



DOI: http://dx.doi.org/10.23857/dc.v5i1.1061

Ciencias de la educación Artículo de investigación

# A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

Un estudio del perfil social de los pueblos indígenas de 5 a 14 años en Ecuador: análisis y comprensión de aspectos clave

# Um estudo sobre o perfil social de povos indígenas de 5 a 14 anos no Equador: analisando e compreendendo aspectos-chave

Diego Patricio Ortega-Auquilla <sup>1</sup> diego.ortega@unae.edu.ec https://orcid.org/0000-0002-6256-9150

Andrés Marcelo Bonilla-Marchan II andres.bonilla.marchan@gmail.com https://orcid.org/0000-0002-5929-8265

Marcela Verónica Garcés-Chiriboga III marcela.garces@unae.edu.ec https://orcid.org/0000-0001-7148-5154

Joana Valeria Abad-Calle <sup>IV</sup>
<u>joana.abad@unae.edu.ec</u>
https://orcid.org/0000-0001-9901-8355

Recibido: 29 de agosto de 2019 \*Aceptado: 01 de octubre de 2019 \* Publicado: 12 de noviembre de 2019

I Máster-In Curriculum & Instr-English As Second Language, Licenciado en Ciencias de la Educación en la Especialización de Lengua y Literatura Inglesa, Docente de las Carreras de Educación Básica, educación Inicial y Educación Intercultural Bilingüe en la Universidad Nacional de Educación (UNAE), Azogues, Ecuador.

<sup>&</sup>lt;sup>II</sup> Magíster en Gestión de Sistemas de Información e Inteligencia de Negocios, Ingeniero de Sistemas, Dirección de Soporte Tecnológico en la Universidad Nacional de Educación (UNAE), Azogues, Ecuador.

III Magíster en Pedagogía, Licenciada en Educación General Básica, Docente de las Carreras de Educación Básica y Educación Inicial en la Universidad Nacional de Educación (UNAE), Azogues, Ecuador.

<sup>&</sup>lt;sup>IV</sup> Magíster en Intervención y Educación Inicial, Licenciada en Psicología Educativa en la Especialización de Educación Temprana, Docente de la Carrera de Educación Inicial en la Universidad Nacional de Educación (UNAE), Azogues, Ecuador.

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

#### **Abstract**

The objective behind this study was to investigate the indigenous people, aged 5 to 14 years old, in Ecuador in order to know about their conditions regarding sociodemographic and socioeconomic statuses and aspects concerning access to technology. It was also examined the implications these conditions may have to access education among indigenous minors, and the activities they perform in society. In order to achieve the objectives of this study, a descriptive analysis and a multidimensional statistical analysis were carried out. Available data from the National Survey of Employment, Unemployment and Underemployment of Ecuador (ENEMDU), conducted by the National Institute of Statistics and Censuses (INEC) in 2016, was utilized as the main source of information. The descriptive analysis showed the frequencies and the percentages of the variables that were explored by this study. The multidimensional statistical analysis was employed with the aim of showing the main and the most important criteria of differentiation and classification in different clusters of people under study. The method employed was the multiple correspondence analysis, which showed the criteria of differentiation and a hierarchical clustering that defined the clusters of people based on their common characteristics.

**Keywords:** indigenous minors-, Ecuadorian indigenous and education; multidimensional statistical analysis.

#### Resumen

El objetivo de este estudio fue investigar a los indígenas de 5 a 14 años de edad en Ecuador para conocer sus condiciones con respecto a los estados sociodemográficos y socioeconómicos y los aspectos relacionados con el acceso a la tecnología. También se examinaron las implicaciones que estas condiciones tienen para el acceso a la educación entre los indígenas menores y las actividades que realizan en la sociedad.

Para lograr los objetivos de este estudio se realizó un análisis descriptivo y un análisis estadístico multidimensional. Los datos disponibles de la Encuesta Nacional de Empleo, Desempleo y Subempleo del Ecuador (ENEMDU), realizada por el Instituto Nacional de Estadística y Censos (INEC) en 2016, fueron utilizados como fuente principal de

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

información. El análisis descriptivo mostró las frecuencias y los porcentajes de las variables exploradas por este estudio. El análisis estadístico multidimensional se empleó con el objetivo de mostrar los principales y más importantes criterios de diferenciación y clasificación en diferentes grupos de personas bajo estudio. El método empleado fue el análisis de correspondencia múltiple, que mostró los criterios de diferenciación y un agrupamiento jerárquico que definió los grupos de personas en base a sus características comunes.

