Determinants of labor participation in new departments of the Amazonia and Orinoquia (Colombia)

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Abstract

The objective of the research is to identify the determinants of labor participation in seven departments of the Amazonia and Orinoquia regions in Colombia. It corresponds to a non-experimental quantitative study of descriptive scope framed in the analytical empirical paradigm. The data were collected from the Gran Encuesta Integrada de Hogares with 2018 data for the departments of Arauca, Putumayo, Amazonas, Guainía, Guaviare, Vaupés and Vichada. From a Probit-type econometric model, the probability of occurrence for an individual to participate in the labor market was observed from a set of variables such as age, sex, schooling, marital status, head of household and income. The results show a high impact of the variables age and being male. The variables of higher educational level and marital status are not significant determinants of the labor participation of individuals. Family income is not relevant nor does it have any impact on labor participation.

Keywords: determinants of employment, labor insertion, labor market, labor participation, work.

Resumen

El objetivo de la investigación es identificar los determinantes de la participación laboral en siete departamentos de las regiones Amazonía y Orinoquía en Colombia. Corresponde a un estudio de corte cuantitativo no experimental de alcance descriptivo enmarcado en el paradigma empírico analítico. Los datos fueron recolectados de la Gran Encuesta Integrada de Hogares con datos de 2018 para los

departamentos de Arauca, Putumayo, Amazonas, Guainía, Guaviare, Vaupés y Vichada. A partir de un modelo econométrico tipo Probit se observó la probabilidad de ocurrencia para que un individuo participe del mercado laboral desde un conjunto de variables como edad, sexo, escolaridad, estado civil, jefatura de hogar e ingreso. Los resultados muestran un alto impacto de las variables edad y ser del sexo – masculino. Las variables mayor nivel educativo y estado civil no son determinantes significativos para la participación laboral de los individuos. Los ingresos familiares no resultan relevantes ni impactan de ninguna forma.

Palabras clave: determinantes de empleo, inserción laboral, mercado laboral, participación laboral, trabajo.

Resumo

O objetivo da pesquisa é identificar os determinantes da participação laboral em sete departamentos das regiões da Amazônia e Orinoquia na Colômbia. Corresponde a um estudo quantitativo não experimental de âmbito descritivo enquadrado no paradigma empírico analítico. Os dados foram coletados a partir do Grande Levantamento Domiciliar Integrado com dados de 2018 para os departamentos de Arauca, Putumayo, Amazonas, Guainía, Guaviare, Vaupés e Vichada. A partir de um modelo econométrico do tipo Probit, a probabilidade de ocorrência de um indivíduo participar do mercado de trabalho foi observada a partir de um conjunto de variáveis como idade, sexo, escolaridade, estado civil, chefe da família e renda. Os resultados mostram um alto impacto das variáveis idade e ser do sexo - masculino. As variáveis maior escolaridade e estado civil não são determinantes significativos para a participação laboral dos indivíduos. A renda familiar não é relevante ou impacta de forma alguma.

Palavras-chave: determinantes do emprego, inserção laboral, mercado de trabalho, participação laboral, trabalho.

INTRODUCTION

Colombia is divided into regions, six large territories that share specific biophysical, material and cultural conditions. Two of these regions are the Amazonia and the Orinoquia. The Amazon region, politically speaking, is made up of the departments of Amazonas, Putumayo, Vaupés, Guaviare and Caquetá. On the other hand, the Orinoquia region comprises the departments of Arauca, Casanare, Meta and Vichada (Economic Commission for Latin America and the Caribbean, 2018; Observatory of Disarmament, Demobilization and Reintegration Processes of the National University of Colombia, 2013). For this research and the data collected, data referring to the departments Arauca and Vichada, belonging to the Orinoquia region; and Putumayo, Amazonas, Guaviare, Vaupés and Caquetá, from the Amazonia region, will be considered. All of these departments are referred to by the National Administrative Department of Statistics (DANE) as *new departments*.

According to data from DANE (2018a), the department of Arauca is inhabited by 239,503 people and the department of Vichada by 76,642 people. For the case of the Amazonian region departments, the following inhabitants are registered: 283,197 in Putumayo, 66,056 in Amazonas, 73,081 in Guaviare, 37,690 in Vaupés and 359,602 in Caquetá. Although the two Colombian regions together could cover just over 40% of the national territory, the 2018 population census reveals that taking into account the total population of all the departments that comprise them, only about 5% of the total number of Colombians live there.

