

A METHODOLOGICAL NOTE ON THE MEASUREMENT OF LABOR INCOME IN MEXICO*

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Resumen: Se presenta una medida homogénea del ingreso laboral, que es comparable para todos los años. Los conceptos dentro de la definición de ingreso laboral han cambiado a través del tiempo, por lo que es necesario un ajuste. Para medir desigualdad es importante no incluir aguinaldo, ni reparto de utilidades en la definición de ingreso laboral. Bajo esta definición homologada de ingreso laboral encontramos que la tendencia de la desigualdad es robusta al grupo de edad analizado y si la medida es del mes pasado o trimestral normalizada. Para la medida del mes pasado se encuentra un aumento en la desigualdad hasta 1994, después una caída hasta 2008 y posteriormente la desigualdad se mantiene relativamente constante para el periodo 2008-2012.

Abstract: In this methodological note we present a homogeneous measurement of labor income that is comparable over all years. Because the categories included in the definition of labor income have changed over time, an adjustment is necessary. In the measurement of inequality it is important not to include the year-end bonus (aguinaldo) or profit sharing (*reparto de utilidades*) as labor income. Under this adjusted definition, we find an inequality trend for the age group analyzed that is robust, regardless of whether the measurement is for the prior month or a normalized three-month period. For the prior month measurement, an increase in inequality is found until 1994, followed by a decrease until 2008. In the period 2008-2012, inequality remained relatively constant.

Clasificación JEL/JEL Classification: C81, D30, J31, O54

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1. Introduction

The Household Income and Expenditure Survey (*Encuesta de ingreso y gasto de los hogares*, ENIGH), carried out by INEGI (National Institute of Statistics and Geography), has among its objectives the collection of data regarding the income received by Mexican households and the amount each household spends. The classification of income and expenditures recorded in this survey have remained largely unchanged since the early 1990s, notwithstanding changes in the categories underlying them.¹

In this methodological note we present a homogeneous measurement of labor income that is comparable for all years. In order to render such income comparable for each of the years under discussion, we identify here the categories included and those that should be excluded. We also identify the change implied by this definition in the evaluation of labor income inequality in these years. We conclude the following: 1) Our findings for the average labor income trend are similar to those of the summary table in the ENIGH; 2) As the categories underlying the definition of labor income have changed over time, an adjustment is necessary; 3) In the measurement of inequality it is important not to include the year-end bonus (*aguinaldo*) or profit sharing (*reparto de utilidades*) in the definition of labor income. Under this adjusted definition, we find an inequality trend for the age group analyzed that is robust, regardless of whether the measurement is for the prior month or a normalized three-month period. For the prior month measurement, an increase in inequality is found until 1994, followed by a decrease until 2008. In the period 2008-2012, inequality remained relatively constant.

The definition of labor income is important: we have observed discrepancies in the behavior of income inequality in recent years, depending on the definition used. For example, the income inequality behavior found in Campos, Esquivel, and Lustig (2012) differs slightly from those presented in Esquivel (2011) and Esquivel, Lustig, and Scott (2010). The differences in these studies arise from the fact that Campos, Esquivel, and Lustig (2012) use a homogeneous

¹ The categories included in income are: remuneration for labor, business income, rental of property, transfers, and other income. In 1994, the category of income from cooperatives was added, although these amounts were shown under the category of remuneration for labor. The categories of income from corporations (*sociedades*) and businesses that functioned as corporations were added in 2002. In 2008, the categories referring to labor were separated into principal and secondary employment.

measurement of labor income, while the other two use labor income calculated in the summary table compiled by the INEGI.

Given the absence in the literature of a standardized definition of labor income, the most common approach is to use the INEGI figures. For example, López-Acevedo and Salinas (2000) use total household income reported by INEGI in the ENIGH summary. Borraz and López-Córdova (2007) use total income and current monetary income, both per capita and per household. Michel and Cortez (2010) use total household income, weighted by the number of adults and children in the ENIGH household, from 1984 to 2008. The objective of these studies is to measure the distribution of household income. However, they do not take into account changes in the categories included in income across the years studied.²

2. Description of labor income

In the application of the ENIGH survey, individuals were questioned about income and expenses during the six months immediately preceding the interview. In addition to these data, INEGI reports a normalized three-month measurement generated from the previous six months' data. In labor economics it is customary to use labor income from the month prior to interview.

