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Evolution and factors associated with participation in Mexico's labor force, 1960-2020

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Abstract

This article examines participation in Mexico's labor force from 1960 to 2020, in which female participation increased from 14.3 to 47.6%, and male participation dropped from 92.4 to 84.5%. The increase in female participation was due to the rise in years of schooling, migration from rural to urban areas, a drop in the marriage rate, an increase in the number of female heads of household and the increased importance of the tertiary sector. The reduction in male participation resulted from an increase in years of schooling, a lower percentage of male heads of household and a decrease in the marriage rate.

Keywords: labor force participation; nonlinear breakdowns; schooling; gender roles; gender wage gap.

1. INTRODUCTION

From the 1960s to the present, Mexican society and its economy have changed substantially. Mexico went from having less than 35 million inhabitants in 1960 to more than 126 million in 2020. In 1960, women in their 40s had an average of 4.9 children, while in 2020, they had 2.3 children. In addition, GDP per capita increased from MXN\$54,422.1 in 1960 to MXN\$177,159.8 in 2020 and during this same period, the percentage of total employment pertaining to the primary sector decreased from 28.5 to 9.9% (INEGI, 2015 and 2021).¹

Focusing on the period 1960-2020 and the population aged 18 to 65, this study addresses the evolution and factors associated with the labor participation of men and women in Mexico. Specifically, the objective is to identify the variables that contributed most to changes in labor force participation rates during this time.

Examining the factors that influence the size of the labor force is important because of their significant economic and social impact. Individually, labor market participation and the performance of individuals in the labor market determine in part their level of wealth and the type of goods they can purchase and consume. Overall, labor force participation determines not only the size of the labor force but also the quantity and quality of skills available to employers. Thus, labor force participation is linked to the size of the economy, income distribution, the gender wage gap, nuptiality and fertility issues, and intra-household decision-making, among other factors (Killingsworth and Heckman, 1986).

Labor market participation depends on both supply and demand variables. On the supply side, there are the characteristics of individuals such as age, human capital levels, preferences, reserve wage and demographic composition of the household. On the demand side, they include elements such as the sectoral composition of employment, the technology used by companies, the costs of production factors and employers' preferences.

When analyzing participation in the labor market, various theories suggest that there will be differences in the levels of belonging depending on the gender of the person. According to neoclassical theory, in two-parent households, adults may assume the role of provider or caregiver (Gronau, 1977). Becker (1991) argues that in these households, the most efficient way to allocate household and labor market tasks is through comparative advantages based on differences in the abilities and preferences of men and women to carry out each of these activities and the returns they obtain for performing them. Therefore, the fact that productive skills are valued differently in the labor market, according to gender, is a factor that will affect labor supply decisions. Furthermore, the theory of segmentation or dual markets states that women tend to be excluded from primary jobs characterized by higher wages, in which it is possible to move up and develop a professional career, and instead are concentrated in secondary jobs where remuneration is low and low-skilled and unstable workers are employed (Doeringer and Piore, 1971; Reich et al., 1973). Given this scenario, it would be expected that some women would choose not to participate in the labor market. Finally, the gender role perspective argues that gender roles negatively affect women from the point of view of equal opportunities. The identification of the role of women as that of mothers and the pressure of having to carry out household chores and care for children are factors that overshadow initiatives that are not aimed at fulfilling these functions and lead many women to choose trades or professions that allow them to reconcile both obligations, instead of developing their natural aptitudes (Castaño, 1999; Fortin, 2005).

This study contributes to the empirical literature on Mexico in two ways. First, because it analyzes changes in the labor participation of men and women over the long term, which allows us to identify the supply and demand variables that have most influenced participation in the workforce at different stages of the country's development. Second, the changes in these rates over time are broken down, making it possible to quantify the relative importance of each factor.

The article is structured as follows: after the introduction, the second section presents a literature review on the subject. The third section describes the evolution of labor participation; the fourth section develops the sources of information and presents descriptive statistics. The fifth section shows the methodology applied. The sixth section presents the results, and the seventh section finishes with the conclusions.

2. LITERATURE REVIEW

Several studies have analyzed the factors influencing labor participation in Mexico. Elu (1977) attributes the increase in female participation during the 1960s to the growth of the tertiary sector and the incorporation of a large number of women who migrated from rural to urban areas. Oliveira (1989) notes that in the 1970s and 1980s, women participated to a greater extent in diversified urban labor markets, which employed labor of different ages and qualifications.

According to Garcia (2001), Mexico's economic restructuring during the 1980s encouraged the hiring of cheap and flexible labor, such as women, and increased their levels of labor participation. Dell (2005) shows that the entry into force of the North American Free Trade Agreement (NAFTA) increased women's participation rates by generating increased employment opportunities, particularly in labor-intensive export industries. This increase did not occur because women displaced men from their jobs but because new jobs were created. In addition, the contraction of income and real wages made it necessary for additional household members to enter the labor market, where a significant number of women went out in search of work despite their domestic commitments (Hernández-Licona, 1997).

Studies using data from the 1990s onwards found that the composition of the local economy is an important determining factor in female labor participation, where a sizeable tertiary sector increases employment opportunities (Pagán and Sánchez, 2000). Likewise, the lack of job opportunities in industries such as manufacturing and hospitality, which tend to be labor-intensive for women, limit their incorporation into the labor market (Garduño-Rivera, 2013).

Duval and Orraca (2011) state that labor participation throughout the life cycle follows an inverted U profile. In the case of low-skilled women, the probability of their participation increases during periods of severe recession. This effect, commonly called the "added worker" effect, implies that female household caregivers enter the labor market during periods of economic contraction. Nevertheless, empirical evidence suggests that, in Mexico, women are becoming increasingly dependent on the labor market. Arceo-Gómez and Campos-Vázquez (2010) observe that during the 1990s, female labor supply elasticities declined considerably. Additionally, Puigvert and Juárez-Torres (2019) point out that women's participation became insensitive to the economic cycle in the first two decades of the 21st century.

