VIDA MIGRANTE
ECONOMIC INCLUSION OF VENEZUELAN MIGRANTS IN ECUADOR

EXECUTIVE REPORT
WFP ECUADOR, APRIL

MIT | CIVIC DESIGN DATA LAB

VIDA MIGRANTE
ECONOMIC INCLUSION OF VENEZUELAN MIGRANTS IN ECUADOR

EXECUTIVE REPORT

ECUADOR, APRIL 2023

WFP
Programa Mundial de Alimentos

1. INTRODUCTION

1.1 EXECUTIVE SUMMARY

Recognizing that as of 2022, many Venezuelan migrants living in Ecuador struggle to provide their basic needs, during the summer of 2022, the United Nations World Food Programme (WFP) interviewed Venezuelan migrants across the country to understand their experience. The questions of the survey sought to help understand the migrants' ability to contribute to the digital economic sector in Ecuador. Migrants were asked about their current economic situation as well as their occupation and skill level before they arrived in Ecuador. The results show that migrants overall are interested in learning new skills; however, there are many barriers to their inclusion in the digital economy. Beyond the fact that most migrants don't have legal status to work in Ecuador, over half the migrants who might have digital skills are unable to access the internet. This is largely due to the fact that paying for internet often is an additional expense after paying for food, housing, transportation, and healthcare. Supporting the migrants with internet access or assistance with their basic needs could help their ability to contribute to the economic diversification and the emerging digital economy in Ecuador.

1.2 BACKGROUND

74% OF MIGRANTS CHOSE ECUADOR AS A COUNTRY OF DESTINATION BECAUSE OF THE JOB OPPORTUNITIES.

During nineteenth and twentieth centuries, Venezuela was a destination country for migrants, but in the last thirty years, it has presented a strong migrating pattern[1]. Following an initial migration to the United States and Spain, during recent waves of migration from 2016-2019 and 2020-2022, Venezuelans have primarily migrated to South American countries such as Colombia, Perú, Chile, and Ecuador[2] (UN), due to the political and economic situation in their home country[1]. Ecuador is one of the predominant destinations for Venezuelan migrants because it offers job opportunities; according to our survey, 36% percent of the migrants chose Ecuador for this reason.

When Venezuelans arrive in Ecuadorian cities, they face many challenges, including access to services, health care, and education systems. But finding employment in Ecuador remains the biggest issue. Unemployment in Ecuador increased[3] as GDP growth fell between 2011 and 2021[4].

1. Crasto and Álvarez, "Percepciones sobre la migración venezolana. "https://doi.org/10.14422/mig.i41.y2017.006
2. "International Migrant Stock | Population Division." https://www.un.org/development/desa/pd/content/international-migrant-stock
3. "Unemployment, Total (% of Total Labor Force) (National Estimate) - Ecuador | Data." https://data.worldbank.org/indicator/SL.UEM.TOTL.NE.ZS?locations=EC
4. "GDP Growth (Annual %) - Ecuador | Data." https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2021&locations=EC&start=2013

Ecuador's struggling economy is reflected in migrants' conditions. First, Ecuador has high informality rates; 53.4 percent of Ecuador's labor force is in the informal sector[5]. In addition to that, salaries in Ecuador are low; the country's average household income is $840.0, while the Basic Family Basket, a national measurement composed of goods and services such as food, housing, clothing, and miscellaneous expenses, is $763.44. This means that families are left just with $73 for unexpected situations[6].

Food insecurity is also at the center of individuals in Ecuador. The World Food Programme divides the food consumption status of individuals into two main categories: food secure and food insecure. Food security exists when individuals "have, at all times, physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"[7]. Food insecurity is when individuals are not able to meet such needs. According to WFP, more than 13 percent of Ecuadorians are severely food insecure[8], and our survey shows that almost 60 percent of migrants are food insecure, from this 8 percent are severely food insecure (figure 3).

Finally, financial institutions' inclusion levels are also very low in Ecuador; according to the World Bank[9], only 64 percent of Ecuadorians, older than 15 years old, own a bank account. Solutions such as job training programs to help migrants access work should be available to Ecuadorians, as they also face a challenging situation. Incorporating migrants into the economy will require the development of human capital.

Perhaps one of Ecuador's most challenging economic issue is lack of revenue diversity, as Oil and Mining represent between 14% and 20% of Ecuador's GDP, and between 20% and 30% of Ecuador's export income[10]. Ecuador has the third-most oil reserves in Latin America, after Venezuela and Brazil[11], which results in a big share of labor working in that industry. According to the World Trade Organization, economic diversification is a key element of economic development in which a country moves to a more diverse production and trade structure. Ecuador's dependency on oil makes the entire economy exposed and vulnerable to sector-specific shocks, including the fact that Ecuador could run out of crude by 2025[12]. Economic diversification will make Ecuador less dependent on a single sector, potentially increase the number and quality of jobs and create a base for poverty-reducing growth[13].

Based on the fact that diversification plays an important role in the future of economic prosperity and poverty reduction, the Government of Ecuador set the bases for diversification in the Strategy for Change of Productive Matrix[14]. Ecuador's strategy for economic diversification, published by the previous national government in 2015, provides a detailed description of the potential for a shift in the macroeconomic perspective, placing at the center of these efforts the reduction of poverty. The document establishes three essential components to meet its goals (i) environment and systemic competitiveness, (ii) development and strengthening of productive chains, and (iii) basic industries. In addition to this, the Plan to Create Opportunities 2021-2025[15], of the national government proposes to open the country's economy to the regional and global markets, to attract new investments, incentivize exports of goods different than oil, and attract environmentally conscious touristic initiatives. These efforts are part of the government's plan to expand the economy in the Economic Pillar section of the plan.

