

The need for extra-agrarian peasant strategies as a means of survival in marginal rural communities of Mexico

La necesidad de estrategias campesinas extra-agrarias como medio de supervivencia en comunidades rurales marginales en México

María Angélica Quintero Peralta *, Rosa María Gallardo-Cobos, Pedro Sánchez-Zamora

Originales: *Recepción*: 21/12/2018 - *Aceptación*: 02/11/2019

ABSTRACT

The Mexican agrarian sector is currently facing a series of structural problems that have a direct impact on the potential of agricultural activities that provide rural families with food and economic livelihoods, particularly to those living in marginal rural communities. A total of 132 interviews were conducted with farmers from marginal communities in central Mexico. From the total, 64.2% had decreased their agricultural activity in order to engage in other activities and increase their income. Ninety-four percent (94.7%) of families spend between 50 and 100% of their income on food. The binomial logit model determined that there was a 95.4% probability of a family member securing employment outside the peasant production unit. Despite this, family income does not cover basic requirements satisfactorily. In the current context, peasants are subjected to food poverty and income instability. As a result, they look for livelihood options outside the agricultural activities that only allow them to subsist. It is highly probable that peasant families will continue to implement a variety of survival strategies with increasing frequency, to the detriment of Mexican family units and rural communities.

Keywords

peasant strategies • peasant production unit • Agricultural communities • non-farm income • Mexico

Universidad de Córdoba. ETSIAM. Departamento de Economía. Sociología y Política Agraria. Campus de Rabanales. Ctra. Nacional IV Km 396. Edificio Gregor Mendel 3ª planta. 14014 Córdoba. España. * es2qupem@uco.es

RESUMEN

El sector agrario en México enfrenta problemas estructurales que influyen directamente en la posibilidad de que las actividades agrícolas sean el sustento alimentario y económico de las familias campesinas, particularmente las que viven en comunidades rurales marginadas. Se aplicaron 132 entrevistas a campesinos de comunidades marginadas del centro del país, destacando que el 64,2% ha disminuido la actividad agrícola con el fin de realizar otras actividades y obtener ingresos, y el 94,7% de las familias destinan entre el 50 y 100% de sus ingresos a la alimentación. Utilizando un modelo logit binomial se determinó una probabilidad de que el 94,5% se emplee fuera de la unidad de producción campesina para obtener ingresos, aun así, no cubren satisfactoriamente sus necesidades alimenticias y otras necesidades básicas. En el entorno actual del sector, los campesinos muestran vulnerabilidad alimentaria e inestabilidad en la obtención de ingresos, por lo que buscan opciones de vida familiares más allá de las actividades agrícolas que les permitan subsistir. Existe la posibilidad de que las familias campesinas continúen implementando diversas estrategias, y que vayan en aumento, en detrimento de las propias familias y del campo mexicano.

Palabras clave

estrategias campesinas • unidad de producción campesina • comunidades agrícolas • ingresos no agrícolas • México

INTRODUCTION

Mexico is a country with an important rural sector. Agricultural and livestock production activities are performed in 57% of its territory (35), and 23% of its population lives in rural areas. The Instituto Nacional de Estadística y Geografía (INEGI) defines a population as rural when it has less than 2,500 inhabitants (21).

Over the years, the Mexican agricultural sector has faced problems such as insufficient agricultural production, food dependency, lack of dynamism in rural employment, rural poverty, emigration, and devastation of natural resources. These problems are structural and historical, and cannot only be explained by specific policies, commercial treaties, or the vast process of globalization (31).

After facing macroeconomic disparities that led to an economic crisis and increasing external debt, Mexico declared a foreign debt moratorium in 1982. In order to obtain new loans, the Mexican Government had to adhere to several conditions set by the World Bank and the International Monetary Fund, which required implementing structural adjustment policies in line with the neoliberal development model (2, 19,30).

This situation was not exclusive to Mexico. Since the beginning of the economic crisis in 1980, and the debt crisis during that decade, Latin American and Caribbean countries were forced to implement drastic stabilization policies and structural adjustment programs to radically modify growth and development concepts (14, 22). Neoliberal policies

in Latin America are characterized by fiscal adjustment, privatization, price adjustment, trade liberalization, attracting foreign investment, welfare state and labor market reforms (5).

