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# Measuring income poverty at the state level using Stata

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In order to estimate the incidence of poverty at the state level the official methodology applies national consumer price indexes.

As a consequence, there are only two food basket reference-values for the 31 Mexican states and the federal district: one for rural settings and one for urban settings.

Using local consumer price indexes, our initial goals are to:

- 1) re-estimate the per-capita income at the state level, and
- 2) propose food poverty lines at the state level.

A note: There are households close to the limit of the thresholds, so a small change in income for one of these could easily change their status from non-poor to poor, and vice-versa.



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Our key assumption is straightforward: consumer price indexes at the city level more accurately describe the actual price level encountered by in-state consumers than the national consumer price indexes.

With some irony, it is worth remembering the following three points (Guerrero, 2010):

- 1) The Consumer Price Index (CPI) is a Laspeyres index which uses a plutocratic aggregate method. The Mexican CPI is not an exception.



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2) The Mexican CPI is an urban index (i.e., cities with more than 20,000 inhabitants). For the North America region, the Canadian CPI is the only one that includes families living in urban and rural private households.

3) Areas covered by the income and expenditure survey (ENIGH) are classified as populations “less than 2,500,” “from 2,500 to 14,999,” “from 15,000 to 99,999,” and “more than 100,000.” Only the first one is labeled as rural by the Mexican Statistical Institute. In other words, the Mexican CPI classification is not at all consistent, in statistical terms, with the classifications of ENIGH.



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If our assumption makes sense, then it is convenient to note the following:

- 1) Alternative incidences of poverty measures at the state level, not only in terms of food poverty (L1) but also in terms of capabilities poverty (L2) and assets poverty (L3), will be proposed. This is because L2 and L3 are based on L1.
- 2) The national measurements of poverty will be affected, because we are dealing with aggregated magnitudes.
- 3) Our approach is far from ideal. The ideal approach would require price indexes representative at state levels for both rural and urban settings.



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CONEVAL, an autonomous public institution dedicated to evaluating social programs, has calculated the incidence of state poverty using two approaches:

- 1) The first one is based exclusively on ENIGH's approach. This case only applies for the states that in some years were counted with a larger sample of households in the surveys. We will call this approach a direct method.
- 2) The second one, which uses the methodology proposed by Elbers, Lanjow and Lanjow (2003), is based on ENIGH surveys, the XII Population Census, and the II Population Count.

Our interest is limited only to the first approach.



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The states that in some years were counted with a larger sample of households in the survey are the following:

2000	2004	2005	2006	2008
Veracruz	Federal District	Puebla	Guanajuato	Federal District
	Nuevo Leon	Sonora	Veracruz	Mexico State
		Tabasco		Guanajuato
		Veracruz		Jalisco
				Queretaro
				Sonora
				Yucatan



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<b>FEDERAL DISTRICT (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$680	\$1,057	\$1,539	\$736	\$1,126	\$1,644

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$1,016	\$752





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<b>FEDERAL DISTRICT (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
6.98%	12.35%	32.14%	8.52%	14.33%	35.86%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
614,033	1,086,679	2,828,379	749,296	1,260,559	3,155,454



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<b>MEXICO STATE (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$621	\$1,000	\$1,386	\$565	\$945	\$1,300

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$885	\$660



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<b>MEXICO STATE (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
14.91%	23.12%	48.56%	12.28%	19.96%	44.58%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
2,185,799	3,388,057	7,117,187	1,799,809	2,925,766	6,533,742



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<b>GUANAJUATO (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$578	\$936	\$1,361	\$506	\$799	\$1,199

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$831	\$619



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<b>GUANAJUATO (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
17.38%	24.66%	51.92%	12.46%	19.12%	43.84%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
872,953	1,238,733	2,608,363	626,101	960,678	2,202,488



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<b>JALISCO (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$628	\$992	\$1,404	\$630	\$994	\$1,409

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$954	\$708



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<b>JALISCO (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
13.08%	18.33%	40.99%	13.12%	18.38%	41.19%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
910,624	1,276,455	2,854,651	914,014	1,279,879	2,868,333



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<b>QUERETARO (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$540	\$882	\$1,311	\$520	\$877	\$1,291

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$935	\$698





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<b>QUERETARO (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
9.82%	15.53%	35.23%	9.18%	15.12%	34.23%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
166,138	262,803	595,921	155,216	255,792	579,065



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<b>SONORA (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$631	\$983	\$1,411	\$619	\$977	\$1,381

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$932	\$702



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<b>SONORA (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
9.26%	13.68%	31.82%	9.13%	13.52%	31.57%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
230,695	340,721	792,429	227,377	336,771	786,272



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<b>YUCATAN (2008)</b>					
Average per-capita income					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
\$581	\$938	\$1,338	\$584	\$947	\$1,346

Baskets			
Official		Alternative	
Urban	Rural	Urban	Rural
\$949	\$707	\$961	\$712



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<b>YUCATAN (2008)</b>					
Incidence of poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
16.85%	23.30%	50.03%	17.08%	23.64%	50.40%

  

Persons in poverty					
Official			Alternative		
Food	Capabilities	Assets	Food	Capabilities	Assets
319,665	442,003	949,080	323,979	448,427	956,111



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## Some Final Thoughts:

We have one comment about the political economy of poverty measurement.

CONEVAL is an outstanding example of transparency in both national and international public practices. In an open society, it is necessary that poverty measurements, among other measurements, are accurately designed and available to be replicated for any interested citizen.



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## Some Final Thoughts:

Our primary point of emphasis is methodological, with the goal of arriving at more accurate measurements of poverty, measurements whose accuracy must always be strived to improve on.

In terms of public policy, in evaluating the performance of a state government, for example, the amount of poverty matters.

Despite other measurable characteristics of poverty, the values of food baskets and household incomes remain as the central elements in measuring the incidence of multidimensional poverty.



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Gracias!

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