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Creative Economy and Urban Wages in Mexico

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Abstract

This research paper analyzes the effects of employment in creative economic activities on urban wages in Mexico during recent years. The results indicate that wages in creative occupations and industries are higher than those in jobs related to non-creative economic activities. Likewise, quantile regressions show that creative employment has a heterogeneous effect throughout wage distribution, the greatest impact being in the upper end. Understanding this heterogeneous effect is fundamental to understanding urban wage inequality in Mexico.

Keywords: Employment; creative economy; urban wages; salary distribution; quantile regressions.

1. INTRODUCTION

The growth and development of cities is currently conditioned by the capacity that economic agents have to generate knowledge, innovation and new technologies (Glaeser, 2011). Within this context, employment in the creative economy has drawn attention to studies of the urban economy, since the former represents an ideal mechanism to transmit and even generate knowledge and new technologies (Florida *et al.* 2012; UNESCO/UNDP, 2013; Sánchez-Moral *et al.*, 2014). In recent years there has been a proliferation of scholarship on the creative economy (a term which also relates to creative and cultural industries, the economy of knowledge, the "orange economy", and the creative class, among others), and in particular, the favorable impact it has on economic growth in cities has been analyzed (Boix and Soler, 2014).

A question which has not been thoroughly addressed in studies of the creative economy is how this sector influences the labor market, and in particular, how it affects urban wages. Some scholars argue that wages in creative sectors tend to be higher, which in turn contributes to increased pressure on wage inequality, which is generated by higher-qualified occupations (Florida *et al.*, 2008; Lee and Rodríguez-Pose, 2012; Bakhshi *et al.*, 2014; Mellander and Florida, 2012).

Studies of the labor economy of creative activities in Latin American regions are still scarce; the present work constitutes a first approach of this phenomenon based on the analysis—in the Mexican case—of wages in the creative economy and the impact that they have on wage dispersion in urban contexts. It also intends to demonstrate the advantages of incorporating an attention to creative occupations in understanding wage determiners in Mexican cities, and to analyze the possible ways these are connected or differentiated—whether it be with an orthodox, neoclassical approach based on human capital, or from a heterodox one which posits the segmentation of the labor market.).

After the Introduction, the article is composed of four more sections. In section 2 there is a literature review of relevant scholarship which addresses the topic of the creative economy and wages in cities, with an emphasis on the creative economy's occupational structures and the role that creative activities have within urban agglomeration economies. Section 3 describes the behavior observed for employment and wages in the creative economy of Mexican cities in recent years. In section 4 an analysis of wage determination at the individual level is performed, via a conventional model of the Mincer regression, to which are added variables related to creative occupations with a non-parametric focus, by way of quantile regressions. Section 5 provides the conclusions.

2. LITERATURE REVIEW: CREATIVITY, WAGES AND CITIES

Since the last third of the 20th century, society and economy—in particular—have undergone an unprecedented transformation based on the intensive use of innovation, knowledge and technology. Within this context, creativity emerged as an important attribute inextricably tied to mental capacities and the generation of ideas by individuals (Scott, 2006); it also became relevant as a prioritized issue for international organizations and agencies advocating the applied development and wellbeing of nations (UNESCO/UNDP, 2013).

A variety of approaches on how to analyze creativity in the economy can be found in the economic sphere; this investigation specifically seeks a definition that encompasses employment generated by creative industries, along with employment associated with creative occupations, though not necessarily originating in creative industries (Nathan *et al.*, 2016, p. 4).

This is a focus which combines a sectorial and occupational approach to creative employment, and that allows for the identification of three groups within what can be called the creative economy: *1)* a group of people who perform creative occupations in the creative sector, *2)* a set of non-creative occupations which still operate within creative industries, and *3)* a different set of creative occupations that are not part of creative industries. This classification is referred to as the Creative Trident, and has been proposed by a range of experts on the subject (Markusen *et al.*, 2008; Higgs and Cunningham, 2008). The trident approach has distinct advantages, given that the central hypothesis guiding this study posits that creative employment has heterogeneous effects on urban wage dispersion.

To undertake a trident analysis of creative employment it is important to first establish definitions of *industries* and *creative occupations*. The existing literature put particular attention on these activities having at least the following elements: activities based on knowledge, generation and development of intellectual property, with the ability to combine knowledge in different forms, and that may have economic value (DCMS, 2001; Florida *et al.*, 2008; UNCTAD/UNDP, 2010).

In order to develop a classification using the trident approach, which includes the above attributes, it is necessary to first go over: *1)* the classification made by the Digital, Culture, Media and Sport Committee (DCMS) of the United Kingdom; *2)* the UN, by way of the United Nations Conference on Trade and Development (known as the UNCTAD classification of the creative industries), and *3)* Richard Florida's occupational classification which defines the so-called *creative class* (Florida *et al.*, 2008).

Despite the fact that issues relating to the creative economy are directly linked to the urban economy, this relationship is rarely discussed. In the Mexican case, such an analysis may be highly relevant, given the important process of industrial relocation that the country has seen since trade opening. This caused traditional manufacturing sectors to move out of long-standing urban centers (like Mexico City), but also meant that such centers (including mid-sized cities like Queretaro) began to attract new tertiary sectors oriented towards the production of intangible goods, financial services, and activities increasingly based on knowledge. Without a doubt, these changes have impacted labor markets in Mexico's urban system.