Regarding supply factors, labor participation is positively associated with schooling, age, head of household, potential wage, and partner's wage, while marriage and children have a negative impact in the case of women and a positive impact in the case of men (Anderson and Dimon, 1998; Garduño-Rivera, 2013; Pagán and Sánchez, 2000). Among women of different educational levels, the likelihood of participation is always higher for single women than married women, which supports the hypothesis of gender role persistence (Félix-Verduzco and Inzunza-Mejía, 2019). This suggests that married life leads to notable differences per gender in the time allocated to the labor market and household activities, where domestic work is an entry barrier that partly explains the slow incorporation of women into the labor market. This is validated by Sánchez et al. (2015), who observe that female participation is conditioned by the time dedicated to domestic work. Conversely, the presence of other women in the household who can care for children increases women's probability of working (Wong and Levine, 1992). This can be interpreted as a reduction in the costs associated with childcare and suggests that providing low-cost childcare services would increase levels of female participation. Lopez-Acevedo et al. (2021) find that, in effect, access to childcare would increase the likelihood of women working.

Since 2000, the factors that contributed to the increase in female participation are the increase in schooling levels and the fact that a larger share of women are between 36 and 65 years of age (López-Acevedo et al., 2021; Puigvert and Juárez-Torres, 2019).² In the case of men, their participation levels remained relatively constant during the period 1987-2009 (Duval and Orraca, 2011); however, in the last 15 years, they have decreased, mainly among those who are low or highly skilled, and which is partly explained by the increase in the participation rate of women (Puigvert and Juárez-Torres, 2019).

Finally, the participation gap by gender tends to increase in locations where the agricultural sector plays a predominant role, decreases in areas specialized in the industrial sector, and tends to be smaller in places where the service sector prevails (Aguayo and Lamelas, 2011). Furthermore, the gap is wide among the unskilled population and narrows as the schooling level of individuals increases (Félix-Verduzco and Inzunza-Mejía, 2019).

3. EVOLUTION OF LABOR PARTICIPATION IN MEXICO

Table 1 presents information on the evolution of the labor participation rate and the monthly wage in Mexico. Examining wage changes over time is relevant because this variable considerably influences people's decisions on whether or not to enter the labor market. If we assume that the reserve wage is the wage at which people are indifferent about whether or not to work, and we use the average wage as an indicator of the market wage, we would expect a higher average wage to increase the probability that a person would work and, therefore, increase the labor participation rate.

Table 1. Labor participation rate and monthly wage, 1960-2020 (% and pesos)

<i>Year</i>	<i>Labor participation (%)</i>			<i>Monthly wage (MXN\$)</i>			
	<i>Total</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>	<i>Women</i>	<i>Men</i>	<i>Household</i>
1960	52.6	14.3	92.4	5 859.8	5 362.7	5 947.2	--
1970	52.2	19.4	87.8	--	--	--	--
1990	53.1	24.2	84.3	8 287.0	7 325.7	8 605.0	12 184.0
2000	60.3	37.4	85.6	7 132.6	6 248.2	7 561.8	10 951.2
2010	63.3	42.3	86.4	7 921.1	7 087.7	8 395.3	12 346.2
2020	65.3	47.6	84.5	7 645.6	6 915.2	8 101.4	12 117.5

Note: Figures are calculated based on the population aged 18 to 65. Monthly salary in pesos at March 2020.

Source: Compiled by the authors based on the 1960-2020 censuses.

Overall, the labor participation rate increased from 52.6% to 65.3% between 1960 and 2020. In the case of women, there was a substantial increase in their level of participation, which stood at 14.3% in 1960 and 47.6% in 2020. On the other hand, men's participation in the Economically Active Population (EAP) decreased from 92.4% in 1960 to 84.5% in 2020.

When analyzing the monthly salary, it is observed that, in the case of women, it increased 28.9%, from MXN\$5,362.7 in 1960 to MXN\$6,915.2 in 2020; while for men, the increase was 36.2%, from MXN\$5,947.2 to MXN\$8,101.4. This implies that the gross gender salary gap increased from 10.9% in 1960 to 17.2% in 2020. In principle, this may have different effects on participation levels. On the one hand, in the case of married or cohabiting women, a higher relative salary for men may lead women to specialize in household activities and men to specialize in the labor market. On the other hand, women's lower relative wages may lead to their being more in demand by employers due to the lower costs associated with hiring them.

Table 2 shows important differences in the levels of labor participation of women with and without children according to their marital status. The group that participates the most in the labor market is women with children who are not married. Conversely, the lowest levels of participation are found among married women with children, where their participation in the EAP was 4.8% in 1960 and 38.2% in 2020. This can be explained by the fact that when there is a partner who commonly serves as the economic breadwinner of the household, women devote themselves to a greater extent to household activities. Living with a partner and having children affect both the supply and demand for women's employment since, on the one hand, they increase the value of household activities and, on the other hand, they reduce the demand from employers in cases where they discriminate against married women or women with small children.

Table 2. Labor participation rate of women without/with children by marital status, 1960-2020 (%)

<i>Year</i>	<i>Without children</i>		<i>With children</i>	
	<i>Total</i>	<i>Women</i>	<i>Total</i>	<i>Women</i>
1960	32.07	12.76	35.01	4.78
1970	43.24	19.32	34.53	9.53
1990	44.78	24.95	43.40	14.25
2000	54.38	38.56	58.22	27.08
2010	52.14	45.68	63.09	32.88
2020	52.99	55.62	67.06	38.16

Notes: Figures calculated based on the population aged 18 to 65. Married includes women living in common-law unions.

Source: Compiled by the authors based on the 1960-2020 census.

4. DATA AND DESCRIPTIVE STATISTICS

Data

The study uses data from Mexico's 1960, 1970, 1990, 2000, 2010 and 2020 censuses. Microdata from the public sample of the different editions of the censuses were used. Information from 1960-2010 was obtained from the Minnesota Population Center (2020), while data from the 2020 Population and Housing Census were obtained from the National Institute of Statistics and Geography (INEGI). Individuals were classified as belonging to the labor force if they belonged to the EAP. The analysis focused on men and women aged 18 to 65 years old.

