

# Geography and human development in the Philippines

Highlights of the theme chapter of the 7<sup>th</sup> Philippine  
Human Development Report  
Launch event, 29 July 2013

# I. Human development takes place in *physical space*.

- People locate themselves in spaces differentiated by elevation and slope, temperature and precipitation, accessibility and exposure to hazard.
- Natural factors combine to influence initial land potential and land use, disease burden, settlements patterns—ultimately, health, livelihood, and standards of living.
- In the Philippines, physical space is uniquely diverse.  
*Does geography play a part in shaping local incomes and outcomes?*

Geography matters. Factors related to geography “explain” about 34.3 percent of the variation in provincial HDI.

Indicator (2009)	Percent “explained” by geographic factors *	... and with neighborhood effects
Life expectancy	24.7	42.4
Mean yrs of schooling	36.6	41.4
Per capita income	31.6	40.2
Poverty incidence	47.2	54.2
HDI	34.3	44.7

\* Factors: climate type, slope, elevation, whether sea/landlocked

# This is not to say that geography defines an “inescapable destiny”

Physical geography may be largely fixed but socio economic outcomes need not be.

We ask:

- By what channels does geography affect local outcomes?
- What are the opportunity costs of not fully taking geography into account?

## The Report's main insights

- Geography is a deep determinant of human development, intrinsically linked through human health, agricultural prospects, access between locations, and specific political institutions.
- Failure to adequately address the implications of local geography is associated with significant costs: lost adult productivity, missed school attendance, substandard agricultural yields, food insecurity, forfeited agglomeration economies, and lost growth.

## Main insights (cont'd)

- The problem is a national organization that is arranged as vertical silos by agency and, within each agency, by program – which is incompatible with the integrated, ecosystem-based governance that local geography demands.
- The problem is also the well-intended but misguided notion that spreading out production evenly across space will lead to growth that is more equitable. However, growth by its nature will be spatially uneven.

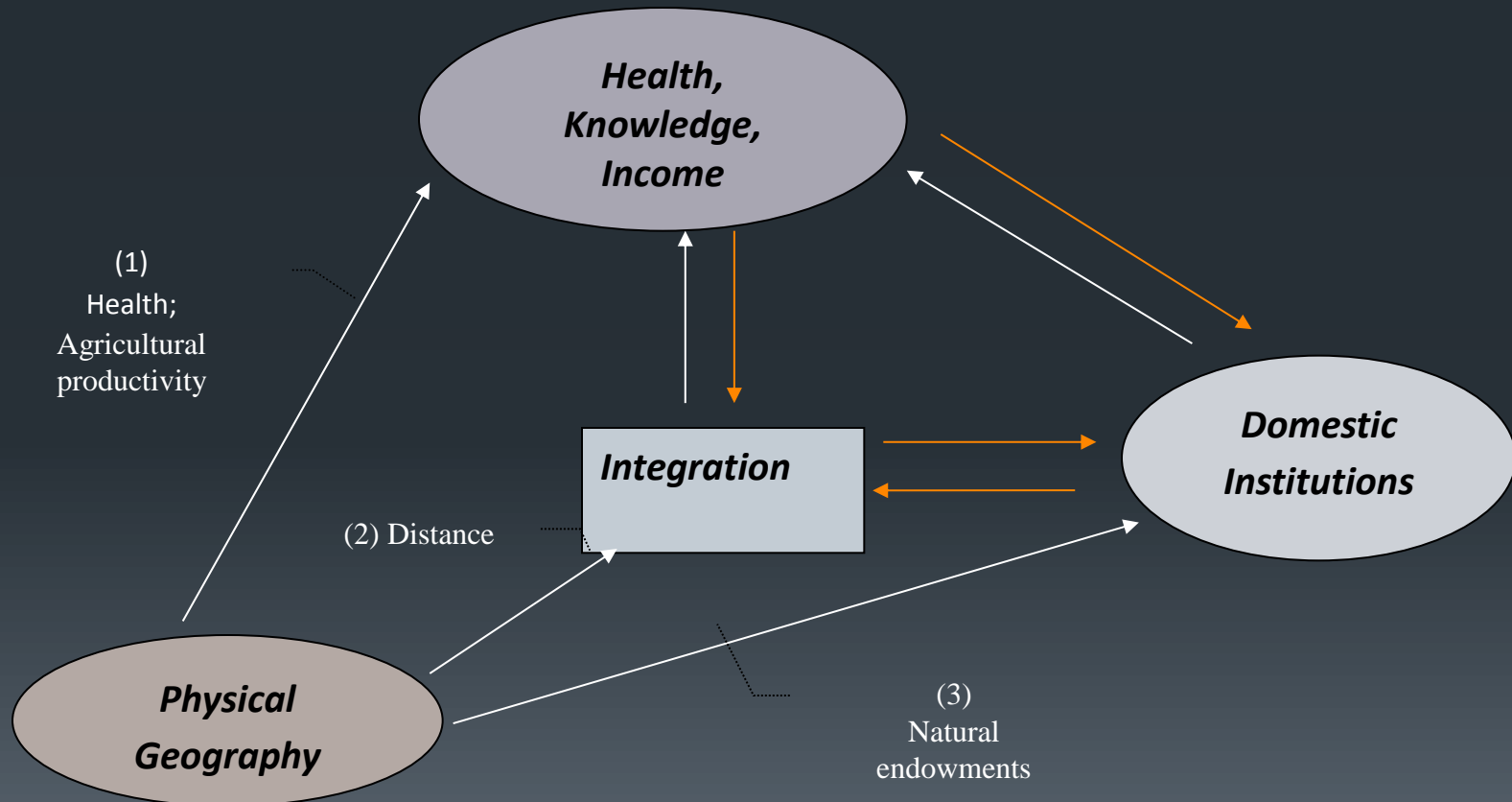
Nonetheless, a geographical convergence of living standards can take place and must remain a prime objective.

## Main insights (cont'd)

- Given geography, human development for all requires (i) a delivery of basic and social services that is integrated and locally anchored and (ii) a policy to promote economic integration.

Strong provinces are key but are currently the weakest link among the layers of government.

## II. Geography is linked to human development thru its effects on health and agricultural productivity, distance, and institutions.