5.https://app.powerbi.com/view?r=eyJrIjoiNGUxZjQyMDUtMzg0Zi00MzI0LTk5NWEtY2JiMWUzM2YyYjdlIiwidCI6ImYxNThhMmU4LWNhZWMtNDQwNi1iMGFiLWY1ZTI1O-WJkYTExMiJ9

6. "Informe Ejecutivo de Las Canastas Analíticas: Básica y Vital Febrero, 2023." https://www.ecuadorencifras.gob.ec/documentos/web-inec/Inflacion/canastas/Canastas_2023/Febrero/1.%20Informe_Ejecutivo_Canastas_Analiticas_feb_2023.pdf

7. World Food Programme, "Technical Guidance for WFP Consolidated Approach for Reporting Indicators of Food Security (CARI)Na." https://docs.wfp.org/api/documents/WFP-0000134704/download/?_ga=2.63453228.2014842137.1680201068-20935846.1680201068

8. "Food Security Update for Latin America and the Caribbean." https://www.dropbox.com/s/3v5ag4lkhegkubl/Food%20Security%20Update%20April%202022_final.pdf?dl=0

9. "Global Financial Inclusion | DataBank." https://databank.worldbank.org/source/global-financial-inclusion

10. World Trade Organization, "Entorno Económico Ecuador." https://www.wto.org/spanish/tratop_s/tpr_s/s254_sum_s.pdf

11. "Crude Oil and Petroleum Liquids Production in Ecuador Hit a 10-Year Low in 2020." https://www.eia.gov/todayinenergy/detail.php?id=50216

12. Grupo Faro, "Diversificación Económica Del Ecuador." https://grupofaro.org/wp-content/uploads/2023/03/Diagnostico_-Diversificacion-Economica-del-Ecuador_compressed.pdf

13. OECD and World Trade Organization, "Economic Diversification.

14. Gobierno de Ecuador, "Estrategia Nacional Para El Cambio de La Matriz Productiva." https://www.vicepresidencia.gob.ec/wp-content/uploads/2013/10/ENCMPweb.pdf

15. Gobierno de Ecuador, "Plan de Creación de Oportunidades 2021-2025."

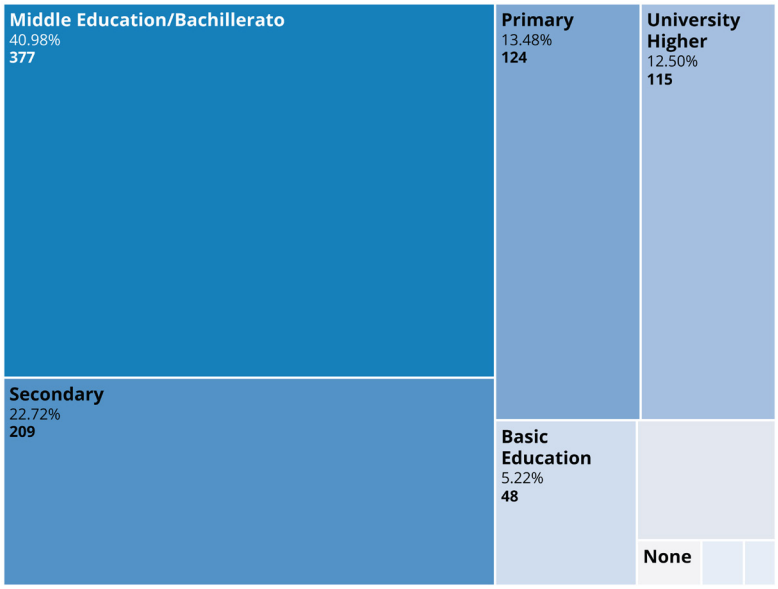
In addition to the potential of migrants to contribute to diversified economies, our findings show that they have the digital skills and interests to be included in the emerging digital economies sector in Ecuador. The International Labour Organization (ILO) identifies software development, Internet of Things, and e-commerce as industries in which migrants can have significant contributions. The parameters the ILO used to propose to include the interests of the migrants, their skills, the disposition of the private and public sectors, market viability, and size, among others.

To achieve such ambitious goals, the development of human capital will be a key component. Ecuadorians and Venezuelans have the potential to help Ecuador's economy towards diversification and growth as many of them already have, or are willing to learn, the skills required for economic diversification.
Our survey shows that 33 percent of migrants, older than 17 years old, have secondary education as their highest degree, which makes them very skilled in integrating into the economy (figure 1). Most of the migrants have no other choice but to find jobs in industries with low wages, such as informal commerce, personal services, and food hospitality, underutilizing their expertise from their previous occupations in Venezuela. The jobs that migrants are finding do not match their education level; almost 33 percent of households have members with high school education, higher than the average in Ecuador.

When arriving in Ecuador, many migrants who had jobs that required official accreditations, such as school teachers, health care professionals or personal and administration services, were unable to obtain legalization of those documents, making it hard to find work in their field. 16.6 percent of the surveyed migrants responded that, in order to perform their job in Venezuela, they were required to have an official title, certificate, or an accreditation from a recognized institution. From those respondents (153 migrants), 56.2 percent of them are working in the informal sales industry (50 migrants), or are not currently working. Half of the migrants that responded that their occupation required an accreditation in Venezuela and that were working in personal and administrative services, are still working on that sector in Ecuador, representing the highest rate from all the occupations.