The creative economy is particularly illuminating given its notable degree of concentration in urban areas, and more importantly, the apparent geographic proximity of these activities within a city (Boix *et al.,* 2011; Lee and Rodríguez-Pose, 2012; Bakhshi *et al.,* 2014). In particular, this article argues that the creative economy is an important component of agglomeration forces in cities, given that: *1)* it can generate direct and indirect ties to other sectors through the supply of advanced services (Boix *et al.*, 2011); *2)* it produces non-pecuniary externalities that can increase productivity within and outside of creative sectors that are not spatially concentrated in a city[1] ; and 3) they produce amenities (*i.e.* cultural services, entertainment, etc.) that can draw qualified and talented people to the region, which in turn help attract companies whose activities rely on talented and qualified personnel (Glaeser *et al.,* 1992; Florida and Mellander, 2014). All of the above serves to reinforce in an important way the spatial concentration of cities (Lee, 2014), and above all, produces an environment conducive to the later development of creative activities which are related to the economy of knowledge and advanced services (Scott, 2010).

The agglomeration forces that generate creative activities also impact local labor markets in their own way. As will be shown below, the creative economy is a heterogeneous sector which—similar to what has been discussed regarding the trident perspective—involves a range of actors, from highly qualified professionals and scientists to unqualified workers who are employed in creative economic sectors. One sector of the creative economy is inserted in the innovation economy and in global markets, while another is oriented towards local services. Some economists call the latter local service sectors "non-commercial," because they cannot be exported outside the region or city where they are produced, and they need to be consumed locally (Moretti, 2013). This is certainly relevant for labor markets, since some authors argue that employees associated with innovation or knowledge can indirectly generate more jobs in non-commercial local services, and that even the former's higher salaries could initially raise the salaries of the latter—as long as the latter are not subject to regional or international competition (ibid.).[2]

Despite the positive effects that activities associated with the creative economy seem to generate in the labor markets, empirical evidence points to the contrary as regards wage inequality. To begin with, an urban wage premium exists because given the previously mentioned role of agglomeration economies, cities are more productive—especially now, since qualified urban workers recommended for professional services (lawyers, financial consultants, etc.), for example, are physically close to their clients that come from other financial sectors or advanced services (*i.e.* they reduce "transportation costs"). Despite this, these workers are more productive because they generate non-pecuniary externalities by way of learning processes and the transmission of ideas among themselves (Glaeser, 1997, 2007; D'Costa and Overman, 2014).

Inter-urban wage differences can be explained by the foregoing, and even from the perspective of a "spatial equilibrium," they should not be considered a problem in terms of "economic wellbeing"; rather, a red flag appears when this tendency to make a city more qualified begins to generate negative externalities for the less qualified (Berry and Glaeser, 2005). In this regard, Richard Florida—the principal supporter of the creative class—in his *The New Urban Crisis* (2017) recognizes the increase in intra-urban wage inequality, and contrary to orthodox stances such as that of Moretti (2013), Florida finds that the gap between "creative class" wages and those of the working and service class has increased in creative cities (2017:30-33). In this way, the great motor of urban growth into which the creative economy has been transformed in turn produces winners and losers—one manifestation in particular being the increase in the wage gap between creative and non-creative employees, exemplified by gentrification and speculation in the real estate market, to name a few.

There are few studies of the labor market which address creative activities in Latin American regions, among them being the work undertaken by Quintana and Garza (2017a), who perform a state-level analysis for the Mexican case, and find evidence of severe wage inequality between higher- and lower-skilled creative occupations. Nonetheless, studies have not been done which analyze urban wages while also incorporating a sectorial and occupational classification of creative activities, like what is presented here. The following sections will analyze—following from a trident classification of creative employment—how such a classification contributes to the explication of urban wage distribution and if, in addition, it does so in a heterogenous way throughout the distribution.

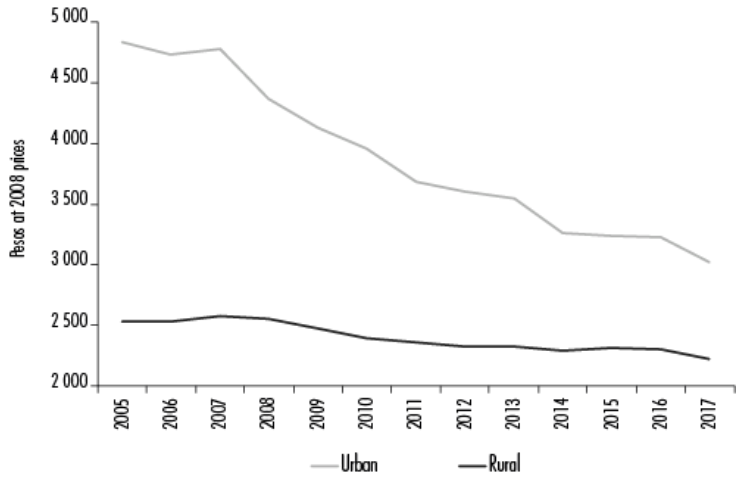
3. CREATIVE ECONOMY IN MEXICO: EMPLOYMENT AND WAGES

As has been noted, this study takes a trident perspective (Markusen *et al*., 2008) and as such, entails a sectorial and occupational classification of Mexico following the taxonomy proposed by UNCTAD/UNDP (2010) and by Santos and Texeira (2012). Before elaborating on the question of creative employment in Mexico, the panorama of wages in the country during the last three decades will be laid out below.