**Palabras clave:** Indígenas menores; ecuatorianos indígenas y la educación; análisis estadístico multidimensional.

Resumo

O objetivo deste estudo foi investigar indígenas de 5 a 14 anos no Equador para conhecer suas condições em relação aos estados sociodemográficos e socioeconômicos e aspectos relacionados ao acesso à tecnologia. Também foram examinadas as implicações dessas condições para o acesso à educação entre os povos indígenas menores e as atividades que eles realizam na sociedade.

Para atingir os objetivos deste estudo, foram realizadas uma análise descritiva e uma estatística multidimensional. Os dados disponíveis na Pesquisa Nacional de Emprego, Desemprego e Subemprego no Equador (ENEMDU), realizada pelo Instituto Nacional de Estatística e Censos (INEC) em 2016, foram utilizados como a principal fonte de informação. A análise descritiva mostrou as frequências e porcentagens das variáveis exploradas por este estudo. A análise estatística multidimensional foi utilizada para mostrar os principais e mais importantes critérios de diferenciação e classificação nos diferentes grupos de pessoas estudadas. O método utilizado foi a análise de correspondência múltipla, que mostrou os critérios de diferenciação e um agrupamento hierárquico que definiu os grupos de pessoas com base em suas características comuns.

Palavras-chave: menores indígenas; equatorianos indígenas e educação; análise estatística multidimensional.

Introduction

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

The objective of the present study was to examine the social profile of indigenous people aged 5 to 14 years old in Ecuador and conduct a comparative analysis in relation to non-indigenous minors. The indigenous population encounters poverty rates that are twice higher than the rest of the society in Latin America. In addition to poverty, in Ecuador there had been several issues within the following area: "while the law prohibits discrimination based on race, gender, or social status, women, indigenous people, and Afro-Ecuadorians continued to face significant discrimination" (Bureau of Democracy, Human Rights & Labor, 2006, p. 7). This foreign bureau went on to explain that "indigenous women faced triple discrimination on the basis of gender, ethnicity, and reduced economic status" (Bureau of Democracy, Human Rights & Labor, 2011 p. 20).

There has been a research interest for quantifying the existing gap concerning poverty rates, and this kind of data was not known until the World Bank came up with a report titled "Latinoamérica Indigenous in the XXI century". Currently, South American countries do not possess data that allow to obtain rates classified by ethnicity. However, the World Bank Group (2015) observed that a favorable economic context and appropriate policies have helped to create socioeconomic gains among indigenous peoples in Latin America. In this regard, this international entity pointed out that:

The region has made progress in terms of poverty reduction, which benefited indigenous people. The percentage of indigenous households living in poverty declined in Peru and Bolivia, while the proportion living in extreme poverty was reduced in Bolivia, Brazil, Chile, Ecuador, and Peru. (p. 8)

If demographic and economic differences and conditions are taken into account among indigenous people and the rest of the population, it is paramount to note that the indigenous have

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586

REVISTA CIENTIFICA

A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

a greater possibility of living in rural areas, as well as of experiencing a low level of education and poverty. This is evident when detailed data has been analyzed from these five countries: Bolivia, Ecuador, Guatemala, México, and Perú, as they do have available data for this purpose (World Bank Group, 2015).

It is imperative to note that the empirical evidence gathered by means of the present study shows that there is still no reduction concerning poverty rates of indigenous populations and the rest of the population throughout Ecuador.

Methodology

This research study utilized data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU). In order to carry out a thorough analysis, it was necessary to access the database provided by the National Institute of Statistics and Censuses (INEC) on its official webpage called ENEMDU – 2016. After downloading the data, a statistical treatment of data was performed by means of SPSS. This software allowed us to discriminate the most relevant variables and employ the data according to our statistical needs. Afterwards, by using SPAD v.4.5, a factorial analysis was conducted; this kind of analysis examined six clusters and their different characteristics.

