

# Farming, Education and Migration: Understanding Rural Youth in Northern Ecuador

## Agricultura, educación y migración: entendiendo la juventud rural en el norte de Ecuador

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**Abstract**

This paper aims at analysing and presenting the findings regarding migration aspirations of agricultural High school students in northern rural Ecuador. Using a quantitative approach, it analyses 366 surveys from agricultural high schools' students in three agricultural cantons located in different geographic regions: Coast, Highlands and Amazon. The migration drivers are low prices of agricultural produce, low wages and lack of technical support to agriculture. A big share does not intend to work in the agricultural sector in the Highlands and Coast; contrarily to the Amazon region. More than half of the respondents has aspirations to migrate to study in urban centres, and search for better economic and labour opportunities. Aspiration to migrate has a negative correlation with agriculture profitability. It is positive with parents' land ownership, which is determined by the lack of interest to study agriculture at university that increases the scarcity of rural labour force and young successors to take up agriculture.

*Este artículo analiza y presenta los hallazgos sobre las aspiraciones migratorias de los estudiantes de los colegios agrícolas en el sector rural del norte de Ecuador. Con un enfoque cualitativo-cuantitativo se analizaron 366 encuestas realizadas a estudiantes en tres cantones agrícolas pertenecientes a las tres regiones geográficas: Costa, Sierra y Amazonía. Las causas de la migración son los precios bajos de los productos agrícolas, los bajos salarios y la falta de apoyo técnico a la agricultura. En la sierra y en la costa los estudiantes no tienen la intención de trabajar en la agricultura; al contrario de la región amazónica. Más de la mitad aspiran a migrar para estudiar en centros urbanos y buscar mejores oportunidades económicas y laborales. La aspiración a migrar tiene una correlación negativa con la rentabilidad agrícola. Sin embargo, es positiva con la propiedad de la tierra de los padres, determinado por el desinterés de estudiar agricultura en la universidad lo que provoca la escasez de mano de obra rural y la falta de sucesión en la agricultura.*

Youth migration; rural development; rural schools; career choice; demographic change  
*Migración juvenil; desarrollo rural; colegios rurales; elección de carrera; cambio demográfico*



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## 1. Introduction

Deciding what to do at the end of High School remains uncertain for young populations, particularly in rural areas, who are debating between remaining and continuing with traditional farm labour or to migrate to urban centres. The expectations they have after finishing High School are driven by the linkage to their family, farmland ownership and access, study at a higher institution, migration networks and the attachment to the community. However, the real challenge is to consider life beyond High School doors. This challenge surpasses personal decisions and according to it transcends the government for its little support for rural youth development. Likewise, Ahmed (2012) mentions that the government must leave the political discourse or its prerogatives and place itself in the real context of rural youth.

Nowadays, these topics gains importance because rural youth has to take over family farming for producing fresh foods for local societies, move to cities for studying a professional career; and if tertiary education is achieved in the field of agricultural sciences, thus they could continue and improve the family farming productive processes, and gain better profitability and rural development. Rural youth migration has befallen in spatial- temporal scenarios worldwide and encompasses historical, social and cultural elements leading to propose a definition as a dynamic and changing social construction over time. Developed nations have seen a rapid abandonment of rural youth populations attracted by industrial labour markets, that has shaped the rural territory and customs. While other authors study the generalities of rural youth and their decision to leave or to stay in their household; the particular social, cultural and educational dynamics of the rural environments are not considered in most studies.

Hence, this article focuses on exploring the aspirations of young rural students at Agricultural High Schools in three provinces in northern Ecuador, regarding family farming development, rural labour participation, and further education to enhance human capital. It contributes to the academic debate with empirical evidence to determine that in contrast to developed countries, developing countries such as Ecuador need to find the causes and consequences of rural youth migration for improving rural development policies and rural labour markets. Furthermore, it aims at testing the hypothesis whether family farming economic profitability and farm ownership influences the aspirations of agricultural high-school students to migrate, through Chi-square ( $\chi^2$ ) and Pearson correlation ( $r$ ) statistical tests.

## 2. Rurality and youth reality

The traditional vision identifies rural as a synonym of agriculture; equal to low population density; marginalization and underdevelopment. This viewpoint is collapsing and giving a path to territorial approaches. In this regard, Echeverri (2011) states that “a territory is rural when the historical process of social construction that defines it, is based mainly on natural

resources and maintains this structural dependence and articulation” (p. 15). His contribution based on the territory, breaks the rural-urban-dichotomy and opens the possibility to a free movement of people and services where the border between the countryside and the city becomes more flexible. Youth is not a homogeneous group comprise of a single social group, therefore, it speaks of different youths belonging to different social groups. Each social group will determine the denomination of young person according to their social and material conditions and not exclusively to the biological age (Martín-Criado, 1998).

Therefore, the definition of both urban and rural youth is shaped by primary aspirations such as legal, medical, educational, political, social, cultural and geographical. This study considers that young people is a group of human beings who have reached the age of puberty, but have not yet acquired all the rights and duties of adult life (Friedman, 1971). Rural youth have different characteristics to their urban counterpart. The former has a social and economic disadvantage that makes them vulnerable and does not allow them to perform upward mobility (Kuvlesky, 1976). On the other hand, rural youth are destined to receive poor medical care, inadequate housing, low levels of education and lack of infrastructure services (Akinbode, 1991; Camarero, 2009; European Commission, 2008).