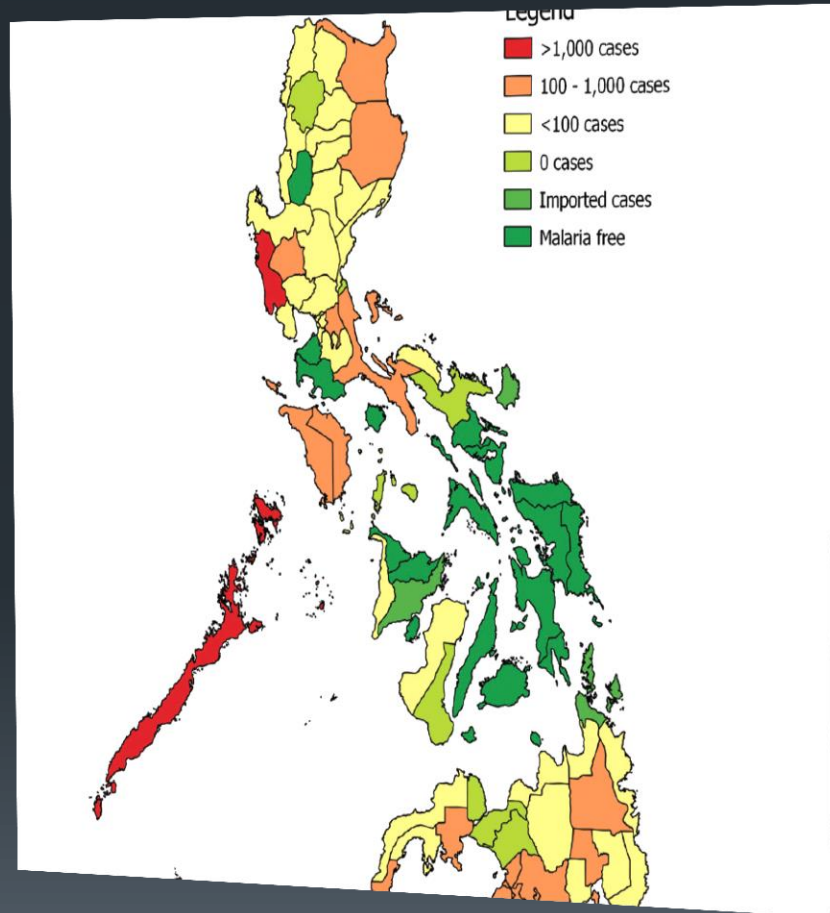


## *Human health:* Neglected tropical diseases (NTDs) are associated with large human development costs

- Vector-borne diseases contribute significantly to the disease burden in tropical countries, which on average have per capita incomes only a third of those of nontropical countries
- NTDs do not cause instant death but “chronic disabilities and deformities that hamper the growth and development of children, as well as the productivity of adults”

## Malaria

- 58 provinces, 14 M at risk
- 1–5 working days lost per malaria episode; 0-5 episodes over a year concentrated in the rainy season when opportunity costs of lost time is greatest



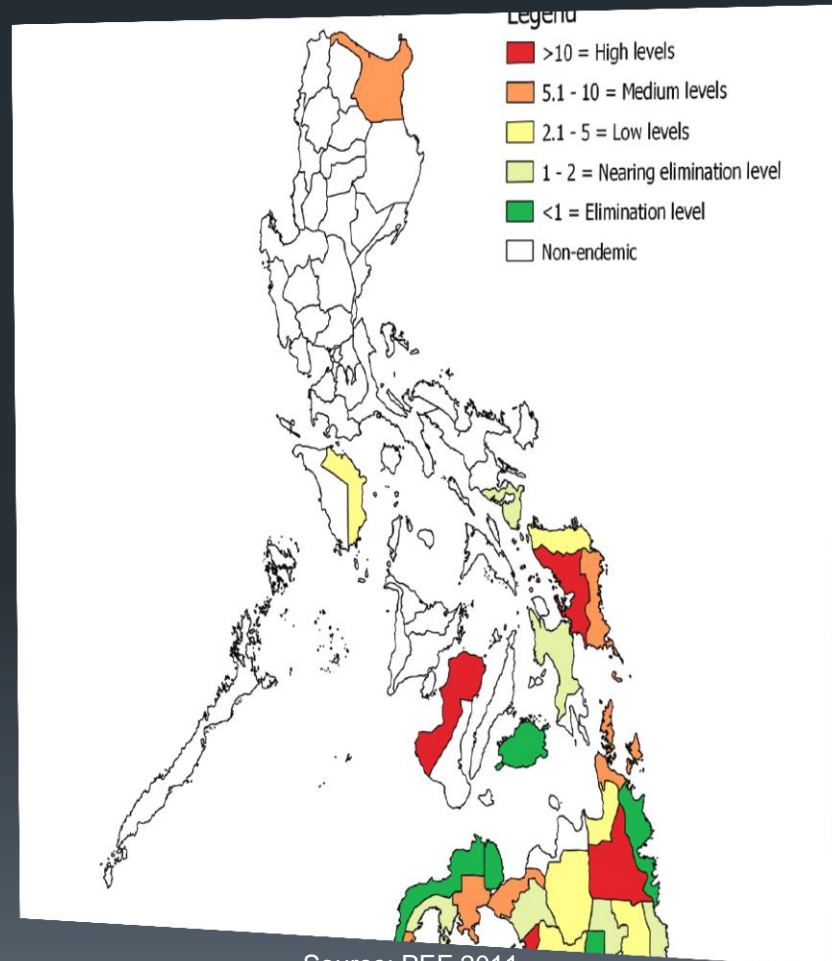
Source: PEF 2011

## Schistosomiasis

28 provinces. 12 M at risk,  
2.5 M directly exposed

Rice fields, streams, and  
creeks are potential  
breeding grounds; irrigation  
systems can transport hosts  
into non endemic areas

An early study: about 45.4  
productive person day lost  
per infected person,  
affecting the 10-19 age  
group most



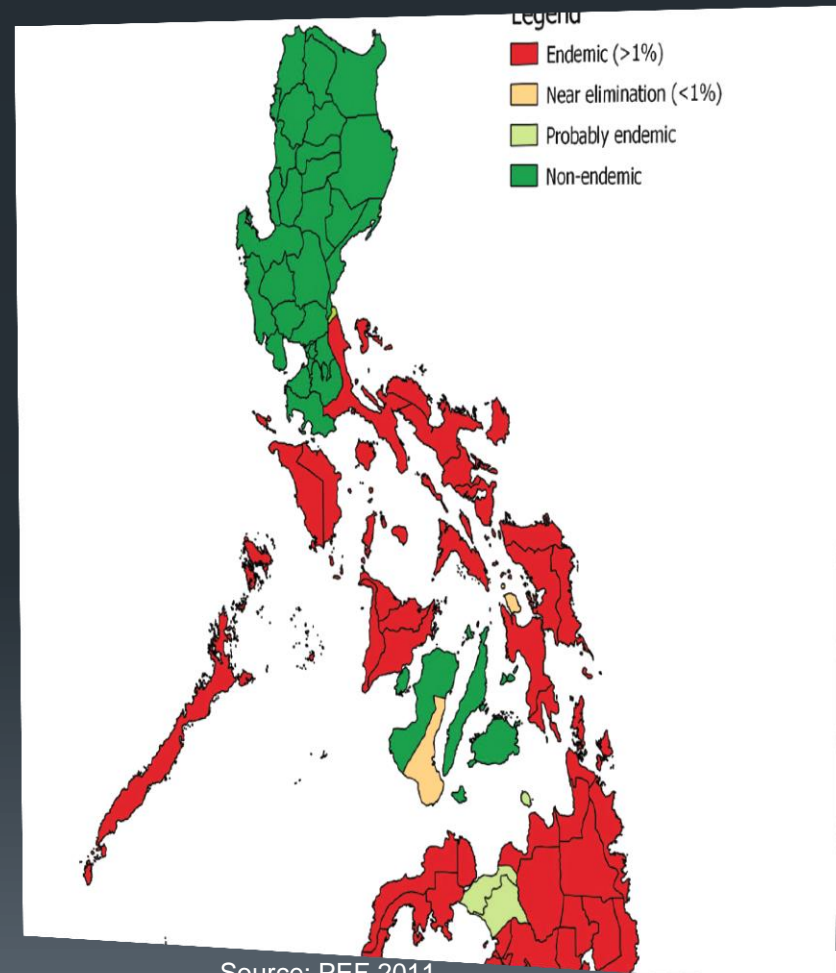
Source: PEF 2011

43 provinces, 645,000 people.

2<sup>nd</sup> leading cause of permanent and long-term disability.

