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Labor Productivity Convergence in Mexico

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ABSTRACT

Mexico exhibits the lowest labor productivity of all OECD countries and main groups of nations. However, little is known about its behavior at the sector-state level, or whether it was affected by the global financial crisis (GFC). Therefore, this paper explores the extent to which the GFC affected the convergence—catch-up—process of seventeen Mexican economic sectors in the 1999–2014 period. Moreover, this paper identifies the regions that were more affected by the GFC and analyzes whether the sectoral composition is driving the states' labor productivity convergence patterns. Results suggest that the GFC pushed 13 economic sectors toward convergence and changed the direction of the pre-GFC catch-up trend in 15; that the labor productivity convergence pattern barely changed in the north of Mexico in the short term, and that the biggest changes occurred in the center and south regions; and that states' sectoral composition drives their labor productivity patterns.

KEYWORDS

Convergence analysis; economic sectors; financial crisis; labor productivity; regional disparities

JEL CLASSIFICATIONS

E24; J24; O47; R11

Introduction

Exploring the way regional income and income inequality vary within a country has been of recent interest in both economic and demographic studies, either for developed or developing countries.[1] In Mexico, 43.6% of the population live in poverty, ranging from 14.2% (in Nuevo Leon) to 77.1% (in Chiapas) across states (CONEVAL 2017). Unfortunately, this heterogeneity has been steady during the last couple of decades. While the employed labor force increased, on average, 3.07% per year from 1999 to 2014 (INEGI 2016), labor productivity increased just 0.05% annually in the 2000–2017 period (OECD 2019). The fact that labor productivity has stagnated for a long time increases the relevance of exploring in more detail its evolution and of determining why states remain under unfavorable situations, even when there is no barrier to labor mobility within or between states.

One can maintain, however, that the aggregate dynamics do not portray a clear picture of what is happening within an economy, most likely due to "aggregation bias", as proposed by Imbs et al. (2005). For example, there is evidence suggesting that lower trade barriers increase inequality substantially in developing countries through the composition—of more detailed sectors—channel, or that inequality trends are induced by changes in the sectoral composition and technology-related increases in the demand for skilled workers that outstrip the growth of their supply (Blum 2008; Raveh and Reshef 2016; Van Reenen 2011). Therefore, since the effects of public policies and external shocks are not homogeneous across economic sectors, a sector-state

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[1]See, for instance, Baiardi and Morana (2018), Campos-Vázquez and Lustig (2017), Campos-Vázquez and Rodas-Milian (2019), Chetty et al. (2014), Chetty, Hendren, and Katz et al. (2016), Kennedy et al. (2017), Madariaga, Martori, and Oller (2019), Márquez, Lasarte-Navamuel, and Lufin (2018), Tammaru et al. (2019).

level analysis of the labor productivity convergence in Mexico in the aftermath of the global financial crisis (hereafter referred to as GFC) will provide valuable information about its income dynamics. In this regard, for example, the study of labor productivity convergence—divergence—(also known as catch-up) implies that labor productivity growth has certainly been rapid—slow—in the states, or sectors, with low—high—initial levels of labor productivity. In particular, this article strives to close this breach in the literature and to solve the question: to what extent did the latest global financial crisis affect the convergence—catch-up—process of Mexico's economic sectors?

Empirical studies on regional income convergence in Mexico, developed mostly with aggregate data prior to 2000, yield unconditional—or absolute—convergence for years before the start of the North American Free Trade Agreement (NAFTA) and a structural change toward divergence after NAFTA (Chiquiar 2005; Esquivel 1999; Messmacher Linartas 2000; Sarmiento Reyes and Ramón 2009). On the other hand, to my knowledge, there are two state-sector studies seeking to identify any kind of convergence at a more disaggregated level, although with some limitations. Aiming to study the dynamics of sectoral fictive labor productivity series, Díaz-Bautista and Mendoza Cota (2004) use location quotients of labor variables at the state-sector level and find no labor productivity convergence in the 1970–2000 period. But, on using location quotients, they explain a sort of revealed comparative advantage rather than a real catch-up process in terms of labor productivity, while Carrion-i-Silvestre and German-Soto (2010) documented both convergence and divergence patterns in the 1960–1998 period. This latter study, however, examines the relative labor productivity of the states' industrial sector—considered as the aggregation of mining, manufacturing, electricity, and gas and water economic sectors—in comparison to the national level.

Therefore, to bring comprehensiveness into this topic, the contribution of this article is threefold: (a) to explore the extent to which the GFC affected the convergence—catch-up—process of Mexican economic sectors, (b) to identify the regions that were more affected by the GFC in terms of labor productivity, and (c) to analyze whether the sectoral composition is driving the states' labor productivity convergence patterns. This research takes advantage of the way in which Economic Census data is collected every 5 years in Mexico and the occurrence of the global financial crisis in 2008. Since data of the 2009 Economic Census was collected mostly during the second quarter of 2008, it contains a fairly accurate picture of the Mexican economy just before the crisis exploded at the end of 2008 and beginning of 2009. Then, using Economic Census data for the 17 economic sectors in 32 Mexican states in the 1999–2014 period, this paper analyzes the convergence of labor productivity—measured as gross total product per employed labor force—in the aftermath of the latest global financial crisis.[2] To my knowledge, this is the first study to examine the absolute convergence of the traditional labor productivity measure at the state-sector level in Mexico over the last two decades, and the second to employ a similar disaggregation level. For instance, Kinfemichael and Mahbub Morshed (2019) recently studied the labor productivity convergence across the US states, although they did not take the financial crisis into consideration. While this article does not pursue the identification of a set of factors that drive labor productivity convergence—or divergence—patterns per se, the state-sector analysis performed here aims to be a cornerstone in the literature to undermine such mechanisms and to shed light on an unexplored area in the literature for Mexico.

The article is structured as follows: the next section presents the literature review; the third section provides a statistical overview of labor productivity in Mexico and describes the data; the

[2]An economic sector corresponds to the North American Industrial Classification System (NAICS) two-digit level. As usual, two-digit levels 31, 32 and 33 are grouped as Manufacturing sector, and 48 and 49 are grouped as Transportation and Warehousing economic sector.

fourth section explains the methodology; the fifth section reports the main findings; and the sixth section concludes.

