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MOTIVATIONS OF MEXICAN WORKERS TO PARTICIPATE IN CANADA'S SEASONAL AGRICULTURAL WORKERS PROGRAM

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ABSTRACT

This study finds three main motivations for Mexican workers to participate in Canada's Seasonal Agricultural Workers Program (CSAWP): Increasing household livelihood and welfare, investing in farming skills and assets, and improving children's education and family housing. A factor analysis and a system of equations are used to find out which sociodemographic and economic characteristics of the migrants and their families are associated with each motivation. The most important results show that having more than four children along with being a farmer are positively associated with investing in farming skills and assets but being an agricultural day laborer in Mexico and having less than two children are not associated with any of the motivations.

Keywords: Motivations to migrate, Canada's Seasonal Agricultural Workers Program, Mexico, factor analysis, system of equations model.

JEL Classification: C81, F22, J15, J61.

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MOTIVACIONES DE LOS TRABAJADORES MEXICANOS
PARA PARTICIPAR EN EL PROGRAMA DE TRABAJADORES
AGRÍCOLAS TEMPORALES DE CANADÁ

RESUMEN

En este estudio identificamos tres motivaciones principales de los trabajadores mexicanos para participar en el Programa de Trabajadores Agrícolas Temporales de Canadá (PTAT): aumentar los medios de subsistencia y el bienestar del hogar, invertir en habilidades y activos agrícolas y mejorar la educación de los niños y la vivienda familiar. Con el análisis factorial y la aplicación de un sistema de ecuaciones vinculamos los tres tipos de motivaciones con las características sociodemográficas y económicas de los migrantes y sus familias. Los resultados más importantes muestran que tener más de cuatro hijos y ser agricultor están asociados positivamente con invertir en habilidades y activos agrícolas, pero ser jornalero agrícola en México y tener menos de dos hijos no están asociados con ninguna de las motivaciones.

Palabras clave: motivaciones para migrar, Programa de Trabajadores Agrícolas Temporales de Canadá, México, análisis factorial, sistema de ecuaciones.

Clasificación JEL: C81, F22, J15, J61.

1. INTRODUCTION

In many parts of the world, the number of people in rural areas exceeds the capacity of agriculture and the rural economy to provide or offer sustainable livelihood opportunities. Off-farm activities are often a response to insufficient income from agriculture due to low prices, or lack of land and capital to provide sufficient income from agriculture, and for many this means out migration. Thus, some research focuses on out-migration as a potential vehicle for poverty reduction in rural areas (Reardon, Delgado, and Matlon, 1992; Davis and Pearce, 2001; Guang and Zheng, 2005). One alternative Mexican workers have used for many years to supplement their farm income is participating in guest worker programs (Ruhs and Martin, 2008). Thus, it is crucial to understand the reasons that they continue making this decision even today.

At the same time, the increasing economic interdependence of states as a result of globalization, had increased the flow of migrants throughout the world (Taran and Geronimi, 2013). Globalization has increased the circulation of the human capital, labor force, at the international level, not only the demand for highly skilled labor, but also the demand for unskilled labor in the primary sector in many of the developed countries (Challinor, 2011).

The number of Mexican agricultural workers migrating to Canada through Canada's Seasonal Agricultural Workers Program (CSAWP) has increased every year. In 1974, when Mexico first entered the Program, 203 men[1] participated; by 2019, the number reached 26,399 workers (STPS, 2021).

The main objective of this paper is to identify and analyze the reasons why Mexican agricultural workers participate in CSAWP, as a special case of off-farm activities, and immigrate temporarily to Canada to work in the fruit, vegetable and horticulture (FVH) sector. Once the motivations to participate in the program are identified with factor analysis, a system of equations are used to explain how sociodemographic and economic characteristics of the participants affect their motivations to get into it. A survey of 257 Mexican agricultural workers in Southern Ontario was conducted to determine who they are and why they participate in the program. The survey includes information on individual and household characteristics, including the migrant's region of Mexico, education, age, number of economic dependents, if they own agricultural land, type of job in Mexico and their motivations for participating.

The first section below summarizes the previous studies on migration motivations of Mexican workers. Most of this literature is based on immigration to the US. Therefore, one contribution of this paper is to examine the motivations for legal and temporary migration to Canada, in contrast to the motivations analyzed for migration to the United States, which is often illegal. The second section summarizes the reasons for participating in the CSAWP based on the survey information. In the third section, the methodology is presented where factor analysis is combined with the

[1] In 1989, 37 women started to participate representing less than 1 percent, women labor force share is around 3% since 2000 up to now.

estimation of a system of equations with the Seemingly Unrelated (ISUR) method. The fourth section reports the results of the estimation of the system of equations, where the three set of reasons to participate in the CSAWP are explained by sociodemographic and economic conditions. The final section presents our conclusions.

2. PREVIOUS STUDIES ON MEXICAN MOTIVATIONS TO MIGRATE

2.1. Motivations to increase absolute or relative income

Stark and Taylor (1989, p. 1165) hypothesize that "household members undertake migration not necessarily to increase the household's absolute income but rather to improve the household's position (in terms of relative deprivation) with respect to a specific reference group."

Escobar-Latapí (1999) argues that Mexican migration to the US is motivated mainly by the higher probability of finding a job compared to Mexico and a higher expected income in the US than in urban areas in Mexico. Since most migrants are in the 16-44 age range with a low level of education, in Mexico the supply of these workers exceeds the demand, leading to very low wages in the existing jobs, while in US they are finding jobs and being recruited in more regions and sectors.

Since the 1980s, a combination of Mexican economic instability, as well as policy changes in the US, making movement back and forth more difficult, and growing labour demand in urban economic sectors throughout the US, immigrants tend to stay longer, becoming permanent immigrants in the US (García, 2003).

