The dynamics of poverty in Mexico: A multinomial logistic regression analysis

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Abstract

Using panel data from the Mexican Family Life Survey, this paper estimates a multinomial logistic regression model to analyze the dynamics of chronic and transient poverty in Mexico. Based on the spells approach, transition matrices are constructed to observe households' entry into and exit from poverty and multinomial logistic regression is used to analyze which factors explain the dynamics of poverty in Mexico.

It was found that 36% of households are chronically poor and 64% are transiently poor. Also, we found that the variables directly related to chronic poverty are: belonging to an ethnic group, living in a rural area, a large family size, having a high percentage of older adults and children in the household and having a female household head. On the other hand, it was found that having more education, the age of the household head and having access to potable water and electricity in the household are positively related with the probability of escaping poverty.

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Introduction

Poverty is one of Mexico's most important problems. In 2012, more than half of the country's population was poor. While there are many studies about the phenomenon of poverty in Mexico, there are very few studies about the dynamics of poverty in this country. It is important to distinguish between chronic and transient poverty, in order to be able to identify the types of economic and social policies aimed at reducing each type of poverty.

We use data from the Mexican Family Life Survey 2002 and 2005 to estimate the levels of chronic and transient poverty in Mexico and its main determinants. The rest of the paper is divided as follows. In the next section a literature review is conducted to identify the main definitions and types of poverty, existing approaches to study the dynamics of poverty, and the results of previous studies. In section 3, the databases used in the paper are described, specifying the variables used in the analysis. Section 4 shows the transition matrix for chronic and transient poverty between 2002 and 2005. The fifth section explains the econometric model used in the paper while section 6 analyzes the results of the multinomial logistic regression model. Finally, the last section draws some conclusions and possible policy implications which could be inferred from this research.

Literature Review

Lok- Dessallien (1999) points out that poverty can be measured in absolute or relative terms. Absolute poverty considers a socially acceptable minimum standard of living, focusing on food and other essential goods. In contrast to this definition of poverty, relative poverty compares the incomes of the lower deciles of the population with those of the higher deciles.

Yaqub (2002) makes a distinction between two types of methods for measuring chronic poverty and transient poverty, which are the spells approach and the component approach. The first approach establishes that a person is poor depending on the number of times he or she is in poverty, while the second approach considers that a person is poor if its permanent income is below the poverty line.

According to Bane and Ellwood (1986), the spells approach provides a simple way to understand the dynamics of poverty, through an indicator that summarizes information about this dynamics in an easily understandable way. This approach involves observing a variety of distributions, estimating the probability of escaping poverty and identifying the situations that determine entry and exit from it. In order to use this approach, it is necessary to have information covering a long period to tabulate the distribution of individuals who are poor at a given point of time.

Aaberge and Mogstad (2007) note that the spells approach assumes that there is no possibility of transfer of income between periods, while the component approach assumes a seamless transfer of income over time, as in the latter approach poverty is defined as a function of permanent income.

For the case of Nepal and using the spells approach, Battha and Sharma (2006), estimated a multinomial logistic model to analyze chronic and transient poverty in that country. They used wealth, human capital and ethnicity as explanatory variables, as well as the occupation of the household head, demographic and community characteristics and three regional dummy variables indicating whether the household is located in an urban or a rural area. The authors found that, on average, households in Nepal experienced a significant increase in economic well-being during the period considered. However, this growth favored more the urban than the rural households. The authors found that there was a decrease in poverty from 34.5% in 1995 to 33% in 2003 and that 47% of households were poor in at least one of the two periods, while the rest were poor in both years. Regarding the determinants of chronic and transient poverty, they found that ethnicity does not have any significant association with poverty, while human capital and wealth were found to be statistically significant in explaining both types of poverty.

Baulch and Vu (2011) also used the spells approach to study the dynamics of poverty in Vietnam. The authors used the Survey of Living Standards Household panel data for 2002, 2004 and 2006 and constructed transition matrices of entry into and exit from poverty within the analyzed periods. The variables used in the model were: belonging to ethnic minorities, household size, percentage of children in the household, percentage of older adults in the household, age, gender and level of education of the household head, the value of productive assets and other variables related to the infrastructure of the area where the household resides. Using a multinomial logistic regression model, the authors find that household size, household composition and the ethnicity of the household head play an important role in explaining chronic poverty. Particularly, a high dropout rate in primary level education is a significant factor for a household to remain in poverty. In contrast, completing secondary and subsequent studies have important effects on the ability to escape poverty and to stay out of it.