Among the ENIGH microdata provided by INEGI is a database called the survey summary. This summary includes information aggregated by household for different income types, including labor income, whose various forms are known. All of the aggregated income figures are generated from the normalized three-month measurement. For this reason we compare prior-month labor income (customarily used in labor economics) with the normalized three-month figures (provided by INEGI).

Table 1 shows the categories included by INEGI under remuneration for labor. As can be seen, the categories included are not homogeneous over time. One clear example is the case of salary credits. This category appears only in the 1998 and 2000 surveys and is included as part of labor income in the ENIGH for those years. We describe below the categories we consider in order to generate a homogeneous definition of labor income.

² There are examples in the literature of efforts to standardize the definition of labor income over time. See Brambila and Urzúa (2010), Campos (2013), and Carrillo and Vázquez (2005). However, it is not clear in these studies exactly which definitions (labor income codes) are used.

In the 1990s there were no significant changes to the categories considered in the ENIGH survey. However, in 2002, the categories of income from corporations (*sociedades*) and income from businesses that function as corporations appeared for the first time. Beginning in that year, salaries and wages from these categories were included as part of labor income, and in 2004 income from these categories in the form of piecework, commissions, tips, overtime, year-end bonuses, incentives, other bonuses, rewards or prizes, extra pay, vacation bonus, and profit sharing was included. In order to standardize our definition, we include only labor income in the form of salaries and wages from these categories.

In 2006, all of the categories under businesses that function as corporations were removed from the ENIGH; for purposes of standardization we thus eliminated the inclusion of salaries and wages under that heading from that year onwards. In 2008 we found an additional change: income from cooperatives, corporations, and businesses that function as corporations was incorporated into a single category. We thus added salaries and wages from all years to the category of income from cooperatives. In addition, for the years 2008, 2010, and 2012, we assumed that the reference to secondary employment was merely an additional breakdown and that in previous years it had been included in the main categories.³ These changes are not substantial for our definition: for the years in which figures were available, households reporting income from commissions and tips, piecework, overtime, year-end bonuses, incentives, other bonuses, and profit sharing under the categories of income from corporations and businesses acting as corporations did not exceed 0.01% of the total.

However, in 2008, 2010, and 2012, there was a significant change in the reporting of two forms of income: a change in questions about the year-end bonus and profit sharing. Beginning in 2008, interviewees were asked about these income sources in the past year, while previous surveys had asked about the past month. We thus decided to analyze two standardized measurements of income, one including the year-end bonus and the other excluding it.⁴ Table 2 shows the labor income codes we included in the standardized definition. In general, we recommend use of our standardized definition of labor income, which does not include the year-end bonus or profit sharing.

³ In the 2012 survey, the category of income from cooperatives, corporations, and businesses that function as corporations is included only for secondary employment; this category is included in our definition of labor income.

⁴ Both definitions exclude profit sharing.

Table 1
Labor Income Codes in the ENIGH

	1992	1994	1996	1998	2000	2002	2004	2005	2006	2008	2010	2012
<i>Net income from remuneration for labor, salary and wages, principal employment, subordinate workers</i>												
Salary, wages, day wages, and overtime	P001	P001	P001	P001, P004	P001, P004	P001, P004	P001, P004	P001, P004	P001, P004	P001, P004	P001, P004	P001, P004
Commissions, tips, and piece-work	P002	P002	P002	P002, P003	P002, P003	P002, P003	P002, P003	P002, P003	P002, P003	P002, P003	P002, P003	P002, P003
Year-end bonus						P005	P005	P005	P005			
Year-end bonus, rewards, and prizes	P003	P003	P003									
Year-end bonus, other bonuses, extra pay				P007	P007							
Year-end bonus, extra pay						P007	P007	P007	P007	P006	P006	P006
Incentives, rewards, and prizes				P006	P006	P006	P006	P006	P006	P005	P005	P005
Vacation bonus and other payments in cash	P004	P004	P004	P008	P008	P008	P008	P008	P008	P007	P007	P007
Profit sharing	P005	P005	P005	P009	P009	P009	P009	P009	P009	P008	P008	P008
Salary credits				P005	P005							
<i>Principal employment income from cooperatives, corporations, and businesses that function as corporations</i>												
Salary and wages										P011	P011	

Table 1
(continued)

