

Cooperatives and Migration: Two paths towards economic security for domestic workers in Ecuador?

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Abstract

The purpose of this paper is to analyze the migrant domestic workers' state, one of the most vulnerable occupation groups, in the Ecuadorian labor market under the economic security perspective. Firstly, we measure the level of economic security for the case of Ecuador based on the Alkire and Foster' multidimensional poverty index. Secondly, we estimate two Poisson regression models, for one hand to find the impact of occupation groups' migration among other individual characteristics on the level of economic security in a decade, and for the other hand, to analyse the effect of cooperative membership among other collective characteristics on the level of economic security. The findings have direct public policy implications since strict laws of workers' protection such as the Convention 189, seem to be ineffective in practice, hence alternative proposals are demanded. We also show that cooperatives achieve high levels of economic security, as a result, domestic workers cooperatives might also be encouraged contrary to the conventional notion of agricultural or financial cooperatives only.

Keywords: Labor Standards: National and International, Particular Labor Markets, Labor-Management Relations, Trade Unions, and Collective Bargaining, Labor Discrimination.

JEL Classification: J8, J4, J5, J7.

1. Introduction and motivation

Labor migration seeks for better living conditions for the worker and his family due to more access to high quality and better paid jobs in the place of destination. However, this expectation is not completely met when migration is driven by poverty and low levels of schooling.

As a result, governments and NGOs have been working on guaranteeing the protection of workers' conditions to retain workforce through employment policies considering its

demographic trends, structural changes, economic growth and mainly unemployment and informal employment problems (ILO¹, 2015). Despite having legal regulations to enable workers achieve high *levels of economic security* (LES)², governments have been facing the challenge to obtain the expected results particularly with the most vulnerable employment groups³, who are more sensibly determined by regulations in labor policies (d'Agostino et al., 2018; Fiori et al., 2012; Sadovaya, 2010).

In particular, domestic workers have historically tended to migrate with the aim of finding better living conditions (Spitzer, 2010). For instance, the Employment, Unemployment and Underemployment National Survey (ENEMDU)⁴ from Ecuador shows statistical evidence that domestic workers preceded by agricultural workers are the group with bigger migratory flows until 2014.

This fact might be explained by the limited opportunities of these social groups to access formal employment⁵. In fact, domestic work is mainly found in informal economies⁶ as it is easier and faster to get in (ILO, 2014). Furthermore, this type of jobs shows more likeliness to dishonorable working conditions and labor exploitation. Some of the possible reasons are high levels of qualification and professional experience which are not demanded in this occupation (Polachek, 2003; Chiswick, 2003). Another reason according to Dobb & Dobb (1975) is that unlike productive labor, domestic work service perishes at the time of delivery.

¹ The International Labor Organization (ILO) is devoted to promoting social justice and internationally recognized human and labor rights. It brings together governments, employers and workers representatives of 187-member States, to set labor standards, develop policies and devise programs promoting decent work for all women and men.

² Economic security was proposed by ILO in 2004 to reinforce human security with an integral development perspective (ILO, 2016). Its aim is to ensure the respect of the society rights, especially if those ones guarantee dignify and fair working conditions to permit individuals access to education, dwelling, food, health and other basic needs.

³ According to ILO the vulnerable groups are women, disabled, minorities, unemployed, domestic workers.

⁴ Encuesta Nacional de Empleo, Desempleo y Subempleo from Ecuador (ENEMDU) is a national survey performed by Instituto Nacional de Estadísticas y Censos (INEC) whose objective is collecting labor, social and economic information to evaluate labor market conditions in Ecuador.

⁵ A worker has a formal employment if works in a firm that has RUC (registro único de contribuyentes) and complete accounting statements, based on the methodology description of INEC to December 2014.

⁶ According to ILO the informal economy is characterized by lack of protection in the event of non-payment of wages, compulsory overtime without extra-compensation, unsafe working conditions and in general no guarantee of labor rights.

In the case of Ecuador, formal contract processes were not legally mandatory for domestic workers before 2011. As a result, ENEMDU shows warning figures for domestic workers that indicate its high job insecurity conditions. From 2008 to 2010, the 89.3% of them on average did not have social security, the 12.57% did not have a written contract, the 76.73% had an inappropriate employment⁷, the 97.35% were discontent due to low income, the 65.35% were discontent due to job insecurity, and the 82.23% of them were youngsters under 25 years old.

In order to improve this situation, the Ecuadorian legislation was modified with the Convention 189 in 2011 (see further in ILO, 2011). Statistics taken from ENEMDU showed that from 2011 to 2014 the 71.93% of domestic workers did not have social security, the 64.1% had inappropriate employment and the 12.38% did not have a written contract.

ILO seeks better working conditions from another perspective, it is by promoting cooperatives which have proven to advance sustainable development goals equally among all their members. In Ecuador, there are mostly agricultural and financial cooperatives, but none for domestic workers.

This research contributes to three strands of economic literature: first, it proposes a measurement of the level of economic security based on the Alkire and Foster's multidimensional Poverty index methodology (2011). Secondly, it aims to evaluate the effectiveness of the trending domestic workers-labor migration in the achievement of high levels of economic security (LES) after the Convention 189 was established. And thirdly, it pursues to evaluate if cooperatives and community-based organizations achieve high LES.

This paper is divided into 4 parts after the introduction as follows: Section 2 contains the theoretical background that motivates hypotheses testing. Section 3 explains the three methodology descriptions. Section 4 contains the discussion of results, and finally Section 5 presents the conclusions of this research.

⁷ According to INEC, a worker has an inappropriate employment when he is deprived the minimum hours per workday criterion or the earning of the minimum wage established by law.