Also for the case of Vietnam, Baulch and Masset (2003) conducted a study to investigate whether the monetary and non-monetary indicators of poverty affect chronic poverty in the same fashion. They defined chronic poverty as that which occurs when an individual is poor, suffers from malnutrition and stunting or is not in school in the two waves of the panel. The authors found that the degree of overlap and correlation between the subgroups that are chronically poor is generally low, thus concluding that increasing the number of dimensions that are used to identify chronic poverty does not lead to greater clarity on the characteristics of chronic poverty.

Baulch and Hoddinott (2000) also used the spells approach in a study about economic mobility and the dynamics of poverty in developing countries. They conclude that asset accumulation plays a much smaller role than expected for increasing income while increases in the returns to endowments can be a great source of increased income.

For the case of China, Jalan and Ravallion (1998) found that both chronic and transient poverty decrease with the level of education of the household head. In another paper, also for the Chinese case, Jalan and Ravallion (2000) conclude that a factor affecting both types

of poverty is physical capital, while the main determinants of chronic poverty are household size, the level of education of the household members and living in areas with lower access to health services.

Mckay (2003) argues that chronic poverty is present in most developing countries, and that poverty is associated with disadvantages such as lack of physical and human capital, unproductive activities and unfavorable demographics. On the other hand, he asserts that transient poverty is due to the fact that families cannot insure against fluctuations in prices, unemployment, disability or illness.

According to Herrera (2001), in the case of Peru the level of education proved to be the most important factor to escape chronic poverty. On the other hand, the absence of public goods is an important factor in explaining the transition into poverty.

McColluch and Baulch (1999) mention that it is important to recognize the differences between chronic and transient poverty since policies aimed at reducing transient poverty are very different from the policies that should be applied to reduce chronic poverty.

One study that uses the components approach is performed for the case of Mexico by Garza-Rodríguez et al. (2010), who use panel data to decompose total poverty and estimate the components and determinants of chronic and transient poverty. The authors found that 69% of total poverty is chronic while 31% is transient. Using quantile regression techniques, they found that the variables that explain chronic poverty are different from those that explain transient poverty. They conclude that the determinants of total poverty are family size, the number of illiterate adults in the household, and living in a rural area. They found that factors directly related to chronic poverty are: the number of family members, the number of illiterate adults in the family, and residing in a rural area. As for transient poverty, living in an urban area has an inverse relationship with this kind of poverty, while household size, the number of illiterate adults in the home and living in a rural area are directly related to this type of poverty.

Also for the case of Mexico, Leon (2005) found that the level of education of the household head has an important role in the different types of poverty since it explains its persistence as well as the transitions into and out of poverty.

Rascon and Rubalcava (2009) analyze the income dynamics of the Mexican population in urban areas and its relationship to the probability of entering or leaving poverty. The main variables that they use in their model are socioeconomic and demographic variables, lags in health, social security and education and in health services utilization. The authors found that chronic poverty is associated with a large household size, a larger dependency burden, a female household head and a low education of the household head.

Description of the Database

The data used in this study were obtained from the Mexican Family Life Survey (MxFLS) 2002 and 2005, which is a panel survey with information on socioeconomic, demographic and health indicators of the Mexican population. The survey was designed to be statistically representative at the national, rural-urban and regional levels and has a sampling size of 8,440 households.

Following the methodology of Bernal (2007), we estimated total current household income for each year (2002 and 2005), imputing missing or zero values for the income variable through the Gaussian normal regression imputation method.

The dependent variable used in the study was the poverty status of the household, which was used to construct a transition matrix: the variable takes a value of 1 if the household was poor during 2002 and 2005; a value of 2 if the household was poor in 2002 and managed to get out of poverty in 2005; a value of 3 if the household was not poor in 2002 and fell into poverty in 2005; and a value of 4 if the household was not poor in both periods.