The three main features of neoliberal restructuring in the Mexican agrarian sector were: 1) reducing state functions; 2) implementing the North American Free Trade Agreement, and 3) amending Article 27 of the Constitution (30). There was a clear anti-agricultural bias in the economic strategy during the first years of adjustment, as agriculture was not considered a priority sector. Important growth factors in the pre-neoliberal era, such as government expenses and investment, were substantially reduced, and as the results of economic reforms fell far short of expectations, agricultural growth was left behind (3, 32).

From 1988 to 1994, the political agenda for modernizing rural Mexico focused on redirecting government investment towards farmers with commercial and competitive potential in open market conditions. Small and medium-scale farmers were soon classified as "inefficient" and "non-competitive" and were excluded from government. As an alternative, they were provided with social programs, which to date supply food rations and stipends to poor households. The peasants were no longer classified as "farmers", but as "poor" (3).

The restructuring gave rise to a decrease in production units, loss of rural employment, a fall in rural wages, abandonment of farms by large numbers of farmers, and significant emigration to the United States (8, 34). In turn, this led to the restructuring of basic grain productive

capacity (33), *i.e.*, maize, wheat, beans, and rice. Of these basic foodstuffs, maize is the most important and the main crop grown by most peasants.

Latin American countries have expressed concern about being able to mitigate the negative effects of globalization on inequality. In this context, programs such as conditional cash transfers play an important role in redistributing income to the poor, alleviating the negative effects of globalization on inequality. International remittances could become one of the largest financial inflows of resources to reduce poverty levels in countries such as Mexico and Brazil, which have increased levels of migration due to market-oriented political reforms. Income derived from the welfare state and other government transfers, has played a crucial role in mitigating the effects of "macroshocks" caused by globalization, specifically among the poorest segments of Brazilian society (28).

This study aimed to determine whether peasants need to engage in activities other than agriculture to obtain income, and verify if this strategy is sufficient to cover their basic needs.

In order to address the objective, the next section describes the most salient features of peasant production units, social reproduction and peasant strategies. This is followed by a detailed description of the methodology. The fourth section discusses the main results obtained from the binomial logit model that analyses the probability of peasant families working in activities other than the agricultural sector. The last section presents the most relevant conclusions drawn from the study.

Peasant production units, social reproduction strategies, and peasant strategies

The Mexican rural population is comprised primarily of peasants. Peasant Production Units (PPU) are distinguished by the following traits: small-scale production; minimum or null levels of investment in infrastructure and materials; limited access to resources and production services; reliance primarily on family labor; products are intended for family consumption and sometimes for limited sales, showing some degree of poverty. In addition, the PPU is an indivisible whole comprising a house, a backyard, a space adjacent to the house where families can grow crops or raise small livestock for household use, and a plot.

In a context wherein poverty primarily affects peasants, they are faced with the difficult task of situating themselves within the globalized economy. As such, the strategies they implement for the social reproduction of the family are different from those aimed at improving the level of wellbeing. Social reproduction strategies are a set of practices through which individuals or families strive to maintain or improve their social position in the class structure (9) by establishing a link between individual choices and social structures (25). When strategies are strongly conditioned by a context of inequality and vulnerability, they are referred to as survival strategies. These strategies cover the minimum satisfaction of needs to ensure the most immediate reproduction of life and are not guaranteed by the current mode of production or by the social policies implemented under the economic model. Strategies implemented in times of crisis can mitigate the crisis and guarantee subsistence, but little more. In short,

strategies developed in situations of social vulnerability are an indicator of social inequality (18, 20, 25, 29).

In turn, peasant strategies are a complex set of behavior and actions concerning nature and society, in a certain historical and geographical context, in response to structural situations in which peasants must constantly readapt. They are targeted at renewing the material resources that enable social reproduction. For the majority of peasants, progressive participation in nonagricultural activities is a response to their social reproduction crisis and only enables them to survive (10, 16, 23, 25).

The continuity or collapse of the PPU depends, at least in part, on its capacity to navigate a complex network of farm and non-farm activities, within a continuously fluctuating environment (10, 16). The risk management strategies of the rural poor are based on income diversification, migration, and subsistence farming, giving rise to a relative increase in mercantile activities in relation to production for family consumption (6).

