

# Income in Mexico and evolution of poverty: Notes on the new ENIGH 2016

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- **Appropriate the development of the Statistical Model to ensure historical comparability**
- **The new ENIGH shows a decline in both poverty and extreme poverty compared to the year 2014**
- **The figures, however, show that the country still faces important challenges in this area, since 43.6% and 7.6% of the population are in poverty and extreme poverty respectively**
- **Extreme poverty is concentrated in four states in the country: Chiapas, Oaxaca, Guerrero and Veracruz**

Last week, the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) released the results of the National Household Income and Expenditure Survey (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH) 2016. The ENIGH is one of the most important continuous household surveys, first conducted in 1984 and its main objective is to provide an overview of the income situation (monetary and non-monetary) and household expenditure in Mexico.

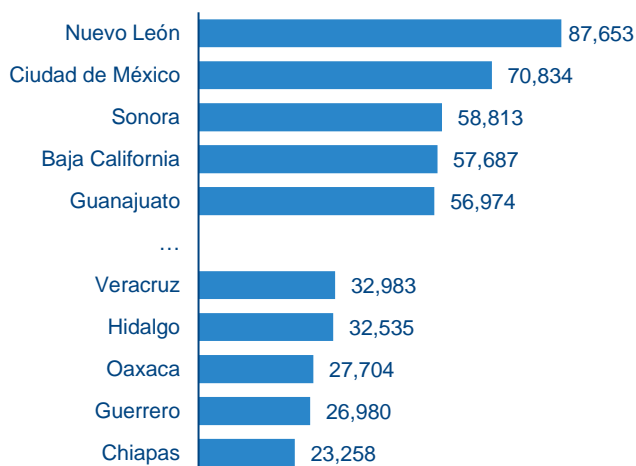
The ENIGH is one of the most awaited surveys in 2017 not only because of its importance as a source of information but also because of the observations made by the National Council for the Evaluation of Social Development Policy (Consejo Nacional de Evaluación de la Política de Desarrollo Social, CONEVAL) regarding the operational changes of that survey, noting that the collection of income data implemented since 2015 did not allow the historical comparability of these variables or estimate the poverty measures. Thus, INEGI and CONEVAL held working meetings so that the new ENIGH 2016 would have historical comparability. The lack of comparability of the Socioeconomic Conditions Module of the ENIGH in 2015 was a considerable limitation that it was essential to remedy.

## Income by state and area

The 2016 edition was designed with one of the largest samples among ENIGHs, with about 81,500 dwellings. The previous editions had sample sizes ranging from 10,000 to 35,000 dwellings, and were complemented by a parallel field survey: the Socioeconomic Conditions Module (MCS). The latter had a representation by state and by rural and urban area. CONEVAL used it as an input to estimate multidimensional poverty on a biennial basis. The ENIGH 2016 was designed to cover the necessary reagents of the MCS and to have representativeness by state and by rural and urban area, which meant that in this edition it was not necessary to have the MCS as a separate product.

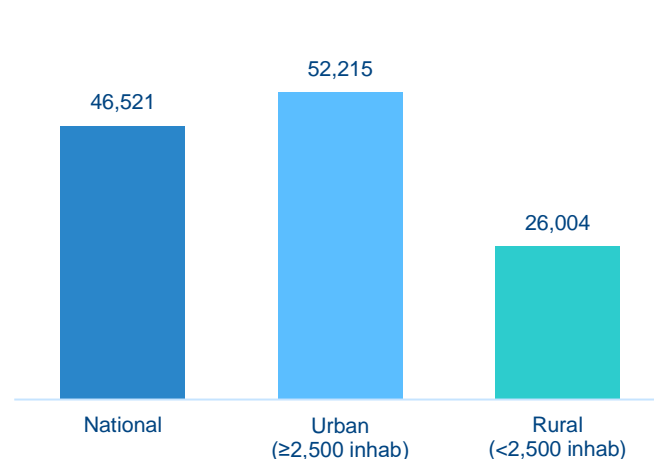
According to ENIGH, the average income of households in Mexico was 46,521 pesos per quarter in 2016. Households in the urban area had an average income more than double that of the rural area (52,215 pesos and 26,004 pesos, respectively). Similarly, there is a significant gap between the average income per state. Households in Nuevo León recorded the highest average income with 87,653 pesos per quarter, followed by Ciudad de México with 70,834 pesos. The states with the lowest average income per household were Chiapas, Guerrero and Oaxaca, with 23,258, 26,980 and 27,704 pesos, respectively.

