

Workshop “Fundamentals of Mexico Multidimensional Poverty Measurement”

4th International High-level Meeting of the
Multidimensional Poverty Peer Network (MPPN)

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Introduction to Mexican Multidimensional Poverty Measure

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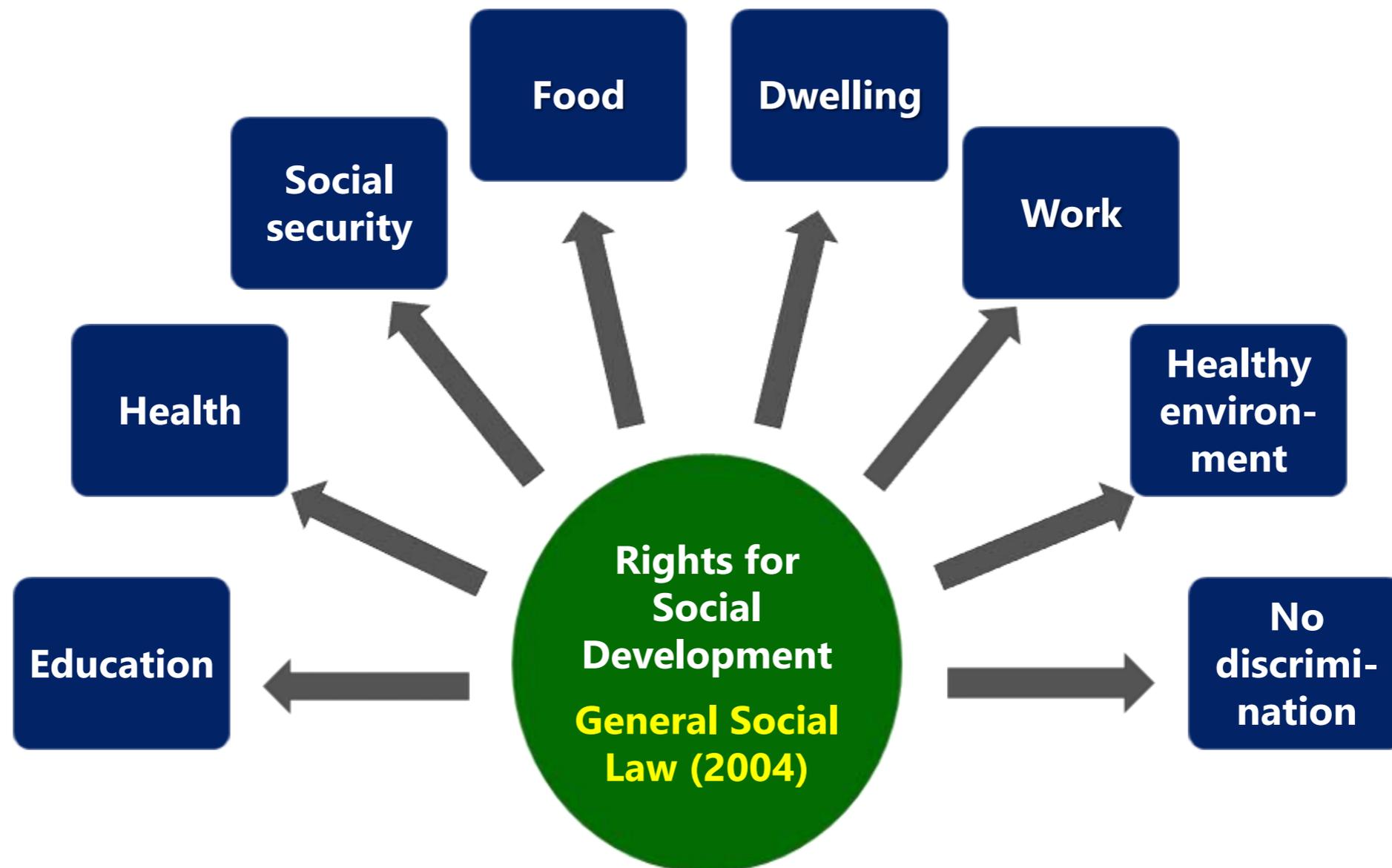
Content

- A human rights approach
- Background and legal framework review
- Building the methodology
- Methodology to measure poverty in Mexico
- Recent results
- Examples and uses for public policy
- Accessing the poverty measurement code & databases
- Multidimensional poverty measure at the municipality level

A human rights approach

Recognised social rights

“To guarantee a full exercise of social rights established in the Mexican Constitution, to ensure social development of all persons”



Mexican Constitution (*Magna Carta*)

Article 1st*

All persons will enjoy the human rights recognized by the Constitution and by the international treaties signed by the Mexican government, as well as the guarantees for their protection, and this exercise may not be restricted or suspended except in those cases and under those conditions established by the Constitution.

(...)

All authorities, within the scope of their responsibilities, have the obligation to promote, respect, protect and guarantee human rights in accordance with the principles of universality, interdependence, indivisibility and progressiveness.

* After Constitutional Reform, June 2011.

