The previous report already noted the weak association between non-income components of HDI and per capita income. This implies that there are differences between the processes that drive the dynamics of income and non-income, including health and education, dimensions of human development. This was attributed to non-income drivers of health and education achievements, which include technological innovations for health, expansion of the public school system in many countries, and changes in parents' aspirations for their children in the case of education. Changes in income do not automatically lead to changes in health and education [UNDP 2010, as cited in HDN 2013].



Figure 2.1 Relationship between per capita income and HDI (1997-2015)







Figure 2.3 Relationship between per capita income growth and percentage change in non-income HDI (1997-2015)

Progress and variability in provincial HDIs

Figure 2.4 shows a line graph of all 80 provinces with HDIs computed at three-year intervals between 1997 and 2015. While some progress will be noted, there is no clear upward path for all provinces. Rather, there is high variability in provincial performance over this period. The path to progress varies, and not all succeed in sustaining their levels of human development.

Thirteen provinces actually saw their HDI levels in 2015 fall below their 2009 levels. A decrease of more than 5 percent in HDI levels is shown for Lanao del Sur (down 35.5 percent), Catanduanes (19.4 percent), Siquijor (15.1 percent), Quirino (8.5 percent), Sorsogon (6.5 percent), and North Cotabato (5.5 percent). One of these provinces saw a decline in its education index, while the income indices of all the seven provinces in 2015 are lower than their corresponding values in 2009 [**Table 2.1**].

All other provinces showed gains, with the following showing the largest improvements: Davao Oriental (59.4 percent), Palawan (37.2 percent), Guimaras (36.2 percent), Romblon (35.9 percent), Antique (32.9 percent), Aklan (32.7 percent), and Zamboanga del Norte (26.8 percent). All except Aklan experienced improvements in the values of all component indices, with remarkable increases in their income indices and some more than doubling their income indices over the period 2009 to 2015 [**Table 2.1**].

Further information is given in **Table 2.2**. Provinces are grouped into quartiles (i.e., classified into the highest and lowest 25 percent) for each of the years when there are available data.² Brown cells represent the top 25 percent (quartile 1) of provinces with the highest HDI for that year. Light green cells represent the second highest 25 percent or quartile 2. Dark green cells represent quartile 3. Yellow cells represent quartile 4 or the lowest 25 percent.

The color codes show changes in the provincial composition of the quartiles over the years. They also indicate how each of the provinces changed quartiles. The codes make it easier to see the variability in performance and the divergent paths taken by Philippine provinces. Variability is demonstrated by the number of times a province changes quartiles over the period.

The first quartile tends to be stable over the period,



Figure 2.4 Human development index by province (1997-2015)

particularly the top 10 provinces. Only few provinces that began in the first quartile in 1997 moved down to the lower quartiles in the subsequent years.

In 1997, the top 10 provinces (including Metro Manila with an HDI of 0.86) were Rizal (0.783), Laguna (0.738), Benguet (0.722), Cavite (0.721), Batanes (0.715), Batangas (0.698), Bulacan (0.691), Misamis Oriental (0.686), and Pampanga (0.676). For 2015, the top 10 provinces are almost the same except for Cavite, Batangas, and Misamis Oriental (which nonetheless continued to be in the first quartile).

Benguet, with an HDI of 0.85, overtook Metro Manila as the top-ranked province in 2015 due to the high years of schooling and average per capita income of the province. Metro Manila (with an HDI of 0.849) is followed by Laguna (0.799), Rizal (0.795), Bataan (0.793), Biliran

Table 2.1 HDI gainers and losers between 2009 and 2015 (percent change)

Metro Manila4.03.72.95.5Davao Oriental5942.316.42402Palawan37.27.39.110.6Guimaras36.23.123.997.8Romblon35.94.512.7113.0Antique32.96.89.999.8Aklan32.75.81.0123.0Zamboanga del Norte26.83.010.279.6Sirigao del Norte21.52.88.161.2Oriental Mindoro21.24.97.77.7Biliran19.65.712.04.47Ayusan del Sur18.94.65.83.0Surigao del Norte15.94.65.84.80Davao del Sur18.94.65.84.80Zamboanga Sibugay17.72.213.84.02Karora15.54.64.44.10Marinduque15.31.75.24.33Abra14.84.91.94.6Pampanga14.84.91.94.6Rataan13.91.92.74.33Bohol13.8-0.35.34.04Camarines Norte13.23.67.8Iboos Sur13.23.67.83.04Iboos Sur13.23.67.83.04Iboos Sur13.23.67.83.04Iboos Norte12.7-0.36.43.6I	Province	HDI	Life expectancy	Education	Income
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Davao del Sur15.91.66.643.6Aurora15.54.64.441.0Marinduque15.31.75.243.3Abra14.84.91.941.6Pampanga14.8-0.26.842.0Quezon14.13.86.334.6Bataan13.91.92.741.3Bohol13.8-0.35.340.4Camarines Norte13.86.214.121.5Albay13.40.55.238.0Ilocos Sur13.23.67.830.0Ilocos Norte12.7-0.36.434.8Mt. Province12.69.4-1.632.5Sarangani11.41.910.123.3Kalinga10.88.713.89.9Batangas10.6-0.37.626.1Masbate10.64.57.520.4	Isabela	16.0	0.5	8.7	43.0
Aurora15.54.64.441.0Marinduque15.31.75.243.3Abra14.84.91.941.6Pampanga14.8-0.26.842.0Quezon14.13.86.334.6Bataan13.91.92.741.3Bohol13.8-0.35.340.4Camarines Norte13.86.214.121.5Albay13.40.55.238.0Ilocos Sur13.23.67.830.0Ilocos Norte12.7-0.36.434.8Mt. Province12.69.4-1.632.5Sarangani11.41.910.123.3Kalinga10.6-0.37.626.1Masbate10.64.57.520.4Kangui10.56.02.923.8	Davao del Sur	15.9	1.6	6.6	43.6
Marinduque15.31.75.243.3Abra14.84.91.941.6Pampanga14.8-0.26.842.0Quezon14.13.86.334.6Bataan13.91.92.741.3Bohol13.8-0.35.340.4Camarines Norte13.86.214.121.5Albay13.40.55.238.0Ilocos Sur13.23.67.830.0Ilocos Norte12.7-0.36.434.8Mt. Province12.69.4-1.632.5Sarangani11.41.910.123.3Kalinga10.88.713.89.9Batangas10.6-0.37.626.1Masbate10.64.57.520.4	Aurora	15.5	4.6	4.4	41.0
Abra 14.8 4.9 1.9 41.6 Pampanga 14.8 -0.2 6.8 42.0 Quezon 14.1 3.8 6.3 34.6 Bataan 13.9 1.9 2.7 41.3 Bohol 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 -0.3 5.3 40.4 Idous Sur 13.8 -0.3 5.3 40.4 Ilocos Sur 13.4 0.5 5.2 38.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4	Marinduque	15.3	1.7	5.2	43.3
Pampanga 14.8 -0.2 6.8 42.0 Quezon 14.1 3.8 6.3 34.6 Bataan 13.9 1.9 2.7 41.3 Bohol 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 -0.3 5.3 40.4 Albay 13.4 0.5 5.2 38.0 Ilcos Sur 13.2 3.6 7.8 30.0 Ilcos Sur 13.2 3.6 7.8 30.0 Ilcos Sur 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Kamiguin 10.5 6.0 2.9 23.8	Abra	14.8	4.9	1.9	41.6
Quezon 14.1 3.8 6.3 34.6 Bataan 13.9 1.9 2.7 41.3 Bohol 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 6.2 14.1 21.5 Albay 13.4 0.5 5.2 38.0 Ilocos Sur 13.2 3.6 7.8 30.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Vestern Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Kamiguin 10.5 6.0 2.9 23.8	Pampanga	14.8	-0.2	6.8	42.0
Bataan13.91.92.741.3Bohol13.8-0.35.340.4Camarines Norte13.86.214.121.5Albay13.40.55.238.0Ilocos Sur13.23.67.830.0Ilocos Norte12.7-0.36.434.8Mt. Province12.69.4-1.632.5Western Samar12.06.46.923.6Sarangani11.41.910.123.3Kalinga10.6-0.37.626.1Masbate10.64.57.520.4Camiguin10.56.02.923.8	Quezon	14.1	3.8	6.3	34.6
Bohol 13.8 -0.3 5.3 40.4 Camarines Norte 13.8 6.2 14.1 21.5 Albay 13.4 0.5 5.2 38.0 Ilocos Sur 13.2 3.6 7.8 30.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4	Bataan	13.9	1.9	2.7	41.3
Camarines Norte 13.8 6.2 14.1 21.5 Albay 13.4 0.5 5.2 38.0 Ilocos Sur 13.2 3.6 7.8 30.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4	Bohol	13.8	-0.3	5.3	40.4
Albay 13.4 0.5 5.2 38.0 Ilocos Sur 13.2 3.6 7.8 30.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.4 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Camarines Norte	13.8	6.2	14.1	21.5
Ilocos Sur 13.2 3.6 7.8 30.0 Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.4 Masbate 10.6 4.5 7.5 20.4	Albay	13.4	0.5	5.2	38.0
Ilocos Norte 12.7 -0.3 6.4 34.8 Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4	llocos Sur	13.2	3.6	7.8	30.0
Mt. Province 12.6 9.4 -1.6 32.5 Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.4 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Ilocos Norte	12.7	-0.3	6.4	34.8
Western Samar 12.0 6.4 6.9 23.6 Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Mt. Province	12.6	9.4	-1.6	32.5
Sarangani 11.4 1.9 10.1 23.3 Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Western Samar	12.0	6.4	6.9	23.6
Kalinga 10.8 8.7 13.8 9.9 Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Sarangani	11.4	1.9	10.1	23.3
Batangas 10.6 -0.3 7.6 26.1 Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Kalinga	10.8	8.7	13.8	9.9
Masbate 10.6 4.5 7.5 20.4 Camiguin 10.5 6.0 2.9 23.8	Batangas	10.6	-0.3	7.6	26.1
Camiguin 10.5 6.0 2.9 23.8	Masbate	10.6	4.5	7.5	20.4
	Camiguin	10.5	6.0	2.9	23.8
Southern Leyte 10.4 3.7 8.6 19.6	Southern Leyte	10.4	3.7	8.6	19.6
Camarines Sur 9.8 -1.7 11.3 21.2	Camarines Sur	9.8	-1.7	11.3	21.2
Nueva Luja 9.7 1.3 2.9 26.7 Laguna 0.5 2.1 2.7 23.0		9.7	1.3	2.9	20./

