Spatial disparities and development policy in the Philippines

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11 chapter

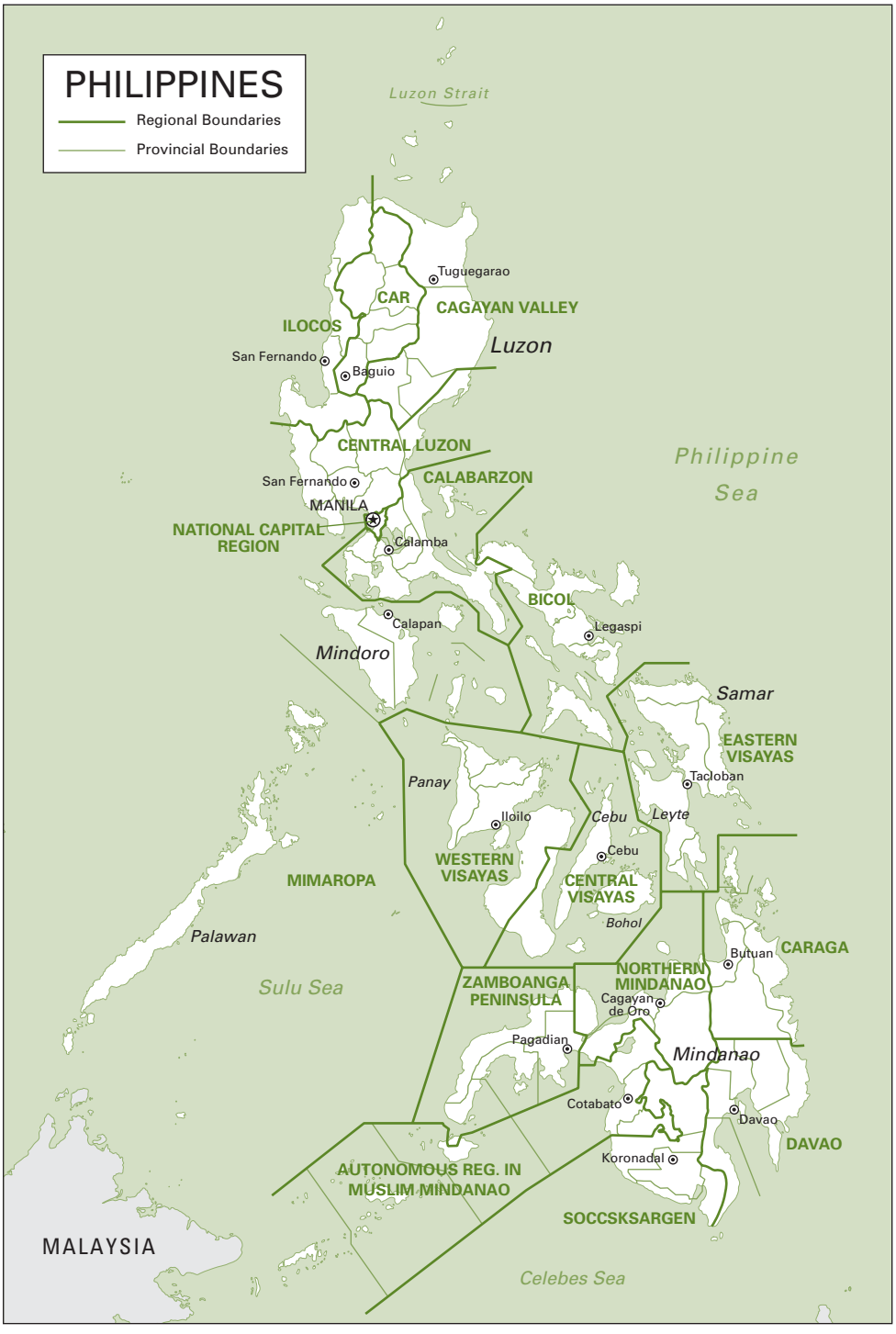
Economic growth in the Philippines has been quite anemic, barely exceeding the population growth rate, which has continued to expand rapidly at 2.3 percent a year for most of the past 25 years. It has quickened in the present decade, but questions linger regarding its sustainability. Even at the present pace (per capita gross domestic product [GDP] growth of 3–5 percent a year in 2004–07), one can hardly argue that the Philippines has come close to the growth trajectories of its neighbors. It is thus not surprising that serious students of Philippine development contend that shifting the economy to a higher growth path—and keeping it there for the long term—should be first and foremost on the development agenda.

The country's similarly disappointing performance in poverty reduction simply mirrors its growth performance. This is not unexpected. Every country that has chalked up significant achievements in poverty reduction and human development has also done quite well in securing long-term economic growth. This correlation is not unexpected: economic growth is an essential condition for the generation of resources needed to sustain investments in health, education, infrastructure, and good governance (law enforcement, regulation), among others.

Yet, more than a few observers of the Philippine economy contend that the poor performance in economic growth and poverty reduction has to do partly with the large disparities in access to infrastructure and social services across regions and island groups and between urban and rural areas. A widely held view, for example, is that development efforts have favored Luzon, particularly the national capital region, Metro Manila, and discriminated against the Visayas and, especially, Mindanao (see figure 11.1). Proponents of this view say that this development pattern has led to substantial spatial differences in access to economic opportunities, in rates of poverty reduction, and in the incidence of armed conflict. Indeed, economic activity has been highly uneven and concentrated particularly in Metro Manila. Together with the two adjacent regions, Metro Manila produces about 55 percent of the country's GDP. Socioeconomic indicators also vary significantly across regions (and even across provinces within a region). The headcount poverty estimate for the two poorest regions is more than 10 times that for the national capital. The Philippine *Human Development Report 2005* shows that measures of deprivation, such as disparities in access to reliable water supply, electricity, and especially education, predict well the occurrence of armed encounters (HDN 2005).

To be sure, spatial economic disparities need not be growth-reducing if these arise from efficiencies associated with agglomeration. Given scale economies and factor mobility, as well as scarcity of investment funds, the spatial concentration of economic activities leading to differential patterns of growth across regions or areas of the country may in fact be inevitable and even desirable from an overall economic growth perspective. However, to prevent unreasonable spatial disparities in welfare during the development process, the priority should be to improve the

Figure 11.1 Regions of the Philippines, 2007



market links between the leading and lagging regions through greater factor mobility, particularly labor mobility. Improving access to social services, particularly education and health, in lagging regions should also be part of the development agenda.