A segmentation of the population was made, obtaining two different groups; these groups can be differentiated in these two main aspects: indigenous population and non-indigenous population. Once the grouping of population was created, a comparative analysis between the two groups was carried out (Olivier, 2008).

566

Within the framework of the study, a descriptive analysis and a multidimensional statistical analysis were carried out. The descriptive analysis shows the frequencies and the percentages of the variables that were explored by this study (Athanasiadis, 1995).

The multidimensional statistical analysis is utilized with the aim of showing the principal and the most important criteria of differentiation and the classification in different clusters, which is composed of the research subjects. The method employed is multiple correspondence analysis, which show criteria of differentiation and a hierarchical clustering that define clusters of people based on common characteristics (Stefos et. al, 2011).

The method of multiple correspondence analysis is used with the aim of finding how people are different based on their answers. This method investigates the correlation of variables in a survey simultaneously. The factorial axes are the criteria of differentiation that indicate the opposite sides of people's answers.

The hierarchical analysis shows clusters of people based on their answers and common characteristics. This method also presents a classification figure that links these clusters (Papapostolou et al, 2013).

# The Descriptive Analysis

From the population under study, it was found out that 83.91% of indigenous people aged 5 to 14 years old live in the rural area, while the 16.09% live in the urban area. With regard to the non-indigenous population aged 5 to 14 years old, the 30.64% live in the rural area and the 69.36% live in the urban area (Table I).

Table I

Area of residence

Indigenous	%	Non-indigenous	%

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

Rural	301685	83.91%	937052	30.64%
Urban	57851	16.09%	2121298	69.36%
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

50.97% are men, while 49.03% are women in the indigenous population aged 5 to 14 years old. Regarding the non-indigenous population aged 5 to 14 years old, 50.83% are men and 49.17 are women (Table II).

Table II *Gender* 

	Indigenous	%	Non- indigenous	%
Men	183239	50.97%	1554606	50.83%
Women	176297	49.03%	1503744	49.17%
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

11.68% of the indigenous population is 5 years old, 9.34% are 6 years old, 9.21% are 7 years old, 11.67% are 8 years old, 10.51% are 9 years old, 10.22% are 10 years old, 9.66% are 11 years old; 8.75% are 12 years old, 9.04% are 13 years old, and 9.91% are 14 years old. With regard to the non-indigenous population, 12.02% are 5 years old, 9.56% are 6 years old, 10.25% are 7 years old, 10.39% are 8 years old, 9.48% are 9 years old, 10.75% are 10 years old, 8.86% are 11 years old, 9.83% are 12 years old, 9.31% are 13 years old, and 9.55% are 14 years old (Table III).

Table III

Age



	Indigenous	%	Non-indigenous	%
5	42008	11.68%	367513	12.02%
6	33576	9.34%	292335	9.56%
7	33115	9.21%	313358	10.25%
8	41966	11.67%	317774	10.39%
9	37791	10.51%	290046	9.48%
10	36743	10.22%	328762	10.75%
11	34740	9.66%	271099	8.86%
12	31471	8.75%	300605	9.83%
13	32488	9.04%	284877	9.31%
14	35639	9.91%	291979	9.55%
Total	359537	100.00%	3058348	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

97.26% of the indigenous population, aged 5 to 14 years old, attends school, while 2.74% do not attend school. Concerning the non-indigenous population, 97.30% attend to school, while 2.70% do not attend to school (Table IV).

Table IV
School attendance

	Indigenous	%	Non-Indigenous	%
Yes	349670	97.26%	2975876	97.30%
No	9866	2.74%	82474	2.70%



Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

80.13% of the indigenous population aged 5 to 14 years old knows how to read and write, while 19.86% do not know how to read and write. On the contrary, 81.50% of the non-indigenous population knows how read and write, while 18.49% do not know how to read and write (Table V).

