

Mexico's "Official" Multidimensional Poverty Measure: A Comparative Study of Indigenous and Non-Indigenous Populations

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This Presentation

1. What is this?
2. The indigenous
3. The measure
4. Results
5. The indigenous effect
6. Income vs. Social Rights
7. Income Alimentary Poverty Line vs. Food access
8. Special cases
9. Conclusions

1. What is this?

Mobility and Segregation of the Indigenous Population in Mexico



Poverty



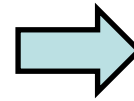
Social Mobility



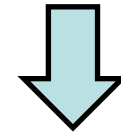
Isolation/segregation



Discrimination



Coneval's
measure



ENIGH

2. The Indigenous



2. The Indigenous

| Population | 2008 | 2010 |
|---------------------------------------|-------------|-------------|
| Total | 109,677,877 | 112,590,130 |
| Non-Indigenous | 98,082,657 | 101,379,301 |
| Indigenous: | 11,595,220 | 11,210,829 |
| <u>In indigenous households:</u> | 11,511,345 | 11,145,921 |
| - Speakers of Indigenous Language: | 6,957,237 | 6,715,447 |
| <i>Monolinguals</i> | 816,333 | 651,877 |
| <i>Bilinguals</i> | 6,140,904 | 6,063,570 |
| - Non-Speakers of Indigenous Language | 4,554,108 | 4,430,474 |
| - Two year olds and younger | 651,694 | 669,163 |
| <u>In non-indigenous households:</u> | 83,875 | 64,908 |
| <i>Monolinguals</i> | 2,228 | 505 |
| <i>Bilinguals</i> | 81,647 | 64,403 |

10%

3. The Measure

The Mexican official measure

Two dimensions, 7 indicators:

- **Economic wellbeing** (1/2):
 - Income (1/2)
- **Social rights** (1/2)
 - Education (1/12)
 - Health (1/12)
 - Social security (1/12)
 - House materials/space (1/12)
 - House services (1/12)
 - Access to food (1/12)

k=4.08 out of 7

k=5.25 for extreme poverty

Poverty Cutoff

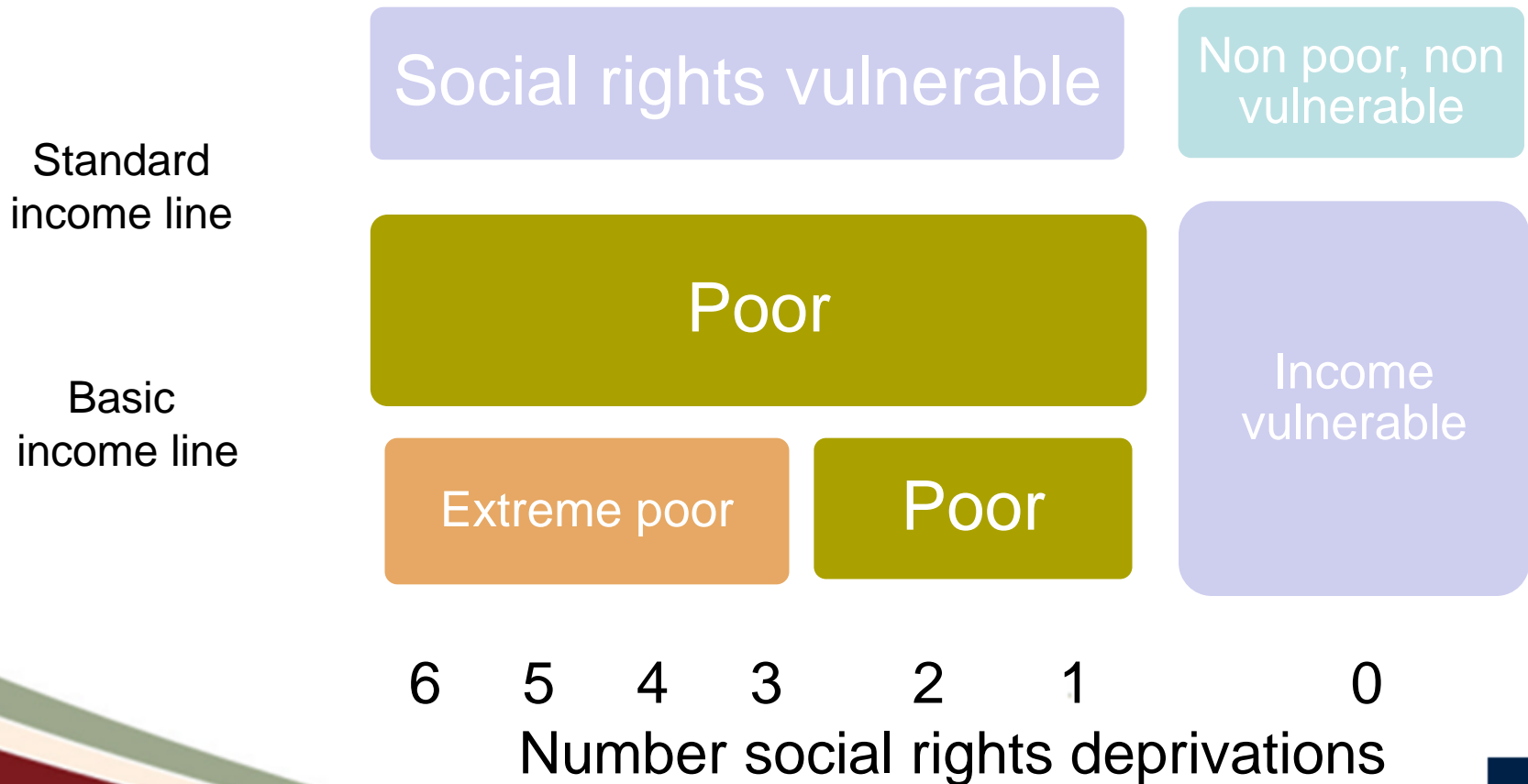
A person is identified as poor if is deprived in both dimensions: income and at least one social right