The Philippines is ideally suited to a study of regional dynamics and development policy. With a population nearing 90 million people, the country is highly diverse in its geography, ecology, natural resource endowments, economy, ethnicity, and culture.

Comprising 7,100 islands, it is the second-largest archipelagic state in the world, after Indonesia. It is estimated to have 110 ethnic groups and 170 spoken languages.

This chapter provides an overview of spatial development dynamics in the Philippines in the past 25 years. Spatial development is seen in the context of the country's 16 regions and 77 provinces. Because the grouping of the country's provinces into regions is based on considerations beyond economics, the spatial development story that emerges from the analysis of provincial data differs from that of regional data. Specifically, the chapter is organized as follows. It first discusses the dimensions and patterns of spatial (regional, provincial, urban-rural) diversity. Diversity is seen in terms of economic performance, economic and spatial attributes (such as infrastructure development, agrarian structure, location), and various indicators of social development outcomes (health status, literacy). The chapter then uses econometric techniques to explain the differences in income growth and poverty reduction. The analysis makes use of an updated provincial panel database covering 1985 and every three years thereafter, which the authors have built over the years. Although the regions have longer data, covering years before 1985, data comparability over time is a major problem owing to numerous changes in the grouping of provinces into regions. Finally, the chapter highlights the policy lessons and implications of the study for regional development and poverty reduction.

Regional development patterns

Manila dominates the Philippine economy, with the National Capital Region (NCR) generating a little more than one-third of the country's GDP in recent years (see table 11.1).[1] With the two regions surrounding it—Central Luzon and Southern Tagalog—this central zone produces about 55 percent of the country's GDP. The island of Luzon, on which they are located, contributes almost two-thirds of the national economy, making it by far the largest of the three major island groupings. Luzon's economy has also grown marginally faster than the national economy since the 1970s, resulting in a gradual rise in its national share.

Manila is by far the wealthiest region, with a per capita income about 2.5 times the national average (see table 11.2). This is about double the income of the next richest region and 10 times that of the poorest. In fact, only two of the remaining 15 regions, both distinctive in nature, have per capita incomes above the national average.[2] A third group of regions may be regarded as moderately well-off by national standards: those whose per capita income is below the national average of P52,470 in 2003 but above the national average excluding Manila of P38,600. They include a diverse group of regions: the two adjacent to Manila, Central and Western Visayas, and Southern and Central Mindanao. A fourth group comprises six poor regions: three in Luzon (Ilocos and Cagayan Valley in the north and Bicol in the south), Eastern Visayas, and two regions in the western part of Mindanao (Caraga and Western Mindanao). Finally, the Autonomous Region of Muslim

Table 11.1 Regional growth and structure in the Philippines, by region, 1975–2005
Percent

Region	1975–85	1985–95	1995–2005	1975–2005
Average growth of regional GDP (1985 prices)				
Philippines	2.5	2.5	4.3	3.4
Luzon	2.6	2.8	4.3	3.6
NCR	2.4	2.8	4.9	3.7
Central Luzon and South Tagalog	2.6	3.1	3.6	3.4
Other Luzon	3.0	2.3	4.3	3.4
Visayas	2.4	2.1	4.4	3.4
Central Visayas	2.7	2.6	5.1	3.9
Other Visayas	2.3	1.7	3.9	3.1
Mindanao	2.2	1.7	3.8	2.8
Share of national GDP				
Luzon	62.6	64.8	65.7	64.4
NCR	28.8	31.6	30.7	29.9
Central Luzon and South Tagalog	23.3	23.2	24.7	24.3
Other Luzon	10.5	10.0	10.3	10.1
Visayas	16.7	16.3	16.3	16.3
Central Visayas	6.4	6.5	6.9	6.5
Other Visayas	10.3	9.8	9.4	9.8
Mindanao	20.8	19.0	18.0	19.3
Share of total population				
Luzon	54.3	55.1	56.0	55.1
NCR	12.3	13.2	13.0	12.8
Central Luzon and South Tagalog	22.8	23.9	26.0	24.2
Other Luzon	19.2	18.0	17.1	18.1
Visayas	23.2	21.4	20.3	21.7
Central Visayas	7.9	7.5	7.5	7.6
Other Visayas	15.3	13.9	12.8	14.0
Mindanao	22.5	23.5	23.7	23.2

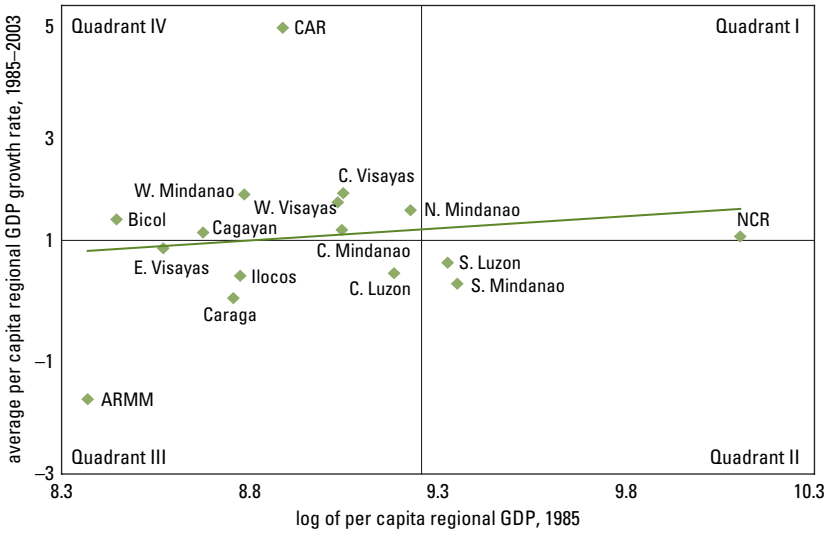
Source: Authors' calculations based on NSCB, *National Income Accounts,* regional link series for 1975–2003.

