

Precarious employment in Mexico: a comparison between young people and adults

Precariedad laboral en México: una comparación entre jóvenes y adultos

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Abstract

Mexico, as the rest of the world, has experienced increased commercial integration and the deregulation of markets, since the eighties, resulting in the surge of precarious jobs, especially for young people. The aim of this study is to find out whether youth are more likely to have precarious employment than adults and to analyse the socio-economic factors that may intensify this situation. For this purpose, data from the National Survey of Occupation and Employment (ENOE) 2018 was used. Initially, factor analysis was run to create an index of precarious employment. Then, a descriptive analysis of the index was made, and regressions were conducted to find out which socioeconomic factors affect employment precariousness. It was found that young people have greater levels of employment precariousness than adults, and the higher the educational level, the gap between them increases. Furthermore, each additional year of education and experience is more important in reducing precarious employment in young than in adults. It is thus important to create policies and laws that protect salaried young people.

Keywords: Job insecurity, youth, labor market, salaried work, quality of employment.

Resumen

Desde la década de 1980, en el mundo y en México, se incrementó la integración comercial y la desregulación del mercado de trabajo, resultando en una mayor precarización del trabajo que ha afectado principalmente a los jóvenes. El objetivo del presente artículo es indagar si los jóvenes en México tienen una mayor precariedad que los adultos y analizar los factores socioeconómicos que la profundizan. Con este fin, se utilizan datos de la Encuesta Nacional de Ocupación y Empleo (2018). Para crear un indicador de precariedad laboral. Inicialmente se hace un análisis factorial. Enseguida, se hace un análisis descriptivo del índice y se corren regresiones para indagar cuáles son los factores socioeconómicos que afectan la precariedad laboral.

Palabras clave: Precariedad laboral, jóvenes, mercado laboral, trabajo asalariado, calidad del empleo.

INTRODUCTION

Mexico promoted a greater commercial integration with the rest of the world since the 80s, reducing import tariffs and signing commercial treaties such as the North Free Trade Agreement (NAFTA). The labour market was also deregulated to facilitate workforce mobility. At the same time, employers devised several strategies to bring down their employee's salary, such as the direct reduction of salaries and benefits, the increase in contingent employment (with weak and non-permanent links with the employer), an increase in part-time and temporary employment, and a salary system where new employees are paid much less than older employees (Luvando, 2016).

These processes have led to precarious employment, this is, vulnerability, uncertainty, and dependence of workers on the situation of the labour market and employers' labour policies (Cano, 2004). According to (Luvando, 2016) young people are particularly prone to have precarious employment. Despite having a higher level of formal education, young people encounter more difficulties than older people in joining the labour market and finding a stable and well-paid job.

The entry of young people into the labour market is a key element in their transition to adult life, since it is the means to lessen or eliminate their economic dependence on their parents, to home ownership, legitimacy and social recognition (Weller and CEPAL, 2006). Nevertheless, in accordance with (Weller, 2007), despite young people having a high regard for work, their employment, their experiences are often frustrating. Even though they prefer stable and well-paid job, the precarious of the labour market is an obstacle in ascending in their careers, thus affecting their social inclusion and the development of their work-related identity.

Besides the negative effects of precarious employment in the livelihood of young people, it also has a negative effect on the mental and physical health of workers, regardless of age. (Quinian *et al.*, 2011) identify multiple health risk factors in precarious employment. Thus, among the economic and income factors, there is an intense competition in labour markets, an income dependency on results, intensive and long working hours, shortage of logistic resources and high-risk activities. On the other hand, there are disorganizing factors such as: aggravation of rules and complex procedures in job practices; inexperience and lack of training; multiple workplaces and complex legal responsibility situations; in addition to greater difficulties to organise and protect themselves. Furthermore, there are failures in

legislative coverage, since social security laws cover only full-time workers belonging to large companies.

Thus, it is essential to determine if young people in Mexico face greater employment precariousness than adults and to analyse the socioeconomic factors that intensify this situation. This is the aim of this article.

Previously, several studies have explored the factors influencing young people's precarious employment in Mexico. With data from the 2000 National Youth Survey (Oliveira, 2006), constructed a precariousness index that included several variables: if the young person had a contract, benefits, number of working hours per week, if there is a workplace, as well as hourly income. This study concluded that 88.6 per cent of young people have precarious employment, and 11.1 per cent have an extremely high precarious job. Estimating a simple linear regression model, it was found that the region, the level of education, the social origin, rural/urban place of residence, as well as age, explain the precariousness of paid activities in young people.

(Roman, 2013) makes a similar exercise using data from the 2005 and 2010 National Survey of Occupation and Employment (ENOE). The author constructs a three-dimensional index; a) economic (if the salary was below twice the minimum wage), b) normative (considering the contract, duration of the contract, as well as incomplete or unstable working hours), c) job security (considering access to social security, benefits, and labour union affiliations). It was found that among young people, those with a greater possibility to obtain precarious employments are women, younger people, people with low formal education levels, employees of small companies engaged in manual low-qualified employments, such as labourers, apprentices, or masons, as well as those who work in commerce.

These studies focus on analysing precarious employment only in young people. On the contrary, in this study, the objective is to verify if young people have greater employment precariousness than adults. The former have higher levels of formal education than the latter, thus, hardly this factor can explain this phenomenon. Nevertheless, young people do have less experience, and this could explain a higher degree of precariousness. In this article we enquire about the role of education, experience and other socioeconomic conditions in employment precariousness among young people.