Neoliberal policies have stimulated peasant differentiation, given that increased impoverishment forces peasants to seek employment and income opportunities outside the PPU. There has been an increase in non-agricultural activities, multi-activities, multifunctionality in agriculture, emigration, and the proletarianization of the agricultural workforce. However, to this day, unemployment and an impoverished standard of living are recurring conditions in rural areas (23, 24). Public and private cash transfers, particularly remittances, have increased significantly and have an important impact on the total income of rural families, helping to alleviate poverty (32). In effect, the traditional

resistance of peasants is continually renewed and reformed, given that must depend on their own initiatives when abandoned by governments (7, 10, 28).

This paper argues that peasant strategies are primarily for survival. They can be defined as a broad range of activities, based on experience, skills and individual knowledge, implemented to alleviate socioeconomic adversity resulting from structural adjustment. All family members participate in running the home and obtaining income outside the PPU. In general, the arrangements are not permanent but vary according to the options available, the family members who perform them, and the available economic resources.

MATERIALS AND METHODS

Primary data were obtained from 11 rural communities in the states of Hidalgo, Mexico, and Morelos located in the country's central region. Rural communities in these states have a high or very high degree of marginalization: 78.8% in Hidalgo, 76.8% in Mexico, and 63.6% in Morelos. Marginalized communities face a high degree of social vulnerability, with effects that are beyond personal or family control, given that they derive from a production model that does not provide the same opportunities for all. There are five degrees of marginalization: very high, high, medium, low, and very low, which are determined by the magnitude of deficiencies in education, housing, population distribution, and monetary income (13). In fact, all 11 communities included in this study have a high degree of marginalization (12). The sampling aimed to determine the situation and structure of the PPU; hence, the sampling units were

peasants. The sampling was quasi-random (11). In the selection of individuals, the only requirement was that they performed or have performed agricultural activities for obtaining food or income. Direct interviews with 132 individuals were conducted, enough to make relationship inferences. The size of the sample for each state was determined by proportional affixation (11) *i.e.*, the size of the subsamples was proportional to the rural population with a high degree of marginalization. From April to June 2015, 45 interviews were conducted in Hidalgo, 78 in Mexico, and 9 in Morelos.

The questionnaire used consists of eight sections: Location; General data about the interviewee and their home; Agricultural activities; Food basket; Income; Diversification of activities; Public services, and Agrarian programs. The analyses performed in this study were based on the performance and intensity of agricultural activities; the composition and origin of the food basket consumed by families; income sources; the activities performed in addition to agriculture, and access to government programs.

The productive and socio-economic conditions of the peasant families were described, and the variables used in the statistical analysis were specified from the systematized primary data.

As food insufficiency and low-income forces family members to seek employment in several activities, peasant strategies relating to employment were explained using a logit model. A binomial regression model was chosen in which the explanatory variable has only two possible outcomes (17). The variable to be modeled or predicted is identified as the dependent variable Y , and the explanatory or independent variables are designated X_1, X_2, \dots, X_k .

The dependent variable is categorical and usually dichotomous (1). The relationship between the dependent variable and the explanatory variables is non-linear. The maximum likelihood method was used to estimate the dependent variable due to its dichotomous nature, solving the problem of heteroskedasticity. The probability distribution function defines a probability distribution from 0 to 1. Given that the interpretation of the coefficients is not immediate, an alternative measure to the coefficient of determination is required to measure the model's goodness of fit (26).

Considering the above, the dependent variable was defined as Peasant Strategies with Employment, which refers to whether or not income was supplemented by permanent or temporary employment of a family member. The categories defined were: Employment and Other situation. The first refers to whether or not a family member was temporarily or permanently employed outside the PPU. For farmers to be considered in the model estimation, they had to have performed agricultural activities, generating income or not. Only 123 out of 132 farmer responses were included because nine individuals had abandoned agricultural activities.

In order to find a significant relationship between the dependent variable and other variables, a bivariate analysis was performed, using contingency tables

analyzed by the chi-square statistic. Thus, when the associated probability was less than 0.05, the null hypothesis of independence between the variables was rejected, and the conclusion drawn that the variables studied were related (4) SPSS version 15.0 for Windows was used. Based on the significance of the independent variables, only the variables that could be more relevant to the construction of the logit model were considered in order to determine which variables, acting together, might have a greater influence on the decision to diversify activities through employment (table 1, page 252).