In the context of industrial nations, young Swedes perceive rural towns as underdeveloped and outdated (Waara, 2000); Norwegian urban youth considers rural peers as less advance (Bjaarstad, 2003); some Dutch and Belgian rural communities are perceived as boring and outdated (Thissen, Fortuijn, Strijker, & Haartsen, 2010). Finnish rural youth prefers to move to urban areas for their employment and education opportunities (Myllyniemi, 2007). Bednaříková, Bavorová, & Ponkina (2016) mentions that rural youth after finishing High School education leaves the community in order to continue higher education in urban centres, notwithstanding, after becoming professionals they do not return to their rural origin for considering it as a less productive sector.

In addition, Kuhmonen, Kuhmonen, & Luoto (2016), state that social and economic development, together with the technification of primary activities are key determinants for many rural areas to shrink the rural labour market and to transform agriculture into a society of services. Lacambra (2001), points out that “Rural economies have ceased to be synonymous with agriculture and, in many respects, have diversified and integrated into national economies and are in turn in a broader process of economic globalization” (p. 58). Notwithstanding, cities offer greater opportunities for higher education, and the transition from secondary education to higher education is increasingly responsible for the low population of rural youth (Bednaříková, Bavorová, & Ponkina, 2016; Bjarnason & Thorlindsson, 2006; Rosvall, Rönnlund, & Johansson, 2018).

Ramos (2004) indicates among the new realities that we find in the Basque rural world, the disappearance and crisis of the family farming and the aging of the agrarian population leads to a significant decrease of young people to work and continue with the development of agriculture and family farming. Similarly, a Japanese study conducted by Izcara (2005), states that “the loss of attractiveness of agricultural activity for young people has resulted in an aging process of the agrarian population” (p. 57). However, this phenomenon is not unique to industrialized nations. Societies in Asia, Africa and Latin America are witnessing high exodus of young people leaving farmers without successors and consanguineous labour force, this phenomenon is dismantling the infrastructure and services sectors in rural areas (Izcara, 2005). Also, studies of rural India found that male migration in search of better-paying jobs has led women to take over the responsibility for agricultural activity (Pattnaik & Lahiri-Dutt, 2020).

In Nigeria, the young population which constitutes 65% of the population is abandoning agricultural work, leaving this important activity in the hands of older men and women, resulting in an accelerated decline in the agricultural labour availability and the aging of farmers (Auta, Abdullahi, & Nasiru, 2010).

In the Latin America context, between 2003 and 2012 the lack of interest of young people in the countryside and rural-urban migration are causing a demographic transition, which affects farming activities and productivity. In addition, agricultural employment increased 0.1 % in a comparison with 3% of off-farm employment (Dirven, 2016). In several Latin American countries, rural youth graduated from High schools do not have aspirations to remain in the agricultural sector; their imagination is set on the cities, increasing migration and the feminization of agriculture. On the other hand, Bjarnason (2014) mentions that the quality of university education is higher in urban centres than in rural areas, likewise, the so-called successful careers such as medicine, science, and law are concentrated in cities. Even if rural youth improve their human capital, they cannot exercise the knowledge in their place of origin because there are no sources of work, this makes the city synonymous with modern life, leaving the young's plans to return home behind.

Moreover, Dlamini (1997), mentions that rural students do not perceive higher studies in agriculture as useful in their professional formation, it is corroborated by Sukati (1991), who mentions that agricultural studies are no longer popular among careers at Higher Education Institutions. In Colombia the expectations of rural youth are built on the imaginary of the city (Díaz & Fernández, 2017; Jurado & Tobasura, 2012); in Uruguay, young people migrate to cities in search of better education and employment opportunities (Romero, 2008); moreover, the Argentinian rural youth face the dilemma to migrate to search for better opportunities in the city or to remain in the household under family dependency (Sili, Sanguinetti, Meiller, Fachelli, & López-Roldán, 2014). Hence, the rural youth population in order to get out of poverty, can convert migration and off-farm employment in assets for the livelihood of their households (Bezu & Holden, 2014), fostering the shortage of rural labour force and the enhancement of rural underdevelopment.

## 2.1. Rurality and youth reality in Ecuador

The population of Ecuador is comprised by 17.5 million inhabitants, where 1.5 million young people between 18-29 years (Law of youth, 2014) are living in the rural areas, that is, 9.15% of the total population (INEC, 2018). From 2010 to 2015 the rural population under 15 years old has decreased by 2%, in contrast the population group of 16 to 24 years old grew 2%, those between 25 to 34 years 25%, 35 to 64 years 32% and over 65 years there is an increase of 34%; these data clearly indicate the aging of rural population (ENEDMU, 2015). In other words, the 2% growth in the young population group compared to the 34% growth of those over 65, means that rural populations are mostly comprise of elderly people.

The current demographic rural-urban transition due to migration has modified the expectations of Ecuadorian rural youth in the fields of education, health, entrepreneurship, technology, and mobility; and changed their perceptions of the rural world (Estévez, 2017; Irala, 2013). These transformations are the main causes for farmers to choose off-farm activities, leaving agriculture relegated to women and elder people, producing the loss of traditional family farming and the reduction of internal fresh food production. According to FAO (2012), family farming in Ecuador is not a productive model that allows the reproduction of a con-

sanguineous labour force, hence, rural youth tend to dislike farming activities, to seek off-farm employment and to prolong their educational trajectories. Indeed, these productive and economic factors create today's dilemmas in rural young populations, the most widely felt dilemma is to take over the family farm or to migrate to urban centres for educational purposes.

The lack of economic resources in rural households forces young men to search for employment in off-farm labour markets and women to perform household tasks or to work in the service sector in urban centres. In this regard, the rural-urban mobility of youngsters that gradually decreases the family farming consanguineous labour and increases off-farm income, it also reduces the dependency on the farmland for income generation, therefore, pluriactivity is the main strategy for the subsistence of the family.

