

## El mercado laboral de la industria maquiladora en México: un oligopsonio. Efecto de la nueva división internacional del trabajo<sup>1</sup>

### The Maquiladora Industry Labor Market in Mexico, an Oligopsony: Effects of the New International Division of Labor

*Pedro Alberto Herrera Ledesma,<sup>2</sup> Mónica Lorena Sánchez Limón,<sup>3</sup>  
Diana Marien Escobar Angulo<sup>4</sup> y Oscar Armando Esparza del Villar<sup>5</sup>*

#### RESUMEN

Se propone que el mercado laboral de la industria maquiladora tiene un carácter oligopsonico, por lo que se le estudia en tres ciudades de la frontera norte de México: Tijuana, Ciudad Juárez y Reynosa, en el periodo de 2012 a 2016. Se registró evidencia de ocho síntomas característicos de este tipo de mercado y se llegó a la conclusión de que el carácter oligopsonico del mercado laboral maquilador es parte de la nueva división internacional del trabajo, causada por el expansionismo del capitalismo en países periféricos. Asimismo, por medios empíricos y con base estadística se prueba que existe compatibilidad entre la presencia de rotación laboral y este tipo de mercado.

**Palabras clave:** maquiladora, mercado laboral, oligopsonio, nueva división internacional del trabajo, expansión del capitalismo.

**Clasificación JEL:** J0, F0, P0.

#### ABSTRACT

To explore the thesis that the maquiladora industry labor market is oligopsonic in nature, we studied it in three cities along the northern border of Mexico: Tijuana, Ciudad Juárez and Reynosa, between 2012 and 2016. Evidence of eight symptoms characteristic of an oligopsonic market was obtained. It was concluded that the oligopsonistic nature of the maquiladora labor market is part of the new international division of labor caused

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<sup>2</sup> Universidad Politécnica de Victoria (Polytechnic University of Victoria), Mexico. Email: pherreral@upv.edu.mx. ORCID: 0000-0002-6766-9265

<sup>3</sup> Universidad Autónoma de Tamaulipas (Tamaulipas Autonomous University), Mexico. Email: msanchel@uat.edu.mx. ORCID: 0000-0002-6766-9265

<sup>4</sup> Universidad Autónoma de Tamaulipas (Tamaulipas Autonomous University), Mexico. Email: dianaesan08@gmail.com. ORCID: 0000-0001-8479-1329

<sup>5</sup> Universidad Autónoma de Ciudad Juárez (Autonomous University of Ciudad Juarez), Mexico. Email: oesparza@uacj.mx. ORCID: 0000-0002-7313-3766

by the expansion of capitalism in peripheral countries. Likewise, it is proved by statistically-based empirical means that the presence of labor turnover and an oligopsonistic market are compatible.

**Key words:** Maquiladora, labor market, oligopsony, new international division of labor, expansion of capitalism.

**JEL Classification:** J0, F0, P0.

## INTRODUCTION

Until the first half of the 1960s, Mexico was a markedly agricultural country. The oil industry had been nationalized a couple of decades before, and for a few years, national capitalists had been making efforts to industrialize the northern border of the country through the National Chamber of the Transformation Industry (Canacintra). Despite these efforts and the government support received, the results had been modest. For the Mexican maquiladora industry to be born, the interests of Mexican capitalists had to be matched by those of American capitalists, as well as by their respective governments. (Lawrence & Taylor, 2003)

Establishment of the maquiladora industry in the country was begun by the government of López Mateos and completed during the Díaz Ordaz administration. (Lawrence & Taylor, 2003) It should be noted that although both Mexican presidents publicly maintained a nationalist and Latin-Americanist discourse, evidence abounds of the strong ties that these leaders had with the United States (Agee, 1975: 452; Morley & Scott, 2008: 94; Meyer, 2013: 113; Agee, Galarza & Herrera, 2014: 91); thanks to those ties, American and Mexican capitalists got the support of their respective governments.

### *New International Division of Labor*

The establishment of the maquiladora industry in Mexico, in 1965, was a replica of what had taken place a few years earlier in Asian countries such as Hong Kong, Taiwan, Malaysia, Singapore, and the Philippines, among others, (Baldwin, 2013: 184; Lawrence & Taylor, 2003; Ofreneo, 2015; Safa, 2018; Yeung & Coe, 2015) and it responded to the strategy of the new international division of labor. (Lynch, 2015) International division of labor had undergone various transformations throughout the history of world capitalism; Fröbel, Heinrichs and Kreye (1978a) pointed out the most recent transformation as the transfer of manufacturing to the periphery countries, located mainly in the southern hemisphere, so that northern countries offer well-paid, highly skilled labor and southern countries offer unskilled, low-paid labor. (Gereffi, 2014 and Grodzicki & Geodecki, 2016)

The previous international division of labor, called traditional or classic, (Canterbury, 2009) which capitalism developed over the centuries, constrained industrial development to Western European countries, the United States, and later Japan. Except in very few cases, there was no industrial development in the peripheral countries. The role assigned to the periphery countries was that of being markets for products manufactured in the core countries and as suppliers of raw material. (Fröbel, Heinrichs & Kreye, 1978b; Robinson W., 2008; Lee, 2016)