A stepwise backward regression method was used for the likelihood ratio as it gives rise to different models for predictive purposes highlighting the most parsimonious ones. It involves starting with all the selected independent variables and eliminating those lacking statistical significance (1). To measure the goodness of fit, the percentage of correct estimates in the model was used, as it facilitates the comparison between the predicted values and the observed values. The cut-off point of probability Y to classify the individual variables was 0.5. The equation used to calculate the probabilities was as follows:

$$P = (Y = 1) \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}}$$

where:

$\beta_0, \beta_1, \beta_2, \dots, \beta_k$ = Parameters of the model

X_1, X_2, \dots, X_k = Independent variables

e = Exponential function. Raise

the number e (Euler constant, whose approximate value to the thousandth is 2.718) to the power contained within the parenthesis (1).

Table 1. Variables included in the logit model.

Tabla 1. Variables incluidas en el modelo logit.

Variable	Name	Categories
Dependent		
Income supplemented via permanent or temporary employment of a family member	PSEmplo	Employment = 1 Other situation = 0
Independent		
Maize production	ProdMaize	Up to 2 t = 1 Over 2 t = 0
Maize production destination	DestProd	Consumption and sale = 1 Consumption = 0
Age of head of family	AgeHF	Over 50 = 1 20 to 49 = 0
Peasant production unit structure	PPU	Plot = 1 Plot and backyard = 0
Type of agricultural crops	ProdAgri	Basic grains = 1 Basic grains and others = 0
Decrease in agricultural activity	DecAct	Yes = 1 No = 0
Government support for production (<i>Proagro Productivo</i> Programme)	Proagro	Receives support = 1 No support = 0
Government support for health (<i>Seguro Popular</i> Programme)	SegPop	Receives support = 1 No support = 0
Source of maize for family consumption	SourMaize	Plot = 1 Plot and purchase = 0
Food sufficiency for family consumption	SufCon	Not always = 1 Frequently = 2 All year = 3
Percentage of income spent on food	SpeFood	50 to 100% = 1 Up to 50% = 0
Family members collaborating in agricultural activities	CollAA	Head of family = 1 Adults 20-45 years = 2 Adults 45-65 years = 3 Whole family = 4 None (labourers) = 5
Income sufficiency to cover family needs	SufInc	Insufficient = 1 Principal needs = 0

RESULTS

Peasant production units description

Agricultural activities

Agriculture in the PPU focuses on the production of small-scale basic grains for family consumption or sporadic local sales (table 2). Activities are primarily performed in small, non-irrigated, family-owned plots, although it is common to rent or loan land, or to work in share-cropping, which are the means by which landless peasants produce. A decrease in agricultural activity was observed in 64.2% of the peasants studied; due to the decline in profitability of farming and the need to perform other activities to obtain income. For the rest (35.8%), there was no decrease in agricultural activity because farming is their main source of income; in addition to the fact that employment opportunities lack in their communities. The main reason for performing agricultural activities is to obtain food (44.7%).

Livestock husbandry primarily takes place in the backyard.

A total of 76.7% families grow between 0.5 and up to two t of maize, while 16.7% grow between two and four t. However, a minority (6.7%) grow more than four t, a volume that guarantees family consumption and a quantity for external sales. Practically all the interviewed families (99.2%) consume all or part of the harvested crops, and 66.7% sell small surpluses in local markets.

Food basket

Although a significant part of the maize and beans for family consumption comes from plots (60.6% and 27.3% respectively), families need to buy additional amounts to satisfy their food needs.

Table 2. Main characteristics of peasant production units.

Tabla 2. Principales características de las unidades de producción campesina.

Activities performed¹			
Agricultural: 99.20%	Maize: 97.6%	Livestock: 54.50%	Poultry: 50.4%
	Beans: 59.3%		Sheep: 8.9%
	Other crops: 38.2%		Cattle: 7.3%
Access to land for production			
Landowners: 88.6%	Plot less than 1 ha: 19.3%	Farmers without land: 11.4%	
	From 1 to 2 ha: 46.2%		
	From 2 to 5 ha: 30.3%		
	From 5 to 10 ha: 4.2%		
Labour for agricultural activities			
Only family labor: 97.6%	The whole family collaborates: 39.0%	Workers with wages: 2.4%	
Spaces for farming			
Plot only: 47.2%			
Plot and backyard: 49.6%			
Backyard only: 3.2%			

¹ The sum of the breakdown of activities is greater than 100% because several activities are performed simultaneously.

¹ La suma del desglose de las actividades es mayor a 100% porque se realizan varias a la vez.

This reflects the decrease in agricultural activity and the insufficiency of the volumes obtained. The consumption of other types of food varies according to the season and availability of money. Fruit and vegetables are bought by 56.1% of families, while meat (chicken for 49.2%) comes mainly from the backyard; 2.3% never eat meat.