Another factor causing income-related immigration from rural areas of Mexico to other countries is education. Yúnez-Naude and Taylor (2001) and Stark and Taylor (1989) state that higher marginal returns from schooling in the destination country, (for example, if schooling increases migrant's wages and/or their probability of employment), will increase the probability of migration. Hence, Mexicans with and without education will make different migration decisions. For example, those who have no education might attempt to migrate illegally to the US for the time they can be employed and if the immigration authorities do not deport them. On the other hand, those with a higher level of schooling are more likely to immigrate legally and permanently (Massey and Espinosa, 1997).

2.2. Migration based on economic security needs

One means by which people displaced from traditional jobs seek to ensure their economic well-being is by selling their services overseas. However, higher foreign wages are not the only factor motivating people to emigrate. Households struggling to cope with the structural transformations of economic development and globalization also use international immigration as a means of overcoming failures in markets for labour, insurance, capital and credit. For example, the absence of unemployment insurance in developing nations creates an incentive for families to self-insure by sending one or more members overseas for work (Sana and Massey, 2005).

Health insurance and other social benefits will depend on the type of migration (temporary or permanent; legal or illegal). If migration is temporary and illegal, neither the individual nor the family are entitled to have health services in the destination country, while permanent and legal migration brings these benefits (Roberts, Frank, and Lozano-Ascencio, 1999). Therefore, economic security issues affect the migrate do-not-migrate choice but the duration of migration will depend on other factors such as the legal status.

2.3. Network migration

People left behind are induced to emigrate because their networks make the migration path easier than before and they, in turn, are able to reduce the costs and risks for a new set, encouraging some of their family members and/or friends to migrate, and so on (Massey, 1987; Massey and Garcia España ,1987).

Building a network for migration abroad is more common among people coming from small towns than from big cities. Roberts, Frank, and Lozano-Ascencio (1999) found that Mexican immigrants in Austin, Texas, from small rural areas (for example San Gregorio, State of Mexico) have more connections than highly skilled workers coming from Mexico City. In big cities, there is more heterogeneity than in small rural areas; people's characteristics are more homogeneous in terms of income and knowledge/skills, and they tend to know each other. On the other hand, the educated worker has the legal visa as a substitute for a network and

in addition must go where the employer who secured the visa is located. Network migration relies on networks first built in the destination country and further developed in the country of origin. Muse-Orlinoff and Lewin (2010) found that most Mexicans from Tunka, Yucatan, migrate because of one or two motives: Either to find a job in the United States or to be reunited with family members already living there. Men tend to migrate for the first reason and women for the second one.

Colby (1997) argues that family and friendship ties are stronger with migrants in the US than in Canada where there is not as long a history of Mexican settlements. When Mexican farm workers in rural Ontario were interviewed, they stated that: "They did not wish to remain in Canada primarily because in small, rural Ontario towns where they worked there were no Mexican communities where they could easily be assimilated, set up home and find permanent jobs" (Basok, 2000, p. 228). However, Samuel, Gutierrez and Vazquez (1995) argue that network migration to Canada has started to build through visitors, tourists and temporary agricultural workers who interact with Canadians and become acquainted with their style of life, such that applications from Mexicans to become permanent Canadian residents are beginning to snowball.

It is important to note that every worker migrating through CSAWP enters Canada with a legal temporary work permit. Contrary to what occurs with illegal migration to the US, migration to Canada is regulated to avoid disequilibrium between Canadian labour supply and demand (Barrón, 2005, p. 351). Hence, CSAWP does not give migrants an option to settle permanently.

3. THE CSAWP AND MOTIVATIONS TO PARTICIPATE IN CSAWP

CSAWP is a demand-based program, as it responds only to employer labour demand. This implies that the Program would not exist if Canadian farmers were able to find labor at the wage they are willing to pay and the conditions they offer —seasonal labor. Through this program, both Canada and Mexico seek to improve the economic welfare of the migrant workers by providing them with temporary full-time employment in the fruit, vegetables, and horticulture industry at higher wages than they could obtain from similar jobs in Mexico. With the earnings in Canada, migrants can enhance their standard of living and that of

the family they left behind (STPS, 2007). For Canada, the main objective of CSAWP is to satisfy the increasing demand for agricultural labour at the wage producers are willing to pay during times when the domestic supply is not sufficient and/or unreliable, especially during peak times. It is suggested that the Program also can help to maintain Canada's economic prosperity and global agricultural trade competitiveness and therefore can expand job prospects for Canadian citizens in sectors that depend on agriculture and other related activities (Preibisch, 2007).

Most of the previous research on Mexican emigration conducted surveys in the migrants' place of origin, and hence the researchers had two populations: Those who migrated and those who did not migrate. Because researchers had the opportunity to examine household units with and without migrants, they were able to distinguish the characteristics of each group and explore why some people emigrate and others do not. Most empirical analyses of Mexican migration used logit or probit models to identify the motivations of respondents to emigrate (Massey, 1987; Sana and Massey, 2005; Taylor, 1999; Taylor and Yúnez-Naude, 1999; Binford, 2002).

Unlike these studies, our survey was conducted at the destination of the agricultural Mexican migrant workers (Southern Ontario). Therefore, all the participants had already made the decision to participate and migrate. Thus, the questions posed were reasons they considered at the time they decided to participate in CSAWP and come to Canada. Multi-item statements with a 5-point Likert scale ranging from "very unimportant" (1) to "very important" (5) were used to measure the importance of each of twelve reasons to migrate, drawn from the literature.