Province	HDI	Life expectancy	Education	Income
Zambales	9.4	3.1	3.1	23.0
lfugao	9.1	10.3	12.2	5.0
Northern Samar	8.9	4.8	9.6	12.6
Batanes	8.5	6.5	-26.3	62.6
Арауао	8.0	7.4	4.6	12.3
La Union	8.0	-2.0	5.8	21.5
Lanao del Norte	7.9	5.8	1.4	17.2
Tarlac	7.8	2.7	6.7	14.3
Zamboanga del Sur	7.7	3.8	9.5	9.8
Cagayan	7.6	2.5	8.3	12.3
Davao del Norte	7.6	4.9	6.2	11.8
Negros Occidental	7.3	0.5	6.8	15.0
Pangasinan	6.9	1.0	4.3	16.0
Occidental Mindoro	6.8	4.6	10.0	6.0
Rizal	6.8	0.9	4.1	15.9
Capiz	5.9	6.1	1.6	10.1
Sultan Kudarat	5.8	5.8	2.8	8.9
South Cotabato	5.7	2.9	7.9	6.4
Agusan del Norte	5.5	7.4	6.8	2.3
lloilo	5.2	1.1	3.7	11.1
Misamis Oriental	4.9	1.8	3.0	10.3
Cebu	4.8	-1.9	8.8	7.8
Tawi-Tawi	4.3	11.9	5.1	-3.5
Bulacan	4.1	-0.2	4.3	8.3
Compostela Valley	3.8	4.2	7.0	0.2
Cavite	3.0	0.1	5.0	4.1
Benguet	2.6	0.9	2.4	4.7
Maguindanao	-0.3	12.3	9.2	-19.1
Negros Oriental	-0.5	3.7	7.1	-11.3
Nueva Vizcaya	-1.4	5.2	0.9	-9.6
Leyte	-4.1	3.1	7.4	-20.4
Sulu	-4.3	10.5	28.6	-38.2
Bukidnon	-4.3	1.4	8.5	-20.4
Basilan	-4.5	5.7	-8.7	-9.8
North Cotabato	-5.5	2.8	4.8	-21.7
Sorsogon	-6.5	-0.5	4.3	-21.3
Quirino	-8.5	5.1	-0.8	-26.5
Siquijor	-15.1	4.7	6.9	-45.3
Catanduanes	-19.4	3.4	5.7	-52.0
Lanao del Sur	-35.5	10.4	2.1	-76.2

Table 2.2 HDI by province by quartile (1997-2015)

