

## Analysis of the Predictors of Unemployment of Venezuelan Migrants in the city of Barranquilla through a Logistic Regression Model

Javier Ramirez<sup>1</sup>, Jesus García<sup>2</sup>, Evaristo Navarro<sup>3</sup>, William Niebles<sup>4</sup>

### Abstract

*This research sought to analyze the predictors of unemployment of Venezuelan migrants in Barranquilla through a logistic regression model. A correlational research is presented, in which a sample of 931 Venezuelan migrants in Barranquilla is taken, to whom an instrument aimed at sociodemographic elements linked to living conditions and employment status is applied. Regarding the statistical treatment, a logistic regression analysis is applied, which sought to determine which elements are predictors of unemployment of the migrant population. These findings show as outstanding elements: being active within the informal economy, performing economic activities recognized as trades and having owned a business in Venezuela. It is concluded that there is a condition of vulnerability in Venezuelan migrants as a result of being inserted in the informal sector, being the predictor factors those established in the regression model, with a level of significance.*

**Keywords:** *Venezuelan migration, unemployment, vulnerability, informal job, Colombia.*

### INTRODUCTION

Migrations are considered an issue of great relevance in the international context, since these, often caused by economic, political, environmental situations, among others, result in the mobilization of people from one nation to another (Fischer, Martin & Straubhaar, 2021). This process in natural conditions of the phenomenon of globalization would be considered as a positive aspect for both the nation and the migrant, because this would be justified by the recognition of an opportunity for growth that in the country of origin is not visualized and would accrue from the entry of a highly trained or motivated citizen towards their personal or family development (Lee and Lee, 2020; Wang, 2022).

However, when this migration is a consequence of economic crisis, armed conflicts or natural disasters, they result directly in the urgent departure of citizens from their country of origin to another territory with the premise of finding their subsistence and survival; reason why they often enter the host country without economic resources and placing themselves in a vulnerable status (Abel, et al., 2019; Nakayama, Drinkall & Sasaki, 2019).

---

<sup>1</sup> MBA student; researcher, economics sciences faculty, Corporación Universitaria Latinoamericana, Barranquilla, Colombia; jaramirezdl@ul.edu.co

<sup>2</sup> PhD Management Sciences; researcher, engineering faculty, Institución universitaria ITSA, Soledad, Colombia; jegarciag@ul.edu.co

<sup>3</sup> PhD Education Sciences; researcher, economics sciences faculty, Universidad de la costa, Barranquilla, Colombia; enavarro8@cuc.edu.co

<sup>4</sup> PhD, Management Sciences; researcher, economics sciences faculty, Universidad de Sucre, Colombia; william.niebles@unisucra.edu.co

In this way, the aforementioned vulnerability of the migrant is more impacted by the difficulty of the receiving states to establish effective policies towards the treatment of these immigrants, when this process occurs on a large scale, thus causing a possible exclusion of these social groups from the system, generating an increase in their situation of vulnerability (Pineda & Ávila, 2019). Cases such as that of Ukrainian or Haitian migrants are an important example of the great challenge posed for societies by the entry in a short time, of a large number of immigrants who leave their countries of origin in a forced manner (Gerlach & Ryndzak, 2022).

The case of Latin America is extremely prominent, because as a continent it was a receiver, in the mid-twentieth century, of a large amount of immigrants fleeing World War II, but over the years the countries of this continent such as Argentina, Colombia and Venezuela, have become instead in emitters of migrants (Domínguez-Mujica, et al., 2020). This reality means that countries within the region, in the social, economic and political perspectives are not prepared to receive high numbers of people in migrant status.

In this sense, it is worth highlighting the case of Venezuelan migration in recent years, justified by the economic and political crisis in that country, which has caused the mobilization of more than 3.4 million people to various parts of the world, taking as main host countries: Colombia, Peru, Chile or Ecuador (Doocy, et al., 2019; Salas-Wright, et al., 2022). It is reported that these countries over the years have received a greater number of Venezuelan migrants in vulnerable situations; which makes the quality of life of these people much more difficult, when they sought to mobilize to guarantee their fundamental rights and survival in first place (Summers, Crist & Streitwieser, 2022).

When analyzing the situation of Venezuelan migration in Colombia, it is clear to highlight the two aspects already mentioned: 1) Venezuelan migration is increasingly vulnerable and 2) Colombia, being a sending nation of migrants, was not prepared for the entry of so many migrants in such a short time (Barbieri, et al., 2020; Cubides, et al., 2022). These two elements combined represent the current crisis that arises in the Colombian territory, since it is the country with the highest rate of Venezuelan migration at present and is the one that has carried the greatest burden in the process of attention to the vulnerability of this group (Ramírez, et al., 2022). This vulnerability of Venezuelan migrants certainly shows as fundamental focal point, the effects of multidimensional poverty in housing, education, health and jobs. (Luna, et al, 2018; Ordóñez & Arcos, 2019).