Or more than 50% of weighted sum ($\geq .5829$)

Alternative:

Extreme poor if income is less than minimal line and at least three social rights. Equal or greater that 75%

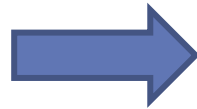
3. The Measure



3. The Measure: Income lines

What is an income poverty line?

For Coneval, it is an income threshold that estimates the cost of a set of goods and services required to satisfy necessities.



Extreme poverty line
(or minimal wellbeing)

Monthly p.e.a.
Rural £29.3
Urban £42.5



Moderate poverty line

Monthly p.e.a.
Rural £60.3
Urban £98.1



Engel coefficient
and mobile decile

3. The Measure: Indicators and cutoffs

- Education: not attending for 3-15 year olds; less than 9 years of schooling if $\text{dob} \geq 1982$, 6 if $\text{dob} < 1982$
- Health: Not having access to a health care institution
- Social security: No having work benefits like maternity leave, pension fund and access to a health care institution
- House materials and space: More than 2.5 people per room or deprived in floor, roof and walls
- Services: deprived in cooking fuel, electricity, water and drainage (toilet)
- Food access: moderate or severe food insecurity

3. The Measure: Methodology

- use Alkire Foster Adjusted Headcount Ratio to build a Multidimensional Poverty Index (MPI):

$$\text{Formula: } MPI = M_0 = H \times A$$

- H is the percent of people who are identified as poor, it shows the *incidence* of multidimensional poverty.
- A is the average proportion of weighted deprivations people suffer at the same time. It shows the *intensity* of people's poverty – the *joint distribution* of their deprivations.

4. Results

| 2010 (%) | Total | Non-Indigenous | Indigenous |
|-----------------------------------|--------------|----------------|--------------|
| Economic wellbeing | 51.99 | 49.28 | 76.44 |
| <i>Moderate income dep.</i> | <i>32.59</i> | <i>32.78</i> | <i>30.86</i> |
| <i>Extreme income deprivation</i> | <i>19.40</i> | <i>16.5</i> | <i>45.58</i> |
| Education shortfall | 20.64 | 18.91 | 36.34 |
| Health access | 31.78 | 31.19 | 37.16 |
| Social security | 60.72 | 58.41 | 81.55 |
| Dwelling materials & space | 15.20 | 12.43 | 40.29 |
| Dwelling services | 16.45 | 13.31 | 44.87 |
| Food access | 24.86 | 23.21 | 39.76 |

4. Results

| | Indigenous | | Non-Indigenous | | Total | |
|-------|------------|--------|----------------|--------|--------|--------|
| Year | 2008 | 2010 | 2008 | 2010 | 2008 | 2010 |
| A | 0.7886 | 0.7643 | 0.7129 | 0.6957 | 0.7257 | 0.7071 |
| H | 0.7114 | 0.7458 | 0.4140 | 0.4305 | 0.4455 | 0.4619 |
| M_0 | 0.5610 | 0.5700 | 0.2951 | 0.2995 | 0.3233 | 0.3266 |

5. The Indigenous “Effect”

how much of that gap is explained by other factors like a higher proportion of indigenous living in rural areas?

