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Explaining the regional economic heterogeneity in Ecuador

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Abstract: *This paper aims to present the economic heterogeneity of Ecuador's regions using a descriptive analysis, and also to explain its main causes and implications. In comparison to the European Union, Ecuador exhibits a much higher degree of economic heterogeneity within regions and provinces. We relate this pattern to the dynamics of the economic structure, and we also highlight the progress done by now in enhancing regional convergence in Ecuador. The implications of the regional economic heterogeneity are important for the design of effective governmental policies.*

Key-words: *economic convergence, regional economy, heterogeneity*

1. Introduction

Like many other Latin-American countries, Ecuador presents important economic disparities at the regional level. The economic heterogeneity is therefore one of the strongest characteristics of the Ecuadorian regional economic development. The cantons of a certain province could be very different in terms of economic productivity and growth, as well as spatially close provinces could also exhibit different economic patterns. Despite these differences, there are provinces sharing common economic characteristics.

Therefore, the national model of economic development does not reproduce itself at the provincial level too, so that in Ecuador it is difficult to conceive and apply economic and social policies generating economic and social positive effects for everybody. This paper analyzes the economic heterogeneity at the provincial level in Ecuador, based on the gross value added per capita (GVA). The data are

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provided by the Central Bank of Ecuador, and range from 2007 to 2012. The main variable of interest is thus the GVA which is collected at the provincial level. Despite its statistical limitations, it is reasonable to assume that this variable reflects the citizen's level of welfare within a certain region.

One of the hypotheses of this research is that the petroleum sector, which generally is seen as an engine producing economic growth, also changes the structure of regional production and therefore creates over time economic and social disparities. According to the Kuznets theory, the first stage of economic growth in general is characterized by large economic and social discrepancies. Later on, together with the development of industry and decrease of agriculture, the economic growth spreads into the entire region/ country, reducing the initial discrepancies (Pietak, 2014). For this reason most studies focusing on regional aspects in Ecuador makes the distinction between the petroleum and non-petroleum provinces.

2. Literature review

The literature approaching the dynamics of regional convergence in the Latin America is rather scarce (Ellery and Ferreira, 1996; Chumacero, 2002; Marina, 2002; Chiquiar, 2005; Duncan and Fuentes, 2005; Serra et al., 2006). Most papers studying the regional (within country) economic convergence focus only on Argentina, Brazil, Chile, Columbia and Peru.

Although the empirical evidence is mixed, a common finding is the increase of regional disparities (especially after the trade liberalization), as well as the geographical concentration of winners and losers from trade liberalization, and the lack of regional convergence. These findings also explain the persistence of social inequality within countries. However, most studies are cross-country studies in the sense that they investigate the convergence between countries, and not between regions within countries. Another relevant aspect is that they do not measure the speed of convergence but rather describe different patterns of economic convergence. The empirical evidence is again mixed (e.g. Dobson et al., 2003; Blyde, 2005), mainly because of the diversity of methodologies used by the authors. When studying the convergence between different subsets of Latin American countries most analyses find the existence of a bipolar structure (e.g. Holmes, 2005; Blyde, 2006). A recent strand of literature suggests the stagnation of the regional economic convergence and polarisation of regions' economic structure in the Latin America (CEPAL, 2009:11; Enríquez, 2009; Ocampo, 2008).

A particular aspect revealed by the literature of economic convergence in the Latin America is that Ecuador is usually not included in the cross-country analyses. Moreover, just few papers in the literature approach the subject of regional economic convergence in Ecuador, and only one of them is written in English (Ramon et al., 2013).

In this context, our paper could bring important and useful empirical information and contributions about the actual stage of regional convergence in Ecuador, and therefore it could fill a large gap into the literature.

3. Brief examination of the Ecuador's regional economic structure

In the last years the main priorities of the Ecuadorian government were the change of the productive matrix and eradication of poverty on a side, and the creation of a sustainable economy oriented to knowledge and innovation on the other side.