To achieve this, initially, to construct an employment precariousness index a factor analysis was run. Next, we enquire if young people face greater employment precariousness than adults. Thirdly, a regression analysis was

estimated to discover if by controlling the level of formal education and experience, young people face a greater employment precariousness than older ones. Before this, the article formulates the theoretical framework, next, the methodology employed in the study is explained.

THEORETICAL FRAMEWORK

The origin of the word “precarious”, comes from the notion of dependence on the will of others, which later was extended to include a risky, hazardous, uncertain sense (Etymonline, 2020). Thus, the term precarious employment, describes insecurity in labour arrangements.

In his historical analysis of the use of the word precarious, (Quinian, 2012) indicates that this term was used since the beginning of the XIX Century during public debates in the United Kingdom, European Countries, as well as in Australia; and it prevailed in times of high unemployment. Nevertheless, its usage was diluted with the rise of the Welfare State with laws allowing minimum employment conditions, old-age pensions, education provided by the State, and unemployment insurance.

It was then that the idea of a *standard employment* relation arose, meaning the regulation or contractualization of the employment relationship. The Industrial Revolution gradually provided a hierarchical model of employment and the surge of large-scale companies. This, together with the influence of collective negotiations and the rise of bureaucratic organisational forms and social legislation, favoured the creation of the legal contract. This employment relation imposed certain limits to the employers, favouring the progress of vertically integrated, modern companies, creating a favourable opportunity to extend social protection in the employment relationship. The State became the institution that channelled the risks of the labour force economic insecurity through a social security system, employing social security tariffs and taxes to fund public provision of social assistance services (ILO, 2016).

Even though the term *standard employment* does not appear in any legal text, employment was thus defined, since it played a part in one of the great transformations in the world economy, assuming that a salary should be enough to cover the fundamental needs of a person, providing a secure and adequate income to take care of a family, and offering security in unforeseen events that may impede the worker to continue working until retirement. In this way, the design of a social security system accompanying the employment relationship is based on the presumption of a full-time employment relationship, of an indefinite duration and subordinated (ILO, 2016).

In Mexico, between 1940 and 1982, a complex welfare system was deployed by the State, where social security institutions were established for the urban workers participating in the formal market (Barba Solano, 2004). Specifically, at the end of the 30s governmental institutions in charge of improving living conditions of the workers concerning social security, housing, employment protection, and minimal wages, were created. During the 40s, an industrialization period promoted by a policy of import substitution was set in motion, creating jobs that complied with the requirements of standard employment (Meza, 2005).

Despite these transformations, historically, only a small proportion of the Mexican population has had access to employment of this kind. (Guadarrama *et al.*, 2012:214) point out that “during this modernization, the Welfare State coexisted with precarious jobs of ancestral roots”. From this time until the 80s there remained a high rate of informal employment in the country, while salaries and benefits linked to formal employment were not considerable, thus access to social services was always segmented. In 1978, social security institutions only covered 38 per cent of the total population (Bayón, 2006).

Since the 80s, there has been a new turn in employment relationships. The globalisation process and technological advances intensified economic integration and increased the level of competition between companies. This gave way to “outsourcing”, this is, companies began to send production processes to countries with lower wages. On the other hand, changes in legal regulations eroded the minimal standards of the labour market, as well as competition rules in the products market. There was also a decline in trade unions and other institutions for the protection of workers (Kalleberg, 2009).

In Mexico, the commercialization and globalisation of the productive processes also generated a new labour structure. Initially, employment in big companies began to be replaced by jobs in smaller productive units. Then, the maquiladora export industry became particularly important as a source of employment. Finally, labour regulation was modified to allow subcontracting of certain workers (Meza, 2005).

This new labour structure, together with a global crisis, produced a decrease in union membership in the country, as well as an increase in self-employment and employment in small productive units with less than ten workers. Companies of this last sort do not have surplus income to pay for social security and their average salary is barely enough to finance a family's current expenditure (Meza, 2005).

On this basis, the discussion on employment precariousness and its perverse social effects rose again in the public and academic sectors. In the same way, aggregated efforts were made to refine its conceptualization. In accordance with (Olsthoorn, 2014) the notion of the threat of employment insecurity has been defined by two characteristics. First, insecurity or the ability to earn a sufficient income and, second, insecurity understood as the risk of employment termination. Authors such as (Barbier, 2004), (Campbell, 2010) and (Kalleberg 2009), only include this last characteristic, while other such as (Cranford and Vosko, 2006), (Oliveira, 2006), (ILO, 2012), (Olsthoorn, 2014), (Román, 2013) and (Mora, 2012), use both elements. From this point of view, precariousness does not allow the worker a career growth that enables him to have a sufficient income, personal development, and employment stability, which in turn may allow him to plan the future and a full participation in social life.

In the same way, it has been agreed that the concept of precariousness is multidimensional. There are several attributes associated with both labour insecurity notions. First, low income and narrow circumstances, lack of access to social security, low control over working hours, low salary, and work intensity. In the second place, employment uncertainty, multiple employers, an ambiguous relationship with the employer, etc. (Olsthoorn, 2014). In this study, several dimensions are contemplated and both variants of employment insecurity are considered.