It is worth mentioning that pluriactivity in family farming is an old strategy, commonly implemented nowadays among small farmers, it encourages farming labour migration and decreases the likelihood of consanguineous labour to continue with the agricultural activity (Loughrey, Donnellan, Hennessy, & Hanrahan, 2013). With its limitations, family farming pluriactivity is considered as a rural development strategy due to its capacity to diversify and increase household's income from non-agricultural activities (Jarquín-Sánchez, Castellanos-Suárez, & Sangerman-Jarquín, 2017). In India, even families that possess a large farmland do not depend solely on agriculture and therefore they supplement the household income with other off-farm activities, becoming the best way to obtain resources and leave poverty (Pattnaik & Lahiri-Dutt, 2020).

Although, education in the rural areas have improved by reducing illiteracy from 18.5% to 12.9% from 2004 to 2013, rural education systems are based on urban precepts that do not consider the actual rural context (Ministry of Education, 2013). In addition, the last 2000 National Census of Agriculture indicates that 23% of the population living in rural areas are illiterate, 65% have elementary formation, 8% have assisted to high school and 4% have a higher education degree, but not necessarily in agriculture (INEC, 2010). Furthermore, there is an improvement of rural education, but the education-labour market articulation is minimal, causing demotivation of young people for further studies, particularly in the field of agriculture as a way to improve the family farming production methods and income.

Regarding to the transfer of agriculture and farming knowledge in rural high schools, they are not linked to the rural reality, besides, universities are located in cities hence rural youth is separated from productive traditions and they hardly return to the household (Quevedo, 2005). In some Ecuadorian migrant provinces (Cañar – Azuay) remittances have become a strategy for young people to remain in the education system, complete high school and have the opportunity to continue their studies at Ecuadorian or international universities (Pérez & Calle, 2017). Indeed, employability and education for better human capital are the main factors that motivate migration from rural to urban spaces (Llanos, 2013).

The rural areas in Ecuador are facing a desagrarization phenomenon due the eventually increasing of farmers' outmigration, off-farm activities, abandonment of family farming as main economic activity, and reduction of young and consanguineous labour force (Eche, 2018). According to Martínez (2005) the structural causes of out-migration are the small-scale agriculture model (i.e. smallholding) that generates a subsistence agriculture for self-consumption, and the eventual decrease of competitiveness of family farming production leading to the capitalist accumulation of farmland. Predominantly, Ecuadorian migrants have chosen international destinations such as USA, Spain and Italy. Traditionally, destination cities in

Spain for Ecuadorian migrants are Madrid and Barcelona, which have received an immigration stampede (Ramírez & Ramírez, 2005). In recent years, migrants are moving towards the cities of Murcia Almería y Alicante, which are regularly offering employment in agricultural activities (Pedone, 2000). The selection of destination cities depends on the availability to access migration networks (family, friends, neighbours, and nationality) and commonly the first ones to start migrating are male, who eventually will try to reunite the family at the new destination place (Torres & Gadea, 2015). Predominantly, out-migration come from the cities of Quito, Guayaquil Cañar, Cuenca (Milles, 2004), y Otavalo (Kyle, 2000).

On the other hand, internal migration of youngsters from rural to urban centres is fuelled by unemployment, low salaries, harsh working conditions, few education opportunities and amusement areas (Alvarado et al., 2017). Moreover, the industrial complex located in urban centres offer better salaries for young migrants, the presence of universities and capacitation institutions in the cities of Quito, Guayaquil and Cuenca, as well as urbanization process pull the increasing young labour force looking for new development alternatives. Recurrent Ecuadorian economic crises strike the most to the small-scale farming, which cannot longer provide employment to young productive labour force (Martínez, 2006) in the context of decent work. For those who remain in the rural area have placed education as a secondary aspiration, forcing rural youth to take farm jobs in precarious conditions in order to help their families livelihood (Calderón, 2015). In addition, improving and building education and capacitation institutions in rural areas can hold the out migration of young populations (Soto & Torche, 2004).

### 3. Materials and methodology

#### 3.1. Description of the study sites

Primary information was collected using close-ended questionnaires from students in rural High schools with technical training in agriculture in their curriculum. The research sites are located in three northern agricultural provinces embedded in the three geographical regions of Ecuador Coastal, Highlands and Amazon, as part of a whole research project that is gathering empirical information from the centre and southern provinces. These sites have a predominant rural population and the presence of agricultural high schools, are located in the cantons of Otavalo, El Carmen y Fco. de Orellana, in Imbabura, Manabí and Fco. De Orellana provinces respectively (Figure 1).