All the interviewees explained they only have enough supplies for two full meals per day. This situation, along with maize insufficiency for the majority and infrequent consumption of other types of food needed for a balanced diet, shows major constraints in the availability of and access to food. This is supported by the fact that only 32.6% stated that the food produced or purchased was sufficient for the family food supply throughout the year - two meals per day. For 67.4%, it was insufficient.

Income and food expenditure

Since the late 1990s, predictions about neoliberal policies having long-term significant effects, especially on income distribution were made (5). Only 21.9% of families have a single source of income. Of this group, 9.1% depend on agricultural activities and the rest on permanent or temporary employment, or conditional cash transfers. Of the families who obtain income from various sources, 67.4% obtain income primarily from government support programs for production or social welfare; 61.4% from agricultural activities and various permanent or temporary employments; and to a lesser extent, 4.5% from remittances. Of the families receiving

government support, 30.3% benefit from more than one program, usually *Proagro Productivo* and *Prospera*.

For 53.8% of families, income comes from various family members; for the rest, only from the head of the family. For 62.9%, income only covers food, and for 3.8%, their income is not enough for obtaining food. A significant proportion of income is spent on food; 94.7% of families spend 50 to 100% of their income on food. This highlights the inability of peasants to meet other basic needs that impact family welfare. Rural families are in a situation of food fragility because when income falls, food acquisition is directly affected in quantity, quality, and diversity. Peasants have to buy cheaper food, usually industrialized products with low nutritional value.

Diversification of activities. Peasant strategies

To a large extent, heads of families contribute to the family income by combining agricultural activities with temporary employment, or by exclusively securing employment outside the PPU (table 3, page 255). Whether as a supplementary source or a primary source of income, the main activities performed in order of importance are as follows: agricultural day laborers in Mexico or abroad, construction laborers, and any activity within the service or trade sectors. Those who emigrate do so mainly within the country, and those who emigrate abroad work in the United States and Canada.

Table 3. Diversification of activities of the head of the family.**Tabla 3.** Diversificación de actividades del jefe de familia.

Activities performed	%
Only agricultural activities	26.5
Agricultural activities and temporary employment	49.2
Temporary or permanent employment	20.5
Emigrate (temporary, indefinite, definitive)	8.3
Other	3.8

For 83% of the interviewees, the reason for performing various activities is to supplement income. Other reasons are the decrease in the profitability of agricultural activities, low prices for produce (19.8%), creation of opportunities for young people or non-existent jobs in their communities (27.4%).

Diversification of activities highlights what various authors have analyzed about the effects of globalization on poverty, inequality and income distribution: the creation of winners and losers and increasing inequalities (28).

Binomial logit model results

The method used in this study reached results after 7 steps. The summary (the Cox and Snell R^2) indicated that 34.1% of the variation of the dependent variable is

explained by the independent variables included in the model. Goodness of fit, determined through the Hosmer-Lemeshow test, indicates a good fit of the model in the seventh step ($p=0.948$), given the high value of the predicted probability. Therefore, the hypothesis stating that the coefficients are equal to zero is rejected. The model was able to accurately classify 82.2% of those employed outside the PPU as well as 77.9% who are either employed or in another situation (table 4).

Table 5 (page 256) shows the final variables in the model, the regression coefficients (B) with the corresponding standard errors (ET), the Wald chi-square test, the degrees of freedom, significance level, and the value of $\text{Exp}(B)$ with its confidence intervals.

Table 4. Dependent variable classification table ^(a).**Tabla 4.** Tabla de clasificación de la variable dependiente ^(a).

Observed		Predicted			Percentage correct
		PSEmplo		Other situation	
		Other situation	Employment		
Step 7	PSEmplo	35	14	71.4	
	Other situation	13	60	82.2	
Overall percentage				77.9	

^(a) The cut-off value is 0.500. / ^(a) El valor de corte es 0,500.

Table 5. Variables included in the equation.

Tabla 5. Variables incluidas en la ecuación.

