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Do Regions Gain from an Open Economy?

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Abstract

This paper looks into whether and how sub-national regions can benefit from a country's economic openness. Using data on the Philippines, it first notes marked disparities across its regions as reflected in economic and social indicators. The dominance of Metropolitan Manila in the national economic landscape persists, albeit spread effects into adjacent regions are increasingly apparent. Applying econometric analysis to panel data, the paper then examines how regional economic growth is influenced by economic openness. Results show that regional gains appear to be uneven with the ex-ante lagging regions at a disadvantage; by extension, the welfare effect on the poor appears unequal, as well.

JEL Classification: I32, O18, R11

Key Words: economic openness, regional development, poverty, Philippines, Asia

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Do Regions Gain from an Open Economy?

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1. Introduction

We aim in this paper to see whether and how sub-national regions can benefit from a small open economy. While globalization has been around for a long time, and most countries have been a part of it one way or another, the theme of economic openness has assumed greater significance still with the ASEAN Economic Community (AEC) that was set to go full gear in early 2016.

To say that Asean Economic Integration (as AEC is more popularly known) presents both challenges and opportunities is to merely mouth a cliché. Needless to say, too, how a member country, such as the Philippines, faces these challenges and opportunities as well as the extent to which it is prepared for them will be crucial. We are interested to find out to what extent AEC forces, besides the more global ones, are likely to matter not just at the national level but especially at the sub-regional level or across the nation's broader economic landscape.

The next section presents a backdrop that traces the roots of the Philippine economy's pre-war spatial evolution through to the more contemporary periods, including a comparative perspective on Philippine urbanization trends vis-à-vis other ASEAN member countries. The third section is brief review of the literature on views how economic openness relates to regional growth and well-being of the poor or poverty reduction. Section 4 presents the study's data and methodology. Section 5 is a descriptive analysis of regional development patterns through economic and social indicators. In section 6 we apply econometric analysis to panel data on economic openness, gross regional domestic product, and consumption expenditure of the poor, controlling for other factors. We summarize and conclude with implications for policy and further research in section 7.

1. Background

The Philippine space economy manifested a high degree of urbanization early in the 20th century relative to other countries in Asia,¹ and this can be largely be accounted for by historical forces. One such potent force was the Spanish colonial strategy of *reducción debajo de las campanas* whereby natives were corralled from scattered *barangays* (villages) into compact settlements (*poblaciones*) with the church at the core for easier proselytization (Phelan 1959). This "reduction" process had also been applied to Hispanic America, resulting as well in

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¹ For instance, the Philippines in 1903 was already 13.1 percent urban which was higher than Indonesia's (12.4%) and Thailand's (10.5%) levels in 1950, while Malaysia's level (20.4%) also in 1950 was lower than that of the Philippines' 21.6 percent in 1939.

relatively high urbanization levels (Reed 1967). Hence, the evolution of urban primacy or spatial concentration can be traced to early external influence (Pernia 1976).

More recent and contemporary globalization trends continue to exert strong influence, if probably different types of impacts, on national urban and regional development (Pernia 1994; Lo and Yeung 1998). For one thing, as economies become more open, they are subjected to all kinds of global forces, such as trade, capital, technology, economic policy, information and knowledge. For another, while external influences during colonial times were almost exclusively one-way – from colonizer to colony, with the economic benefits arguably going mostly to the former – these influences are becoming more two-way, with developing countries benefitting as well in one way or another.

The Philippine economy's spatial concentration appears to have been heightened, not lessened, by recent external influences, specifically trade and investment (Solon 1996; Pernia and Quising 2003). Capital and trade flows, supported by new communication and transport technologies, operate in the world economy via the national capitals that evolve as megacities. This view is backed by evidence on the tendency of foreign direct investment (FDI) to locate in and around the metropolises of East Asian countries (Fuchs and Pernia 1987).

Table 1 shows comparative data on levels of urbanization across eight ASEAN member countries over the period 1950-2015 (Brunei Darussalam and Singapore, being *sui generis*, are excluded). The Philippines was the most urbanized in this group in the early post-war years but was overtaken by Malaysia beginning around 1970. After peaking in 1990 at 49 percent, Philippine urbanization started to decelerate so that Indonesia passed it in 2010, and so did Thailand shortly after. The upshot is that currently the Philippines has become the least urbanized (44 percent in 2015) among the ASEAN-4 originals, with Malaysia at 75 percent, Indonesia at 54 percent, and Thailand at 50 percent.

Table 1. Levels of Urbanization in ASEAN, 1950-2015
(% urban of total population)

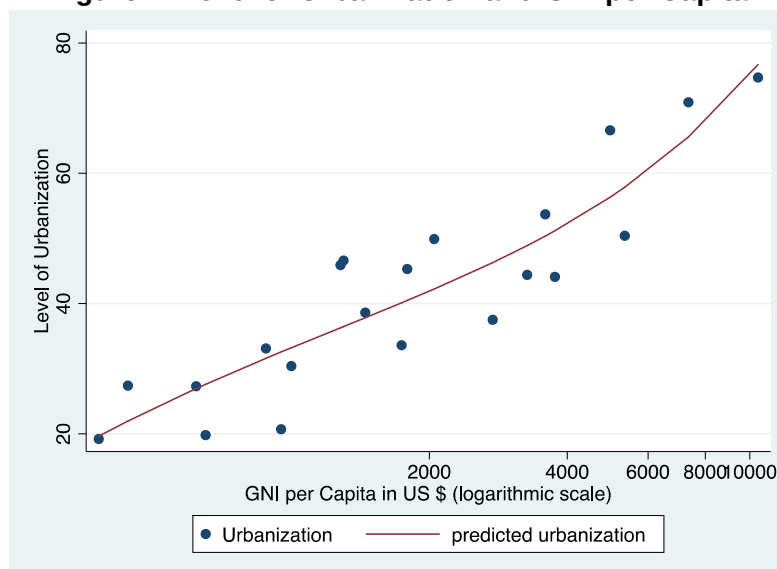
ASEAN 8	1950	1960	1970	1980	1990	2000	2010	2015
Cambodia	10.2	10.3	11.7	12.4	15.5	18.6	19.8	20.7
Indonesia	12.4	14.6	17.1	22.2	30.6	42.0	49.9	53.7
Lao PDR	7.2	7.9	9.6	12.4	15.4	22.0	33.1	38.6
Malaysia	20.4	26.6	33.5	40.2	49.8	62.0	70.9	74.7
Myanmar	16.2	19.2	22.8	24.0	24.6	27.0	31.4	34.1
Philippines	27.1	33.3	33.0	37.5	48.6	48.0	45.3	44.4
Thailand	10.5	12.5	13.3	17.0	24.4	31.4	44.1	50.4
Viet Nam	11.6	14.7	18.3	19.2	20.3	24.4	30.4	33.6

Source: U.N. *World Urbanization Prospect: The 2001 Revision* (2002) and *The 2014 Revision* (N.Y., 2014).

Research has shown that urbanization – whether spatially concentrated or dispersed – is closely associated with economic growth. This is illustrated in Figure 1 where the vertical axis

depicts urbanization level (% urban of national population) and the horizontal axis, GNI per capita. A simple ordinary least squares (OLS) regression shows that a 1.0 percent increase in GNI per capita is associated with a 0.38 percent rise in level of urbanization (Table 2).

Figure 1. Level of Urbanization and GNI per Capita



Source: Authors' estimation using data from Table 1, and *ADB Basic Statistics* (various years) for GNI per capita.

