AAG Anual meeting - Boston
Urban Economies and the Ordinary Life B: Economy of Cities II

Territorial disparity in Ecuador through the structural gaps approach

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Friday, 7 April 2017

CONTENTS

1. Objectives

- To analize how the structural heterogenity in the cities of Ecuador affects the inequalities of population

- To propose a methodology based on the structural gaps approach to identify the level development in the cities of Ecuador (Taxonomy).

2. Conceptual Framework

The conceptual framework is based on structural heterogeneity:

- Internal gap - marked differences in productivity among sectors and within each one.
- External gap – disparities in technological capabilities with respect to other more thechnological developed countries.
- Employment: 60% of active population is considered working in informal economy, while the rest of employment concentration in activities of low productivity.
- The size of enterprises affects productivity (micro and small 98%).
- Growth based on natural resources. Low export diversification
- Spatial concentration of economic and social disparities and persistence of territorial inequalities

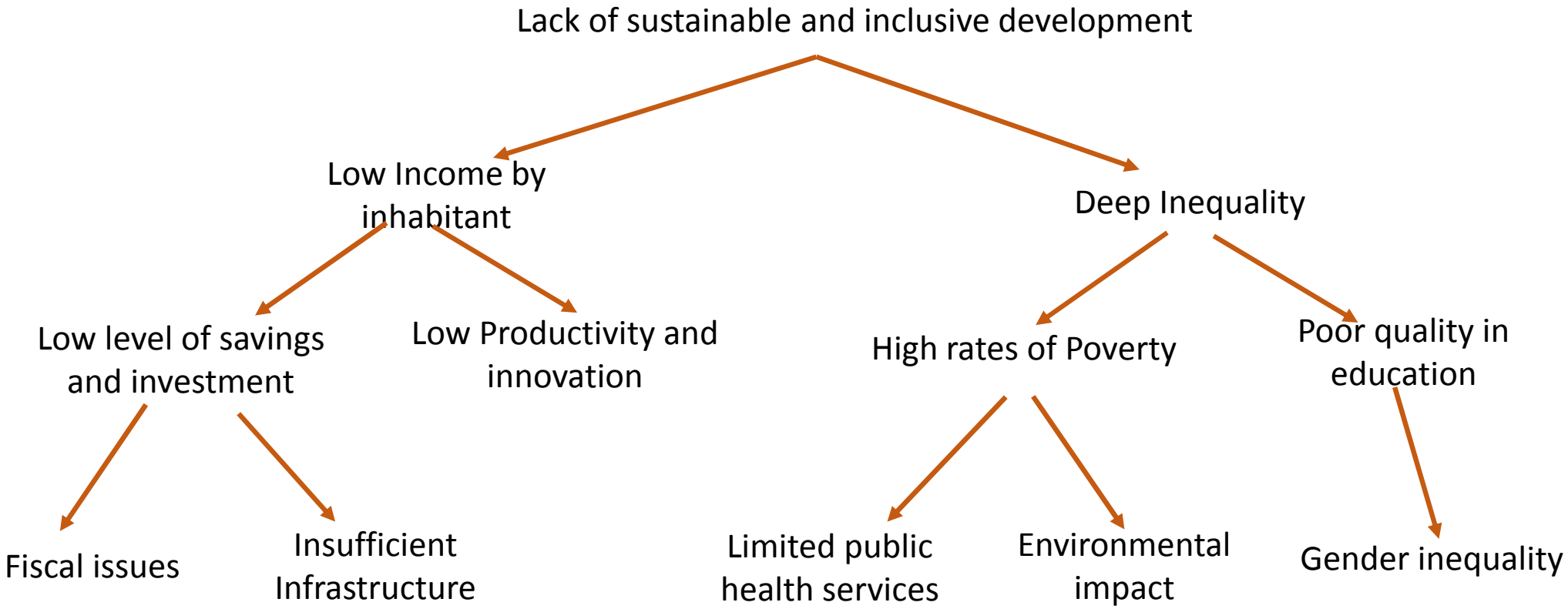
(Candia, 2015); (Cimoli, Porcile, 2013); (Mattar, 2011); (CEPAL, 2016, 2010) (Rodríguez, 2006); (Cimoli, 2005). (Pinto, 1970)

3. Objectives of the Methodology

- It aims to capture a multifaceted reality and articulate an expanded vision of development (Kaldewei, 2015; Pardo, 2014).
- GDP per capita is not the only indicator to reflect the level of national development of countries (Ecuador is a middle income country)
- It seeks to identify and prioritize the main obstacles (structural breaches) and their determinants that obstruct development processes. (Titelman, Vera and Pérez-Caldentey, 2012; Pardo, 2014; and, Kaldewei, 2015).
- Overall, these gaps reflect the specific developmental lags of a country or sub-region in its many aspects, and the size and importance of each gap varies from city to city (Kaldewei, 2015).

3. METHODOLOGY

Figure 1
DEVELOPMENTAL DIAGNOSTICS FROM STRUCTURAL GAPS



Source: worked on Haussmann (2005), Tezanos (2012), Pardo (2014) and Kaldewei (2015)

Table 1.
Methodology
Gaps and Indicators

Gap	Indicator use as proxy
Income	GDP Per cápita average BCE (2007,2013,2014).
Inequality	GINI INDEX INEC-BID 2014
Poverty	Rate of poverty INEC-BID 2014
Health	Health Percentage of adolescent mothers INEC 2010
Gender	Female Population affiliated to Social Security INEC 2010
Enviroment	Homes use firewood for cooking INEC 2010
Education	Net attendance rate Higher Education INEC 2010
Investment and saving	Investment and saving Per capita credit volume S.Bancos 2010-2015
	GDP Manufacturing/GDP Total BCE (2007,2013,2014).
Productivity and Innovation	Homes with Internet availability INEC 2010
	Sales Companies by affiliated worker social security INEC (2010-2014)
	Population Affiliated to social security INEC 2010
Infraestructure	Households living in inadequate housing INEC 2010
Fiscal Issues	Municipal financial self-sufficiency BEDE 2002-2014
	Per cápita Collection taxes SRI 2010-2015

Sources: Instituto de Estadísticas y Censos. Servicios de Rentas Internas, Superintendencias de Bancos, Ministerio de Finanzas.