Poverty is a denial of human rights



■ Legal guarantees to protect people

■ Obligatory regulations to all governmental orders

Human rights principles

■ Inalienables

■ Indivisibles

■ Interdependent

■ Non-expirable

Observation units: individuals

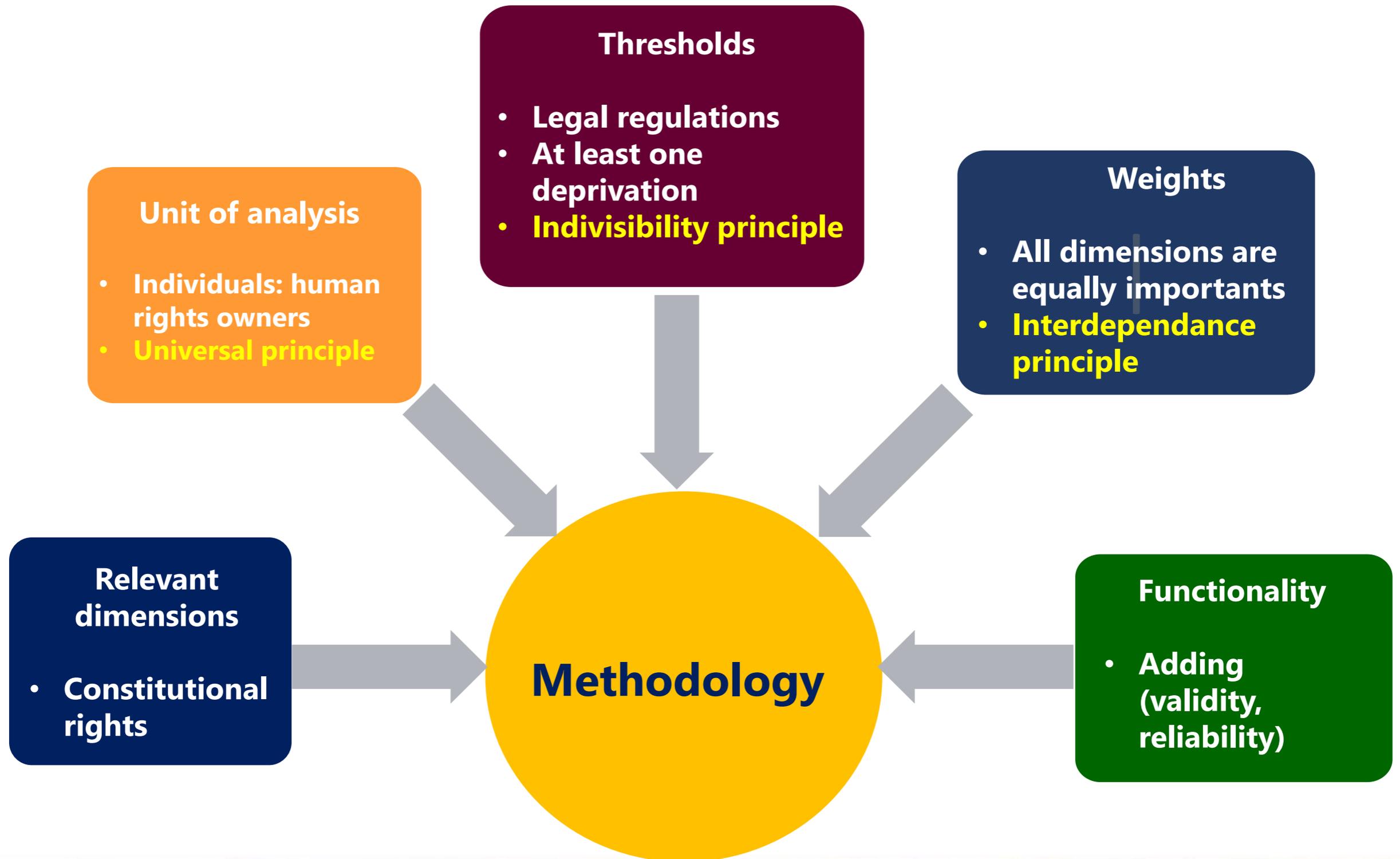
Human rights owners



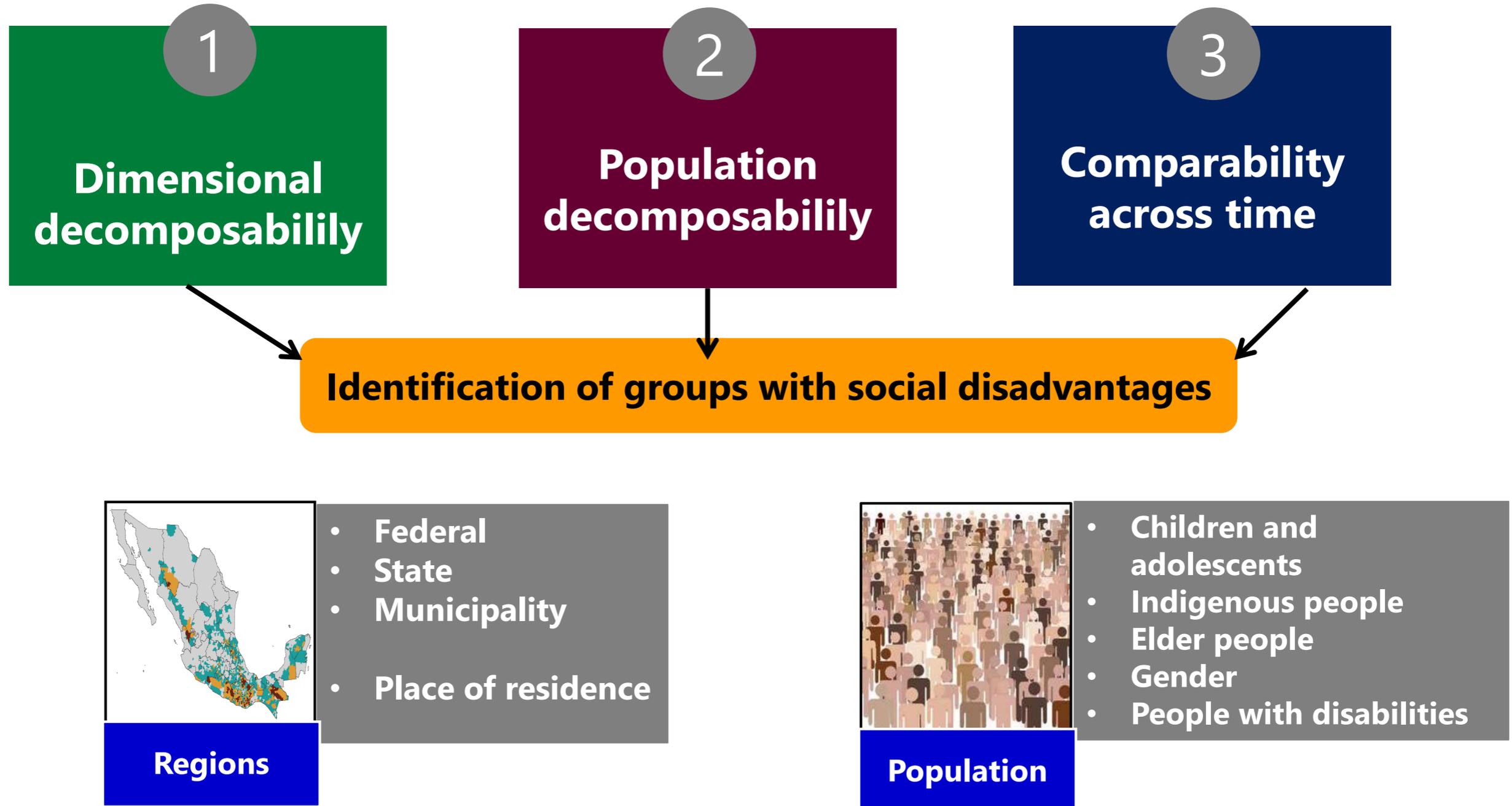
- Main actors
- They must use all available mechanisms to demand compliance

A society who recognises and takes responsibility as human rights owner is an empowered society

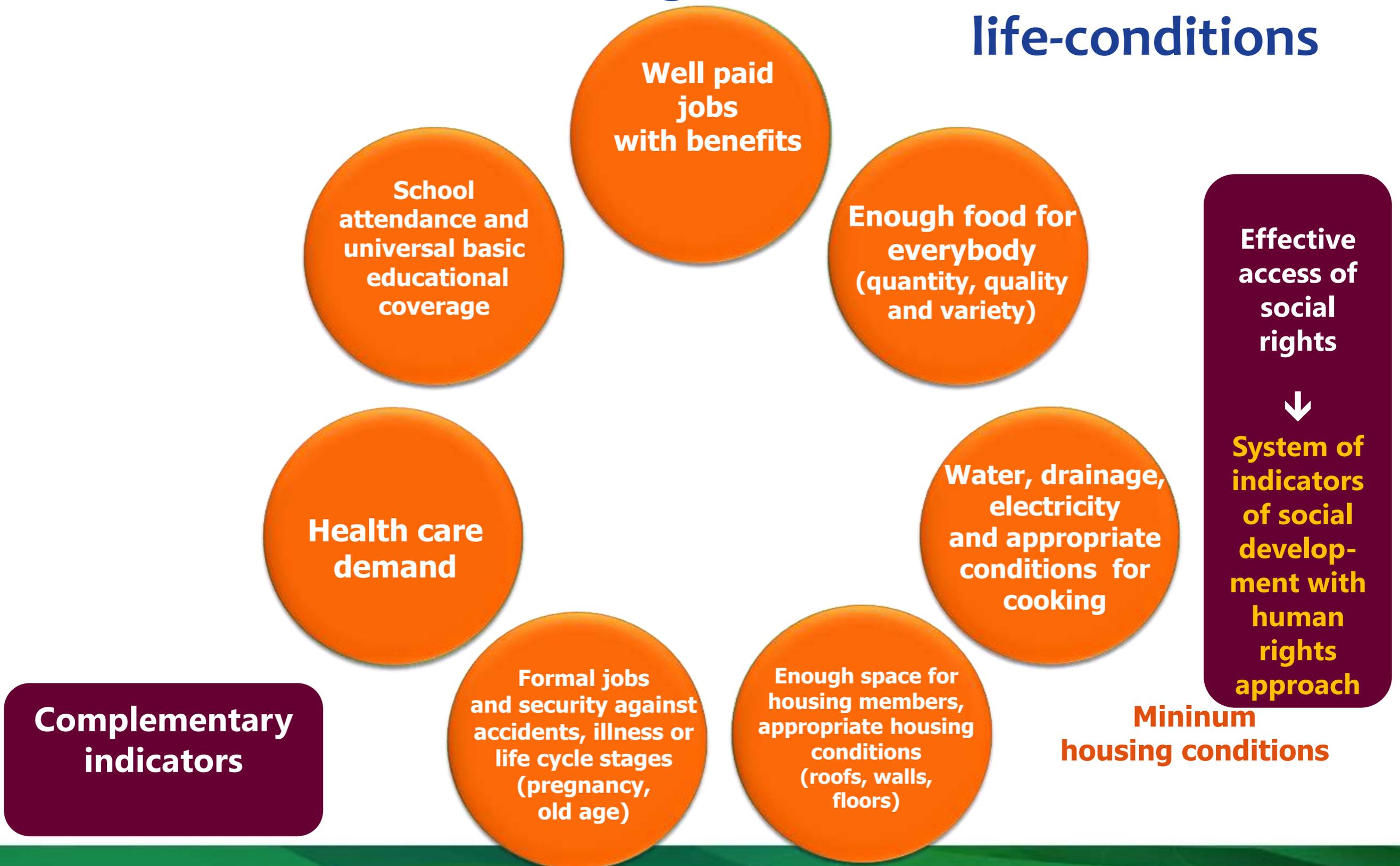
Related principles



Implications of the social rights approach



What does overcoming poverty mean in people's life-conditions



Mexican multidimensional poverty measure

Background and legal framework review

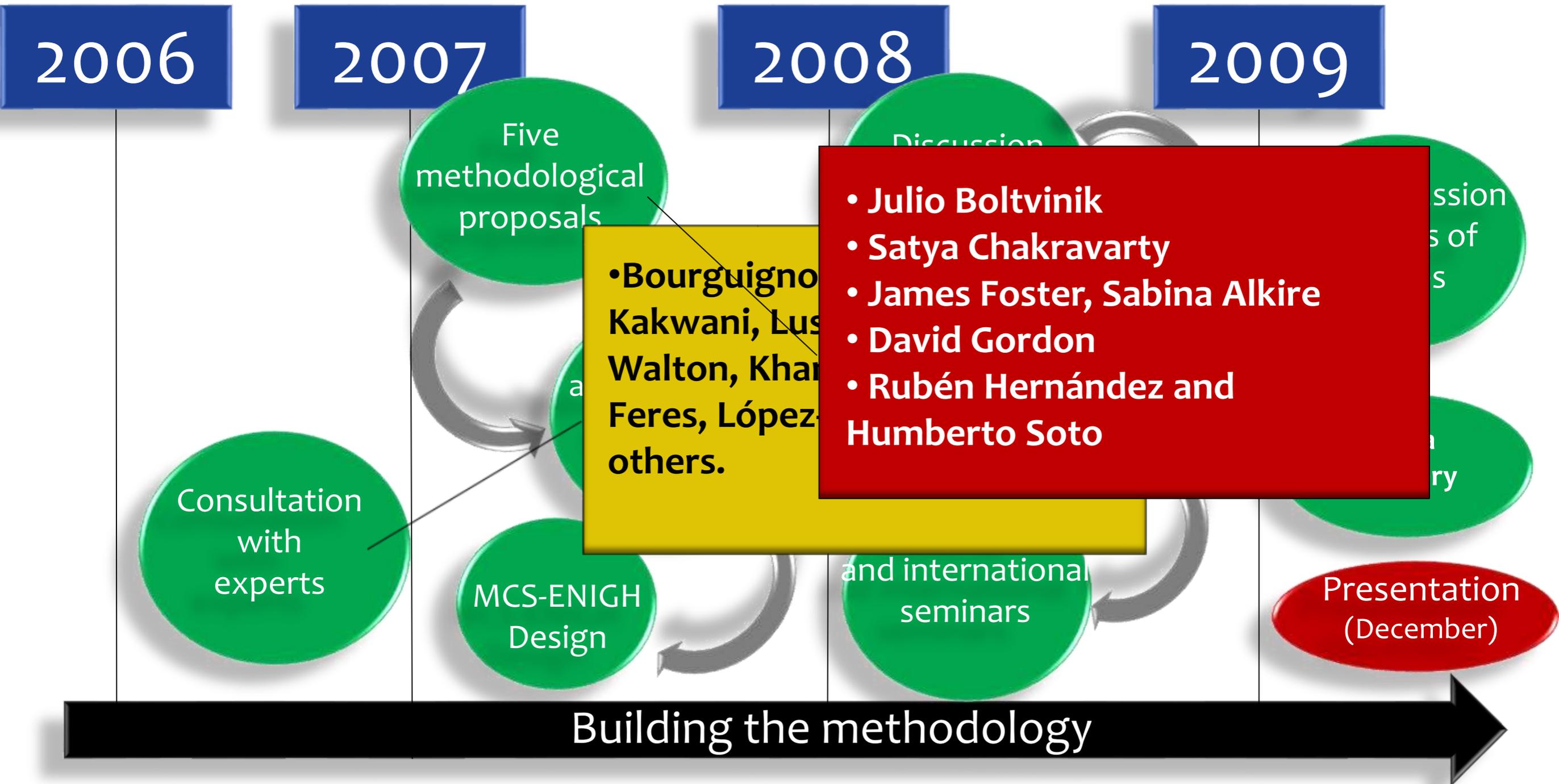
Background

- Social Development Law establishes the main characteristics that poverty measurement should comply:
 - To make visible the link between social programs & the measurement of poverty for public policy purposes.
 - To include eight dimensions: income, educational gap, access to health services, access to social security, quality of dwelling, access to housing basic services, access to food and social cohesion.
 - Measurement should be periodic, for the whole country and for states every **2 years** and at municipality level every **5 years**.

