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RESEARCH ARTICLE

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POSSIBLE EVIDENCE OF CONVERGENCE BETWEEN THE BRAZILIAN STATES OF CEARÁ AND MATO GROSSO DO SUL, COMPARED TO THE UNITED STATES: 1985 TO 2016

George Henrique de Moura Cunha*, Michel Constantino and Dany Rafael Fonseca Mendes

Mestrado em Desenvolvimento Regional - Centro Universitário Alves Faria – UNIALFA; Programa de Pós-graduação em Desenvolvimento Local - Universidade Católica Dom Bosco – UCDB; Programa de Pós-graduação em Direito: Centro Universitário de Brasília

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*Corresponding author:

George Henrique de Moura Cunha

ABSTRACT

The economic literature traditionally makes comparisons between countries' per capita income in relation to the United States, looking for evidence of convergence or not. However, there is no evidence of studies comparing the per capita income of Brazilian states with the United States. This article deals with the comparison of the Brazilian states of Mato Grosso do Sul and Ceará, over a period of almost three decades. Due to the quality of the data, it used the information contained in Maddison Projec, Brazilian Institute of Geography and Statistics - IBGE and in the Institute of Applied Economic Research - IPEA / Data.

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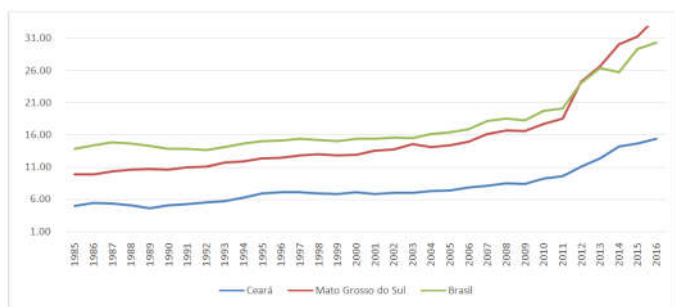
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INTRODUCTION

The states of Ceará and Mato Grosso do Sul are two Federation units with totally different local economies. The state of Ceará currently has the third largest economy in the northeastern region, surpassed by Bahia and Pernambuco. In their economic history, since the end of the 20th century, Ceará's governments have provided the business sector with strong incentives for the installation of new industries, taking advantage of one of its most abundant factors: local labor. If in the middle of the last century the economy of Ceará was basically linked to livestock and agriculture, today the scenario is quite different. Approximately 70% of all the wealth that is produced comes from the service sector, followed by industry with just over 23%. The state of Mato Grosso do Sul, in turn, has agribusiness as its main development driver, making it the fifth largest grain producer in Brazil and among the four largest cattle herds. The objective of the article is to compare the performance of the per capita income of the two economies over more than three decades. In a broader perspective, each of them specialized in its most abundant factor of production: labor and land use. Mato Grosso do Sul specialized in the use of land, for the development of activities related to agribusiness, while the economy of Ceará basically bet on the low cost of its labor.

An application of Comparative Analysis in search of possible convergence

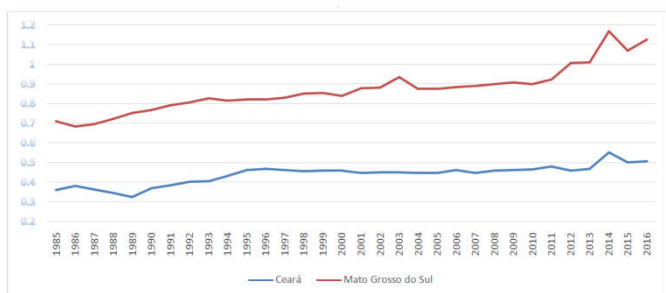
In this paper, we will use one of the most basic productivity indicators: per capita income. Thus, a comparative analysis between the two economies will be carried out, based on the Brazilian per capita income. Then, we will make a comparison between Ceará, Mato Grosso and Brazil, against the United States. The period covered will be from 1985 to 2016. The information contained comes from the Instituto Brasileiro de Geografia e Estatística – IBGE, IPEA-Data and Maddison Project Database (Maddison, 2018). When analyzing the information contained in Graph 1, we can see initially that the evolution of the per capita income from Ceará from 1985 to 2016 has been positive, but below the results presented by Mato Grosso do Sul and the national average. In this work we will use, in a very simplistic way, the concepts of convergence and divergence, to analyze the following tables. In a very basic way, we can present the concept of convergence, as the process of approximating the per capita income of one region in relation to another. Conversely, the divergence presents the process of moving away from per capita income in one region in relation to another (Barro & Sala-i-Martin, 1992; Ellery Junior, 2014; Baumol, 2016).



Source: IBGE and author's tabulation.