Following previous studies, the responses from in-depth interviews on motivations for immigration were divided into six main categories. The first is economic factors (Taylor, 1987; Stark and Taylor, 1989; Escobar-Latapí, 1999; Massey and Espinosa, 1997; Binford, 2002; Zárate-Hoyos, 2003). The survey asked respondents to rate the importance of two possible reasons in this category: "To earn more income" (Reason 1) and "Because of low wages in Mexico" (Reason 3) [see Table 1]. The second category is the desire to improve the standard of living of the respondent's family and invest in human capital, especially of the children (Stark, 1991; Taylor and Yúnez-Naude, 1999; Binford, 2002; Zárate-Hoyos, 2003). Respondents were asked to rate the importance of three possible reasons

in this category: "To enhance my family's standard of living" (Reason 2), "To improve my house" (Reason 6) and "To put my children through school" (Reason 5). The third category is job uncertainty and lack of jobs in Mexico (García, 2003). Respondents were asked to rate the importance of one reason in this category: "To earn a stable income" (Reason 4). The fourth category focuses on network migration (Roberts, Frank, and Lozano-Ascencio, 1999; Yúnez-Naude and Taylor, 2001; Massey and Garcia España, 1987). Respondents were asked to rate the importance of one reason in this category: "Are you in the Program because a friend or a relative suggested you join it? (Reason 9) If so, how important was that suggestion for you to participate in the Program?". We added two more categories: The fifth category refers to desires to invest in farming activities in Mexico, in other activities outside of agriculture or in their own skills. Respondents were asked to rate the importance of three reasons: "To invest in my farm" (Reason 7), "To invest in new business opportunities" (Reason 10) and "To learn new skills" (Reason 8). The sixth category is related with the motivations to migrate to Canada, so respondents were asked to rate the importance of two reasons in this category "To see/know another country" (Reason 11) and "As a way to migrate to Canada" (Reason 12). This last category was included to see if workers would like to stay in Canada permanently even knowing they would not be able to participate in the Program never again.

Items from the first three categories and the fifth category are expected to be the most important reasons for respondents to participate in the Program. Items in the fourth and sixth categories are expected not to be important because there are limited migration networks in Canada compared with the US (Colby, 1997; Basok, 2000) and due to the rules of participation in the Program.

Table 1 shows the reasons ranked by respondents as most important in their decision to migrate. Of nearly equal importance were (scored above four points meaning the reason is very important or important) "to earn more income" (R.1), "to enhance their family's standard of living" (R.2), and "because of low wages in Mexico" (R.3). These reasons were followed closely by "to earn a stable income," (R.4) and then "to send their children to the school" (R.5), "to improve their houses" (R.6) (or, in some cases, to start building their own house) and "to invest in my farm" (R.7). This suggests that the decision to immigrate is significantly

Table 1. Mean importance scores in ascending order for reasons influencing decisions to participate in CSAWP

Factor	Mean score*	Standard deviation
R.1 To earn more income	4.789	0.426
R.2 To enhance my family's standard of living	4.719	0.466
R.3 Because of low wages in Mexico	4.618	0.595
R.4 To earn a stable income	4.595	0.537
R.5 To put my children through school	4.576	0.915
R.6 To improve my house	4.451	1.018
R.7 To invest in my farm	3.778	1.323
R.8 To learn new skills	3.436	1.157
R.9 Because of experiences of others working in Canada	3.358	1.226
R.10 To invest in new business opportunities	2.942	1.492
R.11 To see/know another country	2.626	1.104
R.12 As a way to immigrate to Canada	1.459	0.943

Note: * Values close to five indicate the reason is very important, while values close to one indicate the reason is very unimportant to participate in CSAWP.
Source: Our survey.

determined by a combination of both the economic situation in Mexico and the desire to improve the standard of living of the respondent's family and the need to pay for their children's education. García (2003) states that lack of jobs in Mexico, due to the Mexican economic crisis brought on by North American Free Trade Agreement (NAFTA), caused Mexicans to immigrate to US. Other researchers found similar results: Binford, Carrasco, and Arana (2004) for the case of migration to Canada and Mohan and Hartline (1980) and Fields (1982) for the case of Colombian emigration. In all three studies, the main factors driving migration decisions were wage differentials and a high unemployment rate at home. Surprisingly, the reasons "To learn new skills" (R.8) and "To invest in new business opportunities" (R.10) were rated as neither important nor unimportant reasons. As expected, "Because of experiences of others that work in Canada" (R.9) and "To see another country"

(R.11) were rated as neither important nor unimportant motivations to participate in the Program, whereas "As a way to immigrate to Canada" (R.12) is a very unimportant reason.

For the entire sample (Table 1), desires to invest in farm activities (R.7), whether to start a farm business or to buy a plot of land as a real estate investment play an important role in determining the decisions to immigrate. The three lowest ranked reasons had to do with investing in new opportunities (R.10) and immigration (R.11 and 12). This suggests that migration networks in Canada did not play an important role for respondents in their decision to migrate. This result is very different from what other authors have concluded on Mexican immigration to the US where emigration generates information as well as a social network, which facilitates the migrant's job search (Roberts, Frank, and Lozano-Ascencio, 1999; Massey and García España, 1987; Muse-Orlinoff and Lewin, 2010). In the case of CSAWP, as noted above, the program itself may be a substitute for networks and the program is structured so that the number of permanent Mexican immigrants in Canada is small. Finally, participation in CSAWP as a way to stay in Canada (R.12) was ranked on average as very unimportant (seventy-five percent rated it as very unimportant), which means that most respondents had no desire to stay in Canada permanently, they just wanted to participate in CSAWP for temporary work. As noted above, it might be argued that this is a result of the way the program is structured. But migrants may choose Canada rather than the US because it is easier to go back and forth from Canada, which would reinforce that they do not wish to stay.

4. METHODOLOGY

4.1. Factor analysis

The twelve reasons listed in Table 1 for participating in CSAWP (and thus temporary migrating to Canada), were used in factor analysis to determine which reasons were most important for immigration. Results indicated that only eight reasons should be included in the factor score Although four factors had eigenvalues exceeding one when extracting principal components derived from varimax rotation, only three will be considered as the Cronbach Alpha of 0.63 among the items loaded in the fourth

factor is less than the normal cut-off of 0.70. The Kaiser-Meyer-Olkin Index (KMO) was 0.66, suggesting that the factor analysis technique is appropriate. Similarly, Bartlett's test of sphericity (621.1, with 45 degree of freedom) indicates that the correlation matrix between the 12 items listed above does not conform to an identity matrix; hence, factor analysis is suitable. Table 2 shows the three components loading eight out of the twelve reasons listed above. The three factors together explain 70 percent of the total variance across the sample (Table 3).