Literature Review

Empirical studies at the state level on regional income convergence in Mexico, mostly with data prior to 2000, find evidence in support of the convergence pattern for years before the start of the North American Free Trade Agreement (NAFTA) and a structural change toward divergence after NAFTA (Chiquiar 2005; Esquivel 1999; Messmacher Linartas 2000).[3] Similarly, Sarmiento Reyes and Ramón (2009) finds support for the convergence hypotheses during the 1970–2006 period, which are mostly driven by the strong convergence pattern of the 1970–1994 period, and finds statistically non-significant evidence toward divergence when studying the 1994–2006 period.[4]

More recently, studies have also found varied results in different periods. For example, Luna Campos, Nery Ryan, and Colín Martínez (2017) find evidence of regional income convergence from 1970 to 1987, and a mild divergence pattern from 1988 to 2004—during the transition to a more open economy. In the same way, there is also literature showing convergence in the 1940–1990 period and non-convergence between 1990 and 2010, even when using different measures of income (Kido-Cruz and Kido-Cruz 2017). However, as suggested by Kinfemichael and Mahbub Morshed (2019), studies at the state level do not account for technological spillover, increased competition and interstate labor movements across different economic sectors.

In this regard, in order to study the dynamics of fictive labor productivity series at the sector-state level, Díaz-Bautista and Mendoza Cota (2004) use location quotients of labor variables at such level and find no labor productivity convergence in the 1970–2000 period. Nevertheless, on using location quotients, their study is more focused on the convergence of a sort of labor revealed comparative advantage than on labor productivity convergence. On the other hand, examining the convergence of the relative labor productivity of Mexico's industry (considered as the aggregation of mining, manufacturing, electricity, and gas and water economic sectors) over the 1960–1998 period, Carrion-i-Silvestre and German-Soto (2010) documented both convergence and divergence patterns. Their findings show that some states converge toward the national industrial labor productivity level, either from above (8 states) or from below (9); and, in contrast, states diverge either upwards (5) or downwards (5).

Then, to study the labor productivity convergence patterns of the economic sectors in Mexico accurately during the 1999–2014 period—in the aftermath of the global financial crisis—this article follows the approach developed by Kinfemichael and Mahbub Morshed (2019), which is based on the neoclassical growth model and explained in more detail in Section IV of this paper (Barro 1991; Barro and Sala-i-Martin 1992, 2004; Sala-i-Martin 1996a, 1996b). By using this approach, the authors estimate the labor productivity convergence of 8 and 18 economic sectors in the 1987–1997 and 1998–2015 periods for the 48 contiguous US states, and find that the labor productivity in mining, transport, manufacturing and wholesale trade presents a convergence pattern that has been weakened in recent years.

While the scope of this article is limited to Mexico and its sector-state level, briefly observing some findings in cross-country literature studying sector-level convergence is worthwhile to bring

[3]The benefits of NAFTA have been largely debated (see, for instance, Blecker 2014; Galbraith 2014, among others). However, despite one of its expected results was to find a reduction on migratory flows from Mexico to the USA due to the stronger conditions in Mexico, making people stay rather than moving, there is evidence showing that migratory flows did not stop rising because of such trade liberalization but for the latest GFC (García-Zamora 2014). This also has implications on the labor productivity dynamics of the countries, in particular, for those closely related to the USA, as it is with Mexico.

[4]Sarmiento Reyes and Ramón (2009) presents an exhaustive Table 1 describing previous literature on Mexico's income convergence.

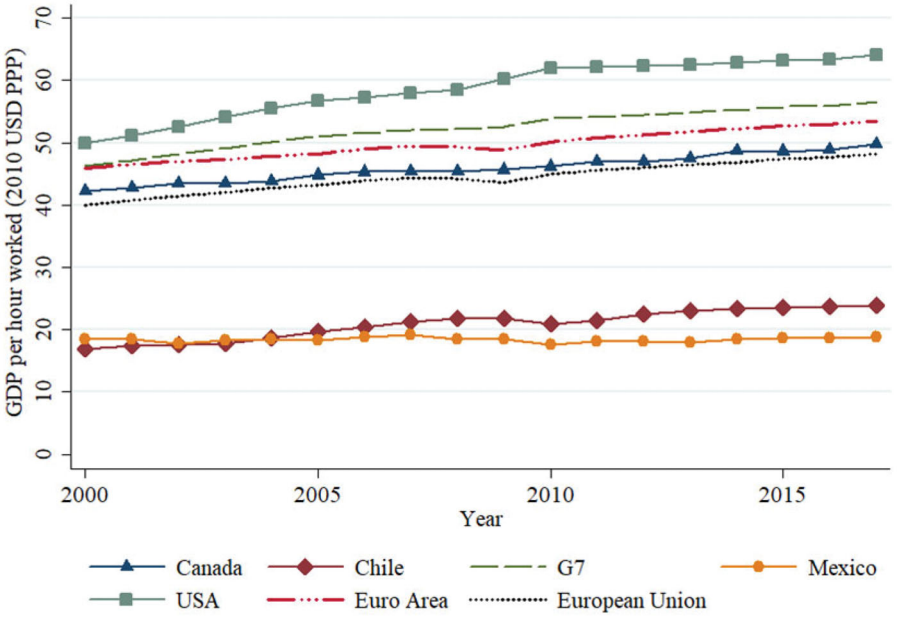

Figure 1. Labor productivity in Mexico, and main OECD countries and country groups, 2000–2017.

this section to a close. In this regard, Bernard and Jones (1996) examine the convergence of six economic sectors across 14 OECD countries from 1970 to 1987 and find this pattern for services, although not for manufacturing. However, Madsen and Timol (2011) find manufacturing productivity convergence for nineteen OECD countries over the 1870–2006 period. On testing productivity convergence among Euro area countries in the 1970–2017 period, Sondermann (2014) does not find convergence at the aggregate level, but rather in both the service sector and manufacturing sub-industries. Nevertheless, there is also evidence suggesting absolute convergence for the financial and business-related market services in 1,263 regional economies of the European Union during 1991–2007, and not for manufacturing and aggregate productivity (Martino 2015).

Data

First, by using OECD data at the country level, Figure 1 presents a general overview of how the labor productivity evolved between 2000 and 2017 in Mexico, the main OECD members and country groups. While most of them seem to increase slightly, Mexico's labor productivity appears to be stagnating at around forty thousand dollars per year.

The data used in the convergence analysis of this paper come from the Economic Censuses 1999, 2004, 2009 and 2014, published by the Mexican National Institute of Geography and Statistics (INEGI by its acronym in Spanish). Each Economic Census gathers relevant information at the firm level, although the information that is made available to the public is aggregated at the state and municipal levels. Variables such as gross total production and the total employed labor force follow the North American Industry Classification System (NAICS), which facilitates industrial comparisons across countries in North America, as well as worldwide, by using the appropriate industrial concordance tables. The industry disaggregation level used in this article focuses on the economic sector level, which corresponds to the 2-digit NAICS, encompassing a total of 17 economic sectors for each of the 32 states. The regional classification used here —north, north-center, center, and south—is shown in Figure 2, following the classification

Figure 2. Political map of Mexico and its regional classification.

employed by the Bank of Mexico to develop their regional economic analysis (Banco de México 2019).[5]

Then, a heterogenous landmark can be observed in the labor productivity transition of Mexican states from 1999 to 2014. By comparing the maps in purple and blue scales, Figure 3 shows how the log of labor productivity evolved from 1999 to 2014 within the country.[6] As can easily be noticed, higher levels of labor productivity are concentrated in some states in the north, center, and southeast of the country. Overall, the blue map on labor productivity seems to be more agglomerated in some areas. In other words, labor productivity looks less homogenous in 2014, in comparison to the 1999 scenario.