Descriptive statistics

Table 3 presents the averages of different variables for 1960, 1990 and 2020. In the case of women, between 1960 and 2020, the mean age of the population increased (from 34.3 to 38.5 years), the percentage of married women decreased (from 69.4 to 61.3%) and the percentage reporting as being the head of household increased (from 6.6 to 21.4%). There is also a drop in the average number of children, from 3.4 in 1960 to 2.1 in 2020. In addition, there is an increase in the levels of human capital where between 1960 and 2020, the percentage of women who can read and write increased from 62.1% to 96.2% and years of schooling increased from 2.4 to 10.2 years.

Table 3. Descriptive statistics, 1960, 1990 and 2020

Variable	Women			Men		
	1960	1990	2020	1960	1990	2020
Age	34.25	34.28	38.52	34.73	34.40	38.08
Married (%)	69.42	68.50	61.33	66.99	68.98	63.30
Head of household (%)	6.59	10.74	21.40	67.11	63.14	54.26
Child of the head of household (%)	17.83	21.59	23.69	25.02	26.51	28.42
Number of children	3.44	3.26	2.05	--	--	--
Can read and write (%)	62.13	85.55	96.23	71.98	91.04	97.15
Years of schooling	2.39	5.89	10.16	2.78	6.77	10.28
Unemployed (%)	1.43	1.86	2.24	2.12	2.58	3.99
Monthly salary						
Basic	4 121.1	5 596.6	4 149.2	4 997.2	6 637.3	5 807.1
Average	9 323.5	7 426.7	5 568.9	13 729.5	8 884.3	7 293.6
Higher	12 611.5	10 817.8	10 526.7	21 632.6	16 971.7	12 439.9
Hours worked	--	40.68	39.35	--	45.56	46.76
Hourly Wage						
Basic	--	37.98	32.93	--	38.89	33.48
Average	--	50.19	40.47	--	52.12	40.48
Higher	--	78.57	73.83	--	97.96	75.31
Employment sector (%)						
Primary	5.68	2.86	2.90	33.76	27.00	14.21
Secondary	20.06	21.63	16.46	31.24	31.67	30.58
Tertiary	74.26	75.51	80.63	35.00	41.33	55.22
Rural (%)	60.20	26.12	18.76	57.45	24.62	19.07
Remarks	116 390	2 085 490	4 521 468	111 971	1 930 244	4 131 579

Notes: figures calculated based on the population aged 18 to 65. Monthly salary and hourly wage in pesos as of March 2020. Level of schooling: basic (0 to 6 years), middle school (7 to 12 years) and high school (13 or more years). Monthly salary, hours worked, hourly wage and employment sector calculated based on the employed population.

Source: Compiled by the authors based on the 1960, 1990 and 2020 censuses.

According to the neoclassical work-leisure choice model, the price of leisure or not participating in the labor market is wages. On the other hand, the schooling model is based on the idea that education increases the productivity of workers and that this increase in productivity increases wages (Mincer, 1958). Likewise, the labor market signaling model argues that, while education need not increase productivity, attaining educational degrees signals employers about a worker's potential skills and assigns appropriate workers to productive and higher-paying jobs (Spence, 1973). In both cases,

higher education will lead to higher wages. Therefore, the above suggests that one of the factors explaining the increase in the female participation rate is the increase in years of schooling.

In the case of men, between 1960 and 2020, the median age of the population increased (from 34.7 to 38.1 years) and the percentage who were married decreased (from 67.0 to 63.3%), as did the percentage who reported being the head of the household (from 67.1 to 54.3%). The variables related to human capital show a notable improvement. While in 1960, 72% could read and write and had 2.8 years of education, in 2020, 97.2% could read and write and had 10.3 years of schooling. Regarding labor income, from 1960 to 2020, it increased by 16.2% among the population with basic education, while among workers with secondary and higher education, it decreased by 46.9% and 42.5%, respectively.

Finally, during the last six decades, in the case of both men and women, there has been a decrease in the percentage of workers employed in the primary and secondary sectors and a significant increase in those working in the tertiary sector. Mexico's transition from a primarily rural country to a highly urban one is also noteworthy.

5. METHODOLOGY

To examine how different variables are associated with the probability of participating in the labor market, we estimate a series of probit models, defined as follows:

$$\Pr(y_i = 1 | \mathbf{x}_i) = \Phi(\mathbf{x}_i \boldsymbol{\beta}) \quad (1)$$

Where $\Phi(\cdot)$ represents the cumulative distribution function for the standard normal distribution and the dependent variable y_i takes the value of 1 if individual i belongs to the EAP and 0 if they do not. Vector $\mathbf{x}_i$ is composed of independent variables associated with labor supply and demand at the individual and state levels, influencing the probability of belonging to the labor force. These include age, age squared, years of schooling and income of other household members, together with a series of dichotomous variables that denote whether the person has children, is the head of the household, marital status, can read and write, attends school, resides in a rural locality, and an interaction between the variables of having children and being married. In addition, state controls are introduced that include the average wage of the entity, the ratio of the average wage of men to the average wage of women, the percentage of workers employed in the secondary sector and the percentage employed in the tertiary sector. Standard errors are clustered at the state level.

The models are estimated separately for men and women for 1960, 1990 and 2020. Initially, the models are calculated for the three periods, where some variables are excluded because they are not included in the 1960 census. Subsequently, models are estimated for 1990 and 2020, with a larger number of control variables. To facilitate the interpretation of the results, we present the marginal effects of the probit models estimated based on equation (1), where the impact for x_k is determined by:

$$\frac{\partial \Pr(\mathbf{x}_i)}{\partial x_k} = \frac{\partial \Phi(\mathbf{x}_i \boldsymbol{\beta})}{\partial x_k} = \phi(\mathbf{x}_i \boldsymbol{\beta}) \times \beta_k \quad (2)$$

where $\Phi(\cdot)$ represents the probability density function for the standard normal distribution and β_k is the coefficient associated with variable x_k . The marginal effects capture the effects of variations in the control variable x_k on the probability that event y_i occurs.