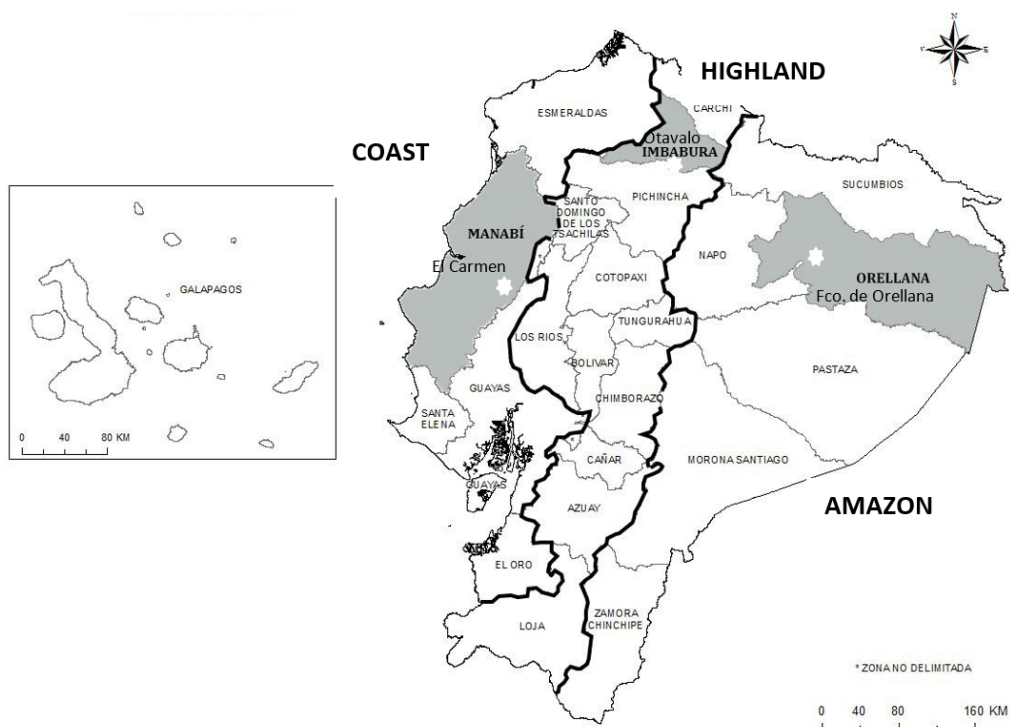
The study results steam from the perceptions and aspirations of rural youth populations in three different cultural and geographic regions, which are compared to understand differences regarding family farming development, further agricultural training, university studies, migration aspirations and off-farm employment.

The canton of Otavalo located in the coordinates 0°13'43"N and 78°15'49"W, between 2565 to 3000 m.a.s.l., with a total area of 58 thousand hectares and nested in the highland region, has 63% of its population living in rural areas, 58% are indigenous Kichwa, of which 67% lives in poverty and 37% in extreme poverty (Autonomous Decentralized Government of Otavalo, 2015). The social structure of indigenous populations relays on cabildos that consolidates the intra-inter community relations and for their conflict resolution and mobilization capacities.



It is an agricultural canton with almost 19% of the Economically Active Population (EAP) working in this primary sector.

**Figure 1. Map of research sites in the different Ecuadorian geographic regions**



However, the Otavalo society is experiencing a demographic transition due to long migration processes and a shift from family farming to elaborate handicrafts and wool textiles made in rustic looms, hence textile and manufacture sectors employ around 24% of the EAP (Autonomous Decentralized Government of Otavalo, 2015). Other activities are related to selling of locally- handmade products in the open-handicraft market and as intermediaries of handicrafts and textiles. The indigenous people of Otavalo has gained internationally recognition by their handicrafts and Andean-folklore music which transfer their identity. The establishment of international migration networks allows the Otavalo people easily start the international migration journey, eventually becoming a cultural feature amongst the youngster instead of an economic need and family strategy. Therefore, surveys were conducted among students at the Technical Agricultural Fernando Chávez Reyes High school, located in Miguel Egas Cabezas.

The canton El Carmen in the province of Manabí is located between 300 and 400 m.a.s.l., in the coordinates 00°16'11" S and 79°25'26" W, it lays at the entrance of the coastal region with an extension of 1.2 thousand square kilometres. The number of inhabitants are around 89 thousand and are comprised in seven ethnic groups, Mestizo (76%), Montubio (13%) Afro-Ecuadorian (5%), white (4%), Mulatto (1%) and Indigenous (1%); distributed in both urban (52%) and rural (48%) areas Autonomous Decentralized Government of El Carmen, 2015). According to the last national census, poverty is a common problem that affects 80% of the population, particularly to those living in the rural areas (98%) (INEC, 2010).

Agriculture is the main economic activity and provides employment for most of the 37% of the EAP; who are involved in the production of export-oriented permanent crops (i.e. bananas, coffee, cocoa), and grazing land for beef and dairy cattle (Autonomous Decentralized Government of El Carmen, 2015). The importance of agriculture in this canton is evident for having several of agricultural high schools and a university that offers agriculture training or majoring, in this regard a set of questionnaires were applied to students at the Technical Agricultural Unión y Progreso High school, located in the recent delimited area of Manga del Cura.

The province of Orellana is located in the Amazonian region of Ecuador, one of its cantons is Puerto Francisco de Orellana also known as “el Coca”, it is located between the 100-720 m.a.s.l. in the coordinates 0° 28' 0" S and 76° 58' 0" W. It has an extension of 705 thousand hectares, with 82% of its territory covered by forest, a share of 7% of is used for raising cattle and 3% for agricultural purposes (Autonomous Decentralized Government of Orellana, 2018). There are about 73 thousand inhabitants, 62% in urban and 38% in rural areas; 60% of the population is mestizo, 27% indigenous, 5% White, 3% Afro-Ecuadorian, and 5% other. The predominant indigenous peoples are the Amazon Kichwa, Shuar and Waorani.

According to the 2010 population and living census, 76% of the population lives in poverty mostly concentrated in rural (97%) than urban (64%) areas (INEC, 2010). The effects of the demographic change are evident in the 70% of the population which is younger than 29 years old. From 1990 to 2010 the EAP shifted from predominantly farming to oil industry, as a consequence of lack of rural employment opportunities, immigration from other provinces and Colombia, as well as rural youth outmigration searching for employment. Moreover, rural youth in order to have better access to labour markets decided to stay in the education system up to high school or university levels to improve their human capital, which reduced the labour participation in rural areas. About 40% of the population is economically active, and 29% is involved in the primary sector. However, this sector only contributes with 0.52% of the gross value added (GVA), in comparison to the 93.2% of the oil and mining sector (Autonomous Decentralized Government of Orellana, 2018).