Table 2. Elasticity of Urbanization Level vis-a-vis GNI per Capita

Ln Urbanization	Coefficient	S.E.
Ln per capita GNI	0.3797***	0.0463
Constant	0.8190**	0.3492

*** Significant at 1%, ** Significant at 5%

2. Views on Openness, Growth, and Poverty Reduction

There are essentially two theoretical views regarding the links between openness, growth, and poverty. One is known as the new economic geography models which say economic openness fosters growth outside major urban centers where manufacturing industries locate to eschew rising land, labor and congestion costs (Krugman and Livas 1996). A study of 31 regions in Mexico by Chiquiar (2008), for example, gives evidence on spatial divergence. Another study on Mexico by Rodriguez-Pose and Sanchez Reaza (2005) provides support for spatial divergence in gross regional domestic product (GRDP) per capita during periods of greatest openness. Moreover, Brühlhart et al. (2010) find spatial divergence in Austria, with the less developed border regions experiencing higher post-liberalization growth in both employment and wages.

An alternative view is that foreign direct investment and trade could reinforce urban primacy in a developing country where economic activity is often concentrated in the national capital and inter-city transport infrastructure is inadequate (Fuchs and Pernia 1987). A later study by Rivas (2007) on Mexico also shows that openness boosts economic growth more in

initially richer regions than in initially poorer regions. Similarly, Martincus' study (2009) of 27 regions in Brazil reveals that region-industry share of national employment has a positive relationship with openness (industry share of imports plus exports in production value) and proximity to Buenos Aires.

In a working paper, Guevara (2015) argues that whether trade promotes intra-regional divergence or convergence depends on certain regional characteristics. His findings suggest that spatial agglomeration is enhanced in regions with large home markets and locational advantages, while divergence is induced in regions that lack access to international trade.

Given these views on economic openness and regional development, Winters et al. (2004) cite three difficulties in establishing an empirical link between the two: (i) near-autarchy makes measuring trade difficult; (ii) actual openness is likely to be endogenous; and (iii) trade policies need to be partnered with other appropriate policies.

Nonetheless, despite the difficulties in establishing the link, estimates suggest that trade openness cannot be harmful to growth (Winters et al. 2004). Some cases suggest that growth is accompanied by worsening poverty, while others show no statistical evidence linking trade openness to higher or lower levels of poverty (Guillamont-Jeanneney and Kpodar 2011; Huang and Singh 2011; Le Goff and Singh 2014). But the data broadly support the view that openness is likely poverty-alleviating in the long run and on average, especially when coupled with strong institutions and policies (Winters et al. 2004; Agénor 2004; Liang 2006; Newfarmer and Sztajerowska 2012).

Oktay and Gozgor (2013) provide evidence that increase in trade openness is positively associated with future upticks in regional development in Turkey. Kanbur and Zhang (2005) also find a positive relationship between increases in regional trade-to-GDP ratio and increases in per capita consumption in China. By contrast, Rodriguez-Pose and Sanchez Reaza (2005) point to divergence in gross regional domestic product (GRDP) per capita during periods of greatest openness in Mexico, as cited above. An earlier study on the Philippines shows that trade openness positively impacts regional income growth which, in turn, contributes to increases in consumption expenditure of the poor (Pernia and Quising 2003).

4. Data and Methodology

We employ time-series data on the Philippines' 17 regions for years 2009-2013, and compare the results from earlier data on the country's 14 regions over the period 1988-2000. The national economy grew at an annual average rate of under 3 percent in 1988-91, a period of political instability, dipping further to 2.3 percent in 1991-1994 in the wake of the global economic slowdown set off by Middle East crisis and exacerbated by a severe power shortage. Gross domestic product (GDP) growth accelerated to around 5.0 percent annually in 1994-97 following liberalization policy reforms amid a buoyant global economy. However, growth slowed again to about 2.3 percent per annum in 1997-2000 owing to the Asian financial crisis. Since the second Aquino administration beginning in mid-2010, GDP growth has averaged 6.2 percent. Across

the regions there has been considerable variation in economic performance during these different periods.

The data on GRDP are from the regional income accounts, various socioeconomic and fiscal data are from records of relevant government agencies, and household data are from the Family Income and Expenditure Survey (FIES) conducted by the Philippine Statistics Authority's (PSA's) National Statistics Office (NSO) every three years. To represent external economic forces, we use data on foreign direct investments (FDIs) at the regional level and the ratio of regional trade to GRDP. We have two indicators for poverty from the FIES: poverty incidence (headcount ratio) – the proportion of population below the poverty line, and mean consumption expenditure of the bottom quintile. For theoretical and practical reasons, mean consumption expenditure is deemed superior to mean income as a measure of welfare (Deaton 1997). The theoretical basis is the permanent income hypothesis; at the same time, in practice, current income is more difficult and costly to measure in developing countries where the majority of the poor are self-employed and engaged in agricultural activities with fluctuating incomes.

For descriptive analysis of regional development patterns, we use the data on the 17 regions over the period 2009-2013, with reference to earlier years. For econometric analysis, we compare regression results based on 2009-2013 data with those based on 1988-2000 data.

5. Patterns of Regional Development

Earlier studies have shown the highly-skewed spatial distribution of economic activity in the Philippines, with Metro Manila towering over all the other regions (Pernia, Paderanga, Hermoso, et al. 1983; Lamberte, Manasan, Llanto, et al. 1993). While such spatial concentration or urban primacy may be necessary and desirable initially to achieve agglomeration economies, it can become excessive and costly if left to plain market forces (Hill 2000). The diseconomies of agglomeration are all too familiar, such as time lost to traffic congestion, health and environmental costs owing to air and water pollution, flooding, and traffic accidents.² Hence, as for most other countries, dispersed spatial development remains an important goal in the government's agenda, even as regional development policy has been in the national plans for around five decades now (Pernia and Israel 1994).

5.1 Economic indicators

While urbanization in the Philippines appears to have started a downtrend after 1990 – in contrast to those in the other ASEAN countries which are on the rise (Table 1 above) – regional development continues to be concentrated, as evidenced by GRDP data (Table 3). Metro Manila's or the National Capital Region's (NCR) share of GDP in 1988 was 30 percent, rising to 35.7 percent in 2000 and to 36.3 percent in 2013. The persisting dominance of NCR is even more poignantly exemplified by its GRDP per capita (P196T) in 2013 that was nearly thrice the national average, 2.3 times the next highest (Calabarzon's), and more than 13 times that of the

² For instance, the Japan International Cooperation Agency (JICA) transport study (2014) estimated the average daily cost of traffic in NCR at P2.4 billion then, and could balloon to P6 billion by 2030 if nothing is done to fix the problem.

poorest region, the Autonomous Region of Muslim Mindanao (ARMM). In 1988 the comparative ratios were only 2.3 times, 2.0, and 4.1, respectively; likewise, in 2000 these ratios were 2.4, 2.2, and 3.9. No wonder, given such obscene interregional inequality, the long-protracted restiveness and seething frustration in the regions (especially in Mindanao) remain particularly vis-a-vis imperial Manila.

Calabarzon's and Central Luzon's relatively large shares of GDP at 17.4 percent and 9 percent, respectively, can be attributed to their proximity to NCR besides being the host of several major special economic zones (SEZs). Noteworthy is that if the GRDPs of NCR, Calabarzon, and Central Luzon are combined, this mega-urban agglomeration would easily make up nearly two-thirds of the country's total output while the 14 other regions divvy up what remains of the annual national pie. Again, in 1988 and 2000 the corresponding splits of GDP were only 54 percent and 57 percent, respectively.