Rengent10.7220.7330.7330.8140.8280.8410.840Meto Manila0.8480.8420.841	Province	1997	2000	2003	2006	2009	2012	2015
Meto Manian10.800.8120.8020.8130.8130.8130.8130.813Laguan0.7330.7430.7330.7410.7330.7410.7350.741Braan0.4680.4740.4630.4640.4730.4640.7350.7450.755Braan0.4660.4640.5150.5050.5040.6640.7550.7570.757Arora0.5750.270.6810.6710.6710.7570.7710.7570.771Braans0.7710.7210.7210.7810.7710.7710.7710.7710.771Braans0.7610.7710.7210.7810.7710.7710.7710.7710.771Braans0.7910.7710.7210.7810.7710.7710.7710.7710.771Braans0.6710.7710.7710.7710.7710.7710.7710.7710.771Braans0.6710.7710.7710.7710.7710.7710.7710.7710.771Braans0.6710.7710.7710.7710.7710.7710.7710.7710.771Braans0.6710.7710.7710.7710.7710.7710.7710.7710.771Braans0.6710.7710.7710.7710.7710.7710.7710.7710.771Braans0.7710.7710.7710.7710.7710.7710.771 <td>Benguet</td> <td>0.722</td> <td>0.730</td> <td>0.773</td> <td>0.811</td> <td>0.828</td> <td>0.841</td> <td>0.850</td>	Benguet	0.722	0.730	0.773	0.811	0.828	0.841	0.850
Lapana1.7380.7280.7480.7280.7280.7280.738 <th< td=""><td>Metro Manila</td><td>0.860</td><td>0.848</td><td>0.802</td><td>0.801</td><td>0.818</td><td>0.817</td><td>0.849</td></th<>	Metro Manila	0.860	0.848	0.802	0.801	0.818	0.817	0.849
Rial10.830.730.730.740.730.740.730.730.73Blaan0.6660.6470.6470.6470.6480.730.730.73Panpapa0.6760.440.5180.7470.6470.730.73Auroa0.5670.730.6870.670.670.730.73Blaan0.7170.720.720.730.730.730.73Blaan0.6710.720.720.730.730.730.73Blaan0.6710.720.720.730.730.730.73Blaans0.6710.720.720.730.730.730.73Blaans0.6710.720.720.730.730.730.73Blaans0.6710.720.720.730.730.730.73Blaans0.6710.720.670.730.730.730.73Blaans0.6710.670.670.670.750.750.75Blaans0.6710.670.670.670.670.750.75Blaans0.7570.670.670.670.670.750.75Blaans0.570.570.670.670.670.670.67Blaans0.570.570.670.670.670.670.67Blaans0.570.570.670.670.670.670.67Blaans0.57<	Laguna	0.738	0.726	0.748	0.727	0.729	0.755	0.799
Blaan0.660.550.640.670.690.750.780.77Pinapaq0.670.640.650.670.580.780.78Aura0.650.710.670.780.780.780.78Blaan0.770.710.740.740.780.730.78Blaan0.770.710.740.740.780.730.78Blaan0.770.710.740.740.730.770.75Blaan0.770.710.740.740.750.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.770.780.770.770.770.770.77Blaan0.790.770.770.770.770.770.77Blaan0.790.770.770.770.77 <td< td=""><td>Rizal</td><td>0.783</td><td>0.794</td><td>0.738</td><td>0.761</td><td>0.744</td><td>0.798</td><td>0.795</td></td<>	Rizal	0.783	0.794	0.738	0.761	0.744	0.798	0.795
Blian0.660.640.6160.6070.5380.721Panpaga0.670.680.680.670.680.73Auron0.550.710.670.670.680.73Balans0.710.710.720.740.730.73Bulcan0.710.710.720.740.730.73Civite0.710.710.720.740.730.73Balagas0.720.720.740.740.750.73Davo de Sur0.770.750.740.740.750.74Atriano0.770.750.740.750.740.75Dava de Sur0.770.750.740.750.760.75Atriano0.770.780.750.760.750.76Atriano0.770.780.750.760.750.76Pavan0.750.780.750.760.760.76Atriano0.770.780.750.760.760.76Gayan0.790.770.770.760.760.76Atrianduce0.770.770.780.770.760.76Atrianduce0.790.770.780.760.760.76Atrianduce0.790.770.780.760.760.76Atrianduce0.790.750.770.760.760.76Atrianduce0.790.760.760.	Bataan	0.668	0.654	0.644	0.673	0.696	0.705	0.793
Panpangan0.670.690.690.710.6670.7280.731Aurora0.5660.5430.5550.5000.6670.5350.733Balanca0.710.720.720.720.7280.7330.731Bulaca0.6410.6210.6120.6140.6230.7310.731Cavine0.6410.6220.610.6130.6150.6280.751Batangs0.6470.6230.6150.6280.6630.7520.721Davo del Sur0.6470.6230.6410.6550.6460.728Athuge0.6570.6430.6450.6450.7630.763Bahans0.6470.6470.6470.6460.7640.764Athuge0.6570.6480.6490.7640.6690.768Athuge0.6470.6490.6470.6410.6610.664Cayan0.6470.6490.6470.6410.6410.661Gayan0.6490.6490.6410.6410.6410.661Athudue0.530.6470.6410.6410.6610.641Athudue0.530.6490.6450.6410.6610.641Athudue0.530.6450.6450.6410.6410.641Athudue0.530.6450.6450.6450.6410.641Athudue0.530.6450.6450.6450.6410.641At	Biliran	0.466	0.440	0.516	0.609	0.645	0.588	0.772
Arona0.6660.5430.6570.6090.6670.6580.6730.733Balana0.7170.7180.7140.7240.7330.7330.733Cavie0.6410.6210.6120.630.6330.7330.733Balana0.6470.6270.6170.6330.6470.7330.733Batanga0.6470.6270.6270.6170.6280.6460.733Dava del Sur0.6370.6270.6270.6170.6280.6690.723Atiman Oriental0.6370.6280.6150.6150.6390.6300.733Andrag0.5470.6380.6390.6410.6390.6390.6390.639Balana0.5470.5480.5490.5410.6590.6390.6390.639Anting0.5470.5490.5490.5410.5690.6330.6690.639Balana0.5490.5490.5490.5410.5590.6490.6490.649Balana0.5490.5490.5490.5490.5590.6490.6490.649Balana0.5490.5490.5490.5490.5590.6490.6490.649Balana0.5490.5490.5490.5590.5490.5690.5690.569Balana0.5490.5490.5490.5590.5490.5690.5690.569Balana0.5590.5490.5590.55	Pampanga	0.676	0.640	0.686	0.716	0.667	0.726	0.765
Balanes0.7150.6200.6830.6670.6980.0330.738Bulcan0.6910.7180.6410.720.720.720.7300.7330.731Cavite0.6410.6210.6590.6510.6420.6410.6750.7310.731Balanga0.6470.6590.6510.6420.6410.6470.6750.6750.6750.731Dava del Sur0.6670.6670.6670.6670.6750.6760.7810.781Altique0.6670.6370.6420.6400.6550.6690.6690.669Palavan0.5550.5370.6420.6400.6400.6610.669Gaigan0.4590.5490.5410.5630.6290.6610.661Gaigan0.4690.5490.5410.5630.6250.6260.661Gaigan0.5550.5790.6150.6630.6250.6610.661Gainaras0.5550.5790.6550.6530.6550.6560.661Gaigan0.5550.5790.6550.6570.6560.6560.656Gainaras0.5550.5790.6550.6570.6560.6560.656Gainaras0.5550.5790.6550.6570.6560.6560.656Gainaras0.5550.5790.6550.6570.6560.6560.656Gainaras0.5550.5790.655	Aurora	0.566	0.543	0.565	0.590	0.661	0.564	0.763
Balaan0.6910.7180.6940.7140.7280.7130.737Cavite0.6210.6120.7210.7200.7200.7330.731Batangas0.6930.6930.6950.6900.6150.6230.6750.731Davao del Sur0.6170.6230.6070.6150.6280.6780.731Batangas0.6170.6230.6010.6150.6280.6780.731Davao del Sur0.6170.6230.6150.6150.6280.731Batangas0.6370.6370.6420.6300.6380.738Antique0.5070.6370.6420.5090.6330.608Palwan0.5150.5410.5410.5620.6310.627Gagan0.4390.5410.5410.5630.6250.626Gagan0.5150.5170.6120.6330.6250.631Jainduque0.5150.5190.5150.6160.6350.631Mainduque0.5150.5170.6150.6350.6160.631Jaindus0.5570.5560.5530.5530.5530.5630.564Jaindus0.5570.5560.5540.5550.5640.5640.564Jainduque0.5570.5550.5540.5550.5640.5640.564Jaindus0.5770.5550.5740.5550.5740.5640.564Jaindus0.577 </td <td>Batanes</td> <td>0.715</td> <td>0.620</td> <td>0.683</td> <td>0.667</td> <td>0.698</td> <td>0.535</td> <td>0.758</td>	Batanes	0.715	0.620	0.683	0.667	0.698	0.535	0.758
Cavite0.7210.7220.7340.7330.748lacos Norte0.6410.6620.6160.6330.7350.731Batangas0.6920.6930.6150.6230.6150.6230.6150.723Dava del Sur0.6170.6230.6170.6150.6230.6160.6230.617Misanis Oriental0.6170.6230.6150.6160.6230.6160.6230.618Antique0.5150.6230.6120.6100.6330.6620.683Palwan0.5150.5370.4820.5030.6230.6230.6240.681Guinaras0.4390.4590.5410.5430.6250.6260.6610.662Guinaras0.4390.4590.5410.5410.6250.6250.6260.661Guinaras0.6170.5170.6170.6170.6250.6260.661Guinaras0.5150.5990.5170.6170.6250.6250.626Guinaras0.5150.5190.5170.6170.6250.6250.6260.616Guinaras0.5150.5190.5190.5170.6160.6250.6250.6260.616Guinaras0.5150.5190.5190.5190.5150.6160.6160.6160.616Guinaras0.5150.5190.5190.5190.5150.6160.6160.6160.616Guinaras0.5	Bulacan	0.691	0.718	0.694	0.714	0.728	0.713	0.757
Ilcox Norre0.6410.6620.6160.6330.6330.7450.731Batangas0.6970.6970.6150.6420.6610.6750.731Davao del Sur0.6170.6270.6000.6150.6690.6950.722Ialinin Oriental0.6170.6230.6490.6160.6690.6950.728Misamis Oriental0.6160.6250.6160.6790.6160.6790.678Palawan0.5150.5370.4820.5050.5030.6030.683Oldor Sur0.5640.5490.5410.5620.6030.6620.673Gagayan0.4970.4990.5170.6170.6280.6610.661South Cotabato0.5150.5170.6170.6280.6610.661Minduque0.5150.5170.6160.6730.6640.6610.661Newa Vizcaya0.5550.5530.5530.5630.5640.6610.5630.6640.663Nambale0.5550.5530.5530.5630.5640.6610.5640.6610.5640.661Stabala0.5570.5530.5530.5640.56	Cavite	0.721	0.712	0.726	0.740	0.726	0.733	0.748
Batangas0.6690.6590.6640.6420.6610.6710.723Davo del Sur0.6170.6270.6090.6160.6280.6280.722La Union0.6170.6280.6180.6610.6750.7280.722Misanis Oriental0.6680.6280.6160.6750.6780.728Antique0.5090.6810.6160.6750.6780.6780.788Palavan0.5150.5370.4820.5050.5090.6030.699Iloros Sur0.5640.5930.6120.6020.6120.6020.612Gagayan0.4970.4990.5110.5120.6230.6250.6260.616Gauth Catabato0.5150.5210.6120.6250.6260.6160.661Jarinduque0.5150.5250.6120.6170.6160.6160.616Mainduque0.5150.5150.6120.6160.6160.6160.616Janbales0.5150.5150.5160.5150.5160.5160.5160.516Janbalan0.5740.5550.5750.5850.5960.5160.5160.5160.516Janbales0.5740.5550.5750.5550.5660.5560.5670.5660.5670.566Janbalan0.5740.5550.5750.5550.5660.5570.5660.5570.5660.5570.5660.5560.56<	llocos Norte	0.641	0.662	0.616	0.638	0.653	0.745	0.735
Davao del Sur0.6270.6030.6000.6150.6280.6280.728La Union0.6170.6230.6230.6410.6690.6950.728Misamis Oriental0.5090.6280.6150.6150.6730.6060.708Palawan0.5170.5370.4820.5050.5090.6030.609Ilcos Sur0.5440.5590.5400.5220.6030.6620.673Gagayan0.4970.5910.5120.6120.6330.6620.671Oth Cababoo0.5150.5910.6170.6280.6620.661Juind Nugue0.5150.5910.5150.6170.6280.661Marinduque0.5150.5910.5130.6170.6280.661Juind Nugue0.5150.5720.6160.6630.6610.667Juind Nugue0.5150.5720.6160.6630.6610.667Juind Nugue0.5150.5720.6160.6570.6610.657Juind Nugue0.5170.5160.5130.5180.5160.516Juind Nugue0.5370.5410.5330.5430.5610.564Juind Nugue0.5570.5510.5530.5580.5760.564Juind Nugue0.5570.5510.5530.5580.5760.564Juind Nugue0.5570.5510.5530.5580.5760.564Juind Nugue0.557 <t< td=""><td>Batangas</td><td>0.698</td><td>0.659</td><td>0.654</td><td>0.642</td><td>0.661</td><td>0.675</td><td>0.731</td></t<>	Batangas	0.698	0.659	0.654	0.642	0.661	0.675	0.731
La Union0.6170.6230.6490.6410.6690.6950.722Misanis Oriental0.6390.6180.6150.6140.6750.6780.708Antique0.5090.5310.6320.6300.6330.6030.6030.603Palawan0.5150.5370.4820.5050.6030.6030.6030.603Ilocos Sur0.5490.5490.5490.5400.6320.6230.6230.6240.631Guimaras0.4390.4590.5410.5410.6380.6230.6250.6260.631Guimaras0.4370.5910.5120.6120.6330.6250.6260.631Guimaras0.5150.5910.6120.6170.6280.6210.661Guimaras0.5150.5110.5910.6120.6170.6280.6210.661Guimaras0.5150.5150.6120.6130.6250.6250.6260.616Guimaras0.5150.5150.5160.6130.6250.6260.616Marinduqen0.5150.5150.6160.6350.6260.6360.6160.616Marinduqen0.5150.5160.5160.5160.5160.5160.6160.516Alana0.5550.5710.5550.5350.5610.5640.5640.5640.564Alana0.5570.5510.5550.5550.5750.5640.564	Davao del Sur	0.627	0.605	0.600	0.615	0.628	0.646	0.728
Misamis Oriental0.6860.6280.6150.6160.6750.6780.708Antique0.5070.5370.4810.5050.5090.6030.6030.699Palawan0.5150.5370.4820.5050.5090.6030.6820.683Guimara0.4390.4550.3980.4140.5010.6620.682Gagaan0.4970.5970.6120.6330.6220.661Guimara0.5150.5170.6170.6250.6260.661Guimara0.5150.5170.6170.6250.6260.661Guimara0.5150.5170.6170.6250.6260.661Guimara0.5150.5170.6170.6250.6260.661Guimara0.5150.5190.5190.6170.6280.619Guimara0.5150.5190.5190.6170.6280.6190.610Guimara0.5150.5190.5160.5170.6160.6100.616Janhangue0.5150.5170.5680.5180.5680.5160.516Janbales0.5170.5190.5190.5180.5190.5160.614Janbales0.5170.5190.5190.5190.5160.5160.516Janbales0.5170.5160.5190.5190.5160.5160.5160.516Janbales0.5170.5160.5160.5160.5160.51	La Union	0.617	0.623	0.649	0.641	0.669	0.695	0.722
Antique0.5090.4810.5050.4500.5330.6060.708Palawan0.5150.5370.4820.5050.5090.6030.699Ilocos Sur0.5430.4590.5400.5620.6030.6820.683Guimaras0.4390.4590.5940.5610.6330.6620.671Cagayan0.4970.4990.5110.5840.6230.6270.671Cebu0.6020.5510.6120.6120.6630.6160.661South Cotabato0.5150.5910.6120.6280.6260.661Iloilo0.5720.6200.5710.6170.6280.6100.661Marinduque0.5150.5920.6450.4920.4960.6100.657Nueva Vizcaya0.5550.5530.5630.5980.5640.6340.645Jabela0.5770.5590.5590.5580.5740.6440.644Pangasinan0.5770.5590.5590.5590.5590.5640.5690.564Ambolng del Sun0.5370.5590.5590.5590.5590.5610.646Cambolng del Sun0.5370.5590.5590.5590.5610.564Cambolng del Sun0.5370.5590.5590.5590.5590.561Cambolng del Sun0.5370.5590.5590.5590.5590.5590.561Cambolng del Sun0.537 <t< td=""><td>Misamis Oriental</td><td>0.686</td><td>0.628</td><td>0.615</td><td>0.616</td><td>0.675</td><td>0.678</td><td>0.708</td></t<>	Misamis Oriental	0.686	0.628	0.615	0.616	0.675	0.678	0.708
Palawan0.5150.5370.4820.5050.5090.6030.603locos Sur0.6440.5440.5640.6630.6820.683Guimaras0.4390.4550.3980.4410.5010.6640.682Cagyan0.4970.4970.5170.5170.6120.6230.6270.671Cebu0.5150.5170.6170.6170.6280.6010.661South Cotabato0.5150.5910.5900.5530.6250.6260.661Mainduque0.5150.5170.6170.6170.6280.6970.661Mainduque0.5150.5720.6450.4820.6970.6160.6570.661Mainduque0.5150.5720.6450.6350.6470.6560.6570.6640.657Newa Vizcaya0.5530.5720.5530.5830.5980.5760.6480.6540.6580.6540.6540.6540.6540.6540.6440.6430.644Sambales0.5710.5550.5430.5550.6510.5560.5560.5670.6440.6430.6490.6450.6590.5560.564	Antique	0.509	0.481	0.505	0.450	0.533	0.606	0.708
Ilocos Sur0.5640.5490.5600.5620.6030.6820.683Guimaras0.4390.4350.3980.4410.5010.6640.622Cagayan0.4970.5970.5120.6100.6380.6410.663Gubu0.6020.5570.6120.6100.6380.6410.668South Cotabato0.5150.5270.5010.6170.6280.6670.661Iloilo0.5720.6200.5710.6170.6280.6970.661Marinduque0.5150.4550.4650.4630.4680.5730.6160.657Nueva Vizcaya0.5550.5720.6640.6350.6640.6360.5540.663Sabala0.5370.5360.5390.5380.5640.6630.6630.6630.663Sabala0.5370.5360.5390.5390.5360.5460.6630.6630.6630.6630.6640.663Sabala0.5370.5360.5390.5390.5390.5360.5460.6490.649Sabala0.5370.5350.5390.5390.5360.5460.6490.649Sabala0.5370.5350.5410.5390.5450.5410.5460.5460.546Sabala0.5470.5550.5410.5550.6170.5550.6140.5460.5460.5460.5460.5460.5460.5460.546 <td< td=""><td>Palawan</td><td>0.515</td><td>0.537</td><td>0.482</td><td>0.505</td><td>0.509</td><td>0.603</td><td>0.699</td></td<>	Palawan	0.515	0.537	0.482	0.505	0.509	0.603	0.699
Guimaras0.4390.4550.3980.4410.5010.6640.682Cagayan0.4970.4990.5410.5840.6230.6270.671Cebu0.6020.5510.6120.6100.6380.6410.688Soth Cotabato0.5150.5910.5900.5530.6250.6260.661Iloio0.5720.6200.5710.6170.6280.6070.661Marinduque0.5190.4550.4630.4920.6100.6730.667Aklan0.5350.5720.6460.6350.6260.6360.663Nueva Vizcaya0.5550.5720.6460.6350.6360.6360.637Jambales0.5710.5150.5730.5830.5980.5980.5910.594Pargasinan0.5740.5550.5710.5350.6670.5840.5960.591Araboang del Su0.5370.5350.5710.5350.5710.5350.5710.5350.5710.535Araboang del Su0.5370.5350.5410.5450.5410.5410.5410.5410.541Araboang del Su0.5370.5350.5450.5450.5450.5450.5410.541Araboang del Su0.5370.5450.5450.5450.5450.5410.5410.541Araboang del Su0.5370.5450.5450.5450.5450.5450.5410.541	Ilocos Sur	0.564	0.549	0.540	0.562	0.603	0.682	0.683
Cagayan0.4990.5410.5840.6230.6270.671Cebu0.6020.5510.6120.6100.6380.6410.688South Cotabato0.5150.5910.5900.5530.6250.6260.661Iloilo0.5720.6200.5710.6170.6280.6970.661Marinduque0.5190.4550.4630.4860.5730.6150.667Aklan0.5350.5720.6650.6350.6640.6350.6630.534Nueva Vizcaya0.5550.5720.6640.6350.5680.5340.555Jabela0.5370.5360.5390.5380.5680.5640.643Araha0.5710.5160.5750.5870.5870.5640.643Japagainan0.5740.5550.5710.5350.6610.5870.5870.587Arahoanga del Su0.5340.5350.5410.5450.5450.5450.5450.5450.545Arahoanga del Su0.5370.5350.5410.5450.5450.5450.5450.5450.5450.5450.545Arahoanga del Su0.5370.545<	Guimaras	0.439	0.455	0.398	0.441	0.501	0.664	0.682
Cebu0.6020.5510.6120.6100.6380.6410.668South Cotabaton0.5150.5910.5900.5530.6250.6260.661Iloilo0.5720.6200.5710.6170.6280.6970.661Marinduque0.5190.4560.4630.4800.5730.6150.661Aklan0.5350.5720.6640.6350.6640.6030.655Nueva Vizcaya0.5550.5720.6640.6350.6640.6330.652Jambales0.5370.5350.5330.5380.5760.6440.643Pargasinan0.5740.5550.5710.5350.6640.5960.634Arabalon0.5370.5550.5710.5350.6610.5960.646Pangainan0.5440.5550.5710.5350.6610.5960.5710.535Oriental Mindron0.5370.5350.6410.5420.5160.5160.5120.516Anaguinan0.4970.5480.5620.5610.5640.5620.5620.5620.563Oriental Mindron0.5370.5450.5620.5620.5640.5660.5620.5620.562Bohol0.4090.4090.4090.5870.5620.5620.5630.5620.5620.562Bohol0.4090.4090.4090.5620.5620.5760.5760.5620.5760.562<	Cagayan	0.497	0.499	0.541	0.584	0.623	0.627	0.671
South Cotabaton0.5150.5910.5900.5530.6250.6260.661Iloilo0.5720.6200.5710.6170.6280.6970.661Marinduque0.5190.4550.4630.4620.4620.4530.4550.465Aklan0.5350.5720.4650.4920.4960.6100.555Nueva Vizcaya0.5550.5720.6450.6350.5640.6630.5340.555Jambales0.5370.5360.5390.5380.5760.6440.6430.642Iralac0.5710.5150.5710.5350.5810.5980.5980.5970.643Ambanga del Su0.5440.5550.5710.5350.6610.5960.6420.5960.515Oriental Mindoro0.5370.5840.5920.5150.6140.5620.5410.5260.5360.5260.536Bohol0.4090.4930.5870.6140.5060.5150.6140.5260.5360.5360.536Caraiguin0.4090.4090.4090.5870.6140.5060.5160.5360.5260.5360.5360.5260.5360.5260.5360.5260.5360.5260.5260.5360.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.5260.526 <t< td=""><td>Cebu</td><td>0.602</td><td>0.551</td><td>0.612</td><td>0.610</td><td>0.638</td><td>0.641</td><td>0.668</td></t<>	Cebu	0.602	0.551	0.612	0.610	0.638	0.641	0.668
Ioilo0.5720.6200.5710.6170.6280.6970.661Marinduque0.5190.4550.4630.4860.5730.6150.660Aklan0.5350.4950.4650.4920.4900.6100.557Nueva Vizcaya0.5550.5720.6460.6350.6640.6350.653Zambales0.5370.5390.5330.5380.5580.5760.644Isabela0.5770.5010.5930.5980.5760.6440.643Pangasinan0.5740.5550.5710.5350.6010.5960.642Romblon0.3840.3520.4330.3870.6450.5310.5320.531Oriental Mindron0.4370.5430.5870.6140.5320.5410.5460.5360.542Bohol0.4090.4480.4870.6420.5460.5460.5460.542Gariguin0.4090.4480.4870.5420.5460.5460.542Gariguin0.4090.4480.4870.5420.5460.5460.542Gariguin0.4090.4480.4870.5520.5780.6290.522Gariguin0.5100.5490.5570.5520.5780.5290.5290.521	South Cotabato	0.515	0.591	0.590	0.553	0.625	0.626	0.661
Marinduque0.5190.4560.4630.4860.5730.6150.667Aklan0.5350.5720.6660.6320.6920.6040.6100.575Nueva Vizcaya0.5550.5720.6660.6350.6630.6330.6530.653Zambales0.5370.5490.5370.5380.5980.5980.5480.543Iabela0.5710.5010.5990.5980.5980.6710.644Pangasinan0.5740.5550.5710.5350.6010.5960.631Romblon0.3840.3520.4330.3870.6550.5710.5350.6110.532Camiguin0.5370.5350.5410.5420.5430.5420.5410.5320.535Bohol0.4090.4080.5870.5620.5760.5620.5760.522Gaiz0.5490.5480.5620.5620.5620.5620.562	lloilo	0.572	0.620	0.571	0.617	0.628	0.697	0.661
Aklan0.5350.4950.4650.4920.4960.6100.657Nueva Vizcaya0.5550.5720.6460.6350.6640.6350.655Zambales0.5930.5930.5330.5930.5930.5940.5350.644Isabela0.5710.5360.5390.5930.5980.5980.5960.641Tarlac0.5710.5550.5710.5350.6010.5960.642Pangasinan0.5740.5550.5710.5350.6100.5970.642Romblon0.3840.3520.4330.3670.4650.5160.5370.631Griental Mindoro0.5370.5480.5690.5160.5160.5240.5060.5260.5960.526Bohol0.4090.4080.4890.5070.5520.5760.5260.5960.5260.5290.529Griptal Mindoro0.5190.5480.5690.5520.5760.5260.5960.5260.5960.526Bohol0.4090.4090.5690.5570.5520.5750.5290.5290.5290.5290.529Griptal Mindore0.5190.5690.5570.5550.5550.5550.5560.5560.5560.556Bohol0.4090.4090.4090.5670.5520.5760.5290.5290.5290.5290.529Griptal Mindore0.5100.5690.5550.5	Marinduque	0.519	0.456	0.463	0.486	0.573	0.615	0.660
Nueva Vizcaya0.5550.5720.6640.6350.6640.6630.663Zambales0.5930.5930.5530.5830.5940.5340.553Isabela0.5370.5370.5390.5580.5760.644Tarlac0.5710.5010.5990.5980.5980.6710.644Pangasinan0.5740.5550.5710.5350.6010.5960.643Camboanga del Sur0.5440.6320.5430.5840.5960.5870.642Romblon0.3870.5520.4330.3870.6450.5150.621Camiguin0.4960.4980.4880.4870.6140.5640.5960.522Bohol0.4090.4890.5070.5520.5780.6290.621Capiz0.5100.5490.5070.5520.5780.6290.621	Aklan	0.535	0.495	0.465	0.492	0.496	0.610	0.657
Zambales0.5930.5490.5530.5830.5960.5340.652Isabela0.5370.5360.5390.5390.5580.5760.648Tarlac0.5710.5010.5990.5980.5980.6710.649Pangasinan0.5740.5550.5710.5350.6010.5960.642Ramboang del Sur0.5440.5620.5430.5870.6450.5460.542Rombon0.3840.3520.4330.3670.4650.5150.621Griental Mindoro0.5370.5480.5600.4520.5460.5260.5360.522Bohol0.4090.4080.4080.5070.5520.5760.6290.522Grigz0.5110.5490.5070.5520.5780.6290.521	Nueva Vizcaya	0.555	0.572	0.646	0.635	0.664	0.663	0.655
Isabela0.5370.5360.5430.5390.5580.5760.644Tarlac0.5710.5010.5990.5980.6710.644Pangasinan0.5740.5550.5710.5350.6010.5960.641Zamboanga del Sur0.5440.4630.5460.5840.5960.5870.642Romblon0.3840.3520.4330.3870.4650.5150.6210.532Oriental Mindom0.4370.5430.5870.6140.5640.5360.522Bohol0.4090.4480.4870.5020.5760.5290.5290.521	Zambales	0.593	0.549	0.553	0.583	0.596	0.534	0.652
Tarlac 0.571 0.501 0.599 0.598 0.598 0.671 0.641 Pangasinan 0.574 0.555 0.571 0.535 0.601 0.596 0.643 Zamboanga del Sur 0.544 0.555 0.576 0.584 0.596 0.587 0.631 Romblon 0.384 0.352 0.433 0.387 0.465 0.515 0.632 Oriental Mindoro 0.537 0.504 0.508 0.516 0.528 0.516 0.524 0.535 0.632 0.624 Bohol 0.499 0.498 0.489 0.612 0.516 0.526 0.576 0.528 0.529	Isabela	0.537	0.536	0.543	0.539	0.558	0.576	0.648
Pangasinan 0.574 0.555 0.571 0.535 0.601 0.596 0.643 Zamboanga del Sur 0.544 0.463 0.546 0.584 0.596 0.587 0.642 Romblon 0.384 0.352 0.433 0.387 0.465 0.515 0.632 Oriental Mindoro 0.537 0.504 0.500 0.452 0.519 0.572 0.630 Gamiguin 0.499 0.448 0.487 0.614 0.564 0.536 0.622 Bohol 0.409 0.448 0.457 0.502 0.578 0.529 0.578 0.629 Capiz 0.519 0.469 0.587 0.595 0.578 0.629 0.614	Tarlac	0.571	0.501	0.599	0.598	0.598	0.671	0.644
Zamboanga del Sur 0.544 0.463 0.564 0.584 0.596 0.587 0.642 Romblon 0.384 0.352 0.433 0.387 0.465 0.515 0.632 Oriental Mindoro 0.537 0.504 0.500 0.452 0.519 0.572 0.630 Camiguin 0.496 0.453 0.587 0.614 0.564 0.536 0.622 Bohol 0.409 0.448 0.457 0.502 0.576 0.596 0.622 Gapiz 0.510 0.469 0.507 0.552 0.578 0.629 0.512	Pangasinan	0.574	0.555	0.571	0.535	0.601	0.596	0.643
Romblon 0.384 0.352 0.433 0.387 0.465 0.515 0.632 Oriental Mindoro 0.537 0.504 0.500 0.452 0.519 0.572 0.630 Camiguin 0.469 0.453 0.587 0.614 0.564 0.536 0.624 Bohol 0.409 0.448 0.457 0.502 0.576 0.596 0.622 Capiz 0.510 0.469 0.507 0.552 0.578 0.629 0.612	Zamboanga del Sur	0.544	0.463	0.546	0.584	0.596	0.587	0.642
Oriental Mindoro 0.537 0.504 0.500 0.452 0.519 0.572 0.630 Camiguin 0.496 0.453 0.587 0.614 0.564 0.536 0.624 Bohol 0.409 0.448 0.457 0.502 0.576 0.596 0.622 Capiz 0.510 0.469 0.507 0.552 0.578 0.629 0.612	Romblon	0.384	0.352	0.433	0.387	0.465	0.515	0.632
Camiguin 0.496 0.453 0.587 0.614 0.564 0.536 0.624 Bohol 0.409 0.448 0.487 0.502 0.546 0.596 0.622 Capiz 0.510 0.469 0.507 0.552 0.578 0.629 0.612	Oriental Mindoro	0.537	0.504	0.500	0.452	0.519	0.572	0.630
Bohol 0.409 0.448 0.487 0.502 0.546 0.596 0.622 Capiz 0.510 0.469 0.507 0.552 0.578 0.629 0.612	Camiguin	0.496	0.453	0.587	0.614	0.564	0.536	0.624
Capiz 0.510 0.469 0.507 0.552 0.578 0.629 0.612	Bohol	0.409	0.448	0.487	0.502	0.546	0.596	0.622
	Capiz	0.510	0.469	0.507	0.552	0.578	0.629	0.612