	1992	1994	1996	1998	2000	2002	2004	2005	2006	2008	2010	2012
Other income										P013	P013	
<i>Principal employment income from home businesses</i>												
Salary and wages											P011	
Other income											P013	
<i>Income from corporations</i>												
Salary, wages, and day wages						P020	P019	P019	P019			
Piecework						P020	P020	P020				
Commissions and tips						P021	P021	P021				
Overtime						P022	P022	P022				
Year-end bonus						P023	P023	P023				
Incentives, rewards, and prizes						P024	P024	P024				
Bonuses and extra pay						P025	P025	P025				
Vacation bonus and other payments in cash						P026	P026	P026				
Profit sharing						P027	P027	P027				
<i>Income from businesses that function as corporations</i>												
Salary, wages, and day wages						P022	P029	P029				

Table 1
(continued)

	1992	1994	1996	1998	2000	2002	2004	2005	2006	2008	2010	2012	
Piecework							P030	P030					
Commissions and tips							P031	P031					
Overtime							P032	P032					
Year-end bonus							P033	P033					
Incentives, rewards, and prizes							P034	P034					
Bonuses and extra pay							P035	P035					
Vacation bonus and other payments in cash							P036	P036					
Profit sharing							P037	P037					
<i>Secondary employment income from cooperatives, corporations, and businesses that function as corporations</i>													
Salary and wages										P015	P018	P018	
Other income										P017	P020	P020	
<i>Secondary employment monetary income for subordinate workers</i>													
Total monetary income										P018			
Amount received from secondary employment												P014	P014
Prior-year profit sharing												P015	P015

Table 1
(continued)

	1992	1994	1996	1998	2000	2002	2004	2005	2006	2008	2010	2012
<i>Income from labor of persons under 12 years of age</i>												
Income from labor of persons under 12 years of age										P063	P067	P067

Note: Authors' analysis from the description included in each ENIGH survey.

Table 2
(continued)

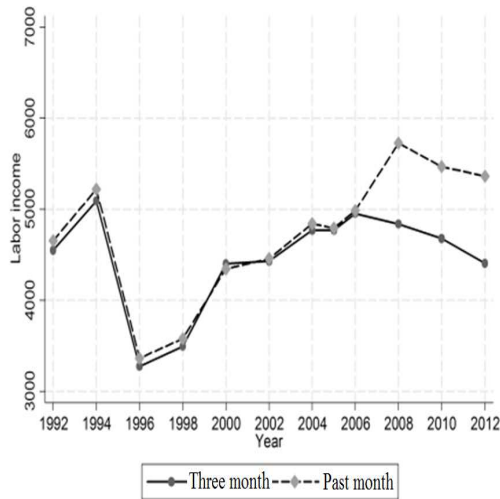
	1992	1994	1996	1998	2000	2002	2004	2005	2006	2008	2010	2012
<i>Principal employment income from cooperatives, corporations, and businesses that function as corporations</i>												
Salary and wages										P011	P011	
<i>Net income from cooperatives</i>												
Salary and wages		P014	P014	P018	P018	P018	P017	P017	P017			
<i>Income from corporations</i>												
Salary, wages, and day wages						P020	P019	P019	P019			
<i>Income from businesses that function as corporations</i>												
Salary, wages, and day wages						P022	P029	P029	P029			
<i>Secondary employment income from cooperatives, corporations, and businesses that function as corporations</i>												
Salary and wages										P015	P018	P018
<i>Secondary employment monetary income for subordinate workers</i>												
Total monetary income										P018		
Amount received from secondary employment											P014	P014
<i>Monetary income from other employment in the past month</i>												
Total income										P020	P021	P021

Note: Authors' analysis from the description included in each ENIGH survey.

Henceforth, we will call the definition of labor income in the summary table of the ENIGH survey the ENIGH Definition. Definition 1 refers to our standardized definition including the year-end bonus, and Definition 2 or Standardized Definition refers to that excluding the year-end bonus. In Figure 1 we show average labor income according to each of these definitions, using both the normalized three-month and past-month measurements.