Ranking third among regions outside NCR in terms of GDP share is Central Visayas, primarily propelled by Cebu, the country's second largest city. However, its spread effect to the surrounding island provinces (Bohol, Negros Oriental and Siquijor) seems disadvantaged due to physical distance by sea.

Table 3. GRDP per Capita, Regional Shares, and Annual Growth Rates
(Constant 2000 prices)

Region		GRDP per capita (Pesos)			Share of GDP (%)			Growth rate (%)	
		2009	2011	2013	2009	2011	2013	2009-11	2011-13
NCR	Metro Manila	162,322	173,057	195,806	35.8	35.6	36.3	6.6	13.1
CAR	Cordillera	70,672	73,490	76,284	2.1	2.1	1.9	4.0	3.8
I	Ilocos	35,813	38,087	42,235	3.2	3.1	3.1	6.3	10.9
II	Cagayan Valley	31,519	32,017	36,017	1.9	1.8	1.8	1.6	12.5
III	Central Luzon	46,546	52,372	55,935	8.8	9.3	9.0	12.5	6.8
IVa	Calabarzon	73,271	78,231	84,657	17.1	17.4	17.4	6.8	8.2
IVb	Mimaropa	37,724	37,283	38,423	1.9	1.8	1.7	(1.2)	3.1
V	Bicol	20,580	20,979	23,873	2.1	2.0	2.0	1.9	13.8
VI	Western Visayas	30,9433	33,296	36,414	4.1	4.1	4.0	7.6	9.4
VII	Central Visayas	44,993	52,193	59,425	5.7	6.2	6.3	16.0	13.9
VIII	Eastern Visayas	36,058	36,784	35,535	2.8	2.6	2.2	2.0	(3.4)
IX	Zamboanga Peninsula	34,353	33,489	38,064	2.2	2.0	2.0	(2.5)	13.7
X	Northern Mindanao	46,818	50,507	55,060	3.7	3.8	3.7	7.9	9.0
XI	Davao Region	46,721	49,112	54,359.2	3.9	3.8	3.8	5.1	10.7
XII	Soccsksargen	36,688	37,534.	41,995.8	2.8	2.7	2.8	2.3	11.9
XIII	Caraga	24,264	28,2023	32,751.7	1.1	1.2	1.2	16.2	16.1
ARMM	Muslim Mindanao	13,867	14,271	14,566	0.8	0.8	0.7	2.9	2.1
		58,199	62,328	68,897	100.0	100.0	100.00	7.1	10.5

Philippines

Source: Philippine Statistics Authority, *Philippine Statistical Yearbook* (various years).

Apart from Central Visayas, regions with consistently high growth rates during the period 2009-2013 include Northern Mindanao, boosted by Cagayan de Oro, and Caraga which, though among the poorer regions, exhibited the fastest annual growth rate of all at 16 percent, partly due to the reported expansion of its service sector,³ and base effect. Meanwhile, ARMM and Eastern Visayas, which already had the lowest GRDP per capita, also grew the slowest.

SEZs mushroomed from only four in the 1980s to 150 in 2002 and to 452 in 2015. This can be attributed to the fiscal incentives granted by the SEZ Act of 1995, which mandated the provision of transportation, telecommunication, and other infrastructures in these zones. The distribution of the country's special SEZs across the regions – of which 326 are operating and 126 are under development is shown in Appendix Table A1. The pattern of concentration is again not surprising, with Metro Manila having the largest share (40%) of the total. Central Visayas is next (14%), owing to Cebu's international airport and port facilities (the country's second best), followed by Calabarzon (13%), and Central Luzon (7%). These SEZs, by definition, not only enhance the respective regions' export capacity but also attract foreign direct investment (Makabenta 2002).

Not surprisingly, the country's two most developed regions are magnets of foreign direct investments (FDIs) apart from domestic investment, together accounting for 75 percent of the former and 53 percent of the latter in 2014 (Table 4). Outside these two, promising FDI destinations are Central Visayas, as would be expected, Western Visayas, Northern Mindanao, Davao region, Caraga and Soccsksargen. In general, with better infrastructure plus sustained institutional reforms coupled with the easing of constitutional restrictions on economic openness, total FDIs could appreciably ratchet up from the US\$ 5-6 billion in the past couple of years – a mere fraction of those in the other ASEAN originals (including Vietnam) – with perhaps more going to the promising regions in the medium- to longer-term.

Table 4. Total Approved Investments, FDIs, and Percentage Shares by Region
(In million pesos)

Region		Total approved investments				Total FDIs			
		2013		2014		2013		2014	
		% Share	% Share	% Share	% Share	% Share	% Share	% Share	% Share
NCR	Metro Manila	151,955	20.2	218,246	28.9	54,820	20.2	52,070	27.9
CAR	Cordillera	4,219	0.6	2,202	0.3	391	0.6	1,502	0.8
I	Ilocos	4,992	0.7	3,945	0.5	1,400	0.7	-	0.0
II	Cagayan Valley	3,220	0.4	2,459	0.3	163	0.4	342	0.2
III	Central Luzon	217,399	28.8	145,104	19.2	119,928	28.8	25,614	13.7
Iva	Calabarzon	166,657	22.1	223,968	29.6	60,459	22.1	87,189	46.6

³ National Statistical Coordination Board (http://www.nscb.gov.ph/pressreleases/2012/PR-201207-SN1-01_grdp2011.asp).

IVb	Mimaropa	6,332	0.8	12,981	1.7	107	0.8	2,264	1.2
V	Bicol	6,286	0.8	1,514	0.2	309	0.8	-	0.0
VI	Western Visayas	18,075	2.4	26,108	3.5	1,093	2.4	1,636	0.9
VII	Central Visayas	35,377	4.7	17,235	2.3	17,637	4.7	7,229	3.9
VIII	Eastern Visayas	16,333	2.2	2,065	0.3	5,419	2.2	724	0.4
IX	Zamboanga Peninsula	1,471	0.2	-	0.0	-	0.2	-	0.0
X	Northern Mindanao	56,882	7.5	63,775	8.4	2,780	7.5	2,661	1.4
XI	Davao Region	52,288	6.9	14,448	1.9	6,589	6.9	505	0.3
XII	Soccsksargen	2,198	0.3	4,084	0.5	765	0.3	2,995	1.6
XIII	Caraga	8,803	1.2	5,184	0.7	1,831	1.2	1,649	0.9
ARMM	Muslim Mindanao	151,955	20.2	3,868	0.5	322	20.2	580	0.3
	Several Locations	4,219	0.6	8,725	1.2	-	0.6	-	0.0
Philippines		754,033		100 755,912		100 274,014		100 186,960	100

Source: Philippine Statistics Authority, *Philippine Statistical Yearbook* (various years).

As regards exports, Calabarzon's share of total exports had been trending up while Metro Manila's had been declining (Table 5). This is likely because SEZs in Calabarzon are mostly for manufactures or assemblies destined for markets, while those in Metro Manila largely specialize in information technology (IT) services. Similarly, the export share from Central Visayas had been on the rise while that from Central Luzon seemed to be leveling off. Meanwhile, Davao Region and Northern Mindanao showed lower shares yet suggest relatively significant export potentials.