**Figure 1.** Quarterly income per household by state, 2016 (Pesos)



Source: BBVA Research based on INEGI, Presentation of ENIGH 2016 results. Five states with highest income and five with lowest.

**Figure 2.** Quarterly income by household by area, 2016 (Pesos)



Source: BBVA Research based on INEGI figures, Presentation of ENIGH 2016 results.

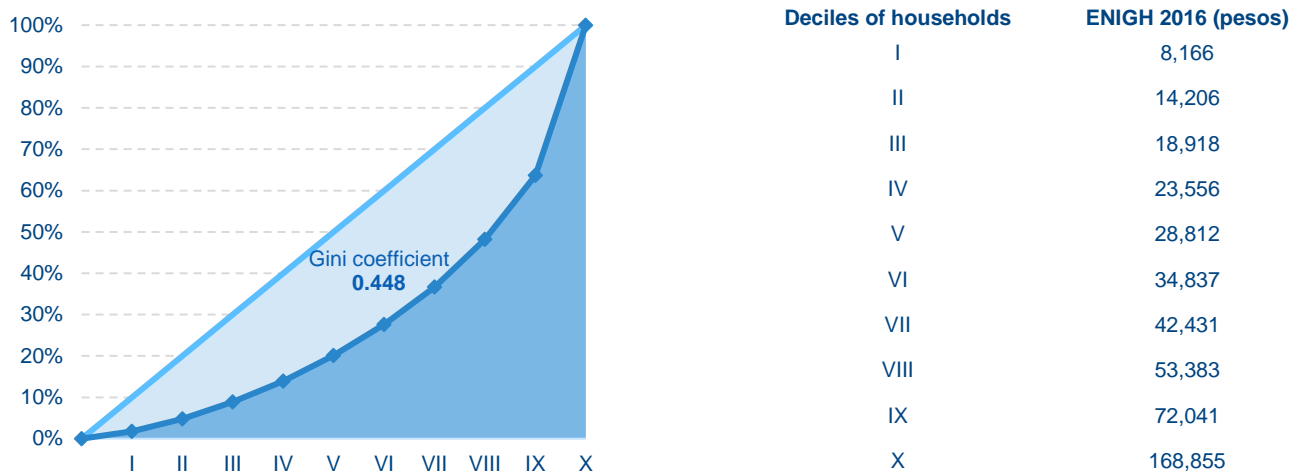
### Income per decile and Gini coefficient

The ENIGH 2016 is a representative survey at national level that, among other things, allows us to have microdata to estimate household income in Mexico. From this information, households can be divided into ten groups according to their level of income, i.e. deciles, to ascertain the national distribution of income among households that perceive this flow. The households of the lowest decile, the 1st decile, on average receive a current income of 8,166 pesos per quarter; while a household in the highest decile, the 10th decile, has an income of 168,855 pesos per quarter.

In the results published by INEGI, 30% of households with lower incomes (1st, 2nd and 3rd deciles) participate with only 9% of total current income, while 10% of households with higher incomes (10th decile) participate with 36.3% of total current income. In 2016, the Gini coefficient<sup>1</sup>, which is used to measure income inequality among households in Mexico, was 0.448, while its value in 2014 was 0.438.

<sup>1</sup> The Gini coefficient is equal to the proportion of the area between the Lorenz Curve (cumulative variable) and the equitable distribution line, the closer it is to one the higher the concentration it indicates; while the closer the value is to zero, the lower the concentration.

**Figure 3.** Quarterly average current income by deciles for households in Mexico and Gini coefficient, 2016 (Pesos 2016)



Source: BBVA Research based on INEGI figures, Presentation of ENIGH 2016 results.

### The Statistical Model: the input for historical compatibility for the measurement of poverty

The INEGI explicitly states that the new ENIGH series of 2016 is not comparable with the income data from previous editions of the survey due to operational improvements in the collection of information. Thus, to make the information comparable with the previous sections of the Sociodemographic Conditions Module (MCS), INEGI also presented the results of the “2016 Statistical Model for the continuity of ENIGH-MCS” with the sole purpose of serving as an input for the poverty measurements in the CONEVAL, and so that comparisons could be made with previous surveys.

In order to make ENIGH 2016 historically comparable, the Statistical Model took information from the National Survey of Occupation and Employment (ENOE) in 2014 and 2016, and through the procedure called “Restricted Maximum Pseudo-Likelihood” in the first instance adjusted the labour income of the ENIGH 2016 using a Generalised Beta Type 2 density function (GB2). In the second instance, the non-labour income was adjusted and the process for each of the samples was replicated by state.