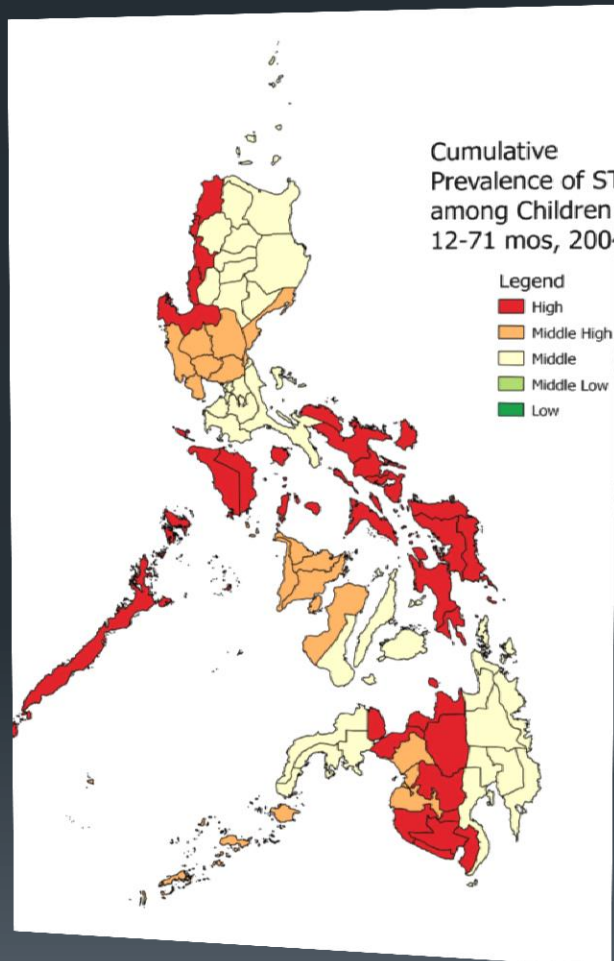
About US\$ 4.4 million in annual losses from decreased productivity and increased costs of care

## “Tibak” (elephantiasis)



Source: PEF 2011

## “STH” (soil transmitted helminth infections)

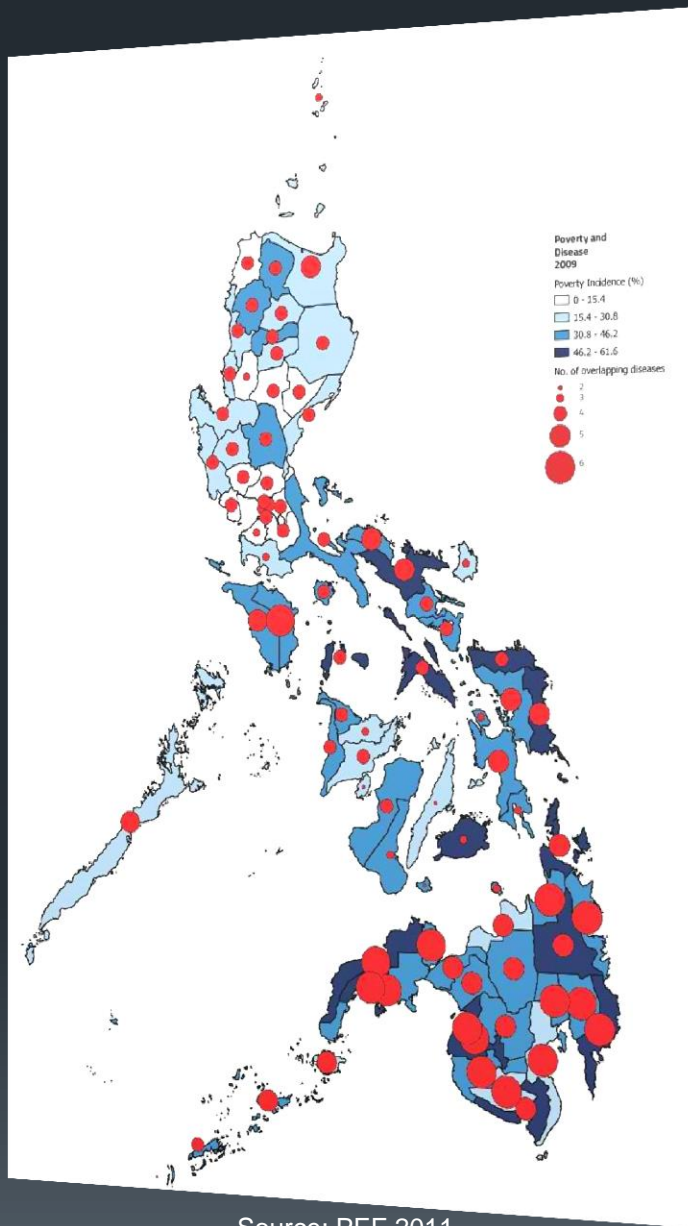


Source: PEF 2011

66 % of pre-school children,  
67% of school-age children,  
up to 43.1% of general  
population at province level

### Foregone benefits

- 25 percent reduction of absenteeism
- 1 year of education
- 34% reduction in work days lost
- 12% increase in hours worked
- 21-29% improvement in wage earnings



Source: PEF 2011

Tropical diseases tend to overlap where incidence of poverty is higher

Indicative of the cumulative effects of chronic parasitic infection, which often co-occur.

OR, that poorer communities are less able to eliminate or control diseases where they occur.

However, rising incomes *per se* will not take care of these threats. Spatial factors matter.

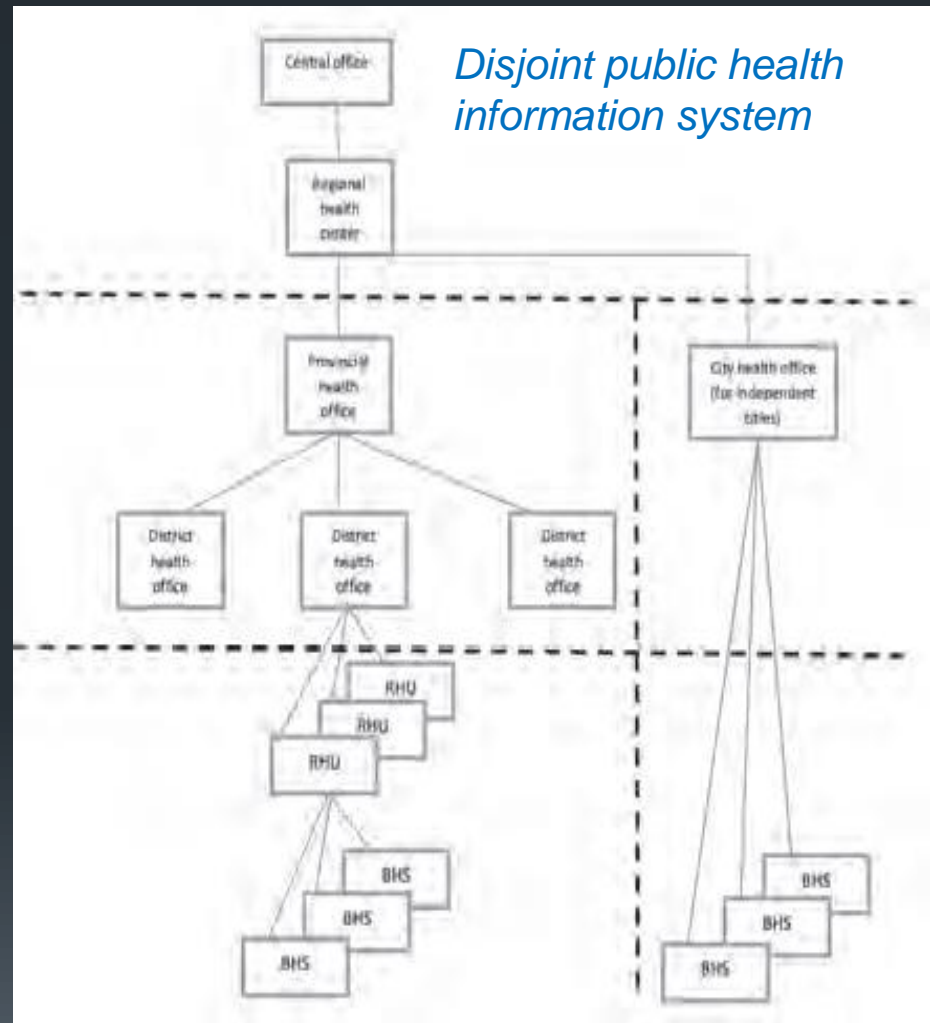
Correlate	Percent of overlapping occurrence explained
Income poverty incidence (2009)	13.31
geography (climate, sea locked, landlocked)	26.76*