The variables used as independent or explanatory variables were: level of education of the household head, belonging to an ethnic group, percentage of children in the household, percentage of older adults in the household, gender of household head, age of the household head, having access to water inside the house, having electricity, disability days of the head of household in the last year, household size, and whether the home was in a rural or in an urban area.

Following Baulch (2010), in order to reduce the effects of outliers, continuous variables were expressed in their natural logarithms.

Transition Matrix

Lee et. al. (2009) mention that transition matrices are a basic and powerful tool analysis to estimate entry into and exit out of poverty. They show the number of households which leave or enter poverty, remain in poverty or remain outside of poverty. Thus, a transition matrix was constructed in order to know if households were chronically poor, transient or never poor in the study period.

We used Mexico's official patrimonial poverty line in the analysis. A household is considered to be in patrimonial poverty if its income is not sufficient to meet the needs of shelter, clothing, footwear and transportation for each household member. The patrimonial per capita poverty lines established by the Mexican Council for the Evaluation of Social Policy (CONEVAL, by its acronym in Spanish) were $16,038 and $18,860 per year for 2002 and 2005, respectively. Given the differences in concepts and coverage captured by MxFLS and the National Household Income and Expenditure Survey (which is the survey that CONEVAL uses to estimate poverty in the country), poverty lines were normalized to

75% and 84% of CONEVAL's 2002 and 2005 poverty lines, respectively, so that the poverty estimates could be compared with the official poverty figures estimated by CONEVAL .

Based on these standardized poverty lines, poverty incidence was estimated as shown in Table 1.

TABLE 1. INCIDENCE OF POVERTY IN MEXICO, 2002 AND 2005

Year	Poor	No poor	Total	% Poor	% No poor
2002	3,711	3,673	7,384	50%	50%
2005	3,511	3,873	7,384	48%	52%

Standardized poverty lines: 2002: $ 3,893 / 2005: $ 3,070
Source: Authors' estimates based on 2002 and 2005 MxFLS

Based on the spells approach, Yaqub (2002) defines a household as chronically poor if its income is below the poverty line in each of the waves. Likewise, Hume (2003) also classifies as chronically poor a household whose income is below the poverty line in most periods; while it is considered transiently poor if their income was below the poverty line in any of the years studied.

Under this approach, it is estimated that 1,927 households experienced chronic poverty in the period considered in the surveys, while 3,366 households experienced transient poverty. It can be seen also that 2,090 homes were never poor in the period analyzed.

TABLE 2. TRANSITION MATRIX OF POVERTY IN MEXICO 2002-2005

		2005	
		Poor	Not poor
2002	Poor	1,927	1,783
	Not poor	1,583	2,090

Source: Authors' estimates based on 2002 and 2005 MxFLS

Table 2 shows that 5,293 households are poor in at least one of the periods. Of these, 36% are chronically poor and 64% are transiently poor.

Econometric Model

According to Baulch (2011), the multinomial logistic regression model is the most widely used multivariate approach to study the dynamics of poverty. The content of this section draws extensively in Greene (2003).

The multinomial logistic regression model is defined as follows:

$$Pij = \frac{e^{x_i' \beta_j}}{\sum_{l=1}^{m} e^{x_i' \beta_l}} \qquad \text{j= 1,…, m} \qquad (1)$$

Results 1, 2, 3,..., *m* are supposed for *y* and the explanatory variables are defined as *X*. It is also assumed that there are m = 3 results, which are unordered. This property of the categorical variable *y* is typical of multinomial regressions.

In the multinomial logistic regression model, a set of coefficients β^1, β^2 y β^3 are estimated, corresponding to each result the following probabilities for each case of the value of the dependent variable (poverty status):

$$\Pr(y = 1) = \frac{e^{x\,\beta(1)}}{e^{x\,\beta(1)} + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (2)$$

$$\Pr(y = 2) = \frac{e^{x\,\beta(2)}}{e^{x\,\beta(1)} + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (3)$$

$$\Pr(y = 3) = \frac{e^{x\,\beta(3)}}{e^{x\,\beta(1)} + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (4)$$

This model is indeterminate in the sense that there exists more than one solution for β^1, β^2 and β^3 which lead to the same probability for *y*=1, *y*=2 y *y*=3. If a value of 0 is assigned to β^1, the remaining coefficients β^2 and β^3 will measure the relative change for *y*=1. On the other hand, if β^2=0, the remaining coefficients β^1 and β^3 will measure the relative change for *y* = 2. The coefficients may differ because they have different interpretations, but the odds of *y* = 1, 2 and 3 are the same.