Our survey showed close to 32 percent of migrants used to work in industries with specialized training, such as manufacturing, construction, wholesale, professional activities, public administration, health, and education; 85.1 percent of the migrants working in those industries in Venezuela had to find a job in another industry in Ecuador.

Figure 1: Question 39. What is the highest degree of education completed by your head of household?



16. Organización Internacional del Trabajo, "Sectores Económicos Con Potencial Para La Inclusión Laboral de Migrantes y Refugiados Venezolanos En Quito y Guayaquil."https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_759355.pdf

2. SURVEY AND ANALYSIS

2.1 SURVEY METHODOLOGY

The survey discussed in this document was conducted by the World Food Programme between July 30, 2022 and August 24, 2022. WFP conducted 920 face-to-face surveys from a target population of Venezuelans who had migrated from Ecuador in the past 2 years or less.
Specifically, the survey was to given to those over the age of 18 with Venezuelan nationality who have been in Ecuador for less than two years, reside in provinces with high, medium, and low presence of Venezuelan migrants, and intend to stay in Ecuador permanently. The primary objectives of the survey were to identify socio-economic and vulnerability indicators, economic inclusion, and food insecurity, and to perform an WFP Essential Needs Assessment to determine goods and services required by the migrant population[17].

Due to the "hidden population" nature of those needing to be surveyed, a Respondent-Driven Sampling[17a] technique was used by Opinion Publica. This involves identifying seed interviewee and working through chain reference methods to identify more people until the required sample is completed. Additionally, references from secondary sources and other available information from the contracting entity in specified neighborhoods were taken into consideration. Only one person per household should be sampled. Each "seed" can refer to up to 4 other people to be surveyed. The sample was developed by selecting migrants in provinces with low, medium, and high presence of Venezuelan migrants. This was determined using the Ecuadorian government's administrative records of births, deaths, and hospital charges from 2018-2020. Two provinces from the low, medium, and high groups were randomly selected as areas in which to conduct the survey (figure 2). The province classifications were as such:

- High Provinces: Pichincha, Guayas
- Medium Provinces: Manabi, El Oro, Los Rios, Imbabura, Azuay, Santo Domingo de los Tsachila and Tungurahua
- Low Provinces: Carchi, Cotopaxi, Sucumbios, Santa Elena, Esmeraldas, Canar, Loja, Chimborazo, Orellana, Pastaza, Zamora Chinchipe, Morna Santiago, Bolivar, Napo and Galapagos

Figure 2. Selected provinces for the survey and number of households surveyed per province.

17. Pública, "Recolección Presencial de Información a Población En Movilidad Humana Con Vocación de Permanencia En Ecuador En Ciudades de Alta, Media y Baja Presencia y Que Registra Su Estadía En Ecuador Menos de 2 Años.
17a. Respondent-Driven Sampling: a new survey method for the study of visible and hidden populations

2.2 CONSOLIDATED APPROACH FOR REPORTING INDICATORS OF FOOD SECURITY (CARI)

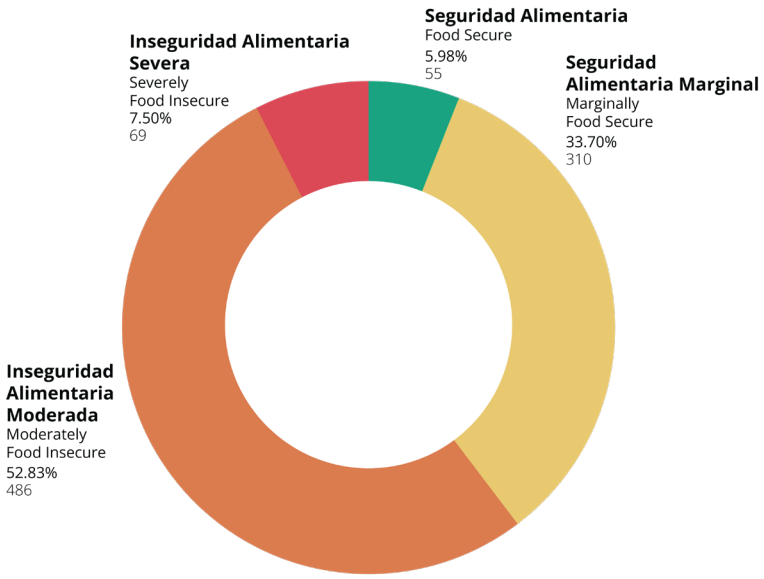
This study used the Consolidated Approach for Reporting Indicators of Food Security (CARI), developed by WFP, to determine food security. The CARI score "analyzes primary data from a single household," and it's used because it "is a systematic and transparent way, using information collected in a typical food security assessment"[18], making it accessible to contrast with other data that utilize CARI console. The score allows for transparent and consistent reporting of food security and supports other assessments. Further, CARI "provides a representative estimate of food security within the target population whether it is calculated at the national, district, region or livelihood zone level[18]." CARI is split into four categories: Food Secure, Marginally Food Secure, Moderately Food Insecure, and Severely Food Insecure.

60.33% OF MIGRANTS IN ECUADOR ARE EXPERIENCING FOOD INSECURITY

The CARI score is split into two sections, the Current Status Domain and the Coping Capacity Domain. In this analysis, each household was assigned a score according to the Coping Capacity Domain. The Coping Capacity score is an average of the Economic Capacity to Meet Essential Needs (ECMEN) and the Livelihood Coping Strategy for Food Security. The Coping Capacity score is rounded to fit into the 4 categories defined above[18]. The CARI ECMEN score uses key expenditures, the nutritional value of food consumption, and undertaken coping strategies to determine food security.