2. Theoretical motivations

2.1. Economic security basis and definitions

Human beings have the need to feel protected and secured. It provides them the sense to become more socially responsible and reinforces their self-consciousness of the limits of moderation. Moreover, the sense of basic security extends people's time-horizons and make them more risk-taking (ILO, 2004).

Economic security also means a stable state of financial security that is capable enough to maintain dignify living conditions with solvency. It also pursues to limit the impact of uncertainties and risks that people face daily (ILO, 2004).

Another goal of economic security is to guarantee workers' welfare through standard labor conditions (ILO, 2004).

The ILO (2004) has set eight worldwide conventions that are the fundamentals in all countries to have a minimum level of dignity at work.

- Freedom of association and protection of the right to organize (Convention, 1948 No. 87)
- Right to organize and collective bargaining (Convention, 1949. No. 98)
- Forced labor (Convention, 1930. No. 29)
- Abolition of forced labor (Convention, 1957. No. 105)
- Minimum age (Convention, 1973. No. 138)
- Worst forms of child labor (Convention, 1999. No. 182)
- Equal remuneration (Convention, 1951. No. 100)
- Discrimination (Convention, 1958 No. 111)

In the case of Ecuador, the amended Constitution of 2008 supported Art. 33, where the work is recognized as a right and social duty, source of personal realization and base of the economy, so that the State will guarantee workers the full respect to their dignity, decent life, fair remuneration, performance of a healthy and freely chose job.

Additionally, the Work Code, the Social Security law and the National Plan for Good Living 2013-2017 (especially with its objective 9⁸) have alignments that regulate standard working conditions and especially guarantee a dignify work.

⁸ The objective 9 pursues to encourage several economic activities that generate high-quality employment.

Economic security has seven fundamental pillars which are:

- *Labor market security*: This dimension guarantees adequate employment opportunities through state-guarantee employment with a minimum level of income.
- *Employment security*: The protection against loss of income-earning work. It guarantees the sense of membership to an organization so as not to suffer from unfair dismissals or sudden loss of independent work.
- *Job security*: Opportunity for the worker to build a career in conjunction with his or her interests, training and skills.
- *Work security*: Protection related to job safety against accidents at work, illness at work, safety and health regulations, limits on working time, unsociable hours.
- *Skill reproduction security*: Opportunities to learn and acquire some skills through apprenticeships, employment and self-employment training.
- *Income security*: It refers to the adequate, actual and expected income that workers should receive. Each country generally stated a minimum wage and salary for workers.
- *Representation security*: Protection of collective voice in labor market through independent trade unions and employee associations economically and politically incorporated into the state.

2.2. Migration in the long run.

According to the Becker's (1962) and Mincer's (1974) theories, higher levels of schooling and experience affect positively to workers' wages and salaries. Individuals specialize their skills and knowledge according to their field of occupation group. Therefore, blue collar workers like agricultural workers, day laborers, domestic workers and other low skill jobs are more likely to earn lower remuneration or suffer from labor rights violation (Sinn, 2005).

Social security affiliation is mandatory for any type of worker. It is the minimum condition to protect workers in Ecuador. However, figures taken from the Living

Conditions Survey (LCS)⁹ in Table 1 show that domestic workers, day laborers and non-paid workers seriously lacked from this right. Consequently, they do not benefit from medical assistance, retirement pension and access to mortgage or pledge loans (ILO, 2001; ILO 2013), therefore they are excluded from social and economic development which leads them to inequality in the labor markets (Jensen & Slack, 2013). Although the domestic workers' social security rate increased by 23.2% in 8 years after 2006, and 3 years the statement of Convention 189, it is much lower than the other group of employees.

Table 1. Percentage of the Social Security Achievement according to Occupation groups in 2006 and 2014 – Ecuador

Year	Does worker have social security?	Employee		Day Laborer		Employer		Non-paid worker		Domestic worker	
		2006	2014	2006	2014	2006	2014	2006	2014	2006	2014
2006	Yes	48.8	10.3	21.1	25.3	18.0					
	No	51.2	89.7	78.9	74.7	82.0					
2014	Yes	71.5	17.7	25.9	26.6	41.2					
	No	28.5	82.3	74.1	73.4	58.8					

Data taken from the Living Conditions survey 2006 and 2014 of Ecuador.

Moreover, vulnerable groups face challenges while applying for a job. In particular, domestic workers have presented historically migratory movements (Minura & Mauldin, 2005). In fact, Table 2 shows that the rate of migration for labor issues reduced in 2014 with respect to 2006 for all the occupation groups except for domestic workers, their labor migration increased substantially in 2014.

Table 2. Percentage of the reasons for migration according to Occupation groups in 2006 and 2014 – Ecuador

Reasons for migration	Employee		Day Laborer		Employer		Non-paid worker		Domestic worker	
	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014
Family	30.2	39.5	31.0	48.5	39.	54.5	55.8	80.6	70.9	40.7
Labor	56.3	49.7	60.3	45.5	42.1	32.3	28.9	10.5	12.8	47.7
Studies	5.5	2.9	0.4	1	1.7	2	1.6	5	0.00	4.4
Other	8	7.8	8.3	5	17.3	11.2	13.6	3.9	16.3	7.3

⁹ Living Conditions Survey (LCS) (Encuesta de Condiciones de Vida) is a survey performed by INEC. It has a four-year periodicity.

Data taken from LCS 2006 and 2014.

Domestic workers might feel motivated to migrate for finding better living conditions through a job with higher income. As Schmitt et al. (2006) mentioned, alternative geographical areas may improve the access to public services, educational institutions, health service and especially job opportunities. Heterogenous geography is a crucial factor in the wealth distribution (Chan, 2011).