The results of the Great Household Survey conducted by DANE for 2018, indicate that of the total population of the two regions: a) 74.5% is of working age, b) the overall participation rate is 66.5%, c) the employment rate is 57.2%, and d) the unemployment rate is 14%.

In addition to these indicators where both regions are grouped, an analysis of the labor market and population participation was made for each of the departmental capitals. According to the data, it is evident that:

1. Arauca, the capital of the department of Arauca, has 72.2% of its population of working age, the overall participation rate is 64.0%, the employment rate is 48.1%, and the unemployment rate is 24.9%.
2. Puerto Carreño, the capital of the department of Vichada, has 70.9% of its population of working age, the overall participation rate is 64.5%, the employment rate is 51.0%, and the unemployment rate is 20.9% (Departamento Administrativo Nacional de Estadísticas, 2018b).

For the Amazon region, the data provided by DANE for the capitals of each department show the following:

1. Mocoa, the capital of Putumayo, has 76.9% of its population of working age, an overall participation rate of 60.5%, an employment rate of 52.6%, and an unemployment rate of 13.0%.

2. Leticia, the capital of Amazonas, has 76.2% of its population of working age, the overall participation rate is 58.0%, the employment rate is 55.0% and the unemployment rate is 5.2%.

3. San José del Guaviare, the capital of Guaviare, has 68.4% of its population of working age, the overall participation rate is 77.5%, the employment rate is 67.0% and the unemployment rate is 13.6%.

4. Mitú, the capital of Vaupés, has 69.8% of its population of working age, the overall participation rate is 45.6%, the employment rate is 42.3% and the unemployment rate is 7.3%.

5. Florencia, the capital of Caquetá has 63.6% of its working-age population, the overall participation rate is 59.4%, the employment rate is 51.0% and the unemployment rate is 14.1% (National Administrative Department of Statistics, 2018b).

According to the above data, the capital city of Araucanía followed by Puerto Carreño, both from the Orinoco region, are the capitals with the highest unemployment rate in the departments under analysis. Of the capital cities of the Amazonia region, Florencia and San José del Guaviare are the capital cities with the highest unemployment rate. It should be clarified that, in many cases, unemployed people are not employed due to a lack of job opportunities but because of the different characteristics that determine whether or not they participate in the labor market. It is in this field where the present research, which aims to identify the determinants of labor participation in seven departments of the Amazonia and Orinoquia regions in Colombia, is inscribed.

Labor participation refers to the situation in which an individual enters the labor market as an employed person or in search of occupation; however, there are some factors or variables that determine this decision (Litzinger and Dunn, 2013). Esquenazi and Rosales (2017) propose a list of determinants of labor market participation, which is elaborated based on models of labor participation in conventional economic theory. These factors are grouped into five categories as shown in Table 1: economic, sociodemographic, household structure or composition, geographic, and cultural.

Table 1: *Main determinants of labor participation*

Classification	Variables
Economic	Labor income
	Non-employment income
	Taxes
	Branch of economic activity in which you work
Sociodemographic	Genre
	Ethnicity or skin color
	Marital status
	Education level
	Experience (age, age squared)
	Fecundity
Household structure or composition	Household employment rate
	Number of inactive persons in the household
	Presence of handicapped persons in the home
	Presence of the elderly in the home
	Head of household
	Parenting small children or minors
	Existence of domestic service
Geographic	Belonging to a city or region of the country
Cultural	Human capital
	Macho behavior of women
	Conservative positions of women
	Religion

Source: Esquenazi and Rosales (2017, p. 173)

These factors are determinants for a person to participate in the labor market; however, each environment defines and delimits the conditions that influence each individual to become an employed person. González-Quintero and Daza-Báez (2015) point out that, in the case of Colombia, the determinants delimited in the table above apply to the working-age population in the country. For example, as one advance in the life cycle from 20 to 59 years of age, the probability of participation increases due to the need to perceive an economic livelihood.

For some sectors of the economy, age is an exclusionary factor. For example, after the age of 50, and in some cases, it is considered a negative factor that limits participation, especially in people without basic academic training. With those under 19 and over 60 years of age, there are phenomena such as the fact that people are increasingly trying to earn income at an earlier age, and concerning the elderly, in urban areas, those over 60 years of age participate less in the labor markets; however, in rural areas, participation continues several years after the age of 60, especially among men.