In the new international division of labor, production is transferred to the periphery, in exchange for subsistence salaries, while manufactured products return to core countries, where the capital of corporations increases. (Landsberg, 1976)

This article assumes the paradigmatic vision of the new international division of labor (Dulcich, 2015; Fröbel, Heinrichs, & Kreye., 1978a, 1978b; Sowers, Ciccantell, & Smith, 2017; and Starosta, 2016) and distances itself from Schumpeter's economic paradigm of evolutionary economics, (James & Delgado Wise, 2000; Sánchez, García, & Marín, 2013 and García, Sánchez, & Sevilla, 2014) which has produced some outstanding texts in Mexico, such as Alonso, Carrillo, & Contreras (2002), Carrillo & Lara (2003) and García-Alcaraz and colleagues (2016), among others. However, this does not preclude some of these same authors from having simultaneously written articles that address the paradigm of the new division of labor.

### *The Maquiladora Industry<sup>6</sup> As an Oligopsonistic Market. A General Description*

Economics recognizes at least four types of imperfect markets: monopoly, oligopoly, monopsony, and oligopsony. (Ezrachi & Williams, 2014; Robinson & Ngeleza, 2011; Sergienko, Mikhalevich, & Koshlai, 2014; and Uzea, 2014) The first two, monopoly and oligopoly, are linked to supply (the seller), while the last two, monopsony and oligopsony, are linked to demand (the buyer). At the same time, monopoly and monopsony refer to the presence of a single seller in the first case and a single buyer in the second, while oligopoly and oligopsony refer to the presence of few agents in the market, as sellers in the case of oligopoly or as buyers in that of oligopsony.

There is a common element in all four cases of imperfect economy. They all possess market power, that is the power to set the price at which the transaction of a product or service is established. In this regard, when referring to monopsony and oligopsony, Pindyck and Rubinfeld point out that: "With one or only a few buyers, some buyers may have monopsony power: a buyer's ability to affect the price of a good. Monopsony power enables the buyer to purchase a good for less than the price that would prevail in a competitive market." (Pindyck & Rubinfeld, 2009: 424)

When we think of a monopsony or an oligopsony, we may not be thinking of an intangible labor market but rather some classical example of tangible material

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<sup>6</sup> In this chapter the terms "maquiladora industry", "maquiladora export industry", "MEI", "maquila" and "maquiladora" are taken as synonyms in spite of their slight conceptual differences.

goods, as usually appears in the agricultural market, where a group of intermediaries sets the price at which an agricultural resource, (Kanieski, Cabbage, Gonzalez, & Abta, 2019) such as coffee or sugarcane, will be purchased. However, literature evidencing the monopsonic or oligopsonic practice in the labor market is abundant: Benmelech, Bergman, & Kim (2018), Dobbelaere & Kiyota (2017), Erickson & Mitchell (2007), Grau, Miranda & Puentes (2018), Gumata & Ndou (2017), Haque & Delgado (2018), Manning (2003), Mitchell & Erickson (2005), and Pantea (2017).

## METHOD

In this mixed method research, bibliographic, quantitative and qualitative evidence is used to expose, explain and test eight characteristic symptoms of the oligopsonic market. The literature review was obtained by means of specialized scientific search engines such as Google Scholar, ScienceResearch, Scopus and Web of Science and by searching scientific journals in the libraries of five universities (College of the North Frontier, Autonomous University of Baja California, Autonomous University of Ciudad Juárez, Autonomous University of Tamaulipas, and the College of Tamaulipas).

The in-depth interviews that were used are from a collection of unpublished interviews that belong to the authors and were generated in several projects.<sup>7</sup> The three selected interviews were carried out in the cities of Reynosa, Matamoros, and Tijuana between 2012 and 2014; one is a fragment from a focus group, while the others are personal interviews. The quantitative analyses were originally performed in SPSS 22. The field research for the application of instruments was carried out in three different Mexican cities from April to June 2016. Details regarding the quantitative sample selection and its representativeness are explained in the section “Fourth Symptom: Increasing Labor Turnover”.

### *First Symptom: Market Power. Remunerations Controlled by Demand*

The oligopsonic power of the maquiladora labor market is reflected in its market power, which allows it to unilaterally fix the price at which labor will be purchased, so that if the oligopsony deems it necessary, it can lower the price paid without having the consent of the bidders, exclusively attending to its own needs or requirements. In this regard, we analyzed two practices that reflect the oligop-

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<sup>7</sup> The collection has interviews from 2005 to 2016 and covers seven cities on the country's northern border.

olistic nature of the maquiladora labor market: technical stoppage and variable salaries through non-mandatory benefits.