There is also considerable variation both within and between the 17 economic sectors along the period of study. Table 1 shows the summary statistics for labor productivity across sectors and states for the whole period and Table A1 shows the summary statistics for each Economic Census from 1999 to 2014, as Appendix.

Table 1 shows that, on average, the most productive sector was utilities, followed by mining and information, a situation that is not hard to believe in Mexico since these economic sectors were primarily monopolies—either federal or private—at the beginning of the 2000s (Hanson 2010). On the other hand, without considering the other services sector due to its nonspecific composition, the least productive economic sector was healthcare and social assistance, which is mainly dominated by the public services provided by the government and by a sort of oligopolistic private market. Table A1 shows that, between 1999 and 2014, just eight economic sectors increased their labor productivity. In this regard, thirteen economic sectors increased it during the first 5 years of the study, while just seven increased in the last 5-year period.

[5]The North encompasses Baja California, Chihuahua, Coahuila, Nuevo León, Sonora and Tamaulipas; the North-Center includes Aguascalientes, Baja California Sur, Colima, Durango, Jalisco, Michoacán, Nayarit, San Luis Potosí, Sinaloa and Zacatecas; the Center considers Ciudad de México, Estado de México, Guanajuato, Hidalgo, Morelos, Puebla, Querétaro and Tlaxcala; and the South, Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatán.

[6]As a standard, labor productivity is estimated as the ratio of the total value of gross total product and total employed labor force in each state.

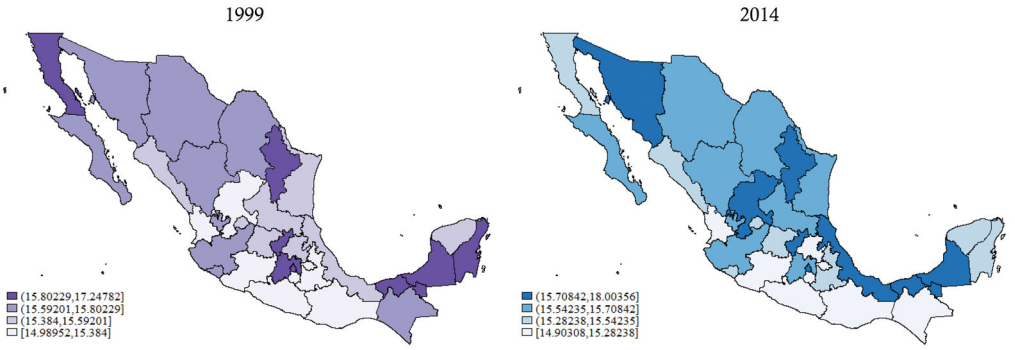

Figure 3. Labor productivity across Mexican states, in log terms.

Table 1. Labor productivity by sector, in log terms (1999–2014).

Economic Sector	Mean	Std. Dev.	Min.	Max.
21 – Mining	13.821	1.417	8.790	17.574
22 – Utilities	14.156	0.860	11.600	16.278
23 – Construction	12.969	0.419	11.948	13.958
31–33 – Manufacturing	13.378	0.461	11.758	14.327
43 – Wholesale	13.061	0.230	12.316	13.809
46 – Retail Trade	11.963	0.309	11.036	12.718
48–49 – Transportation and Warehousing	13.138	0.374	12.078	14.103
51 – Information	13.550	0.676	12.097	14.807
52 – Finance and Insurance	13.056	0.777	10.247	15.786
53 – Real Estate Rental and Leasing	12.764	0.638	11.262	14.120
54 – Professional, Sci. and Technical Services	12.351	0.573	11.257	14.190
56 – Waste Management & Remediation Services	12.118	0.294	11.440	12.922
61 – Educational Services	11.955	0.309	11.066	12.847
62 – Health Care and Social Assistance	11.782	0.385	10.994	13.251
71 – Arts, Entertainment and Recreation	12.161	0.600	10.709	13.847
72 – Accommodation and Food Services	12.111	0.347	11.483	13.334
81 – Other services (except Public Admin.)	11.707	0.402	10.798	12.988

Notes. The number of observations is 128 for each economic sector. All numbers are rounded to their third decimal number.

Methodology

The empirical model used to estimate convergence in this article follows the neoclassical growth model, where it arises from the relationship between the growth rate of GDP—or, in this case, labor productivity—and its initial value (see, for instance, Barro 1991; Barro and Sala-i-Martin 1992, 2004; Sala-i-Martin 1996a, 1996b). Equation (1) delineates the presence or absence of unconditional—or absolute—labor productivity convergence.

$$\Delta LP_{i,s,t+\tau} = log\ LP_{i,s,t+\tau} - log\ LP_{i,s,t} = \alpha_{i,s} + \beta\ log\ LP_{i,s,t} + \varepsilon_{i,s} \tag{1}$$

where $\Delta LP_{i,s,t+\tau}$ is the real growth rate of labor productivity in the industry classification of economic sector i in state s from year t to $t+\tau$; $\alpha_{i,s}$ is a combination of both a constant and a state fixed effects, as in Kinfemichael and Mahbub Morshed (2019) following Mankiw et al. (1992); $log\ LP_{i,s,t}$ is the log of the initial level of labor productivity; $\varepsilon_{i,s}$ is the error term for sector i in sate s; and the coefficient β indicates convergence. Under this approach, a negative—positive—and statistical coefficient indicates unconditional convergence—divergence—when state fixed effects are not included. Similarly, when controlling for the inherent characteristics of each state, a negative—positive—and statistical coefficient indicates conditional convergence—divergence. Under this approach, the convergence rate λ is obtained from $\beta = (1 - e^{-\lambda\tau})$.