Assuming β^1=0, the equations are as follows:

$$\Pr(y = 1) = \frac{1}{1 + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (5)$$

$$\Pr(y = 2) = \frac{e^{x\,\beta(2)}}{1 + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (6)$$

$$\Pr(y = 3) = \frac{e^{x\,\beta(3)}}{1 + e^{x\,\beta(2)} + e^{x\,\beta(3)}} \qquad (7)$$

The relative probability (relative risk) of y = 2 relative to the base category is:

$$\frac{Pr(y=2)}{Pr(y=1)} = e^{x\,\beta(2)} \qquad (8)$$

Assuming that X and $\beta_k^{(2)}$ are vectors equal to $x_1, x_2, \ldots, x_k$ and $\beta_1^{(2)}, \beta_2^{(2)}, \ldots, \beta_k^{(2)}$ respectively, the relative risk ratio for change of one unit in x_1 is:

$$\frac{e^{\beta_1^{(2)} x_1 + \cdots + \beta_i^2 (xi+1) + \ldots + \beta_k^{(2)} x_k}}{e^{\beta_1^{(2)} x_1 + \cdots + \beta_i^2 xi + \ldots + \beta_k^{(2)} x_k}} = e_i^{\beta(2)} \qquad (9)$$

Then the exponential value of a coefficient is the rate of relative risk explained by the change of one unit over some variable in particular.

According to Cameron and Trivedi (2005), care must be taken in the interpretation of the parameters of any nonlinear model, particularly for multinomial models where there is not necessarily a one to one correspondence between the sign and the probability of the coefficient. A positive coefficient means that if the independent variable increases, the probability of choosing or falling into one of the categories increases.

$$\frac{dp_{ij}}{dx_{rik}} = \begin{cases} p_{ij}(1 - p_{ij})\beta_r & j = k \\ -p_{ij} p_{ik} \beta_r & j \neq k \end{cases} \qquad (10)$$

According to Escobar et al. (2010), the interpretation of the coefficients of the multinomial logistic regression model is not immediate, but we must resort to the transformation of these coefficients in odd ratios or in probabilities. In the case of the multinomial logistic regression model, the interpretation is further complicated by not having a single model, but as many models as the number of categories of the dependent variable minus one.

Econometric Results

In the present study the dependent variable is "poverty status", for which there are 4 possible outcomes. A value of 1 is given when the household was poor in both periods (PP); a value of 2 when the surveyed household was able to escape poverty, i.e. it was poor in 2002 and not poor in 2005 (PN); a value of 3 was given if the household was non-poor in 2002 but fell into poverty in 2005 (NP) and, finally, a value of 4 is assigned to households that were not poor in any of the two periods (NN).

Due to the mentioned limitations of the multinomial logistic regression model, marginal effects were used for a better interpretation of the results. According to Cameron and Trivedi (2005), the marginal effect is the effect caused by a change in one unit of a dependent variable upon the probability of falling into any of the possible outcomes. The authors also mention the need to use a base category, which is the normalized alternative to have coefficients equal to zero.

In order to obtain the marginal effects it is necessary to run a regression model using a base category. In our study results 1 and 4 were the base categories, which represent the chronically poor (PP) and the never poor (NN) households, respectively. Subsequently, the

marginal effects of the four possible outcomes of the dependent variable (PP, NP, NP and NN) were obtained for each of the base categories (PP and NN).

The marginal effects shown in Tables 3 and 4 are estimated assuming certain characteristics of the household that remains poor in both periods (PP, Table 3) and the household which is never poor (NN, Table 4).