We believe that this joint work between the two institutions is fortunate because it was indispensable for CONEVAL to be able to generate the indicators of poverty measurement for Mexico comparable to previous periods, and thus to ascertain the evolution of this variable. In addition, we believe that it would be of great value for CONEVAL to express a position on this methodology, which would contribute to greater certainty about the estimated poverty outcomes.

Although not explicitly stated by INEGI, 2016 is likely to be the only year in which the Statistical Model for the ENIGH is published. Possibly, for subsequent years, both the CONEVAL and the rest of the public users of the survey will have to work with the new series and make adjustment model on their own corresponding to the results prior to 2016 in order to

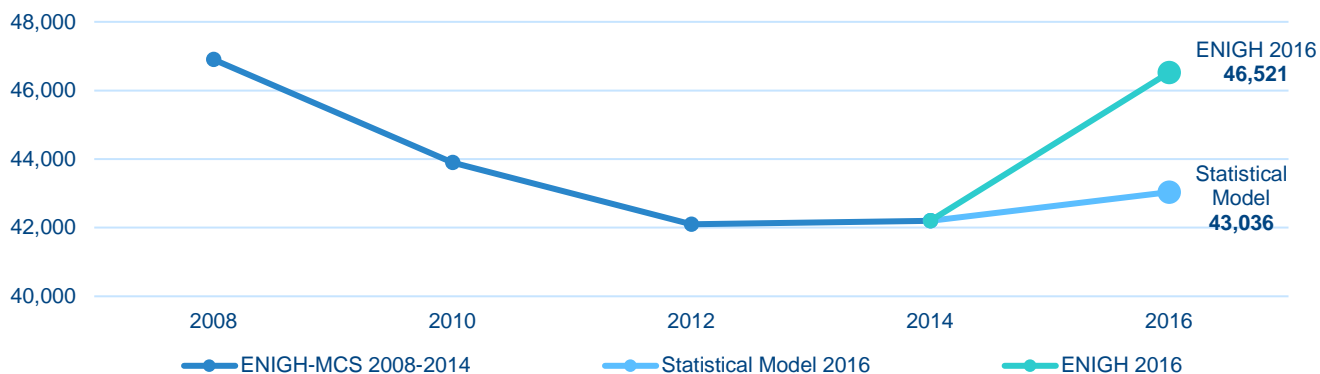
have historical comparability. This means that within two years, when the next survey is published, many of the pre-2016 indicator measurements will have to be adjusted to the new series, including current estimates of poverty. It would be desirable for INEGI to publish the Statistical Model in at least some subsequent surveys.

**Operational improvements in ENIGH increase current revenue collection by 8.1%**

One question about the operational improvements implemented in ENIGH 2016 is to know how much it improves the collection of the income of households. There was, in our view, ample evidence suggesting that the income estimated by the ENIGH was underestimated. For example, it was much lower than the income implied in national accounts. According to INEGI, considering the new series of the ENIGH 2016, the average current income of households in Mexico was 46,521 pesos per quarter, while with the estimate derived from the Statistical Model, which makes the series historically comparable, the income was 43,036 pesos. This suggests that the operational improvement increased the current income by 8.1%, although this variable is still highly underestimated.

With the information from the Statistical Model, it can be estimated that the increase in the current income of households in Mexico between 2014 and 2016 was 2% in real terms. It can also be noted that the average current income of Mexican households from 2012 to 2016 was lower, in real terms, than between 2008 and 2010.

**Figure 4.** Quarterly average current income per household, 2008-2016 (Constant 2016 pesos)



Source: BBVA Research based on INEGI figures, Presentation of ENIGH 2016 results.

**Under-declaration in current income**

INEGI points out that the underreporting of current income in self-declaration questionnaires is a problem that is presented at international level among the institutions responsible for collecting statistical information. In the case of Mexico, INEGI estimates that the national total current income from ENIGH should be multiplied by the factor 2.5 to be similar to the estimates by national accounts. In the lowest income deciles, the underreporting may be due to the fact that families report a lower income in order not to lose the support of the social programmes coming from the different levels of government, whereas in the higher deciles the reason for the underreporting may be related to security issues and tax matters.