However, given the comprehensiveness of this study and to create a clearer intuition, the Equation (2), based on the approach of Islam (1995) to study convergence under panel data

methods, is used across all the estimations in this paper.

$$\log\ LP_{i,s,t+\tau} = \alpha + \delta_i + \mu_s + \gamma\ \log\ LP_{i,s,t} + \varepsilon_{i,s} \tag{2}$$

where sector and state fixed effects are accounted for through δ_i and μ_s, and α is just a constant term. Under this approach, the coefficient γ is of particular importance to observe the convergence pattern and estimate the convergence rate. When neither sector nor state fixed effects are included, the unconditional—or absolute—convergence can be identified. On the other hand, when any fixed effect is taken into consideration, γ is useful to identify conditional convergence. Then, intuitively, convergence exists if $0 < \gamma < 1$, whereas $\gamma > 1$ suggests divergence. So, now the convergence rate λ is obtained from $\gamma = e^{-\lambda\tau}$.

Equation (2) is estimated in different ways in terms of the disaggregation level of the data or the size of the period—either in the short or long term—to build the contributions of this paper. Regarding this: (a) data is used at the aggregated sector and state levels to observe the aggregation bias problem as an initial benchmark (Imbs et al. 2005); (b) observations at the sector-state level are employed to introduce the state and sector fixed effects separately and together to identify the relevance of controlling for such aspects; (c) data also at the sector-state level, but using data for each sector separately are used to study the convergence patterns of each economic sector, (d) information at the same level is handled for the study at the regional level. Then, to explore the extent to which the GFC affected the convergence—catch-up—process of Mexican economic sectors, different time periods are used to: (a) compare the 5-year periods before and after the GFC to identify the short-term evolution of the economic sectors and the short-term effects of the GFC, and (b) compare long-term periods with and without the GFC period to observe how the long-term convergence pattern was affected by the GFC. On identifying the regions that were more affected by the GFC in terms of labor productivity, a similar approach was implemented for each of the four regions in Mexico (north, north-center, center, and south).

To analyze whether the sectoral composition is driving the states' labor productivity convergence patterns, an additional measure of labor productivity is constructed by following a similar approach to that of Patterson et al. (2016), creating an industry-weighted measure of occupations' gross value added.[7] The weighted labor productivity variable constructed here, WLP_s, consists of a labor productivity measure for each state that is weighted by the economic sectors' share of employment in each state. In this sense, having the gross domestic product for each economic sector i and state s at year t, $Y_{i,s,t}$, and labor at the same level, $L_{i,s,t}$, we have $Y_s = \sum_i Y_{s,i}$, and $L_s = \sum_i L_{i,s}$. Then, $\frac{Y_s}{L_s} = \sum_i \left(\frac{Y_{s,i}}{L_s} \cdot \frac{L_{s,i}}{L_{s,i}}\right)$, and $WLP_s = \frac{Y_s}{L_s} = \sum_i \left(LP_{s,i} \cdot \frac{L_{s,i}}{L_s}\right)$. Therefore, by comparing the estimations of the weighted labor productivity convergence for each state to the ones using the non-weighted measure, it is possible to observe how much the states' sectoral composition is driving the states' labor productivity convergence patterns.

Results

The structure of this section is planned to give a coherent and brief description of the contributions of this article. First, the analysis of the effect of the GFC on the labor productivity convergence pattern of Mexican economic sectors is presented. Then, the regional analysis depicts the areas most affected by the GFC in terms of labor productivity. Finally, a brief analysis of the extent to which sectoral composition is driving the states' labor productivity convergence is presented.

[7]Patterson et al. (2016) follows, in general, the insight of loss by labor misallocation of Hsieh and Klenow (2009), among others.

Table 2. Absolute convergence (state and sector level).

Panel A. Short-Term	1999–2004	2004–2009	2009–2014
Labor Productivity (State level)			
$log(LP_{t,state})$	1.107***	1.187***	0.899***
	(0.128)	(0.043)	(0.034)
Convergence rate $-\left(\frac{ln(\beta)}{\tau}\right)$	−0.020	−0.034	0.021
R^2	0.905	0.957	0.902
Labor Productivity (Sector level)			
$log(LP_{t,sector})$	1.143***	1.095***	0.892***
	(0.054)	(0.067)	(0.034)
Convergence rate $-\left(\frac{ln(\beta)}{\tau}\right)$	−0.027	−0.018	0.023
R^2	0.970	0.962	0.974
Panel B. *Long-Term*	1999–2009	1999–2014	2004–2014
Labor Productivity (State level)			
$log(LP_{s,t})$	1.333***	1.216***	1.076***
	(0.134)	(0.136)	(0.049)
Convergence rate $-\left(\frac{ln(\beta)}{\tau}\right)$	−0.029	−0.013	−0.007
R^2	0.891	0.827	0.877
Labor Productivity (Sector level)			
$log(LP_{i,t})$	1.242***	1.105***	0.981***
	(0.117)	(0.118)	(0.068)
Convergence rate $-\left(\frac{ln(\beta)}{\tau}\right)$	−0.022	−0.007	0.002
R^2	0.918	0.891	0.947

Notes. Each coefficient is the result of a separate estimation. The dependent variables are $log(LP_{s,t+5})$ and $log(LP_{i,t+5})$ in Panel A, and $log(LP_{s,t+\tau})$ and $log(LP_{i,t+\tau})$ in Panel B. In the latter, the values of τ are 10, 15 and 10 for the first, second and third columns, respectively. All estimations allow a constant term. State (sector) estimations contain 32 (17) observations. Robust standard error coefficients are in parentheses. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Labor Productivity and the Global Financial Crisis

Table 2 shows the absolute convergence analysis using aggregated data at the state and sector level, for both short-and long-term periods. Overall, estimates show an aggregate divergence rather than convergence before the GFC. However, after such event, the divergence patterns mostly become convergence in both short-and long-term analyses. This suggests that, naturally, state and sector labor productivity growth is higher in those with a higher initial level and that, after the crisis, the ones that were more productive initially recover less rapidly, very likely since they were the most affected. However, the results and implications of this table must be taken cautiously due to the very likely existent aggregation bias, as suggested by Imbs et al. (2005), and corroborated below.

Using data at the sector-state level, Table 3 presents the absolute and conditional convergence analysis, also in both the short-and long-term. Results in Table 3 indicate the relevance of accounting for sector and state fixed effects by increasing the adjustment measurement and considerably changing the coefficients when included. In general, there is evidence toward convergence rather than divergence, as misleadingly suggested by Table 2. Nevertheless, the effect of the GFC stays the same. The convergence rate of the 2004–2009 period (0.037) increases to the one after the crisis (0.131), or up to 0.048 when considering the 2004–2014 long-term rate. Similar effects are observed in the long-term convergence, increasing the convergence rate from 0.047 in the 1999–2009 period to 0.050 from 1999 to 2014.