On the other hand, some authors specify precarious employment through the worker's perception about the insecurity of his job. This is the case of (Kalleberg, 2009:2) who defines precarious employment as "uncertain, unpredictable, and risky from the point of view of the worker". Nevertheless, in accordance with (Jesnes, 2018), this method has been considered as very subjective and could reflect dissatisfaction with work instead of precariousness. Furthermore, workers can feel they have no right to certain benefits. A solution to identify precarious employment could be the use of objective as well as subjective characteristics. For example, (Rodgers and Rodgers, 1989) point out that this concept is characterised by both, several objective (legal status) and subjective dimensions (feelings) of employment insecurity and uncertainty (Rodgers and Rodgers, 1989). In this study, having only access to secondary data, only objective job precariousness indicators will be used.

In this analysis, the dimensions specified by (ILO, 2012) will be considered. The following dimensions which include both aspects of insecurity, employment and income are established.

- I. Contractual arrangements
 - a. Limited duration of a contract.
 - b. Nature of the employment relationship.
- II. Precarious conditions
 - a. Low salary.
 - b. Little protection from employment termination.
 - c. Limited access to social benefits and social security.
 - d. Workers' limited access to pursue their rights at the workplace.

It should be clarified that despite the concept of precariousness being linked to standard employment, it is different to it. In the first place, standard employment refers to an employment category specifically, which is full-time, with security, benefits, decent salary, and good working conditions. Non-standard employment may refer to several categories: self-employment, part-time employment, temporal, casual, or seasonal employment, etc. On the other hand, by focusing on dimensions of precariousness, a better representation is made by allowing the analysis of diverse levels of precariousness in each type of employment and facilitating the examination of variations according to locality, gender, class, and race (Cranford and Vosko, 2006).

Informal employment also differs from the concept of precarious employment. In accordance with the International Labour Organization (ILO), informal employment incorporates all paid employment, including self-employment and salaried work not recognized or not regulated, or protected by legal frameworks, as well as non-paid employment in companies generating an income (Arnold y Bngiovi, 2013). In this way, precarious employment can be found in both the formal and the informal sector (ILO, 2012).

METHODOLOGY

In this study, data from the National Survey of Occupation and Employment (ENOE) conducted by the Geography and Statistics National Institute (INEGI) is employed. This survey is representative at a national level and intends to generate statistical information about the occupational characteristics of the population. This survey is conducted three-monthly, and once a year an ample questionnaire is applied. In this paper, data from an ample questionnaire corresponding to the first trimester of 2018 is used.¹

¹ We used data from 2018, since the first trimester of 2019 was atypical. It was the beginning of the presidency of Andrés Manuel López Obrador and the economy contracted (INEGI 2019).

Using data from ENOE (INEGI, 2018), it is possible to identify employed people, and among them, those who are employers, self-employed workers, workers without pay and salaried workers. In the same way, we can obtain information about the employment conditions of the latter, so that the precariousness index will comprise exclusively subordinate workers.

Those between the ages of 15 and 29 are considered the young population. The possibility of constructing a precarious employment index using indicators in Table 1, is tested with factor analysis. Indicators were selected in accordance with the variables included in the ENOE describing the (ILO, 2012) dimensions.

Table 1: Operationalization of the dimensions of precarious employment

Dimension	Subdimension	Indicator	Indicator construction
Term of the contract	Temporary employment	Written contract Base contract	100 without contract 50 have a temporary contract. 0 Have a base contract.
Precarious working conditions	Income	Income per hour below the poverty line (incidence and gap)	Incidence and gap below two minimum wages, normalised to (0-100)
	Benefits	Vacation bonus Christmas bonus	0 receives bonus 100 does not receive bonus 0 receives holiday bonus 100 does not receive Christmas bonus
	Social security	Access to social security	0 have social security 100 does not have social security
	Protection from termination of contract	Trade union membership	0 does not belong to a trade union 100 belongs to a trade union
	Working hours	Working hours above 48 hours per week (incidence and gap)	(Incidence and gap above 48 working hours normalised (0-100))

Source: Own elaboration based on ILO (2012).

Some of these indicators vary from those previously used to measure precariousness in the Mexican situation. The indicator used by (Román, 2013) and (Mora, 2012) to measure the economic dimension, is a dummy variable indicating if the *monthly* wage of the subordinate worker is below

one minimum wage per month in the first instance, or two in the second instance. This analysis differs from the previous ones in two aspects. First, it enquires if the income is below the poverty line in accordance with CONEVAL (2018) criteria. This measures if an individual can buy a basic basket of goods with the earned income, thus this indicator specifically measures the impossibility to leave behind (food and non-food) poverty. Second, instead of using monthly wages, hourly wages were employed, since working hours have an influence on monthly salary. It is not possible to compare a person working part time earning \$2,000.00 per month, to one with the same salary working full time.

On the other hand, two income indicators are evaluated. One includes a dummy indicator specifying if an individual earns less than the poverty line. The other measures the hourly income gap below the poverty line. This allows us to have a measure of how much the salary a worker obtains falls below the poverty line. A person who earns half of the poverty line has more precariousness than one who obtains a salary just below this line.

Also, to aggregate a measure of the excess of working hours to this analysis, we experiment with two variables; one dummy variable indicating if a subordinate employee works more than 48 hours a week; and another variable measuring the gap of working hours above 48 per week. A person working 60 hours per week will experience a lower well-being than someone working 49 hours.

We must point out that (Mora, 2012) includes in his study an indicator of young people working less than 35 hours per week. This indicator is not used in the present study, since it is here considered that there are young people who both study and work and therefore may prefer part-time employment. Even though excess working hours can also be a choice, it might bring about detrimental effects to mental and physical health.