Table 11.2 Key economic indicators in the Philippines, by region, 1988 and 2003
Percent

Region	Per capita regional GDP (Philippines, 1988 =100)		Composition of regional GDP						Regional GDP growth rates, 1988–2005
			Agriculture		Industry		Services		
	1988	2005	1988	2005	1988	2005	1988	2005	
Philippines	100.0	126.5	23.2	14.5	34.8	31.7	41.9	53.7	3.6
NCR	232.6	318.7	0.0	0.0	45.5	31.2	54.5	68.8	4.0
CAR	98.7	159.8	20.4	9.7	56.4	59.6	23.2	30.7	4.8
Ilocos	50.6	68.9	42.5	34.9	15.9	14.9	41.6	50.1	3.7
Cagayan Valley	53.0	68.2	52.5	41.2	13.7	16.4	33.7	42.4	3.4
Central Luzon	94.0	99.3	22.6	18.6	39.3	36.2	38.0	45.2	3.1
Southern Tagalog	114.0	123.7	29.0	20.7	40.6	38.6	30.5	40.7	3.7
Bicol	42.7	59.1	41.3	19.7	18.6	24.0	40.1	56.3	3.2
Western Visayas	76.6	114.4	33.4	20.3	27.1	28.6	39.6	51.1	3.6
Central Visayas	86.5	120.5	14.5	8.8	36.4	31.7	49.1	59.5	4.1
Eastern Visayas	47.6	59.5	35.3	27.6	33.1	32.2	31.6	40.1	2.7
Western Mindanao	64.8	90.6	46.8	37.8	21.0	19.4	32.2	42.8	4.2
Northern Mindanao	104.4	132.2	48.0	27.2	20.4	32.9	31.6	40.0	5.2
Southern Mindanao	101.3	123.9	42.0	23.3	24.4	29.9	33.6	46.8	1.3
Central Mindanao	67.6	102.3	41.6	38.4	38.3	32.2	20.1	29.3	6.4
ARMM	70.4	30.6	57.2	51.0	13.8	10.9	29.0	38.1	–1.0
Caraga	88.2	59.7	33.3	33.5	36.2	27.1	30.5	39.4	–0.5

Sources: Authors' calculations based on NSCB, *National Income Accounts* (various years); NSO, *Family Income and Expenditure Surveys* (various years).
Note: Average per capita GDP for the Philippines in 1988 was P 50,242 (in 2005 prices). Regional GDP shares and growth rates are averages for three adjoining years (that is, the 1988 figure is the average for 1987–89, while the 2005 figure is the average for 2004–06). Regions are defined consistently across years. Provincial income shares from the household survey data are used.

Figure 11.2 Regional growth versus initial regional income



Source: Authors' calculations based on NSCB, *National Income Accounts* (various years); NSO, *Family Income and Expenditure Survey* (various years).
Note: Regions are consistently defined across the period.

Mindanao (ARMM) has to be grouped separately owing to its extremely low income—less than half that of the poor grouping and less than one-quarter the national average.

The last column of table 11.2 shows average annual growth of regional GDP between 1985 and 2005. Most of the poor regions, including ARMM, grew more slowly than the national average of 3.6 percent. At the other end of the range, the richest region, the NCR, grew at about the same pace as the national average. Figure 11.2 investigates the relationship between regional growth rates and (initial year) average income. The top right-hand quadrant (quadrant I) represents regions with above-average growth and income; quadrant II represents regions with below-average growth and above-average income; quadrant III represents regions with below-average growth and income; and quadrant IV represents regions with above-average growth and below-average income. In general, the more heavily quadrants II and IV are populated, the more likely are regional differentials to be narrowing. In fact, the majority of regions are in these two quadrants: 2 in quadrant II and 8 in quadrant IV, out of a total of 16. However, the clustering of regions close to the national average growth and the fact that the NCR and ARMM are such outliers caution against drawing too robust a conclusion.

We formally test for the presence of convergence by estimating a standard regional growth equation, to determine whether incomes are converging to the mean over

time. The evidence is mixed, and the results are sensitive to the selection of administrative boundaries. That is, as shown below, the provincial data indicate convergence, whereas the regional data do not. One plausible explanation for these mixed results is that a number of administrative regions contain groups of provinces with a wide range of per capita income. We return to the provincial data later in the chapter to explore further the determinants of local income growth.

Social indicators

Table 11.3 shows indicators of poverty, inequality, the human development index (HDI), life expectancy, and literacy by region and between two periods. These indicators generally correlate quite closely, although there are some deviations. For instance, regional mean income is highly correlated with poverty incidence (the Spearman correlation coefficient is 0.78), the HDI (0.85), and functional literacy (0.75). But it is weakly correlated with the Gini ratio (0.20) and primary enrollment (0.39). As expected, the correlation between the HDI and poverty is also high (0.85), but not the correlation between the HDI and the Gini ratio (0.05).

As expected given the regions' very diverse records of growth (see the last column in table 11.2), poverty indicators vary considerably across regions. However, Metro Manila consistently has the lowest poverty, while Bicol, Western Mindanao, and the Visayas, have the highest. In 2003 the poverty incidence in Bicol and Western Mindanao was roughly 10 times higher than in Metro Manila. Some significant re-rankings also occurred: ARMM became the poorest region in 2003, after being the third-least-poor region (out of 16 regions) in 1988. Even more significant is the differential evolution of poverty over time. In 2 regions, Western Mindanao and ARMM, poverty was higher in 2003 than in 1988. This increase also shows up in measures reflecting human development deprivation, particularly in the areas of health and education (HDN 2005). Toward the close of the 1990s, these two regions, particularly ARMM, were at the center of violent confrontations between the military and armed dissidents.

The Philippines is a high-inequality country compared with most of Asia, with all but one of its regions (Central Luzon) registering a Gini ratio of at least 40 in 2003. Income inequality is particularly high in most of the Visayas as well as in Mindanao—ARMM being a notable exception—owing to the highly inequitable distribution of