3.Methodology

1. Using the analysis of Hierarchical Clustering: Classify cities into a number of groups, each of them is internally homogeneous
2. Define the method of selecting elements (variables). In this case, the Ward´s method is used: Defines an overall measure of the heterogeneity of a cluster of observations in groups. This measure (W) is the sum of squared euclidean distances between each element and the mean of its group.
3. The variables get standardized (they are all continuous)
4. Analysis of variance of a factor lets to identify those variables which aren´t statistically significant (ANOVA)
5. Measures of association: identify the discriminant variables which are specially associated to the created clusters, so, they become relevant in the construction of groups
6. Analysis of means: In order to characterize the clusters

4. Results

- 5 Clusters

Table 2. ANOVA - Measures Association

	ANOVA		Measure association	
Variables	F	Sig.	Eta	Eta Square
Homes with Internet availability INEC 2010	103,145	,000	,811	,657
Net attendance rate Higher Education INEC 2010	81,906	,000	,777	,604
Per cápita Collection taxes SRI 2010-2015	70,123	,000	,752	,566
GDP Per cápita average BCE (2007,2013,2014).	69,802	,000	,752	,565
Rate of poverty INEC-BID 2014	69,111	,000	,750	,563
Population Affiliated to social security INEC 2010	63,843	,000	,737	,543
Investment and saving Per capita credit volume S.Bancos 2010-2015	61,115	,000	,729	,532
Female Population affiliated to Social Security INEC 2010	60,342	,000	,727	,529

Figure 2

Ecuador. Taxonomy by level of development of cities

Cluster 1
Development level higher than national average.

- 5 cities (36% hab.)
- GDP - 2014 is $9.389
- Growth Rate 13.5%
- Manufacturing sector accounts for 17% of total GDP

Predominant sector and activities: professional, financial, trade and manufacturing

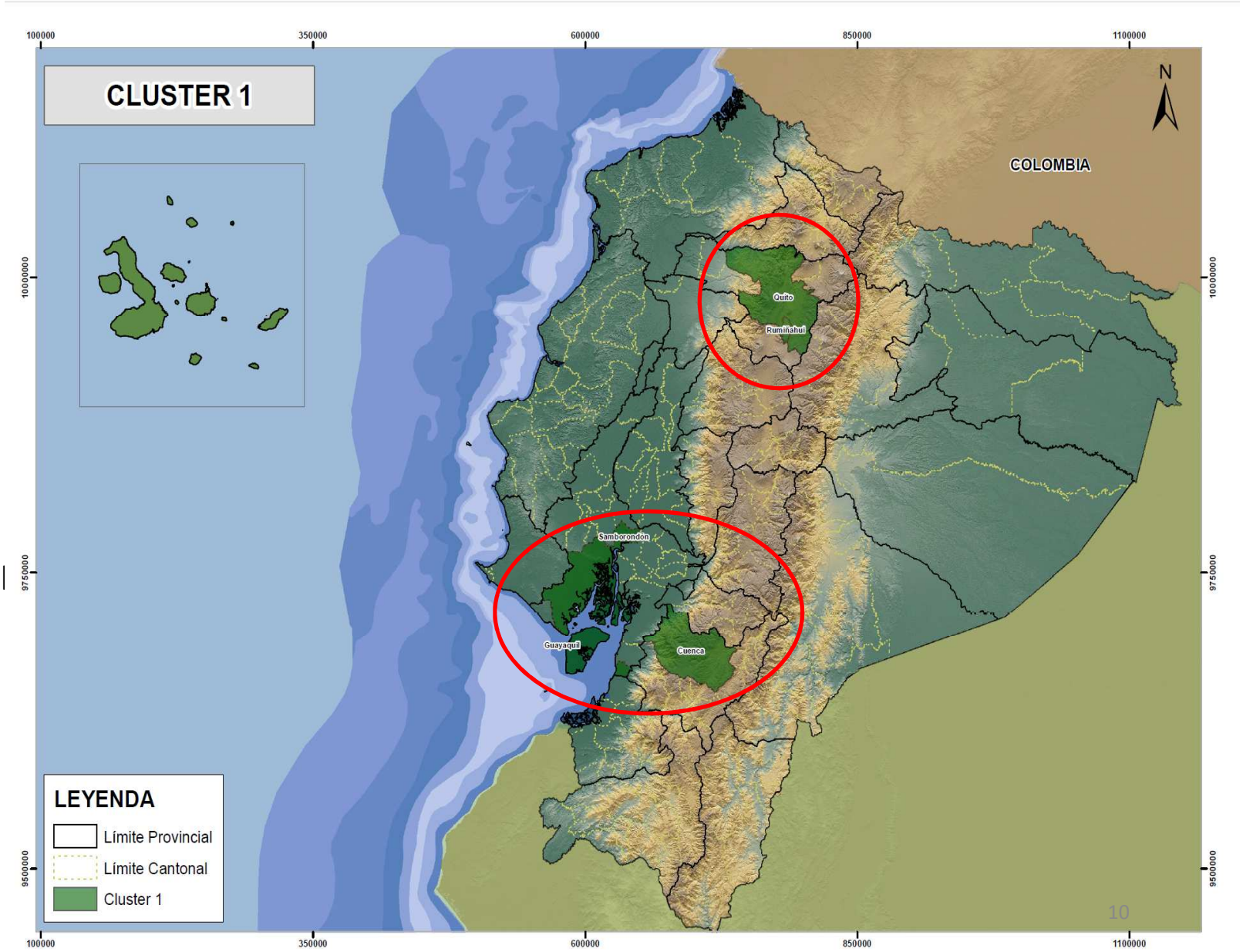


Figure 3

Ecuador. Taxonomy by level of development of cities

Cluster 5
Level of High Medium Development.