When studying the employment situation of Venezuelan migrants in Colombia, research such as that of Ramírez et al., (2022), carried out in the city of Barranquilla, where they found that factors such as age, sex, and documents with which they reside in Colombia could be considered as elements associated with the unemployment of these migrants. Certainly, the employment situation is one of the elements that generate greater concern to the countries receiving migrants, since these people, not having access to a source of income, must resort to the informal economy, charity or crime in order to obtain the necessary resources to subsist (Díaz-Rincón, Enamorado-Estrada & Almanza-Iglesias, 2021).

In this way, the present study focuses on the city of Barranquilla located in Colombia, for being the first major city closest to the northern – Caribbean border of Venezuela and Colombia, and for having the largest number of Venezuelan migrants in the Colombian Caribbean region, with more than 100,000 migrants of that nationality currently reported, according to data from Migración Colombia and the United Nations (Ramírez, et al., 2022). In this sense, the study of this phenomenon requires the application of scientific methods that allow locating the factors that could have an impact on the unemployment of the Venezuelan migrant population in Barranquilla. Thus, this article is developed in order to analyze the predictors of unemployment of Venezuelan migrants in the city of Barranquilla through a logistic regression model.

**METHODOLOGY**

In order to determine the predictors of unemployment of Venezuelan migrants in the city of Barranquilla, a logistic regression model was used, using the Windows SPSS statistical package, version 28.0 (2021). In this sense, the research is based on data collected in 2021 in partnership with the “Fundación de Pana Que Sí” (NGO based in Barranquilla – Colombia) whose purpose is to provide support services to Venezuelan migrants in the Caribbean Region of that country. The sample of the study is made up of a total of 931 respondents. For the study, unemployment in 2021 was considered as a factor or variable of interest. In this way, table 1 shows the two factors or independent variables with their respective levels 0 and 1, corresponding to the fact of not working or if they do, respectively.

Table 1. Factor or variable of interest

Employed	Levels
No	0
Yes	1

Source: Own elaboration (2022)

From this, a series of six independent factors are selected, presented in Table 2:

Table 2. Independent factors or variables

Variables	Description
1	Number of children
2	Job or profession
3	Formal or informal job
4	Business owner in Venezuela
5	Business owner in Colombia
6	Medically treated in Colombia

Source: Own elaboration (2022)

Then, in Table 3, a comparison is established between the observed values with the values predicted by the regression model obtained, in order to verify the goodness of the fit of the same. By default, an intercept of the probability of Y has been used to classify elements from 0.5. That is, the subjects whose probability obtained is <0,5 are qualified as State = failure, while those who get a probability ≥ 0,5 are qualified as State = success. For this first phase, the model has correctly qualified 76.5% of the study subjects.

Table 3. Employment status classification

Step 0	¿Are you currently working?	No	712	0	100,0
		Yes	219	0	,0
Global percentage					76,5

a. Constant is included in the model

b. Intercept value is ,500

Source: Own elaboration (2022)

Table 4 allows to evidence that the final model fits better than just having the value of Beta, this is shown by Aiken and Schwarz's index which were lower when making the comparison.

HO: The model is only suitable if it does not include any variables other than the constant.

H1: The model is not suitable if it does not include any variables other than the constant.

Since the P-value of the executed test is less than the significance level ( $\alpha = 0.05$ ) as shown in Table 4, there is sufficient evidence to reject the null hypothesis. Therefore, it is plausible to say that the explanatory variables improve the model significantly compared to the model that only includes the constant. In short words, explanatory variables influence unemployment statistically.

Table 4. Model fit information.

Model	Model fit criteria			Contrasts of the likelihood ratio		
	AIC	BIC	Sig.	Chi-square	df	sig
Only the intersection	963,465	972,379	959,465			
Final	722,538	856,241	662,538	311,870	28	0.00

Source: Own elaboration (2022)

## RESULTS

Table 5 shows the goodness-of-fit test that validates the assertion in Table 4, based on the following hypotheses:

HO: The model has an appropriate fit for the study data.

H1: The model is an appropriate fit for the study data. Table 5 validates the assertion of Table 4, with the goodness of fit test, whose hypotheses are:

HO: The model fits the data appropriately.