Kalinga	0.526	0.483	0.448	0.487	0.550	0.574	0.609
Occidental Mindoro	0.470	0.473	0.517	0.492	0.568	0.554	0.607
Albay	0.510	0.510	0.529	0.573	0.534	0.523	0.606
Nueva Ecija	0.564	0.544	0.535	0.530	0.550	0.582	0.603
Lanao del Norte	0.534	0.513	0.536	0.600	0.555	0.573	0.599
Agusan del Norte	0.485	0.480	0.527	0.528	0.566	0.585	0.597
Quezon	0.585	0.540	0.498	0.453	0.519	0.551	0.592
Misamis Occidental	0.511	0.477	0.505	0.506	0.477	0.517	0.591
Negros Occidental	0.505	0.472	0.535	0.523	0.539	0.579	0.578
Surigao del Norte	0.458	0.437	0.462	0.483	0.475	0.513	0.577
Арауао	0.490	0.455	0.472	0.440	0.527	0.399	0.570
Abra	0.469	0.527	0.539	0.479	0.496	0.557	0.569
Quirino	0.505	0.448	0.584	0.569	0.619	0.577	0.566
Leyte	0.483	0.528	0.506	0.534	0.588	0.604	0.564
Davao Oriental	0.456	0.471	0.350	0.379	0.350	0.438	0.557
Davao del Norte	0.444	0.415	0.528	0.476	0.513	0.530	0.552
Zamboanga Sibugay			0.462	0.513	0.468	0.507	0.551
Catanduanes	0.515	0.440	0.687	0.499	0.680	0.511	0.548
Southern Leyte	0.410	0.460	0.449	0.486	0.495	0.546	0.547
Camarines Norte	0.449	0.431	0.454	0.460	0.480	0.526	0.546
Western Samar	0.448	0.402	0.455	0.511	0.486	0.434	0.545
Surigao del Sur	0.455	0.464	0.420	0.466	0.455	0.552	0.541
Camarines Sur	0.452	0.450	0.458	0.441	0.486	0.516	0.534
lfugao	0.424	0.338	0.484	0.474	0.487	0.536	0.532
Eastern Samar	0.316	0.336	0.433	0.460	0.448	0.415	0.531
Compostela Valley			0.431	0.429	0.483	0.520	0.501
Sultan Kudarat	0.490	0.424	0.407	0.410	0.467	0.451	0.494
Mt. Province	0.387	0.439	0.412	0.481	0.438	0.510	0.493
Negros Oriental	0.432	0.429	0.376	0.412	0.495	0.520	0.492
Northern Samar	0.370	0.376	0.419	0.461	0.444	0.459	0.484
Sorsogon	0.500	0.473	0.512	0.465	0.515	0.484	0.481
North Cotabato	0.419	0.438	0.478	0.468	0.508	0.466	0.480
Agusan del Sur	0.413	0.340	0.415	0.438	0.400	0.476	0.478
Tawi-Tawi	0.600	0.440	0.463	0.314	0.452	0.497	0.471
Masbate	0.359	0.308	0.422	0.395	0.418	0.422	0.462
Zamboanga del Norte	0.479	0.470	0.322	0.380	0.362	0.445	0.459
Basilan	0.547	0.362	0.380	0.411	0.475	0.465	0.454
Bukidnon	0.458	0.437	0.433	0.469	0.471	0.422	0.451
Siquijor	0.405	0.475	0.385	0.605	0.502	0.714	0.426
Sarangani	0.368	0.374	0.341	0.347	0.365	0.447	0.407
Maguindanao	0.432	0.371	0.358	0.347	0.378	0.341	0.377
Sulu	0.369	0.291	0.341	0.326	0.340	0.363	0.325
Lanao del Sur	0.382	0.367	0.459	0.374	0.384	0.296	0.248