Since the last quarter of the 20th century, the creation of formal employment in the country has been insufficient to absorb the majority of the working age population, and processes of labor precarity have also been accentuated. Additionally, there has been a decrease in income (wages)—attributable not only to deregulation and the flexibilization of the labor market, but to the limited dynamism of the Mexican economy as well (Quintana and Garza, 2017b). It suffices to say that the real minimum wage in Mexico is not only one of the lowest in Latin America, but that the low wage level does not reflect the average level of labor productivity in the country, that nevertheless is one of the highest in Latin America (Moreno-Brid *et al*., 2014). In the domain of income inequality—the wage gap between workers with more or less education—it is practically a consensus that the gap increased beginning in the second half of the 1980s until the first half of the 1990s, to then show a decrease which continued until recent years (Cragg and Epelbaum, 1996; Esquivel and Rodríguez-López, 2003; Chiquiar, 2004; Meza, 2005; Castro and Morales, 2011; Campos-Vazquez *et al.,* 2016).

The deterioration of the average wage in Mexico is confirmed by the data provided by the National Survey on Occupation and Employment (NSOE)[3] during the period from 2005-2017 (see Figure 1). According to the NSOE, employment in Mexico showed an average annual growth of 1.81%[4] , while the average wage showed an annual decrease of 3.18% during the same period. When urban wages are compared to rural ones, the degree of urban labor income decrease is more notable that its rural counterpart, which also shows a decrease, but is not as drastic as for urban wages.

Figure 1. Average Wage, 2005-2017



Source: Prepared by the authors based on data from the second trimester of the NSOE, 2005-2017.

Having provided the general context of wage dynamics in Mexico, shown below are the essential descriptive employment statistics and creative economy wages in the country and its metropolitan areas. Table 1 shows employment levels in the creative industries according to the economic census and the UNCTAD classification on a national scale, and for the set of the 59 metropolitan areas; only the sectorial extent of the creative economy is emphasized here. The fact that employment in the creative industries increased at an average annual growth of 4.1% is highlighted, more than that observed in the economy as a whole (2.9%); this happened similarly in metropolitan areas with a growth of 3.9 and 2.7% respectively. Within the creative industries, certain sectors stand out for their higher growth rates, as is the case with libraries and museums (23%), gambling (17.4%), and to a lesser extent broadcasting and transmission (7.6%), and software programming and computer science (5.8%).

The information on employment at the sectorial level (see Table 1) based on economic surveys (INEGI, 2004, 2009 and 2014) has a bias, given that it does not take occupations into account and does not sufficiently incorporate the working population that functions under conditions of informality or in micro-units. With the information from the ENOE there is more detailed information with respect to the factors mentioned above (occupations and informality). Including these elements together with the economic sector allows us to obtain a more precise measurement of creative activities and occupations. To achieve this, following the classification guidelines established by Boix and Soler (2014) and Santos and Texeira (2012), the systems of sectorial and occupational classification used by these authors were reconciled with those that are used in Mexico based on the North American Industry Classification System (NAICS), the Mexican Classification of Occupations (MCO) and the National Occupation Classification System (NOCS).[5]

Table 1. Creative Sector Employment in Mexico, 2003-2013

	National			*Metropolitan areas*		
	2003	*2013*	*Variation (%) 2003-2013*	*2003*	*2013*	*Variation (%) 2003-2013*
Overall economy*	15 956 755	21 295 511	2.93	11 852 069	15 567 902	2.76
Creative sectors	391 485	583 520	4.07	344 691	505 116	3.90
Publications	42 669	44 839	0.50	37 827	39 224	0.36
Film industry, video and sound	24 817	34 136	3.24	24 355	31 294	2.54
Programming and broadcasting	21 818	45 290	7.58	17 548	40 267	8.66
Computer programming and IT consulting	39 279	68 954	5.79	37 736	66 035	5.76
Architecture and engineering	52 574	78 212	4.05	44 950	66 636	4.02
R&D	12 191	12 299	0.09	10 763	10 794	0.03
Publicity and market studies	69 241	89 332	2.58	66 125	84 122	2.44
Other	25 133	25 143	0.00	21 458	20 474	-0.47
Arts	9 163	9 846	0.72	4 448	5 639	2.40
Libraries and museums	418	3 325	23.04	382	2 945	22.66
Gambling	7 927	39 378	17.39	6 641	32 566	17.23
Sports, recreation, training	86 255	132 766	4.41	72 458	105 120	3.79

*Excludes grouped information for confidentiality.

Source: Prepared by the authors based on the data from the Economic Censuses, 2004, 2009 and 2014.