- 20 cities (17% hab)
- GDP 2014 $7.440
- Growth rate 8.9%
- Manufacturing sector 12.3%

Predominates Agriculture, Manufacturing, Construction and Trade.

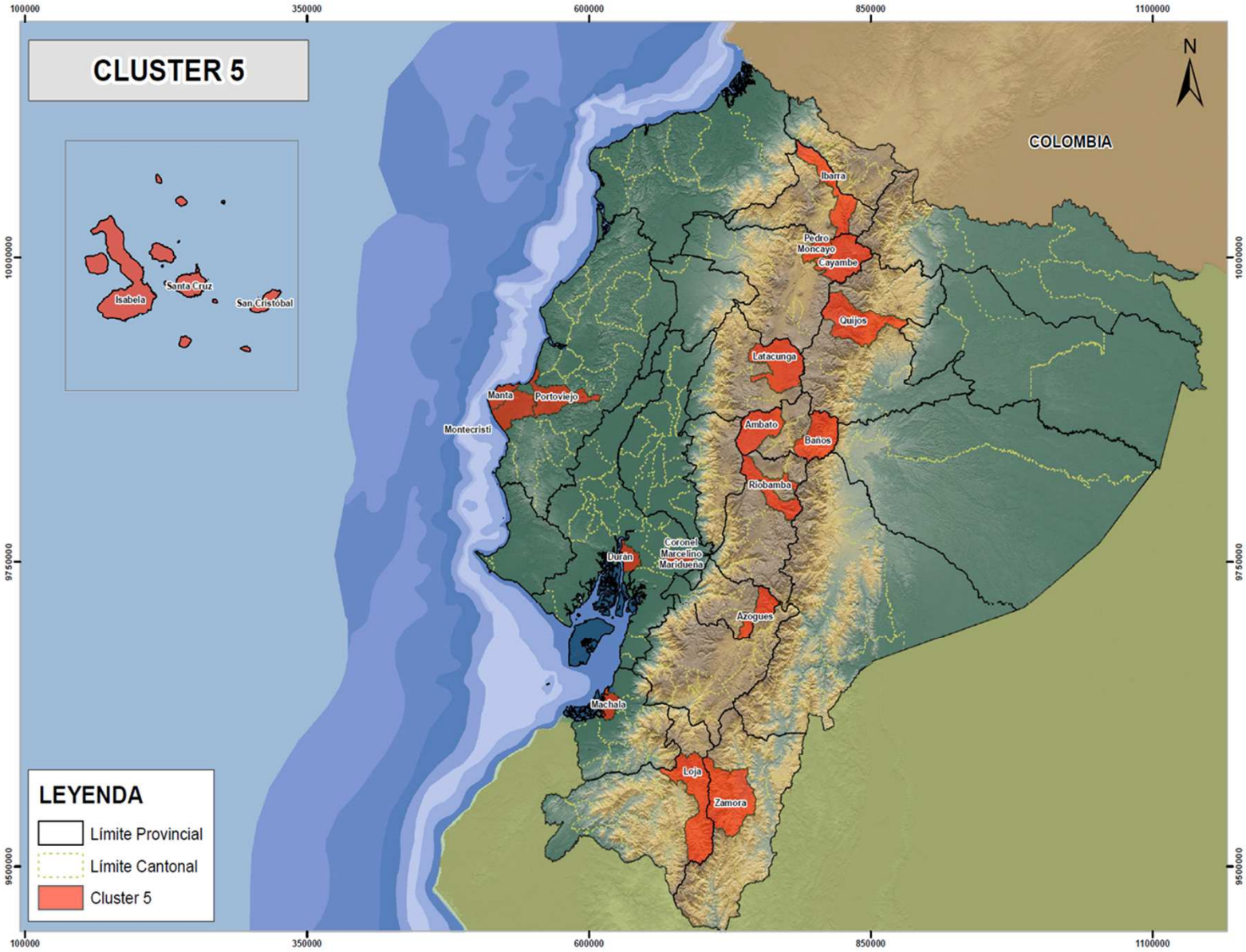


Figure 4

Ecuador. Taxonomy by level of development of cities

Cluster 2.
Level of development similar to the national average.

- 122 cities (35% hab)
- GDP 2014 $2.927
- Growth rate. 5.1%
- Manufacturing sector 4.3%

Predominant activities: agriculture, public administration, Education.