Our findings show that 555 of the 920 (60 percent) migrant households surveyed were food insecure, with 69 (7.5 percent) being severely food insecure and 486 (53 percent) being moderately food insecure (figure 3). Food insecurity of migrant population in a neighboring country, Colombia, is 8 percent lower, 52 percent of them are food insecure[18].

Figure 3. Food Security based on the CARI console of survey respondents.



18. 19. 20. 21 World Food Programme, "Technical Guidance for WFP Consolidated Approach for Reporting Indicators of Food Security (CARI)Na." https://docs.wfp.org/api/documents/WFP-0000134704/download/?_ga=2.63453228.2014842137.1680201068-20935846.1680201068

2.3 ANALYSIS STRATEGIES

a. Cluster analysis: identifying types.

As part of an exploratory analysis into the migrants, we conducted a cluster analysis to see what key characteristics were evident in the migrant households. Upon performing the clustering, four distinct migrant types emerged (figure 4). The detailed methodology for this analysis can be found in the Appendix.

Figure 4. Food Security based on the CARI console of survey respondents.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Número de migrantes Number of migrants	148	321	296	121
Tamaño de hogar promedio Average household size	5.6	1.5	3.4	2.0
Tasa de Inseguridad Alimentaria Food Insecurity rate	80.4%	42.7%	72.6%	66.9%
Industria de ocupación Ecuador Work industry in Ecuador	**Ventas informales o sin trabajo** Informal sales or no work	**Ventas informales** Informal sales	**Ventas informales o sin trabajo** Informal sales or no work	**Ventas informales o sin trabajo** Informal sales or no work
Industria de ocupación Venezuela Work industry Venezuela	**Comercio** Commerce	**Comercio** Commerce	**Comercio** Commerce	**Sin trabajo** No work
Tasa de educación secundaria Secondary education rate	51.3%	59.5%	60.1%	51.2%
Ingreso (mediana) Income (median)	$270.0	$240.0	$250.0	$200.0

b. Demographic overview of the migrants.

Of the 2702 migrants in the survey, 51 percent were male and 48 percent were female. The migrants in the households surveyed skewed younger with an average age of 24. Only 6 percent were older than 50, the oldest 74. Newborns and infants, between zero months and one year, accounted for 2.3 percent of the migrants, children between one and twelve years old were 23.4 percent, adolescents between thirteen and seventeen years old were 7.0 percent, adults between eighteen and sixty four years old were 67.5 percent, and older adults of more than sixty five were 0.7 of the migrants. At the time of the survey, there were 53, 2.0 percent, pregnant women and another 96, 3.6 percent, breastfeeding. Nearly 7 in 10 households surveyed had 3 or fewer family members (68 percent). The cluster analysis shows that the households with more members, also are more food insecure. "Cluster 1", the one with the highest number of members at 5.6, has the largest food insecurity rate of 80.4 percent. In contrast, "Cluster 2" with an average of 1.5 members, has a 42.7 percent of food insecurity rate.

Of all the migrants, 3.9 percent of them had disabilities: 1.4 percent with a hearing or visual impairment, 2.2 percent with a physical disability, and 0.2 percent with an intellectual/psychosocial disability. The migrants were generally educated, with 57 percent of adult migrants completing at least high school or technical school, higher than the national average of 46.6 percent[19]. Only 116 (6 percent) adult migrants had no primary education.

22. "Educational Attainment, at Least Completed Upper Secondary, Population 25+, Total (%) (Cumulative) - Ecuador | Data." https://data.worldbank.org/indicator/SE.SEC.CUAT.UP.ZS?locations=EC

c. Skills and training potential
Our analysis primarily focused on the skills, trainings, and the economic integration potential of the migrants. To understand their potential within the Ecuadorian economy, migrants were asked about their professional skills and desired training opportunities. Along with vocational skills from their previous occupations, migrants brought skills in communication, problem-solving, and adaptability. Migrants identified administrative, financial, and marketing trainings as skills they would like to acquire. Migrants were also asked what would be needed to improve their situation, of which 19.1% chose additional training or legalized training documents.

d. Trade-off and choices migrants face to survive.
The clusters point to a clear trend of larger families struggling to make enough money to support their household. While expenditures expectedly rise with larger households, incomes do not show the same growth. As a result, many households borrowed money from friends and family for food (45.5%) or reduced food consumption altogether (29.3%).

3. KEY FINDINGS

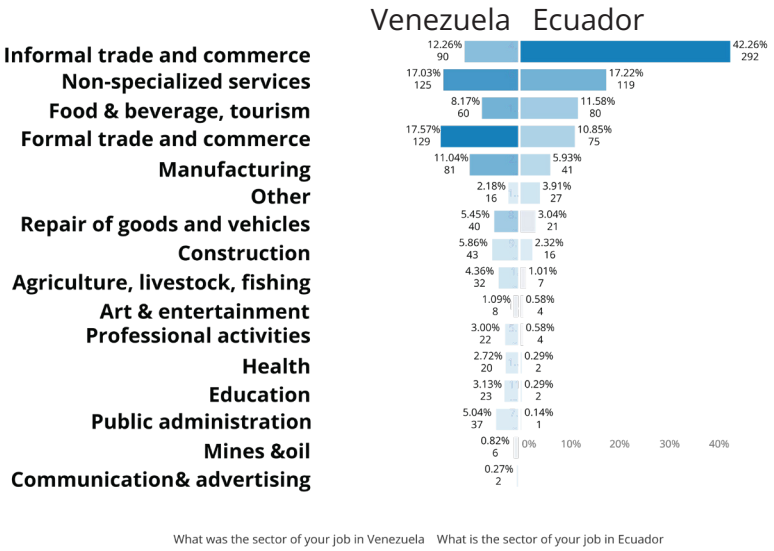
1. Since relocating to Ecuador, Venezuelan households have been struggling most with providing food for their family.