TABLE 3. Multinomial Logit Regression Estimates 2002-2005 (BASE PP)

Multinomial Logit Regression Estimates 2002-2005, BASE PP									
	PP		NP		PN		NN		Base
Variable	dp/dx		dp/dx		dp/dx		dp/dx		PP
No instruction	Omitted category								
Pre-school	-0.0035811		0.0229881		0.0027507		-0.0221578		3
Primary school	-0.0807058		-0.040332		0.0703203	*	0.0507174		3
Secondary school	-0.1010864	*	-0.0476817		0.07939	*	0.0693782		3
Distance Secondary School	-0.0877612		-0.0528165		0.0344787		0.1060991	**	3
High School	-0.1751759	***	-0.0745898		0.1039691	**	0.1457966	***	3
Distance High School	-0.0931306		-0.1362388	**	0.1123164	*	0.1170531		3
Teachers College	-0.1961562	***	-0.137388	**	0.1415756	**	0.1919687	***	3
Profesional	-0.1556233	**	-0.1520724	**	0.1091369	**	0.1985588	***	3
Graduate education	-0.2077286	**	-0.1266063		0.1936124	**	0.1407225		3
Does not know	-0.3670431	***	-0.0966485		0.4146795	**	0.0490121		3
Ethnic group	0.0808495	***	0.0265411	*	-0.0389538	**	-0.0684368	***	0
% children	0.069075		0.0322957		-0.0649361	*	-0.0364346		0.5
% older adults	0.179742	***	0.0500216		-0.1030826	***	-0.126681	***	0.25
Household head gender	0.0783514	***	-0.0167772		-0.0096122		-0.0519619	***	0
Household head age	-0.0014802	***	-0.0003808		0.0008903	**	0.0009707	**	45
Electricity	-0.0894595	**	0.0810302	*	0.0204747		-0.0120454		1
Sick days of household head	-0.0006116		-0.0005805		0.0004868		0.0007053	**	6
Household size	0.034675	***	-0.0032834		-0.005642		-0.0257496	***	5
Rural area	0.1077832	***	0.0330349	***	-0.0485497	***	-0.0922684	***	1
Potable water	-0.095629	***	-0.0241382		0.0127248		0.1070425	***	1

*Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Source: Authors' estimates based on 2002 and 2005 MxFLS

The household characteristics assumed in order to estimate the results shown in Table 3 are the median values for the year 2002 of a household whose head finished primary school, is 45 years old, does not belong to an ethnic group, half of the members of his/her household are children and lives in a rural community. Table 4 shows the results assuming that the household head finished secondary school, is 47 years old, does not belong to an ethnic group and lives in an urban area.

TABLE 4. Multinomial Logit Regression Estimates 2002-2005 (BASE NN)

Multinomial Logit Regression Estimates 2002-2005, Base NN									
	PP		NP		PN		NN		Base
Variable	dp/dx		dp/dx		dp/dx		dp/dx		NN
No instruction	Omitted category								
Pre-school	0.0009456		0.0257026		0.0061419		-0.0327902		4
Primary school	-0.0664179		-0.0571618		0.0690733		0.0545064		4
Secondary school	-0.0817375	*	-0.068083		0.0745015		0.075319		4
Distance Secondary School	-0.0748887		-0.0736858		0.0213068		0.1272677	*	4
High School	-0.1328256	***	-0.104985	*	0.0826809		0.1551297		4
Distance High School	-0.0831783		-0.1476499	***	0.1013994		0.1294288		4
Teachers College	-0.1480969	***	-0.1594836	***	0.1101277		0.1974528	**	4
Profesional	-0.1254788	***	-0.168505	***	0.0806679		0.213316	***	4
Graduate education	-0.1530683	**	-0.1497504	*	0.1679083	*	0.1349104		4
Does not know	-0.2361114	***	-0.1347586		0.3719291	*	-0.0010592		4
Ethnic group	0.0579865	***	0.0422561	***	-0.023554		-0.0766887	***	0
% children	0.0488108	*	0.0427748		-0.0596274	*	-0.0319582		0.5
% older adults	0.1268268	***	0.0835612	***	-0.0757725		-0.1346155	***	0.33
Household head gender	0.0527044	***	0.0014042		0.0053983		-0.059507	***	0
Household head age	-0.0010382	***	-0.0006536		0.0006846		0.0010072	*	47
Electricity	-0.052059	**	0.0605217		0.0188346		-0.0272974		1
Sick days of household head	-0.0004734	*	-0.0006784	***	0.0003527		0.0007991	**	7
Household size	0.0237464	***	0.0045973		0.0014118		-0.0297554	***	4
Rural area	0.0772209	***	0.0543128	***	-0.0274496	**	-0.1040841	***	0
Potable water	-0.0697079	***	-0.0458028	***	-0.0143431		0.1298538	***	1

*Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Source: Authors' estimates based on 2002 and 2005 MxFLS

It can be seen in the above tables that the higher the level of education of the household head, the probability of falling into chronic poverty decreases by up to 20 percent. The results show that if the household head finished high school, the probability that the household falls into chronic poverty decreases 13 percent while the likelihood of ever falling into poverty decreases by 15 percent. If the household head finishes university studies the likelihood of falling into poverty decreases by 16 percent. These results coincide with those obtained by Jalan and Ravallion (1998) who found that, for the case of China, chronic and transient poverty decrease with the level of education of the household head. Also, Herrera (2001) found that in Peru, education is a key factor to escape from poverty.

According to the results shown in Tables 3 and 4, belonging to an ethnic group increases the probability of being chronically poor 8 percent while the probability of escaping poverty decreases by 3 percent. Bhatta and Sharma (2006) point out that, historically,

ethnic groups in many countries have suffered economic, social and political discrimination, which has been an important factor for these groups to remain in poverty.

We can see in Tables 3 and 4 that if household size increases by one unit, the probability of falling into chronic poverty increases by 3 percent while the probability of never being poor decreases by 2 percent. These results coincide with the findings of Quispe (2000), who found that the probability of being poor increases with family size. However, he notes that the higher the percentage of household members who are economically active, the lower the probability of falling into poverty. This is consistent with the results obtained in our study, which show that there is a direct relationship between the percentage of older adults and/or children at home and the probability of being poor.

Tables 3 and 4 show that living in a rural area decreases the probability of never falling into poverty by 2.5 percent, while the probability of being chronically poor increases by 3 percent. Also, having potable water and electricity in the home has an inverse relationship with chronic poverty. These results agree with those obtained by Baulch and Hoddinott (2000) for the case of Vietnam, who point out that the lack of electricity and running water at home decreases the probability of getting out of poverty or never being poor, and increases the probability of remaining in poverty.

Tables 3 and 4 indicate that if the household is headed by a woman the probability of the household being chronically poor increases, while the probability of never being poor decreases. In this respect, Geldstein (1997) notes that the main differences between poor households headed by women and those headed by men are the low income-generating capacity of the mother and the lack of economic support from the father. He points out that when the household head is female, she is often the only person perceiving income among the household members. On the other hand, when the household head is male it is usually the case that the household receives income from him but also from his wife.

Conclusions

In the present study, a multinomial logistic regression analysis of the dynamics of poverty in Mexico was developed. Based on the spells approach to chronic poverty, a transition matrix was estimated, revealing that, out of a sample of 7,383 households, 1,927 households were chronically poor, 3,366 were transiently poor and 2,090 households were never poor. Thus, it was estimated that 5,293 households were poor in at least one of the years of the study period, of which 36% were chronically poor and 64% were transiently poor.

A multinomial logistic regression analysis was conducted to investigate the effect of various socioeconomic and demographic variables upon the dynamics of household poverty. The model showed, among other things, that having a female household head is positively associated with the likelihood of falling into chronic poverty, and inversely related to the probability that the household is never poor. It was also found that the greater

the level of education of the head of household the lower the probability of falling into poverty, and the greater the probability that the household can get out of poverty.

Another important finding is that belonging to an ethnic group increases the probability of falling into poverty. Similarly, an increase in the number of household members makes it harder for poor households work their way out of poverty. It was found that in general, the results obtained in this study were similar to the results obtained by other authors for other countries and they were similar to the results obtained in other studies about poverty dynamics for the case of Mexico (Garza-Rodriguez et .al, 2010 and Leon (2005)), even though these last studies used different methodologies.

There are several important policy implications which may be drawn from the results obtained in this study. First, the government should take into account the large magnitude of chronic poverty prevailing in the country, as this type of poverty can arguably be more damaging than transient poverty in the long run. Second, the government body in charge of measuring poverty in Mexico (CONEVAL), should consider start measuring chronic and transient poverty in the country. Second, the variables identified in this paper as more important possible causes or correlates of chronic poverty should be taken into account by the government in its design and implementation of public policies to alleviate poverty in the country.

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