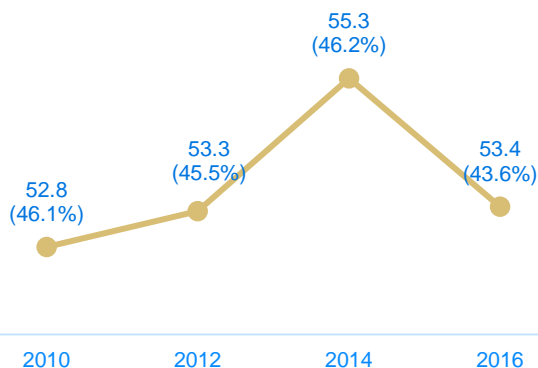
According to INEGI, the understatement in the lowest deciles could be greater than 20% of the monetary income; while among the highest deciles this could be 200%, 300% or much higher.

### Evolution of poverty 2010-2016 by CONEVAL

Based on information from the microdata from the ENIGH 2016 Statistical Model, CONEVAL made the estimates for measuring poverty in Mexico for 2016 and analysing its evolution with respect to previous years. It was found that 53.4 million people were living in poverty in 2016 in Mexico, or 43.6% of the total population; while for 2014, this figure was 55.3 million with a rate of 46.2%. Thus, between these two years, the number of poor people in Mexico decreased by 1.9 million and the poverty rate decreased by 2.6 percentage points.

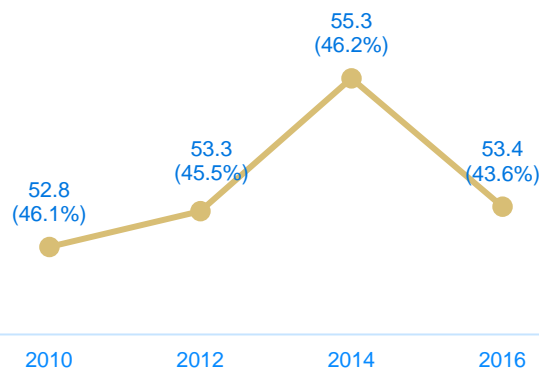
Regarding the indicator of extreme poverty, CONEVAL estimated that in 2016 about 9.4 million Mexicans were in this situation (7.6% of the population); this figure was lower than the estimate of 2014, which indicated that 11.4 million people were in extreme poverty with a national rate of 9.5%. These figures indicate that 2.1 million Mexicans moved out of extreme poverty between 2014-2016, equivalent to a reduction of 1.9 percentage points in the nationwide rate.

**Figure 5.** Population in poverty, 2010-2016  
(Millions of people and % of the total population)



Source: BBVA Research from estimates of CONEVAL of ENIGH-MCS 2010-2014 and Statistical Model ENIGH 2016.

**Figure 6.** Population in extreme poverty, 2010-2016  
(Millions of people and % of the total population)



Source: BBVA Research from estimates of CONEVAL of ENIGH-MCS 2010-2014 and Statistical Model ENIGH 2016.

When analysing the data by state, Chiapas (28.1%), Oaxaca (26.9%), Guerrero (23.0%) and Veracruz (16.4%) were the states with the highest percentages of extreme poverty in 2016, a situation which has been maintained for at least the last six years. Between 2014 and 2016, the greatest improvements in the reduction of extreme poverty occurred in: Baja California, Baja California Sur, Coahuila and Nuevo León. As can be seen in Table 1, the phenomenon of extreme poverty is very focused on a few states in the country.

**Table 1.** Population in extreme poverty by state, 2016  
(Thousands of people and % of the total population)

State	Thousands of people	% of population	State	Thousands of people	% of population	State	Thousands of people	% of population
Chiapas	1,499	28.1%	Campeche	62	6.7%	Tamaulipas	104	2.9%
Oaxaca	1,087	26.9%	Mexico	1,057	6.1%	Durango	50	2.8%
Guerrero	825	23.0%	Yucatán	132	6.1%	Colima	19	2.6%
Veracruz	1,333	16.4%	Morelos	115	5.9%	Sonora	75	2.5%
Tabasco	284	11.8%	Tlaxcala	75	5.7%	Aguascalientes	30	2.3%
Michoacán	435	9.4%	Guanajuato	258	4.4%	Jalisco	145	1.8%
Puebla	562	9.0%	Quintana Roo	69	4.2%	Mexico City	155	1.8%
Hidalgo	234	8.0%	Zacatecas	56	3.5%	Coahuila	50	1.7%
Nayarit	99	7.9%	Chihuahua	121	3.2%	Baja California Sur	13	1.6%
San Luis Potosí	214	7.7%	Querétaro	60	2.9%	Baja California	40	1.1%
<b>NATIONAL</b>	<b>9,376</b>	<b>7.6%</b>	Sinaloa	87	2.9%	Nuevo León	31	0.6%

Source: BBVA Research from estimates of CONEVAL of Statistical Model ENIGH 2016.

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