Aside from Venezuela's economic and political situation, the main reasons migrants left their country between 2020 and 2022 were due to lack of employment and difficulty providing food. Many have continued to struggle in their current situation in Ecuador. The top priorities that households need support with are food, housing, access to work, regularized immigration status, and access to healthcare. [V11, V157]
Migrants responded that their economic situation (80.0 percent), lack of employment or opportunities to generate income (56.3 percent), and difficulties getting food (38.4 percent) as their top reasons for leaving Venezuela; these were the three top answers on a multiple choice question. Since migrating to Ecuador, food (73.8 percent) and access to employment (38.6 percent) remain top priorities, with housing (46.9 percent) and regularization of immigration status (34.0 percent) also become points of concern.

2. Migrants have not been working to their full human capital potential in Ecuador's economy and have the potential to integrate into the labor force more effectively.

Since relocating to Ecuador, the share of migrants employed in informal sales has increased significantly (200 percent). Nearly nine in ten (84 percent) migrants are not working in a job that matches their skills, professional experience, or professional accreditation. [V45/50, V60]
In Venezuela, a majority of migrants were either out of work (20.2 percent) or primarily employed in Wholesale and Retail Formal Sales (14.0 percent), Personal and Admin Services (13.6 percent), and informal commerce (9.7 percent). Since 51 percent of the Ecuadorian labor force is in the informal sector, migrants tend to find jobs in informal labor markets. Since migrating, one third of the migrants found a job in informal commerce (31.7 percent). Migrants have also left trade skilled industries since relocating to Ecuador, with those employed in Manufacturing or Construction dropping by over half (54 percent) (Figure 5). are out of work (24.8 percent) or shifted to the informal commerce sector.

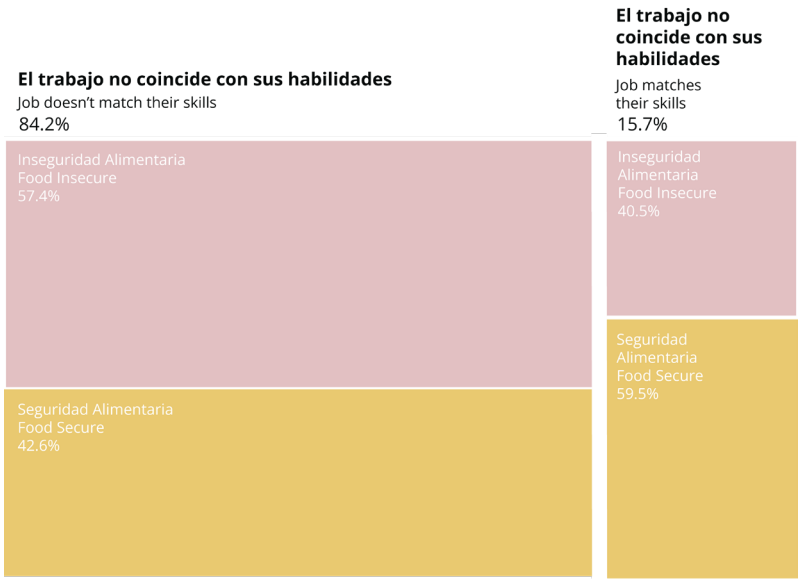
Figure 5. What was the sector of your job in Venezuela? What is the sector of your job in Ecuador?



3. Migrants who struggle to find a job that matches their skill level also struggle more with food security.

Respondents who could not find a job that matched their skills were more food insecure (57 percent) than those who found a job that matched their skills (41 percent). (Figure 6) Respondents who changed occupations since relocation were more food insecure (62 percent) than those who stayed in the same occupation (57 percent) [CARI, V60]. Two-thirds of migrants (65 percent) in the informal commerce were food insecure, a much higher rate than any other industries in the survey, including Wholesale and Retail Formal Sales, 37 percent food insecure, Personal and Admin Services, 48 percent food insecure, and Food, Beverages, and Tourism 49 percent food insecure.

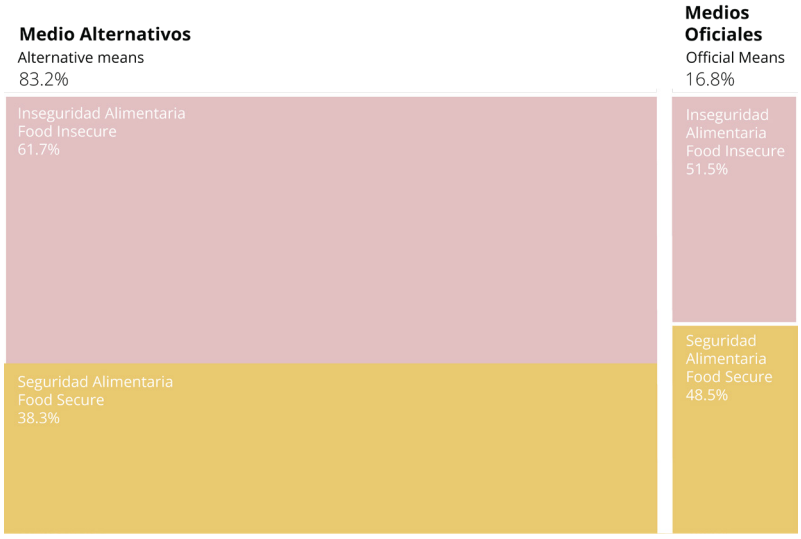
Figure 6. Have you been able to find a job that matches your skills, professional experience or accreditation?