Table 11.3 Social indicators in the Philippines, by region, 1988 and 2003

	Poverty				Income Gini ratio		Life expectancy at birth		Adult functional literacy rate		Primary and secondary enrollment rate		Human development index	
	Incidence		Percent of total											
Region	1988	2003	1988	2003	1988	2003	1988	2003	1988	2003	1994	2003	1990	2003
Philippines	34.4	26.0	100.0	100.0	44.0	46.6	64.4	68.3	73.5	84.2	82.7	91.7	0.713	0.721
NCR	9.5	4.9	3.8	2.6	44.2	42.9	66.4	70.0	90.0	94.6	91.7	92.5	0.944	0.804
CAR	39.1	15.3	2.2	1.0	37.2	43.0	60.5	66.2	82.9	85.5	90.7	95.3	—	0.648
Ilocos	25.5	16.9	4.3	3.4	38.1	41.3	65.4	69.5	71.9	88.4	90.2	91.6	0.592	0.649
Cagayan Valley	39.2	26.2	4.4	3.4	40.5	47.1	62.5	67.0	71.8	84.3	86.3	92.6	0.560	0.603
Central Luzon	15.3	13.6	4.4	5.7	39.6	37.7	67.2	70.9	82.1	86.8	87.8	91.0	0.695	0.654
Southern Tagalog	31.7	20.8	11.1	13.0	41.3	43.7	65.4	68.9	75.9	88.7	84.6	92.8	0.654	0.646
Bicol	60.9	45.7	12.8	10.7	41.1	49.7	63.0	68.6	67.5	79.8	84.1	90.6	0.488	0.538
Western Visayas	34.4	26.7	9.2	7.8	42.2	46.2	63.8	68.3	66.0	81.5	85.0	93.9	0.527	0.601
Central Visayas	55.2	36.6	12.0	10.4	44.5	47.3	66.1	70.7	68.2	81.6	80.7	90.6	0.528	0.592
Eastern Visayas	53.7	45.0	8.6	8.2	39.4	48.2	59.8	65.6	60.4	76.5	80.0	91.5	0.473	0.520
Western Mindanao	47.6	49.7	5.8	7.6	45.3	52.6	61.4	66.3	62.7	73.0	76.3	94.9	0.458	0.524
Northern Mindanao	44.9	29.8	4.9	4.1	48.8	47.9	62.4	68.6	75.5	82.6	72.2	90.6	0.531	0.610
Southern Mindanao	46.9	26.8	8.8	7.2	41.6	50.7	63.2	68.8	68.7	77.4	72.4	90.1	0.571	0.624
Central Mindanao	35.8	34.1	3.2	4.2	40.8	45.9	61.2	66.5	61.0	80.0	81.1	93.1	0.479	0.551
ARMM	23.4	63.4	2.0	7.2	34.3	40.6	52.0	54.2	55.2	65.9	57.6	81.0	—	0.370
Caraga	30.1	36.9	2.5	3.7	37.8	44.9	60.2	64.8	75.2	80.5	76.2	93.2	—	0.531

Sources: Authors' calculations based on NSO, *Family and Income Expenditure Survey*; NSO, *Functional Literacy, Education, and Mass Media Survey*; HDN (various years).
— Not available.

physical assets, particularly land, and the mix of economic activities (mining, plantation agriculture) in these regions.

These high-inequality regions have, for example, land Gini ratios of close to 60 percent, while the comparable figures for most of Luzon (excluding Bicol) are close to, or below, 50 percent. As Balisacan (2003) has shown, it is the inequality *within* regions—not the inequality *between* regions—that accounts for more than 80 percent of the national variation in household income. He further shows that high-inequality regions tend to have low steady-state growth rates compared to their lower-inequality counterparts. Moreover, his analysis of the data covering the past two decades indicates that changes in poverty incidence (as well as in other measures of income poverty) are attributable largely to changes in overall per capita income within regions, rather than to changes in income or asset inequality within or between regions.

Population, labor, and migration

Philippine demographics more or less reflect economic patterns. A little more than half of the nation's population lives in Luzon, whose share of population has been rising gradually since the 1970s (table 11.1). The remaining 45 percent of the population is divided fairly evenly between the Visayas and Mindanao. Within Luzon, Manila and the two surrounding regions dominate, with a gradually rising share in the range 35–40 percent of the population.

These patterns reflect the interplay of regional fertility differentials and migration. Historically, the major migration flows were into the national capital and its surrounds and into the frontier regions, principally Mindanao (Pernia and others 1983). Since 1980, the dominant migration stream has been into the two regions surrounding Manila, especially Southern Tagalog (see table 11.4). Only two other regions have had (modest) net in-migration: the region of Central Visayas, with its capital the relatively prosperous second city of Cebu, and the resource-rich region of Northern Mindanao. Thus relative income differentials, together with employment and education opportunities, drive these patterns. In spite of decentralization, and the dismantling of the centralizing bias in favor of the capital region, it remains the dominant destination of migrant flows.[3] In other words, migration continues to be, de facto, a key instrument of regional adjustment, including the well-known phenomenon of migration out of poverty. Regional labor markets

Table 11.4 Population and intraregional migration in the Philippines, by region, 2000

Region	Total population (thousands)	Population density (people per square kilometer)	Average annual growth rate (percent)		Migration rate[a]
			1980–90	1990–2000	
Philippines	76,504	255	2.3	2.3	0
NCR	9,933	16,091	2.9	2.2	–22
CAR	1,365	70	2.3	1.8	–1
Ilocos	4,200	318	2.0	1.7	–1
Cagayan Valley	2,813	90	2.0	1.8	–5
Central Luzon	8,031	437	2.6	2.6	12
South Tagalog	11,794	239	3.0	3.6	26
Bicol	4,687	258	1.2	1.8	–10
Western Visayas	6,211	301	1.8	1.4	–6
Central Visayas	5,707	359	1.9	2.2	—
Eastern Visayas	3,610	155	0.9	1.7	–6
Western Mindanao	3,091	161	2.2	2.3	–9
Northern Mindanao	2,748	170	2.2	2.2	4
Southern Mindanao	5,189	183	3.0	2.6	–1
Central Mindanao	2,598	144	3.3	2.5	–9
ARMM	2,412	95	3.0	2.7	–9
Caraga	2,095	98	2.5	1.7	–6

Source: Authors' calculations based on NSO, *Census of Population and Housing* (1990, 2000).
— Not available.
Note: Calculations are based on intracountry migration.
a. Net migrants, defined as in-migrants less out-migrants, per 1,000 population in 2000.

have also been liberalized gradually. The setting of minimum wages has been decentralized, and some regions, mainly poorer ones, are beginning to compete for employment by offering more flexible labor market regulations (Sicat 2003).

Infrastructure and integration

Infrastructure is the glue that unifies the national economy, and it is in many respects the single most important instrument of regional policy. It enables people and goods to move quickly and efficiently around a country. The composition of this infrastructure also matters. For example, efficient connections to the global economy alongside the poorer provision of domestic networks—an increasingly accurate characterization of the situation in the Philippines—will result in a series of internationally oriented enclaves of economic activity weakly integrated to the hinterland.