Regarding gender, for more than 3 decades women have found greater labor participation in almost all markets (Miller et al., 2015). For all women under the age of 59, regardless of their marital status, the

higher their academic level, the higher the probability of labor participation. In contrast, for women with less than high school education, the negative marginal effects of labor participation are statistically significant. Higher education is relevant for people under 25 years of age, especially for women.

In the case of men, education is not as tacit a determinant as it is for women since there are multiple fields in which they can participate in the labor market without even having completed basic education. However, in Colombia, education at a higher academic level, configures a determinant of labor participation for both men and women of all ages and, above all, for people in need of higher income, in search of a better socioeconomic position or stratum transition, and with pension insurance plans upon reaching the required age (González-Quintero and Daza-Báez, 2015; Nava-Bolaños and Ham-Chande, 2014).

González-Quintero and Daza-Báez (2015) state that in Colombia, being married is no longer a limiting factor for finding employment, but there is a conservative position and a patriarchal stance within the household. It is most likely that the possibilities of participation based on gender issues are lower for women in these types of environments and conditions.

The presence of children under 16 years of age in the household has marginal effects, especially for women because of their role as caregivers, and this phenomenon is the same when there are elderly people who require continuous care or individuals with disabilities. On the other hand, the number of unemployed people in the household has a positive and significant effect on the probability of participation of women between 19 and 59 years of age, as well as men in the same age range. The need to consolidate income encourages people to seek to enter and remain in the labor market.

Regarding people with disabilities, Espinoza (2016) points out that participation in the labor market has transcendental consequences on the quality of life of households where people with some type of disability live. The limitations according to the physical and/or mental condition of these people can imply severe disadvantages for their labor participation, being one of the main reasons for "the difficulty to adapt to the production technologies in force at each time in history. This means that people with disabilities have a high probability of being forced to live in conditions of poverty or to be employed in very specific, unsafe, and poorly paid jobs" (p. 138). For Colombia, of the total number of men with disabilities, only 13.44% are employed, and of the total number of women with disabilities, only 36.39% participate in the labor market.

The possibility of an individual with a disability participating in the labor market may be influenced by the type of disability he/she has. The limitations of a person concerning understanding or learning, with cognitive or emotional problems, or with permanent limitations to move, especially in their upper limbs, determine a marginal effect on the possibility of having labor participation in some fields for other disabilities such as limitations in speech, hearing, sight or lack of mobility of lower limbs (Espinoza, 2016). Thus, labor participation will depend on multiple factors that are tied to the individualities of each person and that will directly impact the employment and unemployment rates of a given region and, therefore, on all the economic dynamics of a country.

The article is organized as follows: an introduction with an initial exploration of the phenomenon under study and the problem, followed by a review of the literature and the conceptual elements that support the research, a description of the methodology used in the study, a description of the results and the discussion, and finally a section of conclusions.

LITERATURE REVIEW

Measurement of employment

In countries such as the United States, people who can enter the labor market and who are taken into account as part of the active labor force are from 16 to 64 years of age (Pellegrini et al., 2014). According to DANE (2019), and for the Colombian context, the working-age population includes individuals from 12 years of age or older in urban areas and 10 years of age or older in rural areas. The maximum working age is not delimited because, according to their statistics, in urban areas, the upper limit in terms of years would be until reaching pensionable age, but in rural areas, it could take 1 or 2 more decades before an individual, regardless of gender, stops working or looking for work (DANE, 2021a). If those who are of working age are part of the production of goods and services in the country, they are called the economically active population; conversely, those who are of working age, but do not need, cannot or are not interested in having remunerated activity, are grouped as economically inactive persons (DANE, 2019).

Being employed differs from being economically active. DANE (2019) states that an employed person is considered to be an individual who, during the period of a given time under analysis, was working at least one hour paid in cash or kind; did not work, but had responsibilities that occupied their time; or, unpaid family workers.