\* Geography explains a greater percentage of the variation in the overlapping occurrence of disease



## Poor data results in an underestimation of magnitudes and an inattention to locations

- gross underreporting, misdiagnosis at community levels
- focal and nonrandom nature of parasites not captured by surveys
- national data of uneven quality





The implication is that actions must be direct and integrated—locally.

- Integration is more than ‘co-implementation’ across vertically-organized national health programs. It involves hard choices to internalize intra- and inter-sectoral spillovers within and across localities.
- **Provinces** have the most at stake in seeing integration succeed: improved education, higher adult productivity, overall local growth, and human development.

## ***Agricultural productivity:*** The implications of a broad range of natural variation are critical for an agriculturally oriented population

- Geography can have its greatest impacts when traditional agriculture dominates a local economy.
- In the Philippines, the incidence of income poverty is three times greater among agricultural households than among all other households combined
- Everything else held fixed, climate and soils determine an area's agricultural prospects

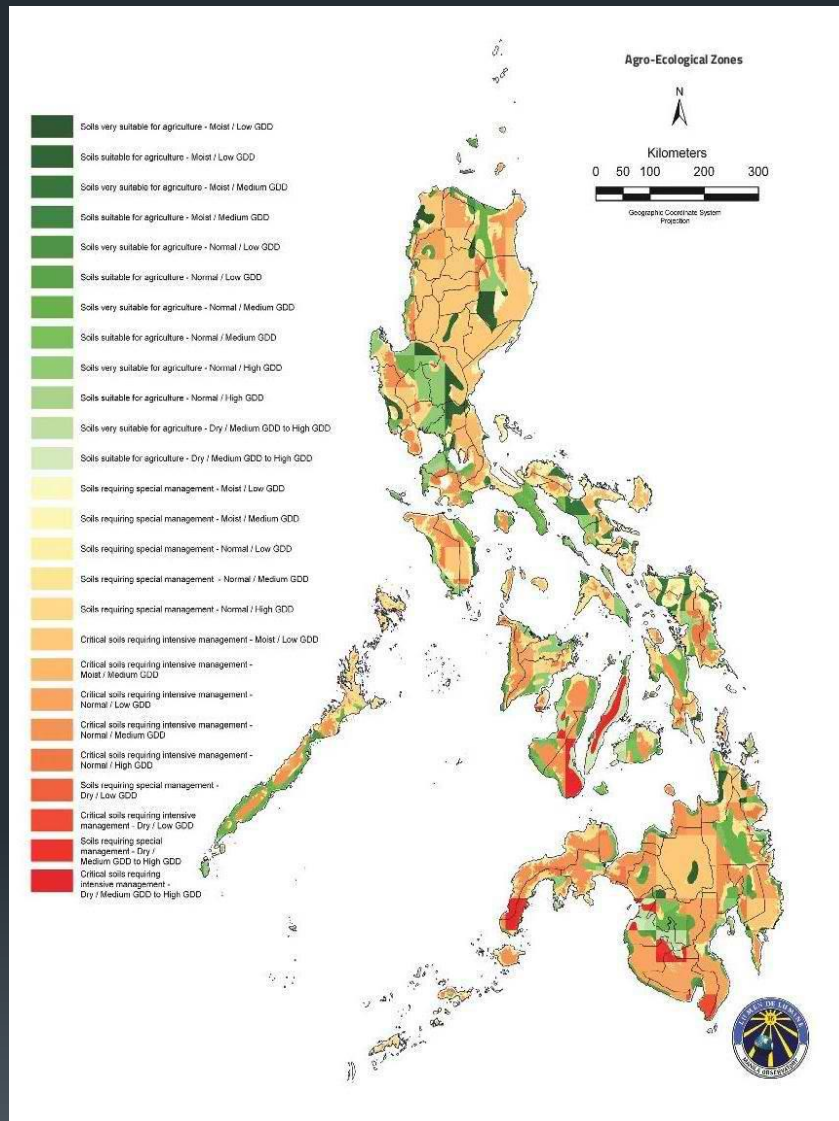


Illustration: Wide variety of AEZs across the country, which do not fit neatly into administrative divisions. Not all divisions have a “strategic” agricultural area.

Implication: If land-based agricultural prospects are to be realized, no “one-size-fits-all” approach will work.

But this is what the sector currently offers.

The opportunity cost of failing to provide customized extension services can amount to a 150 percent increase in yield foregone