quartile 1 quartile 2 quartile 3

quartile 4

(0.772), Pampanga (0.765), Aurora (0.763), Batanes (0.758), and Bulacan (0.757). Biliran, which was in the third quartile in 1997, was able to sustain its growth through the years, and has climbed to the first quartile for 2015. While Ilocos Norte, Davao del Sur, and La Union were not part of the top 10 in 1997 and 2015, they have been in the top quartile since 1997.

As for the bottom or fourth quartile, the bottom 10 provinces also tended to remain in the same quartile throughout the period with only a few exceptions. Some provinces in the bottom quartile in 1997, however, registered better performance in the subsequent years.

In 1997, the bottom 10 provinces had HDIs comparable to countries with low human development. These are Bohol (0.408), Siquijor (0.406), Mt. Province (0.384), Romblon (0.379), Lanao del Sur (0.375), Northern Samar (0.367), Sarangani (0.365), Sulu (0.358), Masbate (0.357), and Eastern Samar (0.313). In 2015, the bottom provinces are Tawi-Tawi (0.471), Masbate (0.462), Zamboanga del Norte (0.459), Basilan (0.454), Bukidon (0.451), Siquijor (0.426), Sarangani (0.407), Maguindanao (0.377), Sulu (0.325), and Lanao del Sur (0.248).

Provinces in the second and third quartiles showed greater variability, so no clear pattern cannot be established. Almost half, 19 of the 40 provinces included in the second and third quartiles in 1997, changed quartiles at least three times between 1997 and 2015.

Some provinces in the second quartile in 1997 have moved to the top quartile in 2015. Such was the case for Aurora, Antique, and Ilocos Sur, whose 2015 HDI values are significantly higher than their HDIs in 1997. Cagayan, a second-quartile province in 1997, has also joined the first quartile as of 2015.