Tables 4 and 5 show the short-and long-term convergence analysis of each economic sector. In general, as observed in Table 4, before the GFC, thirteen economic sectors decrease their catch-up process by reducing their convergence rates—toward divergence—from the 1999–2004 to the 2004–2009 period. On the other hand, the economic sectors with an increase in their convergence rates during those periods were: utilities, information, real estate rental and leasing, and health care and social assistance. In these four sectors, the evidence suggests that the states with an initial lower level of labor productivity presented a higher growth rate between 2004 and 2009 than in the previous 5-year period. Of all the economic sectors, thirteen increased their convergence rate after the GFC,

Table 3. Absolute and conditional convergence (sector-state level).

Panel A. *Short-Term*	1999–2004				2004–2009				2009–2014			
$log(LP_{s,i,t})$	0.908***	0.936***	0.713***	0.699***	1.071***	1.074***	0.887***	0.832***	0.633***	0.627***	0.573***	0.520***
	(0.030)	(0.031)	(0.046)	(0.061)	(0.022)	(0.023)	(0.056)	(0.067)	(0.036)	(0.036)	(0.074)	(0.090)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.019	0.013	0.068	0.072	−0.014	−0.014	0.024	0.037	0.091	0.093	0.111	0.131
R^2	0.777	0.792	0.880	0.890	0.854	0.862	0.912	0.922	0.597	0.610	0.751	0.766
Panel B. *Long-Term*	1999–2009				1999–2014				2004–2014			
$log(LP_{s,i,t})$	0.988***	1.028***	0.668***	0.625***	0.736***	0.761***	0.511***	0.472***	0.751***	0.746***	0.665***	0.618***
	(0.042)	(0.045)	(0.075)	(0.093)	(0.039)	(0.041)	(0.063)	(0.105)	(0.038)	(0.041)	(0.071)	(0.108)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.001	−0.003	0.040	0.047	0.020	0.018	0.045	0.050	0.029	0.029	0.041	0.048
R^2	0.685	0.711	0.855	0.875	0.566	0.587	0.731	0.750	0.625	0.635	0.774	0.786
State effects		Yes		Yes		Yes		Yes		Yes		Yes
Sector effects			Yes	Yes			Yes	Yes			Yes	Yes

Notes: Each coefficient is the result of a separate estimation. The dependent variable is $log(LP_{s,i,t+5})$ in Panel A estimations, while it is either $log(LP_{s,i,t+10})$ or $log(LP_{s,i,t+15})$ in Panel B estimations, according to the period of study. All estimations allow a constant term and contain 544 observations. There is a total of 17 NAICS 2-digit economic sectors for each of the 32 Mexican states. Robust standard error coefficients are in parentheses. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 4. Short-term labor productivity absolute convergence by sector.

Economic Sector	1999–2004	2004–2009	2009–2014
21 – Mining	1.002*** [0.780]	1.155*** [0.855]	0.451*** [0.238]
	(0.103) {0.000}	(0.092) {−0.029}	(0.144) {0.159}
22 – Utilities	0.773*** [0.430]	0.632*** [0.542]	0.247 [0.031]
	(0.222) {0.051}	(0.128) {0.092}	(0.273) {0.280}
23 – Construction	0.558*** [0.558]	0.634*** [0.496]	0.479** [0.229]
	(0.109) {0.117}	(0.089) {0.091}	(0.176) {0.0147}
31–33 – Manufacturing	0.818*** [0.680]	1.194*** [0.695]	0.946*** [0.848]
	(0.096) {0.040}	(0.141) {−0.035}	(0.079) {0.011}
43 – Wholesale	0.634*** [0.817]	0.715*** [0.688]	0.613*** [0.616]
	(0.045) {0.091}	(0.098) {0.067}	(0.068) {0.098}
46 – Retail Trade	0.734*** [0.914]	1.167*** [0.936]	0.830*** [0.950]
	(0.042) {0.062}	(0.077) {−0.031}	(0.036) {0.037}
48–49 – Transportation and Warehousing	0.649*** [0.530]	0.904*** [0.617]	0.668*** [0.339]
	(0.123) {0.086}	(0.106) {0.020}	(0.188) {0.081}
51 – Information	0.641*** [0.659]	0.321*** [0.550]	0.678** [0.222]
	(0.080) {0.089}	(0.048) {0.227}	(0.326) {0.078}
52 – Finance and Insurance	0.391*** [0.455]	0.516** [0.310]	0.691*** [0.377]
	(0.071) {0.188}	(0.235) {0.12}	(0.112) {0.074}
53 – Real Estate Rental and Leasing	0.821*** [0.659]	0.747*** [0.688]	0.641*** [0.666]
	(0.071) {0.039}	(0.084) {0.058}	(0.095) {0.089}
54 – Professional, Sci. and Technical Services	0.717*** [0.773]	0.918*** [0.807]	0.688*** [0.673]
	(0.085) {0.067}	(0.077) {0.017}	(0.113) {0.075}
56 – Waste Management & Remediation Services	0.578*** [0.412]	0.620*** [0.529]	0.604*** [0.530]
	(0.116) {0.110}	(0.103) {0.096}	(0.100) {0.101}
61 – Educational Services	0.765*** [0.846]	0.833*** [0.811]	0.677*** [0.659]
	(0.061) {0.054}	(0.074) {0.037}	(0.089) {0.078}
62 – Health Care and Social Assistance	0.870*** [0.604]	0.656*** [0.612]	0.835*** [0.911]
	(0.090) {0.028}	(0.223) {0.084}	(0.037) {0.036}
71 – Arts, Entertainment and Recreation	0.682*** [0.757]	0.954*** [0.787]	0.755*** [0.767]
	(0.076) {0.077}	(0.099) {0.009}	(0.069) {0.056}
72 – Accommodation and Food Services	0.608*** [0.873]	1.277*** [0.815]	0.715*** [0.885]
	(0.067) {0.100}	(0.105) {−0.049}	(0.083) {0.067}
81 – Other services (except Public Admin.)	0.600*** [0.510]	0.692*** [0.437]	0.965*** [0.867]
	(0.118) {0.102}	(0.252) {0.074}	(0.112) {0.007}

Notes: Each coefficient is the result of a separate estimation for $log(LP_{s,t})$. The dependent variables are $log(LP_{s,t+5})$, according to the period under study. All estimations allow a constant term and contain 32 observations. Robust standard error coefficients are in parentheses, adjustment measure, R^2, in square brackets, convergence rate, $-\left(\frac{log(\beta)}{\tau}\right)$, in curly brackets. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

suggesting a strong effect of the GFC toward convergence and that, after the crisis, the states with a higher initial productivity rate, recovered less rapidly, very likely since they were the most affected.

Evidence in Table 5 suggests that, in the long-term, fourteen of the economic sectors present a GFC effect toward convergence. The ones with a different pattern are manufacturing, information, and finance and insurance, when comparing the 1999–2009 to the 1999–2014 period. This suggests that in these three economic sectors, states with a higher initial labor productivity level recovered more rapidly from the effects of the GFC.