H1: The model does not fit the data properly.

Table 5. Goodness of fit

	Chi-square	df	Sig.
Pearson	657,181	764	0,998
Deviation	565,659	764	1,000

Source: Own elaboration (2022)

Given the P-value of 0.998 shown in Table 5, higher than the significance level ( $\alpha = 0.05$ ), it is determined that there is insufficient evidence to reject the null hypothesis. This means that the values yielded by the model do not show a significant variation with respect to the observed values. In simple terms, the model fits appropriately to the data included in it. From the parametric point of view, it can also be affirmed that there are no significant differences between the distribution of frequencies observed in the sample collected and the distribution of population data.

As shown below in Table 6, the pseudo R-square statistic represents the proportion of variability explained by the model obtained. Taking as reference the value of  $R^2 = 0.799$  for the R-square Nagelkerke, it can be affirmed with a confidence level of 95% ( $\alpha = 0.05$ ) that the model obtained explains the behavior of the variables studied for the unemployed in a 79.9%.

Table 6. Pseudo R-square

Cox and Snell	0,530
Nagelkerke	0,799

Source: Own elaboration (2022)

In this way, Table 7 details the results of the hypothesis test to calculate the P-value (significance) of coefficient  $\beta_k$  calculated for each independent variable included in the regression and intercept model.

$$H_0: \beta_k=0$$

$$H_1: \beta_k \neq 0$$

Table 7. Contrasts of the likelihood ratio

Variable	Logarithm of model likelihood	Change in the logarithm of likelihood-2	df	Sig. Of the change
Number of children	-160.393	8.917	4	0.063
Job or profession	-192.015	72.16	2	0
Formal or informal job	-218.572	125.274	2	0
Business owner in Venezuela	-158.081	4.291	1	0.038
Business owner in Colombia	-159.516	7.162	1	0.007
Medically treated in Colombia	-157.823	3.775	1	0.052

Source: Own elaboration (2022)

It is observed that the following variables shown above have a P-value lower than the significance level ( $\alpha = 0.05$ ), that is, they influence the model significantly: “Job or profession”, “Formal or informal job”, “Business owner in Venezuela”, “Business owner in Colombia”. On the other hand, the variables “Number of children” and “Medically treated in Colombia” have a P-value higher than the significance level ( $\alpha = 0.05$ ) and therefore, they do not significantly influence the behavior of the dependent variable and should be excluded from the final model.

Table 8 of the estimated parametric values then expresses the effect of each predictor on the model, the square of the quotient of the parametric estimate and, in parentheses, its standard error, as well as the statistical significance of Wald and the value of Odds ratio. Parameters with negative coefficients decrease the probability of the response category with respect to the reference category. Parameters with positive coefficient increase the probability of the response category.

Table 8. Parameter estimates

	B	Standard error	Wald	df	Sig.	Exp(B)
Professional job	-2,327	0,670	12,072	1	0,001***	0,098
Nonprofessional job	1,408	0,436	10,456	1	0,001***	4,089
Formal sector	-5,080	0,627	65,601	1	0,000***	0,006
Informal sector	-1,427	0,366	15,200	1	0,000***	0,240
Business owner in Venezuela	0,743	0,359	4,284	1	0,038***	2,102
Business owner in Colombia	-1,527	0,619	6,085	1	0,014***	0,217
Constant	2,755	0,935	8,682	1	0,003***	15,722

## DISCUSSION

From the findings of the present study, it is possible to recognize a series of elements of great weight when establishing a predictive model of the unemployment of Venezuelan migrants in the city of Barranquilla; where elements such as informality and the performance of non-professional economic activities are identified in a predictive model on the status of economically active. It is important to mention that for this study the term economically active is taken as a reference point of employment due to the high levels of informality present in Colombia (Vallejo-Zamudio, 2020; Moya, Sánchez & Mesa, 2021); with special emphasis on the city of Barranquilla (Buchely & Castro, 2019).

Based on this, it is possible to highlight that, although migrants can be considered as economically active, they have a high degree of vulnerability when developing their economic activity within the informal sector, where they do not enjoy an employment contract, social security and any other benefits and protection mechanisms currently existing for workers (Ramírez, et al., 2022).

In this way, other studies have also attributed migratory status with vulnerability and informality (Polese, et al., 2022); noting that migrants are forced to carry out any economic activity available for their subsistence (Ho, & Ting, 2021; Poirier, et al., 2022). On the other hand, regarding the entrepreneurial background in Venezuela, it is possible to verify that this is a factor related to the development of an economic activity in Colombia, whether or not formal and is of professional typology or trade. Several studies corroborate that the entrepreneurial activity associated with the resilience of the migrant is a positive element to seek their self-subsistence in their host country (Chen & Liu, 2019; Prah & Sibiri, 2020).