Building the methodology

A new methodology. How?

Discussions, criteria & design of data sources



Information sources

**State:
Socioeconomic Conditions
Module**
(2008, 2010, 2012, 2014)

Source

CENSO DE POBLACIÓN Y VIVIENDA 2010
CUESTIONARIO AMPLIADO

INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA

1. IDENTIFICACIÓN GEOGRÁFICA

ENTIDAD FEDERATIVA _____
MUNICIPIO O DELEGACIÓN _____
CLAVE DE AGEDES _____
LOCALIDAD _____
MANZANA _____
SECTOR _____

2. CONTROL DE VIVIENDA Y CUESTIONARIOS

CONSECUTIVO DE LA VIVIENDA _____
NÚMERO DE CUESTIONARIOS EN LA VIVIENDA _____
TOTAL DE CUESTIONARIOS EN LA VIVIENDA _____

3. DIRECCIÓN DE LA VIVIENDA

CALLE, AVENIDA, CALLEJÓN, CARRETERA, CAMINO _____
ASIMBO EXTERIOR ASIMBO INTERIOR COLONIA, PRECINTAMIENTO, ESTACIONAMIENTO, VIVIENDA SOCIAL _____

4. CONTROL DE PAQUETE

FOLIO DE PAQUETE _____
CONSECUTIVO DEL CUESTIONARIO EN EL PAQUETE _____

5. DURACIÓN DE LA ENTREVISTA

HORA DE INICIO _____
HORA DE TÉRMINO _____
FECHA _____

6. CLASE DE VIVIENDA PARTICULAR

CASAS DE UN CUADRO

CASA INDEPENDIENTE 1
DEPARTAMENTO EN EDIFICIO 2
VIVIENDA EN VECINDAD 3
VIVIENDA EN CUARTO DE AZOTEA 4
LOCAL NO CONSTRUIDO PARA HABITACIÓN 5
VIVIENDA MÓVIL 6
REFUGIO 7

7. NOMBRE Y CLAVE DE LOS RESPONSABLES

ENTREVISTADOR(A) _____
SUPERVISOR(A) _____
VALIDADOR(A) _____
VERIFICADOR(A) _____

8. TOTAL DE OCUPANTES

OCUPANTES _____

CONFIDENCIALIDAD OBLIGATORIEDAD

www.inegi.gob.mx

Source of
v
ions

Larger sample,
information for
all states

**MÓDULO DE CONDICIONES
CUESTIONARIO**

UBICACIÓN GEOGRÁFICA

1) Entidad federativa:					
2) Municipio:					
3) Localidad:					
4) Ageb:					
5) Número de control:					

**Municipality:
Census and municipal
representative survey**
(2010, 2015)

Methodology to measure poverty in Mexico

What are the main features of the new methodology?