The purpose of several trade unions in Mexico, such as the CTM (Mexican Confederation of Workers) (the largest trade union), has been political corporatism instead of the defence of workers' rights (Meza, 2005). Despite this, it is considered that workers belonging to a trade union are more protected against layoff or worsening working conditions. For this reason, a variable specifying if the worker is affiliated to a trade union is included in this analysis.

A signed contract is a fundamental indicator to capture the certainty of an employment duration. It has a greater weight if the worker has a base contract, compared to a temporary one, since it is considered that a person

with the last sort of contract will experience instability and uncertainty about his employment.

Other indicators introduced in this analysis are benefits (vacation and holiday bonuses), and access to social security. A worker may have access to public or private health systems by channels not related to his employment. Nevertheless, by law, companies must provide their workers with access to social security. Therefore, this indicator is considered.

Initially, a factor analysis will be run to construct an index with the proposed indicators. The objective of factor analysis is to explore concepts that cannot be directly measured. Precariousness of employment is one of these concepts. It condenses several observable variables, in terms of a minimum number of explainable variables (factors). The standard methods to conduct a factor analysis assume that variables are continuous and have a normal multivariate distribution. Nevertheless, for the purpose of this study, some of the variables used to explore precariousness are dichotomous and ordinal. In this case, a factor analysis only can be estimated using a polychoric correlation matrix.

A coefficient of a polychoric correlation is a measure of association, such as the Pearson's coefficient correlation, but for ordinal variables. When data of two categorical variables are ordered in a contingency table, a categorical correlation coefficient can be calculated. The fundamental idea is to assume that the two ordinal variables have a conjoint normal distribution (latent) and the data obtained are the result of a double discretization of the conjoint distribution (Ekström, 2011).

In this instance, X and Y are two ordinal variables whose association is the object of study. Each one of those variables have r and s categories (or values). The conjoint distribution of X and Y is generally illustrated with a contingent table, where X and Y values label columns and rows in correct order, and the conjoint probabilities are shown in each one of the cells (Ekström 2011). These are calculated by STATA by maximum likelihood in two steps. First, the thresholds of the marginal distribution of each ordinal variable are estimated and then the correlation based on bivariate likelihood is estimated, treating the thresholds as known. Next, in the present study a factor analysis is run from a polychoric correlation matrix.

Given that work precariousness in young and older people can be due to different formal educational levels and working experience, it is of great interest to understand if these variables influence precarious work. A linear regression is estimated to analyse the effect of these factors on employment precariousness in young people compared to adults.

Independent variables such as sex, marital status, living in rural or urban communities, size of the establishment and working sector are also included in the regression. Due to these being nominal variables (with two or more categories), multiple dummy variables are created, where each of them represents a category of the original variable. A dummy which represents one of the ordinal variable categories is excluded in the regression and all comparisons are made with reference to this category. The intercept coefficient will represent the expectation of the reference category, and the coefficient of other dummy variables of the ordinal variable will show how much these categories differ from the reference category (omitted).

The *T* statistic will allow us to verify if the relationship between an independent and a dependent variable is significant. In this case, given the large number of observations, it is considered that the relationship is significant with a confidence level of 95 per cent, when *T* is equal to 1.96 and with a confidence level of 99 per cent when it is greater than 2.58.

RESULTS

In Table 2 the percentage of people with a contract, access to social security, holiday, and profit bonuses is shown. Data indicate that a minor proportion of young people receive these labour advantages in comparison with those older.² The percentage of people that have access to these resources increases with each five-year age period, until it reaches a maximum between 50 and 54 years of age, to be reduced again. It is noteworthy that the subgroup of young people between 14 and 19 years of age, are those that have a minor propensity to receive these benefits compared to the rest of the subordinated young people. It is important to underline that younger people have less working experience than older ones, but have a greater formal educational level, as can be seen in table A1 annexed. Therefore, the greater work precariousness in young people cannot be explained by this last factor.

On Table 3, statistics related to salaried employees perceiving an income per hour below the poverty line and those with more than 48 working hours per week can be observed. The high percentage of employees working more than 48 hours per week (almost 30 per cent) stands out as well as those who perceive a wage per hour below the poverty line (one out of three subordinates, 33 per cent). The percentage of subordinated workers working more than 48 hours does not vary substantially by age group (ex-

² On the other hand, a lower proportion of subordinates older than 60 years receive these benefits, in comparison to those younger.

cept for those between 14 and 19 years). On the other hand, the percentage of subordinates whose total income is below the poverty line diminishes with age, as well as the poverty gap. It can be inferred that the higher formal educational level of young people results in a decline in poverty. On the other hand, it is noteworthy that these two variables have a different tendency for each age group compared to the rest of precariousness variables included in this analysis.

Table 2: Percentage of paid workers with labour benefits

Age (years)	With contract	With base contract	Subordinated with a base contract	Social security	Trade Union	Christmas bonus	Vacations
14 to 19	21.41	61.66	12.92	21.31	2.07	28.05	20.25
20 to 24	49.05	71.76	34.33	48.80	6.33	55.48	46.59
25 to 29	59.14	77.83	45.04	58.10	9.61	64.72	57.17
30 to 34	59.35	80.89	47.15	59.91	12.29	66.06	58.31
35 to 39	57.54	84.66	47.90	57.76	13.96	64.56	56.99
40 to 44	57.41	85.76	48.60	58.40	14.60	65.93	58.34
45 to 49	58.91	87.56	50.72	59.74	16.00	66.36	59.06
50 to 54	58.25	89.46	51.45	59.37	18.82	66.98	59.17
55 to 59	55.28	88.40	48.09	56.94	15.87	64.60	55.41
60 to 64	44.52	88.49	38.96	44.09	13.56	54.21	46.44
65 to 69	36.25	90.72	32.18	35.98	10.58	46.16	36.90
70 to 74	25.59	91.88	23.06	26.30	8.68	40.82	30.16
75 or more	23.73	86.82	20.00	24.70	5.62	37.67	29.22

Source: Own elaboration based on ENOE 2018, first trimester.