According to the latest World Bank data (2015), significant improvements characterize the Ecuador´s economy. The economic growth could be considered as an inclusive one in the sense that economic growth has determined the decrease of poverty and inequality, while enlarging the middle class. From 2006 to 2011 the extreme poverty rate has sharply decreased from 16.9% to 7.7%, while the Gini index was reduced from 54% to 48.7%.

The extractive sector is a very important one in the Ecuadorian economic structure, accounting for 20% of GDP in 2011, two-fifth of public sector revenues and 58% of exports (Central Intelligence Agency, 2015). Given that that the petroleum extraction represents a significant branch of the economy, the accurate analysis of the Ecuador's economic sectors would involve separately accounting the contribution of the petroleum and non-petroleum sectors to the GVA.

4. Methodology

In the empirical section of this paper, the examination of regional economic disparities in Ecuador will use a descriptive technique which plots each province on a chart upon the rate of GVA growth and the average level of the GVA in our period of analysis. We adapt this technique from the descriptive analyses used by Brida (2008) and Brida and Punzo (2008).

The output of this analysis consists of including each province into one of the four regimes strictly delimitated on the chart. The analysis could be a static or a dynamic one. The static analysis reveals the average location of provinces in a cross-sectional perspective, while the dynamic one accounts for the movements of provinces between the four regimes, under the period of analysis.
Each regime could be defined upon the following notations:

$$R1 = \{(y_i, g_{y,i}) : y_i \le m_y, g_{y,i} \le m_g\}$$
$$R2 = \{(y_i, g_{y,i}) : y_i \le m_y, g_{y,i} > m_g\}$$

$$R3 = \{(y_i, g_{y,i}) : y_i > m_y, g_{y,i} \leq m_g\}$$
$$R4 = \{(y_i, g_{y,i}) : y_i > m_y, g_{y,i} > m_g\}$$

where,

- R denotes the regime
- y_i represents the level of GVA of province *i*;
- $g_{y,i}$ represents the GVA growth rate of province *i*;
- m_y represents the average level of GVA;
- m_g represents the average level of GVA growth rate of province *i*.

As most Latin-American countries, Ecuador also presents a heterogeneous structure of production. This aspect, which has also been suggested by Silva (2005) and Mendieta (2015), is reflected by Figure 1. All sectors are included into the analysis below, with the exception of the petroleum sector, to not create confusions when interpreting the results.

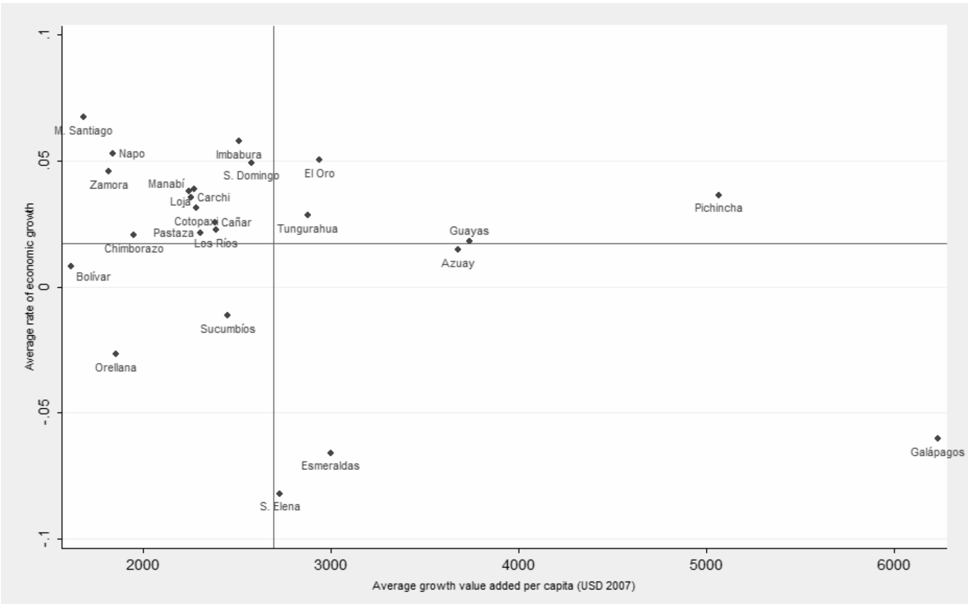

Fig. 1. *The average GVA per capita and the average economic growth rate of Ecuadorian provinces*