Current income per capita

Mexican
Population

Wellbeing

Income

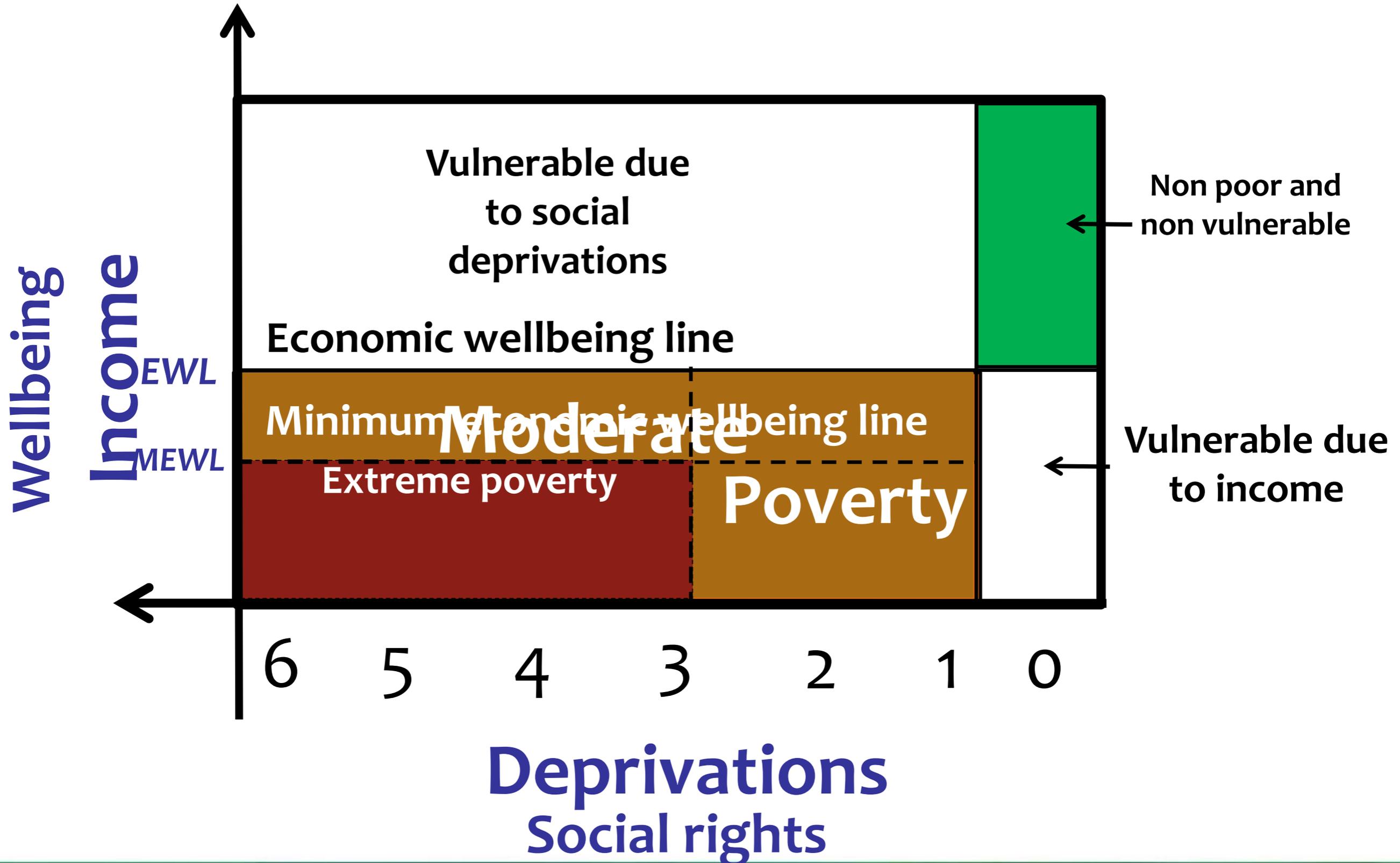


6 5 4 3 2 1 0

Deprivations
Social Rights

- Education
- Health
- Social Security
- Housing
- Basic services
- Food access

Poverty Measurement

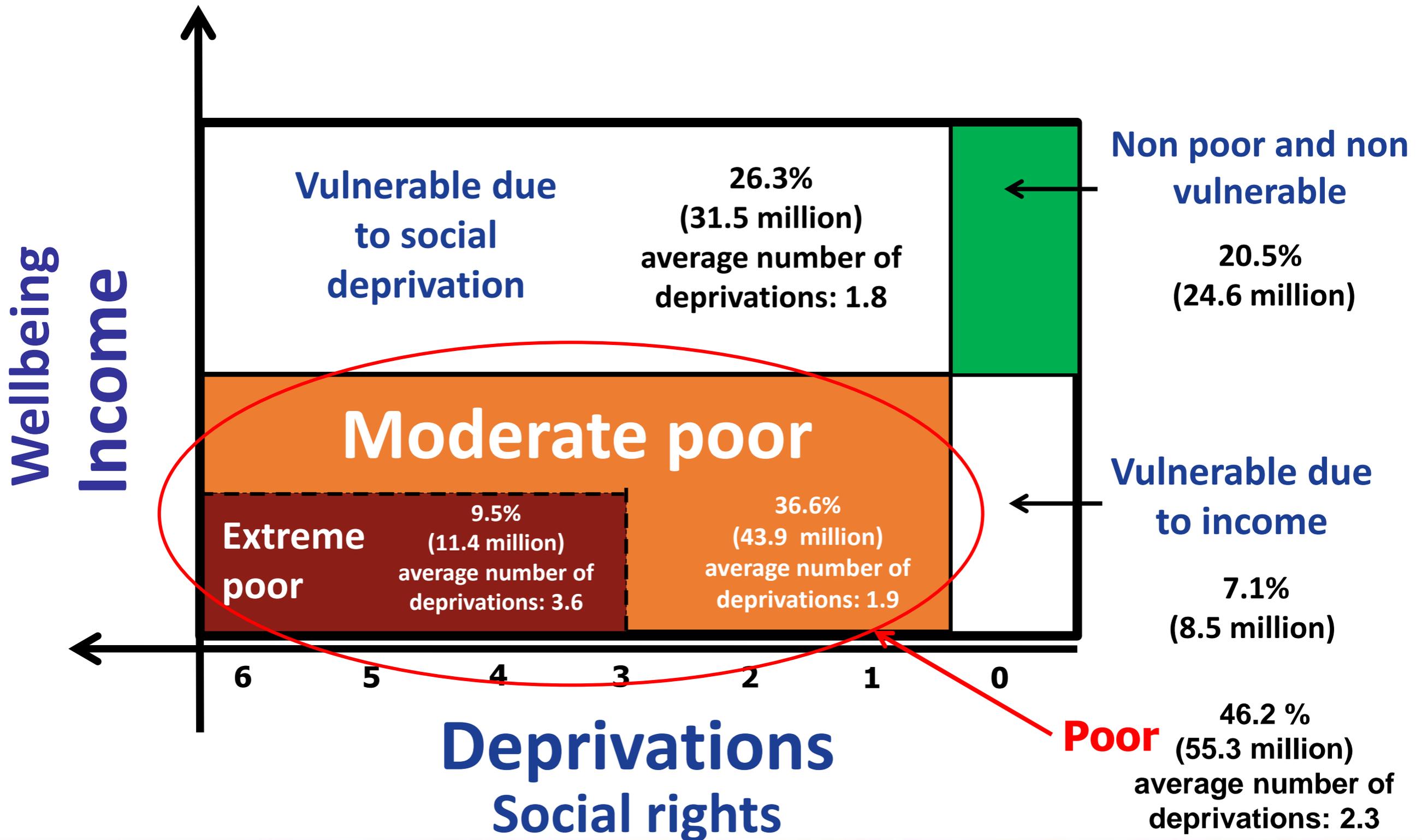


Poverty Definition

A person is considered to be poor if he/she has at least one social deprivation and an income below the Economic Wellbeing Line

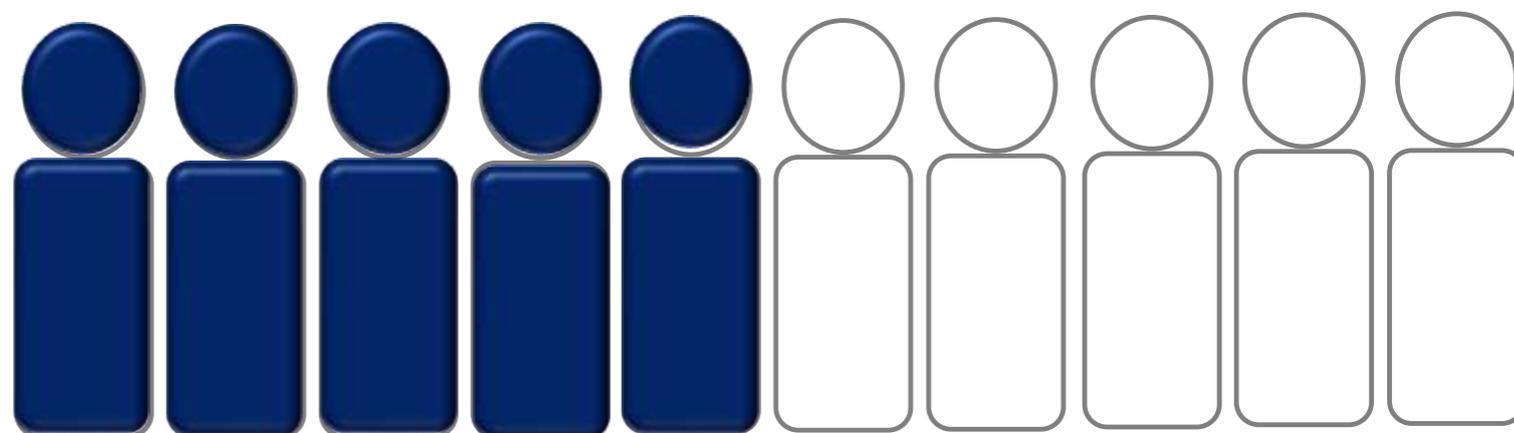
Recent results

Poverty estimates: Mexico, 2014

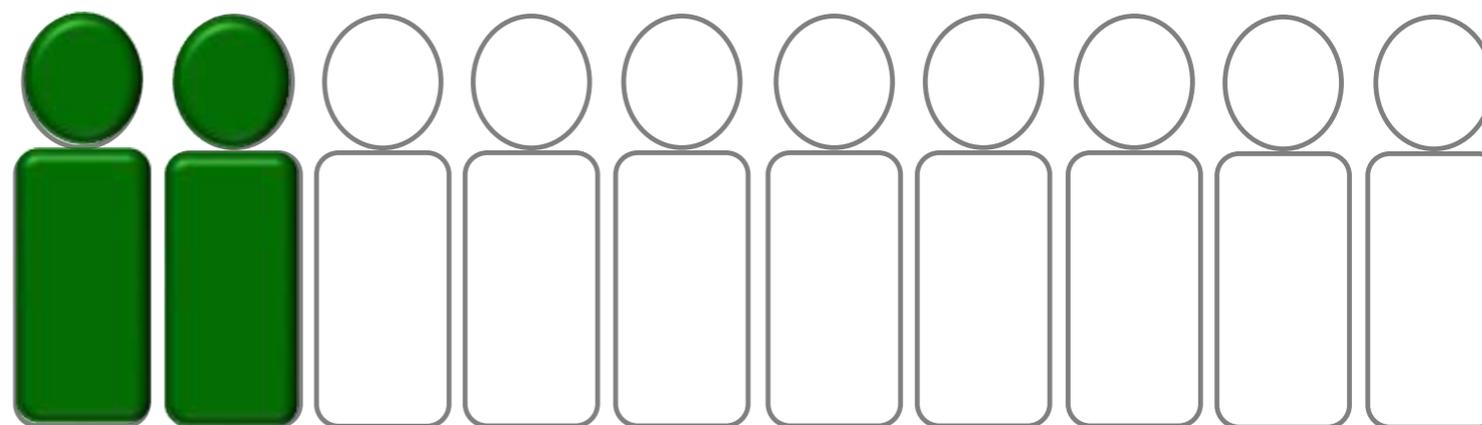


Economic wellbeing, 2014

Income below EWL
[53.2%]



Income below MEWL
[20.6%]



Social Deprivations, 2014

Educational gap [18.7%]

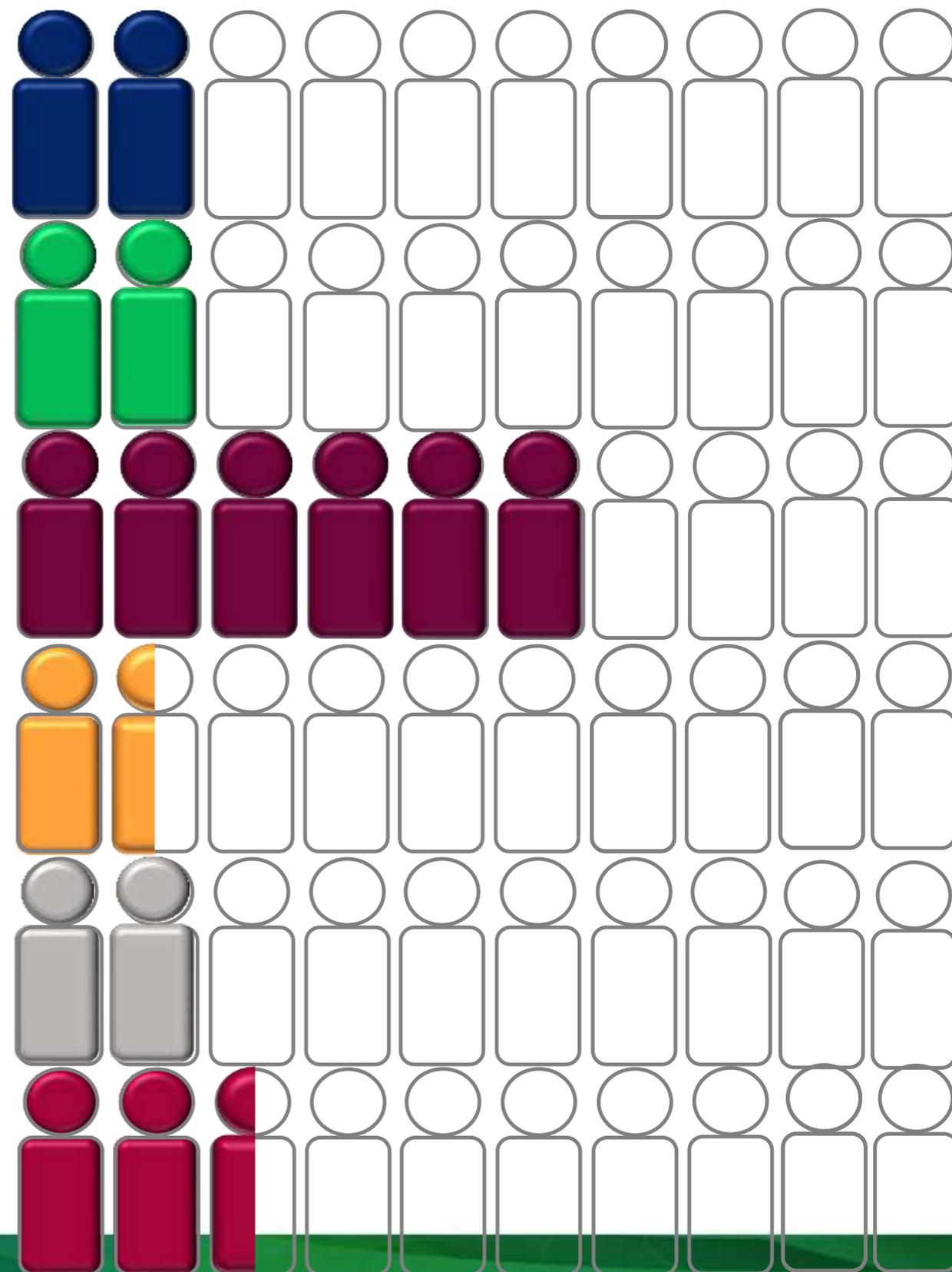
Access to health services [18.2%]