If H is taken as the probability of being multidimensional poor, then we can find similar individuals and compare them

→ Propensity Score Match

5. The Indigenous “Effect”

Propensity Score Match

Controlling by:

- gender
- marital status
- household type
- dwelling type
- household size
- number of households
- people 12 and 64 y/old
- people 65+ years old
- occupied members
- income earners
- locality size and state
- economically active
- industry
- position
- working hours

5. The Indigenous “Effect”

| Variable | Sample | Treated | Controls | Difference | S.E. | T-stat |
|----------|-----------|---------|----------|------------|----------|--------|
| pobreza | Unmatched | 0.7120 | 0.4368 | 0.2752 | 0.003195 | 86.15 |
| ATT | | 0.7120 | 0.5695 | 0.1425 | 0.003719 | 38.32 |
| ATU | | 0.5844 | 0.7111 | 0.1266 | . | . |
| ATE | | | | 0.1346 | . | . |

48.9% of the gap between indigenous and non-indigenous is explained by ethnicity

6. Income vs. Social Rights

Total Population

Standard
income line

Social rights vulnerable
28.7%

Non poor, non
vulnerable 19.3%

Basic
income line

Poor 46.2%

Income
vulnerable
5.8%

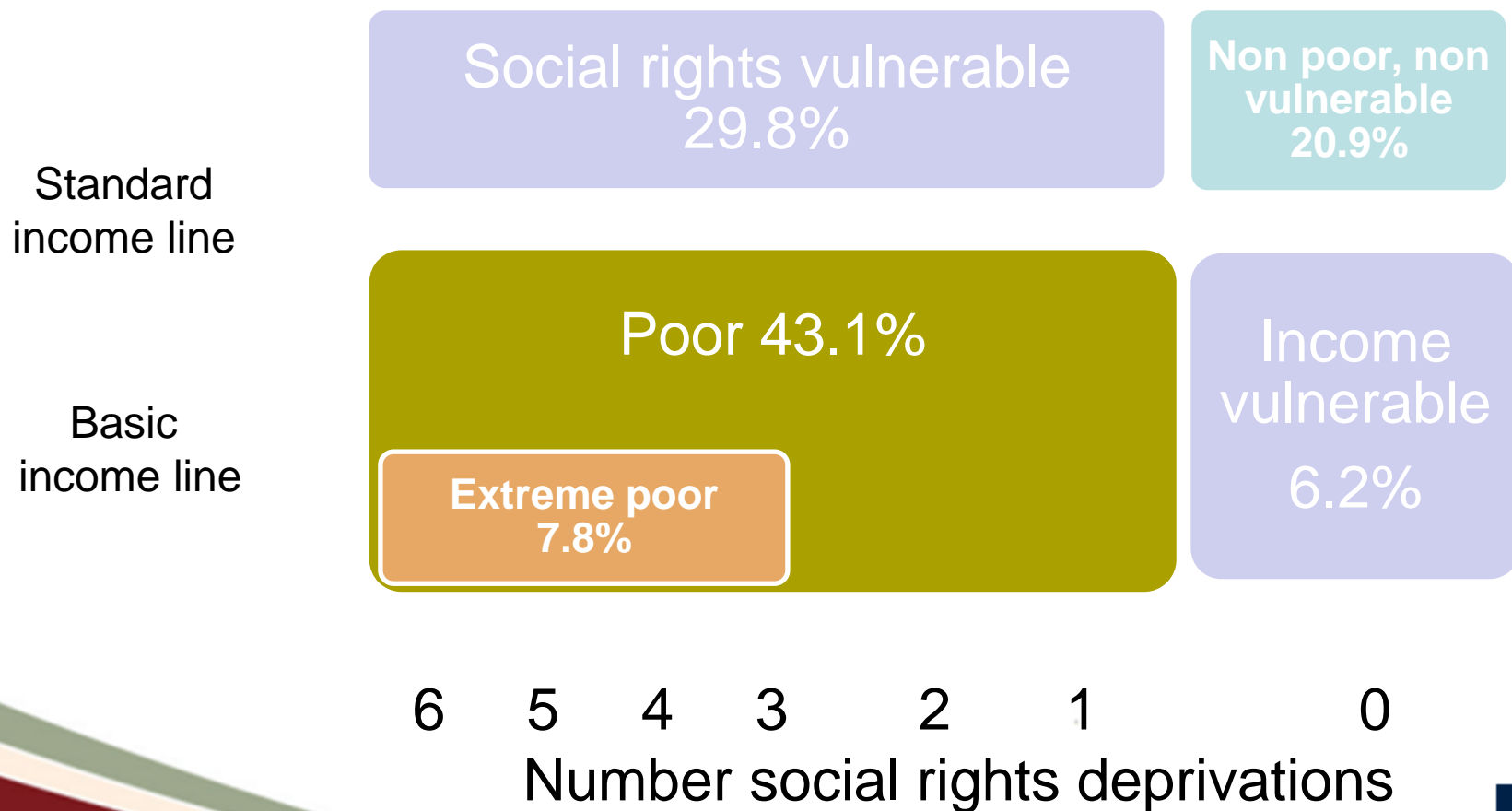
Extreme poor 10.4%

6 5 4 3 2 1 0

Number social rights deprivations

6. Income vs. Social Rights

Non-Indigenous



6 5 4 3 2 1 0
Number social rights deprivations

6. Income vs. Social Rights

Indigenous



6. Income vs. Social Rights