Biliran, which was included in the third quartile in 1997, made a similar upward movement.

Guimaras, a province in the fourth quartile in 1997, has also moved to the top quartile since 2012. This is due to improvements in all the component indicators of its HDI, its income index registering a very significant improvement over the period [**Table 2.1**]. Davao del Norte and Southern Leyte have also moved out of the bottom 20 provinces in 1997 to a quartile higher in 2015.

Some provinces in the second and third quartiles (even in the first quartile), however, have been relegated to lower quartiles despite improvements in their HDIs. Such was the case for Basilan, Sorsogon, Sultan Kudarat, Zamboanga del Norte, and Bukidnon. This is because their HDI improvements were modest as compared to those made by other provinces during the same period.

A simple ordinary least squares (OLS) regression was made to analyze the impact of the income component on the growth of HDI per quartile.³ Relative to the third quartile, the impact of the growth in per capita income on the percentage change in HDI is greater for the lowest quartile and less for the highest quartile from 1997 to 2015. This suggests a path of convergence in human development associated with income growth.

Turning now to the components of the HDI, namely life expectancy, education, and income, the respective values of life expectancy index of the provinces generally exhibit very variable trends from 1997 to 2015 [Figure 2.5]. Some provinces show upward trajectories while others show downward trends.

Nine out of the 79 provinces recorded a decline in their life expectancy index from 2009 to 2015. These provinces are Bulacan (down 0.21 percent), Pampanga (0.24 percent), Ilocos Norte (0.25 percent), Batangas (0.32 percent), Bohol (0.33 percent), Sorsogon (0.55 percent) Camarines Sur (1.71 percent), Cebu (1.88 percent), and La Union (2.01 percent). The fact that this list includes some provinces with fairly high HDIs is a matter that deserves greater interest.

The top gainers in life expectancy index between 2009 and 2015, on the other hand, include some of those with the lowest initial starting points, such as Maguindanao (12.27 percent), Tawi-Tawi (11.95 percent), Sulu (10.48 percent), and Lanao del Sur (10.37 percent). Others are Ifugao (10.33 percent), Mt. Province (9.35 percent), Kalinga (8.66 percent), Apayao (7.38 percent), Agusan del Norte (7.36 percent), and Palawan (7.26 percent) [Table 2.3].

The performance across provinces of the education index shows improvements for most provinces, but with greater variability compared with the life expectancy index [Figure 2.6]. Few provinces fared poorly in 2015 compared to their 2009 levels.

The provinces that saw declines in their education indices over the period are Quirino (down 0.8 percent), Aklan (0.99 percent), Mt. Province (1.58 percent), Basilan (8.74 percent), and Batanes (26.32 percent) [Table 2.4].



Figure 2.5 Life expectancy index by province (1997-2015)

The drastic decrease in the education index for Batanes should be interpreted cautiously because only 57 observations were captured in the computation, giving the indicator a large margin of error.

At the other end of the performance scale, the top gainers are Sulu (28.56 percent), Guimaras (23.94 percent), Davao Oriental (16.4 percent), Camarines Norte (14.15 percent), Kalinga (13.82 percent), Zamboanga Sibugay (13.77 percent), Romblon (12.75 percent), Ifugao (12.2 percent), Biliran (12.04 percent), and Camarines Sur (11.26 percent). Note that Benguet obtained the highest possible education index of 1 in 2015. It was second to Batanes in the education index in 2009, and its index has seen a steady rise since 1997.

Figure 2.7, on the other hand, shows the trends across provinces of the income index. As compared to

Table 2.3 Gainers and losers in life expectancyindex between 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Largest ga	iners	
Maguindanao	0.672	0.754	12.27
Tawi-Tawi	0.586	0.656	11.95
Sulu	0.602	0.666	10.48
Lanao del Sur	0.669	0.738	10.37
lfugao	0.729	0.804	10.33
Mt. Province	0.739	0.808	9.35
Kalinga	0.721	0.783	8.66
Арауао	0.720	0.773	7.38
Agusan del Norte	0.733	0.787	7.36
Palawan	0.718	0.770	7.26
	Largest lo	sers	
Misamis Occidental	0.742	0.742	0.07
Bulacan	0.780	0.778	-0.21
Pampanga	0.783	0.781	-0.24
Ilocos Norte	0.771	0.769	-0.25
Batangas	0.775	0.772	-0.32
Bohol	0.751	0.749	-0.33
Sorsogon	0.733	0.729	-0.55
Camarines Sur	0.747	0.734	-1.71
Cebu	0.762	0.748	-1.88
La Union	0.762	0.746	-2.01

the first two component indices of the HDI, greater variability can be observed in the trajectory of the income index of Philippine provinces.

Fourteen provinces saw their income indices decline between 2009 and 2015. The largest drops were recorded in Lanao del Sur (down 76.16 percent), Catanduanes (52.03 percent), Siquijor (45.26 percent), Sulu (38.24 percent), Quirino (26.45 percent), North Cotabato (21.72 percent), Sorsogon (21.34 percent), Leyte (20.44 percent), Bukidnon (20.43 percent), and Maguindanao (19.08 percent). It is important to note that Sulu and Lanao del Sur have had very low per capita incomes since 1997, and both provinces continue to be mostly in the bottom quartile of income index distribution.

The largest gainers are Davao Oriental (240.21 percent), Aklan (122.99 percent), Palawan (120.65 percent),



Figure 2.6 Education index by province (1997-2015)

Romblon (112.98 percent), Antique (99.8 percent), Guimaras (97.83 percent), Zamboanga del Norte (79.59 percent), Misamis Occidental (78.82 percent), Batanes (62.62 percent), and Surigao del Norte (61.19 percent). Most of the top performing provinces were part of the bottom two quartiles of income index distribution in 1997. Many of them have moved to higher quartiles (in some cases to the top quartile) in 2015. **Table 2.5** shows the gainers and losers by income index.

Finally, the trends of HDI and per capita income between 1997 and 2015 can be analyzed and compared. The data here provide a picture of trends of HDIs over almost two decades. Using Ranis et al. [2000] and the PHDR 2012/2013 as reference, provinces can be classified into four types, depending on the relationship between their HDI growth and per capita income growth.

Table 2.4 Gainers and losers in education indexbetween 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Largest gai	iners	
Sulu	0.594	0.763	28.56
Guimaras	0.800	0.991	23.94
Davao Oriental	0.681	0.792	16.40
Camarines Norte	0.776	0.886	14.15
Kalinga	0.787	0.895	13.82
Zamboanga Sibugay	0.765	0.871	13.77
Romblon	0.798	0.900	12.75
Ifugao	0.723	0.811	12.20
Biliran	0.821	0.920	12.04
Camarines Sur	0.804	0.895	11.26
	Largest los	sers	
Lanao del Sur	0.772	0.789	2.15
Abra	0.849	0.866	1.89
Capiz	0.790	0.803	1.61
Lanao del Norte	0.867	0.879	1.40
Nueva Vizcaya	0.870	0.879	0.94
Quirino	0.801	0.794	-0.80
Aklan	0.876	0.868	-0.99
Mt. Province	0.818	0.805	-1.58
Basilan	0.781	0.713	-8.74
Batanes	0.988	0.728	-26.32

Provinces experiencing both HDI and income growth are said to benefit from a virtuous cycle of development, where income and human development reinforce each other. In contrast, provinces with declining human development coupled with a declining income are said to experience a vicious cycle. Provinces where there is evident growth in per capita income but poor HDI performance are categorized as having biased development in favor of income growth or *income-biased*. Provinces where there is HDI improvement but decreasing per capita income have a biased progress in favor of human development or HD-biased.

Figure 2.8 plots the provinces' growth in income and human development, and a quadrant can be drawn where the national average per capita income growth (8.3 percent) and HDI growth (10 percent) were set as the origin.

Table 2.5 Gainers and losers in income indexbetween 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Largest gai	ners	
Davao Oriental	0.357	0.576	240.21
Aklan	0.493	0.651	122.99
Palawan	0.497	0.671	120.65
Romblon	0.463	0.627	112.98
Antique	0.524	0.689	99.80
Guimaras	0.503	0.688	97.83
Zamboanga del Norte	0.374	0.484	79.59
Misamis Occidental	0.500	0.637	78.82
Batanes	0.683	0.731	62.62
Surigao del Norte	0.469	0.566	61.19
	Largest los	sers	
Maguindanao	0.122	0.098	-19.08
Bukidnon	0.192	0.153	-20.43
Leyte	0.353	0.281	-20.44
Sorsogon	0.230	0.181	-21.34
North Cotabato	0.235	0.184	-21.72
Quirino	0.401	0.295	-26.45
Sulu	0.110	0.068	-38.24
Siquijor	0.202	0.110	-45.26
Catanduanes	0.525	0.252	-52.03
Lanao del Sur	0.110	0.026	-76.16

Table 2.6 shows the list of provinces in each type of improvement. Over the 18-year period, 64 provinces experienced a virtuous cycle of development while only nine provinces underwent a vicious cycle. Five provinces experienced HD-biased growth while no province showed income-biased growth. The latter is consistent with the national-level observation that the gap between the Philippines and its neighbors is wider in terms of income per capita than in terms of health and education indicators (although the gap in the latter two has recently widened as well).

The 18-year period can also be split into three medium-term periods of six years: 1997-2003, 2003-2009, and 2009-2015. The first two periods were analyzed from the previous PHDR by Durano [2012]. **Table 2.6** also lists prov-



Figure 2.7 Income index by province (1997-2015)

inces by the type of development for each period.

Seventeen provinces—Agusan del Norte, Albay, Benguet, Bohol, Cagayan, Camarines Sur, Cebu, La Union, Mt. Province, Negros Occidental, Northern Samar, Occidental Mindoro, Romblon, South Cotabato, Southern Leyte, Surigao del Norte, and Biliran—have remained within the virtuous cycle of development for all three periods. Only Sulu has stayed within the vicious cycle throughout these periods. No province has been in the HD-biased or income-biased quadrant for all three periods.