Table V

Knowing how to read and write

	Indigenous	%	Non- Indigenous	%
Yes	288106	80.13%	2492646	81.50%
No	71411	19.86%	565359	18.49%
N/A	19	0.01%	345	0.01%
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

82.11% of the indigenous people aged 5 to 14 years old who did not work last week, while 17.89% did work last week. Relating to the non-indigenous, 98.11% did not work last week, while 1.89% did work (Table VI).

Table VI

Last week at work

	Indigenous	%	Non-indigenous	%
No	295211	82.11%	3000589	98.11%

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

Yes	64326	17.89%	57761	1.89%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

75.40% of the indigenous population aged 5 to 14 years old does not work due to studies; 0.33% of the indigenous people does not work due to disabilities; 0.06%, as a result of being housewives; and 1.22%, due to other undefined reasons. With respect to the non-indigenous population, 94.99% do not work due to studies, 0.62%, because of being disabled; and 1.44, due to other reasons (Table VII).

Table VII

Type of unemployment

	Indigenous	%	Non-Indigenous	%
Student	271082	75.40%	2905146	94.99%
Disabled	1176	0.33%	19097	0.62%
Housewife	219	0.06%	2948	0.10%
Other	4403	1.22%	44183	1.44%
N/A	82657	22.99%	86976	2.84%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

15.84% of the indigenous population aged 5 to 14 years old did not play any sport last week, while 11.78% played some kind of sport last week. Concerning the non-indigenous population, 15.15% did not play any sport last week, while 13.37% did play (Table VIII).



Table VIII

Played any sport last week.

	Indigenous	%	No indigenous	%
No	56937	15.84%	463477	15.15%
Si	42350	11.78%	409010	13.37%
NS / NR / NA	260250	72.38%	2185863	71.47%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

89.93% of indigenous students aged 5 to 14 years old got enrolled in public educational institutions; 4.05%, in semi-public educational institutions; and 3.22%, in private institutions. Regarding the non-indigenous population, 76.88% got enrolled in public educational institutions; 4.22%, in semi-public educational institutions; and 16.22%, in private institutions (Table IX).

Table IX

Enrollment in educational institutions

	Indigenous	%	Non- Indigenous	%
Public	323338	89.93%	2351185	76.88%
Semi-public	14574	4.05%	129016	4.22%
			(continue)	
Particular	11594	3.22%	496092	16.22%
N/A	10031	2.79%	82057	2.68%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.



98.10% of the indigenous population aged 5 to 14 years old has no an active cell phone, while 1.61% have a cell phone. With regard to the non-indigenous population aged 5 to 14 years old, 90.43% do not have an active cell phone, while 9.23% have a cell phone (Table X).

Table X

Possessing an active cell phone

	Indigenous	%	Non-indigenous	%
No	352716	98.10%	2765715	90.43%
Yes	5778	1.61%	282306	9.23%
No informa sección 6	1042	0.29%	10328	0.34%
Total	359536	100.00%	3058349	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

0.85% of the indigenous population aged 5 to 14 years old has a smartphone, while 0.75% of the population has no a smartphone. With respect to the non-indigenous population, 6.05% have a Smartphone, while 3.18% do not have any (Table XI).

Table XI

Cell phone type – smartphone

	Indigenous	%	Non-indigenous	%
Yes	3071	0.85%	185062	6.05%



No	2707	0.75%	97244	3.18%
N/A	353758	98.39%	2776044	90.77%
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

53.64% of the indigenous population aged 5 to 14 years old has used a computer during the last 12 months, while 46.07% have not used it. With regard to the non-indigenous population, 61.09% have used a computer during the last twelve months, while 38.57% have not used it (Table XII).

Table XII

Use of computer during the last 12 months

	Indigenous	%	Non-Indigenous	%
	1222			-1.00
Yes	192868	53.64%	1868341	61.09%
No	165626	46.07%	1179680	38.57%
N/A	1042	0.29%	10328	0.34%
Total	359536	100.00%	3058349	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

54.66% of the indigenous population aged 5 to 14 years old has not used the Internet during the last twelve months, while 45.05% have used it. 40.41% of the non-indigenous population has not used the Internet during the last twelve months, while 59.25% have used it (Table XIII).