Although workers' migration might bring some positive effects even for low skill workers, it also brings together several costs known as "costs of migration":

- Migrant workers tend to move on to industrialized or commercial cities with higher living-standards. This causes that home regions lose specific workforce because of their lack of retention due to low internal offer or non-competitive salaries (Buckley, 1998).
- Migrant workers are willing to offer their services for a lower market cost encouraging employers to have a preference to hire them, mostly at their beginning of the post-migration stage. Therefore, the local labour offer increases, and employers are motivated to offer lower remunerations and disregard good contract conditions (Covington-Ward, 2017).
- Migrant workers are supposed to adapt to the economic, social and cultural system of the destination place. Psychologically, they require more adaptation capacity to overcome differences, and any kind of discrimination because of ethnicity, religion, age, etc...(Clark & Lindley, 2009).
- Migrant workers must accept to afford the costs of settlement (i.e first dwelling) which is one of the highest expenses during the stay (Castro-Martín & Cortina, 2015).
- Migration might carry family separation. This social problem affects specially kids' emotions and feelings negatively, as well as to their families (Vesely et al., 2015).
- Low skilled workers such as domestic workers have less weight in the wage bargaining (Jimenez & García, 2010).

Then this theoretical evidence shows that migrant domestic workers might obtain more working opportunities in the destination place, but not necessarily the quality job expected from governments.

Taking Becker's (1962) studies about human capital, job experience and schooling may influence positively on the workers' salary. So, in this case, if migrant domestic workers manage to invest more in education and professional experience, they would improve their labor conditions in the destiny place. However, vulnerable employment groups generally suffer from low salaries that limit their access to education in Ecuador. Also, their professional experience is conditioned by the labor demand in some areas.

Thus, this pattern is in some way the poverty trap. Minimum economic resources are mandatory to afford education. In 2014, most Ecuadorian domestic workers earned not even the minimum wage (59%), and the ones that did earned it, could not even covered the value of the Ecuadorian basket of goods. Consequently, their level of education has mostly tended to remain low, so they have had difficulty to find better positions, and consequently increase qualified professional experience.

Based on the reasons shown above, we establish the first hypothesis:

H1: Ecuadorian migrant domestic workers are less likely to have higher LES in 2014 than in 2006 with respect to the other group of employees.

2.3. Are cooperatives able to achieve economic security?

As a process of human civilization, cooperative movements have been strengthened to support human survival and development. During the last decades, governments have encouraged strategies to transform cooperatives into economical entities for certain population segments. According to the "Popular and Solidary Economy Secretary"¹⁰ (SEPS) of Ecuador, cooperatives or community-based organizations are societies whose social objective is non-profitable, self-managed by their shareholders who decide about the economic contributions, labor and needs, always guaranteeing the equity and dignity of all the members.

¹⁰ Secretaría de Economía Popular y Solidaria de Ecuador (SEPS).

Legal regulations for cooperatives and community-based organizations in Ecuador were created to support workers' economic activity against the low-quality job offer. Thus, they receive some preferences, for instance, some associations benefit from specific exports and imports tax exemptions to encourage savings for their business activity; they are also prioritized in public tender processes; they are given a guided action plan for running cooperatives efficiently with permanent monitoring, and other supporting tools (see further in SEPS, 2011).

In addition, the United Nations Development Program (UNDP, 2016) has encouraged the establishment of cooperatives and community-based organizations as a solution for groups of workers whose economic activity is not able to recover from poverty. For instance, there is a famous case of farmers who have dealt with monopolistic industrial companies and the imposed market prices that leads into the small producers' bankruptcy.

Consequently, financial and agricultural cooperatives are well recognized in Ecuador for its implication in the economic activity and its impact.

The importance of cooperatives and community-based organizations is as follows:

- These associations may solve certain market failures as cooperatives can be distinguished from other businesses with a registered trademark that a single individual is not able to afford. Furthermore, evidence has shown that workers with fair-trade certification are more satisfied with their jobs (Krumbiegel et al., 2018).
- Cooperatives guided planning might contribute to the added value generation of the product or service to differentiate their products (product differentiation); especially for homogeneous production.
- Their regulations may guarantee fair workload, professional training, and proper work timetables that enable free time for household activities focusing on childcare.
- Equality is promoted so that cooperatives' systems avoid all type of gender and ethnic discrimination; thus, wages and general benefits are equally distributed to each members of the association.

- These associations might help to reduce labor migration because they intend to generate a source of employment, not only for its local members but also for their neighbours (positive externalities).

In fact, cooperatives might be seen as a type of resilience basket, especially for vulnerable workers. The UNDP¹¹ agreed that a resilience basket is an effective way of public policy covered by four important factors: social protection, care systems, physical and financial assets that serve as cushions to prevent setbacks and potential shocks that might risk sliding workers into poverty again. In contrast, Convention 189 for domestic workers in Ecuador was not focused to encourage the creation of that resilience basket.

Taking all points into consideration, it seems that cooperatives or community-based organizations are structured to protect workers' conditions from an integral perspective. This leads to the second hypothesis:

H2: Members of cooperatives or community-based organizations have a higher expected LES in Ecuador than non-members.

3. Data

The data used for this research has been taken from the two databases of Ecuadorian Living Conditions Survey (LCS) 2006 and 2014 performed by the Instituto Nacional de Estadísticas y Censos¹² (INEC). These polls are conducted by personal interviews. The 2014 data has 109.685 observations and 689 variables, while the one of 2006 has 55.666 observations and 420 variables.

Moreover, they have a four-year periodicity with a two-stage stratified probabilistic sample design, so it starts with the stratification of the sample primary units (UPM) represented by 150 sectors and then the sample secondary units (USM) represented by 96 dwellings; thus, the last selected unit is the dwelling and the observation unit are homes (for further details see INEC, 2015; INEC, 2014 and INEC, 2007).