Regional Analysis

Tables 6 and 7 show the short-term and long-term labor productivity convergence analysis for each region, respectively. However, given the recent structural sectoral change in Mexico, the short-and long-term results could vary. For example, it is well known that both the north and center region composition has changed drastically during the last decade in terms of acquisition of intellectual and high-skill human capital, and its strong relationship to the technology-based sectors (Villarreal Gonzalez, Flores Segovia and Gasca Sánchez 2018). Moreover, there has been a recent creation of the automotive cluster in states from the north and north-center regions, as well as the pharmaceutical cluster in the center of Mexico (Villarreal Gonzalez and Flores Segovia 2015).

Table 5. Long-term labor productivity absolute convergence by sector.

Economic Sector	1999–2004	2004–2009	2009–2014
21 – Mining	1.160*** [0.670]	0.709*** [0.292]	0.759*** [0.430]
	(0.136) {−0.030}	(0.234) {0.069}	(0.182) {0.055}
22 – Utilities	0.600*** [0.352]	0.541** [0.148]	0.591*** [0.245]
	(0.163) {0.102}	(0.257) {0.123}	(0.180) {0.105}
23 – Construction	0.390*** [0.336]	0.362*** [0.288]	0.322** [0.127]
	(0.094) {0.188}	(0.104) {0.203}	(0.127) {0.227}
31–33 – Manufacturing	1.069*** [0.567]	1.182*** [0.657]	1.232*** [0.702]
	(0.183) {−0.013}	(0.204) {−0.033}	(0.191) {−0.042}
43 – Wholesale	0.484*** [0.641]	0.275*** [0.338]	0.408*** [0.368]
	(0.066) {0.145}	(0.064) {0.258}	(0.085) {0.179}
46 – Retail Trade	0.858*** [0.860]	0.711*** [0.813]	0.969*** [0.891]
	(0.089) {0.031}	(0.083) {0.068}	(0.082) {0.006}
48–49 – Transportation and Warehousing	0.629*** [0.376]	0.551** [0.219]	0.632*** [0.230]
	(0.199) {0.093}	(0.220) {0.119}	(0.240) {0.092}
51 – Information	0.235*** [0.474]	0.361*** [0.541]	0.397*** [0.407]
	(0.044) {0.290}	(0.075) {0.204}	(0.111) {0.185}
52 – Finance and Insurance	0.182 [0.110]	0.227* [0.134]	0.510** [0.239]
	(0.123) {0.341}	(0.112) {0.297}	(0.215) {0.135}
53 – Real Estate Rental and Leasing	0.681*** [0.558]	0.441*** [0.379]	0.534*** [0.570]
	(0.086) {0.077}	(0.093) {0.164}	(0.096) {0.125}
54 – Professional, Sci. and Technical Services	0.678*** [0.661]	0.490*** [0.492]	0.646*** [0.569]
	(0.117) {0.078}	(0.099) {0.143}	(0.111) {0.087}
56 – Waste Management & Remediation Services	0.406*** [0.279]	0.240** [0.142]	0.286** [0.163]
	(0.118) {0.180}	(0.092) {0.285}	(0.110) {0.250}
61 – Educational Services	0.680*** [0.783]	0.446*** [0.485]	0.598*** [0.602]
	(0.083) {0.077}	(0.098) {0.161}	(0.093) {0.103}
62 – Health Care and Social Assistance	0.869*** [0.857]	0.742*** [0.815]	0.552*** [0.565]
	(0.059) {0.028}	(0.062) {0.060}	(0.183) {0.119}
71 – Arts, Entertainment and Recreation	0.725*** [0.740]	0.581*** [0.640]	0.798*** [0.741]
	(0.090) {0.064}	(0.095) {0.109}	(0.101) {0.045}
72 – Accommodation and Food Services	0.899*** [0.953]	0.644*** [0.848]	1.008*** [0.879]
	(0.045) {0.021}	(0.078) {0.088}	(0.057) {−0.002}
81 – Other services (except Public Admin.)	0.608*** [0.477]	0.593*** [0.424]	0.720*** [0.440]
	(0.179) {0.100}	(0.175) {0.105}	(0.235) {0.066}

Notes: Each coefficient is the result of a separate estimation for $log(LP_{s,t})$. The dependent variables are $log(LP_{s,t+10})$ and $log(LP_{s,t+15})$, according to the period under study. All estimations allow a constant term and contain 32 observations. Robust standard error coefficients are in parentheses, adjustment measure, R^2, in square brackets, convergence rate, $-\left(\frac{log(\beta)}{\tau}\right)$, in curly brackets. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Between the pre-and post-GFC 5-year periods, the north and north-center regions barely increased their convergence rate, while the center and south regions increased it drastically. However, when comparing the 1999–2009 to the 1999–2014 period, and the 2004–2009 to the 2004–2014 period, all but the center region considerably increased their convergence rate. As expected, these results overlap each other. Nevertheless, they are useful to understand the dynamic labor productivity convergence pattern of the Mexican regions.

Sectoral Composition

Table 8 shows the convergence analysis of the weighted labor productivity measure, with an expected significantly almost null convergence pattern at the state level, before and after the GFC, in the short and long terms. In comparison to the results of Table 2, when adjusting for sectoral composition, the aggregate divergent pattern observed at the state level vanishes and even becomes slightly convergent. It is also possible to observe that, after controlling for the sectoral composition of the states, the GFC pushes the convergence in labor productivity toward divergence in the short term and barely moves it in the long term.

These results, to some extent, wrap up the evidence presented here, concluding two main arguments. First, the sectoral composition matters, as suggested by Patterson et al. (2016) and

Table 6. Short-term regional labor productivity absolute and conditional convergence (state-sector level).