| Headcounts (2010) | Total | Non-Indigenous | Indigenous |
|--------------------------|-------|----------------|------------|
| Multidimensional poor | 46.19 | 43.05 | 74.58 |
| Moderate poor | 35.78 | 35.23 | 40.8 |
| Extreme poor | 10.41 | 7.82 | 33.78 |
| Social rights vulnerable | 28.67 | 29.77 | 18.74 |
| Income vulnerable | 5.8 | 6.23 | 1.86 |
| Non-poor, non-vulnerable | 19.34 | 20.94 | 4.82 |
| Deprivation mismatch | 42.73 | 45.54 | 21.64 |

6. Income vs. Social Rights

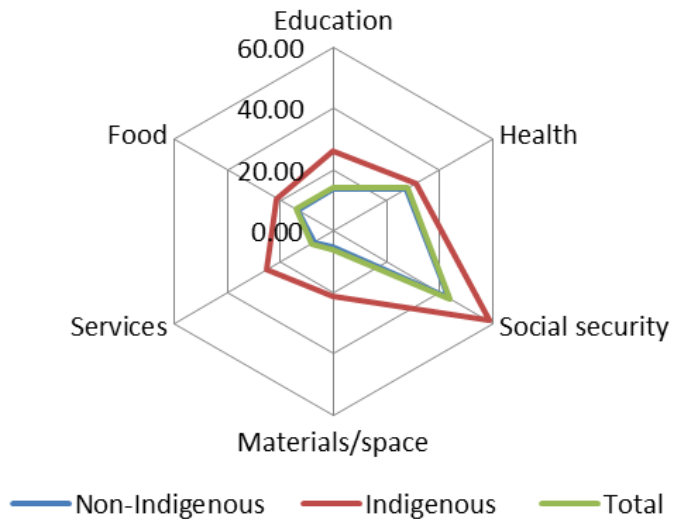
Spearman Correlation

| | Indig | Ur/rural | Well | Basic W. | Educ | Health | Soc sec. | M&S | Services | Food |
|--------------|--------|----------|---------------|---------------|--------|--------|----------|--------|----------|------|
| Indigenous | 1 | | | | | | | | | |
| Urban/rural | 0.1722 | 1 | | | | | | | | |
| Wellbeing | 0.1494 | 0.1207 | 1 | | | | | | | |
| Basic wellb. | 0.1896 | 0.1844 | 0.473 | 1 | | | | | | |
| Education | 0.1314 | 0.166 | 0.1541 | 0.132 | 1 | | | | | |
| Health | 0.035 | 0.0066 | 0.0835 | 0.0793 | 0.0591 | 1 | | | | |
| Social sec. | 0.1308 | 0.2288 | 0.3256 | 0.2747 | 0.0897 | 0.4184 | 1 | | | |
| M & Space | 0.2248 | 0.1881 | 0.2332 | 0.2311 | 0.1369 | 0.0615 | 0.1967 | 1 | | |
| Services | 0.2343 | 0.419 | 0.2034 | 0.2273 | 0.1596 | 0.043 | 0.208 | 0.3055 | 1 | |
| Food Insec. | 0.1143 | 0.1122 | 0.2494 | 0.2135 | 0.1124 | 0.0504 | 0.1703 | 0.212 | 0.1654 | 1 |