## CONCLUSIONS

The study analyzed the predictors of unemployment of Venezuelan migrants in the city of Barranquilla, Colombia through a logistic regression model. In this way, it was possible to validate that they have a high level of vulnerability, even though they are economically active, given that their activity is developed within the informal sector, so they do not participate in the benefits of an employment contract, as well as social security services or any other protection mechanism provided in the country for formal workers.

Likewise, the model made it easier to identify with a level of significance those factors that determine the employability of these migrants, finding that the performance of work activities related to trades such as stylists, cooks, in addition to working in the informal economy sector prevails, and have had the experience of owning a business in Venezuela.

## References

- Abel, G.J., Brottrager, M., Cuaresma, J.C., and Muttarak, R. (2019). "Climate, conflict and forced migration". *Global environmental change*, 54: 239-249. <https://doi.org/10.1016/j.gloenvcha.2018.12.003>
- Barbieri, N.G., Ramírez Gallegos, J., Ospina Grajales, M.D.P., Cardoso Campos, B.P., and Polo Alvis, S. (2020). "Respuestas de los países del pacífico suramericano ante la migración venezolana: estudio comparado de políticas migratorias en Colombia, Ecuador y Perú". *Diálogo andino*, 63: 219-233. <http://dx.doi.org/10.4067/S0719-26812020000300219>
- Buchely, L., and Castro, M.V. (2019). "'Yo me defiendo': entendiendo la informalidad laboral a partir del trabajo de las mujeres mototaxistas en Barranquilla, Colombia". *CS, SPE*: 23-47. <https://doi.org/10.18046/recs.iespecial.3223>

- Chen, Y., and Liu, C.Y. (2019). "Self-employed migrants and their entrepreneurial space in megacities: A Beijing farmers' market". *Habitat International*, 83: 125-134. <https://doi.org/10.1016/j.habitatint.2018.11.009>
- Cubides, J.C., Peiter, P.C., Garone, D.B., and Antierens, A. (2022). "Human mobility and health: exploring the health conditions of Venezuelan migrants and refugees in Colombia". *Journal of immigrant and minority health*, 24(5): 1281-1287. <https://doi.org/10.1007/s10903-021-01298-1>
- Díaz-Rincón, S.V., Enamorado-Estrada, J., and Almanza-Iglesias, M. (2021). "La inmigración de mujeres venezolanas a la invasión Caraquitas-barrio El Bosque, en la ciudad de Barranquilla (Colombia)". *Revista Criminalidad*, 63(3): 265-281. <https://doi.org/10.47741/17943108.308>
- Domínguez, E. and Aldana, D. (2001). "Regresión logística: Un ejemplo de su uso en Endocrinología". *Rev Cubana Endocrinol*, 12(1): 1-5. [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1561-29532001000100007](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-29532001000100007)
- Domínguez-Mujica, J., López de Lera, D., Ortega-Rivera, E., and Pérez-Caramés, A. (2020). "El sistema migratorio de Latinoamérica-España: ¿Ha sido la crisis económica un paréntesis?". *Cuadernos Geográficos*, 59(3): 37-57. <https://doi.org/10.30827/cuadgeo.v59i3.9223>
- Doocy, S., Page, K.R., De la Hoz, F., Spiegel, P., and Beyrer, C. (2019). "Venezuelan migration and the border health crisis in Colombia and Brazil". *Journal on Migration and Human Security*, 7(3): 79-91. <https://doi.org/10.1177/2331502419860138>
- Fischer, P.A., Martin, R., and Straubhaar, T. (2021). "Interdependencies between development and migration". In T. Hammar, G. Brochmann, K. Tamas, and T. Faist (eds.) *International migration, immobility and development*, 91-132. London: Routledge. <https://doi.org/10.4324/9781003136125>
- Gerlach, I., and Ryndzak, O. (2022). "Ukrainian migration crisis caused by the war". *Studia Europejskie-Studies in European Affairs*, 26(2): 17-29. <https://doi.org/10.33067/SE.2.2022.2>
- Guizardi, M., Stefoni, C., González, H., and Mardones, P. (2020). "¿Migraciones transnacionales en crisis? Debates críticos desde el Cono-Sur Americano (1970-2020)". *Papeles de población*, 26(106): 183-220. <https://doi.org/10.22185/24487147.2020.106.36>
- Ho, E. and Ting, W. (2021). "Informality during migration, "conversion" within and across national spaces: Eliciting moral ambivalence among informal brokers". *Transactions of the Institute of British Geographers*, 46(4): 944-957. <https://doi.org/10.1111/tran.12460>
- Lee, J.Y., and Lee, J.Y. (2020). "Female transnational entrepreneurs (FTEs): A case study of Korean American female entrepreneurs in Silicon Valley". *Journal of Entrepreneurship and Innovation in Emerging Economies*, 6(1): 67-83. <https://doi.org/10.1177/2393957519881925>
- Luna Orozco, K. (2018). "Migración Venezolana en Colombia: retos en salud pública". *Revista de la Universidad Industrial de Santander. Salud*, 50(1): 5-6. <http://www.scielo.org.co/pdf/suis/v50n1/0121-0807-suis-50-01-00005.pdf>
- Moya, E.D.S., Sánchez, J.H.P., and Mesa, F.A.H. (2021). "Desempleo Juvenil, Probabilidad y Características en las 13 principales ciudades de Colombia y sus Áreas Metropolitanas (2019)". *Revista CIES Escolme*, 12(1): 151-174. <http://revista.escolme.edu.co/index.php/cies/article/view/327/346>
- Nakayama, M., Drinkall, S., and Sasaki, D. (2019). "Climate Change, Migration, and Vulnerability: Overview of the Special Issue". *Journal of Disaster Research*, 14(9): 1246-1253. <https://doi.org/10.20965/jdr.2019.p1246>
- Ordóñez, J.T., and Arcos, H.E.R. (2019). "(Des) orden nacional: la construcción de la migración venezolana como una amenaza de salud y seguridad pública en Colombia. Ciencias de la salud", (17): 48-68. <http://dx.doi.org/10.12804/revistas.urosario.edu.co/revsalud/a.8119>
- Penaloza-Pacheco, L. (2022). "Living with the neighbors: the effect of Venezuelan forced migration on the labor market in Colombia". *Journal for Labour Market Research*, 56(1): 1-32. <https://doi.org/10.1186/s12651-022-00318-3>