To better understand the observable factors that explain the changes in the labor participation rate, we break down the changes in the labor participation rate across periods. Since the dependent variable is binary, nonlinear decompositions based on Fairlie (1999 and 2005) are performed. If $\Phi(\mathbf{x}_i \boldsymbol{\beta})$ represents the nonlinear equation based on the *probit* model, then the decomposition is defined as:

$$\begin{aligned} \bar{y}^t - \bar{y}^{t-1} = & \left[\sum_{i=1}^{N^t} \frac{\Phi(\mathbf{x}_i^t \hat{\boldsymbol{\beta}}^t)}{N^t} - \sum_{i=1}^{N^{t-1}} \frac{\Phi(\mathbf{x}_i^{t-1} \hat{\boldsymbol{\beta}}^t)}{N^{t-1}} \right] \\ & + \left[\sum_{i=1}^{N^{t-1}} \frac{\Phi(\mathbf{x}_i^{t-1} \hat{\boldsymbol{\beta}}^t)}{N^{t-1}} - \sum_{i=1}^{N^{t-1}} \frac{\Phi(\mathbf{x}_i^{t-1} \hat{\boldsymbol{\beta}}^{t-1})}{N^{t-1}} \right] \end{aligned} \quad (3)$$

Where $\bar{y}^t$ and $\bar{y}^{t-1}$ represent the labor participation rate in the final (t) and initial ($t - 1$) period, respectively; $\hat{\boldsymbol{\beta}}^t$ and $\hat{\boldsymbol{\beta}}^{t-1}$ are the estimated coefficients obtained from equation (1); $\mathbf{x}_i^t$ and $\mathbf{x}_i^{t-1}$ represent the observed characteristics of each group and N is the sample size.

The first component on the right-hand side of equation (3) captures the proportion of the change in the participation rate resulting from group differences in the observed distributions of $\mathbf{x}_i$. This term constitutes the explained component or endowment effect. The second component on the right-hand side captures differences in the coefficients or returns to observable characteristics. This term comprises the unexplained component or coefficient effect and reflects differences between the two groups in unmeasured or unobserved factors.

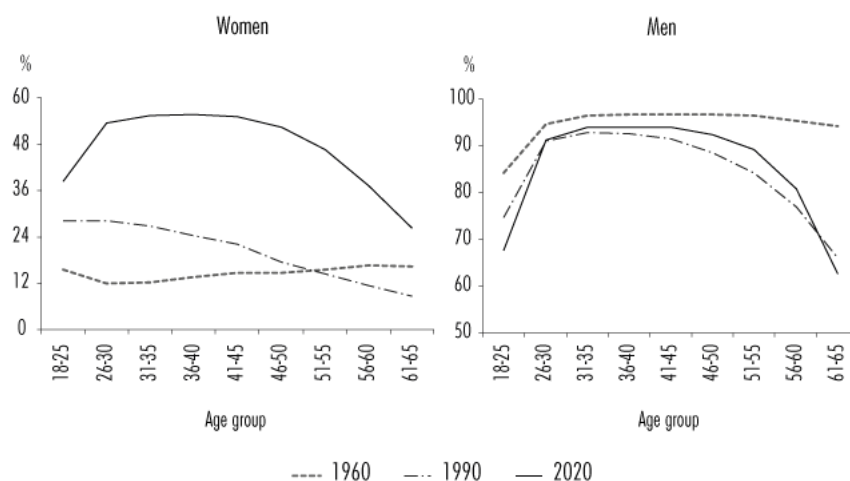
A characteristic of the decompositions based on the methodology proposed by Blinder (1973) and Oaxaca (1973) is that they are subject to the index number problem, which refers to the fact that the results depend on the reference group (or, in this case, year) used and which is usually assumed to reflect the true wage structure. In the empirical analysis, the coefficients of year t are used to make comparisons based on current characteristics of the Mexican labor market and not those prevailing in year $t - 1$. Calculations made following the proposal of Oaxaca and Ransom (1994), which is equivalent to using both groups or the coefficients obtained using a pooled regression that includes observations from t and $t - 1$, were also carried out and produced similar results.

6. RESULTS

Graphical analysis

Figure 1 presents the labor participation rate divided by gender and age groups for 1960, 1990 and 2020. In the case of women, with respect to 1960 and 1990, for all age groups, participation levels were substantially higher in 2020. In 1960, among the 18 to 25 and 26 to 30 age groups, labor participation declined from 15.5 to 11.9%, suggesting the exit from the labor market of many women once they married and had children. However, as they grew older and their children grew older, a higher level of EAP membership was observed. In 1990, the highest levels of participation were found among young women, at 28.3% for those between 18 and 25 years of age, a figure that gradually decreased to 8.6% for the 61 to 65 age group. In 2020, female participation throughout the life cycle presented a pattern similar to that of men, following an inverted U-shape, where the highest levels of participation were observed between 36 and 45 years of age. This is due not only to the higher levels of schooling of women but also to the drop in marriage and fertility rates. For example, in 1960, the 30-31 age group had an average of 3.8 children, which dropped to 1.6 children in 2020. For men, for all age groups, the highest levels of participation were observed in 1960. The most significant change was among 18 to 25 year olds, who in 1960 had an EAP participation rate of 84.4%, which dropped to 67.8% in 2020. The drop was partly due to the more significant number of young people aged between 18 and 25 years in school, with their school attendance rate increasing from 14.6% in 1970 to 29.4% in 2020. Significant differences are also observed from the age of 46 onwards.