#### Table XIII

*Use of the Internet during the last 12 months* 



	Indigenous	%	No Indigenous	%
No	196540	54.66%	1235867	40.41%
Si	161954	45.05%	1812155	59.25%
NA	1042	0.29%	10328	0.34%
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

20.42% of the indigenous population aged 5 to 14 years old has used the Internet the most in public spaces during the last twelve months; 17.21% have used the Internet at educational institutions; 6.09%, at home; 0.84%, at other people's homes; 0.09%, at work; and 0.039%, in other places. With regard to the non-indigenous population, 16.68% has used the Internet in public spaces during the last twelve months; 10.18% of the population has used the Internet in educational institutions; 29.06%, at home; 2.67%, at other people's homes; 0.09%, at work (Table XIV).

Table XIV

The place where the Internet was used more frequently during the last twelve months

	Indigenous	%	Non- Indigenous	%
In public spaces	73400	20.42%	510248	16.68%



At educational institution	61889	17.21%	311346	10.18%
At home	21907	6.09%	888814	29.06%
At other people's homes	3033	0.84%	81586	2.67%
			(continue)	
At work	328	0.09%	2676	0.09%
In other places	1398	0.39%	17485	0.57%
N/A	197582	54.95%	1246195	40.75%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

Now, the frequency of internet use is highlighted. 25.74% have used the Internet at least once a week; 17.07%, once a day; 2.17%, at least once in a month; 0.05%, at least once a year; and 0.02% do not know how to use it. Concerning the non-indigenous population, 21.22% have used the Internet at least once a week; 36.73%, at least once a day; 1.22%, at least once a month; 0.04%, at least once a year; and 0.04% do not know how to use it (Table XV).

Table XV

Frequency of internet use during the last twelve months

	Indigenous	%	Non-indigenous	%
At least once a week	92532	25.74%	648998	21.22%



At least once a day	61375	17.07%	1123383	36.73%
At least once a month	7788	2.17%	37320	1.22%
At least once a year	189	0.05%	1269	0.04%
Does not know how to use it	71	0.02%	1184	0.04%
N/A	197582	54.95%	1246195	40.75%
Total	359537	100.00%	3058349	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

58.72% of the indigenous population aged 5 to 14 years old comes from the highlands region; 33.05%, from the amazon region; and 8.23%, from the pacific coast region. With regard to the non-indigenous population, 40.73% come from the highlands region; 3.93%, from the amazon region; and 55.33%, from the pacific coast region (Table XVI).

Tabla XVI

Natural region

	Indigenous	%	Non-Indigenous	%
Highlands	211119	58.72%	1245784	40.73%
Amazon	118833	33.05%	120316	3.93%
Pacific coast	29584	8.23%	1692250	55.33%
			(continue)	
Total	359536	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.



63.18% of the indigenous population aged 5 to 14 years old experiences poverty based on income, while 36.47% do not consider themselves poor. Concerning the non-indigenous population, 27.33% consider themselves poor, while 72.01% do not consider themselves poor (Table XVII).

Table XVII

Poverty based on income

	Indigenous	%	No Indigenous	%
Poor	227160	63.18%	835795	27.33%
				(continue)
Non-poor	131128	36.47%	2202175	72.01%
N/A	1249	0.35%	20380	0.67%
Total	359537	100.00%	3058350	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

59.55% of the indigenous population aged 5 to 14 years does not consider themselves indigent, while 40.10% of the population considers themselves indigent. Concerning the non-indigenous population, 89.91% do not consider themselves indigent, while 9.42% consider themselves indigent (Table XVIII).

Table XVIII

Extreme poverty based on income

	Indigenous	%	Non-Indigenous	%
Non-indigent	214109	59.55%	2749860	89.91%
Indigent	144179	40.10%	288109	9.42%

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

N/A	1249	0.35%	20380	0.67%
Total	359537	100.00%	3058349	100.00%

Note: Table created by the authors using the data from the 2016 National Survey of Employment, Unemployment, and Underemployment of Ecuador (ENEMDU) conducted by INEC.