There are provinces that experienced fluctuations in their performance across the three medium-term periods. Agusan del Sur and Laguna have gone from an HD-biased to a vicious-virtuous type of improvement

Table 2.6 List of provinces by type of improvement (1997-2015, 1997-2003, 2003-2009, 2009-2015)

Province	1997-2015	1997-2003	2003-2009	2009-2015
Abra	Virtuous	Virtuous	Vicious	Virtuous
Agusan del Norte	Virtuous	Virtuous	Virtuous	Virtuous
Agusan del Sur	Virtuous	HD-biased	Vicious	Virtuous
Aklan	Virtuous	Vicious	Virtuous	Virtuous
Albay	Virtuous	Virtuous	Virtuous	Virtuous
Antique	Virtuous	Vicious	Virtuous	Virtuous
Арауао	Virtuous	Vicious	Virtuous	Virtuous
Aurora	Virtuous	Vicious	Virtuous	Virtuous
Basilan	Vicious	Vicious	Virtuous	Vicious
Bataan	Virtuous	Vicious	Virtuous	Virtuous
Batanes	Virtuous	Vicious	HD-biased	Virtuous
Batangas	Virtuous	Vicious	Virtuous	Virtuous
Benquet	Virtuous	Virtuous	Virtuous	Virtuous
Biliran	Virtuous	Virtuous	Virtuous	Virtuous
Bohol	Virtuous	Virtuous	Virtuous	Virtuous
Bukidnon	Vicious	Vicious	Virtuous	Vicious
Bulacan	Virtuous	HD-biased	Virtuous	Virtuous
Cagavan	Virtuous	Virtuous	Virtuous	Virtuous
Camarines Norte	Virtuous	HD-biased	Virtuous	Virtuous
Camarines Norte	Virtuous	Virtuous	Virtuous	Virtuous
Camiguin	Virtuous	Virtuous	Vicious	Virtuous
Carrie	Virtuous	Vicious	Victoria	Virtuous
Capiz	virtuous	VICIOUS	virtuous	virtuous
Catanduanes	Virtuous	Virtuous	Vicious	Vicious
Cavite	Virtuous	HD-biased	HD-biased	Virtuous
Cebu	Virtuous	Virtuous	Virtuous	Virtuous
Compostela Valley	NA	NA	Virtuous	Virtuous
Davao del Norte	Virtuous	Virtuous	Vicious	Virtuous
Davao del Sur	Virtuous	Vicious	Virtuous	Virtuous
Davao Oriental	Virtuous	Vicious	PCI-biased	Virtuous
Eastern Samar	Virtuous	Virtuous	HD-biased	Virtuous
Guimaras	Virtuous	Vicious	Virtuous	Virtuous
lfugao	Virtuous	Virtuous	HD-biased	Virtuous
llocos Norte	Virtuous	Vicious	Virtuous	Virtuous
llocos Sur	Virtuous	Vicious	Virtuous	Virtuous
lloilo	Virtuous	Vicious	Virtuous	Virtuous
Isabela	Virtuous	HD-biased	Virtuous	Virtuous
Kalinga	Virtuous	Vicious	Virtuous	Virtuous
La Union	Virtuous	Virtuous	Virtuous	Virtuous
Laguna	Virtuous	HD-biased	Vicious	Virtuous

Zamboanga Sibugay NA

Virtuous

Virtuous

NA



Figure 2.8 Provinces by type of improvement between 1997 and 2015

while seven provinces—Bulacan, Camarines Norte, Isabela, Lanao del Norte, Western Samar, and Zamboanga del Sur—have undergone an HD-biased (first period) to a virtuous (second and third period) movement.

Batanes has experienced a vicious-HD biased-virtuous movement while Eastern Samar and Ifugao have undergone a virtuous-HD biased-virtuous movement. On the other hand, Nueva Vizcaya and Sorsogon have gradually suffered, moving from virtuous to HD-biased to a vicious type of development. Only Davao Oriental has undergone a vicious-income biased-virtuous type of development while Tawi-Tawi has gone up from vicious (first and second period) to an HD-biased type of development.

Five provinces—Siquijor, Negros Oriental, Maguindanao, Bukidnon, and Basilan—have experienced a vicious-virtuous-vicious type of development for the three periods while six provinces—Abra, Camiguin, Davao del Norte, Masbate, Pampanga, and Tarlac—have undergone the opposite (virtuous-vicious-virtuous).

Only two provinces (Lanao del Sur and Catanduanes) have fallen from virtuous (first period) and stayed in vicious cycles of improvement (second and third period).

At the level of countries, moving from vicious to virtuous cycles is thought to be extremely rare and diffi-

cult. Yet the data in this study show 28 provinces shifting from vicious cycles in the first period to virtuous cycles of development for the second and or third periods. Their achievement must be credited, for they were able to sustain progressive development despite adverse initial conditions.

Notwithstanding the large number of provinces demonstrating virtuous progress, however, important questions remain. The most important is whether and how these growth paths can be sustained. How does a province attain a virtuous cycle of development? What factors were responsible? How does income alone affect other human development outcomes? Beyond directions of change, what is the size of improvement attained in income and non-income dimensions, and how does each condition the other? Clearly, a more disaggregated and deeper approach is needed for these questions to be answered.

This also means the episodes of falling off (from virtuous to vicious cycles), as well as ascending (from vicious to virtuous cycles), deserve the most attention. The exact mix of local and national interventions and initiatives will obviously vary. One possibility that explains a greater incidence of virtuous progress at subnational levels is that, unlike self-contained countries, citizens and local governments can tap national resources or exploit geographic mobility to overcome local barriers to human development. Whether and how this potential is tapped ultimately depends on the aims and character of local governance and policies.

HD-biased episodes are also worthy of attention. HD-biased growth may be due to the lack of complementary public investments that help unlock the income potential otherwise implied by improving levels of health and education [Ranis et al. 2000]. Such episodes are, therefore, likely to be transient and may be changed through a shift in policy.

Again, such shifts are even more likely to occur at subnational levels where geographic mobility of people (e.g., internal migration) and nationwide policies and resources provide opportunities to escape or modulate the effects of inadequate local environments. This hypothesis is partly borne out in that no province has stayed in the HD-biased mode for more than one episode. Most typically transit into virtuous cycles.

In short, more than snapshots of the status of provinces, it is the development dynamics or the mobility of provinces that should command the attention of social scientists and policy makers alike.

Provincial GDIs mirror provincial HDI performance

THE gender-related development index or GDI is designed to account for gender-based differences in human development. The GDI has the same components as the HDI, but the component indices use different achievements between males and females to adjust for inequality. The GDI measures achievements for males and females as well as the disparity in achievements between the two. The greater the differences in achievements between males and females, the lower the GDI will be. In the presence of gender-based inequalities, the HDI values go down to the GDI levels. In other words, the HDI value is discounted due to gender-based inequalities.

Figure 2.9 shows the comparison between the provincial HDI levels and the provincial GDI levels for 2015. HDIs and GDIs vary across provinces, with

Table 2.7 Gainers and losers in GDI between 2009and 2015 (in percent)

Province	Equally distributed life expectancy index	Equally distributed education index	Equally distributed income index	GDI
	Largest gainers and co	mparative gap im	provements	
Davao Oriental	2.30	15.91	60.12	23.83
Antique	6.81	8.97	55.84	21.95
Palawan	7.26	9.01	47.77	20.00
Romblon	4.48	13.07	35.67	17.03
Oriental Mindoro	4.91	8.00	28.58	13.36
Surigao del Norte	2.77	7.82	26.10	11.80
Pampanga	-0.24	6.68	29.21	11.20
Aklan	5.77	-1.15	28.55	10.36
Davao del Sur	1.60	6.62	23.68	10.24
Biliran	5.66	7.99	15.21	9.55
La	argest losers and con	nparative gap in	nprovements	
Negros Oriental	3.64	6.90	-8.45	0.48
Bukidnon	1.35	7.97	-7.74	0.32
Leyte	3.12	7.57	-11.13	-0.48
Sultan Kudarat	5.83	2.81	-9.94	-0.67
North Cotabato	2.75	4.69	-12.12	-1.86
Sorsogon	-0.55	4.23	-12.44	-3.18
Basilan	5.73	-8.67	-8.63	-4.09
Quirino	5.07	-2.03	-19.96	-6.25
Lanao del Sur	10.36	2.20	-30.84	-7.95
Catanduanes	3.41	6.36	-29.55	-8.15

most provinces having higher GDIs than their HDIs. This healthy development, which should be credited, occurs because female achievements in some or all components are higher than those of males.

But how is GDI changing?

Figure 2.10 depicts the trend of the provincial GDI estimates from 1997 to 2015. The provinces with the biggest losses between these two years are Leyte (down 0.48 percent), Sultan Kudarat (0.67 percent), North Cotabato (1.86 percent), Sorsogon (3.18 percent), Basilan (4.09 percent), Quirino (6.25 percent), Lanao del Sur (7.95 per-



Figure 2.9 HDI and GDI by province (2015)



Figure 2.10 Gender development index by province (1997-2015)

cent), and Catanduanes (8.15 percent). [**Table 2.7**]. These declines are due to the decrease of the index for equally distributed income. The provinces with the least improvement in GDI are Negros Oriental (0.48 percent) and Bukidnon (0.32 percent).

On the other hand, positive developments between 2009 and 2015 are evident from Davao Oriental that increased its GDI by 23.83 percent. This is followed by Antique (21.95 percent), Palawan (20 percent), Romblon (17.03 percent), Oriental Mindoro (13.36 percent), Surigao del Norte (11.8 percent), Pampanga (11.2 percent), Aklan (10.36 percent), Davao del Sur (10.24 percent), and Biliran (9.55 percent). Again, the improvements are due largely



Figure 2.11 Equally distributed life expectancy index (1997-2015)

to large increases (more than 15 percent) in the equally distributed income index.

Looking at the performance of the provinces for each component of the GDI can also be instructive [**Table 2.8**]. For life expectancy, the trend is one of convergence from 1997 to 2015 [**Figure 2.11**].