Effective infrastructure provision requires competent governance. First, many infrastructure projects entail long gestation periods and therefore require predictable financing and policies. Second, a number of sectors have "natural monopoly" characteristics (for example, power generation, land-line telecommunications, major trunk roads, international airports), which in turn prescribe a role for government as regulator, though not necessarily as provider. Third, following a decentralization program, there will be many players in the industry, including several tiers of government, the state-owned providers, and some foreign firms, as well as a number of regulatory agencies. There are therefore major coordination issues.

Indicators of Philippine infrastructure generally follow per capita income rankings, with the better-off regions having the capacity (and political influence) to fund better-quality physical facilities. This is illustrated in the standard indicators of road density, access to water, irrigation, electricity, and telephone density (see table 11.5). Manila and its two surrounding regions clearly register above-average physical infrastructure indicators in most respects. Outside this central region, the picture is more variable. One notable feature is that Mindanao does not emerge as a particularly infrastructure-deficient region by Philippine standards, reflecting the region's high-priority status with both the government and the donor community.

Table 11.5 Infrastructure indicators in the Philippines, by region, 1988 and 2004 or 2005

	Road density (kilometers per square kilometer)[a]		Access to potable water (percent of households)		Access to electricity (percent of households)		Telephone line density per 100 households		Irrigation serviced (percent)[b]	
Region	**1988**	**2005**	**1988**	**2004**	**1988**	**2004**	**1988**	**2005**	**1988**	**2005**
Philippines	0.27	0.78	71.9	80.1	59.9	79.5	1.6	7.8	46.4	45.2
NCR	4.29	15.55	92.0	85.7	97.6	99.0	10.1	25.2	—	—
CAR	0.12	0.33	66.2	76.2	51.7	75.5	0.6	5.7	35.3	75.5
Ilocos	0.53	1.12	83.9	89.5	70.0	86.2	0.3	4.3	67.4	64.5
Cagayan Valley	0.14	0.43	80.2	87.9	61.3	78.4	0.1	1.2	54.3	42.8
Central Luzon	0.61	0.94	96.0	96.2	83.4	94.4	0.5	4.8	64.7	53.8
Southern Tagalog	0.28	0.62	78.1	84.5	63.8	86.1	0.4	8.4	48.8	49.6
Bicol	0.14	0.44	60.9	74.2	40.7	66.6	0.2	2.1	38.6	49.6
Western Visayas	0.35	0.77	54.4	73.4	43.5	72.6	0.6	6.2	59.4	39.4
Central Visayas	0.36	1.42	57.6	74.8	43.6	74.1	0.9	7.8	43.3	57.8
Eastern Visayas	0.37	0.75	60.9	79.5	33.2	68.4	0.1	3.7	45.4	59.4
Western Mindanao	0.10	1.11	40.8	59.7	43.4	54.5	0.3	1.0	58.5	48.4
Northern Mindanao	0.23	0.83	66.2	79.8	56.3	72.5	0.2	4.6	49.1	43.4
Southern Mindanao	0.12	0.32	73.6	69.9	52.1	70.9	0.5	5.5	41.0	36.3
Central Mindanao	0.12	0.56	69.7	74.3	46.6	66.8	0.1	2.8	34.6	28.3
ARMM	0.13	0.34	22.9	40.9	20.2	44.0	0.1	1.4	17.9	14.8
Caraga	0.15	0.36	77.7	79.7	61.1	69.2	0.1	5.1	33.0	24.7

Sources: Authors' calculations based on data from the Department of Public Works and Highways; NSO, *Annual Poverty Indicators Survey* (various years); NSO, *Family Income and Expenditure Survey* (various years); NSCB, *Philippine Statistical Yearbook* (various years).
— Not available.
a. Road density is adjusted for quality (concrete equivalent).
b. Irrigation serviced refers to the ratio of total irrigated area to potential irrigable area.

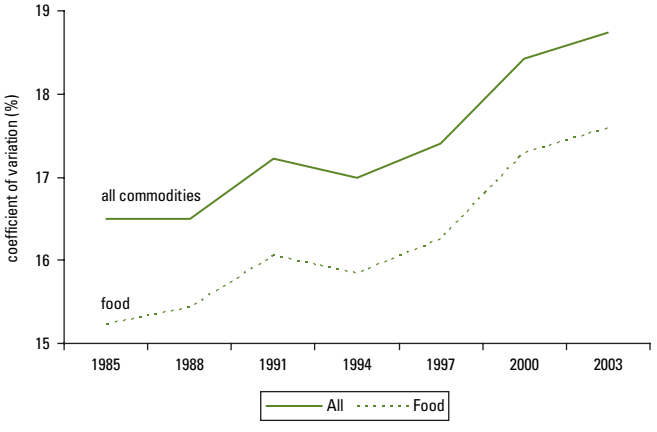
The Philippine infrastructure report card is deficient in key respects (Llanto 2007), and this appears to be holding back the process of efficient regional economic integration. In a recent *Global Competitiveness Report*, the country's infrastructure performance was ranked 71 out of 131 countries in 2007–08 (World Economic Forum 2007). The country is underinvesting in infrastructure: its ratio of infrastructure investment to GDP is about half the East Asian average.

There are three interrelated problems. First, the country has chronic fiscal constraints, as a result of past fiscal crises and the continuing poor revenue performance of the national government. Fiscal constraints have a particularly adverse effect on infrastructure, because capital works invariably are the first to be cut in budget-pruning exercises.[4] Second, the overall regulatory framework lacks cohesion, coordination among national agencies and among the various tiers of government, and clear division of responsibilities. About 30 national agencies are involved in infrastructure decision making. Third, national-level decision makers appear unable or unwilling to deliver the long-term policy predictability and guarantees that major private (and especially foreign) providers require, resulting in potential suppliers factoring in very large risk premiums. Corruption and political patronage are associated with the award of large infrastructure projects in many countries. But large infrastructure investments appear to be unusually politicized in the Philippines, with several key projects over the past decade remaining incomplete.

The picture varies considerably by subsector. There have been some positive achievements. For example, domestic shipping, civil aviation, and cellular telecommunications services were effectively deregulated during the 1990s.[5] Roads are perhaps the weakest link, and here coordination failures are serious. The two major national agencies with responsibilities for roads—the Department of Public Works and Highways and the Toll Regulatory Board—do not coordinate their activities effectively. There also appears to be a "missing middle" in the road network. The national government assumes responsibility for the major trunk network. Although local governments have limited infrastructure budgets,[6] they are responsive to local constituencies demanding farm-to-market roads. Reflecting the division of political power, secondary roads connecting the national and local road networks suffer from continued neglect and constitute the major weak link.