Technical stoppage, known by workers as “payment of 50”, refers to the practice whereby maquiladora workers stay at home, without working, when there is no production, and are only paid 50 % of their salary, without any benefits. A maquiladora worker from Ciudad Victoria, Tamaulipas told us: “I have stayed at the maquiladora, because I, alone with two children, could not afford to work one day and not the next, and at the maquiladora you are always paid, even if it’s just 50 %.” (Fernando, 2014)<sup>8</sup>

The legality of the “technical stoppage” is sustained in article 427 of the Federal Labor Law (Lobato, 2014) under the legal concept of “collective suspension of the employment relationship”, though its application has been criticized as an illegal practice. Experts such as Fuentes and Ortega have pointed out that the way it is applied is: “totally illegal, disadvantageous and unconstitutional, because it acts to the detriment of workers.” (Gomez, 2009)

With respect to variable salary through non-mandatory benefits, it should be explained that worker remuneration is composed of the salary plus labor benefits (additional benefits) that are not required by law, for example bonuses for punctuality, attendance and seniority, transportation, cafeteria, to name a few; benefits that increase with demand for labor but are reduced when demand drops.

In a “perfect” economy, if it existed, any service or merchandise would respond to the law of supply and demand, meaning there would be a directly proportional relationship between demand and the price willing to be paid. In other words: “The higher the demand, the higher the price and the lower the demand, the lower the price.” (Samuelson & Nordhaus, 1996: 39) In that type of economy, prices would increase or decrease due to the forces of supply and demand, whereas in an imperfect economy, and specifically in an oligopsony, demand establishes the price at which a good or service will be bought, and the oligopsony agrees to pay the minimum wage or a “locally agreed” minimum wage. Later, some of the members of the oligopsony may decide to pay additional benefits that are not legally regulated, causing worker income to go up or down, but either way, the price paid for the labor demanded is unilaterally controlled.

In an oligopsonistic market, it does not matter if there is significant demand for labor, as the oligopsony, in this case the maquiladoras, will try to pay just over the legal minimum wage. In the event of an increase in demand, human resources managers will try to recruit and retain personnel through non-mandatory wage increases or benefits that will become indirect raises, in the best case scenario.

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<sup>8</sup> Statement within the context of the in-depth interview Why do you work at a maquiladora? December 11, 2014.

Similarly, when faced with a reduction in demand, for example during an economic crisis, the oligopsony will reduce the price it is willing to pay for the demanded labor. In the case of the maquiladora industry, this has happened during the last two economic crises that affected the sector; worker income was strongly affected, as many maquiladoras eliminated almost all of their benefits. (Cortés, 2012)

Finally, in an imperfect economy, specifically an oligopsony, part of the service or demanded product will not be acquired, since not all the suppliers will be willing to sell for the price that the demand has established, in this case that the oligopsony has fixed. In a labor market, that means that vacancies will be produced that will not be filled.

### *Second Symptom: Job Vacancy*

In the case of monopsony-oligopsony in a labor market, a typical feature will be job vacancy, because: “Under conditions of monopsonism [...] part of the income goes from the labor factor to the capital factor, which results in a tendency for labor to be scarce during good times.” (Erickson & Mitchell, 2007: 186) In other words, when companies are growing and demanding labor, the latter tends to be scarce, which creates job vacancies that are difficult to fill.

The above can be better understood if we compare the monopsony-oligopsony to the monopoly-oligopoly. When there are monopoly conditions in the latter, there will be a tendency for a part of certain goods or services not to be sold, even in good times. This happens because when the price for such goods and services is fixed, part of the market will not be able to pay for the product or service at that price. Simply, some consumers cannot pay the price fixed by the monopoly and must abstain from participating in the market.

Monopsony-oligopsony resembles the monopoly-oligopoly case. When monopsony conditions occur, the tendency is that some of the goods or services cannot be acquired. This occurs because when the purchase price is set, part of the selling market will not be able to participate in the transaction at the price that is being demanded. Some of the producers simply cannot sell at the price fixed by the monopsony. They are deprived of participating in the market, because it is not profitable to sell at that price.

Based on the above, we can point out that we are examining an oligopsony-dominated labor market, in which job vacancies are created when labor demand increases. This phenomenon occurs in the maquiladora market, and González Aréchiga, and Ramírez, point out that when some maquiladoras exceeded 15 %

of monthly labor turnover, they sometimes had 20 % unfilled job vacancies. (González Aréchiga & Ramírez, 1989)

To understand this, let's suppose the following. At a certain point in time, the maquiladoras in a particular city hire labor for an average of 110 Mexican pesos a day. At this rate, their vacancies are covered, labor turnover is low, and there is a surplus of unemployed labor willing to work for that price. Later on, the maquiladoras expand, the labor demand is paid at the same average price of 110 pesos, but the demand for labor increases. This will reduce the surplus of unoccupied labor. Let us suppose that the rise in demand is such that it completely covers the surplus of labor that wants to work for that pay, just when optimum or full employment of the oligopsony will take place, which in any case is different from the idea of full employment in the labor market.