¹¹ The United Nations Development Program (UNDP) aim to eradicate poverty, inequalities and exclusion. It helps countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in ordered to sustain development results (www.undp.org).

¹² Instituto Nacional de Estadísticas y Censos is a public institution that provides and manages official statistics of Ecuador.

The empirical estimation considers differential respondent weighting. This implies that each interviewee is given a weight to represent that specific respondent is within the population, as the scope of this analysis is to make inferences to the population, not just the sample ¹³.

4. Methodology

4.1. Multidimensional economic security index

This index construction is based on the “dual cutoff” method from Alkire and Foster’s (2011) multidimensional Poverty Index, the definitions and the suggested guidelines for measurement provided by ILO considering all the occupation groups (only for employed and underemployed population) defined by INEC: employees ¹⁴, self-employed or freelance workers ¹⁵, day laborers ¹⁶, non-paid workers ¹⁷ and domestic workers ¹⁸.

To define the multidimensional economic security index, we first address the matrixial notation for a sample of n workers that will be classified according to k finite dimensions. In this methodological proposal, k is the number of fundamental pillars of the economic security established by ILO.

Let us assume that X_{ik} is a non-negative matrix of $i = 1, \dots, n$ workers who has achieved $k = 1, \dots, K$ dimensions. In addition, let \tilde{x}_i be the row vector that contains the K achievements (related to dimensions) of worker i , and be the vector that contains the

¹³ In the LCS all members of a dwelling are interviewed, having a positive correlation in the answers. This behavior will probably lead to bigger standard errors in the estimated coefficients (Lumley, 2010), so in order to manage this in the statistical analysis, *survey()* package in R programme will be used to perform statistical calculations and modelling in order to ensure the population deduction. Survey package allows to incorporate the sampling design with the correspondent expansion factor. The two-stage stratified design of survey package is incorporated in the estimation of the model. Taking sectors as primary units and dwellings as secondary units.

¹⁴ Employees are defined as the person who works for a private, public employer or a mixed-nature organization and receives a salary or wage (see INEC, 2014 for further details).

¹⁵ Self-employed or freelance workers are defined as people who manage their own businesses or without a boss in the saddle (see INEC, 2014 for further details).

¹⁶ A day laborer is exclusively referred to the worker hired for a working day (see INEC, 2014 for further details).

¹⁷ A non-paid worker is defined as the worker who does not receive a remuneration for the work done.

¹⁸ A domestic worker is defined as the person who works in a household doing housework and receives a salary or wage.

cutoff that states if the worker i achieved or not the dimension k_i ; and let Ψ be a vector that contains internal cutoffs of dimensions.

Alkire and Foster (2011) established an identification function η so that $\eta : \mathfrak{R}_+^k \times \mathfrak{R}_{++}^k \rightarrow \{0,1\}$ which maps the row vector \tilde{x}_i of worker i ' achievements with $\Psi \in \mathfrak{R}_{++}^k$. Then the n workers can be categorized in the k dimensions as:

$\eta(\tilde{x}_i, \Psi) = 0;$ if the worker i does not have economic security.

$\eta(\tilde{x}_i, \Psi) = 1;$ if the worker i has economic security.

When η maps every \tilde{x}_i of X_{ik} , we obtain the $\Psi \in \{1, \dots, n\}$ of workers who have economic security to X_{ik} given Ψ .

Because $\eta(\tilde{x}_i, \Psi) = 1$ depends on k achieved dimensions by the worker i (k is the number of k dimensions achieved by worker i in a certain \tilde{x}_i). We need to quantify them in order to state if worker i has economic security or not. This multidimensional index does not take the union, nor the intersection operation sets. In the union approach, worker i has economic security if $k \geq 1$, with $k \in [1, K]$, the worker's i labor conditions might be overestimated. Whereas with an intersection approach, worker i has economic security if k is equal to K , with all K dimensions coded as 1, so the worker's i labour conditions might be underestimated.

Thus, as this multidimensional index aims to quantify and detect the k dimensions lacked by the worker i , it takes an intermediate approach:

$\eta(\tilde{x}_i, \Psi) = 0;$ if $k \geq w$

$\eta(\tilde{x}_i, \Psi) = 1;$ if $k < w,$

where $w, w \in [1, K]$ is the desirable number of dimensions to have effectively achieved economic security.

Alkire & Foster (2011) called this intermediate approach as “dual cutoff” with a Ψ internal cutoff, and a w external cutoff.

Considering the following:

- The fundamental pillars of economic security stated by ILO are defined from a very general perspective, their measurements must be settled according to the facts and data in each country.

- The fundamental pillars have the same degree of relevance, so they are considered equally as important in this index construction.

To measure a worker's i level of economic security, all k dimensions coded as 1 are summed, so we measure the level of economics security between 0 and K for each worker i rather than establishing if worker i has or does not have economic security. These internal cutoffs are used to distinguish the k dimensions defined by the fundamental pillars of the economic security, and the external cutoffs are defined by minimum number of the Ecuadorian labor regulations respected by worker i in every k dimension.

Because the index construction is conditioned to the availability of the information of the LCS, the measurement of "job security" is not possible in this research; and because labor market security and income security are analyzed jointly due to the presence of a key linking variable, so $k \in [0, 5]$.

The description of the internal and external cutoffs of each dimension is shown in the Appendix.

4.2. Pooled Poisson Model

The purpose of this methodological section is to identify the effect of certain individual characteristics and decisions. In particular, the occupation groups' migration after 8 years (from 2006 to 2014) through a Poisson regression model.