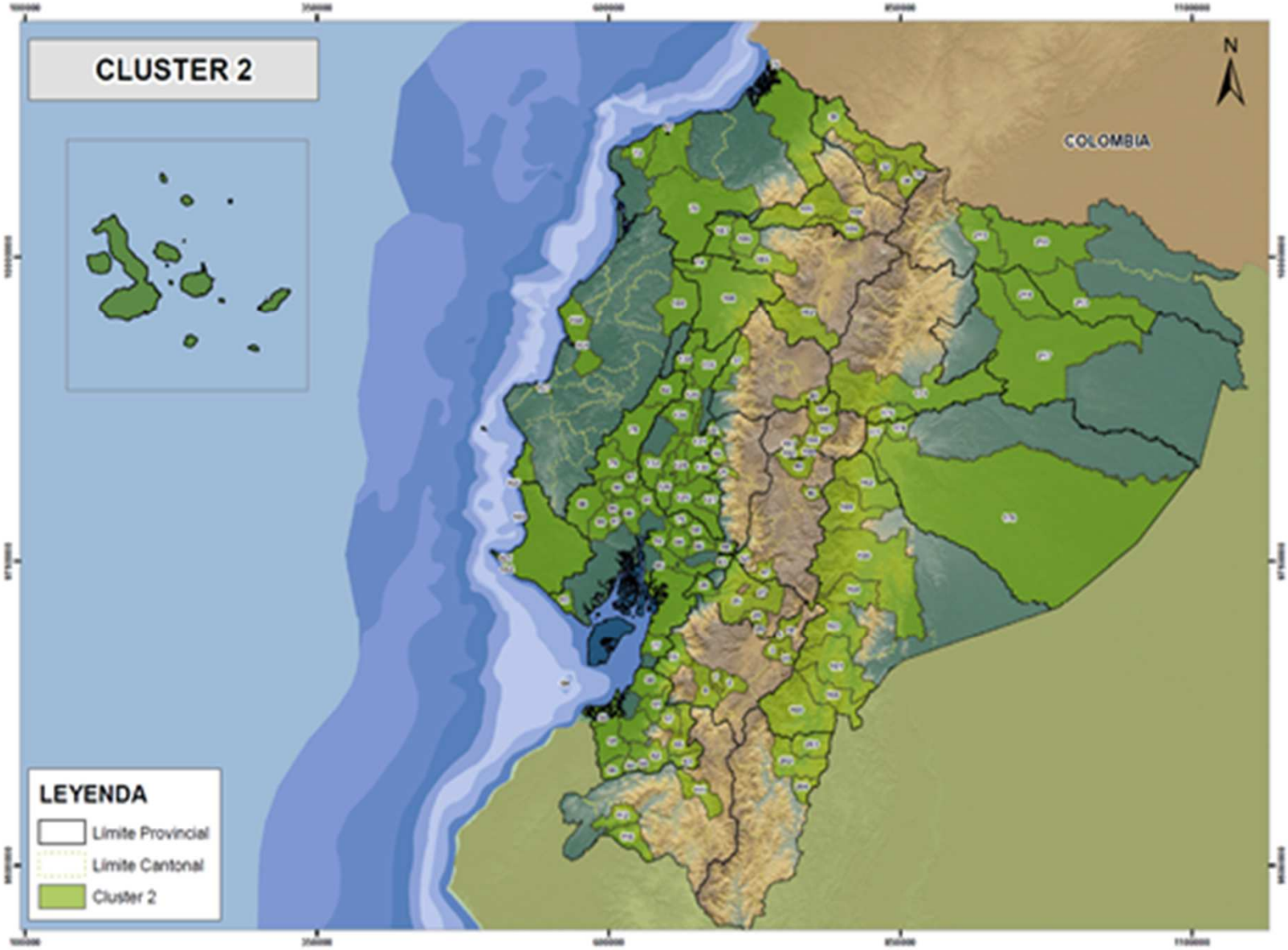


Figure 5

Ecuador. Taxonomy by level of development of cities

Cluster 4.
Level of development below the national average

- 41 cities (6% hab)
- GDP 2014 $1.798
- Growth Rate. 2.5%
- Manufacturing sector 2%

Predominates Agriculture, Public administration, Education.