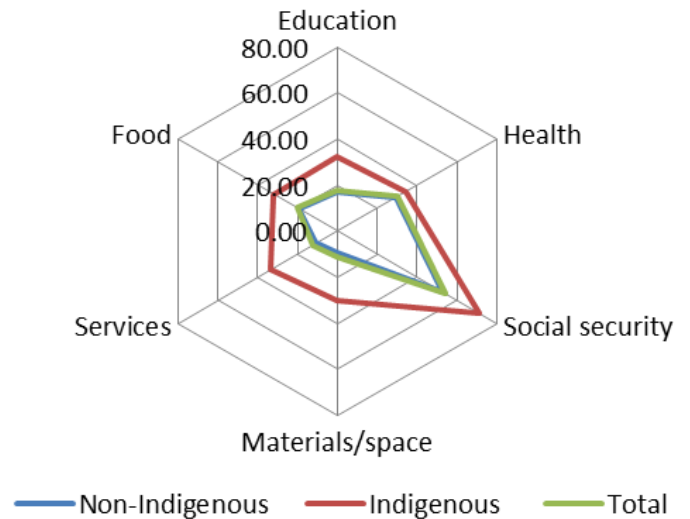
6. Income vs. Social Rights

Social rights deprivation for those not deprived in income

If not deprived in economic wellbeing

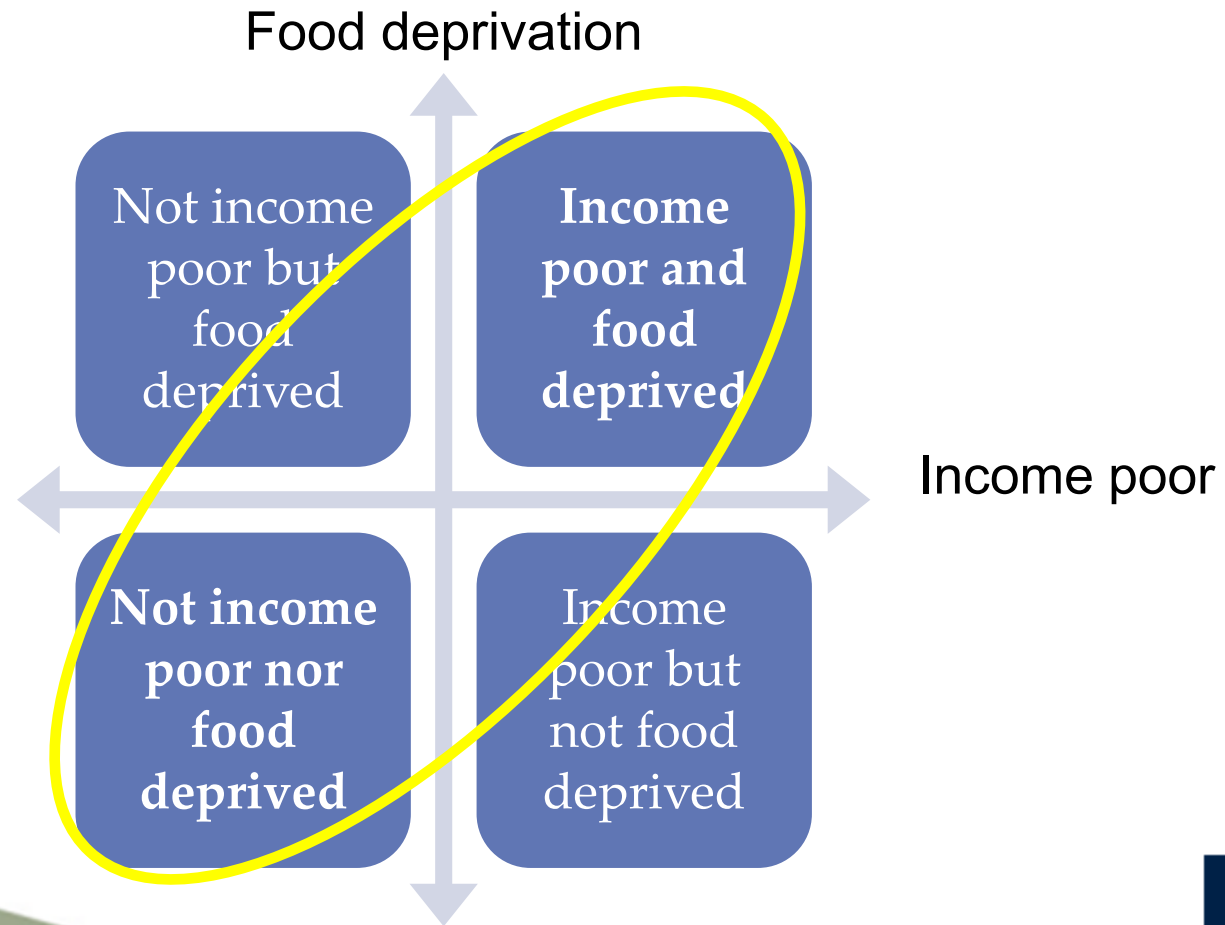