Access to social security [58.5%]

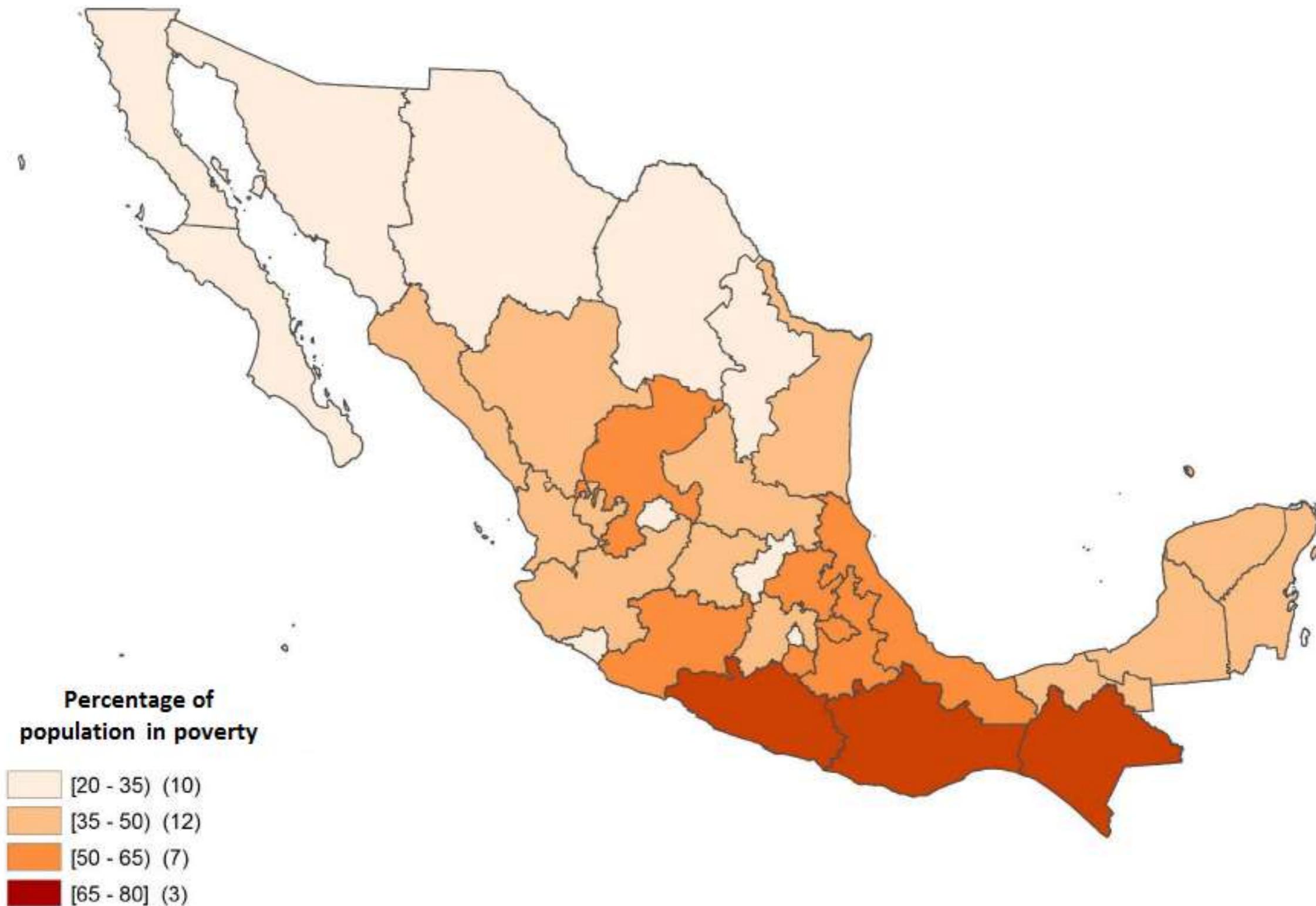
Quality of dwelling [12.3%]

Access to housing basic services [21.2%]

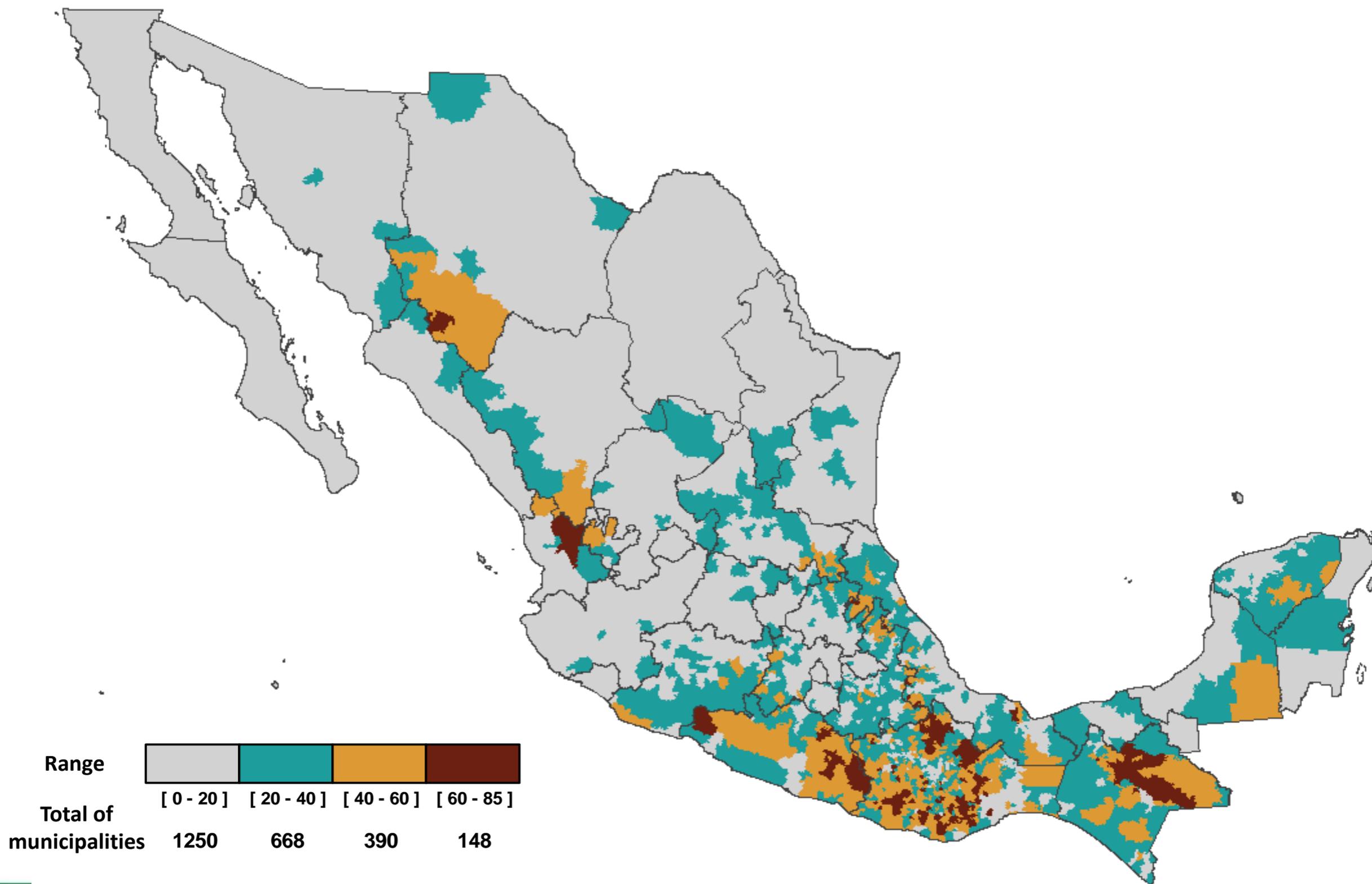
Access to food [23.4%]