# Multiple correspondence analysis

The method of multiple correspondence analysis is utilized to find out how people, taking part in a survey, are different based on their answers (Koulianidi & Stefos, 2016); this analysis also allows us to visualize the relative position among each one of them within the context of two dimensions. The criteria that differentiate people are as follows:

### First criterion of differentiation (percentage of inertia 16.32%)

In the first axis, on the one hand, the minors who have not used the Internet and a computer during the last twelve months are those who do not know how to read and write and have no an active cell phone. On the other hand, there is another group consisting of minors, who have used the Internet and a computer at least once a day; the minors have used them at home the most and they know how to read and write.

## Second criterion of differentiation (percentage of inertia 6.52%)

In the second axis, on the one hand, there are minors who do not work due to the fact they are students and they did not work last week; they do not consider themselves indigenous, and they live in urban areas. On the other hand, there are minors who did work last week and consider themselves indigenous; they live in rural areas and consider themselves poor based on their income.

## Third criterion of differentiation (percentage of inertia 6.08%)

In the third axis, on the one hand, there are minors who attend school; their school is public and they do not work due to their studies. They have no an active cell phone. On the other hand, there are minors who do not attend school due to lack of economic resources. They have an active cell phone, and it is a smart phone. They do not work because of varied reasons.

# **Hierarchical Analysis**

The hierarchical clustering led to the formation of six clusters, which are graphically represented in the figure below (Benzécri, 1992).

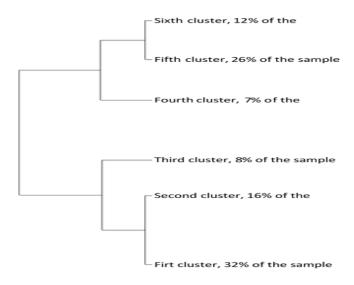


Figure 1: Hierarchical Analysis

### First cluster, 32% of the sample

The minors from the first cluster have used the Internet and a computer during the last twelve months; they used the Internet at home, both once a day and once a week at least. They have no an active cell phone, and they do not work due to their studies.

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586

A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

Second cluster, 16% of the sample

The minors from the second cluster said they have used the Internet and a computer during

the last twelve months; they played some sport last week. Their ages range from 12 to 14 years old,

and they know how to read and write. Public spaces were where they used the Internet the most.

Third cluster, 8% of the sample

The minors from the third cluster have an active cell phone, and it is a smart phone; they

have used the internet at least once a day during the last twelve months. They have also used a

computer in the last twelve months, and they are 14 years old. They do not consider themselves

poor based on their income.

Fourth cluster, 7% of the sample

The minors from this cluster worked last week, and they consider themselves

indigenous, living in rural areas. They consider themselves poor, and they live in the amazon region

and do not attend school.

Fifth cluster, 26% of the simple

The minors from this cluster have not used the Internet and a computer during the last

twelve months, and they are 7 years old. They know how to read and write and did not work last

week. They have no an active cell phone, and they do not work due to their studies. They attend to

public schools; they consider themselves poor based on their income.

Sixth group, 12% of the sample

581

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586

Diego Patricio Ortega Auquilla, Andrés Marcelo Bonilla Marchan, Marcela Verónica Garcés Chiriboga, Joana Valeria Abad



The sixth cluster is made up of minors who do not know how to read and write, and they are 5 years old; they have not used the Internet and a computer during the last twelve months. The differences of the aforementioned clusters are shown in Figure 2, where the graphic of Correspondence Analysis (factorial level 1x2) presents the centroids of the six clusters in both axes. In addition, it defines the differences and the similarities among the persons of the six clusters (Stefos & Papapostolou, 2013).

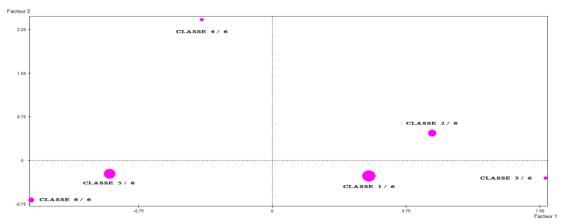


Figure 2: Correspondence Analysis

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

#### **Conclusions**

The objective behind the present study was to investigate social characteristics of indigenous minors aged 5 to 14 years old in Ecuador in order to determine their social profile and use of and access to ICTs. In addition, the objective of the study involved carrying out a comparative analysis; therefore, non-indigenous minors aged 5 to 14 years old became part of this study to accomplish the overall objective of this research. Within the framework of the study, a multidimensional statistical analysis was carried out, which confirmed the results of the descriptive analysis.