But suppose that in the previous example, the demand for labor continues even beyond that point, still paying the same 110 Mexican pesos. There will be a third point in time in which vacancies that cannot be filled will be generated, because even if there are unemployed people, they will not be willing to work for the 110 a day offered. At this point, the human resources managers of the maquiladoras will come to the wrong conclusion that workforce is lacking in the city. For example, in June 2004, the newspaper *Frontera* in Tijuana, Baja California, in northwestern Mexico, reported the conclusion reached by the representatives of the maquiladoras as follows: "As of July 2004, the maquiladora industry needs to hire 16,000 direct workers, yet there is not enough labor supply to cover this demand, say leaders of industry business organizations." (Gutiérrez, 2004)

The analysis made by the business organizations that concludes that there is no workforce to cover the demand is based on the implicit recognition of a monopsonistic practice. The truth is not that there is a lack of workforce willing to work, but rather what is lacking is workforce willing to work for the price at which the value of that labor has been fixed. In the example we have given, the point was reached in which people willing to work for 110 pesos a day have already been hired and the only people who are unemployed are those who are not willing to work for the 110 offered. In this regard, Carrillo and Santibañez point out that: "The supply of work available for the maquila industry is still abundant and has not reached its limit. But, on the contrary, there is a shortage of real labor supply, that is, people looking for employment in the plants." (Carrillo and Santibañez, 2001: 17)

Finally, when the oligopsony has assumed that the lack of labor, in the city or state, willing to work for the salary that the oligopsony itself has fixed unilaterally, it will look for the means to bring that labor from other states, promoting immigration. Domestic, or foreign, immigrants are available if local legislation permits.



### *Third Symptom: Hiring National Immigrants*

Erickson and Mitchell (2007) have pointed out that there is a direct relationship between an oligopsonic labor market and the hiring of immigrants. They have stated that when: “Employers complain that there is a lack of workforce... most often they try to get... more immigrants from areas where wages are lower. If they succeed, these new immigrants will cover the additional hirings subject to the monopsonistic salary in effect.” (Erickson & Mitchell, 2007: 199-200) While these authors refer to foreign immigrants, that is not significant if the monopsonistic market analyzed can obtain immigrants willing to work in the same country and of the same nationality.

Students of the Mexican maquila industry know that the growth of this market is associated with national immigration. (Acosta, Reyes & Solís, 2015; Anguiano, 1998; Correa-Cabrera, 2015; Cruz, Silva & Navarro, 2015; Lomelí & Ybáñez, 2017; Peña, 2018; Ravelo & Sánchez, 2006; Soriano, 2018; Vallentin, 2007, 2009; Varela, Ocegueda, & Castillo, 2017; Veloz, 2017) This strategy of promoting national immigration to maquiladora cities has provoked different types of social conflicts, ranging from problems over the issue of urban infrastructure to regionalist, classist, sexist and racist conflicts. (Cohn, 2017)

With respect to urban infrastructure, Vallentin (2009) reports on the conflicts produced in Ciudad Juárez due to the massive arrival of immigrants from Veracruz. He points out that: “While the maquiladora industry actively favored the arrival of a migrant workforce to sustain the high growth rate, the municipal authorities in the city feared excessive pressure on urban infrastructure as a result of the increase in migration.” (Vallentin, 2009: 7)

On regionalist, classist and sexist conflicts, we can read what Ravelo and Sánchez discuss about the prejudices that some of the inhabitants of Ciudad Juárez, and the state of Chihuahua, had towards immigrants from southern Mexican states: “A set of prejudices can be observed on the part of the natives of the entity towards those who arrive here... They are prejudices towards migrants that contain a strong regionalist, classist and even sexist connotation, because they focus on the female workers.” (Ravelo and Sánchez, 2006: 72) Similarly, extensive literature opposed to gender violence has documented the discrimination suffered by female workers in the maquiladora industry. (Bórquez, 2017; De la O, 2013; García, Álvarez, Ramírez, & Aranibar, 2018; López & Quintero, 2014; Pequeño, 2015; Rubio, 2014; Sánchez, Ravelo & Melgoza, 2015; Veloz, 2017; and Zúñiga, 2017)

The self-perception of some northern Mexicans is usually that of white people, who in turn often perceive Mexicans from the south as indigenous. In this respect, a young university student identified as Francisca pointed out that:

“Lowly positions are for people from Veracruz, (and) of course, the higher positions are (for) people from Reynosa or for people from the northern states... It is the people of Veracruz that we laugh at... I mean, I considered myself racist.” (Francisca, 2012)<sup>9</sup> In northern Mexico, the international division of labor is expressed similarly to the way it is in the United States and in the world. (Huws, 2017; Kaplan & Chacko, 2015; Morokvasic, 2017; and SAA, 2013) Not only is it a regional division, it is also ethnic and racial; in fact, it is a racist division of labor. (Cumings, 1983)

In an oligopsonistic labor market, the capitalists linked to the oligopsony will argue that immigrant workers are necessary because they fill the positions that city inhabitants do not want, which is partially true as well as partially inaccurate, since the reality is that the unemployed inhabitants of the city seek jobs that are better paid than those offered by the oligopsony. The presence of immigrants is rejected by the locals, who see in them the reason behind unemployment and low remunerations. This, then, leads to a range of social conflicts, as those mentioned above, which may worsen if there are also cultural and ethnic differences between the immigrant and local populations.