Poverty by state, 2014

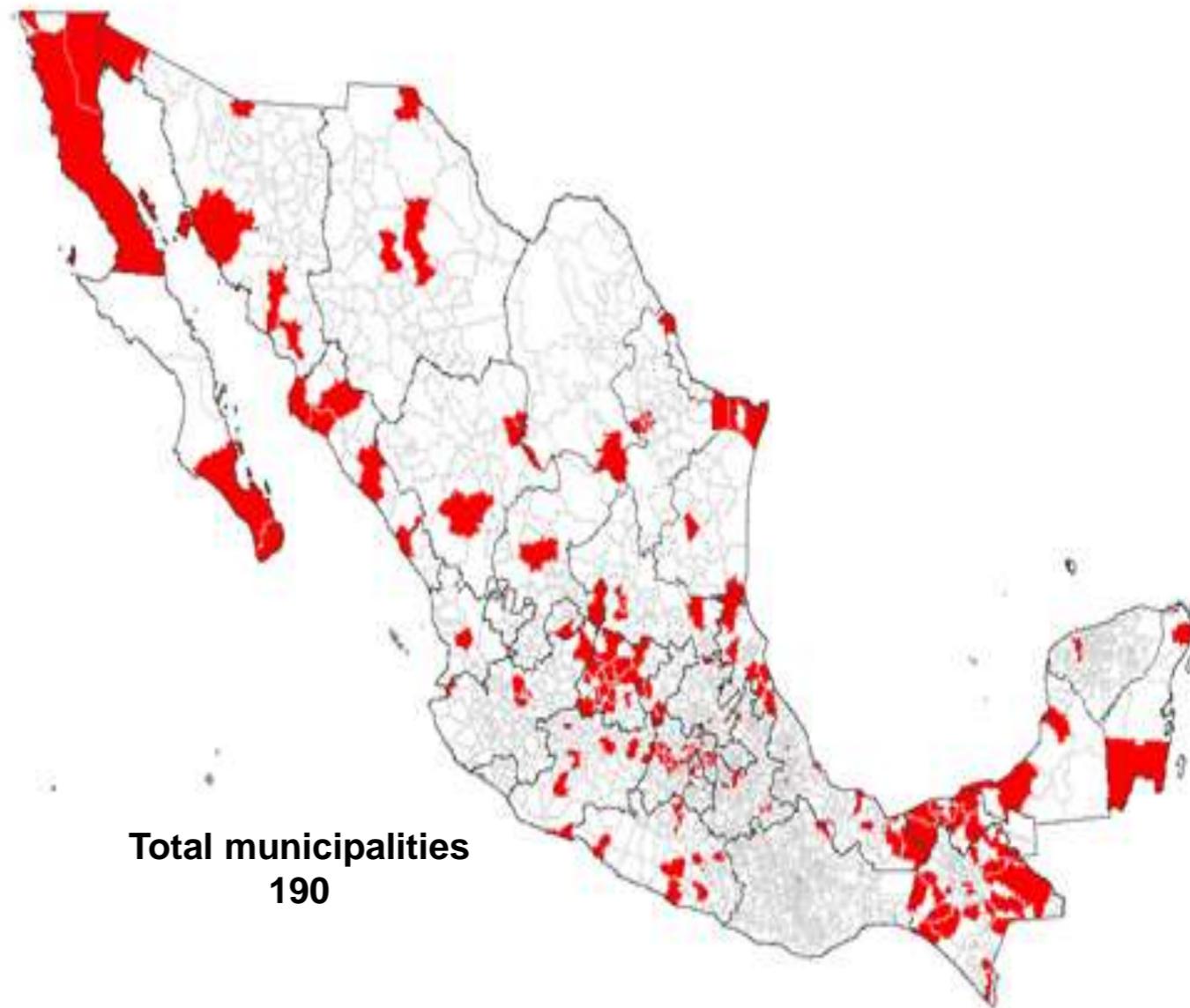


Extreme poverty by municipality, 2010



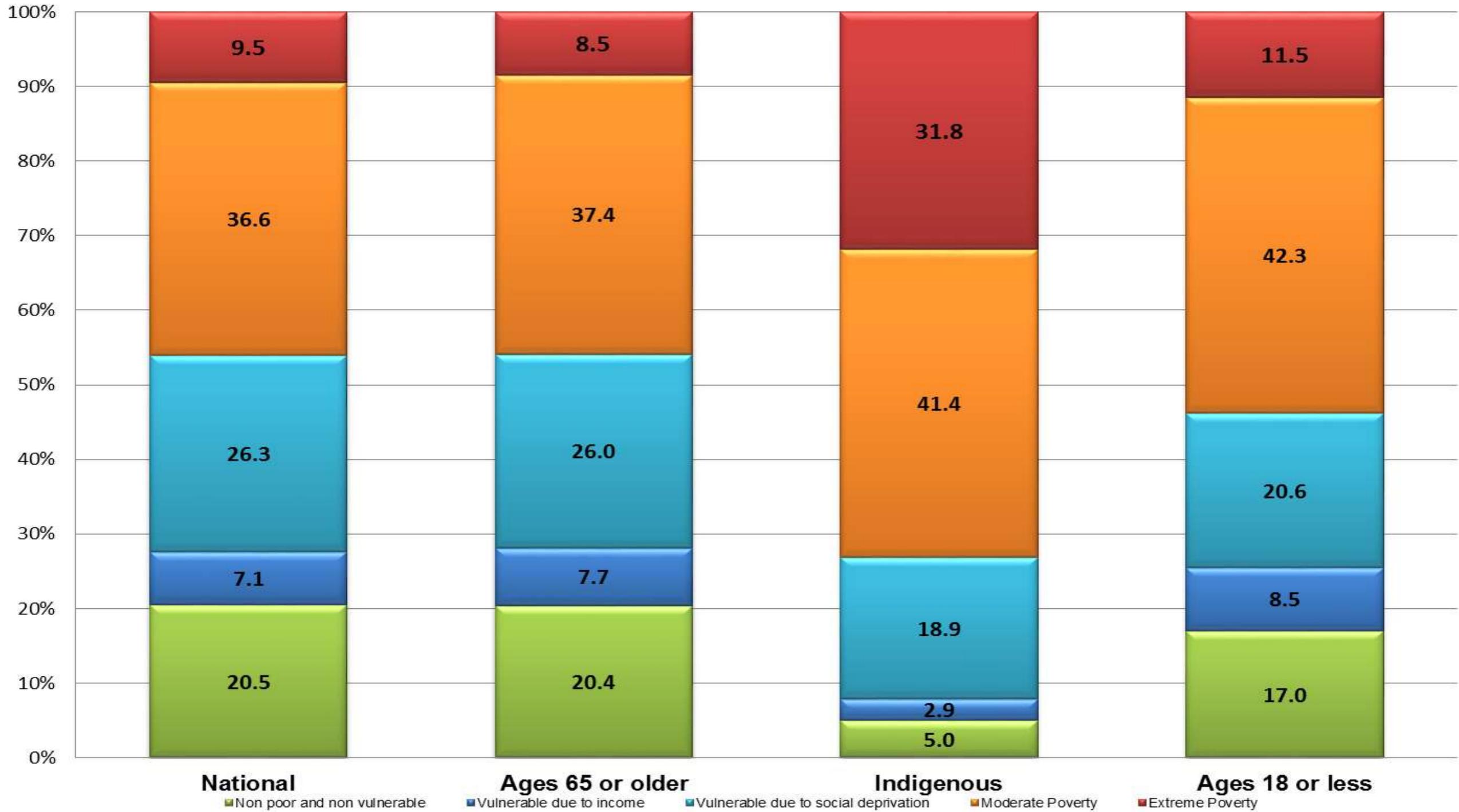
a) Municipalities with 75% or more of their population in poverty

b) Municipalities that accumulate half of the population in poverty



Examples and uses for public policy

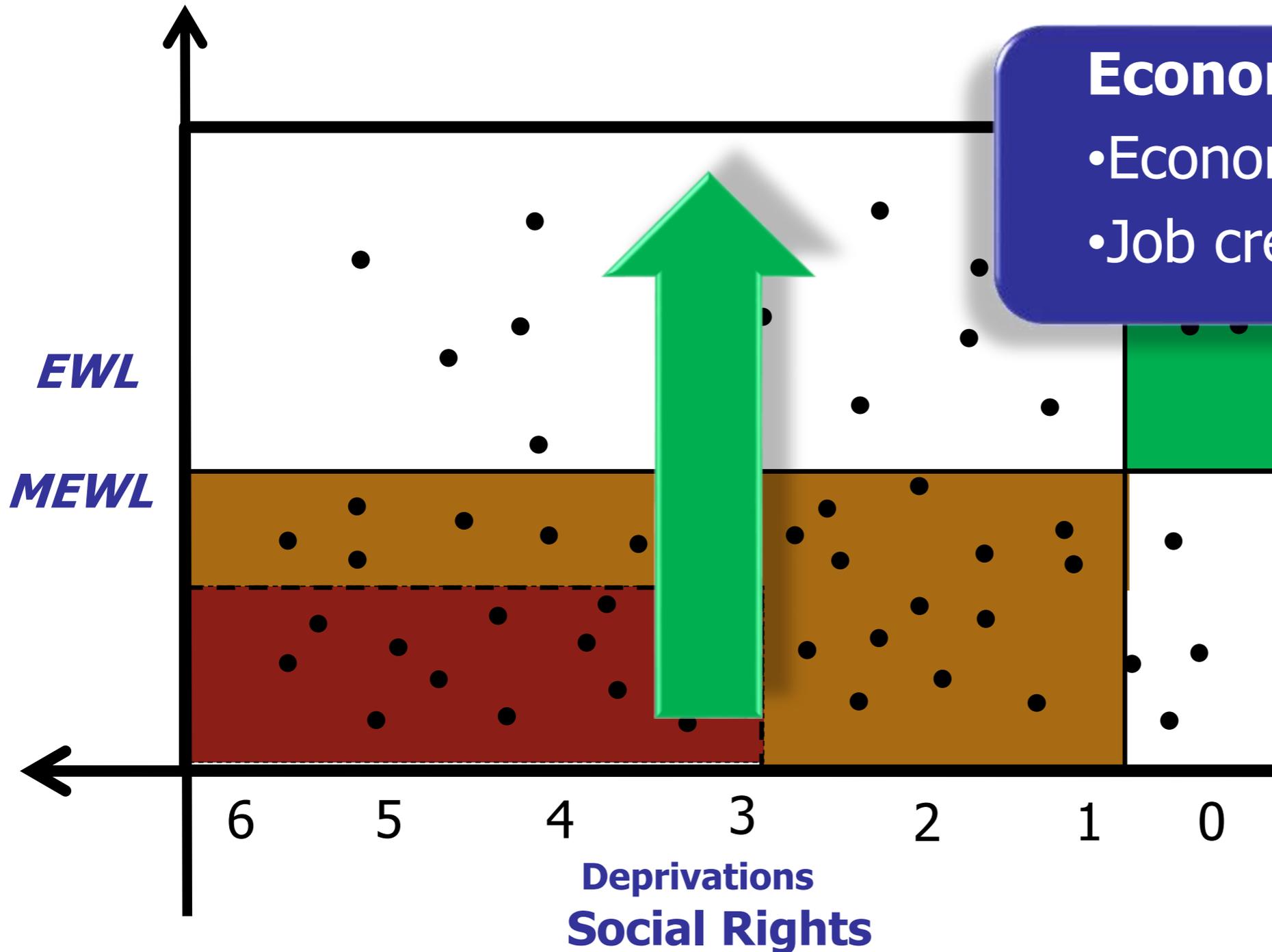
Poverty for different populations, 2014 (Percentage)