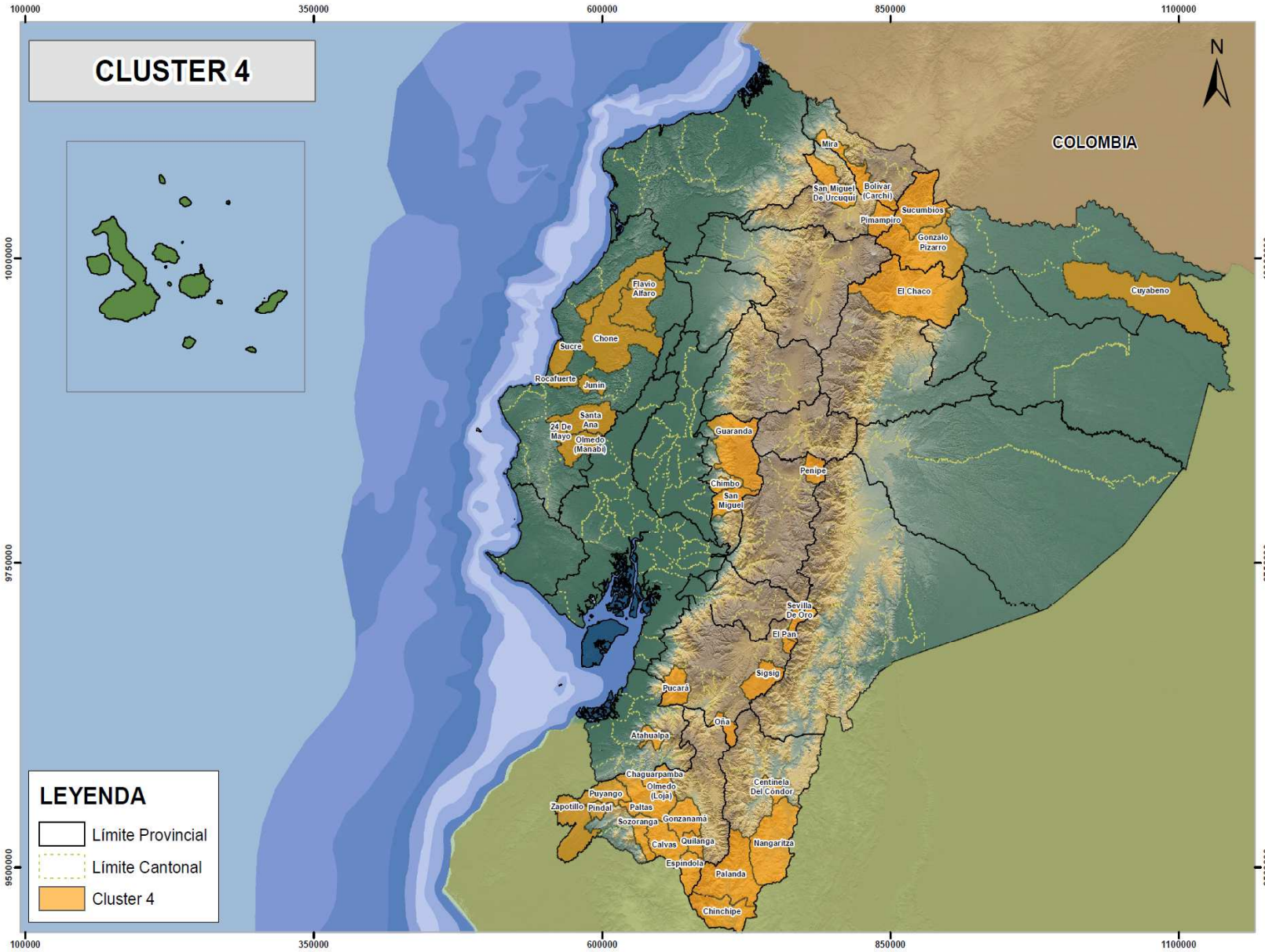


Figure 6

Ecuador. Taxonomy by level of development of cities

Cluster 3.
Lowest Development Level compared to national average

- 32 cities (6% h)
- GDP 2014 $1.700
- Growth Rate. 3.8%
- Manufacturing sector 1%

Predominates Agriculture, Public administration, Education.

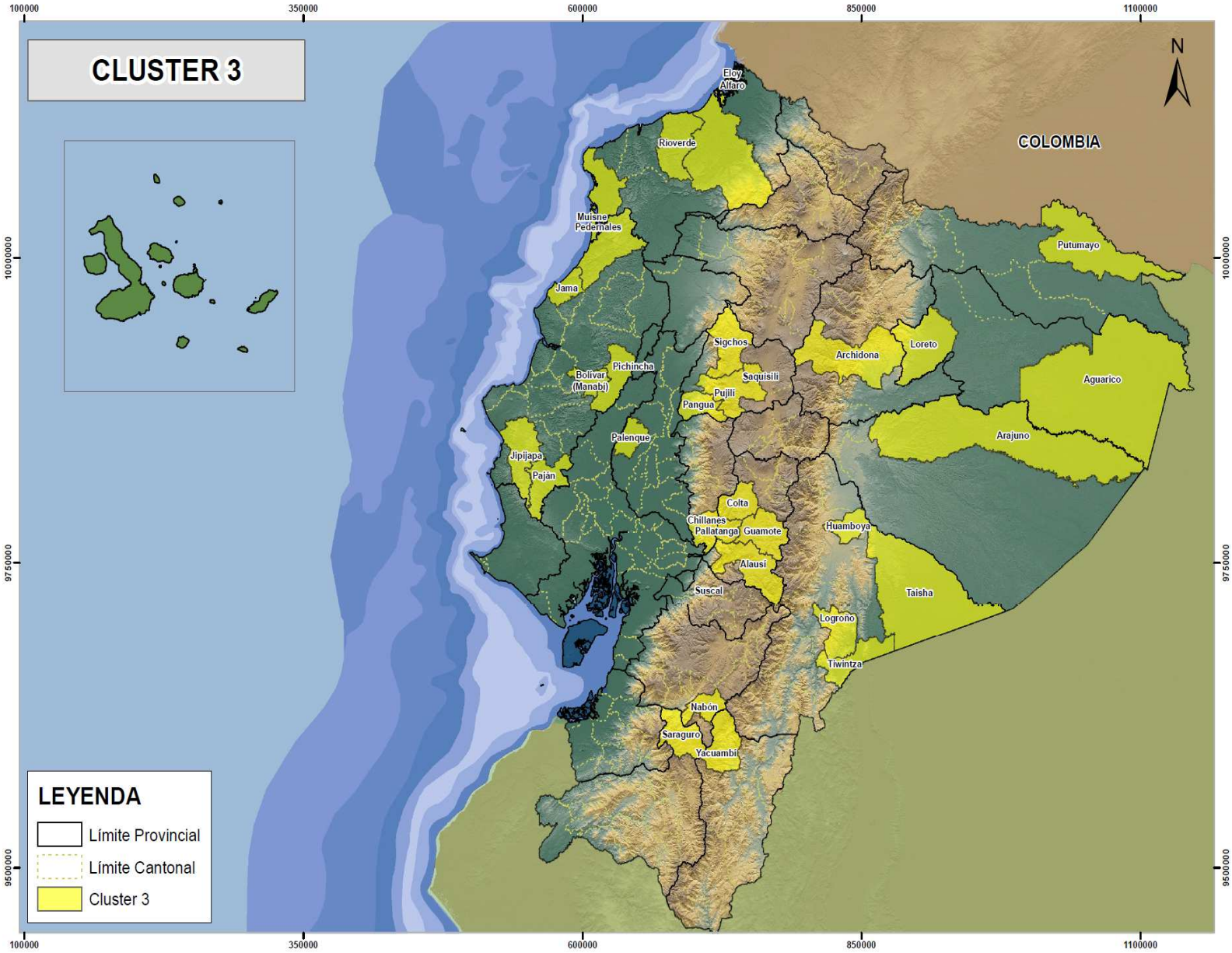


Figure 7. GDP per capita and annual GDP growth rate 2007-2014 by clusters (dollars)