It is important to mention that immigrants are not the cause of the unemployment or low wages of the local population in a city where there is a dominant oligopsonistic labor market. The real causes are to be found in the oligopsony itself, which, as we have indicated, is willing to maintain vacancies that will not be filled by the local population. Unfair rejection of immigrants will not modify the behavior of the oligopsony. If it does not find enough cheap labor locally, (Arias, 2002: 376) it will either go to look for it or move the industry to the regions where the workforce is located. In the latter case, industry relocation may be national, to other states in the country, or international. (Babson, 2000)

Vallentin describes the efforts that the maquila industry made to bring immigrant workers to Ciudad Juárez. “The insertion of people from Veracruz in the MEI (Maquila Export Industry) was so profitable that between 1998 and early 2001, a time of major MEI growth, the industry began to recruit workforce directly from the Isthmus of Veracruz,” adding that the: “Maquiladoras hired people from the south of Veracruz and took them to the border in buses. This practice was widely extended in the years of uninterrupted maquila industry growth.” (Vallentin, 2009: 22)

On this subject, we can say that the practice of promoting immigration to supply cheap labor is fully in force in the maquila industry. An article published in mid-2014 indicates that some employment agencies located in Ciudad Juárez

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<sup>9</sup> Statement within the context of the focus group of youths from Reynosa What are people from Veracruz like? March 1/11, 2012.

had restarted direct hiring in the state of Veracruz through recruiters: “They will reactivate the search, in other states of the country, for maquiladora industry workers. This is the case of the Ely Agency that has, as of last week, sent recruiters to cities such as Acayucan and Coatzacoalcos, in the state of Veracruz, to fill vacancies.” (Gaytán, 2014)

#### *Fourth Symptom: Increasing Labor Turnover*

One of the arguments most used by those who criticize the possibility of there being a monopsonistic-oligopsonistic labor market is that if it existed, it could not produce labor turnover. This argument tries to explain that labor turnover is only possible in a competitive market and that it is generated precisely by wage and workforce demand increases. This position was first refuted by Manning, (2003) and later other researchers have added to the controversy, arguing that labor turnover and an oligopsonistic market may exist simultaneously, for different reasons.

Erickson and Mitchell (2007) defended the possibility of an oligopsonistic market and high turnover rates, pointing out it is a readjustment or a new balance between the price willing to be paid and the quantity of labor demand. To understand the phenomenon of labor turnover in a labor market, the first thing we must be clear about is that there is an inversely proportional relationship between price (which the company has determined to pay for the labor demanded) and labor turnover, so that the higher the price, the lower the labor turnover, and the lower the price, the higher the turnover. According to Erickson and Mitchell: “When the salary level rises, the number of workers who leave their jobs will be lower, because the cost of opportunity of doing so will rise.” (Erickson and Mitchell, 2007: 196)

The opportunity cost, in this case, refers to the cost that workers must pay for making the decision to leave a company. The opportunity cost increases if the salary rises. Put simply, the worker who decides to leave that company gives up a better paid job because of the increase in salary. On the other hand, if compensation goes down, the opportunity cost also drops, so that the worker who decides to quit when the opportunity cost is low, will do so more easily since (s)he will only be giving up a job that has become impoverished through salary shrinkage.

Nevertheless, it is important to mention that in the original Erickson and Mitchell model, (2007) staff turnover is generated by reducing wages. At that time, the flow of departures is greater than that of arrivals, momentarily increasing job turnover, which ultimately encourages the company, and the oligopsony in general, to end up at a new point of equilibrium with less workforce hired but still

paid a lower salary. At this new equilibrium point, labor turnover returns to moderate levels.

The model of staff turnover that we propose is different from Erickson and Mitchell's model, (2007) although it shares the low opportunity cost faced by workers. Before presenting it, let us make it clear that we fully agree with the Erickson and Mitchell model, since it fits perfectly with the behavior of an oligopsonistic market when it further reduces the price it is willing to pay. That said, the model we propose explains how labor turnover is generated even when the price set by the oligopsony remains stable.

To better understand the proposed labor turnover model, we will return to the example we have already used, where a maquiladora oligopsony has set the price for labor at 110 pesos per day. We are in what was called second and third points of time, meaning the demand for labor has been steadily increasing until exhausting the reserve of people willing to be hired for that compensation. At this point, as previously explained, we began to speak of "full employment" and even "lack of manpower".

Now, continuing with the example, let us assume that oligopsony efforts to promote immigration have been insufficient to increase the labor supply willing to work for the fixed salary, so that vacancies continue to be generated without the ability to fill them. At this point, which will be a fourth point in time, the opportunity cost that the worker faces should (s)he leave has been reduced, not by a new drop in salary but by the increase in demand, which insists on paying the same fixed price, in this example, an average of 110 pesos.

In times of industry growth, and therefore of sustained increase in labor demand, the opportunity cost for workers to leave their job remains permanently low, because it has been a function of the possibility of remaining unemployed or not. If a worker believes that it will be difficult to find a new job after leaving, (s)he will estimate that his/her opportunity cost is high, since it means dealing with unemployment as a result of deciding to quit.