The DANE generates figures that make it possible to establish how the country's labor market is doing, for example, the percentage of people of working age, which indicates the percentage ratio between the number of people who make up the population of working age in Colombia, compared to the total population; the overall participation rate, which is the percentage ratio between the economically active population and the population of working age; the gross participation rate, which shows the percentage ratio between the number of people in the labor market and the number of people in the total population; or the employment rate, which shows the percentage ratio between the employed population and the number of people in the working age population (DANE, 2019).
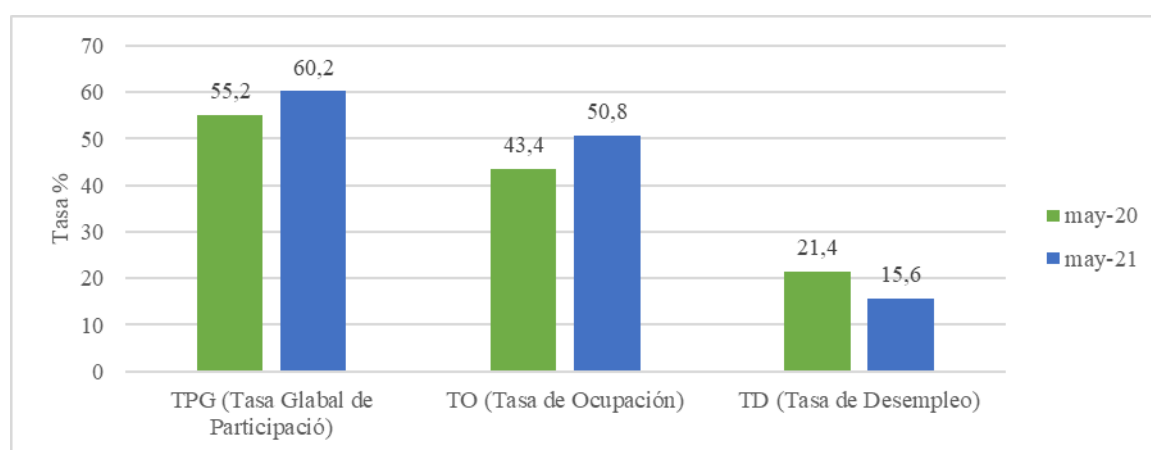

Figure 1. Overall participation, employment and unemployment rates. Colombia: May/2020 vs. May/2021

Source: National Administrative Department of Statistics (2021b).

According to Figure 1, the indexes provided by DANE show that, by May 2020, the overall participation rate (55.2%) and the employment rate (43.4%) were lower compared to May 2021, where an increase of 5.0 and 7.4 percentage points, respectively, was established.
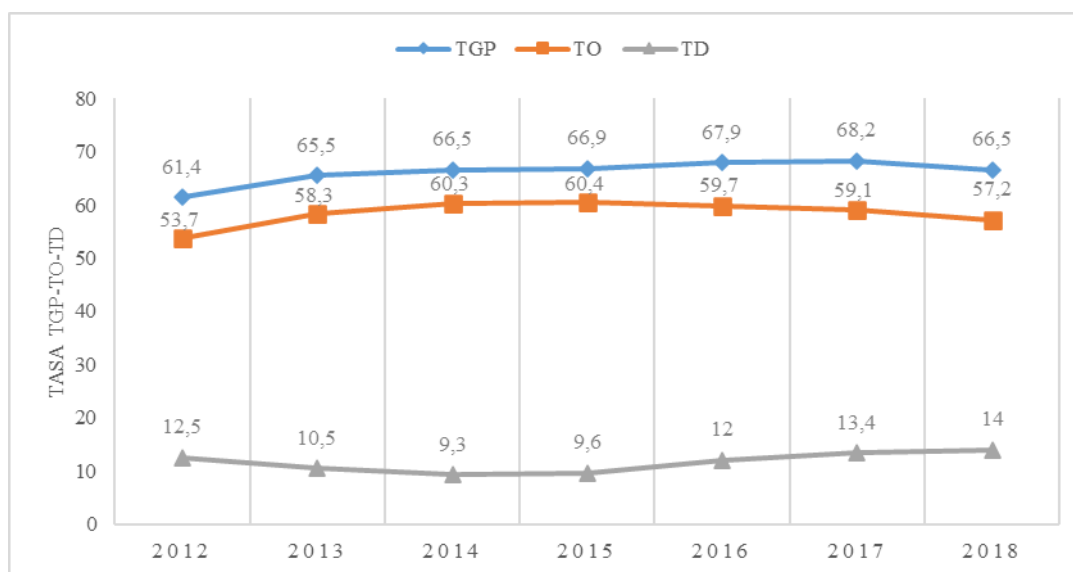

Figure 2. Overall participation, employment and unemployment rates. Total 8 capital cities of the Amazon and Orinoco departments, 2012-2018.