Table 5. Exports by Region
(FOB in million US dollars)

Region					Regional Share (percent)		
		2009	2011	2013	2009	2011	2013
NCR	Metro Manila	19,176.16	21,398.22	16,104.81	49.9	44.3	28.4
CAR	Cordillera	400.54	35.14	639.49	1.0	0.1	1.1
I	Ilocos	188.45	366.55	869.16	0.5	0.8	1.5
II	Cagayan Valley	0.23	12.18	60.81	0.0	0.0	0.1
III	Central Luzon	2,959.23	4,787.79	4,367.36	7.7	9.9	7.7
IVa	Calabarzon	9,932.18	12,373.74	22,064.38	25.8	25.6	38.9
IVb	Mimaropa	444.65	932.17	1,354.46	1.2	1.9	2.4
V	Bicol	50.17	332.53	327.55	0.1	0.7	0.6
VI	Western Visayas	148.23	463.01	432.70	0.4	1.0	0.8
VII	Central Visayas	1,963.27	2,303.55	4,361.23	5.1	4.8	7.7
VIII	Eastern Visayas	966.81	1,595.89	896.74	2.5	3.3	1.6
IX	Zamboanga Peninsula	118.18	312.59	44.99	0.3	0.6	0.1
X	Northern Mindanao	665.25	1,138.45	1,236.89	1.7	2.4	2.2
XI	Davao Region	703.77	1,268.80	2,010.60	1.8	2.6	3.5
XII	Soccsksargen	587.93	621.65	1,187.00	1.5	1.3	2.1

XIII	Caraga	130.66	359.73	739.52	0.3	0.7	1.3
ARMM	Muslim Mindanao	0.10	2.93	0.18	0.0	0.0	0.0
Philippines		38,435.81	48,304.93	56,697.86	100	100	100

Source: Supplied directly by Philippine Statistics Authority.

On the other hand, imports to Metro Manila had been on the rise while those to Calabarzon appeared to be trending down (Table 6). A main reason is probably that Metro Manila's imports consist of both consumer and high-value capital goods while Calabarzon's are mostly intermediate products for assembly to be re-exported. Other high import regions, as expected, are Central Luzon and Central Visayas.

Table 6. Imports by Region
(CIF in million US dollars)

Region					Regional Share (percent)		
		2009	2011	2013	2009	2011	2013
NCR	Metro Manila	14,875.26	21,792.14	23,682.89	34.5	36.0	37.9
CAR	Cordillera	1,905.29	1,338.69	673.17	4.4	2.2	1.1
I	Ilocos	122.21	79.81	88.47	0.3	0.1	0.1
II	Cagayan Valley	59.03	32.04	13.62	0.1	0.1	0.0
III	Central Luzon	4,764.30	7,318.03	8,708.07	11.1	12.1	14.0
IVa	Calabarzon	15,929.67	23,628.20	22,417.96	37.0	39.1	35.9
IVb	Mimaropa	156.86	210.24	205.62	0.4	0.3	0.3
V	Bicol	91.98	79.29	40.16	0.2	0.1	0.1
VI	Western Visayas	199.79	213.99	294.77	0.5	0.4	0.5
VII	Central Visayas	2,677.30	2,177.76	2,658.13	6.2	3.6	4.3
VIII	Eastern Visayas	969.40	1,473.53	1,226.43	2.2	2.4	2.0
IX	Zamboanga Peninsula	72.40	18.64	33.90	0.2	0.0	0.1
X	Northern Mindanao	511.30	987.91	1,130.41	1.2	1.6	1.8
XI	Davao Region	539.58	947.84	999.75	1.3	1.6	1.6
XII	Soccsksargen	191.47	186.02	232.47	0.4	0.3	0.4
XIII	Caraga	25.21	9.00	4.77	0.1	0.0	0.0
ARMM	Muslim Mindanao	0.46	2.68	-	0.0	0.0	0.0
Philippines		43,091.54	60,495.84	62,410.57	100	100	100

Source: Supplied directly by Philippine Statistics Authority.

5.2 Social indicators

A country's social development is usually closely correlated with its economic performance, which is also often true at the regional level or other local divisions. Social policy as expressed in the efficacy especially of local public spending for social services does matter.

Results from the NSO FLEMMS (2008)⁴ survey shows that Metro Manila had the highest functional literacy rate at 94 percent, followed by Calabarzon at 93.5 percent and Central Luzon at 92 percent. Central Visayas had a functional literacy of 87 percent, lower than CAR (89%) and Ilocos (91%) – which is somewhat surprising as these regions are not as economically well-off as Central Visayas. The two regions with the lowest literacy are ARMM (72%) and Eastern Visayas (73%). Overall, females typically have higher literacy than males, and mostly by a wide margin.

Table 7 shows that in 2013 Calabarzon had the highest cohort survival rate for both females (consistently) and males (90% and 81%, respectively), exceeding those of Metro Manila (86% and 76%). CAR and Ilocos also surpassed Metro Manila for females, whereas Ilocos and Cagayan Valley beat Metro Manila for males. As expected, ARMM had the lowest cohort survival rate for both males (52%) and females (56%) in 2013, and consistently so since 2009.

Table 7. Secondary Education Cohort Survival Rates by Region
(In percent)

Region	Female			Male		
	2009	2011	2013	2009	2011	2013
NCR Metro Manila	86	87	86	77	76	76
CAR Cordillera	88	85	88	70	72	75
I Ilocos	89	88	88	81	79	79
II Cagayan Valley	85	85	86	77	78	77
III Central Luzon	86	87	85	76	77	75
IVa Calabarzon	88	89	90	76	79	81
IVb Mimaropa	82	79	84	71	69	74
V Bicol	82	84	82	73	70	69
VI Western Visayas	85	85	85	77	75	74
VII Central Visayas	83	84	84	73	75	72
VIII Eastern Visayas	76	77	79	71	69	69
IX Zamboanga Peninsula	75	77	73	71	69	63
X Northern Mindanao	75	88	82	66	80	71
XI Davao Region	73	82	81	71	69	72
XII Soccsksargen	81	80	79	76	74	71
XIII Caraga	76	78	77	70	71	68
ARMM Muslim Mindanao	70	70	56	66	66	52
Philippines	84	84	83	75	75	74

Source: Directly supplied by Department of Education.

⁴Functional Literacy, Education and Mass Media Survey [FLEMMS, 2008]
(<https://psa.gov.ph/sites/default/files/attachments/hsd/pressrelease/PRFLEMMS2010-142TAB1.pdf>).

Regional data on life expectancy at birth – a composite indicator of nutritional level, efficacy of health interventions, and physical safety – show that the economically well-off regions are also better-off. Table 8 shows that life expectancy for both males and females is slightly higher in Ilocos than in Metro Manila. In general, though, people in Metro Manila, Central Luzon, and Calabarzon live longer on average than those in the other regions. Life expectancies in all of Mindanao, however, fall below the national average for both males and females.