Provinces with the biggest improvement in their equally distributed life expectancy index between 2009 and 2015 are Maguindanao (12.17 percent), Tawi-Tawi (11.92 percent), Sulu (10.44 percent), Lanao del Sur (10.36 percent), Ifugao (10.33 percent), Mt. Province (9.36 percent), Kalinga (8.66 percent), Apayao (7.39 percent), Agusan del Norte (7.37 percent), and Palawan

Table 2.8 Gainers and losers in equally distributedlife expectancy index between 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Largest g	ainers	
Maguindanao	0.672	0.754	12.17
Tawi-Tawi	0.586	0.656	11.92
Sulu	0.602	0.665	10.44
Lanao del Sur	0.669	0.738	10.36
Ifugao	0.729	0.804	10.33
Mt. Province	0.739	0.808	9.36
Kalinga	0.721	0.783	8.66
Арауао	0.720	0.773	7.39
Agusan del Norte	0.733	0.787	7.37
Palawan	0.718	0.770	7.26
	Largest I	osers	
Misamis Occidental	0.742	0.741	-0.11
Bulacan	0.780	0.778	-0.22
Pampanga	0.783	0.781	-0.24
Ilocos Norte	0.771	0.769	-0.25
Batangas	0.775	0.772	-0.32
Bohol	0.751	0.748	-0.36
Sorsogon	0.733	0.729	-0.55
Camarines Sur	0.747	0.734	-1.74
Cebu	0.762	0.748	-1.89
La Union	0.762	0.746	-2.00

(7.26 percent).

On the other hand, those with the largest losses in their equally distributed life expectancy index are Misamis Occidental (down 0.11 percent), Bulacan (0.22 percent), Pampanga (0.24 percent), Ilocos Norte (0.25 percent), Batangas (0.32 percent), Bohol (0.36 percent), Sorsogon (0.55 percent), Camarines Sur (1.74 percent), Cebu (1.89 percent), and La Union (2 percent).

In education, only four provinces experienced a drop in their equally distributed education index [**Figure 2.12 and Table 2.9**]. The declines came from Aklan (down 1.15 percent), Mt. Province (1.28 percent), Quirino (2.03 percent), and Basilan (8.67 percent).

Table 2.9 Gainers and losers in equally distributededucation index between 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Largest	gainers	
Sulu	0.581	0.746	28.35
Davao Oriental	0.668	0.774	15.91
Kalinga	0.770	0.879	14.19
Zamboanga Sibugay	0.750	0.850	13.24
Camarines Norte	0.765	0.867	13.23
Rombion	0.784	0.886	13.07
lfugao	0.705	0.790	12.11
Camarines Sur	0.787	0.876	11.36
Occidental Mindoro	0.745	0.824	10.59
Sarangani	0.632	0.698	10.58
	Largest	t losers	
Sultan Kudarat	0.757	0.778	2.81
Bataan	0.871	0.891	2.31
Lanao del Sur	0.756	0.772	2.20
Benguet	0.957	0.977	2.12
Abra	0.831	0.844	1.55
Lanao del Norte	0.849	0.858	1.09
Aklan	0.859	0.849	-1.15
Mt. Province	0.801	0.791	-1.28
Quirino	0.794	0.778	-2.03
Basilan	0.764	0.698	-8.67

The largest improvements in the equally distributed education index between 2009 and 2015 were observed in Sulu (28.35 percent), Davao Oriental (15.91 percent), Kalinga (14.19 percent), Zamboanga Sibugay (13.24 percent), Camarines Norte (13.23 percent), Romblon (13.07 percent), Ifugao (12.11 percent), Camarines Sur (11.36 percent), Occidental Mindoro (10.59 percent), and Sarangani (10.58 percent).

With regard to the standard of living, 21 provinces experienced a decline in their equally distributed income index [Figure 2.13 and Table 2.10]. The biggest declines came from Nueva Vizcaya (down 10 percent), Ifugao (10.39 percent), Leyte (11.13 percent),





Siquijor (11.73 percent), North Cotabato (12.12 percent), Sorsogon (12.44 percent), Quirino (19.96 percent), Catanduanes (29.55 percent), Aurora (30.84 percent), and Lanao del Sur (30.84 percent).

Provinces with the highest improvements in the equally distributed income index between 2009 and 2015 are Davao Oriental (60.12 percent), Antique (55.84 percent), Palawan (47.77 percent), Guimaras (45.18 percent), Romblon (35.67 percent), Pampanga (29.21 percent), Oriental Mindoro (28.58 percent), Aklan (28.55 percent), Surigao del Sur (28.5 percent), and Surigao del Norte (26.1 percent).

Overall, provincial GDI estimates have tended to run



Figure 2.13 Equally distributed income index (1997-2015)

parallel with the provincial HDI estimates, with a correlation of 0.9642.

Significant losses to HDI due to inequality

BECAUSE the HDI is an average value for a given population, it may mask unevenness in access or achievement across groups within that population. The Inequality-adjusted HDI (IHDI) is computed precisely to capture the uneven distribution of human development within provinces. The IHDI has the same components as the HDI, but these components are adjusted to reflect inequalities in

Table 2.10 Gainers and losers in equally distributedincome index between 2009 and 2015

Province	2009	2015	Gap improvement (%)
	Larges	t gainers	
Davao Oriental	0.235	0.377	60.12
Antique	0.390	0.607	55.84
Palawan	0.371	0.547	47.77
Guimaras	0.358	0.519	45.18
Romblon	0.317	0.430	35.67
Pampanga	0.501	0.647	29.21
Oriental Mindoro	0.377	0.484	28.58
Aklan	0.327	0.420	28.55
Surigao del Sur	0.301	0.387	28.50
Surigao del Norte	0.330	0.416	26.10
	Large	st losers	
Nueva Vizcaya	0.535	0.481	-10.00
lfugao	0.384	0.344	-10.39
Leyte	0.457	0.406	-11.13
Siquijor	0.313	0.277	-11.73
North Cotabato	0.360	0.317	-12.12
Sorsogon	0.361	0.316	-12.44
Quirino	0.486	0.389	-19.96
Catanduanes	0.547	0.386	-29.55
Aurora	0.523	0.362	-30.84
Lanao del Sur	0.298	0.206	-30.84

Table 2.11 Top 10 provinces with the largest lossesto HDI due to inequality

Province	HDI 2015	IHDI 2015	Overall loss (%)
Antique	0.708	0.540	23.69
Aurora	0.763	0.583	23.59
Occidental Mindoro	0.607	0.470	22.54
Biliran	0.772	0.601	22.08
Lanao del Norte	0.599	0.471	21.30
Batanes	0.758	0.600	20.76
Sultan Kudarat	0.494	0.393	20.34
Rombion	0.632	0.505	20.12
Western Samar	0.545	0.437	19.83
Camiguin	0.624	0.504	19.27

Table 2.12 Top 10 provinces with the least lossesto HDI due to inequality

Province	HDI 2015	IHDI 2015	Overall loss (%)
llocos Norte	0.735	0.630	14.36
Nueva Ecija	0.603	0.517	14.28
Zambales	0.652	0.560	14.09
Bulacan	0.757	0.652	13.95
Guimaras	0.682	0.587	13.93
Cavite	0.748	0.645	13.73
Pampanga	0.765	0.662	13.45
Tawi-Tawi	0.471	0.409	13.13
Sulu	0.325	0.283	13.03
Compostela Valley	0.501	0.436	12.95

human development. The IHDI of a province becomes lower than its standard HDI when a proportion of the population has yet to attain the average HDI value.

Provincial IHDIs have been estimated since the last report. **Figure 2.14** shows the comparison of the HDIs and IHDIs of each province using the latest data for 2015. As expected, IHDIs are invariably lower than HDIs because inequality in ubiquitous. What really matters is how great the inequality is for each province, which is reflected in the size of the difference between HDI and IHDI.

The 10 provinces with the largest losses in their HDI values when adjusted for inequality are Antique (23.69 percent), Aurora (23.59 percent), Occidental Mindoro



Figure 2.14 HDI and Inequality-adjusted Human Development Index (2015)



Figure 2.15 Losses in life expectancy, education, and income due to inequality by province (2015)

(22.54 percent), Biliran (22.08 percent), Lanao del Norte (21.3 percent), Batanes (20.76 percent), Sultan Kudarat (20.34 percent), Romblon (20.12 percent), Western Samar (19.83 percent), and Camiguin (19.27 percent) [**Table 2.11**].

On the other hand, the 10 with the smallest losses are Ilocos Norte (14.36 percent), Nueva Ecija (14.28 percent), Zambales (14.09 percent), Bulacan (13.95 percent), Guimaras (13.93 percent), Cavite (13.73 percent), Pampanga (13.45 percent), Tawi-Tawi (13.13 percent), Sulu (13.03 percent), and Compostela Valley (12.95 percent) [Table 2.12]. It can roughly be said that the latter group shows comparatively less inequality than the former.

Finally, **Figure 2.15** is a stacked bar graph of the absolute values of the losses in life expectancy, education, and income due to inequality. Provinces are ordered first by the loss due to income inequality, followed by education inequality, and finally by life expectancy inequality.

While the inequality loss in many provinces is due mainly to unequal incomes, 11 of them have lower inequalities in income than in education. These are Tawi-Tawi, Sulu, Basilan, Lanao del Sur, Maguindanao, Mt. Province, Capiz, Ifugao, Guimaras, Masbate, and Compostela Valley. The predominance in this list of provinces in the bottom quartile (Guimaras being the exception) lends itself to the more negative interpretation in which a general lack of earning opportunities prevents inequalities in education from manifesting themselves in income inequalities. As with previous reports, the current one offers data that allow one to raise deeper and more detailed questions regarding the process of human development, questions that should be of inherent interest to both policymakers and scholars. This Report has been particularly concerned not merely to present the state of human development among the various provinces but also trace their *movement* or *progress* over a significant period of time. This hopefully brings us a step beyond the beauty contest of seeing not only that some areas fare better than others, but also helps us begin to understand how and why they do.

In the process, one learns there is no royal road to progress. While it is well known that growth in incomes per capita is both a condition and is conditioned by improvements in health and education, people and their leaders do confront different obstacles, hold different mindsets at various times, and, therefore, take differing decisions and development paths—not all of them beneficial for their citizens.

The hope held out by data from this Report, however, is that change and movement—for the better or for the worse—are always possible. Even mistakes can be repaired. That some improvement has come through time even for the poorest and least developed areas demonstrates that the level of human development of a community, a province, or a nation is not destiny but rather a challenge to its people and their leaders.

Endnotes

¹ Non-income HDI for each province is determined by computing the geometric mean of the life expectancy index and the education index.

² There are provinces with small sample sizes, making some of the estimates less reliable. This is further discussed in the Technical Notes.

³ Quartiles are based on the provinces' HDI in 1997.