Table 2 presents estimates of employment in the creative trident, according to the measurement guidelines described previously. If only occupations that can be deemed creative are considered, in 2017 there were 3,554,604 workers with these characteristics, in other words, almost 7.11% of the working population (see Table 2). If one contrasts this amount with that obtained in Table 1 for 2013, the substantial underestimation that the sectorial (creative and cultural industries) measurement produces can be observed, given there are only an estimated 583,520 people; in other words, the occupational method estimated a creative working population 5.6 times higher than the sectorial method (via economic surveys). Table 2 also provides an estimate of the working population considered to be creative, but who work in the creative industries (see line three of Table 2), which results in an estimate of 1,809,522 people for 2017, which continues to be almost three times higher than the estimate via economic surveys for 2013.[6]

Table 2. Creative Employment in Mexico, 2005-2017

	Working population		Participation		Variation (%)
	2005	2017	2005	2017	2005-2017
Total working population*	40 321 130	50 026 853	100.00	100.00	1.81
Creative occupations	2 870 550	3 554 604	7.12	7.11	1.80
Creative industries	1 366 628	1 809 522	3.39	3.62	2.37
Creative trident	3 771 544	4 710 127	9.35	9.42	1.87
Creative specialists	465 634	653 999	1.15	1.31	2.87
Non-creatives in creative industries	900 994	1 155 523	2.23	2.31	2.10
Creatives integrated in other sectors	2 404 916	2 900 605	5.96	5.80	1.57

*Working population between 14 and 65 years of age.

Source: Prepared by the authors based on NSOE data from the second trimester, 2005-2017.

Using the creative trident as a basis allows for a more precise measurement of creative employment in Mexico, since the combination of sectorial and occupational information enables the identification and quantification of the whole population —whether it be people with a creative occupation or that work in the creative sector. Additionally, it takes into account the broad spectrum of informal employment that characterizes economies like the one in Mexico. At the same time, it allows for a clearer description of the structure of creative employment across occupations and sectors. For example, creative specialists (people with creative occupations in creative sectors) participate less in creative employment (1.15 in 2017); by contrast, those creatives integrated into other sectors participate at a rate four times higher than the former (5.8 in 2017).[7]

In urban areas, the participation in each of the categories of creative employment that are analyzed is higher than that registered at a national scale; despite this, a slight decrease in participation by the creative occupations can be observed from 2005 to 2017, especially by those creatives integrated in other sectors (see Table 3).

Table 3. Creative Employment in Mexico's Urban Areas, 2005-2017

	Working population		Participation		Variation (%)
	2005	2017	2005	2017	2005-2017
Total working population*	26 805 359	32 960 108	100.00	100.00	1.74
Creative occupations	2 300 787	2 824 101	8.58	8.57	1.72
Creative industries	1 229 693	1 571 152	4.59	4.77	2.06
Creative trident	3 112 432	3 826 771	11.61	11.61	1.74
Creative specialists	418 048	568 482	1.56	1.72	2.59
Non-creatives in creative industries	811 645	1 002 670	3.03	3.04	1.78
Creatives integrated in other sectors	1 882 739	2 255 619	7.02	6.84	1.52

*Working population between 14 and 65 years of age.

Source: Prepared by the authors based on NSOE data from the second trimester, 2005-2017.

Creative employment across the period of study recorded positive growth rates. Nonetheless, the same did not occur with the wages that showed a general decrease, affecting groups with the highest income, in addition to the total working population. The decrease is higher in urban areas (see Table 4), in particular for creative specialists (5.60%); despite this, urban wages are on average 10% higher.

Table 4. Average Wages, 2005-2017

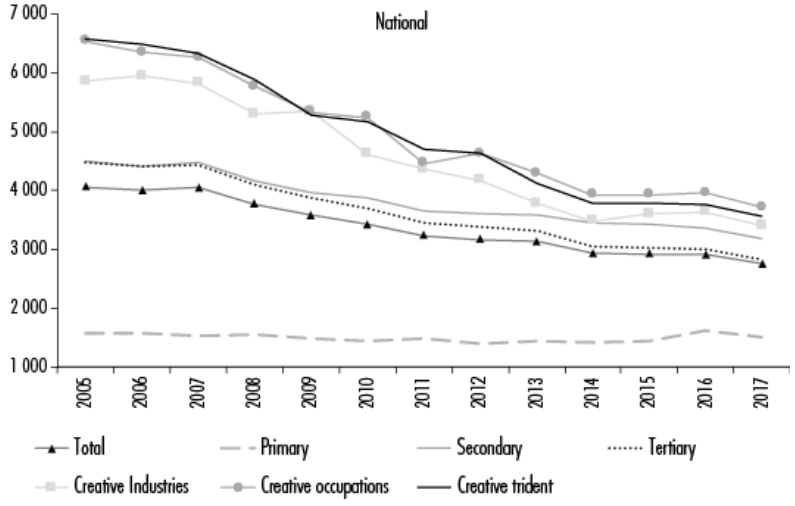
	National			Urban		
	2005	2017	Variation (%) 2005-2017	2005	2017	Variation (%) 2005-2017
Average wage*	4 062	2 753	-3.47	4 832	3 028	-4.16
Creative occupations	6 530	3 710	-5.01	6 067	3 407	-5.11
Creative industries	5 860	3 398	-4.83	7 378	3 990	-5.43
Creative specialists	6 897	3 862	-5.14	7 308	3 875	-5.60
Non-creatives in creative industries	5 324	3 136	-4.70	5 428	3 141	-4.85
Creatives integrated in other sectors	6 459	3 675	-5.00	7 393	4 019	-5.39