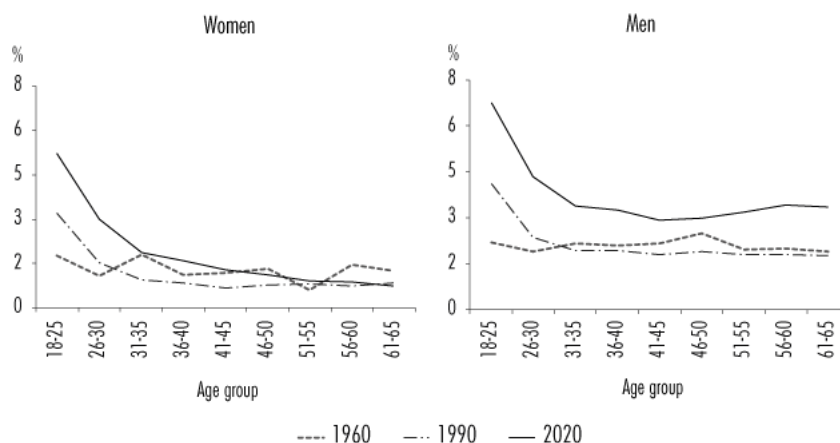
Figure 1. Labor force participation by age groups, 1960, 1990 and 2020 (%)



Notes: figures calculated based on the population aged 18 to 65.
Source: Compiled by the authors based on the 1960, 1990 and 2020 censuses.

The lower levels of labor participation among older men emerge for different reasons. While in 1970, 7.6% of men aged 51-65 reported being inactive for various reasons, in 2010, this figure rose to 19.8%, including 9.5% who reported having a pension or living on their revenue. This suggests that the higher number of pensioners may explain part of the discrepancies in participation levels among older men. According to Aguila (2014), the reduction in the participation levels of men aged 60 to 64 is partly due to the structure of the Mexican social security system, which generates incentives for people to retire before age 65. However, in 2010, only 30.5% of this population received retirement or pension income. Likewise, as shown in Figure 2, while in 1960, the unemployment rate for these workers was 2%, in 2020, it rose to 3.3%, suggesting an increase in the difficulty for workers over 50 years of age to find employment, which may be a factor that discourages them from participating in the labor market.

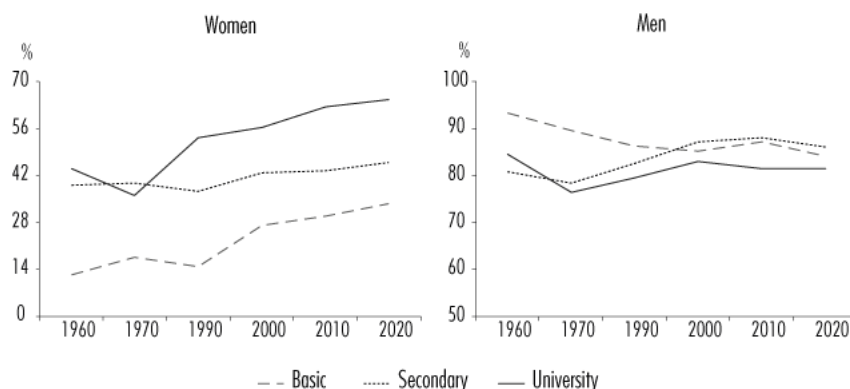
Figure 2. Unemployment rate by age group, 1960, 1990 and 2020 (%)



Notes: figures calculated based on the population aged 18 to 65.
Source: Compiled by the authors based on 1960, 1990 and 2020 censuses.

Figure 3 shows the evolution of the labor participation rate by gender and level of schooling. It shows how schooling is strongly related to participation levels. Among women, there was an increase in the EAP participation rate from 1960 to 2020 for all levels of education. Among those with basic education, their participation increased from 12.4% in 1960 to 33.6% in 2020, while among the population with higher education, it increased from 44 to 64.8% during the same period. In the case of men, the highest levels of participation are found among workers with basic education. There are several reasons for this. First, the fact that they do not study means that they enter the labor market at an earlier age. Second, they are forced to work later in life due to the lower income they receive throughout their working life. Third, their lower levels of human capital often force them to work in the informal sector, which hinders their access to a pension and forces them to remain in the labor force because they have no other sources of income that would allow them to live a decent life in old age.

Figure 3. Labor force participation by level of schooling, 1960-2020 (%)



Note: figures are calculated based on the population aged 18 to 65.
Source: Compiled by the authors based on the 1960, 1970, 1990, 2000, 2010 and 2020 censuses.

Regressions

Table 4 presents the marginal effects of the estimated probit models based on equation (1) for the years 1960 and 2020.

When examining women, in all years, the age factor is positive, albeit decreasing, suggesting a concave pattern where the probability of belonging to the EAP increases and peaks at age 36 in 1960 and at 36.8 in 2020, and subsequently decreases. Being married is associated with a decrease in the probability of working of 9.7 percentage points (pp) in 1960 and 4.1 pp in 2020. Having at least one child is associated with a fall in the probability of participation in the labor force of 6.6 pp in 1960 and an increase of 8.5 pp in 2020. The presence of children may increase women's reserve wage, making them less likely to work; however, the child factor varies according to whether or not the woman is married since being the head of the household has an important effect on the probability of working, increasing such likelihood by 25.2 and 10.3 pp in 1960 and 2020, respectively. The foregoing confirms that single mothers who are the head of the household present the highest levels of participation in the labor market. It is also observed that in 1960 literacy was inversely associated with the probability of working, with this variable reflecting in part the fact that the person is attending school, particularly in the case of young adults. Furthermore, an additional year of education is associated with an increased probability of belonging to the EAP of 1.1 pp in 1960 and 2.3 in 2020. Residing in a rural area is associated with a reduced likelihood of participating in the labor market of 3.9 pp in 1960 and 13.1 in 2020.