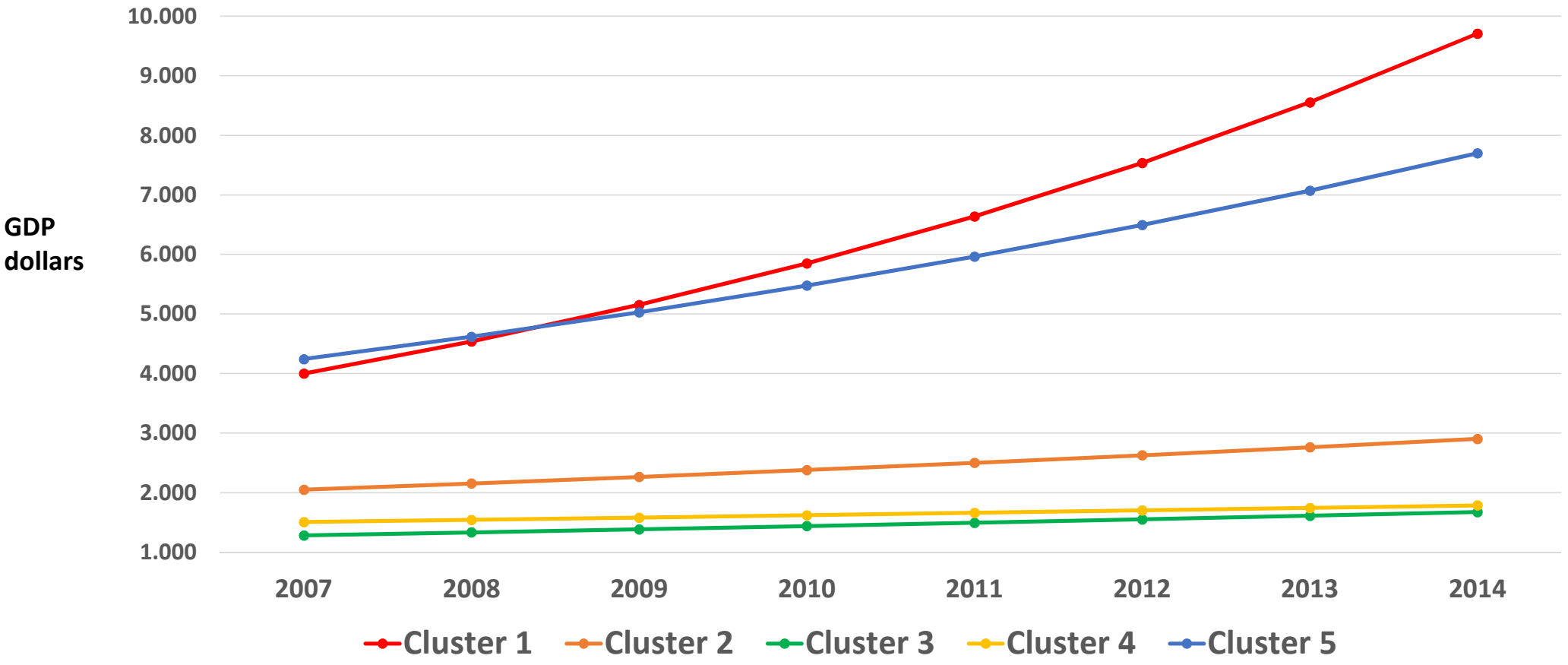
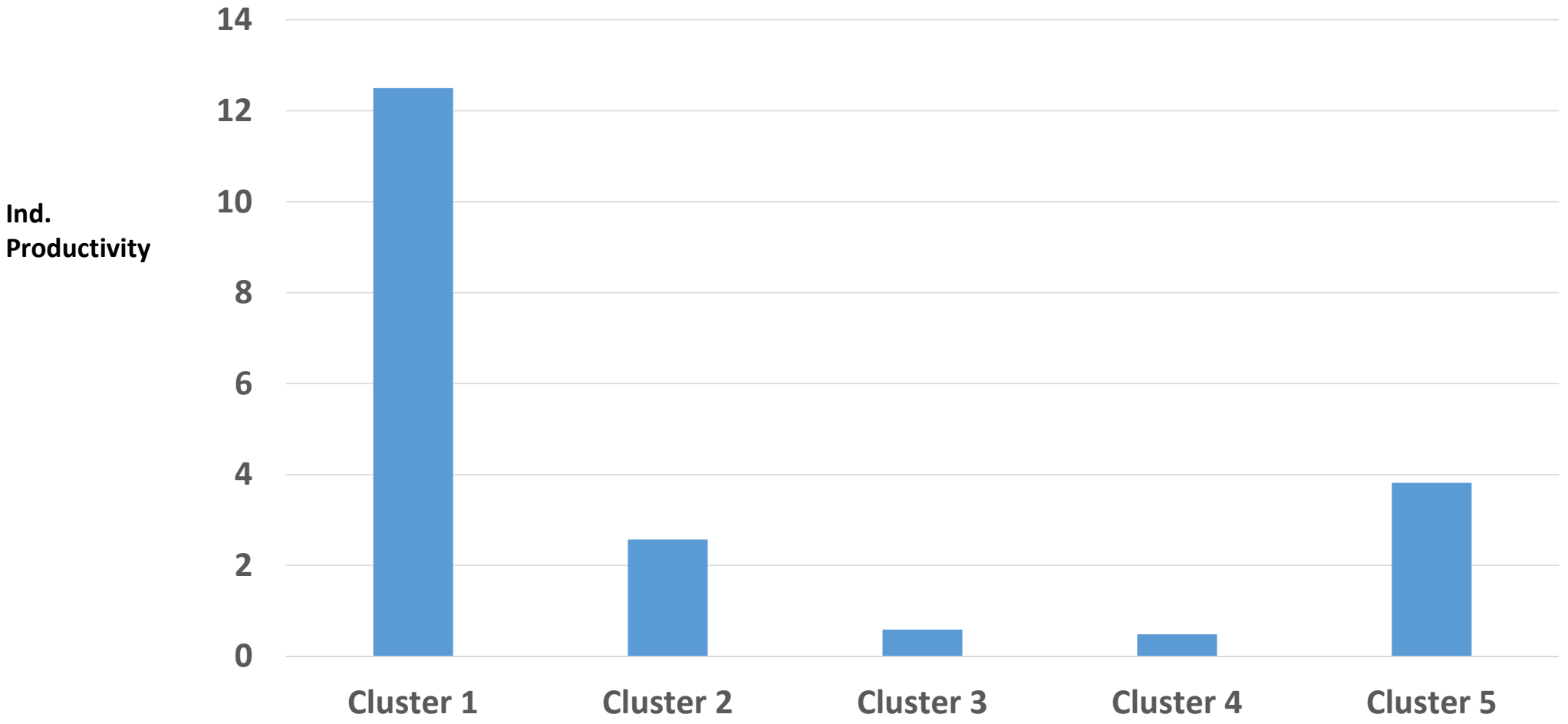