Is the Philippines becoming a more spatially integrated economy over time? In figure 11.3, we test for this by presenting estimates of coefficients of variation for provincial prices during 1985–2003.[7] Two sets of price indexes are shown, one consisting of a basket of food and nonfood items ("all commodities") and the other consisting of food items only.[8] Ideally, the spatial comparison should involve only tradable goods. Arguably, food is highly tradable; hence the latter price index can be regarded as a reasonable measure for comparing the regional prices of tradable goods. As figure 11.3 shows, the two indexes exhibit the same pattern: the coefficients of variation tend to rise in the second half of the 1980s through early 2000s, suggesting that impulses for domestic integration have been muted by widening regional price variations in recent years. This pattern is an outcome partly of evolving disparities in infrastructure development and institutional arrangements and partly of deregulatory reforms in transport and related services.

Figure 11.3 Variation in provincial prices, 1985–2003



Source: Balisacan (2001), updated to 2003 using the consumer price indexes in NSCB, *Philippine Statistical Yearbook* (various years).
Note: Figures pertain to coefficients of variation of cost-of-living indexes for a basket of goods and services.

Determinants of local growth and poverty reduction

In this section, we use subnational panel data to explore the determinants of income growth and poverty reduction. The units of observation are provinces, which show remarkable diversity in terms of economic performance and poverty reduction. The units and variables are consistently defined, both across space and over time. The historical and institutional contexts are largely similar across these units (same legal system, same political administration). Moreover, the major sources of heterogeneity—that is, technologies, tastes—are likely to be less severe for these data than for cross-country data. Hence, the estimation problems concerning cross-country data are likely to be less serious for the subnational panel data set.

The long-term relationship between Philippine poverty and income growth is evident in data on the country's 77 provinces. This is shown in figure 11.4, which plots the change in poverty incidence between 1985 and 2003 and the corresponding percentage change in real family income per capita, adjusted for provincial cost-of-living differences.[9] Clearly, as in cross-country data on growth and poverty, the pace of poverty reduction at the provincial level is closely linked to local economic performance. However, there are significant departures from the fitted line (that is, provinces not conforming to the "average pattern"), suggesting that factors other than the local economic growth rate are influencing the evolution of poverty.

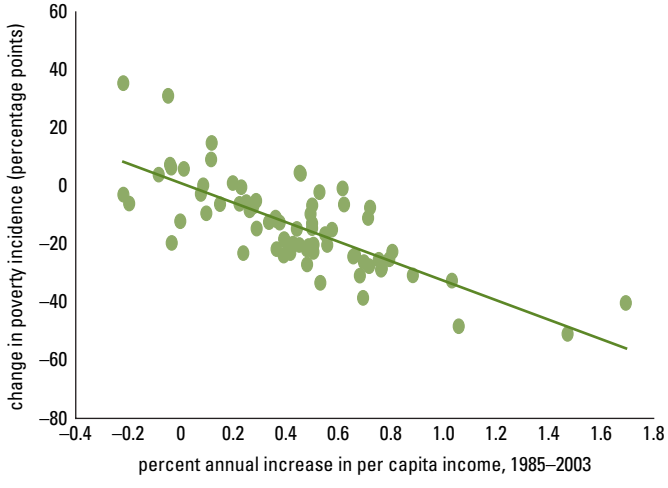
One set of such factors may have to do with the relatively large variation in access to infrastructure and social services across regions, island groups, and provinces. As noted earlier, a widely held view is that development efforts have favored Luzon and discriminated against the Visayas and, especially, Mindanao. Proponents of this view say that this development pattern has led to substantial spatial differences in access to economic opportunities, in rates of poverty reduction, and in incidence of armed conflict.

Adopting the growth framework developed by Barro and Sala-i-Martin (2004), Balisacan (2007) traces the quantitative significance of the channels by which income growth, together with a host of other factors, influences poverty reduction. In his model, these other factors affect the speed of poverty reduction either *directly* by changing the distribution of a given economic pie (hereafter referred to as the redistribution channel) or *indirectly* by expanding the economic pie for each person in society (hereafter referred to as the growth channel). These factors can be grouped into two types:

- *Initial economic and institutional conditions (in or around 1988)*, which include initial mean provincial per capita income, initial distribution of per capita income, initial stock of human capital, political "dynasty" (as a proxy for political competitiveness), and ethno-linguistic fragmentation and
- *Time-varying policy variables (difference during 1988–2003)*, which include the simple adult literacy rate, agricultural terms of trade (as a proxy for economic incentives), access to infrastructure (represented by electricity and good-quality road), and implementation of the Comprehensive Agrarian Reform Program (CARP).

The income growth regression is specified as in the standard Barro and Sala-i-Martin framework. The poverty reduction regression adds the income growth rate variable to the set of explanatory variables associated with the rate of poverty reduction. This amounts to estimating the income growth

Figure 11.4 Income growth and poverty reduction, Philippine provinces, 1985–2003



and poverty reduction equations simultaneously using the three-stage least squares estimation technique. Only variables that are significant in the reduced-form estimates of the growth and poverty reduction equations are retained. The regression results are summarized in table 11.6. The annex to this chapter shows the complete list of variables, including descriptive statistics.

The magnitude of the coefficient estimate for initial income implies that (conditional) convergence of provincial incomes occurs at a rate of 2.2 percent a year. There is thus a growth premium for late starters; that is, provinces that have initially lower mean incomes tend to grow faster. The estimate is, however, much lower than the figure of 9 percent a year given by Balisacan and Fuwa (2004).[10] The present estimate is comparable to estimates of regional income convergence for Europe, Japan, and the United States, which cluster around 2 percent a year (Barro and Sala-i-Martin 2004). At this rate of convergence (2.2 percent), it would take 31 years to halve the gap between the initial and the steady-state incomes. Compared to a similar estimate for China's 30 provinces and municipalities of 1 percent a year on average during 1960–2000 (Song 2007), the estimate for the Philippines is quite high.

Among the initial conditions, the level of human capital stock (as proxied by the child mortality rate) is found to be statistically significant at conventional levels. This finding of a positive association between growth performance and human capital is consistent with most other studies on determinants of income growth. The magnitude of the coefficient, however, is comparatively small. An increase of 10 percent in the mortality rate relative to the mean for all provinces (84.7 in 1988) would reduce the rate of provincial income growth by 0.2 percentage point a year. Put differently, if the mortality rate in the province with the highest mortality rate (Western Samar) were to fall to the average level for all provinces—that is, from 121.1 to 84.7 or by 30 percent (annex)—the income growth rate for that province would increase by 0.7 percentage points a year, all other things remaining equal.