But if the worker believes that once (s)he departs, it will be easy to find a new job, although paid the same average wage, (s)he will estimate a low opportunity cost for leaving. This opportunity cost can be further reduced at the beginning of the year when the savings fund and holiday bonus have already been received (possibly advanced). Seen this way, not only is there complete compatibility between monopsony and job turnover, but job turnover is even a symptom of an expanding monopsonistic market.

According to information from the Mexican Social Security Institute (IMSS), the maquiladora industry labor market is the second largest labor market in the country, with 26 %, that is, 4,502,458 workers. (IMSS, 2018)

Considering a total study population of 4,502,458 workers, the minimum sample size was calculated to be 385 maquiladora employees, with a sampling error of 5% and a confidence level of 95%, which is the result of applying the formula to obtain the sample size for a finite and well-known population. (Bernal, 2010: 171)

Therefore, the minimum size of the final sample required to test our model was calculated as 385 workers. In April 2016, during full industry expansion, the survey was administered to 450 workers at three maquiladora companies in the three largest maquiladora cities in the country: Tijuana, Ciudad Juárez and Reynosa, in the states of Baja California, Chihuahua and Tamaulipas, respectively. The number of valid surveys ended up being 440, a size reflecting a 5.0 % margin of error, a 96.4 % confidence level and a standard deviation of 0.90, which was obtained through 30 cases with an average value of three.

Although the sample was selected randomly at each maquiladora, the ideal situation would have been for the sample to have been extracted from the total universe, which can limit its scope. While the results may not be generalized to the whole set of Mexican maquiladoras, the characteristics of the sample establish it as a multi-case study.

The questionnaire included two variables: Intention to Stay (IS), which measured the subjective perception of opportunity cost, and Perception of Job Alternatives (PJA), the measure of subjective perception of labor market demand. They showed that the greater the perception of alternative employment, the less the intention to remain. It should be noted that no articles were found in the maquiladora market literature that linked these two variables empirically, but articles from the hypothetical or historical-hypothetical perspective were found. (Carrillo and Santibáñez, 2001; González-Aréchiga and Ramírez, 1989; Hualde, 2003)

### Principal Component Analysis

First, a principal component analysis was carried out to determine the elements that measure PJA and IS. Validity indicators offered adequate results, so the technique used is considered appropriate to explain the behavior of the included variables. Table 1 shows the validity indicators of the multivariate method for PJA and IS.

Table 1. *Validity Indicators of the Principal Components Analysis*

	Perception of Job Alternatives (PJA)	Intention to Stay (IS)
Kaiser-Meyer-Olkin Index	0.701	0.886
Bartlett Sphericity Test (squared chi)	351.352	1597.023
Sig.	<0.001	<0.001

To determine the number of factors in the interpretation of the results, in both cases, we adopted the criterion of keeping only those factors or main dimensions whose eigenvalues were greater than one. Table 2 shows the variance explained for each variable and the resulting factors.

Table 2. *Identified Factors in the Principal Components Analysis*

	Number of Factors	Eigenvalue	Variance %
Perception of Job Alternatives (PJA)	1	2.070	69.008
Intention to Stay (IS)	1	2.807	46.783

As seen in the previous table, the PJA and IS are each explained by a single factor. Considering that the sample is greater than 400, those items with factor loads below 0.60 (Hair, Anderson, Tatham, & Black, 2007) were eliminated. Table 3 and 4 show the elements that make up each of the factors of the PJA and IS.

In the case of PJA, two items were eliminated because they presented values lower than 0.60, but three items were conserved since their factor loadings were greater than 0.60, and in the case of IS, all the items were kept since all the factor loadings were greater than 0.60.

Table 3. *Matrix of PJA Components*

Factor	Item	Component 1
PJA	VAR2PJA	.836
	VAR5PJA	.834
	VAR3PJA	.822

Table 4. *Matrix of IS Components*

Factor	Item	Component 1
IS	VAR5IS	.873
	VAR4IS	.863
	VAR6IS	.863
	VAR1IS	.800
	VAR2IS	.769
	VAR3IS	.738

To analyze the internal reliability of the scale, Cronbach's alpha was used, for which, according to Hair and colleagues (2007), the value has to be greater than 0.60, as seen in tables 5 and 6. The tables also show the descriptive statistics for each PJA and IS factor.

Table 5. *Internal Reliability and Descriptive Statistics for PJA*

Factor	Item	Media	sd	A
PJA	VAR2PJA	2.5854	1.505	0.775
	VAR3PJA	2.8383	1.339	
	VAR5PJA	2.7654	1.331	

Table 6. *Internal Reliability and Descriptive Statistics for IS*

Factor	Item	Media	SD	A
IS	VAR1IS	2.8886	1.428	0.901
	VAR2IS	2.9409	1.463	
	VAR3IS	2.9818	1.470	
	VAR4IS	2.8136	1.451	
	VAR5IS	2.8136	1.496	
	VAR6IS	2.6500	1.539	

## Correlation and Regression Analysis

To measure the strength of the relationship between the PJA and IS dimensions, the Pearson correlation coefficient was calculated. A statistically significant correlation was found,  $r = -.231$  ( $p < .001$ ). Upon finding a significant correlation between the PJA and IS dimensions, we performed a multiple linear regression analysis, in which the outcome variable was IS and the PJA dimension was the predictor variable. The results of this estimation appear in table 7.