Source: National Administrative Department of Statistics (2021b).

Regarding unemployment, it shows a decrease of 5.8 percentage points compared to the same month of 2020. Regarding the regions of analysis, DANE indicates that in 2018, the unemployment rate for the 8 capital cities of the Amazon and Orinoco departments was 14.0%, the overall participation rate stood at 66.5%, which represented a decrease of 1.7 percentage points compared to 2017 (68.2%). The employment rate was 57.2% and presented a decrease of 1.9 percentage points compared to the previous year (59.1%). Finally, unemployment showed a slight increase concerning the previous year, rising 0.6 percentage points as shown in Figure 2 (DANE, 2021b).

Labor participation

Labor participation is related to the number of people of working age who are willing and able to participate in the labor market by looking for a job or performing a wage-earning occupation, as well as the willingness to work more or fewer hours by those who belong or could belong to the labor force. Those who are not willing or do not want to participate in the labor market generally choose to carry out other occupations such as studying or housekeeping; however, some limitations may determine that an individual does not participate in the labor market (Arango and Posada, 2003).

The labor participation rate is an important metric used when analyzing employment and unemployment data for a given region over a certain time, as it measures the number of people who are actively looking for work, as well as those who are employed at that time (Aaronson et. al., 2016). The calculation of the labor partition rate does not consider people who are institutionalized, i.e.,

serving time in prison, confined in nursing homes or held in psychiatric hospitals, or members of the armed forces.

It includes all other persons of working age from age 16 and older and compares the proportion of those who work or seek work outside the home with those who do not work or seek work outside the home (Aaronson et al., 2016). Because it accounts for people who are not looking for work, this may make the labor participation rate a more reliable index than the unemployment rate for a given region and period in time, as the latter may underestimate true unemployment, as it does not take into account the voluntarily unemployed, i.e., people of working age with the opportunity to work, but who are unwilling or unable to work (Toossi, 2012). Hayer (2021) suggests that labor participation rate and unemployment data should be considered together to better understand the true labor situation of an economy.

Unemployment

In Colombia, the term unemployment is linked to the situation in which an individual is unemployed. It is a phenomenon in which people who are of working age, and who can and want to be economically active, find themselves without the possibility of carrying out a remunerated activity or are in search of employment without their environment offering them opportunities, even when they possess physical and mental abilities, and nothing determines their exclusion from the labor market (Pugliese, 2000). DANE is the entity in charge of collecting the necessary data for the calculation of unemployment and the characterization of the labor market. It relates, in percentage terms, the number of people looking for work and the number of people in the labor force (DANE, 2012).

For 2020, the average unemployment rate was 15.9%, which represented an increase of 5.4 percentage points compared to 2019 (10.5%). As of May 2021, the percentage of unemployment stands at 15.6%, which indicates that unemployment is a rising phenomenon in Colombia during the last few years that is worsening due to the pandemic caused by COVID-19 (DANE, 2020). Specifically for the reference year of the present analysis (2018), the percentage of unemployment for all the departments that make up the Orinoco region was 15.9% on average and concerning the Amazon region, it was 10.8%. Both percentages were above the national unemployment average for 2018 which stood at 9.7% (DANE, 2019). It is also important to highlight that within the regions under study, the department with the highest unemployment in Arauca, for 2018 presented a percentage of 23.4%, which was double the national average (DANE, 2021b).

METHODOLOGY AND DATA

It corresponds to a non-experimental quantitative study of descriptive scope framed in the analytical empirical paradigm. To achieve the proposed objective, the aim is to estimate a probit-type econometric model with a sample that represents the population surveyed through the Great Integrated Household Survey of 2018 for the departments of Amazonia and Orinoquia in Colombia to observe how each determinant has its impact on the probability of occurrence of an individual participating in the labor market. The period 2018 was taken as a base, since at the time of estimation there were only data for that date and not for later years.

The probability of occurrence of an individual participating in the labor market in these departments will depend on an unobservable index of desirability li (latent variable), where there is a critical threshold of the index to be named li^*, therefore, if li exceeds li^*, the individual participates in the labor market.