		B	E.T.	Wald	gl	Sig.	Exp(B)	I.C. 95% for EXP(B)	
								Lower Limit	Upper Limit
Step 7 ^(a)	ProdMaize	1.353	0.543	6.202	1	0.013	3.868	1.334	11.218
	DestProd	-1.607	0.592	7.365	1	0.007	0.200	0.063	0.640
	AgeHF	-1.536	0.537	8.177	1	0.004	0.215	0.075	0.617
	PPU	-0.953	0.499	3.638	1	0.056	0.386	0.145	1.027
	DecAct	1.567	0.571	7.547	1	0.006	4.794	1.567	14.667
	Proagro	-1.153	0.508	5.154	1	0.023	0.316	0.117	0.854
	SegPop	1.290	0.531	5.903	1	0.015	3.631	1.283	10.277
	Constant	1.062	0.958	1.228	1	0.268	2.891		

^(a) Variables introduced in Step 1: ProdMaize, DestProd, AgeHF, PPU, ProdAgri, DecAct, Proagro, SegPop, SourMaize, SufCon, SpeFood, CollAA4, SufInc.

^(a) Variables introducidas en el paso 1: ProdMaize, DestProd, AgeHF, PPU, ProdAgri, DecAct, Proagro, SegPop, SourMaize, SufCon, SpeFood, CollAA4, SufInc.

Based on these results and considering the order in which the independent variables show greater influence on the dependent variable, it can be argued that employment outside the PPU is higher when: i) agricultural activity decreases (DecAct); ii) maize production (ProdMaize) is less than 2 t, and iii) the family receives support from the *Seguro Popular* Programme (SegPop). In the opposite direction, employment outside the PPU is lower when: i) maize production (DestProd) is intended for consumption and sale; ii) the head of

the family (AgeHF) is over 50 years old; iii) the PPU consists only of a plot, and iv) the family receives support from the *Proagro Productivo* Programme (Proagro). In turn, a predictive analysis was also performed using the regression coefficients to calculate probabilities. Thus, to calculate the probability of a family member being employed outside the PPU, the logit model equation is as follows:

$$P = (PS \text{ Employment}) = \frac{1}{1 + e^{-z}}$$

where:

$$Z = (-1.062 - 1.353 \text{ProdMaize} + 1.607 \text{DestProd} + 1.536 \text{AgeHF} + 0.953 \text{PPU} - 1.567 \text{DecAct} + 1.153 \text{Proagro} - 1.290 \text{SegPop})$$

Taking into account the variables related to production and the categories that express the highest frequency among the farmers interviewed, the variables can be characterized as follows: maize production is less than 2 t, and is intended only for family consumption; the PPU consists of only the plot; agricultural activity has decreased in recent years; the family does not receive support for production (*Proagro Productivo*), and has no healthcare service (*Seguro Popular*). Under these conditions the probability is as follows:

$$P = (PS \text{ Employment}) = 0.954$$

In other words, there is a 95.4% probability for a family member being employed outside the PPU in order to supplement income.

Similarly, assuming there is a significant improvement in the productive variables, *i.e.* that agricultural activity has not decreased, more than two t of maize are produced for consumption and sale, and that there is government support for production and family healthcare, then the probability is as follows:

$$P = (PS \text{ Employment}) = 0.204$$

In other words, if such conditions were met there would be a 20.4% probability for a family member being employed outside the PPU.

In light of the above, it can be seen that agricultural production is an important determinant when it comes to implementing strategies involving permanent or temporary employment that can improve income levels and contribute to ensuring survival. Furthermore, government support is also important, if available, given that it decreases the

probability of peasants implementing survival strategies involving employment outside the PPU. These results are in line with those obtained in other studies that show the potential of transfer programs (such as *Procampo/Proagro* and *Oportunidades* and *Seguro Popular*) to improve the living conditions of farmers (37).

However, it is also important to note that the implementation of these programs has benefited large producers more than small producers (29, 36). Consequently, there needs to be more progress made in the design of more flexible and democratic public support should be made, addressing the specific problems presented by small farmers and peasants in rural Mexico.

Although rural poverty in Latin America has declined over the past three decades, it is still exceptionally high. Some of the ways out of poverty are through agriculture, multi-activities, and assistance. The data is surprising given that among those households with land, 73% in Mexico and 34% in Nicaragua, obtain more than half of their income from non-agricultural activities. Poor households are limited to easily accessible low-paid agricultural work. However, the most effective way out of poverty for the rural poor in Latin America is via multi-activities (15).

CONCLUSIONS

The environment where peasants currently live in rural Mexico has forced them to look for livelihood options outside of agricultural activities in order to survive. In the PPU, agricultural activities do not generate enough benefits given that production does not cover the basic needs of the families interviewed. In other words, farmers experience food

vulnerability and income instability as well as difficulty in adequately satisfying basic requirements to achieve a minimum level of wellbeing or improve their quality of life.