If not deprived in minimal economic wellbeing



7. Income Alimentary Poverty Line vs. Food access

Are they measuring the same thing?



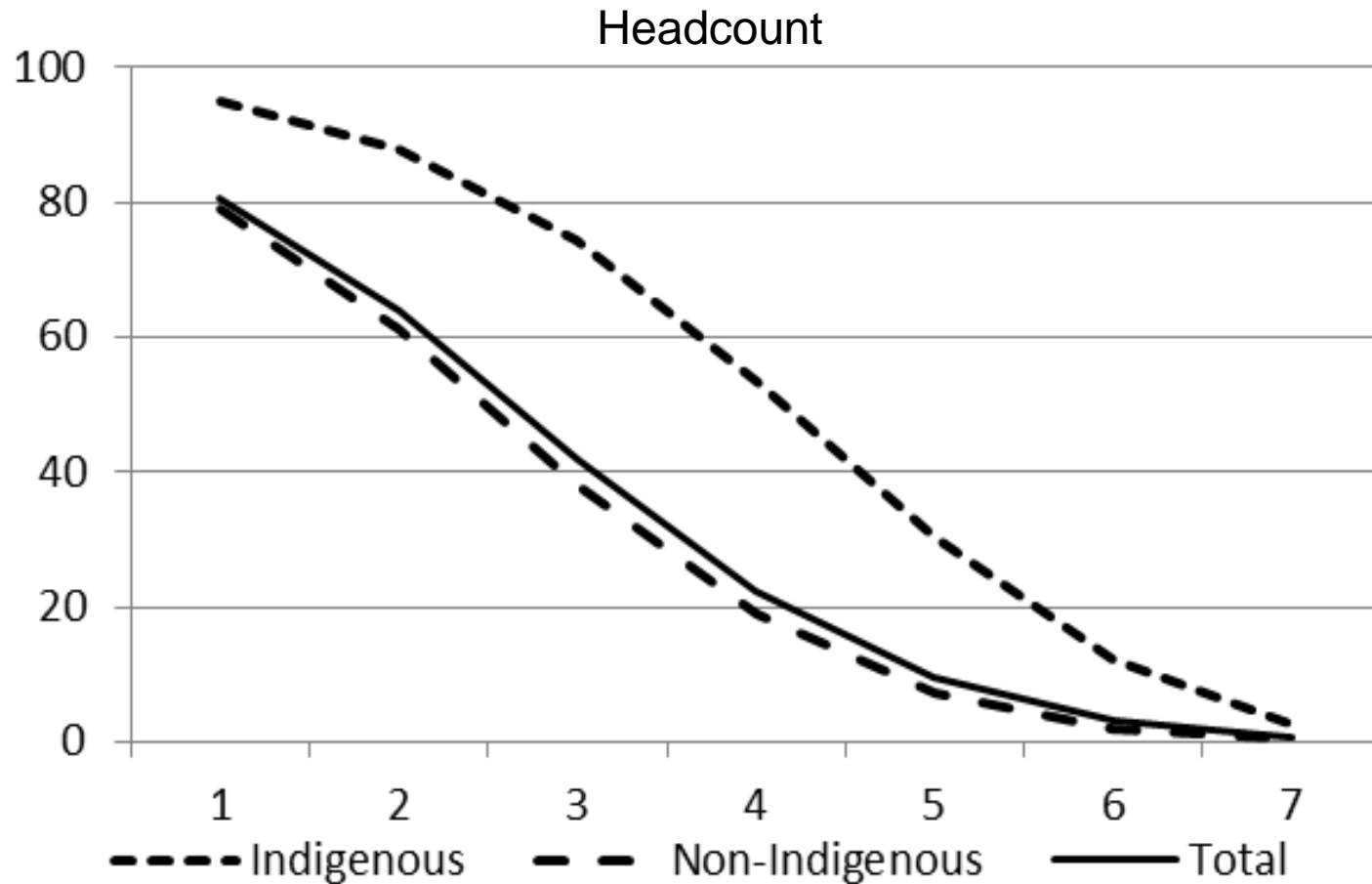
7. Income Alimentary Poverty Line vs. Food access