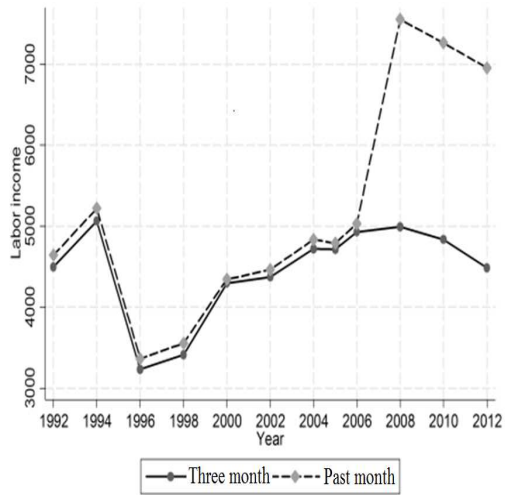
The ENIGH Definition shows differences in the last three surveys between the normalized three-month and past-month measurements due to the effect of profit sharing.⁵ A similar effect can be noted in our Definition 1: the inclusion of the year-end bonus generates a strong bias in past-month labor income for the years 2008, 2010, and 2012, owing to the change in survey questions about these income sources. However, with Definition 2, our standardized definition that excludes the year-end bonus and profit sharing, the normalized three-month and past-month measurements are similar.

Figure 1
Average Labor Income by Definition
ENIGH Definition

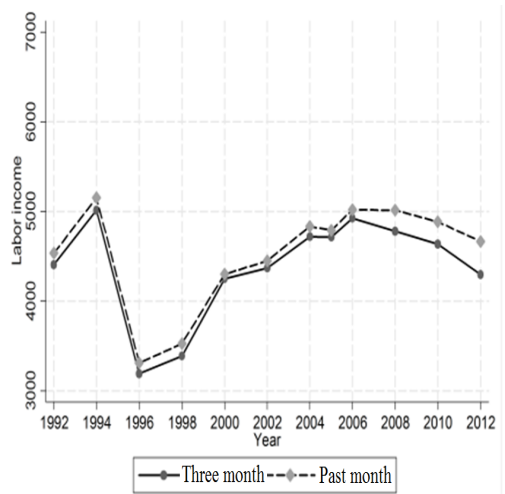


⁵ In all years, the INEGI surveys include profit sharing under the category of remuneration for labor in the definition of labor income. The year-end bonus is eliminated from this definition in 2008, 2010, and 2012.

Figure 1
(continued)
Definition 1



Definition 2

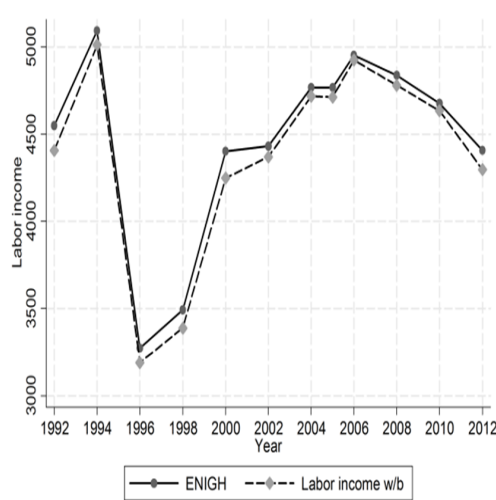


Notes: Authors' calculation. Sample of individuals aged 18 to 65 years. Monthly income in December 2012 pesos. "Three-month" corresponds to normalized three-

month measurement. “Past month” corresponds to income reported for the month preceding survey date. ENIGH Definition is remuneration of labor under the definition given in the summary table for the survey. Definition 1 is labor income standardized over time, including year-end bonus; Definition 2 is labor income excluding year-end bonus.

Figure 2 shows three-month average labor income, using both our standardized Definition 2 and the ENIGH Definition. On average, both of the three-month normalized definitions show similar trends. The same is not true, however, for the past-month measurement, which shows a difference caused by the inclusion of profit sharing in the category of remuneration of labor. For this reason, care is crucial in the definition of labor income, given that in labor economics the measurement of interest is labor income in the past month.

Figure 2
Average Labor Income

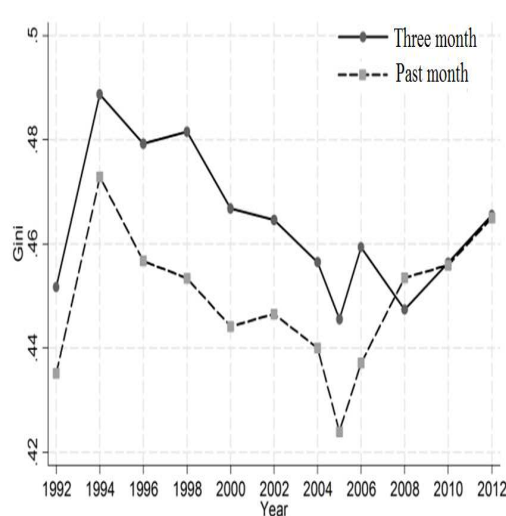


Note: Authors’ calculation. Monthly income in December 2012 pesos. ENIGH corresponds to income under the definition given in the summary table for the survey. “Labor income w/o bonus” corresponds to the definition standardized over time, excluding year-end bonus. A normalized three-month measurement was used in the construction of both definitions.