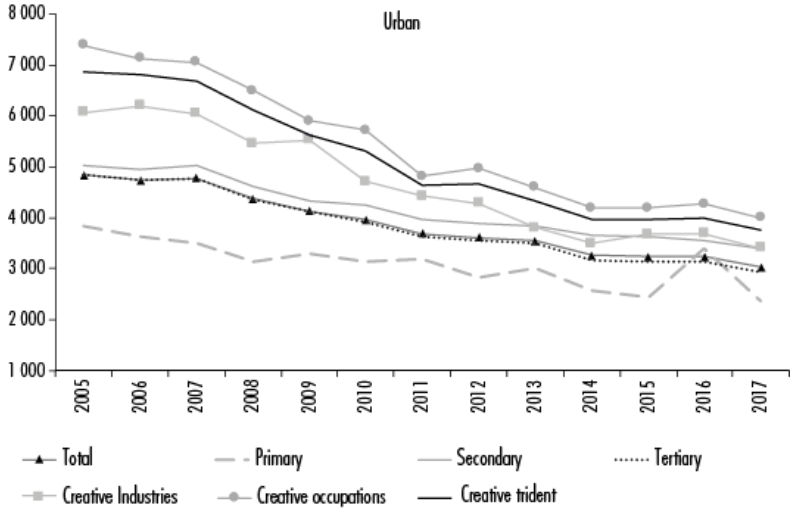
*Pesos at 2008 prices.

Source: Prepared by the authors based on NSOE data from the second trimester, 2005-2017.

If the average wage obtained for each of the creative economy categories is contrasted to the wages of the primary, secondary and tertiary sectors, one observes a process of convergence between creative employment wages and the rest of the economy (see Figure 2). For this reason, the greater deceleration of creative employment wages (independently of which kind) than average wages is consistent with the tendency towards a decrease in wage inequality that has prevailed in recent years in Mexico, as mentioned at the beginning of this section.

Figure 2. Average Wages, 2005-2017





Source: Prepared by the authors based on NSOE data from the second trimester, 2005-2017.

The information analyzed here confirms that this wage convergence is not due to the wages of "non-creatives" having increased (given that these have remained stagnated), but that the average wages of creative employment have also been observed to be deteriorating. In the following section, using a non-parametric econometric analysis, an analysis will be provided of whether, despite the decrease in creative wages, these play an important role in explaining the inequality in urban wages seen in Mexico, as is apparently seen in other countries (Florida, 2017).

4. URBAN WAGE DETERMINANTS IN MEXICO

To determine the impact that the creative economy has on urban wages in Mexico, variation in wage earnings at the level of the worker is analyzed, given the presence of an occupation linked to creative activities. For convenience, a Mincer earnings regression function is used—Mincer (1974)—, to which is added, for the purposes of this research, the occupational variables related to creative employment that have been discussed in the previous section[8] . In this context it is important to note that in the Mexican case, it is widely documented that the explanatory power of the educational variable diminishes considerably when occupational categories are added (Valdivia and Pedrero, 2011; Garza and Quintana, 2014).

The Mincer function establishes a positive linear relationship between income and education level; it is a semilogarithmic function whose coefficients are interpreted as elastic. Under a non-deterministic model, the Mincer function has the following generic expression:

$$\ln Y_i = \ln Y_0 + rs + \beta_1 t + \beta_2 t^2 + u_i \qquad (1)$$

Where Y_0 corresponds to income when education is null (or the intercept), s is education level and r the associated parameter, t is work experience and beta the associated parameter, in addition to its quadratic effect (t^2)[9] and a stochastic component (u) that is assumed to operate under certain probabilistic assumptions.

Wage determination under equation (1) can be modified to add the possibility of evaluating whether there is a heterogenous effect by the variables across the distribution of the dependent variable. The foregoing is important to consider because a range of studies have demonstrated that the education variable has a heterogenous effect on the distribution of income or the income logarithm (Buchinsky, 1998; Martins and Pereira, 2004; Machado and Mata, 2005; and for the Mexican case, Castro, 2007). It can be implemented econometrically by way of non-parametric techniques, and in particular, through quantile regressions, where the conditional distribution quantiles of one response variable (*i.e.* wages) are expressed as a function of the observed covariables (Koenker and Bassett, 1978).

Accordingly, the Mincer equation calculation using quantile regressions is defined as

$$\ln w = x_i \beta_\theta + u_{\theta i}$$

With $Quant_\theta(\ln w_i \mid x_i) = x_i \beta_0$ which denotes the conditional quantile of the wage logarithm, given X.

x_i is a vector with independent variables and β_θ corresponds to the vector with associated parameters, and u to an error term.