Table 8. Life Expectancy by Region
(In number of years)

Region		Female			Male		
		2009	2011	2013	2009	2011	2013
NCR	Metro Manila	74.4	75.6	75.6	67.6	68.8	68.8
CAR	Cordillera	71.2	72.7	72.7	65.9	67.4	67.4
I	Ilocos	74.7	75.9	75.9	68.4	69.6	69.6
II	Cagayan Valley	71.8	73.3	73.3	66.8	68.3	68.3
III	Central Luzon	74.2	75.4	75.4	67.5	68.7	68.7
IVa	Calabarzon	74.0	75.2	75.2	67.4	68.9	68.9
IVb	Mimaropa	71.5	73.0	73.0	66.9	68.4	68.4
V	Bicol	71.1	72.6	72.6	66.1	67.6	67.6
VI	Western Visayas	73.0	74.2	74.2	66.5	68.0	68.0
VII	Central Visayas	72.7	73.9	73.9	67.4	68.9	68.9
VIII	Eastern Visayas	70.2	71.7	71.7	64.8	66.8	66.8
IX	Zamboanga Peninsula	70.2	71.7	71.7	64.6	66.6	66.6
X	Northern Mindanao	70.6	72.1	72.1	65.4	66.9	66.9
XI	Davao Region	69.9	71.9	71.9	65.6	67.1	67.1
XII	Soccsksargen	70.8	72.3	72.3	65.9	67.4	67.4
XIII	Caraga	69.3	71.3	71.3	63.9	65.9	65.9
ARMM	Muslim Mindanao	60.4	62.9	62.9	59.4	61.9	61.9
Philippines		73.1	74.3	74.3	66.1	67.6	67.6

Source: Directly supplied by Philippine Statistics Authority.

5.3 Poverty indicators

National poverty incidence in terms of population had been on a very slow downtrend – from about 34 percent in 1991 it declined to 27 percent in 2006 and above 25 percent in 2012 and thereafter. At the regional level, poverty incidence (as of 2012) was lowest in Metro Manila (4%) and highest in ARMM at 56 percent (having risen sharply from 31 percent in 1991), followed by Eastern Visayas (45%) (Table 9). Closest to Metro Manila's poverty rate were those of Calabarzon (11%) and Central Luzon (11%). Poverty rates appear closely negatively correlated

with the GRDP per capita numbers (Table 3 above), pointing to the truism that the more economically well-off tend to be less poor.

A similar pattern is depicted by consumption expenditure per capita (welfare) of the poor. As expected, annual expenditure per capita of the poorest quintile (as of 2012) was highest in Metro Manila (28T), followed by Central Luzon (21T) and CALABARZON (20T). Visayas and Mindanao regions have lower numbers, with the Zamboanga Peninsula having the lowest (10T), closely followed by Northern Mindanao. Curiously, ARMM with the highest poverty rate in the country has relatively high expenditure per capita of the poorest quintile (Table 9).

Table 9. Poverty Incidence and Mean Expenditure per Capita of Poorest Quintile

Region		Poverty Incidence (%)				Expenditure per capita of the Poorest Quintile (Php)			% Change	
		1991	2006	2009	2012	2006	2009	2012	06-09	09-12
NCR	Metro Manila	7.1	4.7	3.6	3.9	21,755	25,345	27,995	16.5	10.5
CAR	Cordillera	42.7	26.0	25.1	22.8	10,859	14,594	14,823	34.4	1.6
I	Ilocos	36.6	25.9	22.0	18.5	11,444	15,120	15,287	32.1	1.1
II	Cagayan Valley	42.8	26.8	25.5	22.1	10,826	14,060	15,188	29.9	8.0
III	Central Luzon	21.1	13.1	13.7	12.9	14,591	17,754	20,666	21.7	16.4
IVa	Calabarzon	22.7	10.3	11.9	10.9	14,228	18,099	19,937	27.2	10.2
IVb	Mimaropa	44.4	40.6	34.5	31.0	8,065	10,616	12,001	31.6	13.0
V	Bicol	54.5	44.2	44.2	41.1	8,498	11,782	12,310	38.6	4.5
VI	Western Visayas	39.6	29.1	30.8	29.1	9,367	12,171	13,025	29.9	7.0
VII	Central Visayas	43.6	35.9	31.0	30.2	8,180	11,196	12,530	36.9	11.9
VIII	Eastern Visayas	50.0	41.5	42.6	45.2	7,824	10,640	10,540	36.0	(0.9)
IX	Zamboanga Peninsula	40.3	45.0	45.8	40.1	6,449	8,973	10,109	39.1	12.7
X	Northern Mindanao	46.6	39.0	40.1	39.5	7,670	9,883	10,285	28.9	4.1
XI	Davao Region	39.6	30.6	31.4	30.7	9,059	11,493	13,597	26.9	18.3
XII	Soccsksargen	53.3	37.9	38.3	44.7	9,371	11,129	11,945	18.8	7.3
XIII	Caraga	54.3	49.2	54.4	40.3	7,992	9,853	11,874	23.3	20.5
ARMM Muslim Mindanao		30.5	47.1	47.4	55.8	8,415	11,826	12,662	40.5	7.1
Philippines		34.4	26.6	26.3	25.2					

Source: Estimates from Philippine Statistics Authority.

Summing up thus far, the country's economic and social development continues to be concentrated in NCR or Metro Manila with spillover effects in the adjacent regions of Calabarzon and Central Luzon. This is partly attributable to historical and external factors apart from central government policies, e.g., spending on physical infrastructure and human capital. Domestic and foreign direct investments, apart from trade, have also mattered. Nevertheless, there are promising growth hubs beyond this mega-urban-industrial agglomeration such as in Central and Western Visayas, Northern Mindanao, and Davao region.

On the whole, it appears that interregional disparities in social indicators are not as pronounced as economic indicators. This suggests that social policy intervention can make a difference for the lagging regions. If implemented well and in a sustained manner, it could well be a regional-inequality redresser in the long run.

6. Openness, Regional Growth, and Poverty

Following the earlier studies reviewed in Section 3, in addition to the above discussion of economic and social indicators, we expect regions to gain from the country's economic openness, controlling for domestic factors. That is to say, investments are drawn to regions/local economies with favorable business climate comprising infrastructure and government policies. As well, regions/provinces that produce tradable goods typically prosper more than inward-oriented ones. In turn, economic growth of regions can lead to poverty reduction or improvements in the welfare of the poor (e.g., Dollar and Kraay 2001; Balisacan and Pernia 2003; Balisacan, Pernia, and Asra, 2003).

An earlier exercise hypothesized that the effect of economic openness on the poor's well-being would not only be indirect (via growth per se) but also direct on poverty itself (Pernia and Quising 2003). The direct effect can occur because investments and exports typically generate a host of ancillary or informal economic activities that distributively benefit the poor. Many such activities are often in the informal sector and, hence, escape the regional income accounts. However, only the former, not the latter, effect appeared to be borne out by empirical analysis, which is more consistent with Krueger's and Berg's (2002) view.

6.1 Empirical Model

We now attempt to redo the analysis with more recent data, estimating the effect of an open economy on regional development (GRDPs) and poverty reduction as proxied by welfare of the poor (consumption expenditure of the poor). We apply the three-stage least squares (3SLS) regression technique to panel data on the 17 Philippine regions covering years 2009-2013. This procedure seems suited for the purpose and takes care of endogeneity and simultaneity issues.