Table 4. Probit. Labor participation, 1960-2020

Variable	Women		Men	
	1960	2020	1960	2020
Age	0.0072*** (0.0007)	0.0619*** (0.0015)	0.0056*** (0.0007)	0.0396*** (0.0015)
(Age) ² /100	-0.0100*** (0.0012)	-0.0761*** (0.0018)	-0.0075*** (0.0008)	-0.0506*** (0.0017)
Children	-0.0663*** (0.0068)	0.0845*** (0.0046)	—	—
Married	-0.0973*** (0.0129)	-0.0408*** (0.0080)	0.0291*** (0.0040)	0.0982*** (0.0023)
Children × Married	-0.0154* (0.0085)	-0.2490*** (0.0056)	—	—
Head of household	0.2520*** (0.0169)	0.1030*** (0.0043)	0.0775*** (0.0026)	0.0512*** (0.0023)
Can read and write	-0.0242*** (0.0073)	-0.0074 (0.0076)	0.0167*** (0.0023)	0.1080*** (0.0072)
Years of schooling	0.0113*** (0.0026)	0.0231*** (0.0005)	-0.0034*** (0.0003)	-0.0012*** (0.0004)
Rural	-0.0392*** (0.0066)	-0.1310*** (0.0099)	0.0108*** (0.0035)	-0.0054 (0.0053)
% in the secondary sector	-0.1040 (0.1020)	-0.0129 (0.1230)	-0.0791** (0.0340)	0.0351 (0.0536)
% in the tertiary sector	0.4570*** (0.0973)	0.0201 (0.1580)	0.0267 (0.0368)	0.0106 (0.0566)
Average wage	-0.0137*** (0.0053)	0.0073 (0.0062)	-0.0014 (0.0019)	0.0001 (0.0017)
Wages male/female	0.0358 (0.0329)	0.4100*** (0.0840)	0.0294** (0.0136)	0.0476 (0.0507)
Pseudo-R ²	0.3081	0.1274	0.1975	0.1676
Remarks	112 816	4 504 709	108 629	4 110 117

Notes: *p<0.10; ** p<0.05; *** p<0.01. The table presents marginal effects. The average wage of the state in thousands of pesos. Standard errors are in parentheses.

Source: Compiled by the authors based on the 1960 and 2020 censuses.

When analyzing the variables referring to the sectoral composition of the economy, it is observed that, with respect to the primary sector, the fact that most jobs are concentrated in the tertiary sector is strongly related to the probability of women participating in the labor force, particularly in 1960. This suggests that in the years when female labor participation was low, the sectoral structure of the economy was a major element influencing their membership of the EAP. It is also observed that a higher average wage is associated with a reduction in the probability of belonging to the labor force in 1960. The fact that both the sectoral structure of the economy and the average wage are not significantly related to the decision to belong to the EAP in 2020 suggests that, at present, women's decision to work responds less to demand variables and indicates a greater attachment to the labor market.

In the analysis of the behavior of men, the lower impact of the head of the household variable stands out, reflecting the fact that while practically all men work, regardless of whether or not they are the financial providers of the household, in the case of women they represent a more select sample, made up in part of qualified workers and/or those with economic dependents. Other variables that differ from those observed among women are human capital-related ones. On the one hand, being able to read and write is positively associated with the probability of belonging to the EAP, which may reflect that having these skills allows access to a greater number of jobs while being illiterate makes the person an unattractive candidate for employers. On the other hand, an additional year of schooling is inversely related to the probability of belonging to the labor force. This stems from the fact that having higher levels of schooling is associated with later entry into and an earlier exit from the labor market. For example, in 2020, among men aged 61 and older, those with up to six years of education present a participation rate of 67%, while those with more than 12 years of schooling present a rate of 59.3%. In general, the sectoral composition of employment does not affect men's probability of belonging to the EAP. A higher wage relative to women increases the likelihood of working in 1960; likewise (in results not presented), it decreases in 1990. This may reflect the ambiguity of the variable from

a theoretical point of view. On the one hand, a higher relative wage for men may lead them to specialize in the labor market. On the other hand, it may reduce their demand by employers since, in relative terms, they constitute a more expensive labor force.

Table 5 presents the results for the years 1990 and 2020. For both women and men, school attendance is negatively associated with the probability of belonging to the EAP. Conversely, the labor income of other household members is positively related to participation levels.

Table 5. Probit. Labor participation, 1990-2020

Variable	Women		Men	
	1990	2020	1990	2020
Age	0.0276*** (0.0020)	0.0529*** (0.0011)	0.0159*** (0.0015)	0.0275*** (0.0014)
(Age) ² /100	-0.0383*** (0.0027)	-0.0664*** (0.0015)	-0.0245*** (0.0021)	-0.0377*** (0.0016)
Children	-0.0302*** (0.0033)	0.0299*** (0.0046)	—	—
Married	-0.1850*** (0.0076)	-0.1070*** (0.0093)	0.0770*** (0.0019)	0.0733*** (0.0018)
Children × Married	-0.0625*** (0.0093)	-0.1890*** (0.0056)	—	—
Head of household	0.1280*** (0.0051)	0.1070*** (0.0039)	0.0627*** (0.0018)	0.0569*** (0.0021)
Years of schooling	0.0227*** (0.0011)	0.0248*** (0.0005)	0.0034*** (0.0004)	0.0024*** (0.0003)
Goes to school	-0.2280*** (0.0088)	-0.3220*** (0.0078)	-0.2900*** (0.0055)	-0.2670*** (0.0069)
Income of other members of the household	0.0044*** (0.0009)	0.0132*** (0.0023)	0.0039** (0.0017)	0.0094*** (0.0011)
Rural	-0.1360*** (0.0072)	-0.1360*** (0.0100)	-0.0171* (0.0088)	-0.0128** (0.0052)
% in the secondary sector	-0.0256 (0.0289)	-0.0185 (0.1280)	-0.0057 (0.0411)	0.0312 (0.0510)
% in the tertiary sector	0.1610*** (0.0333)	0.0302 (0.1650)	0.0435 (0.0359)	0.0264 (0.0536)
Average wage	0.0071*** (0.0024)	0.0063 (0.0066)	0.0053* (0.0031)	-0.0009 (0.0018)
Wages male/female	-0.0473* (0.0275)	0.4080*** (0.0888)	-0.1090** (0.0445)	0.0422 (0.0508)
Pseudo-R ²	0.2114	0.1418	0.1893	0.2366
Remarks	2 025 740	4 503 981	1 873 644	4 109 409