The main land use change is due deforestation of primary forest for growing industrial crops such as coffee, cocoa and palm oil, and for clearing land for oil extraction. Notwithstanding, the Amazon forest in this canton loses around 2.7 thousand hectares a year with an annual deforestation rate of 0.44%. In addition, there are 21 oil concessions that cover an area of 645 thousand hectares or 91.5% of the canton's surface. Despite the 40 years of oil exploitation, it is one of the poorest cantons and provinces (Autonomous Decentralized Government of Orellana, 2018). According to the 2010 Population and Housing Census 75.8% of the population were in poverty, 63.5% and 96.4% in urban and rural areas respectively (INEC, 2010). For this research the education institution selected to conduct the surveys is the Technical Agricultural Padre Miguel Gamboa High school in Francisco de Orellana.

### 3.2. Data collection

Primary data was collected from students in the last two years of High schools with agricultural training programs, using a close-ended questionnaire comprised by four sections (i.e. socio-economic, family farming, farming experience and labour and living conditions in the agricultural sector). The research population in the final two years was chosen because, any-time soon they will have to take a decision whether to farm the land or migrate to urban cen-



tres for working and studying purposes. However, this population of students is unknown, therefore, the methodology consisted in surveying all High school students from the last two years in the three research areas located in three Ecuadorian geographical regions. With well-trained enumerators the project collected a total of 366 questionnaires, in order to have a representative sample size and a broader perspective from a rural population that constantly faces life decisions about to work and study.

### 3.3. Statistical methods

The data was analysed using qualitative and quantitative approaches to demonstrate the socioeconomic characteristics, farm ownership, farming experience, farm labour perceptions, migration and agricultural studies aspirations of the rural youth. The proposed hypotheses are: i) whether the perception of agriculture as a profitable sector and ii) household land ownership influences on the aspirations to migrate (dependent). The testing of the hypotheses is made with a chi-square ( $\chi^2$ ) test in order to detect the independency of qualitative variables and a cross-tabulation to summarize the information regarding bivariate relationships. The  $\chi^2$  Statistical formula is the following:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

Where:  $O_i$  = observed or empirical absolute frequency;  $E_i$  = expected absolute frequency

## 4. Results and discussion

### 4.1. Socio-economic characteristics

This study finds some differences in the analysis of the socioeconomic variables among the three cantons. In Orellana, the gender gap is smaller and the farm size is bigger than other research sites, the average time working as day labourers is around nine months for students in the Otavalo (Highland) and El Carmen (Coast) respectively, while in Fco. de Orellana (Amazon) the surveyed population have a total experience of fourth months (Table 1). The current payment for day labourers established in the rural labour market ranges between 10 to 15 USD/day; most commonly labour contract or arrangements are set between parts in a verbal manner. In this regards the young workers received and average of 7,54 USD/day, being the Amazonian population who gain the lowest (USD\$ 4,41).

In a broad comparison with the 2020 Ecuadorian minimum wage of USD\$ 400, the average income young workers received just represents a third of the minimum wage, again those in the Amazonia have the lowest percentage. Hence, the lack of rural employment and low and unfair incomes, creates a labour exploitation market for rural young workers, subsequently, forming a dilemma whether they have to farm for subsisting or to study to thrive. Agriculture for rural youth has become a sector where labour exploitation remains due to low income, and it differs in the three research sites. Auta, Abdullahi, & Nasiru, (2010), in a Nigerian study find that is primordial that youths receive better income in order to empower them, thus they

can plan better, avoid outmigration, be attracted to diversify farm activities and improve their living conditions.

**Table 1. Average values of main socio-economic variables**

Variables		Otavalo N=124	El Carmen n=178	Orellana n=64	Total n=366
Age (years)		16.39	16.24	16.30	16.30
Gender	M	60.50	68.50	51.60	62.80
	F	39.50	31.50	48.40	37.20
Household size (#)		6.60	5.09	5.39	5.65
Farm size (ha)		6.84	8.79	16.43	9.34
Time working in agr. (months)		8.49	8.60	4.36	7.91
Average income (USD\$)		153.16	160.13	88.20	150.90
Income per day (USD\$)		7,65	8,00	4,41	7,54
Relation to minimum wage (%)		38,29	40,00	22,05	37,72

The primary economic activity of parents of the surveyed population is shifting from traditional farming to trading activities, and other activities related to the manufacture of handicrafts to sell in the populous la plaza de ponchos tourist market, in the case of Otavalo. In contrast, in El Carmen more than half are farmers and 16% work as day labours, while in Orellana, almost a quarter are involved in farming and similar share works as public employees. In addition, Table 2 shows that most of the mothers in the household are related to housework, particularly in El Carmen; as well as, trading, handcrafting, weaving textiles in workshops with traditional Andean looms in Otavalo.

These results evidence that there is a decreasing participation in agricultural activities and family farming depends on off-farm employment to overcome economic constraints. However, Loughrey et al., (2013) describes that Irish farmers who have a pluriactivity are less likely to engage in off-farm employment and of having a farm successor, therefore pluriactivity can hinder the natural structural change in agriculture.

The European commission (2008) described that rural population lag behind urban population in terms of education levels, female activity rates, household income and job diversification, showing a weakness for rural development and a cycle of decline, that modify farm-gate pluriactivity and female participation. The different participation by women in farm labour in some cases is related to childcare, eldercare, remoteness and lack social service support. Patnaik & Lahiri-Dutt (2020) shows that there is a declining of female participation in some regions of India, while others have seen an increase, therefore female participation in the farm sector is not homogenized. Women participate as an additional help for farming, whereas to male this activity is casual in nature.