Based on the loadings (Table 3), the three factors were interpreted as follows:

- *Factor 1:* The motivations that loaded most heavily on this factor are those related with earning more income, having a more stable income and increasing living standards. This factor is labelled *Household Livelihood/Welfare (HHW)* and it is-as expected-one of the most important factors for respondents considering emigration. This factor share is 30 percent of the total variance.
- *Factor 2:* The motivations loaded on this factor are related to desires to capitalize (with money and/or knowledge) the respondent's farm or business and skills; therefore, the factor is labelled *Farm Skills and Asset Investment (FS&AI)*. The desire to invest in the farm in Mexico as a reason to participate in the Program is one of the study's a priori hypotheses.
- *Factor 3:* The two motivations loaded on this factor are related to *Family Assets (FA).* Respondents participate in the Program in order to send their children to school -some of the children even attend private schools- and improve the house for the family.

Table 2. Reliability of instrument used to identify motivations to participate in CSAWP

Reasons to migrate to Canada loaded in each factor	Internal reliability Cronbach's Alpha
Farm skills and asset investment (Factor 2)	79%
Household livelihood/welfare (Factor 1)	76%
Family assets (Factor 3)	68%

Source: Own elaboration with results of our survey.

Table 3. Factor loadings for reasons to migrate to Canada through CSAWP, derived from varimax rotation

Reason for participating in CSAWP	Factor 1	Factor 2	Factor 3
R.3. Because of low wages in Mexico (or no jobs)	**0.82**	–0.115	0.071
R.1. To earn more income	**0.76**	0.042	0.075
R.4. To earn a stable income	**0.76**	0.196	–0.117
R.2. To enhance my family's standard of living	**0.69**	0.032	0.075
R.7. To invest in my farm	0.060	**0.91**	–0.059
R.8. To learn new skills	0.045	**0.90**	0.179
R.5. To put my children through school	0.040	0.000	**0.86**
R.6. To improve my house	0.056	0.101	**0.85**
Proportion of variation explained (%)	30.0	22.5	18.1

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization – a Rotation converged in 5 iterations.
Source: Own elaboration with results of our survey.

4.2. System of equations model and hypothesized relationships

Although the application of factorial analysis leads us to establish that the three components are independent, there is a theoretical and analytical reason to expect a certain degree of link between the three reasons to migrate, for this reason it is proposed to use system estimation with the ISUR method.

Three regression models were estimated using the three factors: *Household livelihood/welfare (HHW), Farm Skills and Asset Investment (FS&AI)* y *Family Assets (FA),* as dependent variables and the sociodemographic and economic characteristics of the migrants as independent variables with the goal of identifying which of them are associated with each motivation to temporarily emigrate to Canada.

In the model Y denotes the motivation to emigrate, X the sociodemographic and economic characteristics, β the parameters to be estimated, and **e** a vector with error terms, where are assumed independent and normally distributed with mean zero. The error variance, σ^2, is unknown. Given that all of the motivations may contribute to the emigration

decision, the errors of the equations may be correlated, and a system of equations is appropriate. An important feature of system estimation is that the errors in [1] below are often correlated, not across observations, but across the equations in the system. The ISUR method is recommended for estimation of systems where errors are correlated across equations, and it is useful in cross-sectional data and panel models (Zellner, 1962).

The specification of the model and the construction of the variables are as follows:

$$Y_{ji} = \alpha_j + \sum_{n=1}^{15} \beta_{jn} X_{ni} + e_{ji} \qquad [1]$$

$\forall$ = 1,…,3 average of items heavily loaded in each factor; i = 1,…,257 individuals in the sample; n = 1,…,15 exogenous variables.

Where $Y_{j=1,i}$ = Household livelihood/welfare factor (average of heavily loaded items in factor one); $Y_{j=2,i}$ = Farm skills and asset investment factor (average of heavily loaded items in factor two); $Y_{j=3,i}$ = Family assets factor (average of heavily loaded items in factor three); X_{ni} is a matrix of n = 15 exogenous sociodemographic characteristics variables listed below; α_j for each j factor and β_{jn} coefficients for the intercept and the exogenous variables for each j factor and n exogenous variables.

Hence, the regression model to be estimated is as follow:

$$\begin{aligned} Y_{ji} = {} & \alpha_j + \beta_{j1} REG1_i + \beta_{j2} REG3_i + \beta_{j3} Age_i \\ & + \beta_{j4} EDUCRESPONDENT_i \\ & + \beta_{j5} EDUCSPOUSESECONDARY_i \\ & + \beta_{j6} EDUCSPOUSEHIGH_i + \beta_{j7} Child1_i \\ & + \beta_{j8} Child3_i + \beta_{j9} RBE_i + \beta_{j10} SBE_i \\ & + \beta_{j11} LENGTHCONTRACT_i + \beta_{j12} FARM_i \\ & + \beta_{j13} DAYLABOER_i + \beta_{j4} CONSTRUCTION_i \\ & + \beta_{j15} EJIDO_i + e_{ji} \end{aligned} \qquad [2]$$

Table 4 lists the independent variables and the hypothesized sign of each relationship. Migrant's spouse age, migrant's years of education and migrant's years in Canada are continuous data. However, the rest of variables are converted into several dummy or binary variables. To avoid perfect multicollinearity, one dummy variable from each set of dummies is not included as an independent variable and its coefficient becomes part of the intercept term of the model. The category that is not coded is one to which all other categories of that characteristic will be compared.