Our estimating equation system is of the form:

$$\text{PCEPOOR}_{rt} = \text{PCEPOOR}_{rt}(\text{GRDP}_{rt}, \text{LOCAL}_{rt}, \text{ICONDR}_t) \quad (1)$$

$$\text{GRDP}_{rt} = \text{GRDP}_{rt}(\text{LOCAL}_{rt}, \text{LOCAL}_{rt-1}, \text{OPEN}_{rt}) \quad (2)$$

$$\text{OPEN}_{rt} = \text{OPEN}_{rt}(\text{LOCAL}_{rt}, \text{LOCAL}_{rt-1}, \text{OPEN}_{rt-1}, \text{GRDP}_{rt}) \quad (3)$$

where

$$\begin{aligned} \text{PCEPOOR}_{rt} &= \text{per capita expenditure of the poor in region } r \text{ at time } t \\ \text{GRDP}_{rt} &= \text{income per capita in region } r \text{ at time } t \\ \text{OPEN}_{rt} &= \text{economic openness (trade-to-GRDP) in region } r \text{ at time } t \end{aligned}$$

$$\begin{aligned}\text{LOCAL}_{rt} &= \text{local factors in region } r \text{ at time } t \\ \text{ICOND}_r &= \text{initial conditions of region } r\end{aligned}$$

Equation 1 shows how the poor's well-being in a region is influenced by regional income per capita, local factors, and initial conditions. Equations 2 and 3 take into account the endogeneity of regional income and economic openness as both are affected by each other and by local factors.

Equations 1-3 are estimated using the 3SLS technique. This estimation procedure accounts not only for the endogeneity of the three variables (per capita expenditure of the poor, income per capita, and trade-to-GRDP) but also for the interaction between equations through the covariance matrix of the equations' disturbances.

Per capita income of the poor is defined as expenditure per capita of the poorest quintile, income per capita is GRDP per capita, and trade-to-GRDP is the ratio of exports plus imports to GRDP to denote openness. This last measure has been adopted in both cross-country (e.g., Ales and Glaeser 1995; Henderson 2000; Henderson 2003; Nitsch 2006) and within-country (e.g., Kanbur and Zhang 2005) studies on the spatial effects of trade openness.

The data on these variables are sourced from the Philippine Statistical Authority (PSA) for the years 2008–2014. Regional trade figures are converted from US dollars to Philippine pesos using annual average exchange rates from the Bangko Sentral ng Pilipinas (Central Bank)⁵. In creating the trade-to-GRDP ratios, we use nominal GRDP to eliminate the need to convert trade values to real terms.

To account for local factors, we use economic and social expenditure data from the Department of Budget and Management. The former pertains to local government unit (LGU) outlays for agriculture, agrarian reform and natural resources, trade and investment, and tourism (including power and energy, water development and flood control, communication, roads and other transport). The latter refers to public spending for education, health, housing and community development, and land distribution. By and large, though, these two variables measure output or allocation of public resources rather than outcome or local impact (Solon, Fabella, and Capuno 2000). We also include the number of operating SEZs from the Philippine Economic Zone Authority (PEZA) that provided data for years 2007, 2010, 2012, and 2013, with the data for 2009 and 2011 estimated using PEZA's data on businesses.

For initial conditions (denoting relatively time-invariant factors), we use 2009 cohort survival rates for secondary education of males, life expectancy of males, percentage of households with electricity, and crime rate. Cohort survival rates come from the Department of Education while life expectancy and crime rate data are from the PSA. Data on electrification are from FIES 2009. Further, we include a dummy variable for urban primacy (NCR=1) to control for Metro Manila's distinct economic and political advantages over the other regions.

⁵ Retrieved from http://www.bsp.gov.ph/dbank_reports/ExchangeRates_1.asp

For the estimation, we use panel data on the 17 regions for years 2009 to 2013, giving us a total of eighty-five observations. To test for dynamic effects, current as well as lagged values are used. Appendix Table 2A gives a detailed description of the variables, and Table 3A the descriptive statistics.

6.2 Empirical Results

On the whole, the empirical results are in support of our hypothesis and are consistent with earlier studies. In general, openness significantly influences regional development which, in turn, positively impacts the well-being of the poor, controlling for other variables. As shown in Table 10, a 10 percent increase in trade is associated with a 2.1 percent growth in GRDP leading, in turn, to a 2.7 percent rise in the poor's welfare. At the same time, though, regional trade is highly elastic (1.8%) with respect to GRDP, meaning that more developed regions tend to gain more from trade than the less developed ones do.

Further, regional economic growth is positively affected by lagged economic expenditures and by proximity to NCR. On the other hand, the poor's well-being (or poverty reduction) is boosted by electrification, positively (if insignificantly) influenced by education of males, and negatively affected by criminality.

Table 10. Economic Openness, GRDP, and Welfare of the Poor

Variable	Ln trade-to-GRDP ratio	s.e.	Ln GRDP Per Capita	s.e.	Ln Mean Exp Per Capita of Bottom Quintile	s.e.
	(1)		(2)		(3)	
Endogenous						
Ln GRDP per capita	1.8013***	0.4031			0.2661***	0.0475
Ln trade-to-GRDP ratio			0.2135***	0.0208		
Lagged Ln trade-to-GRDP ratio	0.6295***	0.0798				
Local Factors						
Ln Social Exp. Per Capita					0.0198	0.0424
Lagged Ln Social Exp. Per Capita			0.0708	0.0940		
Lagged Ln Economic Exp. Per Capita	-0.5350***	0.2058	0.2032**	0.1016		
Number of SEZs	-0.0058	0.0059				
Initial Conditions						
Cohort survival rate for secondary education of males					0.9781	0.6214
Life expectancy of males					-0.0332***	0.0129
% of Households with Electricity					1.1912***	0.2388
Crime Rate					-0.0006***	0.0001
NCR Primacy	-1.6140***	0.4943	1.1098***	0.1331		
Constant	-4.2033***	1.2881	2.5124***	0.4716	9.2261***	0.5431
Equation	R2	chi2	Equation		R2	chi2
Ln trade-to-GRDP	0.8802	927.22	Ln Mean Exp. of Bottom Quintile		0.8121	340.41
Ln GRDP per capita	0.8141	406.78				

* Significantly different from zero at 10% level

** Significantly different from zero at 5% level

*** Significantly different from zero at 1% level

7. Conclusion and Policy Implications

Huge disparities persist in economic and social development across the Philippines' 17 regions, with Metro Manila or NCR continuing to lord it over the national economic landscape. Along with Calabarzon and Central Luzon, it forms a mega-urban-industrial region that makes up close to two-thirds of the national production or income while the 14 other regions divvy up the residual third.

The evolution of the NCR-centered urban agglomeration, partly attributable to the influence of trade and FDIs, has been at the expense of previously more buoyant regions located farther away. These include the Cordillera (CAR), Central Visayas, Western Visayas, Northern Mindanao and Davao region, as can be gleaned from their diminished shares of total GDP in recent years compared with 2000.

Overall, it seems clear that regions do gain from an open economy in terms of regional economic growth and – through growth – improvements in the poor's well-being or poverty reduction. However, it appears that the gains from economic openness are uneven with the ex-ante lagging regions at a disadvantage vis-à-vis the leading ones; by extension, the welfare effect on the poor appears unequal, as well.

It looks like economic openness per se cannot be relied upon to shore up the development of the backward regions to result in inclusive development and reduced interregional disparities. That the relatively developed regions benefit more from economic openness suggests that adequate physical infrastructure and human capital complemented by efficient governance (e.g., minimal red tape) must be in place to foster trade and investment. In other words, regional development is good for economic openness and vice versa and, in turn, poverty reduction.