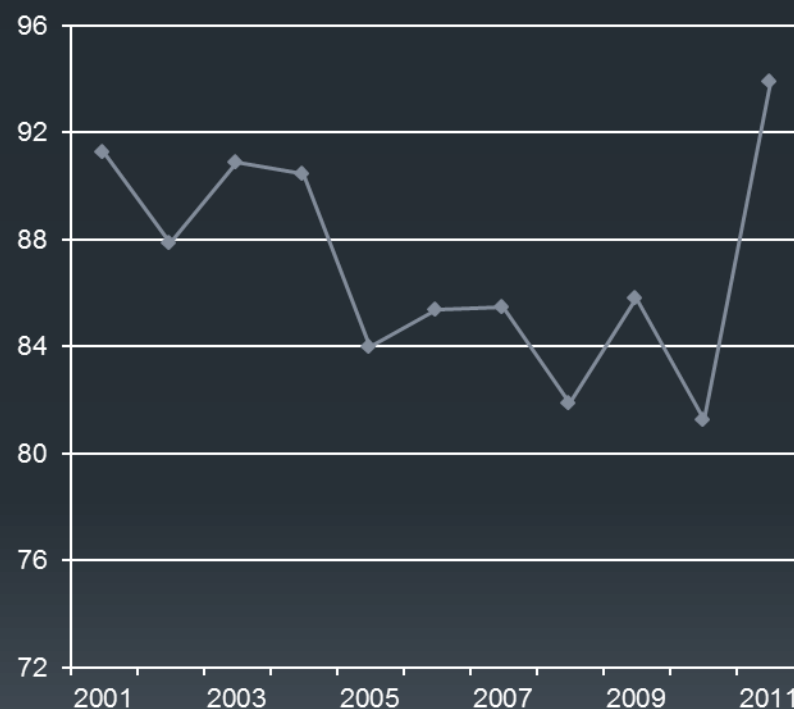
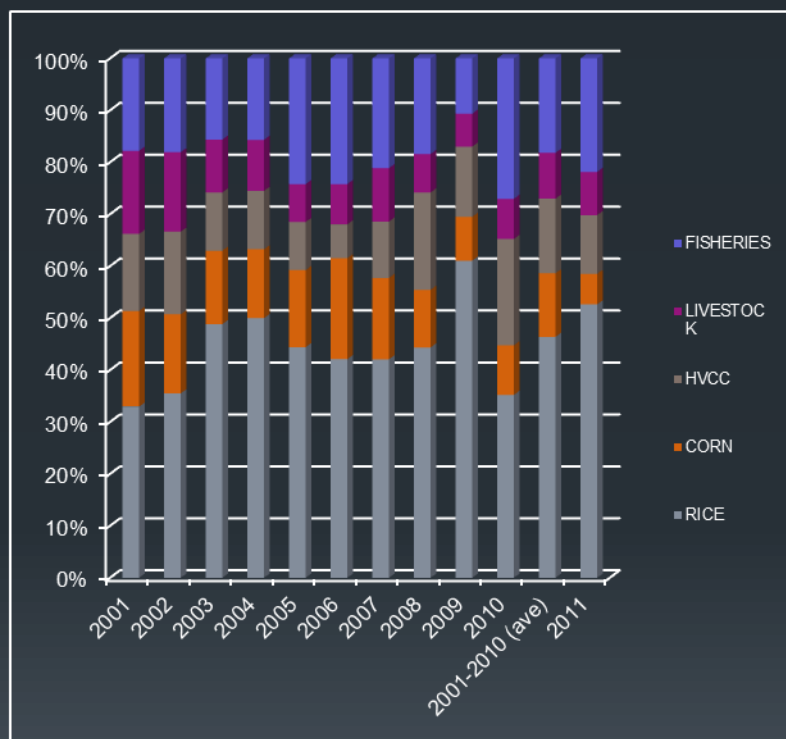
Average grain yield (t/ha/season)*		Constraints and their opportunity costs (in terms of yield increase)	
wet season	dry season	Constraints	Opportunity cost
8.13**	10.17**	Seed quality, climate	
6.51	8.13	Fixed factors such as variety, climate, soil texture, hydrology (e.g. flooding)	25%
4.88	6.10	macronutrients deficiencies and water problems	33%
3.25	4.07	soil micronutrient deficiencies, pests and crop management problems	50%

Source: Sebastian et al. 2006

More fundamentally, the undue focus on rice at the expense of other crops and sources of protein is disconnected with the pursuit of human development

- ❑ Sector misses the mark by focusing on *rice self-sufficiency* (at all costs), rather than on *cost-effective food security*; on *production* rather than *farm incomes*.
- ❑ Moreover, local farmers are typically engaged in a multi-commodity activity to minimize risk and provide access to a secure food source in times of climatic adversity
- ❑ Misdirected focus is translated into inappropriate strategies (overly centralized, vertically organized by crop, dominated by rice) and faulty budget allocations

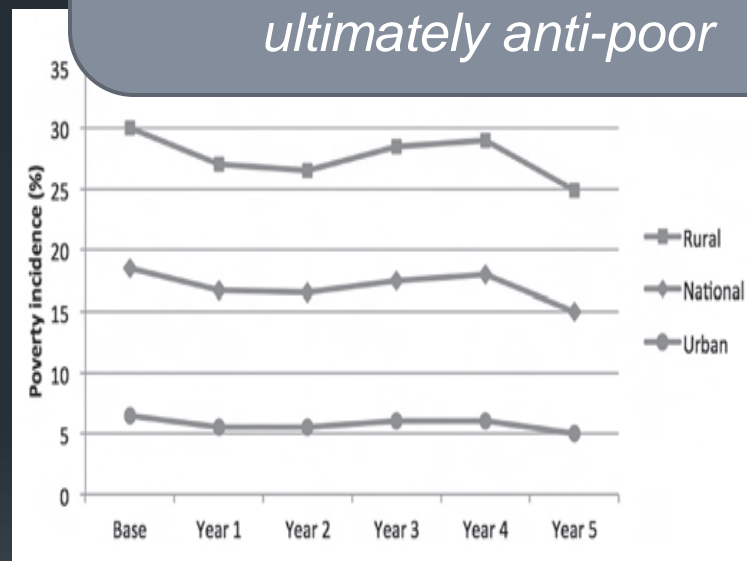
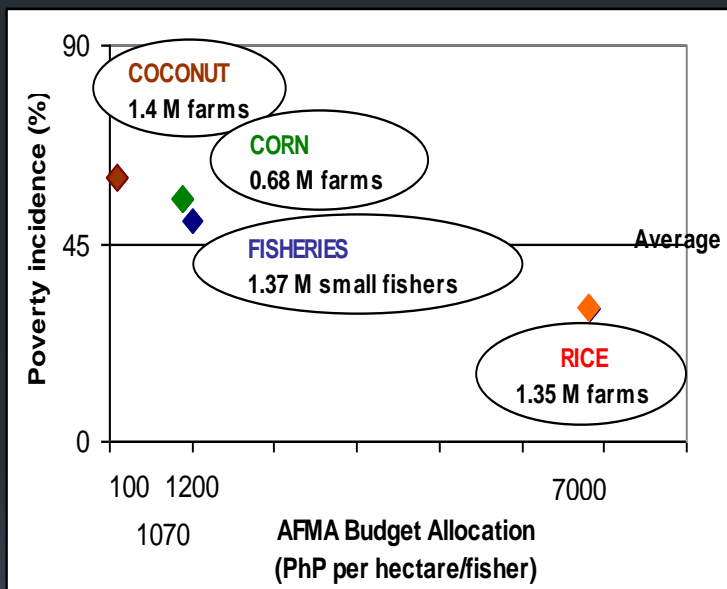
Result: Between 2001-2010, rice claimed 47% of budget (excluding irrigation), but self-sufficiency in rice dropped 10 percentage points



*The sharp increase in 2011 was achieved by holding down imports and drawing down on rice stocks - an unsustainable strategy.*

Sectors with worst poverty – fisheries, coconut - received the smallest budgets and potential reductions in poverty incidence crop-neutral – were foregone

*In short, the 'single-commodity-production' focus has been costly, has undermined food security, and has been ultimately anti-poor*



Source: Paris and Antiporta 2006

Sectors with the worst poverty received the smallest budgets

(Simulated) decline in poverty incidence under a crop-neutral R&D approach

As in the case of health, an integrated approach, with the province as planning domain, is implied by local geography

- Agriculture requires planning along AEZs which must also include marine ecosystems and other natural resources that are central to the viability of agricultural assets.
- Planning cannot be done by commodity or by municipality which are too small geographically to horizontally integrate important components.