4. Migrants have several barriers to fully join Ecuador's labor force, including regularized immigration documentation, recognition of professional accreditation, and securing a job to sustain basic needs.

Migrants who responded that they were working in jobs that do not match their skills identified regularized immigration documents (38 percent) and training opportunities (15 percent) as key requirements to improve their working condition or to get a job. Furthermore, respondents with regularized immigration documents were more likely to be food secure (51 percent vs. 38 percent) (Figure 5) and have higher salaries on average. [V19, V22, V23/24, V61, V65] In Ecuador, the Vital and Basic Food Basket costs $540 and $765, respectively, yet the average migrant income falls well below $326. The Vital and the Basic Food Basket is compound of the same items, but the former has fewer amounts for each one of the goods and services than the latter (Gestión). Migrants with regularized immigration documentation earn, on average, $87 more per month. Those with legalized training documentation earn, on average, $70 more per month, bringing them closer to the vital and basic food baskets.

Figure 7. Did you enter Ecuador through alternative or official means?



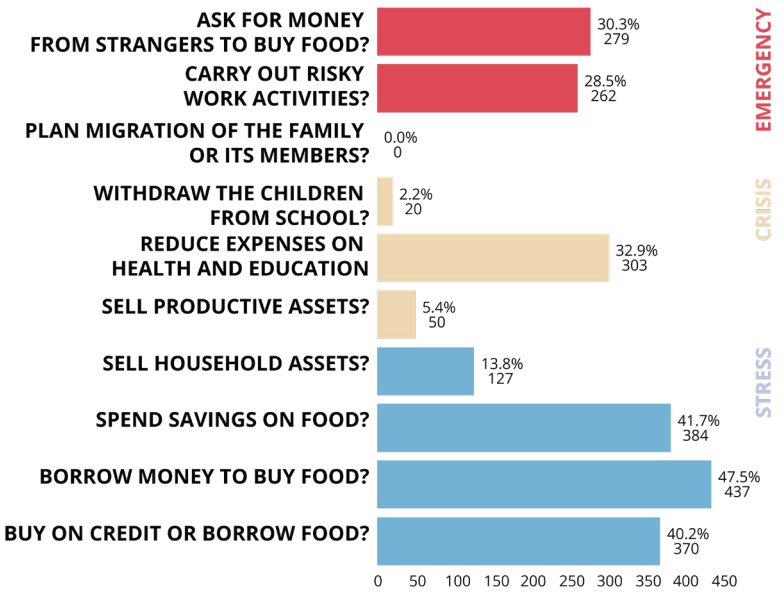
5. A majority of respondents reported spending nearly all of their monthly income on basic necessities with little funds remaining to invest in activities to improve their job and economic prospects.

Over half of the migrants (54 percent) spent more than 90 percent of their monthly income on basic necessities like rent, utilities, health, and food. Additionally, 64% of migrants spent more than 75% of their income on basic necessities. This limits the financial capability of households to improve their economic standing by restricting investment in education, training, transportation, and internet access. (V82 to V100)

With such high financial burdens, many migrants partook in coping strategies to cover their basic needs, including borrowing money from friends and family (47.5 percent), spending their savings (41.8 percent), asking for money from strangers (30.4 percent), and selling household assets for food (13.8 percent). One in three (32.9 percent) migrant households also chose to reduce expenses on health and education to pay for food. (figure 8)

20. Revista Gestión, "Los Alimentos Suben de Precio y La Canasta Familiar Se Encarece." https://www.revistagestion.ec/analisis-economia-y-finanzas/los-alimentos-suben-de-precio-y-la-canasta-familiar-se-encarece-en-el

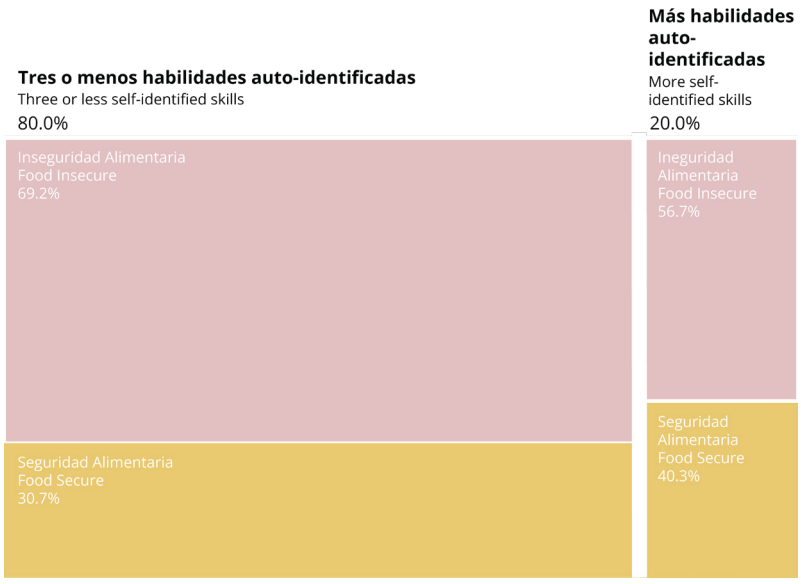
Figure 8. Coping Strategies.