The food fragility to which the interviewed peasant families are subjected is reflected in the limited number of full meals they consume per day and the limited consumption of the wide variety of foods required for a balanced and nutritious diet. This, along with the large percentage of income spent on food, and the involvement of more and more family members in different income-supplement activities, indicate that the various strategies rural families resort to, do not allow them to satisfy the primordial human need for food. As a result, there is little possibility of covering other basic needs. The food situation reflects the impoverishment of peasant families and the violation of a fundamental human right. Serious food deficiencies in the rural population can lead to high levels of malnutrition, with severe impacts on future generations.

The strategies implemented by the interviewed peasants are determined primarily by the conditions of the Mexican

agrarian sector. If the current agrarian public policies approach is maintained, there will be little possibility of improving agricultural activities or generating employment opportunities for rural populations, with the risk of exacerbating and perpetuating the marginalization of peasants. The results of the peasant strategies observed through the interviews, focused on increasing income, are insufficient for families to be able to live from their labor and in better conditions within their environment. Therefore, it is highly likely that this situation of poverty and marginalization will intensify, to the detriment of peasant families and rural Mexico.

It is highly probable that the conditions detected in this study, are present in innumerable cases among peasants in different regions of the country. This highlights the need to revitalize the productive capacity of PPUs via specific public policies that need to be designed from a different perspective than that of current policies. Despite reduced production, agricultural activity performed in PPUs remains a relevant survival strategy. Actions must be implemented to ensure this practice does not disappear from the rural family dynamic.

REFERENCES

1. Aguayo, M. 2007. Cómo hacer una regresión logística con SPSS® "paso a paso", I. Fundación Andaluza Beturia para la Investigación en Salud. Docuweb Fabis. Dot. Núm 0702012. 16 p.
2. Aguilar, G. 2000. Desigualdad y pobreza en México, ¿son inevitables? México. Ed. Miguel Ángel Porrúa. 210 p.
3. Appendini, K. 2014. Reconstructing the maize market in rural Mexico. *Journal of Agrarian Change*. 14(1): 1-25. doi: 10.1111/joac.12013.
4. Arriaza, M. 2006. Guía práctica de análisis de datos. España. Ed. Junta de Andalucía. 198 p.
5. Baer, W.; Maloney, W. 1997. Neoliberalism and income distribution in Latin America. *World Development*. 25(3): 311-327.
6. Banco Mundial. 2005. Generación de ingreso y protección social para los pobres. México. Banco Mundial. 221 p.
7. Bartra, A. 2014. Campesinos del tercer milenio: aproximaciones a una quimera. *Revista ALASRU*. 10: 17-43.