The dawning realization of the effects of ***climate change*** is further reason to doubt the effectiveness of the current approach



# But provinces currently have little to do with the planning or delivery of public goods in agriculture and health

**Box Table 3 Devolved health functions**

Province	Municipal/City	Barangay
<b>1</b> Health services through hospitals and other tertiary health services	<b>1</b> Implementation of programs and projects on primary health care, maternal and child care, and communicable and noncommunicable disease control services  <b>2</b> Access to secondary and tertiary health services  <b>3</b> Purchase of medicines, medical supplies, and equipment  <b>4</b> Construction and maintenance of clinics, health centers, and other health facilities Cities also undertake health services provided by provinces	<b>1</b> Health services through the maintenance of barangay health stations

Source: Capuno [2008], Table 2

**Box Table 4 Devolved agricultural functions**

Province	Municipal/City	Barangay
<b>1</b> Extension and on-site research services and facilities  <b>2</b> Assistance in the organization of farmer's and fisherman coops and other organizations	<b>1</b> Extension and on-site research services and facilities  <b>2</b> Quality control of copra  <b>3</b> Improvement or development of local distribution channels  <b>4</b> Communal and other small-scale irrigation  <b>5</b> Water and soil resource conservation projects  <b>6</b> Enforcement of fisheries laws in municipal waters including conservation programs	<b>1</b> Distribution of planting materials Operations of farm produce buying stations

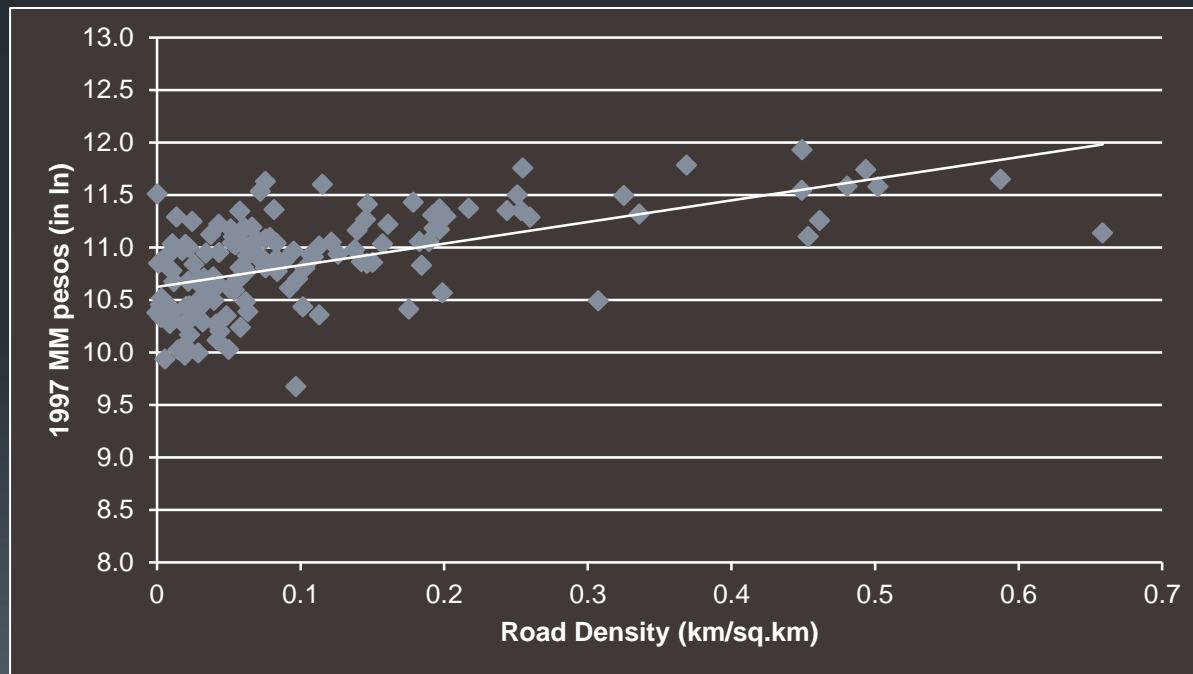
Source: Tillah [2011, citing David n.d.]

## *Distance, accessibility and market integration*

- The nature of geographic advantage in economic terms changes over time. As an economy develops, advantage may no longer come from agricultural productivity but from distance or access to markets.
- *Distance* is the ease or difficulty by which labor moves, goods are transported, capital flows and services are delivered between two locations [WB 2009]
- *Lagging* areas are typically distant from *leading* places or areas with greatest economic density or highest market potential.

## Land transportation networks are important but paint a partial picture.

### Local roads and rural non-agricultural income



Source: Table 11, Balisacan et al. 2011

What counts more are the *network effects* from linking islands thru an efficient road *and* maritime transport network

One can get a sense of network effects from early impact of 2003 ro-ro policy reforms



With ro-ro reforms, transport costs for goods were cut by as much as 68 percent relative to the costs of transporting goods via conventional shipping

Type of Commodity	Traditional Shipping	RO-RO Shipping	Savings (%)	Origin - Destination
Beer	30,400	13,000	57%	Batangas – Calapan
Dry Goods	50,000	40,000	20%	Manila – Cebu
Medical Kits	10,000	4,000	60%	Iloilo – Bacolod / Dumaguete
Live Cows	90,465	51,500	43%	Guihulngan, Negros – Manila
Liquid CO2	225,000	71,664	68%	Bacolod – Cagayan de Oro
Assorted Fish	32,000	23,360	27%	Zamboanga City – Bato, Cebu

With easier access to the north *and* newly opened access to the south, Roxas, Mindoro Oriental, enjoyed more than P200 M in new investments from 2003-2008

**Before**



**After**



***Geography and domestic institutions:*** That leading and lagging areas within a nation emerge at all is an outcome of a “striking attribute” of economic development - namely it is seldom balanced [WB 2009]

- Economic growth does not spread smoothly across space; hierarchies and spatial disparities are inevitable and reflect a dynamic system.
- Economic density and concentration drive economic growth of a local economy and national economy
- Locally, increasing concentration is manifest in urbanization; nationally, in the emergence of leading areas

Although economic growth may be uneven across a nation, nothing precludes the geographic convergence of living standards

To enable this, promoting economic integration is critical

- policies to ensure access to basic services everywhere and enable fluid land markets, laying a neutral foundation for possible urbanization
- policies to help people/firms reduce their “distance to density” – facilitate mobility - allowing the benefits of density to be more widely shared.

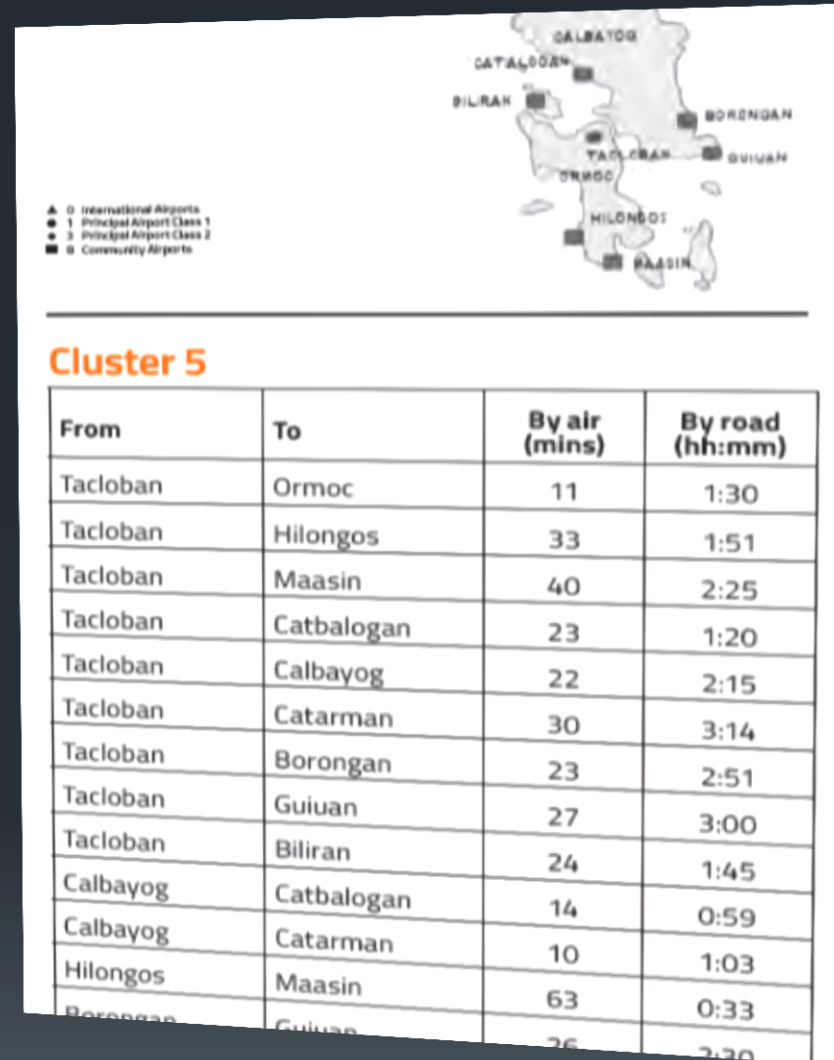


However, implicit government policy has historically tended toward *dispersion* rather than integration.