Figura 8. Productivity firms for clusters
Sales (dollars) /Wages (dollars). Average for year (2010-2014)



Source: DIIE -2015

Figure 9. Percentage of companies by sector and clusters

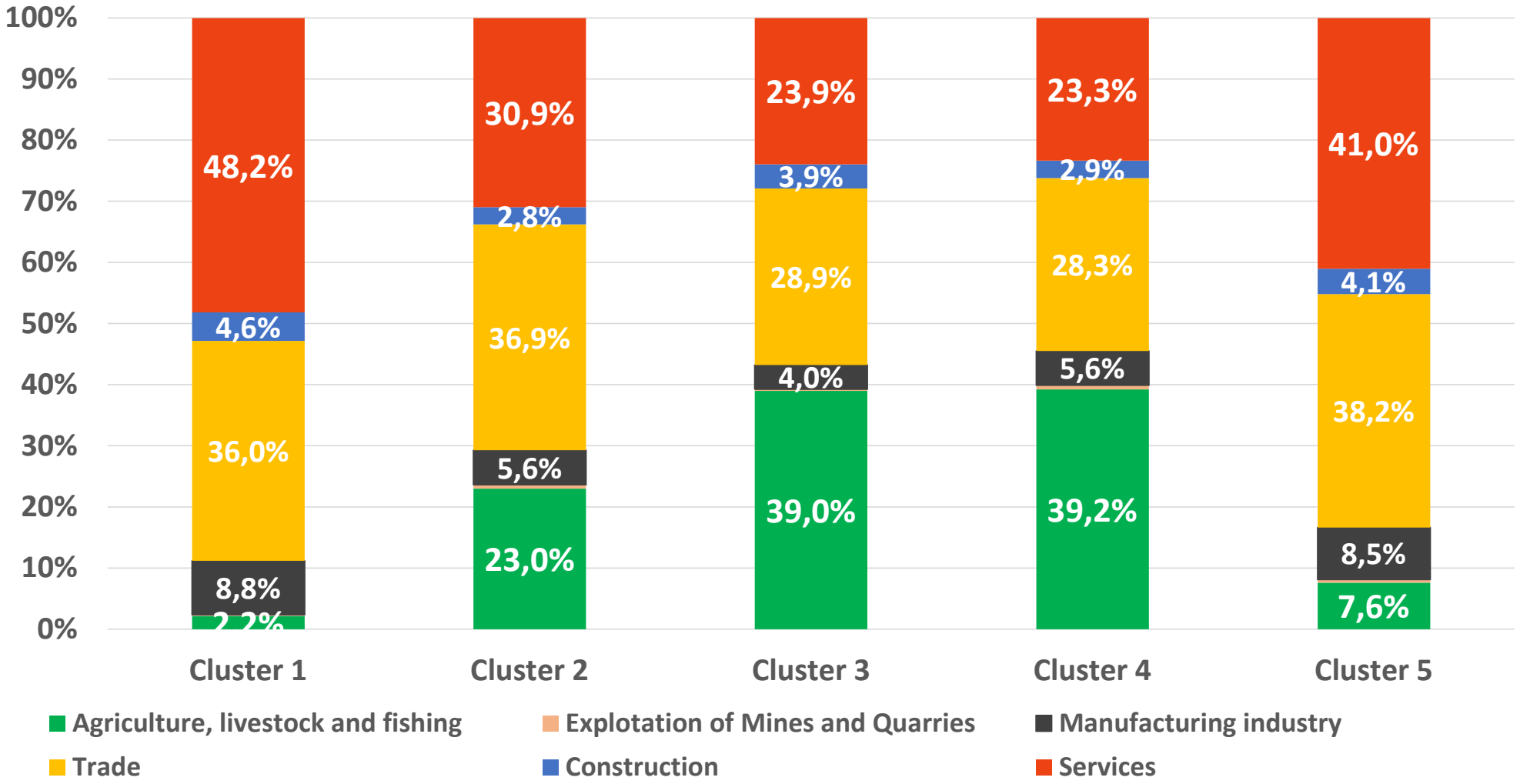
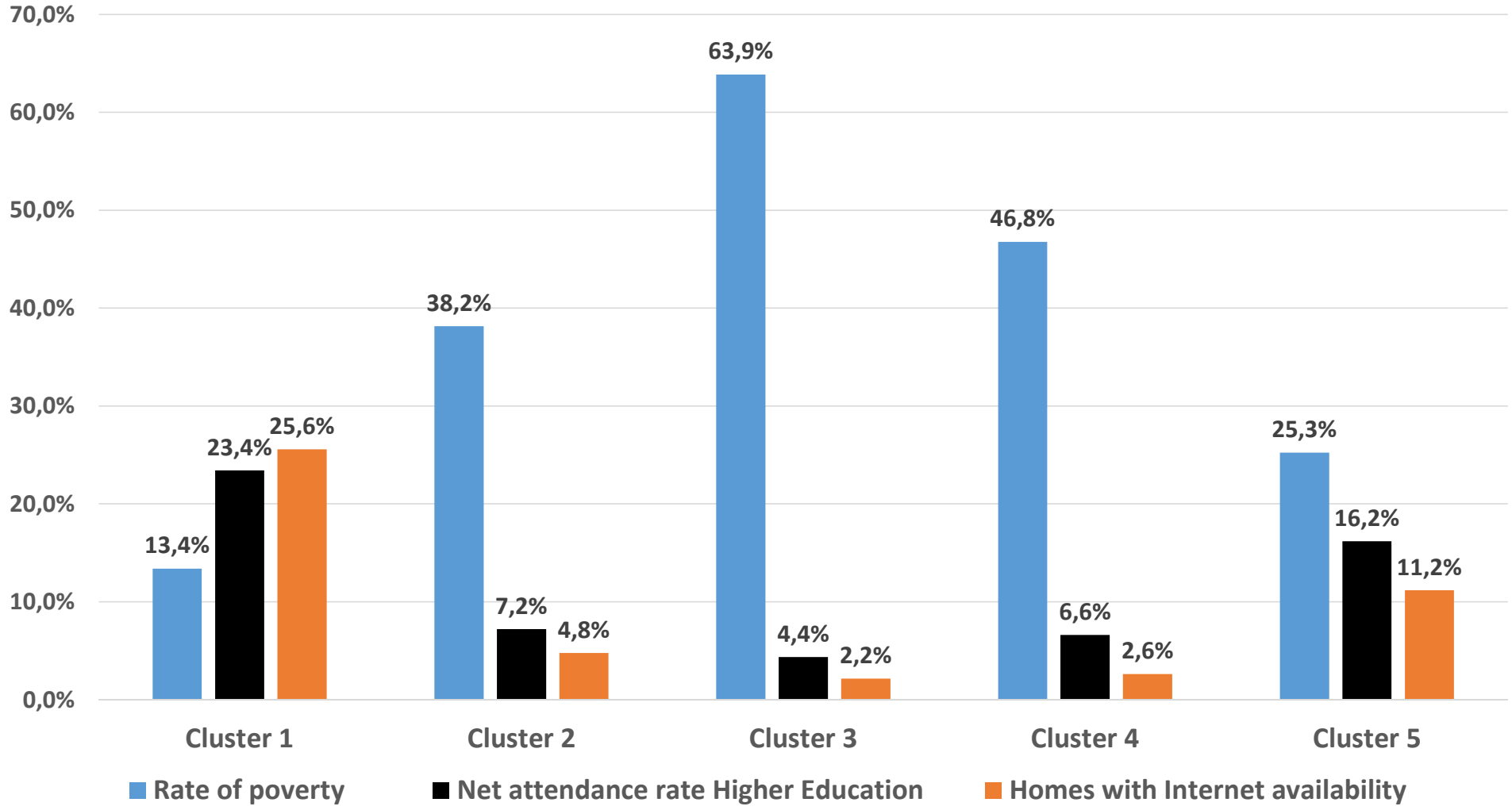


Figure 10. Poverty index, net enrollment in higher education, and households with Internet access by clusters



5. Conclusions

Level and evolution of disparities

- Concentration and persistence: Disparities of GDP per capita in Clusters are very considerable.

- The growth rates of their economies (2007-2014) show clear trends of growth and stagnation, deepening an uneven development.

- Significant differences in other gaps among clusters. Social and economic conditions, (education, health, technology access, credit, collection, sales, etc.) reinforce disparities. Territories have weak capacity for development.

5. Conclusions

Structural heterogeneity.

- It is reflected in the differences in the sectoral composition of production among clusters
- Firms heterogeneity and weak structure (98% micro and small).
  - ✓ Occupy more unskilled labor
  - ✓ Unlikely to incorporate technology and innovation
  - ✓ The clusters 2,3 and 4 (85% cities - 50% h.), focus on primary activities ("Agriculture, Livestock and Fisheries") and trade.

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Thanks

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Friday, 7 abril 2017

Structure firms of Ecuador

- Large. Sales US$5´000.001 year o +. Workers 200 o +;
- Middle B. Sales US$2´000.001 a $5´000.000. Workers 100 to 199;
- Middle A. Sales US$1´000.001 a $2´000.000. Workers 50 to 99;
- Small. Sales $US100.001 a $1´000.000. Workers 10 to 49
- Micro enterprises. Sales 0 a US$100.000. Workers 1 to 9

INEC 2015.

Enterprises characteristics		
	LARGE	**MICRO**
SALES	73,1%	1,0%
WORKERS (Social Security)	50,0%	5,4%
WAGES	61,0%	3,2%

- Cluster 1 have 70% of Large firms .14% in C2; 14,5% in C5; 1% in C4 and 1,2% in C3 . INEC 2015 .