Figure 1 above plots the average rate of economic growth on the horizontal axis against the average GVA per capita (USD) on the vertical axis. The Ecuador´s provinces are therefore plotted into four categories, which give insights to their economic richness and perspectives. Pichincha, Guayas, El Oro and Tungurahua belong to the “winners” corner (North-East) because they have both a level of GVA over the national average, and also an average growing rate over the national average. Azuay is very close to this corner so that it can be considered as a member of the winners’ group. In fact Azuay owes its high economic development to the city Cuenca. These provinces are considered to be the most developed ones in Ecuador, and as a consequence, most economic activity, trade and production are concentrated around them.

Over time, the members of the winners' group has benefited from better opportunities than the other provinces in terms of infrastructure, airports, access to education, quality of the education system and industry performance (Ramón et al., 2013). These peculiarities allowed them developing competitive advantages and increasing the sectoral productivity. Moreover, these provinces have become entrepreneurship poles able to stimulate employment. Better institutional settings are often associated with this group of provinces (Mendieta, 2015).

The most important common characteristic of the other 13 provinces is represented by their high growth rates, due to which they are considered to be now convergent provinces. The high level of public investment and reconversion in the productive sector allowed them advancing on the road of economic development.

Galápagos, Esmeraldas and Santa Elena form together the group of provinces in decline, i.e. with levels of the GVA over the national average, but with low growth rates of GVA. Galápagos could be viewed as an outlier in this analysis because its population is very small, while tourism, which is its main activity, stays relatively stable in the long term.

A number of other three provinces (Bolivar, Sucumbios and Orellana) are located in the South-West corner, which is considered to be the corner of stagnant and relatively poor provinces. They are poor and, moreover, have no positive perspectives in the medium term.

In the second part of this section we develop a dynamic analysis of the development patter that each province followed from 2008 to 2012. This time, at the provincial level, the analysis separately accounts for the contributions of the petroleum- and non-petroleum sectors to the GVA.

As shown in Figure 2, when considering the contribution of the petroleum sector, the provinces with the highest performances are Pichincha, Galápagos, Sucumbíos, Pastaza and Orellana. Even though their growth rate fluctuates in the period of analysis, they are the best performers, in contrast with the other provinces which exhibit lower performances.