- Typically invoked in the pursuit of ‘balanced growth’ or an ‘equitable distribution of growth’
- This is well-intended but misguided. The premature spreading out of economic activity, such as when production is pushed to lagging areas, inhibits agglomeration economies, discouraging the very enterprise that policymakers hope to promote

This bias is discernible in the manic proliferation of airports, seaports, special zones, without regard for scale economies

- 87 airports, many within a two-hour ride from each other.
- 140 public seaports, 40 without any traffic.
- More than 10.64 million ha. in 91% municipalities proposed as SAFDZs (rendering the proposed approach useless)



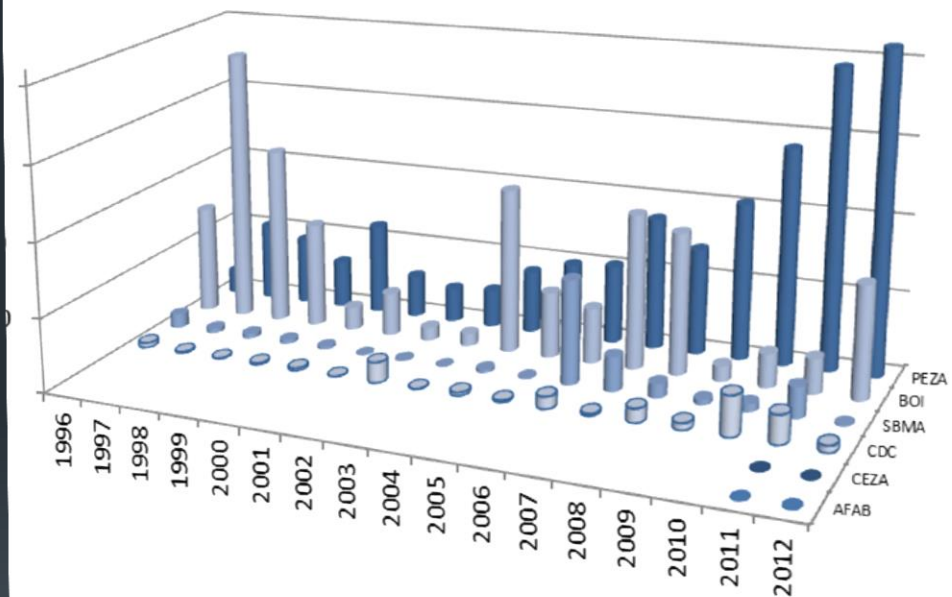
Attempts to disperse industry and generate economic mass across regions have largely failed

Regional agro-industrial centers in the 1980s.

APECO and other freeports

... consistent with international experience

*Performance of freeports, BOI, and PEZA 1996-2012*



This is the '***divide-by-N syndrome*** - the “mechanical and feckless dissipation of government funds across localities instead of their rational allocation to where these might have the most impact”

- Fragmentation ... typified by pork-barrel allocations, e.g. bridges that lead nowhere, dirt roads interrupted occasionally by concrete paving, half-roofed schoolhouses.
- ... and pork barrel-like allocations drawn from local development funds. Hence, “many small projects with little development significance - waiting sheds, entrance arches, multi-purpose pavements - dotting towns and cities”

## The pork barrel institutionalizes 'divide-by-N' at all levels

- Divide-by-N results from a system where the bulk of revenues are collected nationally and only subsequently redistributed to local governments using rigid formulas
- Politicians are left to prove their worth by finding ways to channel part of what is left in the common fund back to their constituents in the form of projects

Divide-by-N also underlies the predilection to carve out new political units - '*political mitosis*'

- 80 provinces - and counting; 143 cities; 1491 municipalities. Some provinces have the oddest shapes (Zamboanga Sibugay, Saranggani); some cities are a curiosity (Puerto Princesa)
- One form of mitosis – removing highly urbanized cities from the authority of provinces where they are located - is particularly perverse as it penalizes a province which demonstrates urbanization and agglomeration.

### III. What are implications?

That growth will be uneven challenges prevailing assumptions and biases regarding the nation's vision for inclusive growth

Are growth strategies focused on places or people?

The aim of economic integration is to reduce the distance of people, especially the poor, to economic opportunities *wherever the latter may be found*.

This is not the same as “bringing jobs to the people,” which is easily misunderstood literally as promoting industry in lagging provinces.

The first is concerned with the welfare of people, the second with the fate of places.