A Poisson regression model is a commonly used method to predict discrete count dependent variables explained by one or more nominal, ordinal or ratio-level exogenous variables (Greene, 2003). In addition, it is a predictive modelling technique that aims to find the expected value of occurrence of that event.

The Poisson regression model is a particular case of the generalized linear model (McCullagh and Nelder, 1989). The canonical link is given as:

$$Y_i = \ln (U_i) = \beta_0 + \sum_{k=1}^K X_{ik}\beta_k, \quad [1]$$

where $i=1, \dots, n$ individuals, $k = 1, \dots, K$ variables,, are the model parameters, and Y_i is the response variable, in this case the economic security achievement by workers.

Its standard specification is:

$$E(Y_i) = \exp (\beta_0 + \sum_{k=1}^K X_{ik}\beta_k), \quad [2]$$

There are few researches about the determinants of economic security; the vast literature devotes to study how to measure it through the index construction proposals by ILO but considering workers as a homogeneous group and leaving aside decisions such as migration and some other individual characteristics as determinants of the economic security.

Migrant and non-migrant workers have social, economic and demographic characteristics that might determine how their participation is in the Ecuadorian labor market. In fact, these characteristics influence the probability of having a formal employment (Vega, 2017), the probability of having a decent work (Villacis & Reis 2015), they influence gender inequality (García-Aracil & Winter, 2006), occupation ethnic segregation (Gandelman et al., 2011), hourly earnings (MacIsaac & Rama, 1997), and life satisfaction (Daraei & Mohajery, 2013).

Thus, there is some evidence that the quality of employment seems to be determined by certain individual characteristics. The choice of the independent variables is based on the literature review and on Borat et al., (2013) group of individual characteristics such as: schooling, sex, age and ethnicity. Table 3 shows the description of the dependent independent variables that will be used in this first model.

A pooled Poisson model is estimated with the purpose of analyzing the expected change after 8 years (2006 – 2014). So LCS 2006 and LCS 2014 are merged giving 73.769 observations.

This first model specification is:

$$E(Y_i) = \exp (\beta_0 + \partial_0 y_{2014} + \beta_1 \text{Female}_i + \beta_2 \text{Age}_i + \beta_3 \text{Negro}_i + \beta_4 \text{Mulato}_i + \beta_5 \text{Mestizo}_i + \beta_6 \text{White}_i + \beta_7 \text{Schooling}_i + \beta_8 y_{2014} \cdot \text{Migrant_employee}_i + \beta_9 y_{2014} \cdot \text{Migrant_employer}_i + \beta_{10} y_{2014} \cdot \text{Migrant_non - paid}_i + \beta_{11} y_{2014} \cdot \text{Migrant_domestic - worker}_i) \quad [3]$$

Y_i is the response variable corresponding to the number of dimensions achieved by each worker (level of economic security) β_0 is the intercept for 2006, $\partial_0 + \beta_0$ is the intercept for 2014. And β_i with $i = 1, \dots, 11$ is the estimated coefficient related to the independent variables i from Table 3.

Table 3. Description of the variables in the Poisson Model

Type	Variable	Description
Dependent	Economic Security	It is a discrete count variable which takes the value from 0 to 5 according to the achieved number levels of economic security by the worker.
	y2014	It is a dummy variable equal to one if the observation comes from the year 2014 and zero if it comes from 2006.
Independent	Female	It is a dummy variable equal to one if the worker is female.
	Age	It is a continuous variable and represents workers' age.
	Afro	It a dummy variable equal to one if the worker is black descendant or afroecuadorian.
	Mulatto	It is a dummy variable equal to one if the worker is mulatto.
	Mestizo	It is a dummy variable equal to one if the worker is mestizo.
	White	It is a dummy variable equal to one if the worker is white and others.
	Schooling	It is a continuous variable and represents the years of schooling.
	Mig_employee	It is a dummy variable if the worker is 'employee' and has migrated due to work-related issues.
	Mig_day labourer	It is a dummy variable if the worker is 'day laborer' and has migrated due to work-related issues.
	Mig_employer	It is a dummy variable if the worker is 'employer' and has migrated due to work-related issues.
Mig_non-paid	It is a dummy variable if the worker is a 'non-paid worker' and has migrated due to work-related issues.	
Mig_domestic worker	It is a dummy variable if the worker is a 'domestic worker' and has migrated due to work-related issues	

The socio – demographic variables are considered to have the same effect on the LES in both periods (2006 and 2014) in this research.

4.3. Survey Poisson Model

This methodological section aims to find the expected value of the LES that cooperatives and community-based organizations members might achieve among other collective characteristics through a Poisson regression model.

The selected independent variables taken into consideration to estimate the second model are described in Table 4 and were also considered based on Borat et al., (2013)

The second model specification is:

$$E(Y_i) = \exp (\beta_0 + \beta_1 \text{Urban}_i + \beta_2 \text{Informal}_i + \beta_3 \text{Coop_CBO}_i) \quad [4]$$

Y_i is the response variable corresponding to the number of dimensions achieved (level of economic security), β_0 is the constant coefficient. And $\beta_i \ i = 1, \dots, 3$ are the estimated coefficients related to the independent variables in Table 4.