**Table 2. Main economic activities of survey respondents' parents (%)**

	Otavalo N=124		El Carmen N=178		Orellana N=64	
	Father	Mother	Father	Mother	Father	Mother
Farmer	16.94	7.26	53.37	5.62	23.44	6.25
Cattle breeder	1.61	1.61	3.93	1.69	0.00	0
Woodcutter	3.23	0.00	3.93	0.56	1.56	0
Day labourer	13.71	0.81	15.73	1.12	3.13	0
Trader	18.55	8.87	8.43	1.69	7.81	6.25
Public Empl.	9.68	2.42	2.25	1.69	23.44	9.37
Private Empl.	4.03	0.00	2.81	2.81	17.19	9.37
Housework	1.61	52.42	2.25	74.16	1.56	53.12
Other	30.65	26.61	7.30	10.67	21.88	15.62

## 4.2. Agriculture perceptions

There is a notorious difference between the regions regarding agriculture as a profitable economic activity. In El Carmen almost six out of ten respondents do not consider this sector as profitable, whereas six and eight out of ten respondents consider agriculture is still profitable in Otavalo and Orellana cantons respectively (Table 3). Their main reasons are: i) low prices of agricultural products, ii) low productivity iii) intensive family labour demands, particularly in Otavalo and El Carmen, and iv) lack of technological support from the government in the case of Orellana.

These factors discourage young populations to take up agriculture, Auta et al., (2010) point out that low prices of farm produce due lack of economic resources dismays the aspirations of Nigerian youth to engage in agricultural production, and with their economically and socially disadvantages, they are not able to realize their aspirations in rural areas, forcing them to leave agriculture and migrate. Family farming in Latin America characterizes by its low productivity, precarious labour conditions, low wages lack of social protection, which affect labour productivity and make of agriculture lesser attractive for young populations (Dirven, 2016). These drivers also forced them to leave the rural labour market for prolonged periods where they can move to cities for studies purposes or better training (Bjarnason, 2014; Kuhmonen, Kuhmonen, & Luoto 2016).

Furthermore, the agrarian transformation increases because low farm productivity and wages with intensive farm labour activities and fuels the motivation of skilled rural young labour force to move to cities (Bednaříková et al., 2016). In comparison, rural populations to other vulnerable populations, due to their geographical dispersion and remoteness, make their voices weaker and are more often invisible for governments and less likely to receive economic and technological support (European Commission, 2008). Lack of government support is the main disincentive for rural youth, and whether government support to agriculture increases they will see a hope and a future in the agricultural sector (Webster & Ganpat, 2014).

**Table 3. Perceptions of agriculture as a profitable activity (%)**

Variable	Responses	Otavalo N=124	El Carmen n=178	Orellana n=64
Agriculture is profitable	Yes	60.48	43.82	78.13
	No	39.52	56.18	21.88
Reasons why not	Low agricultural products prices	32.65	56.00	14.29
	Low agricultural productivity	26.53	10.00	14.29
	Lack of economic support	16.33	18.00	14.29
	Lack of technological support	10.20	5.00	50.00
	Low income and hard work	14.29	11.00	7.14

### 4.3. To migrate

The results in Table 4 show that most than half of the surveyed population thinks to migrate, the youth in Otavalo and Orellana will migrate to urban centres for studying purposes respectively, and to find employment in El Carmen. Regarding the participation into the family farming or in other agriculture-related activities, in Orellana two third of respondents will work in the farming sector, whilst in the cantons of El Carmen and Otavalo a big share of respondents thinks otherwise. Bjarnason (2014) explains that acknowledging the perceptions of employment and study opportunities in urban centres become the drivers of migration for rural youth and despite these opportunities they increasingly tend to move to cities or abroad.

Farming activities are punctuated by harsh conditions and arduous manual work that demands adult-like responsibilities that enhance perceptions of youth people to migrate, which creates a dichotomy by losing needed human-social capital or brain drain and staying in rural communities can be considered as failure (Corbett, 2007; O'Shea et al., 2019). The limited job options in agriculture and rural areas for young people is either to continue unemployed or under-employed or to migrate, therefore off-farm employment opportunities are the most important factors explaining migration aspirations (Thissen et al., 2010).

Considering demographic indicators in Europe show that migration of this type of population is for finding a promising life-style and to search employment opportunities, which makes the situation of those left behind more stark. This is the case of Spain, where dispersed small communities are facing out-migration and losing human capital that is vital for develop economic, social and demographic enhancements (European Commission, 2008). There is similar evidence from the coffee regions of Colombia, the significant decrease of coffee prices, smallholdings, long-lasting coffee crisis, land grabbing, and inappropriate rural development deteriorated rural labour markets, fostered rural youth migration to urban areas in order to find new employment alternatives (Jurado & Tobasura, 2012).

According to Bjarnason & Thorlindsson (2006) fishing and farming communities in Iceland have a great share of young population expecting to live the rural environment, because believing that better job opportunities can be found in cities becomes the strongest migration driver. They also showed that interest in working in agriculture is significantly associated to lesser migration aspirations. Studies of agricultural-secondary schools show that young students did not perceive agriculture as working sector or a career for further education (Dlami-

ni, 1997). This is consistent with Bezu & Holden (2014) study who determine that one out of ten rural youth considers agriculture as a future livelihood.

Another study demonstrates that teaching agriculture to students in rural areas could significantly increase their interest in dairy farming careers, and suggest that agricultural training or promotion should be integrated in the curriculum of rural schools and High Schools to improve awareness and to promote agriculture as a further professional career (Beecher et al., 2019). In Argentina, Sili et al. (2016) found an association between agricultural studies in young rural populations with working in the agriculture sector and studying agriculture in the future. Webster & Ganpat (2014) point out that a big share of rural youth (78%) in the St Vincent and the Grenadines, has aspirations for engaging in agriculture in the coming years as students in an agricultural science faculty, in order to change the current farming methods and to get better income.