Table 4. Definition of the 15 exogenous variables and expected nature of coefficients

Variable definition	Type	Respondents	Hypothesized nature of coefficient		
			Dependent variables		
Region *REG1*: Coahuila, Nuevo León, Tamaulipas, Jalisco, Nayarit, Colima and Michoacán. *REG2*:[C/] Aguascalientes, Guanajuato, San Luis Potosí, Querétaro, State of Mexico, Mexico City, Morelos, Hidalgo, Puebla, Tlaxcala, Veracruz and Tabasco. *REG3*: Guerrero, Oaxaca, Chiapas, Campeche, Quintana Roo and Yucatán.	Dummy	25 207 21	*HHW*[1/] (–) (+)	*FS&AI*[2/] (–) (+)	*FA*[3/] (–) (+)
Age Spouse's age (*Age*)	Continuous	253	(+/–)	(–)	(+)
Education Interviewee's education (*EDUCRESPONDENT*)	Continuous	253	(+)	(–)	(+)
Spouse's education Elementary[C/] Secondary (*EDUCSPOUSESECONDARY*) High school and Professional (*EDUCSPOUSEHIGH*)	Dummy	161 59 27	 (–) (–)	 (–) (–)	 (+) (+)

Table 4. Definition of the 15 exogenous variables and expected nature of coefficients (continuated…)

Variable definition	Type	Respondents	Hypothesized nature of coefficient		
			Dependent variables		
Economic dependents Children *Child1* only one child *Child2*C/ between 2 and 4 children *Child3* more than 4 children	Dummy	 31 172 50	 (–) (+)	 (–) (+)	 (–) (+)
English skills Read basic English (*RBE*) = 1 yes Speak basic English (*SBS*) = 1 yes	Dummy	 90 92	 (+) (+)	 (+/–) (+/–)	 (+) (+)
Length of contract (*LENGHTCONTRACT*) to work in Canada through CSAWP (months)	Continuous	253	(+/–)	(–)	(+)
Occupation in Mexico On a Farm as: Farmer = 1 yes (*FARM*) Day laborer = 1 yes (*DAYLABORER*) Out of Farming as: Construction worker (*CONSTRUCTION*) Others C/ (commerce, industry)	Dummy	 166 34 29 26	 (+) (+) (+)	 (+) (+) (–)	 (–) (+) (+)
Land tenancy: *ejido* = 1 yes (*EJIDO*)	Dummy	119	(+)	(+)	(–)

Notes: C/ Denotes the control variable. * In Mexico there are three education levels: Primary (6 years), secondary (3 years) and high school (3 years). 1/ Household livelihood/welfare dependent variable. 2/ Farm Skills and Asset Investment dependent variable. 3/ Family assets dependent variable.

Source: Our survey.

Table 4 summarizes the exogenous variables in the three regressions and the expected directions of their relationship with the dependent variables as hypothesized by theory and previous studies (Mora Rivera, 2005; Taylor, 1999; Mohan and Hartline, 1980; Fields, 1982; among others). The expected sign between *REG3* (southern region) and the set of three motivations is positive relative to those coming from *REG2* (the central region) because the southern region is poorer and expected to be more motivated. On the other hand, people from *REG1* (northern region) are expected to be less motivated to participate in the Program than those from the central region because they may have more alternatives to immigrate to the USA instead of Canada.

The age of the spouse (*Age*) is expected to be negatively associated with the motivation factors. It is possible that older spouses are less eager for their husbands to migrate for any of the motivations because they have covered their basic needs, their children are adults and/or it may be more difficult for an older spouse to run a farm in the absence of the husband. Whereas younger spouses are expected to be more highly associated with each motivation than are the older ones because younger people expect higher lifetime returns from migration (Stark and Taylor, 1989), while older migrants' spouse motives may be more idiosyncratic.

The direction of the relationship between the level of education of the interviewee (*EDUCRESPONDENT*) and migration motivations is expected to differ depending on the motivation. Some authors (Taylor and Yúnez-Naude, 1999) argue that a positive relationship should exist between migration and education, because people with more years of schooling have better employment and earning opportunities in the destination areas relative to those with no education. On the other hand, this is a sample of migrants for agricultural jobs, and it is unlikely that the highest educated will find jobs that match their skills in this program; level of education would be expected to be positively associated with *household livelihood/welfare (HHW)* because their level of literacy allows them to complete the application process and their expectations of income are higher in Canada than staying in Mexico. Associations with *Farm Skills and Asset Investment* (*FS&AI*) and *Family Assets* (*FA*) are expected to be negative and positive respectively because they may not want to invest in farming activities but to start another business. Similar relationships are expected with the spouse education, they would like to start a business

(or the family to start a business) so they seek money through their husband's Canadian job to do that. In addition, wives with secondary and high education (*EDUCSPOUSESECONDARY* and *EDUCSPOUSEHIGH*) are negatively correlated with motivation related to *FS&AI* and *HHW* factors, which means that they are less interested in performing farming activities than migrants' wives with low levels of schooling and they can find job easier than those with low level of schooling.

The more economic dependents a worker has, the more he/she will be motivated by *HHW*, *FS&AI* and *FA* relative to those respondents with two to four children in Mexico (Rozelle, Taylor, and DeBrauw, 1999). The control dummy for number of children is 2 to 4 children (*Child2*). Families with one child are expected to be less motivated to increase *HHW* (household welfare) than are families with more children. Those with four or more children are expected to be the most motivated. The reasoning is similar for how the number of children motivates migration for *FA*. Families with only one child may be less interested in increasing *FS&AI* because they lack the family labour force for the farm. Those with four or more children may want to increase farm investment as they have the family labour force and do not need to hire labour.

Workers with higher English skills, speaking or reading, are expected to emigrate to improve *HHW* because they have more opportunities relative to those with lower English skills. Similar reasoning applies to *FA*. The impact of English skills on the motivation to improve *FS&AI* is negative. Those with better English could be motivated to leave the farm or they could be motivated to use their English to invest in other activities not on the farm.

The correlation between the length of the annual CSAWP work contract is expected to vary with the three motivations. Mora Rivera (2005) and Verduzco (2000) argue that those who have longer work contracts (up to eight months) may be less motivated by *HHW* because they have achieved a certain level of well-being through the contract. However, this does not consider that income may fall if migration does not continue, so the sign for *HHW* is ambiguous. Workers with longer contracts are expected to be motivated by *FA*, such as higher education for their children. At the same time, length of contract is expected to be negatively associated with motivations to improve *FS&AI* as they spend many months away from the farm each year.