Table 7. *IS Regression Model*

Model	Non-Standardized Coefficients		t	Sig.
	B	Error		
(Constant)	-.002	.046	-.053	.958
PJA	-.231	.047	-4.968	<.001
Model adjustment	F	24.678	Sig. <.001	
	R	.231		
	R <sup>2</sup>	.053		
	Adjusted R <sup>2</sup>	.051		

The adjusted R<sup>2</sup> coefficient of the statistical model was 0.053, which indicates that the statistical PJA explains approximately 5.3% ( $p < .001$ ) of the IS variability. These results establish that the PJA are negatively and significantly related to the IS of the maquiladora workers. We have thus been able to provide an empirical proof of the veracity of the proposed model.

We must not forget that the perception of employment alternatives equals the demand for the number of hirings of the other maquila companies and the intention to stay and, in turn, is equivalent to worker opportunity cost. In other words, the main cause of the reduction in worker opportunity cost is labor quota increases in the labor market. As indicated before, the field research was carried out during a period of full growth within the maquiladora labor market, growth that translates into more demand for work, which ends up reducing the cost of opportunities. It should be noted that the increase in demand or number of jobs demanded should not be confused with an increase in worker salaries.



### *Fifth Symptom: Weak Labor Unions*

Research on labor unions in the maquiladoras abounds. (i.e., Arciniega, 2007; Babson, 2000; Carrillo, 1994; De la Garza, 2013; Marinario, 2016; Quintero, 1997, 2002, 2013) The latest publications are not very encouraging, since they report that although a significant portion of maquiladora workers is unionized, as high as one hundred percent in some cities, worker adscription is only nominal. Practically, decisions are dubious in most labor unions. Union leaders negotiate salaries without consulting union members or rather accept salaries without claims. Honest unions are weakened, and worse than that, many unions are monopsony collaborators.

The reality of labor unions has little or nothing to do with the definition that economics textbooks usually teach. For example, Parkin and Esquivel state that: “A union is an organized group of workers whose objective is to increase wages and influence other working conditions.” (Parkin & Esquivel, 2006: 433) Similarly, Mankiw and Rabasco write: “A union is an association of workers that negotiates with employers on wages and extra-wage compensations, and on working conditions.” (Mankiw & Rabasco, 2007: 433) Nevertheless, in Mexican maquiladoras, unions are often perceived by workers as a business collaboration system.

Referring to this reality, Quinteros notes that in some cities, such as Reynosa, the maquiladoras see unions as employment agencies, which will provide them with cheap, docile, and controlled labor. “The so-called subordinate unions, better known as protection unions ... [are] considered as one of the city services that investors must acquire in order to enjoy conflict-free development.” (Quinteros, 2002: 23) As hard as it may be to believe, in many cases unions have become a control device for workers. As Arciniega puts it: “Compulsory unionization and the exclusion clause allow us to infer that among their organizational strategies, firms decide to have unions.” (Arciniega, 2007: 40)

In an economics manual, a union is a threat to labor market efficiency, because its natural role of protecting workers and its strength to negotiate wages supposedly make it a monopoly of labor able to control the price that is negotiated. Pindyck and Rubinfeld indicate that: “The union can choose the salary they want and the corresponding amount of work offered due to their monopoly power,” (Pindyck & Rubinfeld, 2009: 625) but the reality of the unions in the maquiladoras is totally different. Quintero explains: “The union does not participate in the definition of wages and labor benefits.” (Quintero, 2000: 24)

This is equivalent to having a tax to finance a fire department that will not put out a fire or even worse, that displays pyromaniac behavior. It is also fair to point out that authors such as Williams and Passé-Smith (1992), Babson (2000) and Quintero (1997, 2013) have defended the existence of honest labor unions,

especially in the city of Matamoros, which loses more negotiating strength with each passing day. (Quintero, 1997, 2013)

### *Sixth Symptom: Non-Competitive Market*

Pindyck and Rubinfeld explain that: “Truly competitive markets are very sensitive to the problems of shortages and surpluses, so they quickly get rid of each other by adjusting prices.” (Pindyck & Rubinfeld, 2009: 193) In other words, in the face of a labor shortage in a “competitive” market, the natural thing would be to raise the price willing to be paid to cover the demand for more labor. With the price adjustment made, the shortage diminishes until it disappears. Following the original example, this would be a “fourth point in time b”, in which the only people willing to work would only do so for a salary higher than 110 pesos a day. By raising the price willing to be paid, for example to 160 or 200 pesos, it reaches those who are unemployed yet are willing to be hired with the new salary.