Applying this non-parametric approach is of interest in order to evaluate whether creative employment has a heterogenous effect over the course of wage distribution, specifically in the higher quantiles that award creative ability (and which are associated in turn with employees of a managerial type and with a high degree of specialization).

Control variables like sex, business size, region[10] , in addition to other variables related to the creative economy—these being in concrete terms the creative trident categories—and of segmentation[11] , were added to the specifications of the research methodology. Equation (2) demonstrates the specifications to be calculated:

$$\begin{aligned}\ln w = {} & \alpha_i + \beta_1 education\ level + \beta_2 exp_i + \beta_3 exp_i^2 + \beta_4 male + \beta_5 small_i \\ & + \beta_6 medium_i + \beta_7 large_i + \beta_8 border + \beta_9 north_i + \beta_{10} center_i \\ & + \beta_{11} capital_i + \beta_{12} peninsula_i + \beta_{13} creative\ specialists \\ & + \beta_{14} non\ creatives\ in\ creative\ sectors_i + \beta_{15} integrated\ creatives_i \\ & + \beta_{16} primary_i + u_i\end{aligned} \qquad (2)$$

where i is an employed person in an urban locality with more than 15,000 inhabitants.

Below are presented some basic statistics regarding the variables used in the above calculation; it is worth noting that with the exception of the variables of years of education, experience and experience squared, the other variables are dichotomous, and therefore their highest value would be 1.

According to the information in Table 5, the average education level of the working age population is 10 years; the proportion of women (0.59) is higher than that of men (0.49); the proportion of employment in micro-establishments is higher; the Center region is where the highest percentage of employment is concentrated; and, table 5 demonstrates the average corresponding to the creative employment categories.

Table 5. Descriptive Statistics for the Variables of the Model to be Calculated, 2005 and 2017

Variable	*Media*	*Standard deviation*	*Minimum*	*Maximum*
Years of education	10.72	5.67	0	99
Experience	19.39	13.41	-89	60
Experience ^2	555.75	651.59	0	7 921
Women	0.59	0.49	0	1
Men	0.41	0.49	0	1
Micro-establishment	0.92	0.27	0	1
Small establishment	0.23	0.42	0	1
Medium-sized establishment	0.15	0.36	0	1
Large establishment	0.22	0.42	0	1
Border	0.23	0.42	0	1
North	0.22	0.41	0	1
Center	0.34	0.47	0	1
Capital	0.06	0.24	0	1
South	0.07	0.25	0	1
Yucatán Peninsula	0.08	0.28	0	1
Localities with more than 100,000 inhabitants	0.84	0.37	0	1
Creative specialists	0.01	0.09	0	1
Non-creatives in creative sectors	0.03	0.16	0	1
Creatives integrated in other sectors	0.06	0.24	0	1
Non-creative employment	0.91	0.29	0	1
Primary sector	0.46	0.50	0	1

Source: Prepared by the authors based on data from the NSOE, 2005-2017.

Equation (2) calculates transversally for the years from 2005 to 2017. First, equation (2) was performed with Ordinary Least Squares (OLS), with the results that can be seen in columns 2 and 6 of Table 6. Outcomes of the Breusch Pagan test show the existence of heteroskedasticity in the errors[12] , which affirms the relevance of adopting quantile regressions as a calculation method.

Additionally, Table 6 also demonstrates the results of the Mincer function calculation of quantiles 0.25, 0.50 and 0.75 for the years from 2005 to 2017.[13] The signs obtained for the education level variables, experience and experience squared, agree with the theory of human capital, *i.e.* a positive relationship between the hourly wage logarithm and the number of years of education, and a negative relation with potential experience. The notable point is the change in the coefficient for each of the quantiles, both for the years 2005 and 2017, the highest wage variation according to education level being in the highest quantile (0.75), while for the lowest quantile (0.25) the coefficient associated with education level is even less than that obtained by OLS. The estimates for the parameter associated with education between quantiles are outside the confidence range of OLS (see Table 7).

(SEE TABLE 6)

(SEE TABLE 7)

Similar results regarding returns to education were obtained by Martins and Pereira (2004) in the case of 16 countries; specifically, they showed that returns are high in the upper end of the wage logarithm distribution. Similarly, Lee and Rodríguez-Pose (2012) maintain that the behavior of wage inequality is determined by the trajectory of income in the high quantiles.

The coefficient associated with establishment size is reduced as the distribution of the dependent variable progresses—that is to say, for the highest quantile the effect of work in small or large economic units is not as significant (regarding micro-units); on the contrary, it is in the lower end that these sorts of characteristics imply a considerable variation in wage, even when the value of the coefficients shows a decrease between 2005 and 2017.