- Pineda, E., and Ávila, K. (2019). "Aproximaciones a la Migración Colombo-Venezolana: Desigualdad, Prejuicio y Vulnerabilidad". *Revista Misión Jurídica*, 12: 16. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3432746](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3432746)
- Poirier, M.J., Barraza, D., Caxaj, C.S., Martínez, A.M., Hard, J., and Montoya, F. (2022). "Informality, Social Citizenship, and Wellbeing among Migrant Workers in Costa Rica in the Context of COVID-19". *International Journal of Environmental Research and Public Health*, 19(10): 6224. <https://doi.org/10.3390/ijerph19106224>
- Polese, A., Fradejas-García, I., Banović, R.Š., Škokić, V., Kerikmäe, T., Molina, J.L., Alpeza, M., Lubbers, M., and Camerani, A. (2022). "Labour Mobility and Informality: Romanian Migrants in Spain and Ethnic Entrepreneurs in Croatia". *Politics and Governance*, 10(2): 279-292. <https://doi.org/10.17645/pag.v10i2.5166>
- Prah, D., and Sibiri, H. (2020). "The resilience of African migrant entrepreneurs in China under COVID-19". *Journal of Entrepreneurship in Emerging Economies*, 13(5): 1119-1133. <https://doi.org/10.1108/JEEE-05-2020-0111>
- Salas-Wright, C.P., Maldonado-Molina, M.M., Pérez-Gómez, A., Trujillo, J.M., and Schwartz, S.J. (2022). "The Venezuelan diaspora: Migration-related experiences and mental health. *Current Opinion in Psychology*", 47: 101430. <https://doi.org/10.1016/j.copsyc.2022.101430>
- Summers, K., Crist, J., and Streitwieser, B. (2022). "Education as an Opportunity for Integration: Assessing Colombia, Peru, and Chile's Educational Responses to the Venezuelan Migration Crisis". *Journal on Migration and Human Security*, 10(2): 95-112. <https://doi.org/10.1177/23315024221085189>
- Vallejo-Zamudio, L.E. (2020). "El desempleo en Colombia: una aproximación". *Apuntes del Cenes*, 39(69): 7-10. <https://doi.org/10.19053/01203053.v39.n69.2020.10738>
- Wang, G.Y. (2022). "Talent Migration in Knowledge Economy: The Case of China's Silicon Valley, Shenzhen". *Journal of International Migration and Integration*, 23(3): 1175-1196. <https://doi.org/10.1007/s12134-021-00875-5>