All the time-varying policy variables are significant and have the expected signs. In conformity with theory and most cross-country regressions, improvements in literacy and access to infrastructure (electricity and roads) have a positive effect on income growth. The magnitude of those effects, however, is surprisingly small. In the case of literacy, even a 20 percent improvement in the overall provincial average increase of 3.8 percentage points a year (annex) would see income growth increasing by only 0.05 percentage points. This limited gain from an improvement in the simple literacy rate can be attributed to the relatively high rate for the provinces as a group (91.4 percent in 2003). This average, however, conceals the large variation that exists across provinces. For provinces that are well below the national average, an improvement in the literacy rate to, say, the national average could have a major impact on local income growth. For example, if the province with the lowest literacy rate in 2003 (Tawi-Tawi, at 63.3 percent) were to achieve the average

Table 11.6 Determinants of local growth and poverty reduction in the Philippines

Explanatory variable	Mean income growth	Rate of poverty reduction[a]
Mean income growth		–1.30161**
		(–5.18)
Change in literacy	0.00066**	–0.00077
	(2.66)	(–1.45)
Change in electricity	0.00031**	
	(2.81)	
Change in road density	0.04649**	–0.07067**
	(2.41)	(–1.95)
Change in CARP	0.03211**	0.00748
	(3.55)	(0.38)
Change in agricultural terms of trade	0.01346**	
	(1.95)	
Initial per capita income (log)	–0.02106**	
	(–3.29)	
Initial mortality	–0.00019*	0.00035*
	(–1.89)	(1.86)
Landlock	0.00754**	0.00615
	(2.29)	(1.05)
Initial Gini ratio	0.00806**	
	(3.02)	
Initial Gini ratio squared	–0.00012**	
	(–2.98)	
Constant	0.06261	–0.01666
R^2	0.62850	0.64880
Sample size	71	71

Source: Balisacan (2007).
Note: The estimation procedure used is three-stage least squares regression. Figures in parentheses are *t*-ratios. Other variables included in the estimation but not significant in both the growth and poverty regressions are not shown.
a. The poverty measure used is headcount, defined as the proportion of the population deemed poor. The dependent variable is the average annual rate of headcount reduction between 1988 and 2003 so that a *negative* coefficient for a variable implies that the variable has a *positive* effect on poverty reduction.
** Significant at 5 percent level.
* Significant at 10 percent level.

rate for all provinces (91.4 percent), the income growth rate of that province would increase by 1.8 percentage points a year, all other things remaining the same.

Increments in land reform implementation (CARP) have a positive and significant effect on the mean income growth rate. A 25 percent increase in the pace of CARP implementation (that is, an increase in the average change for all provinces from 80 percent to 100 percent, thereby effectively completing implementation) would raise the income growth rate by 0.6 percentage points a year. This is a significant result considering that land reform is often seen as a policy tool mainly for achieving noneconomic objectives. The result suggests that addressing access to productive assets would improve efficiency, thereby raising the economy's subsequent income growth rates, as argued cogently by Bourguignon (2004).

The policy variables and the variables representing initial conditions, except those pertaining to human capital and infrastructure, are found mainly to exert an *indirect* effect on poverty reduction through their effect on overall income growth. For infrastructure, particularly transport, and, to some extent, initial human capital, both direct and indirect effects are operative and, taken together, have a positive impact on the pace of poverty reduction. Particularly remarkable is the lack of direct response of poverty to CARP. Considering that the agrarian reform program is touted as an equity tool, this result is not only surprising but also inconsistent with earlier findings. This is not to say that CARP has no effect on the poor. It has, but its effect is mainly through the income growth channel. Taken together, the regression results show very limited direct effects of recent policies and institutions on the speed of poverty reduction; their effects get transmitted indirectly to poverty reduction, mainly through overall income growth.

Another interesting observation from the above study, as well as other studies using the same provincial data (for example, Balisacan and Fuwa 2004), concerns the extent to which poverty responds to overall income, after accounting for the influences of other factors noted above. This response can be aptly summarized by what is referred to as "growth elasticity" of poverty reduction. This elasticity clusters around 1.3: a 10 percent increase in the income growth rate increases the poverty reduction rate by roughly 13 percent. These estimates are much lower than those reported for other developing countries. For example, using parameter estimates of inequality distribution for each country, Cline (2004) obtains growth elasticities of 2.9 for China, 3.0 for Indonesia, and 3.5 for Thailand.[11] Ravallion (2001) obtained a growth elasticity of 2.5 for 47 developing countries, based on a bivariate regression of the proportionate changes in their poverty rate and mean income. A similar bivariate regression of the data used in this chapter gives an elasticity of 1.5. Hence, by all these indications, the growth elasticity in the Philippines has been quite muted by international standards.

Clearly, the very low income growth achieved in recent years is a key factor in the country's sluggish rate of poverty reduction. Still, even this modest level of income growth could have delivered more poverty reduction than what would have been realized if the growth elasticity in the Philippines had come close to that in neighboring countries.

The finding that policy levers often identified as tools for achieving equity objectives—human capital and asset reform through CARP—have rather weak discernible direct effects on poverty reduction is quite disturbing. Their effects are felt mostly indirectly through the income growth process. In other words, even programs supposedly targeted at poverty, such as CARP, have been largely neutral from an income distribution viewpoint. One interpretation of this result is that the implementation of such programs has been poorly targeted. Indeed, the country's record in administering direct antipoverty programs, such as food, credit, and housing subsidy programs, has been quite disappointing (Balisacan and Edillon 2005). These programs have had high leakages to the nonpoor, been administratively costly to implement, and encouraged unintended rent-seeking processes.

Conclusions

The very high spatial disparity in economic performance and social development in

the Philippines is quite remarkable. This chapter has shown that, indeed, poverty has a strongly spatial dimension, with some regions and provinces far more multidimensionally deprived than others. Some areas of the country have human development outcomes comparable with those found in more economically advanced countries; for example, Metro Manila's HDI for 2003 is comparable with that of Thailand, and the province of Rizal's HDI is comparable with that of Ukraine. Sadly, many other areas have outcomes comparable with those of the poorest countries of the world; for example, the ARMM provinces have HDI scores comparable with those of Ghana, Myanmar, and Sudan. In recent years some regions have done quite well in attaining high per capita income growth and poverty reduction, but others have experienced falls in their average per capita income and an increase in poverty.