For example, Figure 3 shows that inequality (measured by the Gini coefficient) in the ENIGH Definition is sensitive to presentation in

the normalized three-month versus the past-month form. The most striking change is observed in 2006-2008, when the two measurements show different trends, owing to the effect of profit sharing. Figure 4, however, shows that our standardized Definition 2 indicates similar inequality trends for both the three-month and the past-month measurements, whether for individuals aged 18-65 or 25-65.⁶ For these reasons, we recommend using a standardized definition that does not include year-end bonuses or profit sharing.

Figure 3
Individual Gini Coefficient Using the ENIGH Definition

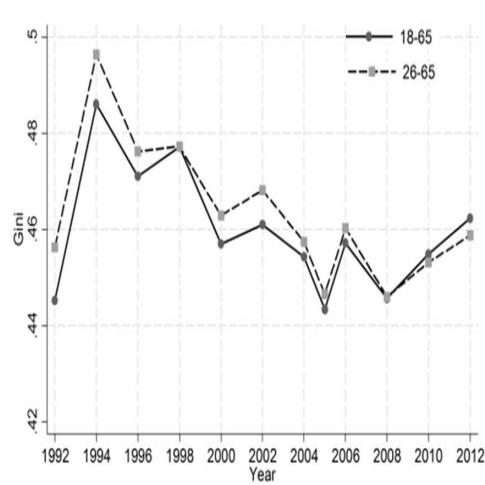


Notes: Authors' calculation. Monthly labor income in December 2012 *pesos*. Sample limited to individuals aged 18 to 65 years. Individuals with zero labor income were excluded. "Three-month" corresponds to income using the normalized three-month measurement. "Past month" corresponds to income reported in the month prior to survey date. ENIGH Definition corresponds to income using the definition in the summary table of the survey.

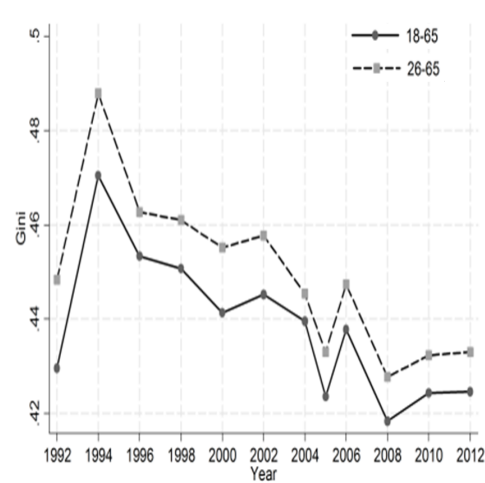
⁶ In results not shown here, it was observed that the inequality trend is similar using the Theil coefficient (with the standardized definition). Likewise, the calculations were performed with both household and per capita labor income and the trends were similar.

Figure 4
Individual Inequality Using Labor Income
Excluding Year-end Bonus (Definition 2)

A. Three-month



B. Past month



Notes: Authors' calculations. Income in December 2012 pesos. Gini coefficient excluding individuals with zero labor income. Panel A corresponds to income based on

normalized three-month measurement. Panel B corresponds to income reported in the month prior to survey date. 18-65 corresponds to sample limited to individuals aged 18-65 years; 26-65 corresponds to that limited to individuals aged 26-65 years.

3. Conclusions

In this methodological note we present a homogeneous measurement of labor income that is comparable for all years. We conclude the following: 1) The average labor income trend is similar to that of the ENIGH summary table; 2) The categories within the definition of labor income have changed over the years, making an adjustment necessary; 3) It is important not to include the year-end bonus (*aguinaldo*) or profit sharing (*reparto de utilidades*) in the definition of labor income for the measurement of inequality. Under such an adjusted definition, regardless of whether the measurement is for the prior month or a normalized three-month period, there is a robust inequality trend for the age group analyzed. For the past-month measurement, an increase in inequality is found until 1994, followed by a decrease until 2008. In the period 2008-2012, inequality was relatively constant.

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