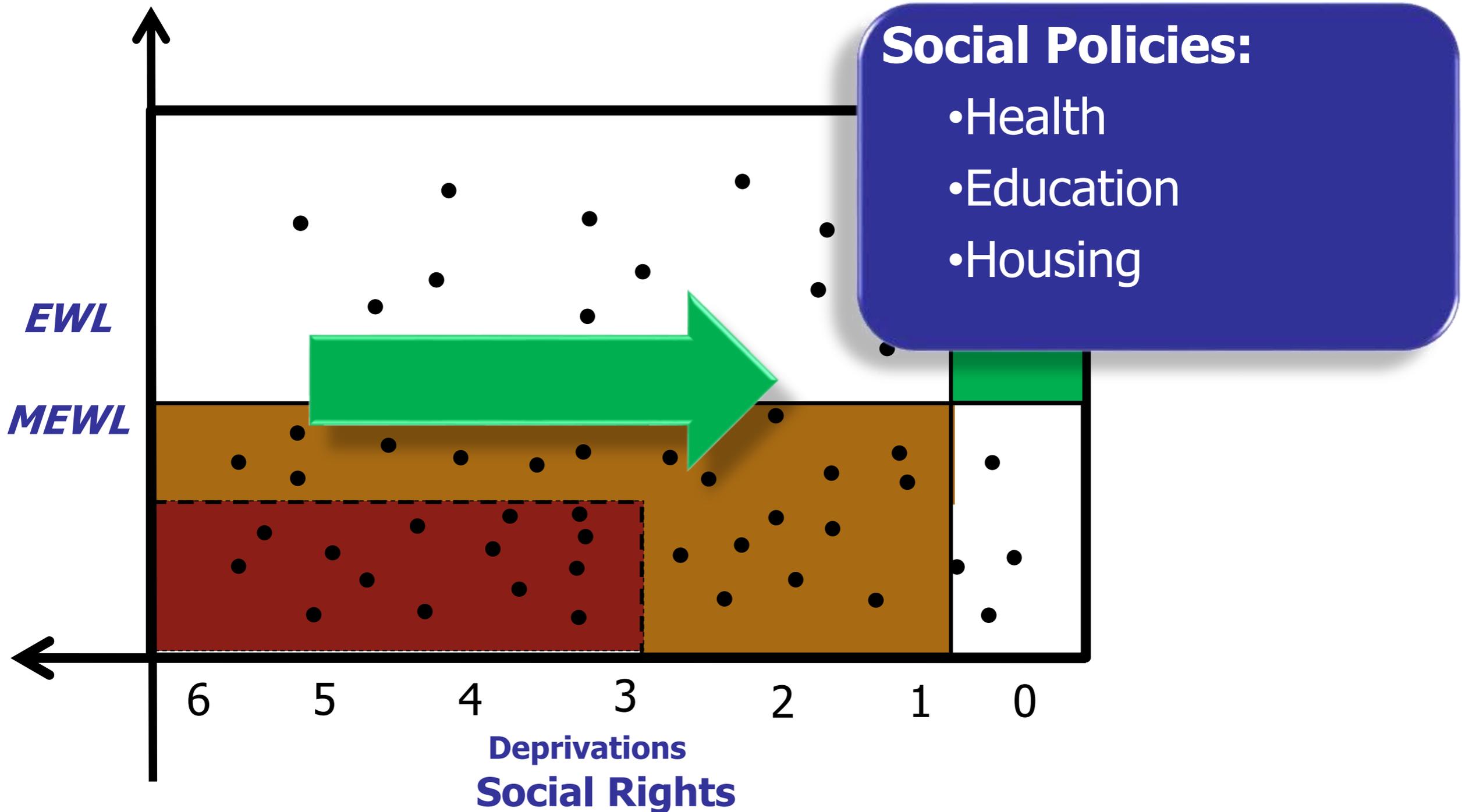
*The indigenous criteria is if people speak or not an indigenous language.

Source: CONEVAL based on MCS-ENIGH 2014.

What policies should be pursued?



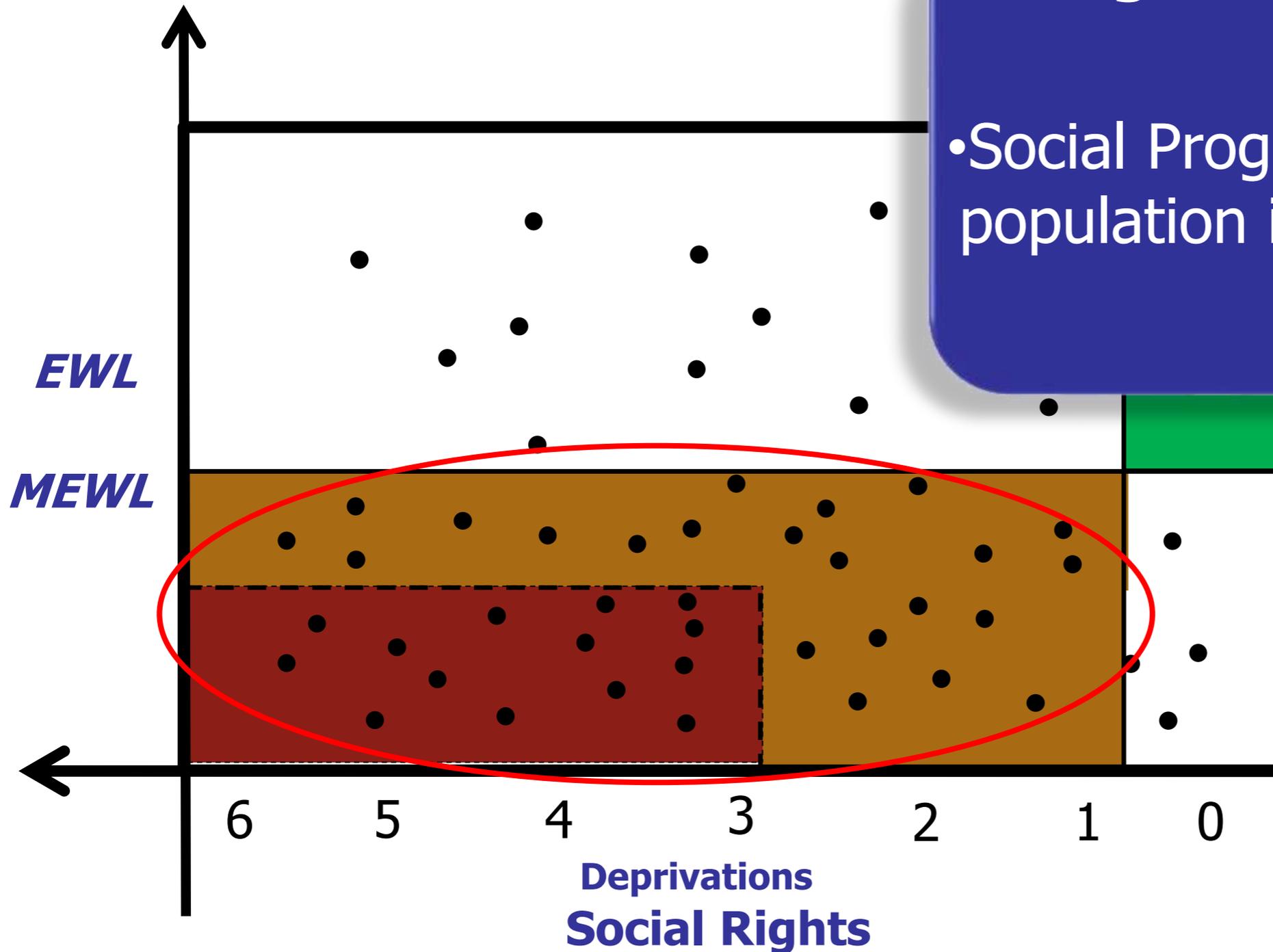
What policies should be pursued?



What policies should be pursued?

Targeted policies

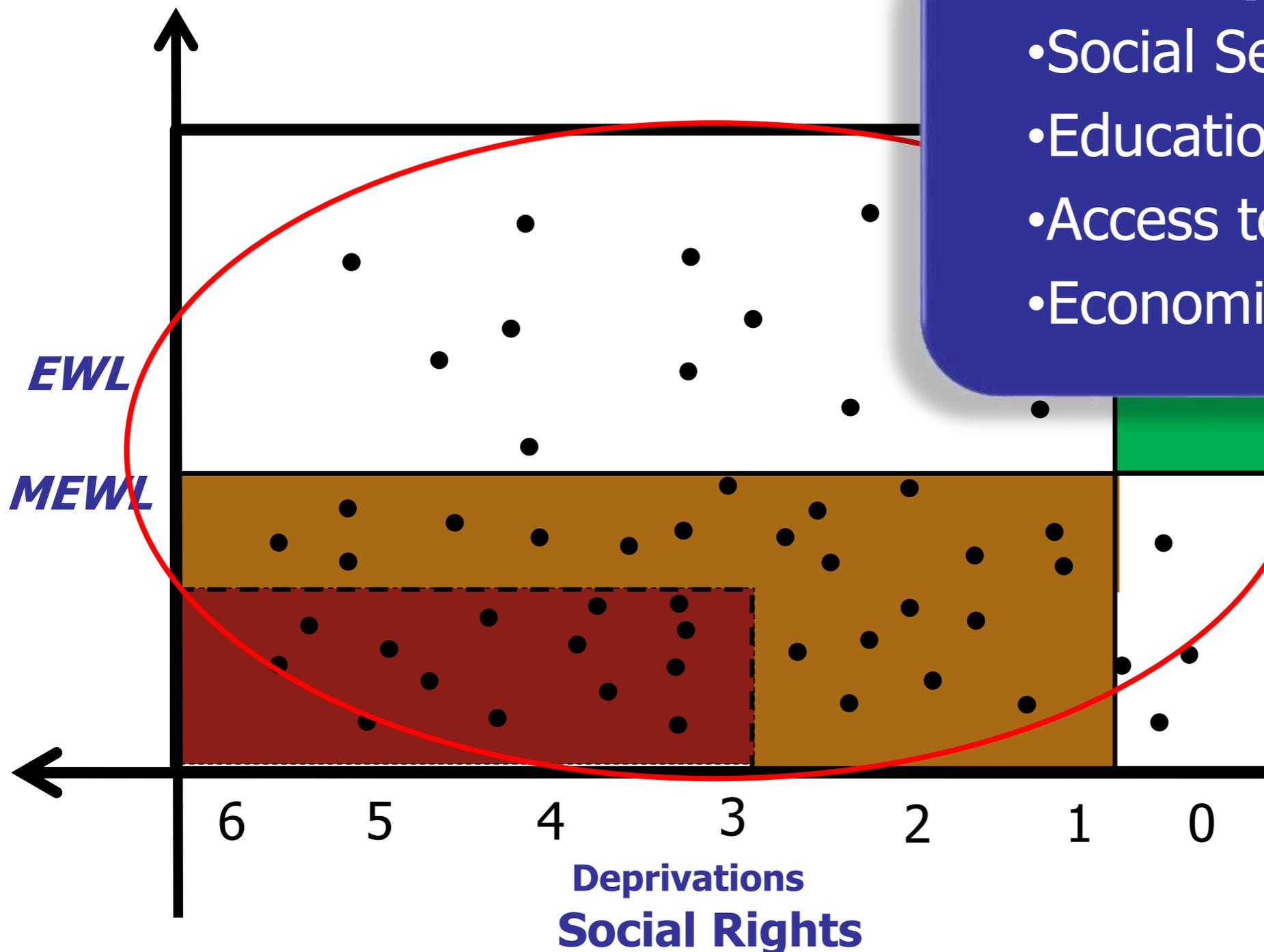
- Social Programs for the population in poverty



What policies should be pursued?