The Philippines is significantly underinvesting in infrastructure, particularly in transport and electricity, owing to continual fiscal crises and an unattractive commercial climate for long-term private investors. This not only reduces overall efficiency (growth) but also limits domestic mobility of factors, goods, and people, hindering the full participation of lagging regions from the growth process in leading regions or urban centers. The high cost of mobility, especially that of labor, creates spatial disparities in welfare levels.

The government's allocation of scarce infrastructure funds has had implications for regional development patterns. Following the dismantling of the old import substitution growth regime, the new driver of spatial development patterns has been the location decisions of export zones. In this context, the Philippine government (and donors) has been more inclined to invest in internationally oriented infrastructure (ports, harbors, and associated facilities) than in domestic transport networks and corridors. The effect has been to reinforce the internationally connected enclaves at the expense of a denser set of domestic connections, a factor exacerbated by the regulatory barriers erected between firms inside and outside the export zones.

Spending priority should be accorded as well to social services, especially health and education, in lagging regions. Reversing the significant decline in education and health spending in recent years is expected to unlock the potential of human capital as a "deep determinant" of income growth and poverty reduction. However, given the fiscal bind, the targeting of public spending must be improved so that poorer individuals, especially in lagging areas, would receive proportionately more opportunities for publicly funded social services. Unfortunately, the country's record in administering direct antipoverty programs, such as agrarian reform and food, credit, and housing subsidy programs, has been quite disappointing. These programs have had high leakages to the nonpoor, been administratively costly to implement, and encouraged unintended rent-seeking processes. Clearly, investing in good governance has to be part of the overall reform agenda.

Notes

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1. The fragmentation of administrative boundaries complicates the task of regional development analysis over time. For the purposes of consistency, throughout this chapter we use the 1997 classification, which groups the provinces into 16 regions, unless otherwise specified. Currently (that is, in 2007), the number of regions is 17, following the division of Region IV (Southern Tagalog) into 2 regions.

2. These are the Cordillera Administrative Region (CAR) and Northern Mindanao.

3. This region is also the major source of the estimated 8 million Filipinos residing abroad. Their remittances, estimated to be equivalent to almost 50 percent of merchandise exports, are the third largest in the developing world (Burgess and Haksar 2005).

4. As a corollary, there is a tendency to rely on donor agencies to supply infrastructure, resulting in an investment strategy that is short term in orientation and poorly integrated.

5. In the case of telecommunications, for example, Salazar's (2006) comparative study shows that the Philippines moved more quickly

than several of its neighbors, particularly Malaysia.

6. Moreover, while the expenditure of local governments as a percentage of GDP has doubled since decentralization, their infrastructure budgets have not expanded commensurately.

7. Available regional price indexes for the 1980s and beyond are not strictly comparable owing to the marked changes in the composition of regions over time. Moreover, the available data do not capture price variation across regions, because each region has a price index value of 100 for the base year.

8. Details of the construction of the price indexes are shown in Balisacan (2001).

9. Poverty estimates are those used in Balisacan (2007). These are not comparable with official data released by the National Statistical Coordination Board.

10. Apart from the longer period covered by the present study, Balisacan and Fuwa's results pertain to the convergence of per capita provincial mean expenditures, not incomes. Moreover, the end year in Balisacan and Fuwa's study is 1997, marking the start of the Asian financial crisis.

11. Cline's estimate for the Philippines is 2.2. While higher than the other estimates quoted here, it is still low by Asian standards.

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Annex

Determinants of growth and poverty reduction in the Philippines: descriptive statistics

Variable	Description	Mean	Standard deviation	Minimum	Maximum
Income 1988	Log of per capita income, 1988	9.868	0.270	9.168 (Romblon)	10.562 (Metro Manila)
Income 2003	Log of per capita income, 2003	10.059	0.290	9.058 (Sulu)	10.717 (Northern Vizcaya)
Headcount 1988	Proportion of the population deemed poor, 1988	0.394	0.175	0.075 (Kalinga-Apayao)	0.852 (Romblon)
Headcount 2003	Proportion of the population deemed poor, 2003	0.321	0.176	0.044 (Northern Vizcaya)	0.884 (Sulu)
Average income growth rate	Average annual growth rate of per capita income, 1988–2003	0.012	0.016	–0.030 (Maguindanao)	0.049 (Batanes)
Average headcount growth rate	Average annual rate of change in poverty incidence, 1988–2003	–0.008	0.032	–0.0568 (Batanes)	0.115 (Mindoro Occidental)
Gini 1988	Expenditure Gini ratio, 1988	33.594	5.077	21.190 (Tawi-Tawi)	43.230 (Iloilo)
Gini squared 1988		1,153.988	339.961	449.016 (Tawi-Tawi)	1,868.833 (Iloilo)
Dynasty	Proportion of provincial officials related by blood or affinity	0.140	0.246	0	1.000
Ethnic fragmentation 1988	Herfindahl index	0.579	0.190	0.287 (Catanduanes)	0.884 (Palawan)
Mortality	Mortality rate per 1,000 children ages 0–5 years, 1988	84.688	14.847	55.920 (Pampanga)	121.120 (Western Samar)
Landlock	Dummy variable (1 if a landlocked province, 0 otherwise)	0.203	0.405	0	1.000
Change in literacy	Change in simple literacy rate, 1988–2003	3.847	5.288	–8.960 (Zamboanga del Norte)	16.0000 (Abra)
Change in road density	Change in (concrete-equivalent) road density, 1988–2003	0.123	0.286	–0.076 (Romblon)	2.466 (Metro Manila)
Change in electricity	Change in share of households with electricity, 1988–2003	18.761	13.931	–11.800 (Agusan del Sur)	67.380 (Batanes)
Change in CARP	Change in CARP accomplishment, 1988–2003	0.802	0.144	0.263 (Sulu)	1.000 (Batanes/Squijor)
Change in agricultural terms of trade	Change in agricultural terms of trade, 1988–2003	–0.004	0.186	–0.310 (Northern Mindanao provinces)	0.460 (CAR provinces)

Source: Balisacan (2007).
Note: The last two columns show the provinces with the lowest and highest scores, respectively.