It seems clear that the NCR-centered mega-urban industrial region has long been beset by diseconomies of agglomeration, as manifested by unwieldy traffic, air and noise pollution, flooding, criminality, etc. It is time the government took regional development policy more seriously. Accordingly, it must take the lead and provide the appropriate infrastructure and level playing field enabling the private sector to play an active role. A suitable strategy to adopt may be the so-called “hub-and-spokes” model – essentially, a variant of the good old “regional growth poles” paradigm. This essentially focuses massive investments in or around identified regional centers (e.g., Laoag, Benguet, Cebu, Iloilo, Cagayan de Oro, Davao, Zamboanga) required to generate spread effects over time to smaller cities, towns and rural areas.

The KALSADA⁶ Program, for instance, initiated by the Department of Public Works and Highways' Secretary Rogelio L. Singson, seems like a worthwhile part of a strategy towards dispersed regional development. The components and objectives of the program are as follows:

⁶ *Konkreto at Ayos na Lansangan at Daan Tungo sa Pangkalahatang Kaunlaran* (loosely translated as “Concreting and Improving Roads towards Everyone's Development”). Secretary Singson has managed to ramp up the infrastructure budget (4.6 times in amount) equivalent to 1.8 percent of GDP in 2010 to 5 percent in 2016.

- (i) “P6.5 billion has been appropriated in the 2016 General Appropriations Act (GAA) for the rehabilitation and upgrading of provincial roads in 73 provinces, with the allocation of funds based on performance;
- (ii) institutionalize good governance by enabling and shepherding local government units on Local Road Management;
- (iii) rehabilitate and upgrade provincial roads and transfer these road assets permanently to the provincial government, which will maintain them;
- (iv) develop the Provincial Road Network Development Plan (PRNDP) for each province and promote the use of an online open data portal as a mechanism for monitoring and evaluation of provincial roads; and
- (v) establishment of City and Provincial locational referencing system and road inventory survey by DILG from MVUC funds.”

Economic openness is, admittedly, rather narrowly considered in this paper. Other than trade and capital, economic openness has many other facets such as technology, information and knowledge that matter especially in this day and age – which ought to be incorporated in future analytical work. Likewise, more disaggregated data at the provincial level would probably afford more instructive results. Further, longer time-series data may enable one to identify short-term vis-a-vis longer-term gains from an open economy.

References

- Ades, A. F., and E. L. Glaeser. 1995. "Trade and circuses: Explaining urban giants. *Quarterly Journal of Economics*, 110(1), 195–227.
- Agénor, P. R. 2004. "Does globalization hurt the poor?" *International economics and economic policy*, 1(1), 21-51.
- Balisacan, A.M., and E.M. Pernia. 2003. "Probing beneath cross-national averages: Poverty, inequality, and growth in the Philippines," in E.M. Pernia and A. Deolalikar (eds.), *Poverty, Growth and Institutions in Developing Asia* (London: Palgrave Macmillan), pp. 219-246..
- _____, E.M. Pernia, and A. Asra 2003. "Revisiting growth and poverty reduction in Indonesia: What do subnational data show?," in E.M. Pernia and A. Deolalikar (eds.), *Poverty, Growth and Institutions in Developing Asia* (London: Palgrave Macmillan), pp.191-218.
- Brülhart, M., C. Carrère, and F. Trionfetti. 2010. "How wages and employment adjust to trade liberalisation: Quasi-experimental evidence from Austria," University of Lausanne (Mimeo).
- Chiquiar, D. 2008. "Globalization, regional wage differentials and the Stolper–Samuelson Theorem: Evidence from Mexico," *Journal of International Economics*, 74(1), 70-93.
- Deaton, A. 1997. *The analysis of household surveys: A microeconomic approach to development policy* (Baltimore: John Hopkins University Press).
- Dollar, D., and A. Kraay. 2001. "Growth is good for the poor," Policy Research Paper No.2587, World Bank, Washington, D.C.
- Fuchs, R.J. and E.M. Pernia. 1987. "External economic forces and national spatial development: Japanese direct investment in Pacific Asia," in R.J. Fuchs, G.W. Jones, and E.M. Pernia (eds.), *Urbanization and Urban Policies in Pacific Asia*, pp. 88-111. (Boulder and London: Westview Press), pp. 88-111.
- Guevara, C. 2015. "The effect of trade on agglomeration within regions," Working Paper GATE 2015-30 (Retrieved from <https://halshs.archives-ouvertes.fr/halshs-01233389/document>).
- Guillaumont Jeanneney, S., and K. Kpodar. 2011. "Financial development and poverty reduction: Can there be a benefit without a cost?" *The Journal of development studies*, 47(1), 143-163.
- Henderson, J. V. 2000. "The effects of urban concentration on economic growth," NBER

Working Paper #7503, NBER, Washington, D.C.

- _____. 2002. "Urbanization in developing countries," *The World Bank Research Observer*, 17(1), 89-112.
- _____. 2003. "The urbanization process and economic growth: The so-what question," *Journal of Economic Growth*, 8(1), 47-71.
- Hill, H. 2000. Intra-country regional disparities," Paper presented at Second Asia Development Forum, Singapore, June 6-8.
- Huang, M. Y., and M.R.J. Singh. 2011. "Financial deepening, property rights and poverty: Evidence from Sub-Saharan Africa," IMF Working Paper No. 11-196, International Monetary Fund, Washington, D.C.
- Japan International Cooperation Agency. 2014. "Roadmap for transport infrastructure development for Metro Manila and surrounding areas," (in close coordination with the Department of Transportation and Communications, Department of Public Works and Highways, and Metropolitan Manila Development Authority). [Retrieved from <http://www.neda.gov.ph/wp-content/uploads/2015/03/FR-SUMMARY.-12149597.pdf>].
- Kanbur, R., and X. Zhang. 2005. "Fifty years of regional inequality in China: a journey through central planning, reform, and openness," *Review of Development Economics*, 9(1), 87-106.
- Krueger, A., and A. Berg. 2002. "Trade, growth, and poverty: A selective survey," Paper presented at the World Bank's Annual Bank Conference on Development Economics, Washington, D.C., 29-30 April.
- Krugman, P.R., and R.E. Livas. 1996. "Trade policy and the third world metropolis," *Journal of Development Economics* 49, 137-150.
- Lamberte, M.B., et al. 1993). *Decentralization and prospects for regional growth* (Manila: Philippine Institute for Development Studies).
- Le Goff, M., and R.J. Singh. 2014. "Does trade reduce poverty? A view from Africa," *Journal of African Trade*, 1(1), 5-14. (doi:10.1016/j.joat.2014.06.001).
- Liang, Z. 2008. "Threshold Estimation on the Globalization-Poverty Nexus: Evidence from China," UK: Palgrave Macmillan, pp. 115-134.
- Lo, F., and Y. Yue-man. 1998. *Globalization and the World of Large Cities* (Tokyo: United Nations University Press).