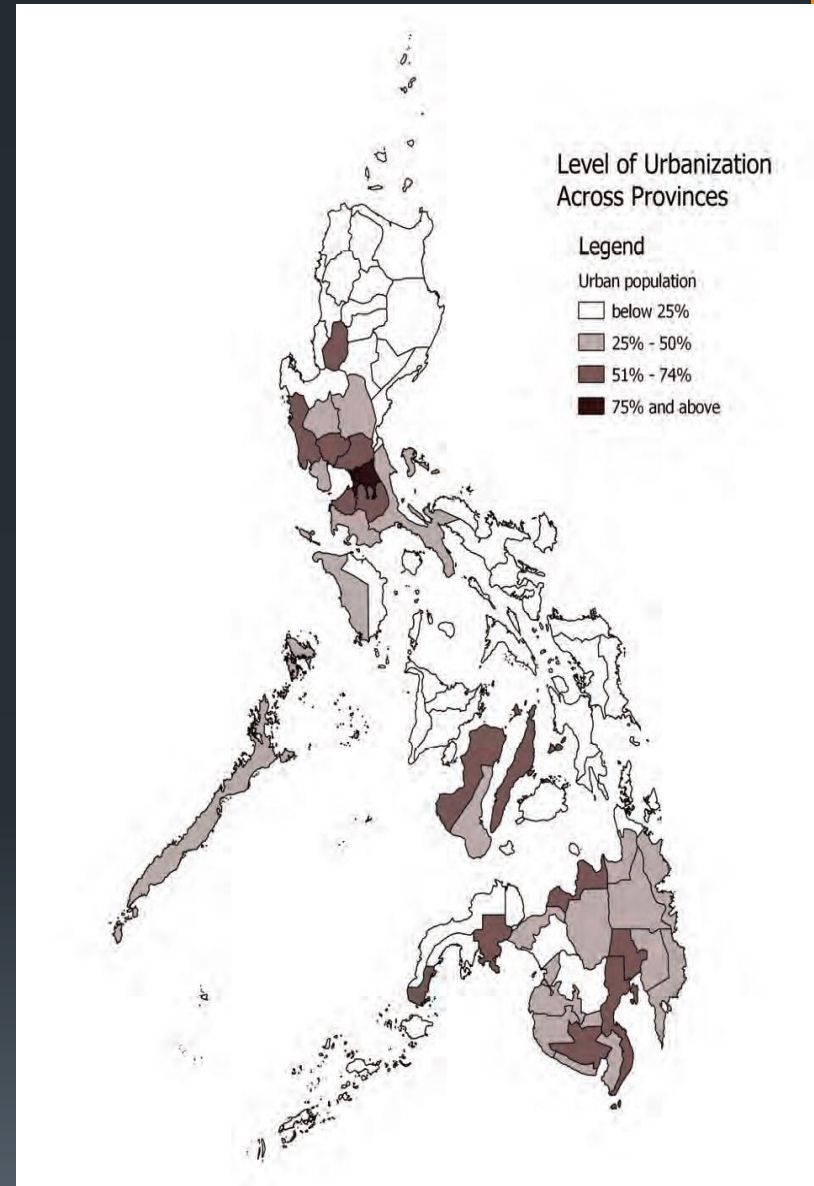


# Promoting integration means action *within* provinces and *across* provinces [WB 2009]

(i) The combination of policies to encourage ***rural-urban integration*** will depend crucially on the level of urbanization within each province.

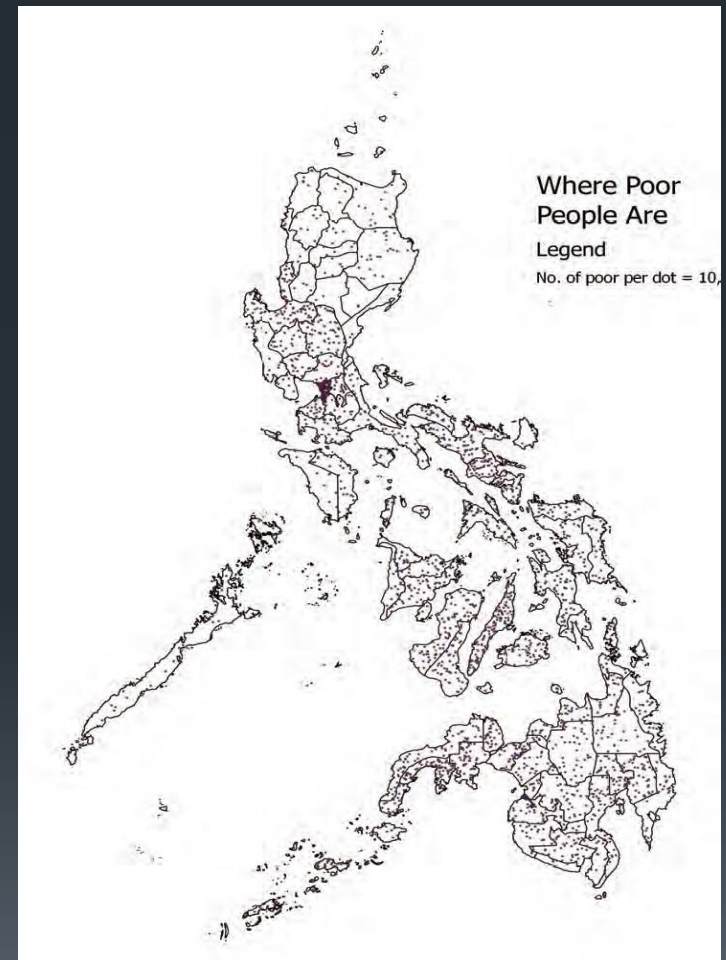
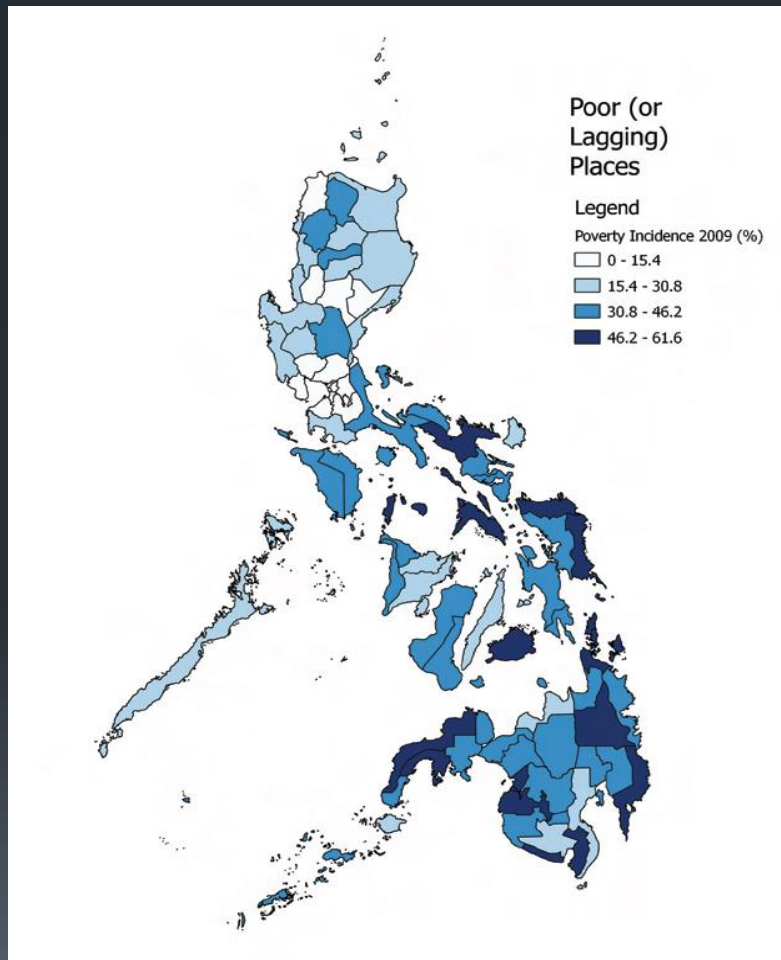
## Instruments

- 'spatially blind' institutions (e.g. basic services everywhere)
- connective infrastructure
- 'spatially targeted' incentives
- ... in this order



(ii) The policy mix to **integrate leading and lagging provinces** will depend critically on which places are poor and where poor people are.

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In any case, the fundamental means needed to build human capabilities - basic education and health - must be made available irrespective of location. Access must be “spatially blind” .

This is the necessary condition for optimizing succeeding policy instruments.

Also, strong provinces are part of the story.  
*Herein lies the rub.*

## Provinces are the weakest link

Authority over important services is highly circumscribed

Provincial priorities are not integrated into higher-level development plans

Severe mismatch between revenues and expenditures assigned to provinces

LGU	Mandated share in IRA (%)	Cost of devolved services (%)
Province	23	37
City	23	5.7
Municipality	34	38.5
Barangay	20	18.8

Source: Llanto 2012, Manasan 2007

## In the best case, empowering provinces must include

- ❑ Reform legislation to strengthen role in the provision of public goods that require integration and scale in their geographic domains
- ❑ A larger tax base
- ❑ Restructuring national government agencies toward integration efforts at local levels; subjecting non-IRA funds for devolved functions to provincial government control
- ❑ Formal mandate to provinces to lead rural-urban, interurban, and metropolitan integration efforts within their geographical jurisdictions

Fragmented geography, unbalanced growth, *and* inclusive human development can be compatible.

Differences in location should *not* translate into differences in human opportunities.