Table 3: Working hours per week and income per hour of the salaried workers

	More than 48 hours per week			Income per hour below the poverty line		
	% people	Gap	Gap Std. Dev.	% people	Gap	Gap Std. Dev.
14 to 19 years	24.38	2.62	6.39	31.13	2.74	5.47
20 to 24 years	28.51	3.12	7.03	32.51	4.07	6.83
25 to 29 years	29.15	3.36	7.51	33.69	4.62	7.21
30 to 34 years	30.15	3.53	7.61	33.35	4.68	7.28
35 to 39 years	28.51	3.56	7.95	33.22	4.59	7.19
40 to 44 years	29.97	3.60	7.91	34.63	4.77	7.26
45 to 49 years	29.49	3.69	8.18	35.37	4.96	7.38
50 to 54 years	27.41	3.56	8.29	37.70	5.29	7.53
55 to 59 years	28.73	3.95	8.71	38.31	5.30	7.51
60 to 64 years	25.35	3.42	8.15	38.87	5.08	7.34
65 to 69 years	25.90	3.70	8.51	37.49	4.69	7.10
70 to 74 years	20.10	3.78	10.49	38.43	4.47	6.93
75 years and more	15.70	2.67	8.53	38.58	4.03	6.48
Total	28.05	3.46	7.88	34.39	4.59	7.16

Source: Own elaboration based on ENOE 2018, first trimester.

Up to this point, it has been verified that a greater percentage of young people do not face certain indicators of precariousness, such as an income below the poverty line and more than 48 working hours, while facing others. In the next section a factor analysis will be estimated to construct an index of employment precariousness.

Factor Analysis

Tables 4 and 5 show the results of the factor analysis. Based on the criteria of a characteristic root greater than 1, it is possible to recognize only one factor.³ Variables strongly associated with the first factor include variables of both dimensions: contract duration (to have a contract) and precarious working conditions (social security, holiday benefits, vacations, and belonging to a trade union). The factor loading of the variable “belonging to a trade union” is much lower than the rest. Nevertheless, it is greater than

³ This result is different from the one obtained by Mora (2012) who rejects the hypothesis that indicators of precariousness can be summarised in only one indicator. It must be remembered that the variables used by this author are different from those used in this study.

0.5, which, in accordance with (Comrey and Lee, 1992) is a good correlation. On the other hand, both indicators, excess of working hours gap and salary below the poverty line gap have a very low correlation, of less than 0.2 with the first factor, furthermore, this correlation is negative in the case of income.⁴ The latter could be an indicator that income and precariousness are substitutes. A worker can choose an employment with a larger income at the expense of greater precariousness and vice versa. Furthermore, both variables, income gap and excess of working hours gap, have a singularity of almost 0.9, which means that they are not correlated with the rest of the variables.

Table 4: Results for Factor Analysis: Eigenvalues

	Eigenvalue	Difference	Proportion	Accumulated
Factor1	4.377	4.181	0.957	0.957
Factor2	0.196	0.110	0.043	1.000
Factor3	0.086	0.051	0.019	1.019
Factor4	0.035	0.044	0.008	1.027
Factor5	-0.010	0.010	-0.002	1.024
Factor6	-0.020	0.073	-0.004	1.020
Factor7	-0.092		-0.020	1.000

Source: Own elaboration based on ENOE 2018, first trimester.

Table 5: Factor analysis results: factor loads

Variable	Factor1	Factor2	Factor3	Factor4	Singularity
Contract	0.943	-0.084	-0.106	0.040	0.092
Social security	0.976	-0.003	-0.079	0.085	0.035
Christmas bonus	0.973	-0.097	0.149	-0.044	0.020
Vacations	0.989	-0.033	0.058	-0.090	0.010
Trade union	0.746	0.287	0.031	0.048	0.359
Inc. Poverty	-0.223	0.130	0.184	0.070	0.895
Exc. Work. h	0.085	0.282	-0.090	-0.094	0.897

Source: Own elaboration based on ENOE 2018, first trimester.

The employment precariousness index is then constructed with only one scale, with indicators corresponding to both dimensions of precarious

⁴ Results do not significative change if the excess of working hours and income below the poverty line variables are included as a dummy instead of a gap in the same factor analysis.

employment, but excluding income below the poverty line and excess of working hours. The Alpha Cronbach coefficient of this synthetic index is 0.88, thus the reliability, or internal consistency of the index is particularly good.⁵

To assign weights to indicators, the method proposed by (Nicoletti *et al.*, 2000) is followed, grouping indicators with greater factorial charges. The square of the factorial charges represents the variant proportion of the indicator explained by the factor. As the index was constructed on a single scale, factorial analysis was re-estimated with the constituted indicators to obtain the factorial charges and therefore more exact weights.⁶

Table 6: Weights used to calculate the index

	Loads	Weight
Contract	0.942	0.205
Social security	0.974	0.220
Christmas bonus	0.974	0.220
Vacations	0.989	0.226
Trade Union	0.744	0.128
	Exp Var.	4.317

Source: Own elaboration based on the ENOE 2018, first trimester.