	1999–2004				2004–2009				2009–2014			
Panel A. *North*												
$log(LP_{s,i,t})$	0.777***	0.768***	0.623***	0.535***	1.067***	1.072***	0.794***	0.762***	0.710***	0.701***	0.783***	0.726***
	(0.043)	(0.044)	(0.129)	(0.115)	(0.062)	(0.067)	(0.166)	(0.203)	(0.063)	(0.065)	(0.137)	(0.184)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.050	0.053	0.095	0.125	−0.013	−0.014	0.046	0.054	0.068	0.071	0.049	0.064
R^2	0.799	0.813	0.882	0.902	0.835	0.837	0.935	0.938	0.745	0.755	0.894	0.904
Panel B. *North-Center*												
$log(LP_{s,i,t})$	0.896***	0.881***	0.922***	0.828***	1.051***	1.055***	0.664***	0.626***	0.642***	0.643***	0.569***	0.559***
	(0.038)	(0.040)	(0.147)	(0.178)	(0.053)	(0.052)	(0.108)	(0.102)	(0.052)	(0.055)	(0.067)	(0.084)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.022	0.025	0.016	0.038	−0.010	−0.011	0.082	0.094	0.089	0.088	0.113	0.116
R^2	0.779	0.792	0.861	0.874	0.811	0.821	0.926	0.937	0.670	0.673	0.892	0.896
Panel C. *Center*												
$log(LP_{s,i,t})$	0.853***	0.796***	0.974***	0.660***	1.085***	1.073***	0.934***	0.666***	0.573***	0.558***	0.282***	−0.191***
	(0.045)	(0.041)	(0.120)	(0.160)	(0.031)	(0.042)	(0.105)	(0.195)	(0.086)	(0.074)	(0.268)	(0.315)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.032	0.046	0.005	0.083	−0.016	−0.014	0.014	0.081	0.111	0.117	0.253	- N A -
R^2	0.743	0.792	0.805	0.851	0.885	0.890	0.912	0.927	0.427	0.441	0.559	0.629
Panel D. *South*												
$log(LP_{s,i,t})$	0.843***	0.823***	0.813***	0.750***	1.096***	1.092***	0.953***	0.911***	0.625***	0.619***	0.516***	0.466***
	(0.031)	(0.036)	(0.061)	(0.061)	(0.031)	(0.032)	(0.081)	(0.086)	(0.077)	(0.077)	(0.106)	(0.115)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.034	0.039	0.041	0.058	−0.018	−0.018	0.010	0.019	0.094	0.096	0.132	0.153
R^2	0.787	0.815	0.873	0.904	0.880	0.886	0.927	0.936	0.610	0.623	0.823	0.840
State effects		Yes		Yes		Yes		Yes		Yes		Yes
Sector effects			Yes	Yes			Yes	Yes			Yes	Yes

Notes: Each coefficient is the result of a separate estimation. The dependent variable is $log(LP_{s,i,t+5})$ in all panels. All estimations allow a constant term and contain 102, 170, 136 and 136 for Panel A, B, C and D, respectively. There is a total of 17 NAICS 2-digit economic sectors for each of the 32 Mexican states. The convergence rate of the center region in the 2009–2014 period is not possible to be estimated since the coefficient exceeds the range for it. However, its effect toward convergence is more than clear for the direction of the change. Robust standard error coefficients are in parentheses. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 7. Long-term regional labor productivity absolute and conditional convergence (state-sector level).

	1999–2009				1999–2014				2004–2014			
Panel A. *North*												
$log(LP_{s,i,t})$	1.122***	1.148***	0.632***	0.598***	0.830***	0.842***	0.396***	0.297***	0.759***	0.750***	0.613***	0.528*
	(0.081)	(0.083)	(0.134)	(0.194)	(0.101)	(0.105)	(0.118)	(0.190)	(0.088)	(0.093)	(0.213)	(0.270)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	−0.012	−0.014	0.046	0.051	0.012	0.011	0.062	0.081	0.028	0.029	0.049	0.064
R^2	0.698	0.712	0.893	0.902	0.564	0.592	0.782	0.814	0.623	0.635	0.833	0.850
Panel B. *North-Center*												
$log(LP_{s,i,t})$	0.934***	0.959***	0.405***	0.377***	0.692***	0.714***	0.253***	0.233***	0.748***	0.752***	0.405***	0.375***
	(0.094)	(0.093)	(0.126)	(0.118)	(0.057)	(0.057)	(0.076)	(0.078)	(0.060)	(0.064)	(0.086)	(0.097)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.007	0.004	0.090	0.098	0.025	0.022	0.092	0.097	0.029	0.029	0.090	0.098
R^2	0.661	0.681	0.905	0.918	0.588	0.609	0.846	0.857	0.667	0.676	0.858	0.867
Panel C. *Center*												
$log(LP_{s,i,t})$	0.969***	1.010***	0.600***	0.333***	0.714***	0.746***	0.471***	0.315	0.761***	0.752***	0.762***	0.694
	(0.061)	(0.073)	(0.094)	(0.126)	(0.067)	(0.075)	(0.106)	(0.291)	(0.071)	(0.082)	(0.168)	(0.447)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.003	−0.001	0.051	0.110	0.022	0.020	0.050	0.077	0.027	0.029	0.027	0.037
R^2	0.692	0.715	0.868	0.907	0.489	0.502	0.624	0.642	0.565	0.572	0.669	0.676
Panel D. *South*												
$log(LP_{s,i,t})$	1.031***	1.059***	0.847***	0.855***	0.769***	0.785***	0.583***	0.552***	0.743***	0.736***	0.599***	0.546***
	(0.076)	(0.074)	(0.131)	(0.140)	(0.087)	(0.089)	(0.095)	(0.113)	(0.083)	(0.086)	(0.084)	(0.04)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	−0.003	−0.006	0.017	0.016	0.018	0.016	0.036	0.040	0.030	0.031	0.051	0.061
R^2	0.704	0.731	0.857	0.880	0.613	0.630	0.829	0.846	0.632	0.643	0.848	0.864
State effects		Yes		Yes		Yes		Yes		Yes		Yes
Sector effects			Yes	Yes			Yes	Yes			Yes	Yes

Notes: Each coefficient is the result of a separate estimation. The dependent variables are $log(LP_{s,i,t+10})$ and $log(LP_{s,i,t+15})$ in all panels, according to the period of study. All estimations allow a constant term and contain 102, 170, 136 and 136 for Panel A, B, C and D, respectively. There is a total of 17 NAICS 2-digit economic sectors for each of the 32 Mexican states. Robust standard error coefficients are in parentheses. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 8. Absolute convergence using weighted labor productivity (state level).

	Short-Term			Long-Term		
	1999–2004	2004–2009	2009–2014	1999–2009	1999–2014	2004–2014
$log(WLP_{s,t})$	0.963***	0.953***	0.997***	0.916***	0.912***	0.950***
	(0.018)	(0.016)	(0.009)	(0.021)	(0.025)	(0.019)
Convergence rate $-\left(\frac{log(\beta)}{\tau}\right)$	0.008	0.010	0.001	0.009	0.006	0.005
R^2	0.991	0.991	0.996	0.979	0.970	0.985

Notes. The dependent variable is $log(WLP_{s,t+5})$ in the left-side panel for the Short-Term analysis, and $log(WLP_{s,t+10})$ $log(WLP_{s,t+15})$ in the right-side for Long-Term, according to the period under study. All estimations allow a constant term and contain 32 observations. Robust standard error coefficients are in parentheses. All numbers are rounded to their third decimal number. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Hsieh and Klenow (2009). This implies that some specific economic sectors, such as manufacturing, give an overall shape to an economy. Second, by analyzing the 5-year periods around the crisis, it can be observed that the initially more productive states recovered less rapidly, very likely since they were the most affected by the GFC.