**Table 4. Rural youth aspirations to migrate and agricultural labour perception (%)**

Variable	Response	Otavalo N=124	El Carmen N=178	Orellana N=64
Aspiration to migrate	Yes	52.40	60.10	53.10
	No	47.60	39.90	46.90
Reasons to migrate	Poverty scape	9.20	6.50	2.90
	Find employment	13.80	30.80	8.80
	Search better opportunities	24.60	30.80	32.40
	Family reunification	4.60	5.60	0.00
	Study	46.20	24.30	44.10
	Other	1.50	1.90	11.80
Father land ownership	Yes	62.10	71.35	57.81
	No	37.90	28.65	42.19
Will work in the agriculture	Yes	28.20	39.90	68.80
	No	71.80	60.10	31.30

Furthermore, the proposed hypotheses regarding the perception of agriculture as a profitable economic activity by the rural youth and whether parents land ownership (independent variables) have an effect on the aspirations to migrate (dependent variable), a chi-square ( $\chi^2$ ) test helps point out an association by comparing actual and expected data distributions along categories.

The results of a chi-square test of goodness in Table 5 demonstrate that there is a significant association between the perception of agriculture as an economically profitable activity and the aspiration to migrate  $\chi^2 (1, N = 366) = 14,984, p = <0.00$ . Table 7 shows the negative Pearson correlation results between these two variables ( $r = -0.202, p < 0.000$ ), meaning that aspirations to migrate increases when the perception of agricultural profitability decreases.

Young farmers in India perceive the falling of farm profitability as a determinant for changing livelihood strategies, engaging in pluriactivity and as a driver for rural-urban migration (Pat-

tnaik & Lahiri-Dutt, 2020). Furthermore, households without farmland in order to survive are prone to pluriactivity or off-farm employment that constrain the natural process of rural structural change, particularly in the farm sector that eventually becomes more dependent from outside income or migrant remittances (Loughrey et al., 2013).

**Table 5. Chi square test results between aspirations to migrate and agriculture as an economic profitable activity**

	Value	df	Asymptotic Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.984*	1	.000		
Continuity Correction**	14.174	1	.000		
Likelihood Ratio	15.160	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	14.943	1	.000		
N of Valid Cases	366				

\* 0 cells (0.0%) have expected count less than 5. The minimum expected count is 71.26.

\*\* Computed only for a 2x2 table.

Another determinant with significant association shown in Table 6 is household head farm ownership  $\chi^2$  (1, N = 366) = 6.367,  $p = <0.012$ ), marking a point according to Pearson's correlations in Table 7 ( $r = 0.132$ ,  $p < 0.012$ ), that aspirations to migrate are greater for those whose parents own farmland. These results underpin the findings of Bezu & Holden (2014), who point out that there is a negative and highly statistically significant between households with small farmland ownership and youth migration aspirations, in other words in smaller farmland size rural youth migration increases. Small and low productive farms exert pressure on young populations to find jobs elsewhere but not as day-labourers, because the predominance of low wages and harsh labour conditions in agriculture, wherein outmigration become a more reliable way of getting out poverty.

**Table 6. Chi square test results between aspirations to migrate and parents land ownership**

	Value	df	Asymptotic Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.367*	1	.012		
Continuity Correction**	5.818	1	.016		
Likelihood Ratio	6.347	1	.012		
Fisher's Exact Test				.014	.008
Linear-by-Linear Association	6.349	1	.012		
N of Valid Cases	366				

\* 0 cells (0.0%) have expected count less than 5. The minimum expected count is 54.64.

\*\* Computed only for a 2x2 table.



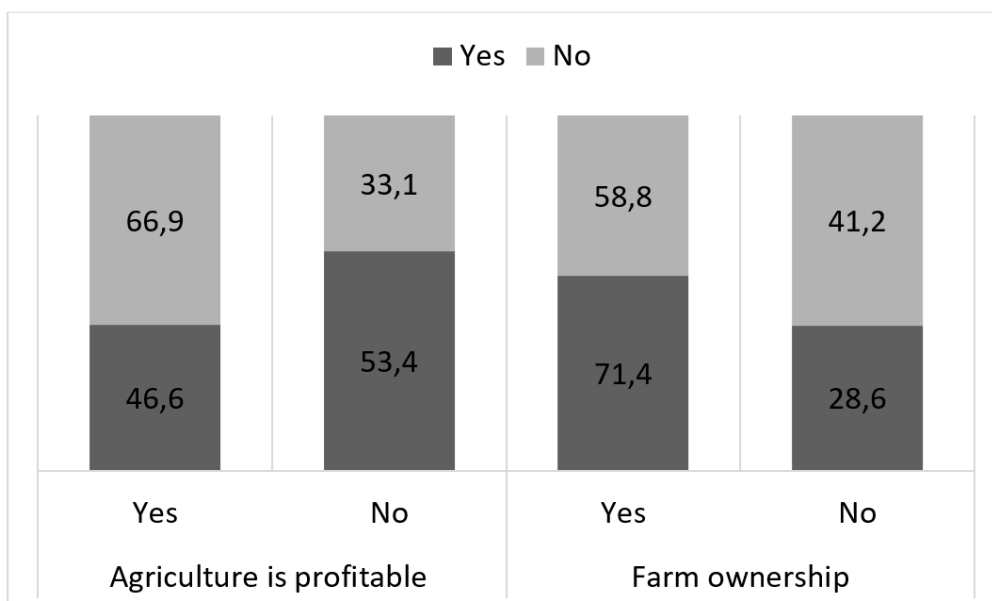
**Table 7. Correlations between aspirations to migrate and parents' land ownership and agriculture profitability**