Precariousness index

Results of the subordinate workers' employment precariousness index are shown in Table 7. The range of values go from 0 to 100, the bigger the value, the greater the precariousness. The first remarkable result is that the standard deviation of the index is very high, indicating there is great data dispersion. Approximately 68 per cent of the data of the index range between 9.93 and 91.4. The average value of the precariousness index is significantly lower for women than for men (with a level of confidence of 95 per cent). Given that women tend to work more in self-employed and non-remunerated employment and are segregated in lower jobs (Oliveira and Ariza, 2000), this is a surprising result. Nevertheless, this result is consistent with those found in other studies of precariousness in Mexico (Oliveira, 2006; Román, 2013).

⁵ Alpha Cronbach decreases to 0.811 when income below the poverty line and excess of working hours variables are included, and to 0.85 when only excess of working hours is included.

⁶ When comparing factorial loads of tables 5 and 6, a difference of only in decimals can be perceived.

Table 7: Subordinate workers' employment precariousness index

	Median	Standard Dev.
Total	50.67	40.74
Men	52.50	40.91
Women	47.65	40.28

Source: Own elaboration based on the ENOE 2018, first trimester.

In Table 8, results by age group are shown. In accordance with the descriptive tables formerly presented, it can be observed that young people face greater employment precariousness. The younger they are, the greater the precariousness. When comparing the value of the index by sex, it is evident that men between the ages of 15 and 34 have a significantly greater index value than women. Nevertheless, women older than 55 face greater precariousness than men. The difference in this data can be due to a lower formal educational level of older women. In accordance with INEGI (2017), educational backwardness (identified as those who have not completed basic formal education), is greater for women older than 50 years than for men of the same age. On the other hand, women younger than 30 years have a lesser educational backwardness than men the same age.⁷

Table 8: Precariousness index by age group

Age group	Total		Men		Women	
	Median	Standard Dev.	Median	Standard Dev.	Median	Standard Dev.
14 to 19	80.34	32.10	82.32	30.77	75.87	34.50
20 to 24	56.53	39.49	59.18	39.60	51.82	38.86
25 to 29	47.53	39.26	50.79	39.79	42.19	37.78
30 to 34	46.08	39.92	48.44	40.46	42.49	38.81
35 to 39	47.05	40.70	47.71	40.67	46.05	40.73
40 to 44	46.17	40.32	47.51	40.58	44.26	39.86
45 to 49	45.03	40.67	45.04	40.65	45.02	40.68
50 to 54	44.66	40.85	45.00	40.78	44.14	40.94
55 to 59	47.45	40.86	46.58	40.60	49.09	41.28
60 to 64	57.00	41.49	56.68	41.52	57.65	41.42
65 to 69	64.76	40.15	64.33	39.88	65.71	40.72
70 to 74	71.88	37.23	71.79	37.22	72.11	37.26
75 to 79	73.72	35.31	71.81	36.14	79.73	31.78
Not young	47.31	40.74	48.21	40.85	45.88	40.53
Young	57.30	39.92	60.55	39.80	51.46	39.47
Total	50.67	40.74	48.49	41.03	43.32	36.98

Source: Own elaboration based on ENOE 2018, first trimester.

⁷ There is not a significant difference between men and women for this indicator.

Table 9 shows employment precariousness by level of formal education. It is not surprising that those with a basic educational level face on average a greater precariousness than those with a higher degree. Another interesting pattern emerges from these results. The average difference between the index of young and adults increases substantially for those who studied at least secondary level.

Table 9: Precariousness index by education level

	None	Primary	Secondary	High School	Normal or Tech.	Professional	Postgraduate
14 to 19	93.85	83.47	83.47	73.70	71.61	65.33	n.a.
20 to 24	81.63	62.26	62.26	53.09	47.21	46.36	25.35
25 to 29	86.05	59.16	59.16	44.61	36.11	32.92	23.73
30 to 34	86.84	58.39	58.39	42.33	33.18	24.73	18.57
35 to 39	86.99	56.63	56.63	38.35	33.20	22.00	18.61
40 to 44	78.50	52.98	52.98	36.15	31.13	21.28	15.70
45 to 49	81.14	50.39	50.39	34.43	27.77	20.88	13.04
50 to 54	83.66	48.68	48.68	35.27	25.02	19.03	14.17
55 to 59	83.91	47.82	47.82	37.35	28.11	22.79	14.12
60 to 6	87.20	57.10	57.10	45.54	30.51	25.08	8.95
65 to 69	85.31	59.44	59.44	42.80	43.88	32.17	12.72
70 to 74	90.93	61.09	61.09	62.58	49.46	26.10	17.11
75 and more	89.66	49.91	49.91	93.73	49.57	39.52	10.53
Not young	84.39	73.28	53.77	38.19	30.09	22.39	15.58
Young	86.40	81.45	67.26	54.69	43.38	38.54	23.83

Source: Own elaboration based on ENOE 2018, first trimester.

These results suggest that the majority of those without complete secondary education (basic education) only have access to high levels of precarious employment, regardless of their age. On the other hand, a greater proportion of young people that have concluded a basic level of education or higher do not have the same quality of employment than their older counterparts. Therefore, young people with complete basic education are those who are not able to close the precariousness gap with adults. This does not mean that precariousness of the less educated should not be attended to, but the opposite is true.