7. Income Alimentary Poverty Line vs. Food access

| Level of food insecurity | Minimal economic wellbeing deprived | | | Average Per Capita Income |
|--------------------------|-------------------------------------|-------|--------|------------------------------|
| | No | Yes | Total | Mexican pesos of August 2008 |
| Food security | 49.29 | 6.39 | 55.67 | 3,854 |
| Slight | 14.88 | 4.59 | 19.47 | 1,959 |
| Moderate | 9.80 | 4.23 | 14.03 | 1,621 |
| Severe | 6.64 | 4.19 | 10.83 | 1,489 |
| Total | 80.60 | 19.40 | 100.00 | 2,916 |

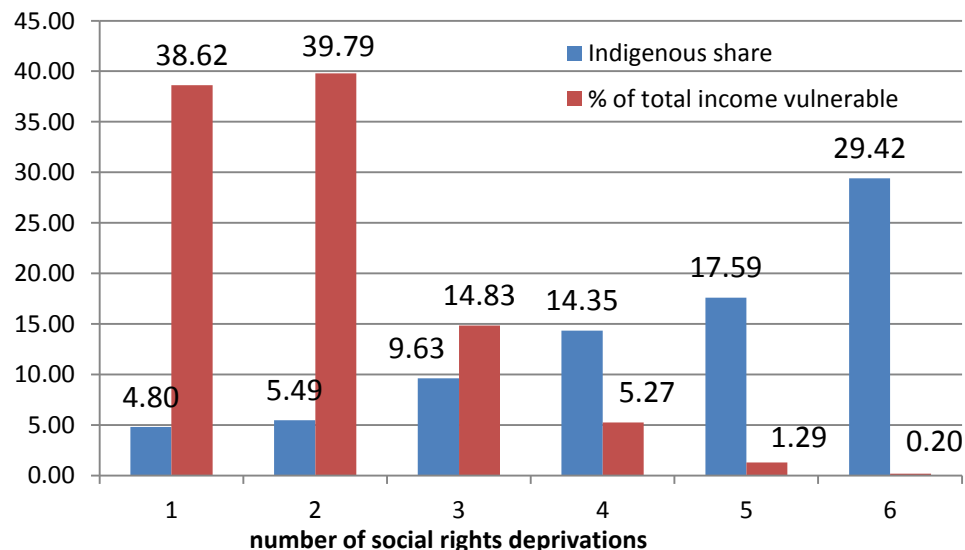
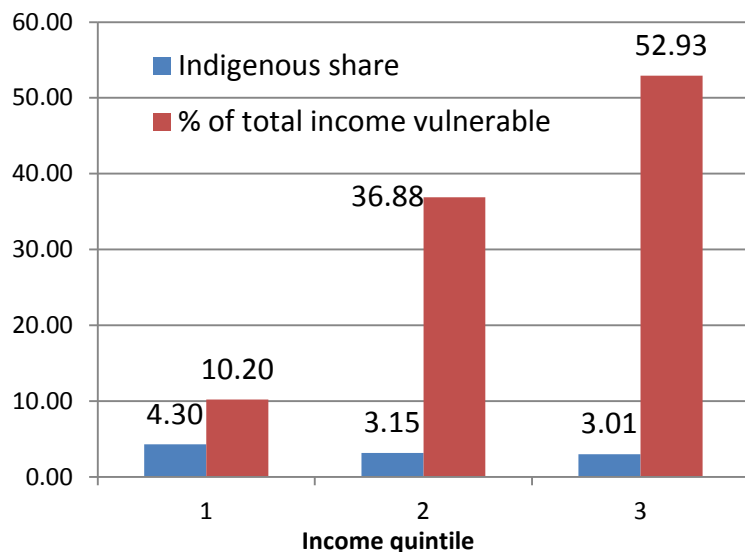
8. Special Cases: if all weight the same