In Ecuador, most of the indigenous minors live in rural areas; that is, 83.91% of them. 58.72% live in the highlands region, while 33.05% live in the amazon region. With regard to the non-indigenous population, 69.36% live in urban areas, 40.73% live in the highlands region, and 55.33% live in the pacific coast region. There is an equitable level of gender between the indigenous and the non-indigenous population, as 50% is the mean in this regard. Regardless of being indigenous or non-indigenous, they attend to school; approximately 80.82% know how to read and write, while 19.18% do not, bearing in mind that 10.65% of students' ages are between 5 and 6 years old. 17.89% of the indigenous population worked last week, while only 1.89% of the non-indigenous population worked. 89.93% of the indigenous population got enrolled in public schools; 3.22%, in private educational institutions.

Regarding non-indigenous population, 76.88% attended public schools and 16.22% went to private schools. 98.10% of the indigenous population has no an active cell phone; 0.85%, of those who do have a cellphone, use a smartphone. 53.64% have used a computer and 45.05% have used the Internet during the last twelve months; 20.42% have accessed the Internet from public spaces. 25.74% have used the Internet at least once a week and 17.07% have used it once a day. The non-



indigenous population, who has no an active cell phone, represents 90.43%; on the other hand, 6.05% have a cellphone and it is a smartphone. During the last twelve months, 61.09% have used a computer and 59.25% have used the internet. Most of the non-indigenous population, that is, 29.06% have used it at their homes, while 6.09% of the indigenous population has used it at home. 21.22% of the indigenous minors has used it at least once a week and 36.73% have used it at least once a day. Lastly, 63.18% of the indigenous minors are poor based on family income and 40.10% of them are indigent; with regard to the non-indigenous population, 27.33% consider themselves poor and 9.42% are indigent.

#### References

- Athanasiadis, I. (1995). Correspondence Analysis and Hierarchical Classification (pp. 51-56). Athens: New Technologies Editions.
- 2. Benzécri, P. (1992). Correspondence Analysis Handbook. New York: Dekker.
- 3. Bureau of Democracy, Human Rights & Labor. (2011). Ecuador: Country reports on
- human rights practices. Retrieved February 7, 2018 from https://www.state.gov/documents/organization/186722.pdf
- 5. Bureau of Democracy, Human Rights & Labor. (2006). Ecuador: Country reports on
- human rights practices. Retrieved February 5, 2018 from
   https://www.justice.gov/sites/default/files/eoir/legacy/2013/06/07/ecuador\_6.pdf
- Instituto Nacional de Estadística y Censos INEC. (2015). Encuesta Nacional de Empleo,
   Desempleo y Subempleo ENEMDU. Quito, Ecuador.
- 8. Olivier, M. (2008). The analysis of quantitative data, Transl. Athanasiadis, I. (pp.86-88). Athens: Topos.
- 9. Papapostolou, I., Papapostoulou, K. & Stefos, E. (2013). Educational Research. From Qualitative to Quantitative analysis. p.178. Rhodes: Evdimos Editions.



- 10. Papapostolou, I. & Stefos, E. (2013). Qualitative analysis on pedagogical research. Methodological approaches. In I. Papapostolou (Ed.), Educational activities. Teaching Interventions in Secondary Education. pp.244-251. Rhodes: Evdimos Editions.
- 11. Stefos, E. & Koulianidi, G. (2016). Nutrition Data Analysis Using R: Applications in Higher Education. Health Sciences Research, Vol. 3, No. 1, 2016, pp. 10-16.
- 12. Stefos, E. & Efstathiou, I. (2013). Quantitative analysis of the data of the School of Trianta during the period of 1906-1916. In I. Papapostolou (Ed.), Educational activities. Teaching Interventions in Secondary Education. pp.29-57. Rhodes: Evdimos Editions.
- Stefos, E. & Papapostolou, I. (2013). Research Methodology. Processes and suggestions.
   p.406. Rhodes: Evdimos Editions.
- 14. Stefos, E., Athanasiadis I., Gialamas, B. & Tsolakidis, C. (2011). The Use of New Technologies and the Project Method in Teaching Statistics: A Case Study in Higher Education. HMS i JME, Volume 3. 2010-2011. pp.84-100.
- 15. World Bank Group. (2015). Indigenous Latin America in the twenty-first century: The first
- decade. Washington DC: International Bank for Reconstruction and Development / The World Bank.