Table 4. Description of the variable used in the Poisson Regression Model with employees

Type	Variable	Description
Dependent	Economic Security	It is a discrete count variable which takes the value from 0 to 5 according to the LES achieved.
	Urban	It is a dummy variable for the worker who lives in an urban
Independent	Appropriate	It is a dummy variable for the worker who has appropriate
	Coop_CBO	It is a dummy variable for the worker who belongs to any

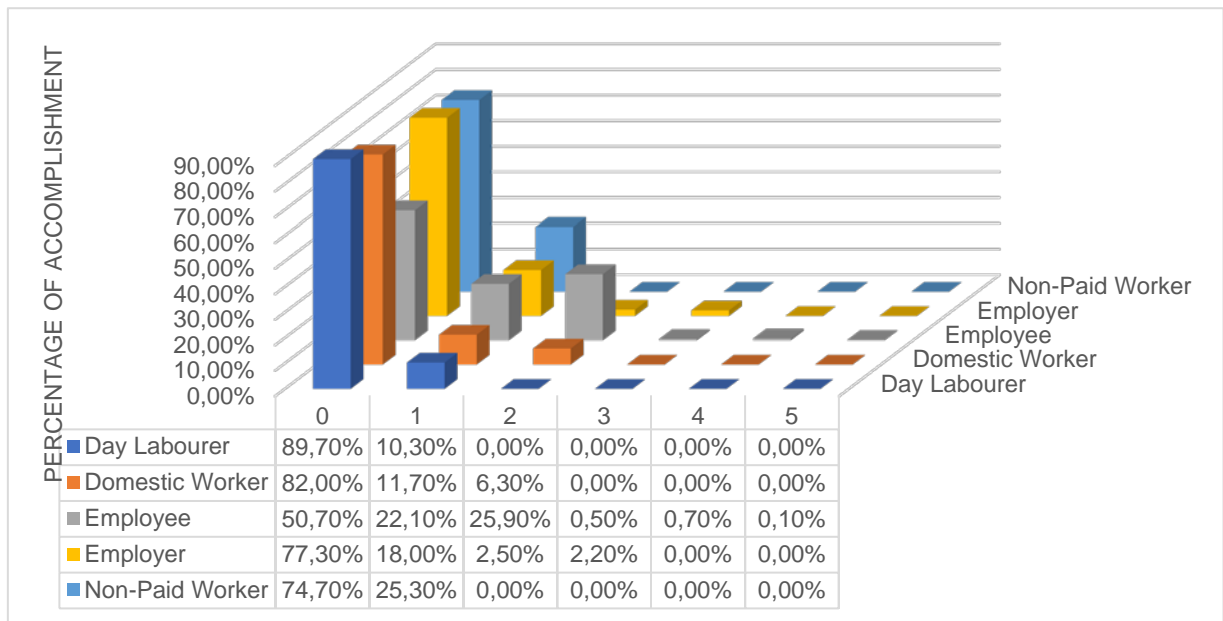
5. Results

This section contains three type of results, the first one shows some statistics about the level of economic security and its dimensions in the Ecuadorian labor market, in particular for domestic workers. The second one contains the results from model [3] and the third one contains the results from model [4].

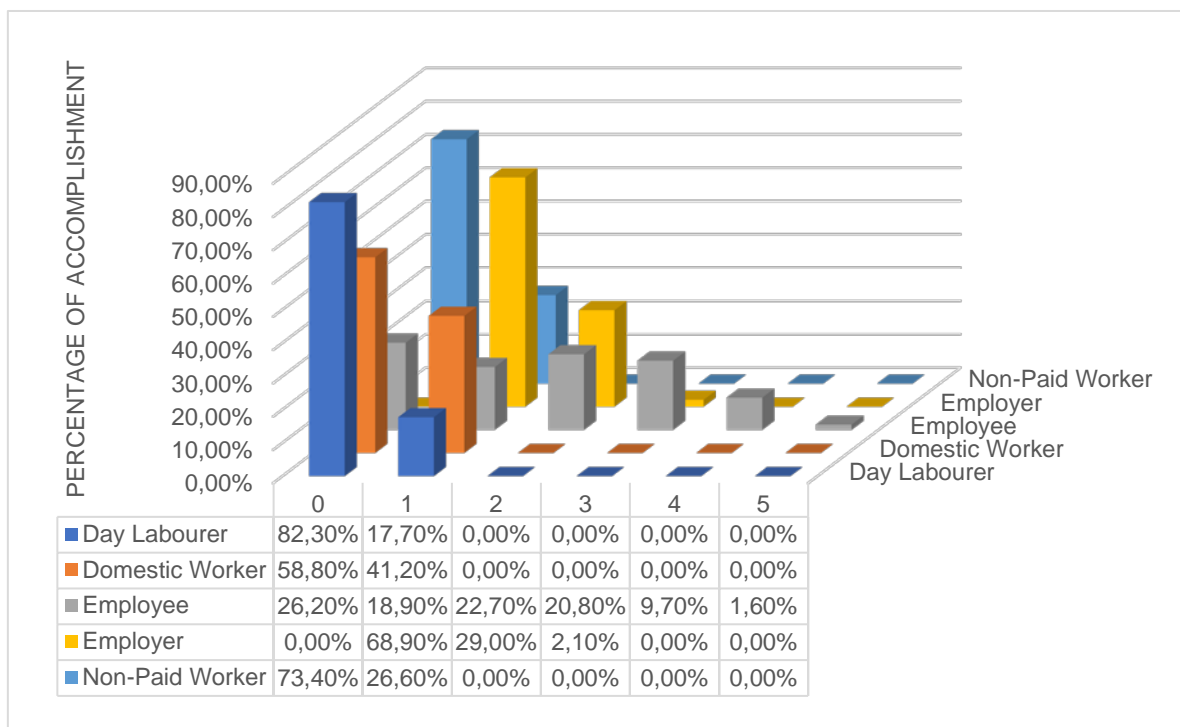
Firstly, some results of the level of economic security and each dimension are described as follows:

- **Economic Security:** In general, there is a high concentration in low levels of economic security for all the occupation groups in 2006 as shown in Graphic 1. In particular, the 82% of the domestic workers could not achieve any dimension or level of economic security, which means that this type of workers were totally unprotected by the State, even though the 6.30% could surprisingly achieved 3 dimensions. Graphic 2 shows the LES in 2014, the 41.20% could only achieve one dimension, however more dimensions were not possible.
- **Labor Market and Income Security:** In 2006, the 31.6% of workers had labor market and income security, and in 2014 the 45.3% could achieve this dimension. In particular, only the 18% of domestic workers had this dimension in 2006 and the 2.7% in 2014.
- **Employment Security:** The 12.7% of the workers in Ecuador achieved this dimension in 2006, while the 20.3% in 2014. The 6.3% of domestic workers had employment security nor in 2006, while a 0% in 2014.
- **Work Security:** In 2006, the 0.1% of workers achieved this dimension, while in 2014, the 37.8% got it. In particular, no domestic worker could achieve this category in 2006 and in 2014.
- **Skill Reproduction Security:** In 2006, 2.7% of workers achieved this dimension, while 16.8% had it in 2014. In particular, no domestic worker had this protection in 2006 nor in neither in 2014.
- **Representation Security:** the 0.4% of workers achieved this dimension in 2006, while the 5.6% got it in 2014. In particular, no domestic worker had representation security nor in 2006 neither in 2014.

Graphic 1. Levels of economic security (LES) by occupation groups in 2006



Graphic 2. Levels of economic security by occupation groups in 2014



Secondly, the results from models [3] are discussed. To start with, in 2006 the expected value of the LES decreased by 8.1% considering a null effect on all variables in the model, while in 2014 its rate ratio was expected to increase 3 times higher than in 2006. The

minimum LES achieved by all workers seem to rise significantly from 2006. This fact is explained due to the highest peak of the economic activity in 2014, in particular, its gross domestic product increased by 54,9 thousand of millions USD since 2006.

Day laborers, non-paid workers and domestic workers who migrated due to work-related issues in 2014, have lower expected value of the LES than in 2006 with respect to the workers who did not migrated. This particular result shows that migration might be seen as an ineffective measure to achieve higher LES in long term. Then H2 is empirically proved.

Formal schooling affects the LES positively. Hence, for one more year of schooling that the worker accomplishes, his expected value of economic security will increase in 6.1%.

Female workers have lower LES with respect to male workers. It seems that gender gap has not overcome. The ethnicity is not a significant determinant in the LES. These results coincide with the authors Oaxaca & Ransom (1994), and Hirschberg & Slottje (2004), that consider sex as a discriminatory variable in labor market.

Table 5. Results of the Pooled Poisson Regression from model [3]

Variables	Coefficients	Variables	Coefficients
Intercept	-2.519 *** (0.118)	Age_Squared	-0.0002 *** (0.000)
y2014	1.099 *** (0.070)	Schooling	0.061 *** (0.005)
Female	-0.031 ** (0.012)	y2014·Mig_employee	0.070 (0.068)
Afro	0.042 (0.036)	y2014·Mig_day-labour	-1.879 *** (0.100)
Mulato	0.071 (0.038)	y2014· Mig_employer	-0.107 (0.071)
Mestizo	0.042 (0.026)	y2014·Mig_non-paid	-1.487 *** (0.082)
White /others	0.037 (0.033)	y2014·Mig_domestic worker	-1.170 *** (0.078)
Age	0.031 *** (0.002)		

The significance of the variables is given in the following way: ***, **, *, . to the 0%, 0.1%, 1% 5%, 10% of the significance level respectively. The values in parenthesis represent the standard error of the coefficients. The reference/base category of all the dummy and categorical variables are the classes related with the value 0. The model is globally significant. The variable Migrant Workers is pooled as well as female.

Table 6. Results of the Pooled Poisson Regression from model [3]

Variables	IRR		Variables	IRR	
Intercept	0.081	***	Age_Square	1.000	***
y2014	3.000	***	Schooling	1.064	***
Female	0.970	**	y2014·Day Employee	1.072	
Negro/Afroecuadorian	1.043	.	y2014·Day Labour	0.153	***
Mulato	1.017		y2014·Employer	0.898	
Mestizo	1.043	.	y2014·Non-paid worker	0.226	***
White /others	1.038		y2014·Domestic worker	0.313	***
Age	1.031	***			

Incidence Rate Ratio (IRR) is obtained by exponentiating the coefficients obtained from the Poisson regression model from Table 5.

Also, the effect of age in the LES represents an inverted U, it starts to increase until some point when it starts to decrease.

Thirdly, results from model [4] are presented. Table 7 shows the results of the estimated model [4]. Firstly, workers who belong to any cooperative or community-based organizations increase their expected value of LES in 20.6% which means that this type of economic associations have a positive effect on workers' rights, encouraging professional development and family conciliation. Consequently, H2 is empirically proved.

Table 7. Results of the Poisson Regression from model [4]

Variables	Coefficients		IRR
Intercept	-0.108 (0.029)	***	0.897
Urban	0.264 (0.025)		1.302
Appropriate	0.747 (0.021)	***	2.111
Coop. Or CBO	0.188 (0.066)	**	1.206

The significance of the variables is given in the following way: ***, **, *, . to the 0%, 0.1%, 1% 5%, 10% of the significance level respectively. The values in parenthesis represent the standard error of the coefficients. The reference/base category of all the dummy and categorical variables are the classes related with the value 0. The model is globally significant. The variable Migrant Workers is pooled as well as female. Incidence Rate Ratio (IRR) is obtained by exponentiating the coefficients obtained from the Poisson regression model [4]

Workers who have appropriate employment have a higher expected LES than workers who have inappropriate employment.