Regression results

At this point we know that young people experience greater employment precariousness than their adult counterparts. The greater the educational level, the greater the gap between them. We carried out a linear regression to identify how years of education and experience influence precariousness of young people compared with adults. In the first model, a dummy variable is included for young people. In this way, it is assumed that young people have only a different intercept than adults. In a second model, we evaluated if the effect of having one year of education or experience is different in young people and adults. This is done including an interaction effect between the variable young, with education and experience variables. In the third model, a variable of interaction between variable women and the following variables: young, education, experience, and marital status is included. In this way, we enquire whether these explicative variables influence women in a unique way.

Table 10 shows descriptive statistics of the more important explicative variables included in the regression. It is noteworthy that subordinated women have a higher-level of education than men. On the other hand, there is a greater proportion of subordinated married men, while there is a higher percentage of subordinated single, separated or widow women. There is also a smaller proportion of women than men.

Table 10: Statistics of variables included in the regression

	Total		Men		Women	
	Median	Stand Dev.	Median	Stand Dev.	Median	Stand Dev.
Education	10.54	4.21	10.18	4.15	11.13	4.22
Experience	20.61	14.28	20.91	14.49	20.13	13.91
Dummy Variables	Percentage		Percentage		Percentage	
Single	32.76%		29.40%		38.29%	
Married	58.66%		65.85%		46.87%	
Separated	6.59%		3.86%		11.08%	
Widow	1.97%		0.88%		3.76%	
Young	33.62%		34.73%		31.79%	
Women	37.84%					

Source: Own elaboration based on ENOE 2018, primer trimestre.

In Table 11 the results of the regression are shown. In the three models the null hypothesis that all coefficients are equal to zero is rejected, since the probability of $F > 0$ is equal to zero. Square R , which is the proportion of the variance of the dependable variable that can be explained by the independent variables of the three models, is close to 0.54. On the other hand, all regression coefficients are significant in 0.01 per cent.

We must remember that in the first model it is assumed that the level of precariousness is different in young people but the returns of education and experience are the same than in adults. From these results it can be observed that, if the rest of variables remain constant, each year of formal education reduces 2.2 units the index of precariousness. Each year of experience also reduced employment precariousness. By including experience in a quadratic form, we are assuming that this variable reduces precariousness in a decreasing way, until it reaches a minimum, at 40 years of experience in this case.

Results also indicate that, given the same value of the other variables, young people have on average a smaller level of precariousness than adults, although this difference is not so pronounced, being only 0.5 of units. This is counter intuitive, given that in absolute levels young people have on average a greater level of precariousness. Therefore, this must be due to the value of the other independent variables.

When the rest of variables is constant, women also have on average a slightly lower level of precariousness than men. Civil status of subordinates also influences the level of precariousness. On average, separated are those with a lower level of precariousness, followed by married, widows, while singles are those with more precariousness. This could be due to the fact that single people can accept more precarious employment if other benefits, such as a better income, are offered to them.

In the second model, it is evaluated if education and experience have different returns in young and adults. Results indicate that each year of education, keeping all other variables constant, reduces precariousness on average 0.6 units in young people more than in adults. This is, each additional education unit reduces the average value of the employment precariousness in 2.8 units in young people and 2.2 in adults. Each year of experience also significantly reduces the precariousness in young people compared to adults. In this case we are assuming that not only experience has decreasing returns, but an adult's return has a different behaviour than young people's return. By controlling returns on education and experience (and the other independent variables), young people have an average index

value of 20 units greater than adults. Then, young people have a greater level of precariousness when beginning their life as employees, and for them, each year of experience and education is more important to reduce that precariousness.

Tabla 11: Linear regression results

	Modelo 1			Modelo 2			Modelo 3		
	Coef.	Std. Err.	t	Coef.	Std. Err.	t	Coef.	Std. Err.	t
Education	-2.197	0.002	-1461.13	-2.080	0.002	-1249.24	-1.894	0.002	-965.65
Experience	-0.800	0.002	-496.95	-0.380	0.002	-194.07	-0.363	0.002	-154.80
Exper^2	0.010	0.000	413.66	0.004	0.000	143.81	0.005	0.000	132.33
Women	-1.774	0.011	-167.98	-1.674	0.011	-158.70	4.272	0.071	60.54
Married	-2.690	0.012	-230.45	-1.828	0.012	-154.77	-3.082	0.016	-196.72
Separated	-2.468	0.021	-118.99	-1.767	0.021	-85.15	-0.954	0.033	-28.97
Widow	-2.503	0.036	-70.09	-1.351	0.036	-37.80	-1.558	0.066	-23.49
Young	-0.507	0.019	-27.11	19.956	0.057	350.86	19.934	0.059	340.01
Rural	2.340	0.010	237.45	2.294	0.010	233.46	2.301	0.010	234.24
Est. Small	-30.985	0.014	-2219.96	-30.757	0.014	-2207.84	-30.721	0.014	-2206.90
Est. Med.	-44.689	0.015	-2893.37	-44.344	0.015	-2875.04	-44.322	0.015	-2875.24
Est. Big	-51.441	0.017	-3071.35	-51.088	0.017	-3055.18	-51.115	0.017	-3058.10
Est. Govern	-44.677	0.022	-2016.67	-44.443	0.022	-2010.71	-44.347	0.022	-2007.72
Est. Other	14.382	0.022	657.22	14.519	0.022	664.95	13.557	0.023	599.07
Construct.	21.716	0.039	562.20	21.815	0.039	566.24	21.863	0.039	567.57
Manufact.	4.603	0.036	127.21	4.630	0.036	128.30	4.187	0.036	115.81
Commerce	10.094	0.037	271.09	10.071	0.037	271.19	9.644	0.037	259.37
Service	11.163	0.035	316.61	11.176	0.035	317.81	10.779	0.035	306.12
Agriculture	18.624	0.039	474.53	18.761	0.039	479.22	18.783	0.039	479.83
Young*educ				-0.594	0.003	-185.68	-0.558	0.003	-172.86
Young*exper				-2.266	0.006	-373.920	-2.286	0.006	-376.84
Young* exper^2				0.082	0.000	227.370	0.085	0.000	234.91
Women*educ							-0.513	0.003	-179.55
Women*exper							-0.034	0.003	-10.03
Wom*exper^2							-0.001	0.000	-22.37
Women*sep							-1.097	0.042	-25.85
Womenj*marr							3.001	0.024	127.40
Women* widow							0.703	0.079	8.90
Wom*young							-1.237	0.039	-31.73
Constant	96.223	0.050	1915.220	87.680	0.054	1612.540	86.149	0.060	1435.87
Prob > F				0					0
R squared				0.540			0.542		0.543
Adj R-squared				0.534			0.542		0.543