#### Referencias

- 1. Athanasiadis, I. (1995). Análisis de correspondencia y clasificación jerárquica (pp. 51-56). Atenas: Ediciones de Nuevas Tecnologías.
- 2. Benzécri, P. (1992). Manual de Análisis de Correspondencia. Nueva York: Dekker.
- 3. Oficina de Democracia, Derechos Humanos y Trabajo. (2011) Ecuador: informes de países sobre



- 4. prácticas de derechos humanos. Recuperado el 7 de febrero de 2018 de https://www.state.gov/documents/organization/186722.pdf
- 5. Oficina de Democracia, Derechos Humanos y Trabajo. (2006) Ecuador: informes de países sobre
- 6. prácticas de derechos humanos. Consultado el 5 de febrero de 2018 er https://www.justice.gov/sites/default/files/eoir/legacy/2013/06/07/ecuador\_6.pdf
- 7. Instituto Nacional de Estadística y Censos INEC. (2015) Encuesta Nacional de Empleo, Desempleo y Subempleo ENEMDU. Quito, ecuador.
- 8. Olivier, M. (2008). El análisis de datos cuantitativos, Transl. Athanasiadis, I. (págs. 86-88). Atenas: Topos.
- 9. Papapostolou, I., Papapostoulou, K. y Stefos, E. (2013). Investigación Educativa. Del análisis cualitativo al cuantitativo. p.178. Rodas: Ediciones Evdimos.
- 10. Papapostolou, I. y Stefos, E. (2013). Análisis cualitativo de la investigación pedagógica. Enfoques metodológicos. En I. Papapostolou (Ed.), Actividades educativas. Intervenciones Docentes en Educación Secundaria. pp.244-251. Rodas: Ediciones Evdimos.
- 11. Stefos, E. y Koulianidi, G. (2016). Análisis de datos nutricionales utilizando R: aplicaciones en la educación superior. Investigación en Ciencias de la Salud, vol. 3, N ° 1, 2016, pp. 10-16.
- 12. Stefos, E. y Efstathiou, I. (2013). Análisis cuantitativo de los datos de la Escuela de Trianta durante el período 1906-1916. En I. Papapostolou (Ed.), Actividades educativas. Intervenciones Docentes en Educación Secundaria. pp.29-57. Rodas: Ediciones Evdimos.
- 13. Stefos, E. y Papapostolou, I. (2013). Metodología de investigación. Procesos y sugerencias. p.406. Rodas: Ediciones Evdimos.
- 14. Stefos, E., Athanasiadis I., Gialamas, B. y Tsolakidis, C. (2011). El uso de nuevas tecnologías y el método del proyecto en la enseñanza de estadísticas: un estudio de caso en la educación superior. HMS i JME, Volumen 3. 2010-2011. pp.84-100.
- 15. Grupo del Banco Mundial. (2015) América Latina indígena en el siglo XXI: el primer
- década. Washington DC: Banco Internacional de Reconstrucción y Fomento / Banco Mundial.

Vol. 5, núm. 1, Especial Noviembre 2019, pp. 562-586



A study of the social profile of indigenous people aged 5 to 14 years old in Ecuador: Analyzing and understanding key aspects

©2019 por los autores. Este artículo es de acceso abierto y distribuido según los términos y condiciones de la licencia Creative Commons Atribución-NoComercial-CompartirIgual 4.0 Internacional (CC BY-NC-SA 4.0)

(<a href="https://creativecommons.org/licenses/by-nc-sa/4.0/">https://creativecommons.org/licenses/by-nc-sa/4.0/</a>).