Respondents who operate a farm in Mexico or work as a day laborer are expected to be more interested in increasing *HHW* and *FS&AI* and less so in starting a business compared with those working in other occupations like commerce or industry. The association of working in construction relative to other occupations is expected to be positive only with *FA* because they would like to start a business and they do not have a farm. Finally, those workers whose land belongs to an *ejido* are expected to be motivated to migrate to improve their income and enhance farm skills and assets, but negatively associated with wanting to start a business or leave the farming activities.

5. RESULTS

The results using the ISUR method are summarized in Table 5, which also includes *t statistics* for the significance of coefficients and the R^2 for each equation. Interpretation of results is based on statistical significance at levels of 1, 5 and 10 percent.

As hypothesized, respondents coming from Southern Mexico (*REG3*) are positively associated with motivations of *HHW* and *FS&AI* in comparison with those coming from the center of the country (*REG2*). This could be because economic conditions in region 3 are worse than in region 2 and people from those areas are more eager to have employment and a stable income than those who are geographically closer to Mexico City where there are comparatively more employment opportunities with spillover effects in the central part of the country. Those from northern Mexico (*REG1*) are less motivated by farm and other investments (*FS&AI*) than are those from *REG2*. None of the regions show a significant association with *FA*-children's education and housing.

Increasing age of the migrants' spouse is negatively associated with motivations for *FS&AI*, as expected; this suggests that younger spouses are more associated with farm activities than older spouses are. Many respondents over 40 years old have been coming to Canada for 6 to 10 years (36%) and even more have been coming for more than 10 years (56%), and consequently they may have already covered their basic family needs along with farm assets. The association of age with the other motivations is not statistically significant.

Table 5. Sociodemographic and economic characteristics and motivations to participate in CSAWP

Variable	Dependent variables		
	HHW ♠	*FS&AI* ♠	*FA* ♠
Constant	0.14 0.76	0.32 0.45	–1.22 0.09*
Region of origin (*REG1*)	–0.12 0.52	–0.31 0.07**	0.17 0.37
(*REG3*)	0.47 0.03**	0.21 0.27	–0.07 0.72
Spouse's age (*Age*)	0.057 0.45	–0.01 0.10*	0.009 0.21
Interviewee's education (*EDUCRESPONDENT*)	0.06 0.014***	–0.042 0.04***	–0.003 0.88
Spouse's education Secondary (*EDUCSPOUSESECONDARY*)	–0.31 0.03***	–0.21 0.10*	0.037 0.79
High (EDUCSPOUSEHIGH)	–0.48 0.02***	–0.16 0.37	–0.92 0.00***
Economic dependents			
Child1 D = 1 less than 2 children	–0.20 0.28	–0.14 0.37	–0.21 0.24
Child3 D = 1 more than 4 children	0.11 0.46	0.25 0.06**	0.02 0.86
English skills (*RBE*)	0.23 0.1*	–0.26 0.05***	0.42 0.0004***
SBE	–0.07 0.61	0.19 0.14	0.06 0.67
Length of contract	–0.13 0.007***	–0.015 0.72	0.09 0.036**
Occupation in Mexico On a Farm as: Farmer (*FARM*)	–0.15 0.51	0.60 0.003***	0.31 0.16
Day laborer (*DAYLABOER*)	0.40 0.12	0.16 0.46	0.29 0.23

Table 5. Sociodemographic and economic characteristics and motivations to participate in CSAWP (continuated…)

Variable	Dependent variables		
	HHW ♠	*FS&AI* ♠	*FA* ♠
Economic dependents			
Working out of farming as: Construction worker (*CONSTRUCTION*)	–0.04 0.87	–0.29 0.21	0.76 0.004***
Land tenancy (*EJIDO)*	0.16 0.31	0.32 0.01***	0.002 0.89
R^2	0.13	0.34	0.20

Note: ♠ Endogenous variables are calculated as the mean of items loaded in each component. Coefficients are significant at levels of 1 percent (***), 5 percent (**) and 10 percent (*).
Source: Results of the system estimations with the ISUR method with our survey.

High levels of education on the part of the respondent are positively correlated with *HHW* and negatively with *FS&AI* motivations. On the other hand, migrants holding higher levels of education are less motivated to work in Canada to invest in farms back in Mexico than are migrants with lower levels of education. This result agrees with the findings of other authors such as Taylor and Yúnez-Naude (1999), Taylor (1987), Stark and Taylor (1989) and Massey and Espinosa (1997), who find that more educated farmers are less likely to be involved directly in on-farm activities.

In addition, more educated spouses (who have completed secondary or high school) are negatively correlated with *HHW* and spouses who have completed secondary are negatively associated with *FS&AI* motivations compared with those holding only elementary school. It can be assumed that respondents with less educated spouses are more motivated by farming activities than respondents whose spouses are more highly educated. Surprisingly, spouses who have completed high school are negatively associated with *FA*-children's education and housing.

Unexpectedly, number of children was not generally associated with the motivations. Only respondents who have more than four dependent children (*Child3*) are positively associated with *FS&AI* factor than those with two to four dependent children (*Child2*). This could suggest that

those migrants interested in farming activities can count on their numerous children to work the farm. Ability to read basic English (*RBE*) is positively associated with *HHW* and *FA* motivations. On the other hand, ability to read in English is negatively correlated with motivations to increase farming skills and assets, which may indicate that with this skill they see opportunities other than farming. This is further reinforced by the fact that a minority of respondents (78) can read English.

The length of the contract is negatively associated with *HHW* motivation and positively with *FA*. The length of the contract is highly correlated with years of participating in the program, so both are not included in the equation. This suggests that more experience and developing trust with an employer result in longer contracts. Overtime income needs have been met and the focus of the motivation shifts to *FA*, the children, and the house. As expected, operating a farm in Mexico is positively associated with *FS&AI* motivations while other types of work activities are not. Results suggest that working in the construction sector in Mexico is more associated with *FA* motivation than working in other activities.

Finally, the majority of interviewees stated that the land they have belongs to an *ejido*, and by law all *ejidatarios* should work their land or the government may take it away from them. To show that they are farming generally they grow one or two of the staple goods like maize and bean. Being a member of an *ejido* is positively associated with *FS&AI* as expected.