6. Migrants with less than three self-identified labor skills are the most vulnerable and reported struggling more with food insecurity.

Despite working overtime hours (51.3 percent worked over 40 hours per week), many migrants reported an inability to meet their basic needs with the wages earned. Those with three or fewer self-identified skills from the following: Communication, Teamwork, and Problem-Solving, Time Management, Critical Thinking, Decision Making, Organization, Adaptability, Leadership were more food insecure (65 percent) compared to those with a higher number of self-identified skills (49 percent). These skills were studied because they represent some of the skills needed for the new economies. (Burning-Glass) (V52 and V54) (V63) (figure 9)

Figure 9. In the areas in which you have worked, which of the following skills have you developed or implemented?

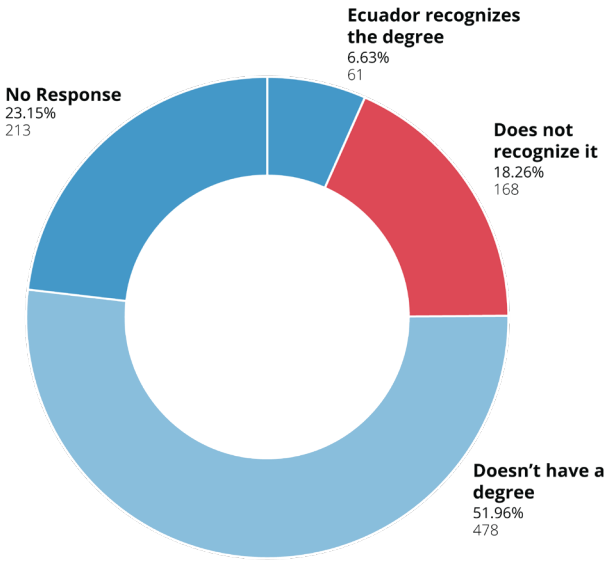



ZARA
WFP
wfp.org

7. The majority of migrants in our study reported having entered Ecuador through alternative means, which means they lack immigration documents that would help them secure a better job.

Three in ten (28.4 percent) migrants surveyed stated legalizing immigration documents as a necessity to improve their job prospects. Migrants' employment opportunities were further narrowed as only one in five (20.3 percent) accreditations were recognized in Ecuador, from the respondents that stated that they have an accreditation in Venezuela. [V7, V61, V65] In Venezuela, 16.6 percent of migrants worked in jobs requiring accreditation. In Ecuador, only 1.5 percent of migrants work in jobs requiring accreditation. (figure 10)

Figure 10. Does Ecuador recognize the degree, certificate or professional accreditation you obtained in Venezuela?



8. More than half of migrants in our study are interested in learning new skills. These skills could be useful in the Ecuadorian service sector to help diversify the economy.

Two in ten (19.1 percent) of migrants stated that training or legalizing training documents is necessary to improve their job prospects. Despite financial troubles, over half of the migrants (55.7 percent) were willing to invest in training opportunities and professional accreditations to access a job.

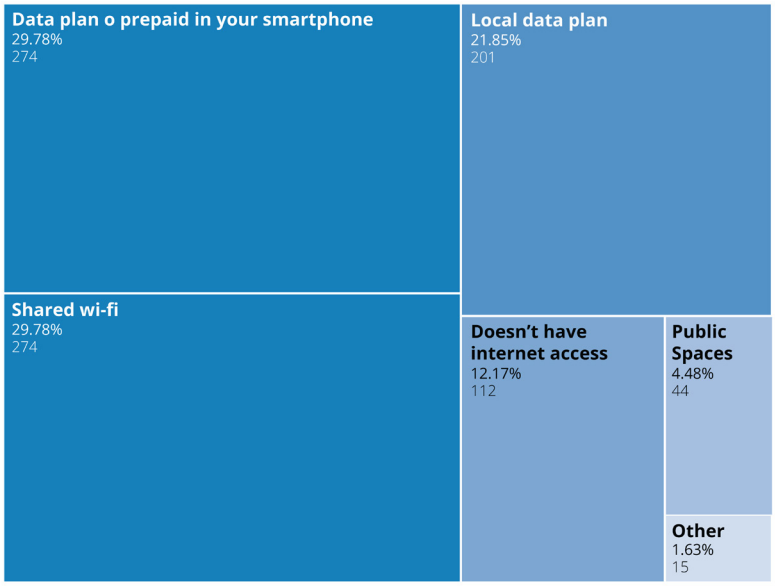
The migrants were most interested in training in Communication, Marketing, and Sales (39.2 percent), Administration and Finance (33.0 percent), Language Learning (27.3 percent), and Personal Development (26.8 percent).

9. Digital economies can be an avenue for the integration of migrants into the Ecuadorian economy to strengthen it, yet nearly half of the migrants do not have reliable internet access.

While nine out of ten (88 percent) of the survey respondents stated they were skilled in managing digital technologies, many did not have reliable access to the internet. Only half of the migrants had personal access to the internet, with one in three migrants (34 percent) using the internet of neighbors and family, or public internet at cafes and parks. [V158, V68] (figure 11)

Finally, 70 percent of migrants responded that they are willing to invest in training to obtain accreditations for the digital economies. However, many do not have the financial capabilities to do so. Our survey found that over half of the migrants spent 90 percent of their income on basic necessities such as food, rent, and health and still often partake in coping strategies to make ends meet. While there is a willingness to invest in their own professional development and training, many of the migrants surveyed do not have the means.