Based on the above, it follows that,

$$Pi = P(Y = 1/x) = P(li^* \leq li) = P(Zi \leq \beta1 + \beta2Xi) = F(\beta1 + \beta2Xi)$$

[1]

The labor participation model is characterized by having a dichotomous dependent variable since the individual will have a value of 1(Y=1) if he/she participates in the labor market and 0(Y=0) if he/she does not participate. For each individual in the sample used, the explanatory variables are listed and defined in Table 1, the explanatory variables are made up of quantitative variables such as age, age2, schooling and income, and dummy variables which are represented by the letter D and an assigned number; these variables are: D2sex, D3marital status and D4Head of the household.

Table 2. Explanatory variables in the labor participation model

Vector	Variable	Definition
	Age	Time elapsed since birth.
	Age2	Square of years of age
	Sex	Variable with value 0-1 indicating that the individual taking value 1 is male and value 0 is female.
	Schooling	Years of formal education are attained by the individual.
X_i	Marital status	Variable with value 0-1 indicating if the individual is married.
	Head of Household	Variable with value 0-1 indicating whether the individual is head of household.
	Income	Total financial income.

Source: Authors.

Therefore, taking the equation (1):

$$li\left(\beta D1(ocupación\ laboral)\right) = \beta0 + \beta1edad + \beta2edad^2 + \beta3D2sexo + \beta4escolaridad + \beta5D3estadocivil + \beta6D4jefaturaHogar + \beta7ingreso + ui$$

[2]

The labor participation models for each of the individuals in these departments are based on equation (2) under a cross-sectional probit-type model that allows assuming a normal distribution for the estimation of the parameters that maximize the probability of occurrence of the model. However, for the interpretation of the coefficients, marginal effects are used, expressing the change in the dependent variable caused by a unitary change in each of the explanatory variables chosen for these models, keeping everything else constant. Thus, it means that these reflect the marginal effect of the Xik on Yi. In this case, the coefficient of the intercept is negative, therefore, it loses interpretative relevance.

RESULTS

Table 3 contains the estimates calculated according to the Probit Models for the selected sample:

Table 3: *Marginal effects of Amazon and Orinoco departments*

	AGE	AGE^2	SCHOOLING	MARITAL STATUS	HEAD OF HOUSEHOLD	FAMILY INCOME	SEX
ARAUCA	5.01%	-0.06%	1.38%	2.09%	8.88%	0.00004%	11.31%
PUTUMAYO	4.42%	-0.05%	-0.67%	-0.67%	10.96%	0.00003%	10.29%
AMAZONAS	6.15%	-0.07%	-3.40%	-3.40%	7.88%	0.00000%	21.70%
GUAINÍA	3.66%	-0.04%	-0.25%	-0.25%	7.22%	0.00003%	15.16%
GUAVIARE	5.18%	-0.06%	-0.38%	-0.38%	7.83%	0.00001%	12.29%
VAUPÉS	3.21%	-0.04%	1.53%	1.53%	6.03%	0.00003%	2.51%
VICHADA	5.27%	-0.07%	-4.81%	-4.81%	12.11%	0.00001%	13.39%

The findings concerning the age variable show that it has a high incidence in comparison with other variables. For the department of Amazonia, an increase in age increases the probability of participating in the labor market by 6.15% on average. In the case of Vichada, Arauca and Guaviare, the probability of participation is higher than 5.0% on average. Only Guainía and Vaupés show a participation rate lower than 4.0% on average. Considering age2, there is evidence of a negative effect on the labor participation of individuals, as a result of the expected nonlinearity due to the affectation of cognitive skills. In each of the cases, the probability was between -0.07% and -0.04% on average.

As for schooling, it has a positive incidence concerning labor participation. The application of the marginal effects yielded the following findings: in the department of Arauca, the increase in educational level increases the probability of participation by 1.38% on average, followed by Amazonas with 1.33% on average; while the probability in the departments of Putumayo, Guainía, Vaupés and Vichada was below 1%. The smallest effect was found in the department of Guaviare, where the probability of participating in the labor market linked to an increase in educational level is only 0.24% on average.

In most cases, marital status is a negative determinant in influencing the participation of individuals in the labor market. However, there is a differentiating effect in the departments of Arauca and Vaupés, where marital status is positively related to labor market participation, since being married increases the probability of participating in the labor market by 2.09% and 1.53% on average, respectively. However, the marital status parameter requires an analysis to determine whether this negative influence is linked to female participation.