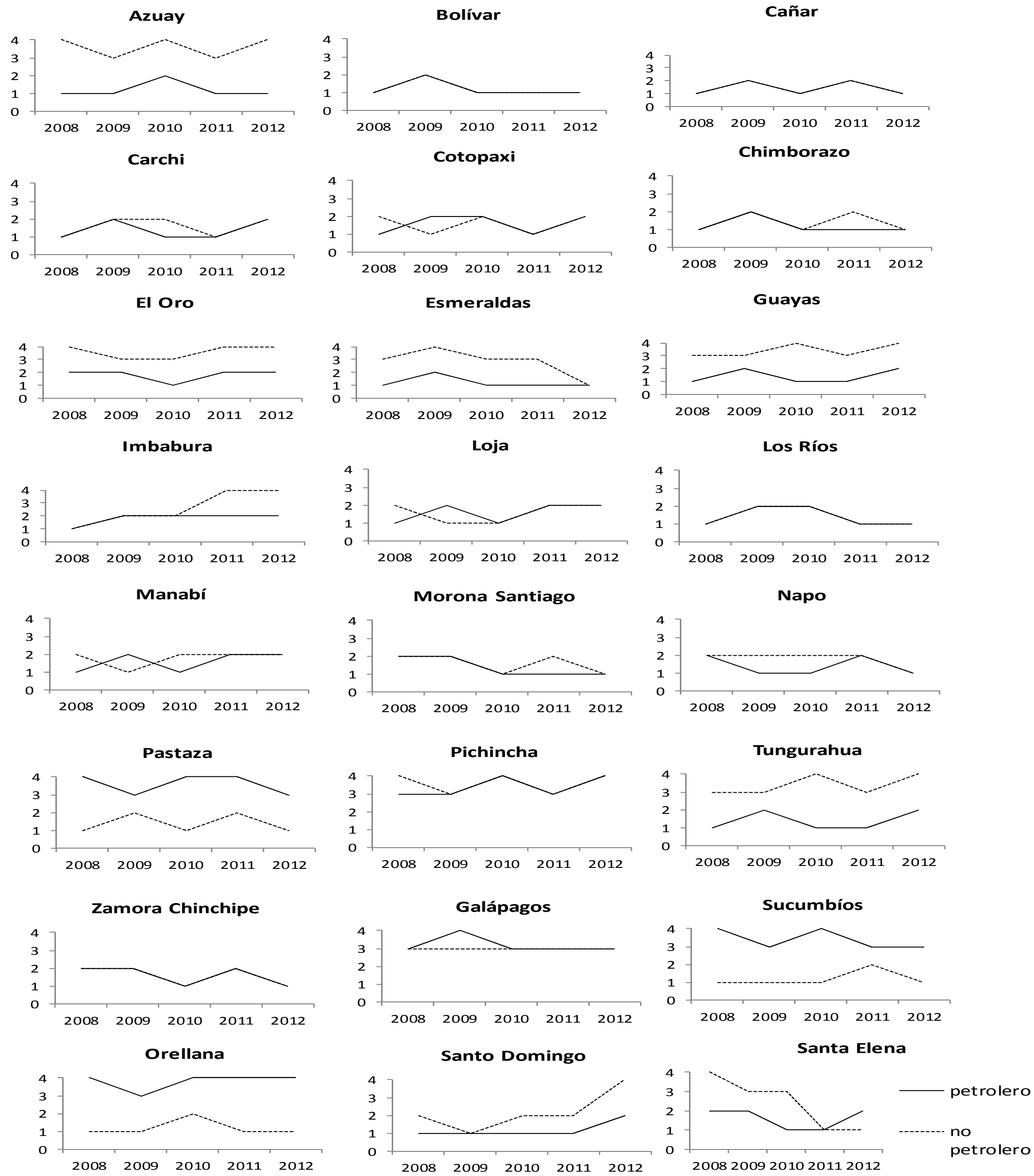

Fig. 2. *The dynamics of regimes from 2008 to 2012 in terms of GVA*
Note: Authors' elaboration.

When switching from “considering” to “no considering” the contribution of the petroleum sector, the provinces Azuay, Guayas, Tungurahua and El Oro, which had low levels of GVA and also low GVA growth rates when no-petroleum sector was accounted for, now become the best performers. Figure 2 also indicates that, in contrast to Azuay, El Oro, Guayas, Pichincha, Tungurahua and Galapagos which had high GVA growth rates during the entire period of analysis, Esmeraldas, Imbabura, Santo Domingo and Santa Elena were not able to achieve such high rates. Atypical patters are evident in the case of Imbabura and Santo Domingo which had growing patters, while Esmeraldas and Santa Elena had a decreasing trend.

5. Conclusions

This paper has revealed the regional peculiarities of the Ecuadorian economy and the economic disparities at the provincial level. Also, the analysis has shown the very important role that the petroleum sector plays into the economic structure of Ecuadorian provinces. Accounting for both the petroleum and non-petroleum contributions to the GVA provides a realistic and complex picture of the regional economy.

The regional economic disparities are of great importance for the policy makers in Ecuador in the fight against social inequality and poverty, as well as in stimulating the sustainable economic growth and development in the long term. Having a comprehensive picture of the Ecuador’s economic regional map allows the government to reallocate resources and to re-think policies as to stimulate the reduction of economic and social gaps.

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