6. CONCLUSIONS

Using a factor analysis technique, three main factors were revealed as the respondents' motivations to migrate. Among these factors, *Household Livelihood/Welfare* was the most important, explaining 30 percent of the total variance, followed by *Farm Skills and Asset Investment,* which explains 22.5 percent and 18.1 percent by *Family Assets* factor. The *Household Livelihood/Welfare* factor may be of greatest importance for respondents because it includes the lower wages paid in Mexico and the lack of employment opportunities that push rural people out of their communities to look for better paid jobs to improve their family standards of life. Of the twelve motivations, two of the network variables did not load on any factor —"because of experiences of others that work in

Canada" and "as a way to immigrate to Canada." In addition, two other variables did not load on any of the three factors that met the Cronbach Alpha test —"to invest in new business opportunities" and "to see/know another country."

Household livelihood/welfare (*HHW*) tends to be more associated with respondents who come from South and Southeast Mexico (*REG3*) relative to those from *REG2* and with the education of the respondent and negatively associated with more highly educated spouses. *HHW* also is positively associated with reading basic English and having land in an *ejido*. It is negatively associated with the length of contract. Because this variable is also correlated with years in the program, it may be that there is now sufficient income, and the main motivation is on other factors. The number of children and the work activities in Mexico are not associated with *HHW* motivation.

Farm Skills and Asset Investment (*FS&AI*) factor is negatively associated with respondents coming from Region 1. The interviewee's education and English reading ability are negatively associated with this factor, suggesting that farming is not seen as the best opportunity for those with higher skills. Having more than four children is positively associated with *FS&AI*, suggesting that a larger potential family labor force may encourage investment in farming. As expected, working as a farmer and having land in an *ejido* are also positively associated with *FS&AI*.

Family Assets (*FA*) motivations are positively associated with respondents who have basic English reading skills, those with longer term contracts and those who are construction workers. Surprisingly, spouses who have completed high school are negatively associated with *FA*.

In general, the lack of job opportunities in rural labour markets in Mexico means that a large number of Mexican villagers seek to improve the livelihood of their households (*HHW*), increase their farming skills and assets (*FS&AI*) and improve their housing and the education of their children (*FA*) by participating in CSAWP. Therefore, CSAWP represents "an escape valve" for labour market disequilibria in Mexico. The STPS participates in the Program in part because it provides participants a secure income. The Canadian government designed the program to relieve the seasonal disequilibrium in its agricultural labor market. ◄

REFERENCES

Barrón, M.A. (2005). Trabajadores agrícolas mexicanos en Ontario y California: El caso de los jornaleros en Salinas, Greenfield y Watsonville, California, USA y Simcoe, Ontario, Canadá. *Revista Mexicana de Estudios Canadienses*, 9. [online] Available at: <http://revista.amec.com.mx/num_9_2005/Barron_Maria2.htm>.

Basok, T. (2000). He came, he saw, he stayed. Guest worker programmes and the issue of non-return. *International Migration*, 38(2), pp. 215-238. https://doi.org/10.1111/1468-2435.00108

Binford, L. (2002). Remesas y subdesarrollo en México. *Relaciones*, 23(90), pp. 115-158. [online] Available at: <https://www.redalyc.org/pdf/137/13709005.pdf>.

Binford, L., Carrasco, G., and Arana, S. (2004). *Rumbo a Canadá: la migración canadiense de trabajadores agrícolas tlaxcaltecos*. Mexico: Ediciones Taller Abierto. [online] Available at: <https://www.ciisder.mx/images/libros/ciisder_rumbo_a_canada.pdf>.

Colby, C. (1997). *From Oaxaca to Ontario: Mexican Contract Labor in Canada and the Impact at Home*. Davis, CA: The California Institute for Rural Studies.

Challinor, A.E. (2011). *Country profiles. Canada's immigration policy: A focus on human capital*. Migration Policy Institute. [online] Available at: <http://www.migrationpolicy.org/article/canadas-immigration-policy-focus-human-capital/> [Retrieved August 15, 2012].

Davis, J., and Pearce, D. (2001). *The non-agricultural rural sector in Central and Eastern Europe.* [Natural Resources Institute Report No. 2630]. Department for International Development (DFID)/World Bank Collaborative Program for Rural Development CEE/CIS Rural Non-Farm Economy and Livelihoods Enhancement: Policy Research Initiative. [online] Available at: <https://gala.gre.ac.uk/id/eprint/11638/1/11638_Davis_The%20non%20agricultural%20rural%20sector%20(working%20paper)%202001.pdf>.

Escobar-Latapí, A. (1999). Low-Skill Emigration from Mexico to the United States. Current Situation Prospects and Government Policy. *International Migration*, 37(1), pp. 153-182. https://doi.org/10.1111/1468-2435.00069

Fields, G.D. (1982). Place to place migration in Colombia. *Economic Development and Cultural Change*, 30(3), pp. 539-558. https://doi.org/10.1086/452575

García, R. (2003). *Migración, remesas y desarrollo local*. Doctoral Thesis. Universidad Autónoma de Zacatecas, Mexico.

Guang, L., and Zheng, L. (2005). Migration as the second-best option: Local power and off-farm employment. *The China Quarterly*, 181, pp. 22-45. [online] Available at: <https://www.jstor.org/stable/20192442>.

Massey, D. (1987). Understanding Mexican migration to the United States. *The American Journal of Sociology*, 92(6), pp. 1372-1403. https://www.jstor.org/stable/2779841

Massey, D., and Garcia España, F. (1987). The social process of international migration. *Science*, 237(4816), pp. 733-738. https://doi.org/10.1126/science.237.4816.733

Massey, D., and Espinosa, K.E. (1997). What's Driving Mexico-US Migration? A Theoretical, Empirical and Policy Analysis. *American Journal of Sociology*, 102(4), pp. 939-999. [online] Available at: <https://www.jstor.org/stable/2782024>.