A worker who lives in urban areas have higher expected LES than workers who live in rural areas.

6. Conclusions

The results provide empirical evidence to support the fact that migration for work-related issues of domestic workers as other vulnerable employment groups such as day labor workers and non-paid workers might not led to a higher LES after 8 years. Those workers are caught in some type of poverty trap that does not let improve their working conditions by themselves due to the trade-off between education and family savings. Despite having some theoretical evidence that labor migration might encourage more job opportunities, low skilled workers might hardly find higher positions, possibly due to their lack of qualification and also because of the low weight of bargaining in a new labor market.

Since the vulnerable employment groups' situation such as domestic workers seems to be a structural problem, government's intervention is necessary. However, Convention 189 (domestic workers' decent work) seems to be weak and quite ineffective to protect domestic workers' labor rights. It did not provide aggregated value to their activities nor professional training, so employers might get unwilling to contract domestic workers as full-time workers.

This means that exigent labor regulations for protecting low-skilled workers in Ecuador are not effective because this may demotivate employers. Labor regulations for vulnerable groups should consider strategies that prevent the risk to slide back into poverty.

As a result, the evaluation of cooperatives in order to achieve economic security appeared as an alternative public policy proposal. Cooperative and community-based organizations' members have more expected value of economic security which means that even though members might not be high skilled, they are effectively having adequate labor conditions.

Schooling is an important determinant at the time of explaining the LES. Better qualified workers are expected to earn higher salaries.

Gender gap is still a discriminant determinant in the LES. It seems that initiatives to support women's leadership in companies and participation in labor market should be encouraged by government.

Finally, this research concludes that the idea of the integration of domestic workers in cooperatives and community-based organizations as an efficient way to achieve economic security. We suggest cooperatives to take another branch of the economic activity such as domestic work. It would let them work as a community-based organization with more respect to working conditions, more possibilities of training and family conciliation.

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9. Appendix:

The appendix contains a detail description of the internal and external thresholds of every dimension of economic security. Those ones were chosen based on the guidelines of ILO (2009); ILO (2009), Ecuadorian labor regulation and the availability of information the LCS (2006) and LCS (2014).

- **Labor market and income security:** Social security affiliation¹⁹ will be identified as the internal cutoff. Labor market and income security will be achieved if the social security status is accomplished (social security for worker i equal to 1).

Occupation Group	Social Security Status
Self employed	1 if the person has social security charged by himself or by his/her employer. And, 0 otherwise.
Employees	

¹⁹ Art 42, part 31 of the Labour Code demands the workers' affiliation to the Instituto Ecuatoriano de Seguridad Social (IESS), Instituto de Seguridad Social de las Fuerzas Armadas (ISSFA), or Instituto de Seguridad Social de la Policía Nacional (ISSPOL), from the first day of work as free-lance worker or employee.

Day Laborers

Non-paid workers

Domestic Workers

- **Employment Security:** Two external cutoffs are stated: contract status²⁰ and benefits granted by law status²¹. If both external cutoffs are accomplished, then the dimension “Employment Security” will be achieved.

Occupation Group	Contract Status	Benefits granted by law status
Self employed	1 For all. The legal responsibility with himself or herself is assumed to be respected.	1 For all. Since it is assumed that they receive their own profits.
Employees	1 if the person has a written contract. And, 0 otherwise.	1 if the person receives 13 ^o wage, 14 ^o wage and paid vacation. And, 0 otherwise.
Day Laborers	0 For all. This question was not asked to these workers due to the features of their occupation group.	0 For all. This question was not asked to these workers due to the features of their occupation group.
Non-paid workers		
Domestic Workers	1 if the person has a written contract. And, 0 otherwise.	1 if the person receives 13 ^o wage, 14 ^o wage and paid vacation. And, 0 otherwise.

- **Work Security:** In this dimension we recognize an external cutoff: security insurance status to measure the workers’ protection against harmful working environments.

Occupation Group

Security Insurance Status

²⁰ Even though Art. 18 and Art. 20 of the Labour Code establishes the correct written contract inscription, Art 11. guarantees the validity of oral contract. This due to the fact that oral contracts are more likely to be disrespected.

²¹ Art. 69, Art. 111 and Art. 113 demands the payment of the 13^o, 14^o wage and paid vacation to all workers. The 13^o wage is paid in July, the 14^o wage is paid in December for every worker after the first year of work.

Self employed	1 if the person has a security insurance. And, 0 otherwise.
Employees	1 if the person has a security insurance provided by the employer. And, 0 otherwise.
Day Laborers	
Non-paid workers	0 For all. This question was not asked to these workers due to the features of their occupation group.
Domestic Workers	

If this is accomplished, then the dimension “Work Security” will be accomplished as well.

- **Skill Reproduction Security:** This dimension is not mandatory in the Ecuadorian labor regulation. Skill reproduction security dimension is achieved if the training status is accomplished.

Occupation Group	Training Status
Self employed	1 if the person gets enrolled of training courses because of work-related issues. And, 0 otherwise.
Employees	1 if the person receives training courses in his job. And, 0 otherwise.
Day Laborers	
Non-paid workers	0 For all. This question was not asked to these workers due to the features of their occupation group.
Domestic Workers	

- **Representation Security:** The internal cutoff is syndical status. Representation Security is achieved if the syndical existence status is achieved.²²

Occupation	Syndical Status
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²² Art. 42, part 28 guarantees freedom of association

Self-employed	1 For all, as self-employed or free-lancers have their
Employees	1 if worker belongs to a union. And, 0 otherwise.
Day Laborers	
Non-paid	0 For all. This question was not asked to these workers due to the features of their occupation group.
Domestic	