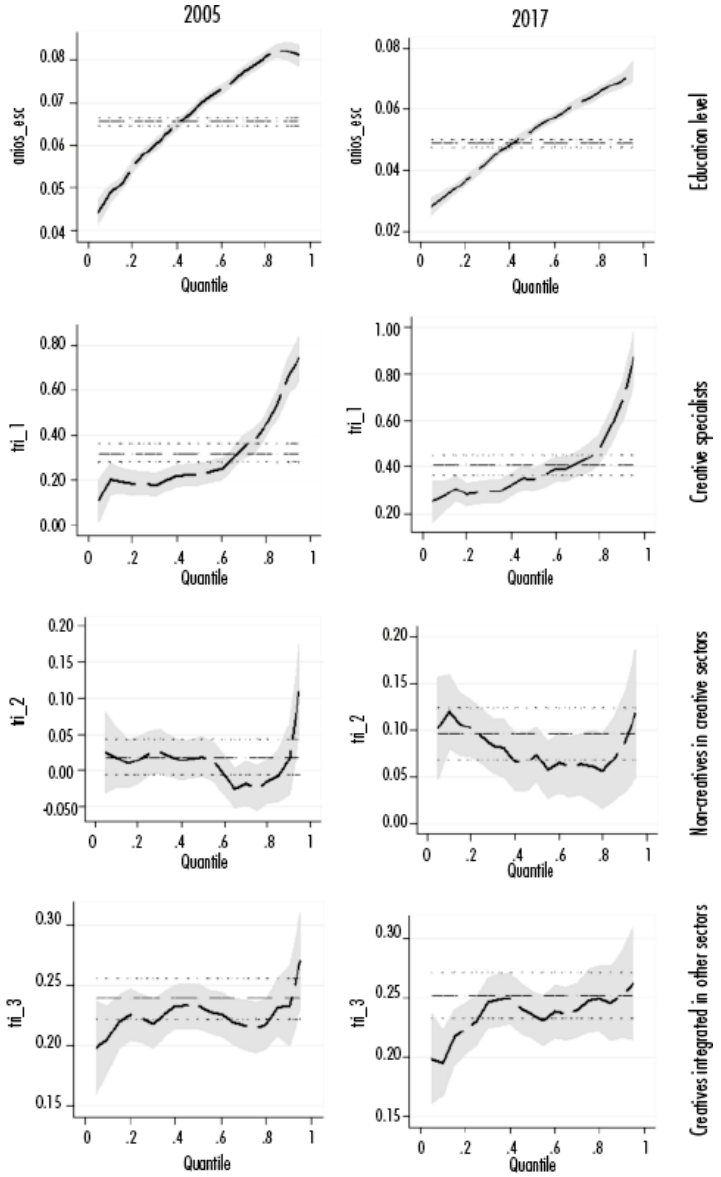
Among the regional variables, the border region constitutes the greatest variation concerning the Southern region, similar to the way the associated value decreases in the upper end of the distribution in the previous cases. This is generally consistent with other studies that have noted the known wage differential between North and South (Hanson, 2003; Castro and Morales, 2011), but in this case the estimates suggest diminishing returns in the high quantile, which—as in the case of business size—can only be indicative of the fact that the Southern region and micro-businesses in the higher quantile (wage) tend to even out in terms of efficiency with their counterparts.

It is important to note that the “primary sector”, a proxy variable used to analyze labor segmentation à la Piore (1973), is statistically significant and is consistent with the results obtained by Valdivia and Pedrero (2011), except that it is also now seen that the effect of segmentation is stronger in the upper end of the distribution.

The relevance of the creative economy’s effect on labor variation can be observed via the statistical significance of the majority of those coefficients associated with the creative trident. It must be emphasized that the variation of the coefficients between quantiles corroborates the heterogenous effect that was proposed for creative employment based on wage variation, the strongest effect being in the highest quantile.

Within the creative trident the following important elements are distinguished: on the one hand, creative occupations (whether or not they be in creative sectors) have an important positive effect and are statistically significant in wage variation with regards to those who are not creatively employed. The “creative specialists” (*i.e.* creative occupations in creative industries) are those which have the greatest effect on the upper end of the distribution. In terms of Y, creative occupations outside creative industries do not present important variations across the deciles. Lastly, people who do not have creative occupations and work in creative sectors have the least effect on wage variation. Still, it is notable that their coefficients went from being insignificant in 2005 to significant in 2017. With the goal of obtaining a more detailed panorama of the effects of employment breakdown over wage distribution, Figure 3 shows estimates for the coefficients by decile, with their respective confidence intervals, and is contrasted with those obtained by OLS. Likewise, for the purposes of comparison, results with the education variable are included.

Figure 3. Coefficients by Decile, 2005-2017



Source: Prepared by the authors based on data on the second trimester from the NSOE, 2005-2017.

First, attention is drawn to the decrease in parameter size from 2005 to 2014—with the exception of the case of creative specialists in the upper part of the distribution. The effects are definitively heterogenous for the education variable and creative specialists, but there is a salient difference between them: while in the education case, the effect of the coefficients decreased in 2017, in the case of creative specialists, it increased— primarily in the not-high deciles.

Accordingly, the non-creative occupations in creative sectors demonstrate clearly, as has been noted, a greater relevance for 2017; it is interesting in this case that the effect is higher in the lowest deciles, which may be indicative of less-qualified workers seeing themselves as benefiting from being in the creative industrial sector.

In sum, the results found here suggest that the traditional variable of human capital (education) has lost its explanatory power for wage inequality, and provides space for other variables associated with the creative economy—above all of employment associated with the creative industries—which begin to more convincingly explain this phenomenon.