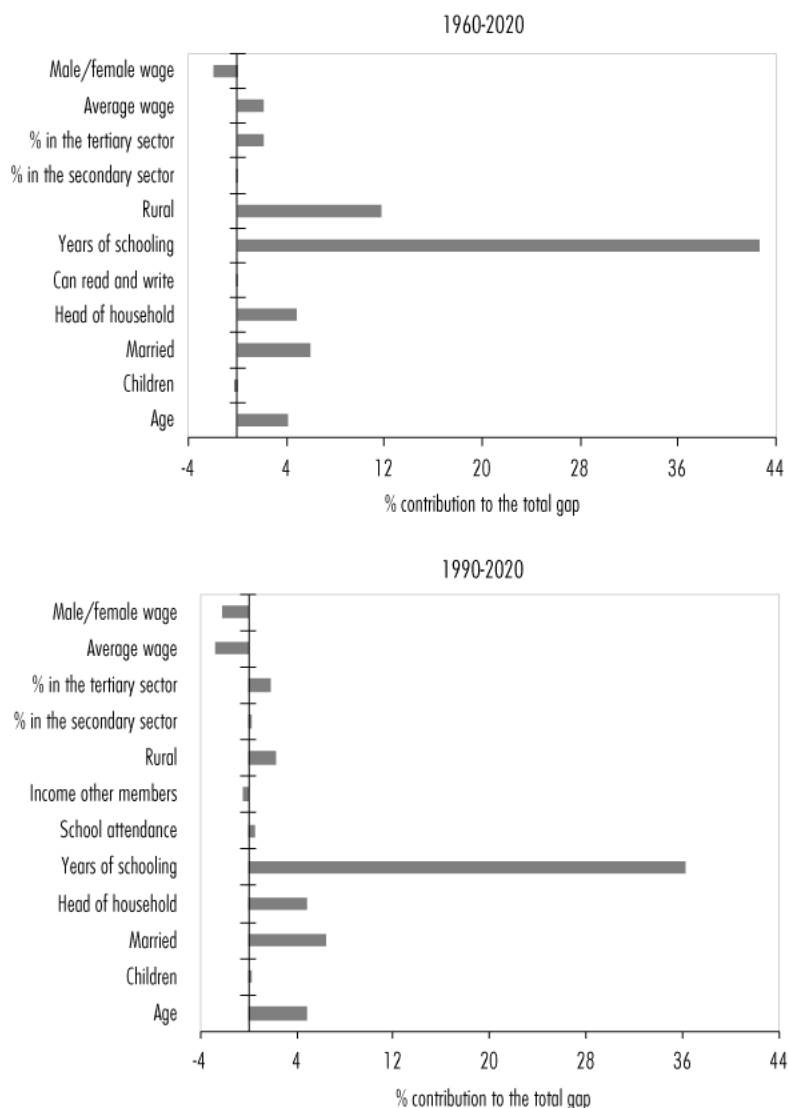
Notes: *p<0.10; ** p<0.05; *** p<0.01. The table presents the marginal effects. The income of other household members is in tens of thousands of pesos and the state's average wage is in thousands of pesos. Standard errors are in parentheses.

Source: Compiled by the authors based on the 1990 and 2020 censuses.

Figures 4 and 5 present the results of the decompositions of the changes in the labor participation rates of men and women, respectively, between 1960-2020 and 1990-2020. The discussion focuses mainly on the explained component due to the difficulty of interpreting the unexplained component.

It is observed in Figure 4 that, in the case of women, 70.9% of the changes in the labor participation rate between 1960 and 2020 are explained by changes in the observable variables, while between 1990 and 2020, the variables included explain 51.9% of the gap. According to panel A, between 1960 and 2020, the variables that contributed most to the increase in the female labor participation rate were those related to supply factors. These include the increase in years of schooling, which explains 42.6% of this increase because having higher levels of education allows for higher economic remuneration when working and, therefore, increases the opportunity cost of not belonging to the EAP. Another critical factor is the migration from rural to urban areas (which explains 11.8% of the increase) where in rural areas, labor demand and participation are low, while in urban areas, there is a greater diversity of jobs and labor demand. The drop in the marriage rate and the increase in the percentage of women who are heads of household, which are linked to greater economic independence, together explain 6.8% of this increase. On the demand side, a greater number of jobs in the tertiary sector and the increase in the average wage account for 4.2% of the rise.

Figure 4. Non-linear decompositions of changes in the labor participation rate (% of total gap)