- Makabenta, M.P. 2002. "FDI location and special economic zones in the Philippines," *Review of Urban and Regional Development Studies*, 14 (1), 59-77.
- Martincus, Volpe C. 2010. "Spatial effects of trade policy: Evidence from Brazil," *Journal of Regional Science*, 50(2), 541-569.
- Newfarmer, R., and M. Sztajerowska. 2012. "Trade and employment in a fast-changing world," in Douglas Lippoldt (ed.), *Policy Priorities for International Trade and Jobs* (Paris: Organization for Economic Co-operation and Development), pp. 7-73.
- Nitsch, V. 2006. "Trade openness and urban concentration: New evidence," *Journal of Economic Integration*, 21(2), 340–362.
- Oktay, E., and G. Gozgor. 2013. "Trade and regional development in a developing country: the case of Turkey," *Review of Urban & Regional Development Studies*, 25(3), 201–212. (doi: 10.1111/rurd.12013).
- Pernia, E.M. 1976. "Urbanization in the Philippines: Historical and comparative perspectives," Papers of the East-West Population Institute No. 40, Honolulu: East-West Center.
- _____, C.W. Paderanga, and V. Hermoso. 1983. *The Spatial and Urban Dimensions of Development in the Philippines* (Manila: Philippine Institute for Development Studies).
- _____. 1994. "Issues of urban and spatial development," in E.M. Pernia, (ed.), *Urban Poverty in Asia: A Survey of Critical Issues* (New York and Hong Kong: Oxford University Press), pp. 53-80.
- _____, and R.C. Israel. 1994. "Spatial development, urbanization, and migration patterns in the Philippines," in Balisacan, A.M., Medalla, F.M., and Pernia, E.M., (eds.), *Spatial Development, Land Use, and Urban-Rural Growth Linkages in the Philippines* (Manila: National Economic and Development Authority), pp 13-46.
- _____, and P.F. Quising, P. F. 2003. "Trade openness and regional development in a developing country," *The Annals of Regional Science*, 37(3), 391-406.
- Phelan, J.L. 1959. *The Hispanization of the Philippines* (Madison: University of Wisconsin Press).
- Philippine Statistics Authority. 2012. "Caraga's economy records fastest growth at 9.6 percent in 2011" [Press release]. Retrieved from http://nap.psa.gov.ph/pressreleases/2012/PR-201207-SN1-01_grdp2011.asp.

- Philippine Statistics Authority. 2008. "Functional Literacy, Education and Mass Media Survey," Retrieved from <https://psa.gov.ph/sites/default/files/attachments/hsd/pressrelease/PRFLEMMS2010-142TAB1.pdf>.
- Reed, R.R. 1967. "Hispanic urbanism in the Philippines: A study of the impact of Church and State," *Journal of East Asiatic Studies*, 11, 1-222.
- Rivas, M.G. 2007. "The effects of trade openness on regional inequality in Mexico," *The Annals of Regional Science*, 41(3), 545-561.
- Rodríguez-Pose, A., and J. Sánchez-Reaza. 2005. "Economic polarization through trade: trade liberalization and regional inequality in Mexico," *Spatial Inequality and Development* (Oxford: Oxford University Press).
- Solon, O.J. 1996. Global influences on recent urbanization trends in the Philippines. in Lo, F., and Yeung, Y., (eds.), *Emerging World Cities in Pacific Asia* (Tokyo: United Nations University Press), pp. 268-285..
- _____, R.V. Fabella, J.J. Capuno. 2000. *Is local development good politics?* Philippine Center for Policy Studies, Manila.
- Winters, L.A., N. McCulloch, and A. McKay. 2004. "Trade liberalization and poverty: The evidence so far," *Journal of Economic Literature*, 42(1), 72-115.

Appendix

Table A1. Number of Special Economic Zones and Shares by Region
(As of May 31, 2015)

Region		Operating	% Share	Dev't in progress	% Share	Total	% Share
NCR	Metro Manila	145	44.5	37	29.4	182	40.3
CAR	CORDILLERA	3	0.9	5	4.0	8	1.8
I	Ilocos	3	0.9	3	2.4	6	1.3
II	Cagayan Valley	1	0.3	0	0.0	1	0.2
III	Central Luzon	17	5.2	16	12.7	33	7.3
IVa	Calabarzon	48	14.7	11	8.7	59	13.1
IVb	Mimaropa	3	0.9	0	0.0	3	0.7
V	Bicol	5	1.5	7	5.6	12	2.7
VI	Western Visayas	21	6.4	9	7.1	30	6.6
VII	Central Visayas	44	13.5	20	15.9	64	14.2
VIII	Eastern Visayas	5	1.5	2	1.6	7	1.5

IX	Zamboanga Peninsula	1	0.3	1	0.8	2	0.4
X	Northern Mindanao	9	2.8	7	5.6	16	3.5
XI	Davao Region	13	4.0	2	1.6	15	3.3
XII	Soccsksargen	7	2.1	2	1.6	9	2.0
XIII	Caraga	1	0.3	4	3.2	5	1.1
ARMM	Muslim Mindanao	0	0.0	0	0.0	0	0.0
Philippines		326	100	126	100	452	100

Source: Philippine Economic Zone Authority, *List of Operating Economic Zones*, 2015.

(<http://www.peza.gov.ph/index.php/economic-zones/list-of-economic-zones/operating-economic-zones>) and *Economic Zones Being Developed* (<http://www.peza.gov.ph/index.php/economic-zones/list-of-economic-zones/economic-zones-being-developed>).

Table A2. Description of the Variables

Variable	Definitions
Mean Expenditures of Poor	Ln of mean consumption expenditure per capita of bottom 20% of population of the region
Regional Income	Ln of real GRDP per capita of the region
Trade-to-Income	Ln of exports plus imports to GRDP of the region.
Lagged Trade-to-Income	Ln of previous period's exports plus imports to GRDP of the region.
Special Economic Zones	Number of operating SEZ in a region
Social Expenditures per capita	Ln of social services expenditures per capita (i.e., education, culture and manpower, health, social services, housing and community development, land distribution, other social services, subsidy to LGUs) of LGUs in the region (in 2000 prices)
Lagged Social Expenditures per capita	Ln of previous period social services expenditures per capita (in 2000 prices)
Economic Development Expenditures per capita	Ln of economic development exp. per capita (i.e., agriculture, agrarian reform and natural resources, trade and investments, tourism, power and energy, water dev't and flood control, communication, roads and other transport, others) of LGUs in the region (in 2000 prices)
Lagged Economic Development Expenditures per capita	Ln of previous period economic development expenditures per capita (in 2000 prices)

Crime Rate	Annual average incidents of crimes reported per 100,000 population in region (2009 data)
Initial Cohort Survival Rate	Cohort survival rate for secondary education level of males in region (2009 data)
Initial Life Expectancy	Life expectancy of males in region (2009 data)
Initial Electrical Connections	Percent of households with electricity in region (1988 data, FIES)
Primacy	NCR =1; 0 for all other regions

Appendix Table A3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Minimum	Maximum
Ln mean expenditures of poor	85	9.5142	0.2664	9.1020	10.2818
Ln real GRDP per capita	85	3.7203	0.5779	2.5502	5.3390
Ln trade to GRDP ratio	85	-2.0748	1.7636	-9.5195	0.0071
Lagged Ln trade to GRDP ratio	85	-2.0363	1.6887	-7.8752	0.6842
Ln Social Expenditures per capita	85	5.7698	0.4881	4.1591	6.9805
Lagged Ln Social Expenditures per capita	85	5.7044	0.4947	4.1591	6.9374
Lagged Ln Economic Development Exp. per capita	85	5.8113	0.3468	5.0653	6.6227
SEZs	85	15.0353	27.1510	0	133
Initial Crime Rate	85	553.0559	211.0039	49.9800	1061.8700
Initial Electrical Connections	85	0.8192	0.1016	0.5594	0.9886
Initial Cohort Survival Rate of Males	85	0.7300	0.0395	0.6555	0.8064
Initial Life Expectancy of Males	85	65.8882	2.0104	59.4	68.4
Primacy	85	0.0588	0.2367	0	1