5. CONCLUSIONS

This research examined creative economy employment in the context of the behavior of urban wages in Mexico during recent years. In particular, it analyzed the effect that employment wages of creative occupations and sectors have on workers' wage variation, and its importance for an understanding of wage inequality in Mexico. First of all, the research

outcomes imply that employment in the creative economy presents many contrasts. On one hand, it is a dynamic sector with growth higher than the national rate whose wages are not exempt from the widespread reduction in average wage that the country has suffered. Despite this, labor incomes in the creative economy are higher by more than 10% than the rest of the economy, which is to say, there is a creative wage premium that stems from involvement in this sector of the economy. Nonetheless, employment is not exempt and is subject to the dynamics of precarization, similarly to what has happened in other countries (Sánchez-Moral *et al.*, 2014).

The key findings of this research corroborate what has already been established by other studies—that traditional human capital variables are losing their explanatory power for understanding Mexican workers' wage variation and inequality (Garza and Quintana, 2014). The key findings obtained here also imply that creative employment, especially that associated with creative and cultural industries, is becoming a relevant element in understanding wage discrimination for urban wages in Mexico. In addition, the study demonstrated that the effects of creative employment are heterogenous throughout the process of distribution, especially for wages that tend to be higher. Evidence was also found that non-creative employment which is embedded in creative and cultural industries is beginning to play a relevant role in the explication of wage variation. This can be associated with possible multiplier effects that advanced service industries could be generating for employment, and the wages of other associated local services (Moretti 2013).

Finally, a precautionary element that should be considered as regards the results of this research concerns the definite potential for wage discrimination that may develop in creative employment in the future, especially with employment wages that are not directly or indirectly connected to the creative economy. This sort of tendency, which has already been detected in developed regions (Florida, 2017), is becoming a challenge for the future of urban policies and planning in Mexico.

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[1] In a study of the European community, Boix and Soler (2014) report that the creative industries increase the productivity of other sectors because of the relative capital investment and the technical rate of exchange being higher as compared to other economic sectors.

[2] For example, Moretti (2013) argues that his empirical investigation of metropolitan areas in the United States demonstrates that for each job in the high-tech sector, five new jobs in other sectors are generated on the long term.

[3] The information utilized is of the second trimester of the analysis period from 2005-2017.

[4] The rate of growth is calculated considering the total working population (remunerated, employees, self-employed workers and unpaid workers) between 14 and 65 years of age.

[5] As of the third trimester of 2012, the National Institute of Statistics and Geography [Spanish acronym INEGI] substituted the Mexican Classification of Occupations with the National Occupation Classification System in the National Survey of Occupations and Employment (NSOE).

[6] This discrepancy in the number when only the creative sectors are considered is due to the NSOE recording informal sectors and self-employment that economic surveys cannot appropriately capture.

[7] It is important to note that the estimates provided by the creative trident are similar to those found in developed countries. When performing a comparison with respect to participation in creative employment in Mexico as opposed to other countries, one finds that in cases like the United States, Canada and the United Kingdom, participation by creatives specialists is similar to that in Mexico, ranging from 1 to 3%. The United States and Canada have a higher percentage of non-creative people in creative sectors, with a participation rate slightly higher than 5%. Meanwhile, in the United Kingdom, like Mexico—though at a higher rate, those creatives integrated into other sectors have more weight (Nathan et al., 2016).

[8] The generic Mincer function supposes that: a) there is no interaction between education level and experience; b) it models income over a lifetime without distinguishing between initial and later work experience; c) it does not consider that individuals can self-select; d) it incorporates education as a continuous variable, and e) it views income as a constant.

[9] A non-linear effect is expected that is concave to experience, such that the function of income is parabolic in terms of experience. According to convention, age or potential experience is used, the latter being obtained by subtracting years of education from age, in addition to the years when the school period begins (assumed to be six years). It has as a fundamental assumption that experience is continuous and that it begins immediately upon the completion of studies.

[10] The regionalization by Hanson (2003) is used: Border includes Baja California, Chihuahua, Coahuila, Nuevo León, Sonora and Tamaulipas. North: Aguascalientes, Southern Baja California, Durango, Nayarit, San Luis Potosí, Sinaloa and Zacatecas. Center: Colima, Guanajuato, Hidalgo, Jalisco, Michoacán, Morelos, Puebla, Querétaro, Tlaxcala and Veracruz. Capital: Mexico City and the State of Mexico. South: Chiapas, Guerrero and Oaxaca. Peninsula: Campeche, Tabasco, Quintana Roo and Yucatán.

[11] The variable for the primary segment of the occupation group defined within the primary sector—in accordance with labor segmentation proposed by Piore (1973)—and which includes professionals, management, office workers, technicians, education workers, administrative workers and traders.

[12] As could be observed in the last part of Table 5, the probability associated with the B-P statistic is less than 0.05, such that the homoscedasticity hypothesis can be rejected.

[13] The population considered in the calculation corresponds to the paid working population that live in urban localities, i.e. localities with more than 15,000 inhabitants, and the oil and gas extraction sector (whose classification number in the System of the North America Industry Classification System—SNAIC— is 2110) are omitted, with the goal of avoiding biases produced by the sector.

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