8. Special Cases: vulnerable

Income vulnerable: Deprived in income but not in social rights (5.8%, 6.5m)

Social rights vulnerable: Deprived in social rights but not in income (28.7%, 32.3m)



8. Special Cases

| Deprivation observed in at least: | Poverty cutoff | Headcounts | | | Indigenous % of total headcount |
|--|---|----------------|--------------|--------------|---------------------------------------|
| | | Non-Indigenous | Indigenous | Total | |
| 1 social right | $k \geq 7/12$ | 72.85 | 93.35 | 74.89 | 12.41 |
| Any 2 social rights | $k \geq 14/12$ | 50.22 | 80.78 | 53.26 | 15.10 |
| Any 3 social rights | $k \geq 21/12$ | 23.13 | 57.70 | 26.57 | 21.62 |
| Any 4 social rights | $k \geq 28/12$ | 8.60 | 32.64 | 10.99 | 29.56 |
| Any 5 social rights | $k \geq 35/12$ | 2.39 | 12.95 | 3.44 | 37.47 |
| Income or 6 social rights | $k \geq 42/12 = 21/6$ | 49.34 | 76.64 | 52.06 | 14.66 |
| Income and 1 social right * | $k > 21/6; k \geq 49/12$ | 43.06 | 74.61 | 46.20 | 16.08 |
| Income and any 2 social rights | $k \geq 56/12 = 14/3$ | 32.14 | 67.38 | 35.65 | 18.82 |
| Income and any 3 social rights | $k \geq 63/12 = 21/4$ | 17.03 | 50.59 | 20.37 | 24.72 |
| Income and any 4 social rights | $k \geq 70/12$ | 6.77 | 29.64 | 9.05 | 32.62 |
| Income and any 5 social rights | $k \geq 77/12$ | 2.00 | 12.13 | 3.00 | 40.18 |
| Income and all 6 of social rights | $k \geq 84/12 = 7$ | 0.34 | 2.52 | 0.56 | 44.73 |
| Min. income or 6 social rights | $k \geq 42/12 = 21/6$ | 16.67 | 46.44 | 19.63 | 23.55 |
| Min. income and 1 social right | $k > 21/6; k \geq 49/12$ | 15.73 | 45.32 | 18.68 | 24.16 |
| Min. income and any 2 s.r. | $k \geq 56/12 = 14/3$ | 12.97 | 42.43 | 15.90 | 26.57 |
| Min. income and any 3 s.r.** | $k \geq 63/12 = 21/4$ | 7.82 | 33.79 | 10.41 | 32.32 |
| Min. income and any 4 s.r. | $k \geq 70/12$ | 3.50 | 20.83 | 5.22 | 39.72 |
| Min. income and any 5 s.r. | $k \geq 77/12$ | 1.18 | 8.74 | 1.93 | 45.12 |
| Min. income and all 6 of s.r | $k \geq 84/12 = 7$ | 0.22 | 1.84 | 0.38 | 47.84 |

8. Special Cases: outliers

- 6.6 million people (5.9%) leave poverty when the poverty cutoff changes from $\geq 50\%$ to $> 50\%$
- Of those 6.6 million, 96.6% are non-indigenous
- When the poverty cutoff is $\geq 50\%$ then 99.9% are deprived in income but less than six social rights
- The remaining 0.1% are 63,841 people who are deprived in six social rights but not in income.
- Of those 63.8k cases, 29.4% are indigenous

9. Conclusions

- Indigenous are more deprived in all dimensions, and double the poor compared to non-indigenous with M_0
- The pms showed that half of the gap in the probability of being poor is explained by ethnicity
- Income and social rights measure different things. Even the alimentary poverty line and the food access indicators are not completely overlapped
- Further studies like this are needed