The status of the head of household is a key determinant of labor participation, as this parameter was positive for each of the departments and statistically significant. The greatest effect is found in the department of Vichada, where, if an individual meets the condition of being head of household, the probability of participating in the labor market increases by 12.11% on average. The lowest effect found for this parameter was in the departments of Guainía and Vaupés with 7.22% and 6.03% on average, respectively.

The results also show that gender is a determinant in labor market participation according to the findings for the six departments. That is, in the department of Amazonas, meeting the condition of

being a man increases the probability of participating in the labor market by 21.7% on average, followed by the department of Guainía with 15.16% on average. The marginal effects showed that meeting this condition raises the probability of participation by more than 10% on average. However, the department of Vaupés was below the threshold with an average probability of 2.51%.

About income, a relatively low effect was found in the influence on labor participation. The highest probability concerning this variable was found in the department of Arauca, where an increase of 50 pesos in income increases the probability of participation by 0.00004% on average. While in departments such as Amazonas and Vichada the probability was almost 0.00000% on average.

DISCUSSION

The results show that the age variable, in several departments of the zones, influences the possibility of a person participating in the labor market. Generally, the probability of participation for almost all the departments is higher than 5.0%, except for a couple of specific territories where a percentage of participation lower than 4.0% on average was found. These results are consistent with the findings of González-Quintero and Daza-Báez (2015) who point out that an individual in Colombia, as he or she advances in his or her life cycle and has an older age within the working age range, has a greater possibility of participating in the labor market. The authors suggest that most people in the country have their first work experience between 19 and 24 years of age, and after this age, it is much more likely that a person will be economically active. In turn, the age squared variable was taken into account because it allows modeling the non-linear effect of the independent variable of age, that is, demonstrating the diminishing returns of the variable in terms of old age.

It should be clarified that the determinants can combine and have a negative impact so that a person with an older working age does not participate in the labor market; however, the trend is that, from the age of 19 and as years and, surely, experience is gained, an individual is more likely to perform paid work or be in active search of employment. Although the National Administrative Department of Statistics (2021a) indicates that in Colombia in rural areas the working age is considered from the age of 10, González-Quintero and Daza-Báez (2015) indicate that those under 19 have much less access to the labor market compared to men and women who double or triple this age. Similarly, the results of the present study agree with this statement, since only in Guainía and Vaupés, both departments of the Amazonia region, is being older not a determinant for participation in the labor market.

However, regarding the situation of people aged 60 years or older, the results show a negative effect on the labor participation of individuals in all departments in both regions. As already mentioned, the possibility or decision of an individual to participate in the labor market could be linked to other circumstances, however, specifically for people over 60 years of age, the trend is that the opportunities to get a paid job that allows them to participate in the market are drastically reduced, especially for women, as stated by Nava-Bolaños and Ham-Chande (2014): "at advanced ages, it is men who identify themselves with salaried work and the support of the household" (p. 84) and have higher labor participation compared to women, especially at ages above 64.

Although the United Nations (2002, p. 3) stated that "older persons should have the opportunity to work until they are willing and able to do so, in the performance of satisfying and productive jobs," Bolaños and Ham-Chande (2014) indicate that "current economic activity is characterized by the presence of new production systems and technology that demand new qualifications and knowledge, which hinder and limit the participation of older adults" (p. 84). However, for the present study, only men between 10 and 62 years of age and women between 10 and 57 years of age were considered, since in Colombia the economically active population is considered to be persons 10 years of age and

older, but women up to 57 years of age and men up to 62 years of age, since these are their pensionable ages, respectively.

Regarding the education factor, it was found that a higher educational level has a positive incidence concerning labor participation for almost all departments in both regions, except for the department of Guaviare, where the probability of participating in the labor market is linked to an increase in educational level has practically no incidence. In large Colombian cities such as Bogota, Medellin or Barranquilla, a higher level of education means a greater opportunity for labor participation, especially if one belongs to the female sex. The results of a study conducted by Mora and Suarez (2016) in the Colombian capital point out the following: "women's participation in the Bogota labor market is mainly determined by their educational level. To the extent that she has more years of education, her probability of belonging to the labor market is higher" (p. 30).

Concerning marital status as a determining factor for the participation of individuals in the labor market in the Orinoquia and Amazonia regions, the results showed that it is a factor that has a negative influence in almost all departments, a trend that is not observed in Arauca (Orinoco) and Vaupes (Amazon). Regarding the parameter of marital status, González-Quintero and Daza-Báez (2015) point out that in Colombia it could determine a negative influence specifically linked to the female sex, however, "for all women under 59 years of age, regardless of whether they are unmarried or married, the higher the educational level achieved, the greater the probability of participation" (p. 27).