Graph 1. Evolution of Per Capita Income: at 2010 prices

In this work we will use, in a very simplistic way, the concepts of convergence and divergence, to analyze the following tables. In a very basic way, we can present the concept of convergence, as the process of approximating the per capita income of one region in relation to another. Conversely, the divergence presents the process of moving away from per capita income in one region in relation to another (Azonni, 1994; Azonni, 1997; Ellery Junior, 2014; Baumol, 2016). In absolute terms, the per capita income of the state of Ceará is lower than the per capita income of Brazil and Mato Grosso do Sul. When we analyze the relationship between the per capita income of Ceará divided by the Brazilian, between 1985 to 2016, we can see that the per capita income in the state of Ceará presented three distinct periods: a relative growth between 1985 and 1994 (convergence); a stagnation between 1995 to 2013; and a resumption of growth from 2014 (convergence) [5,6]. When performing the same exercise for the economy of Mato Grosso do Sul, the data presented in table 1 indicate a growth trend in practically every period. In 1986, the per capita income of Mato Grosso do Sul represented 71% of the national average. In 2016, its value reached 126% of the Brazilian per capita income. The South-Mato Grosso economy showed convergence in relation to the Brazilian per capita income, from 1986 to 2013. As of 2014, there is a divergence, when its per capita income exceeds the national average. The data for the State of Ceará are quite different. In the entire analyzed period, the economy of Ceará had never reached this result, at most in 2014 when it reached approximately 55% of the Brazilian per capita income.

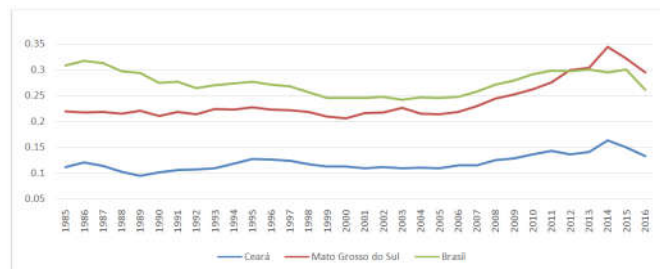


Source: IBGE, Maddison Project Database and author's tabulation

Graph 2. Per capita income of the states of Ceará and Mato Grosso do Sul in relation to the national average

In the previous paragraphs we carried out a comparative analysis of the economies of the two Federation Units with national per capita income. The Brazilian economic literature has several works on this theme; however, the comparison is always based, in relation to the state of São Paulo or, the national average (Ferreira & Ellery Junior, 1996; Freitas & Almeida, 2015). Now, we are going to make the same comparison relating to each of them, including Brazil, with the per capita income of the United States. For this purpose, we will use the data series provided by the Maddison Historical Statistics Project, which provides values for per capita income constant over time. According to graph 3, the Brazilian per capita income from 1985 to 2006 showed a diverging trend in relation to the per capita income of the United States, the ratio between the per capita incomes of the two economies fell from 31% to 25%. However, this trend is broken from 2007 and continues until 2015, when the gap between the two

economies is reduced, providing a small convergence. Ceará's per capita income has always been below the national average. However, information on the per capita income of Ceará between 1985 and 2007, points to a certain stagnation in relation to the United States, oscillating around 11% of the North American.



Source: IBGE, Maddison Project Database and author's tabulation

Graph 3. Per capita income in Brazil, Ceará, Mato Grosso do Sul in relation to the per capita income in the United States: 1985 to 2016

Apparently, the convergence process of the two economies happens, only from 2008, when the economy of Ceará grows faster than the economy of the United States, reaching a peak of 16%. The economy of Mato Grosso do Sul showed a relative stagnation between 1985 to 2001, when the per capita income oscillated around 21% of the per capita income of the United States. However, from 2005 onwards the local economy grows significantly. The Mato Grosso do Sul / United States ratio goes from 21.44% to 29.47% in just 11 years. In 2014, this ratio reached a percentage of 34.5%. Such results may be associated with the performance of agribusiness.

CONCLUSIONS

In a period of three decades, it can be considered as a long term in the economic analysis. During this time, all factors of production can be modified. The two states have very different characteristics: one based on agribusiness, the other on service economics. The differences between the two economies also extend to the way in which the State interferes in the economic sphere. In Mato Grosso do Sul, the State's participation in the local economy is very low. The economic base of Mato Grosso do Sul is based on private initiative. Its economy specialized in the export of vegetable and animal proteins. Unlike Ceará, whose economy in the region is heavily influenced by government credit support. When carrying out a comparative analysis with the performance of the per capita income of the United States, the preliminary long-term results point to a rather smooth convergence of the state of Ceará. On the other hand, when analyzing data for Mato Grosso do Sul, the trend of convergence is greater. Such evidence suggests that the productive specialization in agribusiness provided greater effects in the state of Mato Grosso do Sul, than an economy strongly supported by credits from public banks, such as the state of Ceará.

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