Figure 11. To connect to the internet, you principally? Question 68. Do you consider yourself very, little or not skilled on digital technologies?



4. CONCLUSIONS

Food insecurity, lack of employment and difficulty providing food are some of the primary reasons for leaving Venezuela. Since relocating, migrants continue to face challenges in accessing basic needs such as food, housing, and regularized immigration status, among others. Our findings also show that migrants are not fully utilizing their human capital potential, with many working in jobs that do not match their skills. Additionally, migrants with less self-identified skills are more vulnerable and struggle more with food insecurity. The lack of regularized immigration documentation, recognition of professional accreditation, and access to training opportunities are the main barriers preventing migrants from joining Ecuador's labor force. There is an urgent need for support in addressing the basic needs of Venezuelan migrants and improving their access to opportunities to sustain their livelihoods.

5. RECOMMENDATIONS

1. Expanding current regularization of immigration documents and recognition of accreditations can help improve employment or working conditions and access to financial services.

2. Many migrants struggle to find a job that matches their skills; better connections should be made between the skills immigrants bring with them and the potential job market in Ecuador.

3. Migrants are able to contribute to the development of digital economies, but they lack training and stable access to the internet; finding ways to provide better access to internet services and training could help.

4. The Ecuador economy is 51% informal which means that to help migrants in Ecuador we must also help the Ecuadorian economy. Programs available for migrants should also be available for Ecuadorians.

5. Migrants are willing to learn skills needed for the digital economies, programs should be developed for both Venezuelan and Ecuadorian living in Ecuador to help increase their ability to work within this service economy.

6. CREDITS

World Food Programme
Alessandro Dinucci, Luis Fernández, Crescenzo Rubinotti, Espedito Nastro.

MIT Civic Data Design Lab
Sarah Williams, Director
Alberto Meouchi, Project Manager
Ashley Louie, Rohun Iyer, Jari Prachasartta, Maria Gabriela Carucci, Enrique Casillas, Eric Lam, Christina Chen, Ilana Strauss, Sylvia Jimenez, Ethan Harrison, Mauricio Darcourt, Carlos Centeno.

USAID BHA

APPENDIX

Data Structure

The survey data is contained in two tables, the general table and the household composition table. The general table contains questions answered by the head of the household concerning migration and economic factors. The household composition table contains answers about individuals within each household, such as age, education, disabilities, and pregnancies.

The general table consists of 351 columns and 920 rows. Answers are recorded as numerical values associated with the choices within the survey. The household composition table consists of 29 columns and 2702 rows. Answers are recorded as numerical values and an index to link with the general table.

The majority of the responses were clean and usable for analysis. However, questions pertaining to migrant expenditures and incomes required filtering for the financial analysis and migrant clustering. Questions v82-v99 pertain to expenditures in the past 30 days. Multiple migrants (34) had incorrect values for some of their expenses and were dropped when conducting the income and expenditure analysis for the report and the clustering. Incorrect values were shown as "999" for each answer, and since we could not confirm the veracity of these values, that data was dropped. Question v70 asks about the household income in the past week. A couple of migrants' (4) answers were dropped for income and expenditure analysis due to unexplainable high values where we could not confirm the accuracy of what was provided. Further, household income was multiplied by four to match the expenditure answers to perform analyses of expenditures and income.

Through the survey, there were questions where further grouping migrant answers helped with the analysis. Question v68 asks migrants about their comfort level with digital technologies and were given three options: Not Skilled, Little Skilled, Very Skilled. For this analysis, we grouped the respondents into Skilled (Very Skilled + Little Skilled) and Not Skilled. Question v158 asks migrants how they generally connect to the internet. In the analysis, access was grouped into "Personal Access", "Shared Access", "No access/other".

Cluster Analysis

To develop migrant profiles for the Venezuelan migrant simulation, the K-means clustering algorithm was used. Clustering is an unsupervised machine learning technique that clusters data according to similarities in the features. The objective of K-mean clustering is to group data together to find k clusters by discovering underlying patterns in the data.

- The algorithm begins with a group of randomly selected centroids as the initial clusters. The algorithm then performs iterative calculations using Lloyd's algorithm[21] to determine the average distance of the points from each cluster. The algorithm stops once the intra-class variance does not change.
- For this analysis, the sci-kit learn K-Means algorithm was used with the following parameters
- Centroid initialization: k-means++
- K-mean clustering is a clustering algorithm that attempts to find k clusters in a dataset.
- For this clustering algorithm, only a few characteristics were passed in to determine the clusters. These included: Education, Venezuelan work category, immigration status, digital skills,

21. "Lloyd's Algorithm | The Data Science Lab." https://datasciencelab.wordpress.com/tag/lloyds-algorithm/

Venezuelan professional accreditation, and family size. Education was grouped according to post and pre Primary education.

- After clustering, the following clusters emerged:
- Cluster 0: Average family size of 2, high non-working/informal sector, high food insecurity, no work in Venezuela, low income, low expenditure
- Cluster 1: Average family size of 5.6, high non-working/informal sector, very high food insecurity, trade work in Venezuela, mid income, high expenditure
- Cluster 2: Average family size of 3.4, high non-working/informal sector, high food insecurity, trade work in Venezuela, mid income, high expenditure
- Cluster 3: Average family size of 1.5, high informal sector/personal services, low food insecurity, trade work in Venezuela, mid income, low expenditure
- As part of an exploratory analysis into the migrants, we conducted a cluster analysis to see what key characteristics were evident in the migrant households. Upon performing the clustering, four distinct migrant types emerged.