### *Seventh Symptom: Collusion or Concerted Behavior*

The oligopsonistic practice supposes a concerted behavior on the part of the employers who demand labor force. González-Aréchiga and Ramírez point out that: “The problem is accentuated because the personnel managers of the maquiladoras periodically consult the salary levels of other maquiladoras, preventing real competition among employers to be reflected in higher emoluments.” (González-Aréchiga & Ramírez, 1989: 880)

In any case, the maquiladora labor market is not a “perfect” oligopsony, because the agents involved are not necessarily few or all, but enough to have market power. The more unstable an oligopsony is, the more it moves away from that model and resembles a cartel. According to Pindyck and Rubinfeld (2009), in a cartel: “Some or all companies explicitly collude: they coordinate their prices and production levels to maximize their joint benefits.” As we can see, the absence of a perfect oligopsony cannot suggest the presence of a perfect supply and demand market, but rather the presence of a cartel.

This cartel acts concertedly to keep the price of transactions under control, whether it is a supply cartel or a demand cartel.<sup>10</sup> Pindyck and Rubinfeld (2009) add that cartels are different from monopolies, or monopsonies as in this case,

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<sup>10</sup> Cartel is an economic term, which unfortunately has been popularized improperly to refer to the drug trafficking cartels, in the event that they act as concerted companies.

in two basic elements: first, they do not control the entire market, and second, not being a single large company, they may be tempted to cheat their partners. In this case, by raising the price willing to be paid for the labor demand, they intend to take away a greater share of the labor market. Pindyck and Rubinfeld (2009) point out that for this reason, cartels are usually unstable and brief. In a conversation with the director of the human resources department of a maquiladora in Ciudad Victoria, Tamaulipas, she said: “Agreements last until they are broken; until it is necessary to break them.” (Isela, 2014)<sup>11</sup>

### *Eighth Symptom: Actions against Competition*

A practice that has been condemned for being considered disloyal (disloyalty towards cartel members) is “piracy”, which consists of “stealing” workers from another maquiladora. In a supposedly competitive market, competition is not considered as “pirates”, nor would the action of attracting a dissatisfied employee through better remuneration be considered disloyal, but the maquiladora labor market is not a competitive market, and its logic is cartel or oligopsony logic.

Hualde (2003) points out that maquiladoras have sought ways to economically sanction workers tempted by “piracy”, a sanction as high as 950 dollars (in 2003, equal to 1,319 dollars in 2019) when it comes to a recently trained worker. He further explains that: “Candidates who wish to enter Cenaltec<sup>12</sup> must have financial support from a maquiladora or company [...] To avoid piracy, students contract the obligation with their maquiladoras, to cover the sanction (in US dollars), in case of leaving the company from which they received financial support.” (Hualde (2003: 80)

## CONCLUSIONS

In the case of the Mexican maquiladora industry, it is assumed that the labor market is clearly an oligopsony. However, it is not a rigid or pure oligopsony but rather a permeable one, where practices that partially break the oligopsony are filtered, mainly during the expansion and growth period. Such practices that permeate the oligopsonistic market are usually considered as disloyalties among oligopsony partners. On the contrary, other practices seek the impermeability of the oligopsony, including the promotion of national immigration, partial

<sup>11</sup> Statements within the context of the in-depth interview What is worker’s piracy? December 2014.

<sup>12</sup> Centro de Entrenamiento en Alta Tecnología (High-Tech Training Center).

acceptance of vacancies, partial acceptance of labor turnover, weakening of honest unions, promotion of protection unions, cartel type agreements, and collusion.

The new international division of labor was implemented in the world during the mid-sixties, first in countries of Asia, then in Latin America, especially Mexico, Central America, the Caribbean, Africa, southern Europe, India, and Eastern Europe. Regarding the distribution of territorial space and the expansion of capitalism, suggested reading is Calderón, García and Aké (2017), and in regards to this hybrid capitalism with the presence of cartels and external groups, Hernández (2017) is suggested.

Mexico was possibly the first Latin American country to implement the expansion of American capitalism, and today, the country's dependence on this type of enterprise is overwhelming. In 2017, the Mexican Social Security Institute (IMSS) portal indicated that several cities were eminently maquiladora cities, that is to say, more than 50 % of employees worked directly in a maquiladora: Tijuana (50 %), Cd. Juárez (64 %), Nogales (62 %), Acuña (77 %), Piedras Negras (51 %), Apodaca (64 %), Santa Catarina (59 %), García (68 %), Reynosa (58 %) and Matamoros (68 %); to name just some of them. (IMSS, 2018)

Finally, we must emphasize that for the first time it has been proven by statistically-based empirical means that labor turnover is compatible with an oligopsonic labor market; in fact labor rotation is a symptom of a monopsonic-oligopsonic market. The maquiladora labor market is complex, because on the one hand, it sustains its profitability in the hiring of intensive, nearly unskilled labor, and on the other hand, in times of economic expansion, it generates structural contradictions when demanding job vacancies that are not covered, which weakens the production process, questioning the efficiency and effectiveness of the manufacturing industry.

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