		Aspirations to migrate	Economically profitable agriculture	Parents land ownership
Aspirations to migrate	Pearson Correlation	1	-.202***	.132**
	Sig. (2-tailed)		0.000	0.012
	N	366	366	366
Economically profitable agriculture	Pearson Correlation	-.202**	1	-0.089*
	Sig. (2-tailed)	0.000		0.089
	N	366	366	366
Parents land ownership	Pearson Correlation	.132	-0.089	1
	Sig. (2-tailed)	0.012	0.089	
	N	366	366	366

\*\*\*p < 0.0; \*\*p < 0.05; \*p < 0.1

From a descriptive approach, Figure 2 shows that there is more than half of the respondents are planning to migrate, because they do not consider family farming and agriculture as an economically profitable activity. Albeit, farmland ownership does not guarantee that the respondents will not migrate, because a higher percentage of young rural migrants will come from households owning farmland. Loughrey et al., (2013) explains that low or negative profitability, small farmland size and farm ownership are not attractive for young successors to take up agriculture.

**Figure 2. Correlation between migration aspirations, agriculture as a profitable activity and parents farm ownership (%)**



Moreover, Auta et al., (2010) states that low prices of agricultural products, high prices of agricultural inputs (i.e. fertilizers and pesticides), and small farmland, convert agriculture in an unprofitable venture that dispirit rural youth to enter to farming. In fact, low farm profitability and highly labour intensive agricultural activities produce slight interest in the agriculture sector (Webster & Ganpat, 2014). These factors build the virtuous circle of farm profitability-household farm ownership-migration, since low or negative profitable farms and the absence of farm ownership offer lesser employment opportunities, therefore increasing the migration aspirations.

#### 4.4. To study

According to descriptive analysis shown in table 8, agriculture is not an option in the planning of further professional formation at higher education institutions for students of agricultural high schools, in Otavalo and El Carmen, On the other hand, in Orellana eight out of ten youngsters will study agriculture at university because they have a very good perception of agriculture as a profession. This differences are rooted in the higher farmland size that contributes to a greater share of young populations in Orellana to consider agriculture as profitable activity and intensify their aspirations to work in the agricultural sector.

Therefore, rural areas need to focus in providing high-quality education and training to make agriculture more attractive and disincentive migration. In this regard, the European Commission, (2008) depicts that the rural education system needs to provide technical skills with educational strategies, such as, vocational training and innovative approaches to enhance qualifications, in order to promote better productivity, economic growth and making agriculture a more attractive career.

**Table 8. Studies and professional training perceptions in agriculture (%)**

		<b>Otavalo N=124</b>	<b>El Carmen n=178</b>	<b>Orellana n=64</b>
Study Agriculture at university	Yes	30.60	48.30	81.30
	No	69.40	51.70	18.80
Agriculture as a profession	Very good	33.10	30.30	71.90
	Good	46.80	43.30	21.90
	Average	12.90	13.50	6.30
	Regular	5.60	11.20	0.00
	Poor	1.60	1.70	0.00

## 5. Conclusions and policy recommendation

The current emancipation of rural young populations driven by globalization forces and technological advancements, leads towards an individualization of rural youth and abandoning of the household, a shift in local demographic patterns, a dependency on off-farm income (pluriactivity), and to transform the rural youth perceptions about studying and working in agriculture. Additionally, family farming pluriactivity which is considered as a short-term strate-

gy for rural development, also fosters rural-urban migration and reduces the reproduction of consanguineous labour force to take over the farmland. These problems eventually are reducing the capacities of the family farming to thrive, in front of an increasing elderly populations in rural areas.

The low-productivity and low-unfair rural wages are making agriculture a lesser attractive economic sector for rural youth; particularly in El Carmen, where farming is based on high usage of chemical inputs to produce industrial crops for export. It is important to highlight that among the main reasons for considering agriculture as non-economically profitable activity, are low prices of agricultural products and the lack of technological support to the family farming by local governments, which should be considered by agricultural policy makers to develop programs/projects to attract rural youth to the farming activity.

Moreover, the perception to migrate in the canton el Carmen is higher than the other research sites, rural-urban youth migration occurs in order to find employment, or for searching better opportunities to secure the family livelihoods. In addition, education plays an important role at the time of migration decision making, since it has the capacity to foster human and economic development, which are lacking in the rural environment. The perceptions to study agriculture at university and work in the family farming sector is higher in Orellana, where agriculture is still perceived as an economically profitable activity and the disposition of farmland and other natural resources is greater. A final remark is that the aspirations of rural youth populations to migrate are linked to the low capacity of the agricultural sector to generate profit, particularly migration will stem from households where the households own farmland.

Rural development policy should design measures that can be taken to ameliorate the problems of low productivity and low prices of agricultural products, through the adoption of innovative process and practices to enhance farm performance and profitability. The findings here show that larger and more profitable farms are more likely to reduce outmigration and maintain generational succession. It is important to i) provide decent youth-targeted rural employment-generating arrangements, ii) endowment of land access to young population, iii) entrepreneurial training for high-value crop and livestock production, iv) provide access and facilities to credit for young small-scale farmers and for those who want to start farming, v) offer practical education programmes that lead rural students to pursuit careers in agriculture and are technological driven, vi) market-oriented mechanisms such as export subsidies and technical training that lead rural employment formation, vii) extreme consideration should be given to access to Information and Communication Technologies (ICT), viii) develop curricula for rural students and teachers in agriculture training, ix) introduce social services for rural youth, x) create a formal network or digital application to find rural employment that matches jobs and skills in rural environments, and last but not least xi) policy makers should develop policies, programs and projects that foster investment in human capital (education, training, skills) and understand the urgent need to develop political will to reduce migration of youngsters from rural areas.

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