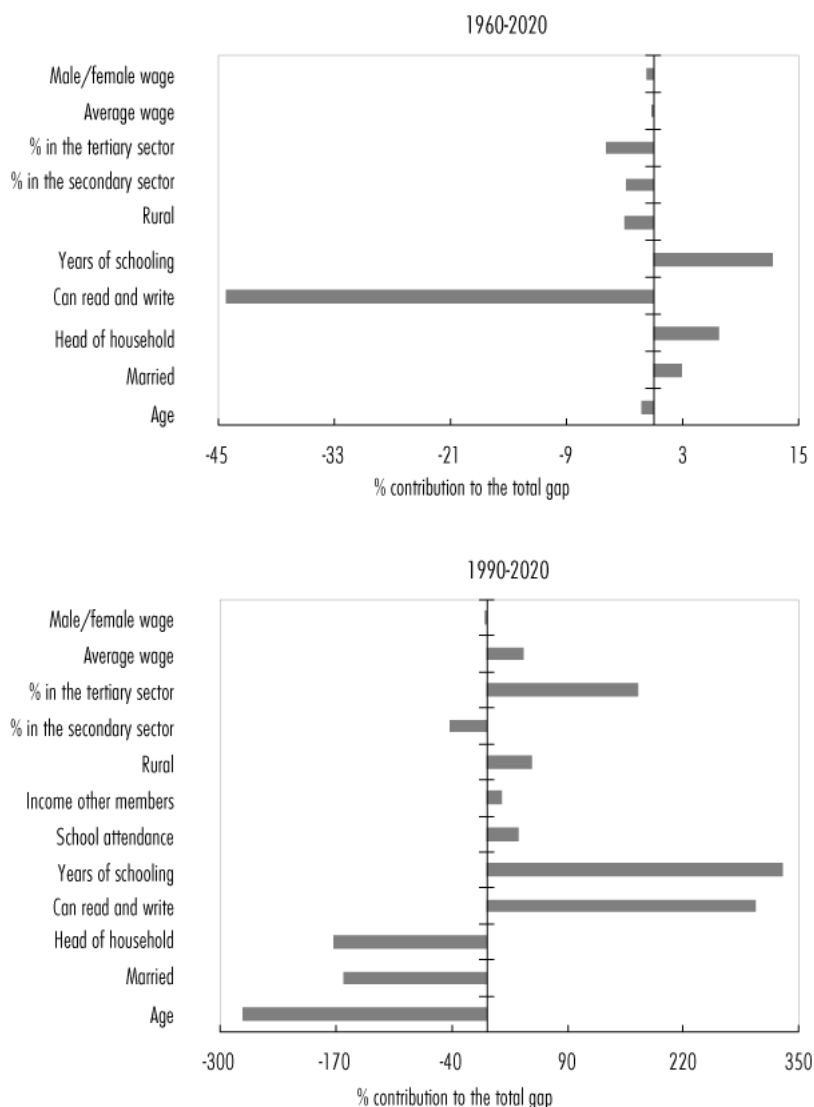
Note: This figure presents the explained components of the decompositions of the changes in the labor participation rate. Based on equation (1), decompositions are estimated using 1990 and 2020 coefficients in panels A and B, respectively. All components are significant ($p < 0.10$), except for "Can read and write" in panel A and "% in the secondary sector" in panels A and B. Source: Compiled by the authors based on the 1960, 1990 and 2020 censuses.

When examining the unexplained component, differences in the age coefficients are an important element behind the increase in women's participation levels. While in 1960, aging was not associated with significant variations in EAP membership levels, in 1990 and 2020, changes in age were more closely related to variations in participation levels, implying that women's participation has become more sensitive to changes in age. Whereas in 1960, having a child was a factor significantly related to not participating in the labor market, in 1990 and 2020, it was less of an impediment. A similar situation occurred with being married between 1990 and 2020.

Figure 5 shows the decompositions of the changes in the participation rate of men. Between 1960 and 2020, their participation decreased by 8.1 pp from 92.7 to 84.6%. On the supply side, men's participation declined for three reasons: an increase in their years of education, which explains 12.2% of

this decline; a decrease in the percentage of those who report being the head of their household, which accounts for 6.7% of the fall and alludes to the fact that a smaller percentage are now the breadwinners of their household; and the drop in the marriage rate, which accounts for 2.9% of the decline. On the demand side, these variables explain little of the reduction in their participation levels. Between 1990 and 2020, the male participation rate remained practically constant and only increased 0.2 pp from 84.3 to 84.5%.

Figure 5. Non-linear decompositions of changes in the labor participation rate (% of total gap)



Note: The figure presents the explained components of the decompositions of changes in the labor participation rate. Based on equation (1), decompositions are estimated using 1990 and 2020 coefficients in panels A and B, respectively. All components are significant ($p < 0.10$), except for "% in the tertiary sector" and "Average wage" in panel A and "Male/female wage" in panel B.

Source: Compiled by the authors based on the 1960, 1990 and 2020 censuses.

In the unexplained component, the contribution of the head of the household variable stands out, suggesting that in 1960 it was a more important predictor of labor force membership than in 1990 and 2020. When examining changes between 1990 and 2020, a similar case is observed with the variable of being married.

7. CONCLUSIONS

This article examined the evolution of labor participation in Mexico from 1960 to 2020. It was observed that EAP membership among women increased and among men decreased. The factors that contributed to the increase in female participation are related to supply factors and include the increase in years of schooling, migration from rural to urban localities, the fall in the marriage rate, demographic changes linked to the age composition of the population and the increase in the percentage of women who are heads of household. Among this group, single mothers who are heads of household stand out as having the highest levels of participation among women. Given the dual role they play as financial providers and caregivers of their children, it is considered essential that they have access to different government programs that allow them to work and increase their levels of human capital and that of their children. In the case of men, the drop in labor participation levels is also related to supply variables and is a result of the increase in years of schooling and the reduction in the marriage rate and in the percentage reporting being the head of the household.

Despite the increase in women's years of education in recent decades, compared to that of men, their levels of participation are still much lower. Furthermore, even if men's and women's human capital levels are equal, the empirical evidence for Mexico suggests that this gap will remain.

Women's lower levels of labor participation are partly explained by the persistence of gender roles and the lower relative wages they receive, which, in the framework of time allocation theory and the household production function leads women to specialize in the household and men in the labor market. Maya (2020) observes that, indeed, in the case of Mexico, marriage and cohabitation have a negative impact on women's wages because it increases the time dedicated to household activities, while men benefit in terms of their wages because they focus on the labor market. This indicates a need to promote policies that reduce the penalty women face when they marry or have children. These include measures that increase labor flexibility, such as allowing (where feasible) telecommuting and flexible schedules and increasing maternity and paternity leave, where the latter would also indirectly benefit women by allowing them to dedicate more time to the labor market, thus making the division of time dedicated to household activities and work more balanced between men and women.

Finally, a limitation of the study is that while the supply variables were observed individually, the demand variables were constructed as state aggregates. Consequently, given the level of diversity in each state and the fact that it is not possible to generate and introduce sufficiently reliable data on a municipal level for the entire period of analysis, the precision of the supply variables is greater than that of the demand variables. Therefore, having more detailed information in relation to demand would lead to more reliable results.

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¹ Expressed in pesos of March 2020.

² The increase in women's participation levels is a phenomenon that also occurred in most of Latin America. According to Busso and Romero (2015), from 1990 to 2010, and among the Latin American population aged 25 to 54, the labor participation rate of women increased from 54 to 65%. This increase is attributed to changes in educational levels, family structure, fertility rate, wages, personal preferences and technology.