Fuente: elaboración propia con base en la ENOE 2018, primer trimestre.

In the third model, the effects of sex on employment precariousness are explored. Each year of education and experience is more important for women than for men to reduce their level of precariousness. Once the returns to education and experience by sex are controlled, given the rest of variables, women have on average a slightly greater precariousness than men. The lower level of precariousness observed in the former regressions is therefore due to higher returns in education and experience. Maintaining the rest of variables constant, married women have on average a 3-point higher index than married men, widows 0.7, while it is 1.1 lower in separated women. This can be explained by gender roles, where men are the main providers in a household. It is, therefore, a married man's responsibility to maintain a steady job. On the other hand, young women have on average a lower precariousness level than young men.

Employment precariousness will also depend on the sector where the workers are incorporated. Employees who work in construction and agriculture have a greater propensity to have highly precarious jobs, compared with those working in the "others", services, manufacturing, and commerce sectors. On the other hand, the greater the size of the employment's establishment, the less probability of having a highly precarious job. Surprisingly, public service personnel are not those with a minor probability of having less precariousness, but those in big companies. Those who work in a rural community are more prone to have a precarious job.

CONCLUSIONS

The objective of this study was to find out if young people are prone to face more precarious employment than adults. The first step was to build an index of employment precariousness. With this goal in mind, a factor analysis was run, and it was determined that since they are not correlated with other precariousness variables, a dummy variable that identifies subordinated subjects with an income below the poverty line, and a dummy variable that identifies subordinate subjects working excess hours (nor their gaps) should not be included in the index. In the descriptive and comparative tables of the precariousness variables by age group, a different behaviour of these variables is already apparent.

Besides the statistical motif, there is an analytic one to separate the variable identifying income below poverty line from the analysis that can give rise to future research. The possibility that subordinates may favour employment with a higher income (or above the poverty line), even though this might be a precarious one, must be studied. This is, to what extent

workers must decide between lower levels of precariousness or higher income. An example of this could be subordinates having different degrees of precariousness in accordance with their marital status. By having fewer familiar obligations, single people can prefer a higher income at the expense of an extremely high precarious employment.

On the other hand, it is evident that subordinate young people have on average a higher degree of employment precariousness than adults, but this applies only to those that have an educational degree higher than secondary level, this is, they have completed basic education. It can be argued that it is natural that young people have more precarious jobs than adults, since they are at the beginning of their career. Nevertheless, firstly, it is a human right to have a stable job with all benefits granted by law. As such, the Sustainable Development Goals have as an objective “To protect labour rights and to promote a safe and free of risks working environment for all workers, including migrants, in particular, women migrants and people with precarious employment”. In the second place, precarious employment prevents young people from having a professional career and planning their future life, marriage, buying a house, etc. In the third place, precarious work entails excessive costs in terms of stress and health, especially in young people without familiar support. Therefore, it is important to implement laws and policies that prevent employers from offering precarious employment.

Furthermore, it is not known if this is a long-term tendency in which young people will not have access to better jobs in the future. Thus, it is a pending task for future research to inquire about the behavioural pattern of employment precariousness of young people in the last decades. It has been assumed that employment precariousness has increased since the 80s, and that young people are those who have been more affected by this increase.

In the same way, the conclusion that women are those who face lower precariousness levels than men is consistent with several studies carried out in Mexico. In this paper we propose that this is due to their different access to formal education and experience. To deepen the study of the difference between precariousness in men and women is a pending task.

Finally, several more variables of employment precariousness could be incorporated into an ad hoc study to measure precariousness. It is important to include an indicator to measure how the relationship with the employer is defined (this is, if subordinates work in an outsourcing company), since the workers' rights depend upon it. On the other hand, it would be

fundamental to have information about the subjectivities of workers, this is, about the uncertainty and risk they perceive.

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APPENDIX

Table A1: Years of education by age group

Age	Average	Std. Dev.
14 to 19 years	9.53	3.26
20 to 24 years	11.70	4.26
25 to 29 years	11.85	4.92
30 to 34 years	11.33	5.28
35 to 39 years	10.61	5.10
40 to 44 years	10.20	5.58
45 to 49 years	9.95	5.43
50 to 54 years	9.64	6.22
55 to 59 years	9.06	6.62
60 to 64 years	8.18	6.42
65 to 69 years	7.06	6.52
70 to 74 years	5.95	5.65
75 years or more	4.75	7.36