Concluding Remarks

Labor productivity growth has stagnated, on aggregate, in Mexico during the last two decades. However, aggregate dynamics do not portray a clear picture of what is happening within an economy. Therefore, a sector-state level analysis of the labor productivity convergence in Mexico, in the aftermath of the global financial crisis (GFC), can provide valuable information about its income dynamics. To bring comprehensiveness into this topic, this article explores the extent to which the GFC affected the convergence—catch-up—process of Mexican economic sectors, identifies the regions that were more affected by the GFC in terms of labor productivity, and analyzes whether the sectoral composition is driving the states' labor productivity convergence patterns.

Aggregate level results suggest that states and sector labor productivity growth is higher in those with a higher initial level and that, after the crisis, the ones that were initially more productive recovered less rapidly, very likely since they were the most sensitive to the shock. However, these results and implications must be taken cautiously due to the very likely existent aggregation bias. After accounting for sector and state fixed effects, in general, there is evidence toward convergence rather than divergence before the GFC, as was initially implied. Nevertheless, the effect of the GFC is robust and remains, thus increasing the states' labor productivity convergence rate. Evidence at a more disaggregated level for each of the seventeen economic sectors indicates that thirteen increased their convergence rate after the GFC. This suggests a strong effect of the GFC toward convergence in the short term and that, after the crisis, the states that were initially more productive recovered less rapidly, very likely since they were the most affected. In the long term, 14 of the economic sectors present a GFC effect toward convergence (manufacturing, information, and finance and insurance displayed a different pattern) when comparing the 1999–2009 to the 1999–2014 period, which proposes that, in those three sectors, states with a higher initial labor productivity level recovered more rapidly from the effects of the GFC. In addition, the regional analysis indicates that the labor productivity convergence pattern barely changed in the north of Mexico in the short term, and that the biggest changes occurred in the center and south regions.

While this article does not aim to identify a set of specific factors driving the labor productivity convergence—or divergence—patterns, the state-sector analysis presented here shed light on an unexplored area in the literature for Mexico and emerging countries to develop further research on the mechanisms explaining the sectoral labor productivity patterns of Mexico's states.

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Appendix

Table A1. Labor productivity by sector, in log terms (1999, 2004, 2009, 2014).

Economic Sector	Year	Mean	Std. Dev.	Min.	Max.
21 – Mining	1999	13.690	1.154	11.145	16.222
	2004	13.572	1.309	11.312	17.064
	2009	13.853	1.635	10.109	17.574
	2014	14.167	1.515	8.790	17.406
22 – Utilities	1999	13.975	0.548	12.659	15.042
	2004	14.538	0.646	12.730	15.959
	2009	14.818	0.555	13.789	16.278
	2014	13.291	0.772	11.600	15.072
23 – Construction	1999	12.591	0.402	11.948	13.547
	2004	12.872	0.301	12.356	13.801
	2009	13.355	0.271	12.799	13.958
	2014	13.057	0.271	12.537	13.650
31–33 – Manufacturing	1999	13.260	0.369	12.477	13.922
	2004	13.314	0.365	12.361	13.908
	2009	13.446	0.523	12.005	14.327
	2014	13.493	0.537	11.758	14.265
43 – Wholesale	1999	13.062	0.319	12.316	13.809
	2004	13.113	0.224	12.685	13.608
	2009	13.020	0.193	12.491	13.500
	2014	13.051	0.151	12.738	13.418
46 – Retail Trade	1999	12.032	0.345	11.343	12.718
	2004	11.985	0.265	11.479	12.415
	2009	11.834	0.320	11.036	12.407
	2014	12.000	0.272	11.315	12.511
48–49 – Transportation and Warehousing	1999	13.104	0.361	12.508	13.920
	2004	13.178	0.322	12.460	13.988
	2009	13.231	0.370	12.350	14.046
	2014	13.040	0.425	12.078	14.103
51 – Information	1999	13.012	0.646	12.097	14.608
	2004	13.713	0.510	12.860	14.733
	2009	14.297	0.220	13.860	14.807
	2014	13.178	0.317	12.506	14.149
52 – Finance and Insurance	1999	12.677	1.059	10.247	15.786
	2004	13.419	0.591	12.454	14.982
	2009	12.928	0.548	12.267	14.530
	2014	13.201	0.617	12.306	14.608
53 – Real Estate Rental and Leasing	1999	12.979	0.676	11.644	14.120
	2004	12.875	0.684	11.521	14.019
	2009	12.693	0.615	11.376	13.894
	2014	12.507	0.484	11.262	13.295
54 – Professional, Sci. and Technical Services	1999	12.422	0.673	11.257	14.121
	2004	12.459	0.549	11.635	14.190
	2009	12.364	0.561	11.462	14.083
	2014	12.160	0.470	11.330	13.503
56 – Waste Management & Remediation Services	1999	12.109	0.346	11.440	12.922
	2004	12.228	0.311	11.643	12.875
	2009	12.097	0.265	11.510	12.636
	2014	12.040	0.220	11.570	12.417
61 – Educational Services	1999	11.805	0.366	11.066	12.658
	2004	12.010	0.304	11.496	12.847
	2009	12.009	0.281	11.328	12.792
	2014	11.994	0.234	11.332	12.529
62 – Health Care and Social Assistance	1999	11.619	0.380	10.994	12.693
	2004	11.906	0.425	11.302	13.251
	2009	11.719	0.356	11.208	12.569
	2014	11.885	0.312	11.305	12.608

(*continued*)

Table A1. Continued.

Economic Sector	Year	Mean	Std. Dev.	Min.	Max.
71 – Arts, Entertainment and Recreation	1999	11.995	0.710	10.859	13.847
	2004	12.188	0.557	10.856	13.233
	2009	12.236	0.598	10.709	13.514
	2014	12.224	0.516	10.803	13.101
72 – Accommodation and Food Services	1999	12.190	0.418	11.660	13.334
	2004	12.126	0.272	11.720	12.906
	2009	12.086	0.385	11.483	12.991
	2014	12.044	0.292	11.577	12.800
81 – Other services (except Public Admin.)	1999	11.712	0.444	10.798	12.930
	2004	11.775	0.373	11.205	12.764
	2009	11.640	0.390	11.070	12.988
	2014	11.701	0.404	10.989	12.705

Notes. The number of observations is 32 for each economic sector on each year. All numbers are rounded to their third decimal number.