Rodríguez and Muñoz (2018) point out that marital status alone influences women as a negative determinant for labor market insertion. The fact that a woman is married negatively impacts her insertion into the labor market, more so when her spouse has a sufficient salary to meet the economic needs of the household. If the woman is single or her spouse does not have sufficient income, her opportunity to participate in the labor market and be among the economically active population will be much greater. Rodríguez and Muñoz (2018) state that, for women, a permanent husband/partner is a determinant for decision-making regarding seeking and finding a paid job, since the cultural tradition of a negative attitudinal profile towards women's work and the role of caregiver of the home and its chores imposed on the female gender historically, will hinder their incorporation into the labor market.

In the present study, being head of household is a positive determinant for all the departments analyzed. In fact, in the department of Vichada, if an individual meets the condition of being head of a household, it increases the probability of participating in the labor market by 12.11% on average. In this regard, Tenjo and Ribero (1998) state that being head of the household triangulates with being male and married to drastically increase the participation of men in the labor market. In the case of women who are heads of households, it also has a positive impact on their opportunity and decision to become economically active; however, beyond being married or not, the possibility of labor participation is increased by the family unemployment rate or insufficient household income. Thus, both the results of this study and those of Tenjo and Ribero (1998) agree that being head of the household does positively influence the labor participation of both men and women in the labor market, although this influence is magnified if it is triangulated with other determinants that act positively depending on gender for the insertion or active search for paid work.

The condition of belonging to the male sex is a positive determinant for participation in the labor market in all the departments of the two regions of Colombia analyzed, except for the department of Vaupés, which was below the threshold (<10%) with a probability of 2.51% on average. In Colombia, cultural tradition dictates that women should assume a domestic role and care for the family. In regions of the country where the patriarchal culture is maintained, the fact of being a woman is a

limitation to actively participating in the labor market, although this tendency, recently and especially in large cities, has changed over the years and women are subject to other determinants that lead to greater opportunities for access to paid work.

In small territories of Colombia where the influence of large cities is distant, access to secondary or higher education is difficult or precarious and environmental conditions burden women with domestic responsibilities from an early age. Being a woman continues to be a condition that significantly distances an individual from having or seeking a paid job, state Pérez et al. (2019). The statement of these authors can be triangulated with data published by González-Quintero and Daza-Báez (2015), Rodríguez and Muñoz (2018) and Mora and Suarez (2016), to point out that being a woman is an aspect that in small territories of Colombia and even, in some cities, is a negative determinant for insertion in the labor market, which should preferably be enhanced with a high educational level. However, empirically, it could be said that since these are departments whose main economic source is livestock and agriculture, the reason why men have such high probabilities is that they can dedicate themselves to these tasks, while women dedicate themselves to household activities and handicrafts.

CONCLUSIONS

For the departments of Amazonas and Vichada, age is a positive indicator, i.e., the older the working age, the greater the possibility that an individual will participate in the labor market. In other departments, according to the study data, age is not entirely determinant for labor participation. The trend in Colombia is similar for older age to work.

Compared to age and being male, a higher educational level is not a determinant that has a significant impact in any of the departments of the two regions analyzed. Of course, in departments such as Arauca and Amazonas, a higher level of education can mean a higher probability for an individual to participate in the labor market. The trend in Colombia's large cities is somewhat different, since a higher level of education not only has a positive impact on an individual's chances of participating in the labor market but is also a determinant for improving socio-economic aspects.

Marital status, as well as the level of schooling, is not a decisive determinant for the labor participation of individuals in the departments analyzed. On the other hand, the head of household does become a determinant of labor participation for individuals, especially for men and women in the departments of Vichada and Putumayo.

Family income is not relevant nor does it have any impact on whether a person participates in the labor market. The probable reason for this is that in these departments it is customary to work in barter, and therefore, there are families with a monetary income of 0 pesos. Finally, being male determines an individual's labor participation in the labor market in both regions, especially in the departments of Amazonas, Guainía and Guaviare. Perhaps where being a man does not matter so much for accessing the labor market is in the department of Arauca, however, the percentage of influence of this aspect as a determinant of labor participation exceeded 10%.

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