Mohan, R., and Hartline, N. (1980). The poor of Bogota: Who they are, what they do, and where they live. In: World Bank, *Urban and Regional* [Report no. 80-6]. The World Bank, Washington, DC. [online] Available at: <https://documents1.worldbank.org/curated/en/207761468913886348/pdf/The-poor-of-Bogota-who-they-are-what-they-do-and-where-they-live.pdf>.

STPS, Secretaría del Trabajo y Previsión Social (2007). *Secretaría del Trabajo y Previsión Social. Programa Nacional de Política Laboral 2001-2006*. Dirección General de Empleo: Segunda Sección. [online] Available at: <https://www.stps.gob.mx/02_sub_trabajo/01_dgaj/decreto6.pdf> [Retrieved May 20, 2017].

STPS (2021). *La Secretaría del Trabajo y Previsión Social amplia oportunidades de empleo en Canadá, bajo El Programa De Trabajadores Agrícolas Temporales*. Dirección General De Empleo. [online] Available at: <https://www.gob.mx/sre/acciones-y-programas/el-programa-de-trabajadores-agricolas-temporales-mexico-canada-ptat> (Retrieved July 2, 2021).

Mora Rivera, J. (2005). *The impact of migration and remittances on distribution and sources income: The Mexican rural case*. United Nations Expert Group Meeting on international Migration and Development. Population Division. Department of Economic and Social Affairs. United Nations Secretariat New York, 6-8 July. [online] Available at: <https://www.un.org/en/development/desa/population/events/pdf/expert/8/P06-MoraRivera.pdf>.

Muse-Orlinoff, L., and Lewin-Fisher, P. (2010). Introduction. In: A. Cornelius, D. Scott, P. Lewin, and L. Muse-Orlinoff (eds.), *Mexican Migration and the U.S. Economic Crisis. A Transnational Perspective*. San Diego, CA: Center of

Comparative Immigration Studies. University of California. [online] Available at: <https://www.rienner.com/title/Mexican_Migration_and_the_US_Economic_Crisis_A_Transnational_Perspective>.
Preibisch, K. (2007). Local produce, foreign labor: Labor mobility programs and global trade competitiveness in Canada. *Rural Sociology*, 72, pp. 418-449. https://doi.org/10.1526/003601107781799308
Reardon, T., Delgado, C., and Matlon, P. (1992). Determinants and effects of income diversification amongst farm households in Burkina Faso. *Journal of Development Studies*, 28(2), pp. 264-296. https://doi.org/10.1080/00220389208422232
Ruhs, M., and Martin, P. (2008). Numbers vs. rights: Trade-offs and guest worker programs. *International Migration Review*, 42, pp. 249-265. https://doi.org/10.1111/j.1747-7379.2007.00120.x
Roberts, B., Frank, R., and Lozano-Ascencio, F. (1999). Transnational migrant communities and Mexican migration to the US. *Ethnic and Racial Studies*, 22(2), pp. 238-266. https://doi.org/10.1080/014198799329477
Rozelle, S., Taylor, J.E., and DeBrauw, A. (1999). Migration, remittances, and agricultural productivity in China. *The American Economic Review*, 89(2), pp. 287-291. https://doi.org/10.1257/aer.89.2.287
Samuel, J., Gutierrez, R., and Vazquez, G. (1995). International Migration between Canada and Mexico: Retrospect and Prospects. *Canadian Studies in Population*, 22(1), pp. 49-65. https://doi.org/10.25336/P6DK5G
Sana, M., and Massey, D. (2005). Household composition, family migration, and community context: Migrant remittances in four countries. *Social Science Quarterly*, 86(2), pp. 509-528. https://doi.org/10.1111/j.0038-4941.2005.00315.x
Stark, O. (1991). Migration in less developed countries: Risk, remittances, and the family. *Finance and Development*, 28(4), pp. 39-41 [online] Available at: <https://www.elibrary.imf.org/view/journals/022/0028/004/article-A013-en.xml>.
Stark, O., and Taylor, E. (1989). Relative deprivation and international migration. *Demography*, 26(1), pp. 1-14. https://doi.org/10.2307/2061490
Taran, P.A., and Geronimi, E. (2013). Globalización y migraciones laborales: importancia de la protección. *Perspectivas sobre Migraciones Laborales no. 3*. Organización Internacional del Trabajo, pp. 1-24. [online] Available at: <https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_232377.pdf>.

Taylor, E. (1987). Undocumented Mexico-U.S. migration and the returns to households in rural Mexico. *American Journal of Agricultural Economics,* 69, pp. 626-638. https://doi.org/10.2307/1241697

Taylor, E. (1999). The new economics of labour migration and the role of remittances in the migration process. *International Migration*, 37(1), pp. 63-88. https://doi.org/10.1111/1468-2435.00066

Taylor, E., and Yúnez-Naude, A. (1999). *Education, migration and productivity: An analytic approach and evidence from rural Mexico*. Organisation for Economic Cooperation and Development (OECD). https://doi.org/10.1787/9789264172852-en

Verduzco, G. (2000). El Programa de Trabajadores Agrícolas Mexicanos con Canadá: aprendizaje de una nueva experiencia. In *Canadá un Estado Posmoderno*, Gutiérrez-Haces, T. (coord.). Mexico: Plaza y Valdés Editores. [online] Available at: <https://books.google.dj/books?id=LlWGBdhER84C&printsec=frontcover&hl=es&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false>.

Yúnez-Naude, A., and Taylor, J.E. (2001). The determinants of non-farm activities and incomes of rural Households in Mexico, with Emphasis on Education. *World Development*, 29(3), pp. 561-572. https://doi.org/10.1016/S0305-750X(00)00108-X

Zárate-Hoyos, G. (2003). Un análisis de multiplicadores de las remesas en la economía mexicana. In: G. Zárate Hoyos (coord.), *Remesas de los Mexicanos y Centroamericanos en Estados Unidos. Problemas y Perspectivas*. Tijuana, Mexico: El Colegio de la Frontera Norte.

Zellner, A. (1962). An efficient method of estimating seemingly unrelated regressions and test on aggregation bias. *Journal of American Statistics*, 57(298), pp. 348-368. https://doi.org/10.2307/2281644

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