8. Bello, W. 2008. Cómo generar una crisis mundial de los alimentos: Lecciones del Banco Mundial, el FMI y la OMC. Enfoque sobre Comercio. Edición especial. La crisis mundial de alimentos. 140: 2-14.
9. Bourdieu, P. 1988. La distinción. Criterios y bases sociales del gusto. Trad. Ruiz, M.C. Buenos Aires. Ed. Taurus. 597 p.
10. Cáceres, D. 1995. Estrategias Campesinas en Sociedades rurales contemporáneas. Revista de la Facultad de Agronomía. 15(1): 67-72.
11. Calatrava, J. 1998. Notas sobre muestreo y uso de técnicas de encuesta en investigación de mercados. España. Instituto Agronómico Mediterráneo de Zaragoza. 38 p.
12. CONAPO. 2010. Base de datos por entidad 2010. México. Consejo Nacional de Población.
13. CONAPO. 2013. Índice absoluto de marginación 2000-2010. México. Consejo Nacional de Población.
14. De Janvry, A.; Sadoulet, E. 1989. Investment strategies to combat rural poverty: A Proposal for Latin America. *World Development*. 17(8): 1203-1221.
15. De Janvry, A.; Sadoulet, E. 2000. Rural poverty in Latin America determinants and exit paths. *Food Policy*. 25: 389-409.
16. Espín, J. 1999. Estrategias campesinas de sobrevivencia y de reproducción social en la población negra del Valle de Chota, Ecuador. En: Espín, J.; Rivera, F.; Herrera, G.; Rodríguez, E.; Bassolet, B.; Songore, F.; Dansokho, M. y Coura, N. Estrategias de supervivencia y seguridad alimentaria en América Latina y en África. Buenos Aires. CLACSO. 5-27.
17. Fiuza, M. D.; Rodríguez, J. C. 2000. La regresión logística: una herramienta versátil. *Nefrología*. XX(6): 495-500.
18. Gutiérrez, A. B. 2003. La construcción social de la pobreza. Un análisis desde las categorías de Pierre Bourdieu. *Anduli Revista Andaluza de Ciencias Sociales*. 2: 29-44.
19. Herrera, F. 2009. Apuntes sobre las instituciones y los programas de desarrollo rural en México. Del Estado benefactor al Estado neoliberal. *Estudios Sociales*. 17(33): 8-39.
20. Hintze, S. 2004. Capital social y estrategias de supervivencia. Reflexiones sobre el 'capital social de los pobres'. En: Danani, C. (Coom.). Políticas sociales y economía social: debates fundamentales. Altamira, Argentina. UNGS-Fundación OSDE.
21. INEGI. 2015. Tabulados de la Encuesta Intercensal 2015. México. Instituto Nacional de Estadística y Geografía.
22. Janssen, W. G.; Sanint, L. R. 1991. Economic trends in Latin America. Roles for agriculture and new technology. *Food Policy*. 474-485.
23. Kay, C. 2007. Algunas reflexiones sobre los estudios rurales en América Latina. *Íconos Revista de Ciencias Sociales*. 29: 31-50.
24. Macías, A. 2013. Introducción. Los pequeños productores agrícolas de México. *Carta Económica Regional*. 25(111-112): 7-18.
25. Massa, L. 2010. Estrategias de reproducción social y satisfacción de necesidades. Parte I: Controversias conceptuales, polémicas prácticas. *Revista Perspectivas Sociales*. 12(1): 103-140.
26. Medina, E. 2003. Modelos de elección discreta. España. Universidad Autónoma de Madrid. 26 p.
27. Nissanke, M.; Thorbecke, E. 2010. Globalization, poverty, and inequality in Latin America: findings from case studies. *World Development*. 38(6): 797-802.
28. Palma, D. 1984. Entre la moda y la ciencia. Estrategias de sobrevivencia y participación. *Revista Acción Crítica*. 15: 1-14.
29. Piñera-Barajas, A.; Martínez-Saldaña, T.; Jiménez-Velázquez, M.A.; García-Cue, J. L. 2016. Política pública para el campo: PROCAMPO en el centro del país. *Revista Mexicana de Ciencias Agrícolas*. 7(1): 147-157.
30. Quintero, M. A.; Gallardo, R. M.; Ceña, F. 2016. Implicaciones de la disminución de la capacidad productiva de granos básicos sobre la alimentación en comunidades rurales pobres de México. *Economía Agraria y Recursos Naturales*. 16(2): 33-67.
31. Rello, F. 2008. Inercia estructural y globalización: la agricultura y los campesinos, más allá del TLCAN. Grupo de trabajo sobre desarrollo y medio ambiente en las Américas. Trabajo de Discusión No. 20.

32. Rello, F.; Saavedra, F. 2007. Implicaciones estructurales de la liberalización en la agricultura y el desarrollo rural. El caso de México. Ed. Banco Mundial. FLACSO. 215 p.
33. Rubio, B. 2006. Voces de la desesperanza: la desestructuración alimentaria en México (1994-2004). *Gaceta Laboral*. 12(001): 69-89.
34. Saavedra, F.; Rello, F. 2012. La problemática rural en México en perspectiva histórica: un marco de referencia para el análisis regional. En: Saavedra, F. y Rello, F. (Coord.): Integración y exclusión de los productores agrícolas. Un enfoque regional. México. Ed. FLACSO. 53-83.
35. SAGARPA. 2013. Manejo sustentable del suelo en México. México. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación.
36. Valentín-Garrido, J. M; León-Merino, A.; Hernández-Juárez, M.; Sangerman-Jarquín, D. M.; Valtierra-Pacheco, E. 2016. Evaluación del programa PROAGRO productivo en comunidades rurales de la sierra norte de Puebla. *Revista Mexicana de Ciencias Agrícolas*. 7(2): 413-425.
37. Winters, P.; Davis, B. 2009. Designing a programme to support smallholder agriculture in Mexico: Lessons from PROCAMPO and oportunidades. *Development Policy Review*. 27(5): 617-642.