Universal policies

- Social Security
- Education for all
- Access to health services
- Economic growth



Accessing the poverty measurement code & databases

Poverty measurement code

The screenshot shows the main page of the CONEVAL website. At the top, there is a navigation menu with links for '¿Quiénes Somos?', 'Evaluación de Programas Sociales', 'Medición de la Pobreza', 'Adquisiciones', 'Sala de Prensa', 'Informes y Publicaciones', and 'Eventos'. Below the menu are social media icons for WordPress, Facebook, YouTube, Google+, an app icon, and Twitter (@coneval and @GHLIcna). A search bar labeled 'Buscador CONEVAL' is also present. The main content area is divided into two columns. The left column features a 'Pobreza' section with a 'Ganadores' banner for a national photography contest and an 'Evaluación' section with a call for proposals for 2016. The right column contains a list of links related to poverty measurement, including 'Medición de la Pobreza en México 2014', 'Anexo Estadístico', 'Evolución de las Líneas de Bienestar y de la Canasta Alimentaria', 'Índice de la Tendencia Laboral de la Pobreza con Intervalos de Salarios al Segundo Trimestre 2016', 'Metodología para la Medición de la Pobreza', 'Información para el proceso presupuestario 2017', 'Inventario Nacional CONEVAL de Programas Sociales', 'Informe de Evaluación de la Política de Desarrollo Social 2014', and 'Fichas de Monitoreo y Evaluación 2014-2015'. The footer contains several quick links: 'Información de Pobreza y Evaluación por Estado', 'Datos Abiertos del CONEVAL', 'Experiencias Internacionales', 'Programa Anual de Evaluación 2016', 'Libro La política de evaluación en México: 40 años de CONEVAL', and 'Documentos en inglés'.

The programming code and databases used to calculate poverty in Mexico can be easily accessed by the public through the CONEVAL website:

www.coneval.org.mx

Accessing the database & code

From the main menu on the front page select **“Medición de la Pobreza”**

The screenshot shows the main page of the CONEVAL website. The navigation menu at the top includes '¿Quiénes Somos?', 'Evaluación de Programas Sociales', 'Medición de la Pobreza', and 'Adquisiciones'. The 'Medición de la Pobreza' item is highlighted with a red box. A dropdown menu is open, listing various resources such as 'Información del módulo de condiciones socioeconómicas (MCS) 2015', 'Lineamientos y criterios para la definición, identificación y medición de la pobreza', and 'Índice de la Tendencia Laboral de la Pobreza con Intervalos de Salarios (ITLP-IS)'. The dropdown menu is also highlighted with a red box. The main content area features a banner for 'Ganadores Concurso Nacional de Fotografía Los Derechos en México 2016' and a large graphic for 'Evaluación de la Buena materia de monitoreo y evaluación 2016'. A search bar and a language selector are visible in the top right corner.

Accessing the database & code

Select
"Programas de cálculo y bases de
datos 2010, 2012 y 2014"

The screenshot shows the website interface for 'Medición de la Pobreza'. The main heading is 'MEDICIÓN DE LA POBREZA'. Below it, the section 'POBREZA EN MÉXICO' is displayed, followed by the sub-section 'Resultados de pobreza en México 2014 a nivel nacional y por entidades federativas'. A paragraph explains that the CONEVAL reports estimates of poverty in Mexico for 2014. Another paragraph states the purpose is to provide information for improving public policies. At the bottom, there is a grid of buttons: 'Anexo Estadístico', 'Cuadro resumen evolución nacional y por entidad federativa', 'Programas de cálculo y bases de datos 2010, 2012 y 2014' (highlighted with a red box), 'Programa de cálculo 2015', 'Líneas de bienestar', 'Comunicado de prensa', 'Resumen ejecutivo', 'Mapa Interactivo', 'Videos', and 'Documentos en inglés'.

Accessing the database & code

Program codes and databases are available for Stata, SPSS, and R software. Data corresponds to 2010, 2012, or 2014

The screenshot shows the website interface for 'MEDICIÓN DE LA POBREZA'. The main heading is 'PROGRAMAS DE CÁLCULO Y BASES DE DATOS 2010, 2012 Y 2014'. Below this, there is a text block explaining the availability of data for Stata, SPSS, and R. A red box highlights three download options: 'Bases de datos y programas de cálculo 2010', 'Base de datos y programas de cálculo 2012', and 'Bases de datos y programas de cálculo 2014'. Each option includes logos for STATA, SPSS, and R. A blue callout box on the right says 'Select the year and program code you wish to download'. At the bottom, there is a note about technical details for the 2014 data processing.

Select the year and program code you wish to download

Mexican multidimensional poverty measure at municipality scale

Review

Poverty dimensions (General Law on Social Development, article 36)



Information from INEGI (Mexican statistical office)

Periodicity

- **States:** 2 years
- **Municipality:** 5 years



The first measurement at municipality scale was on 2010, in progress 2015

Poverty and territory

The multidimensional methodology of poverty measure allows to answer the questions: how many?, who?, where?

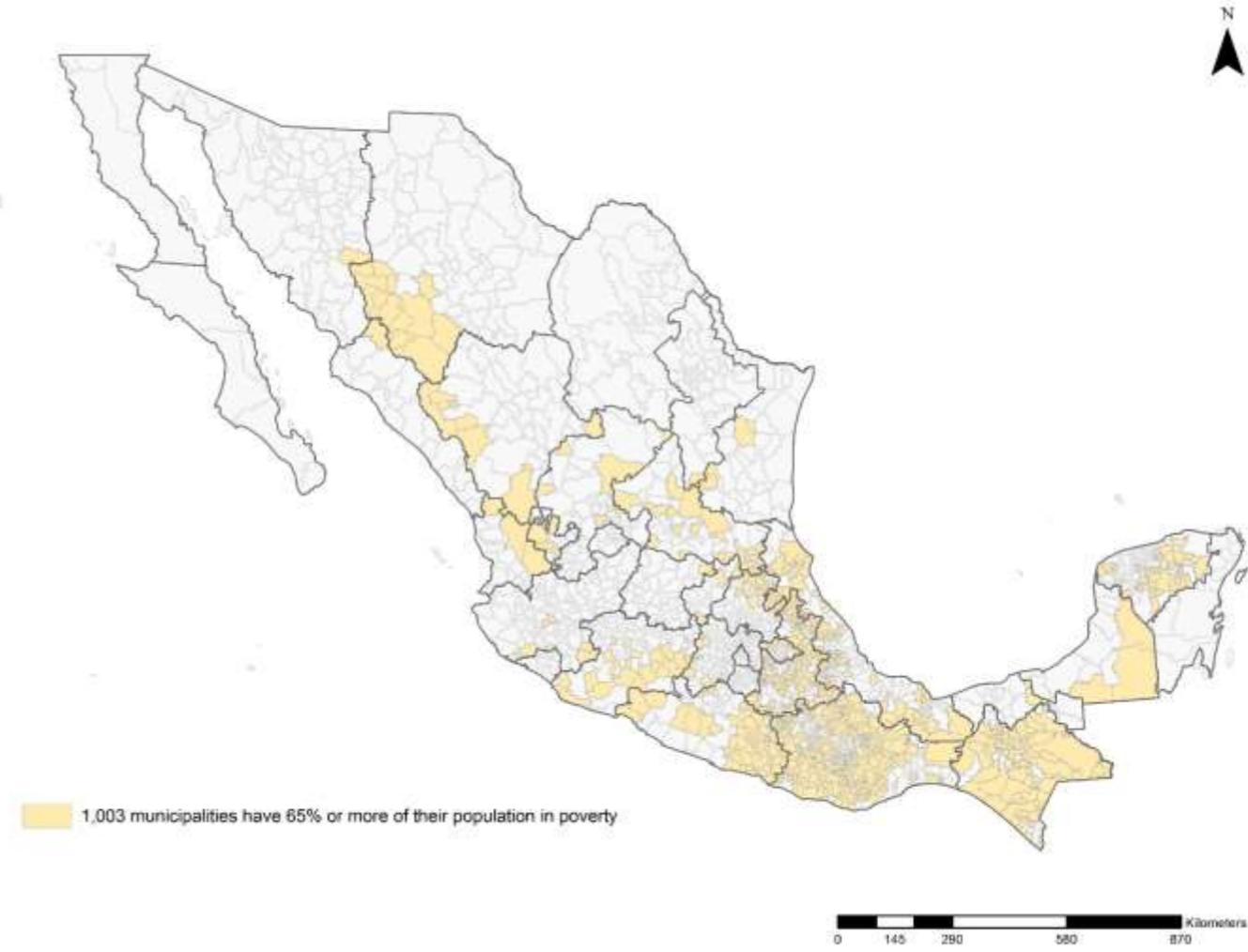
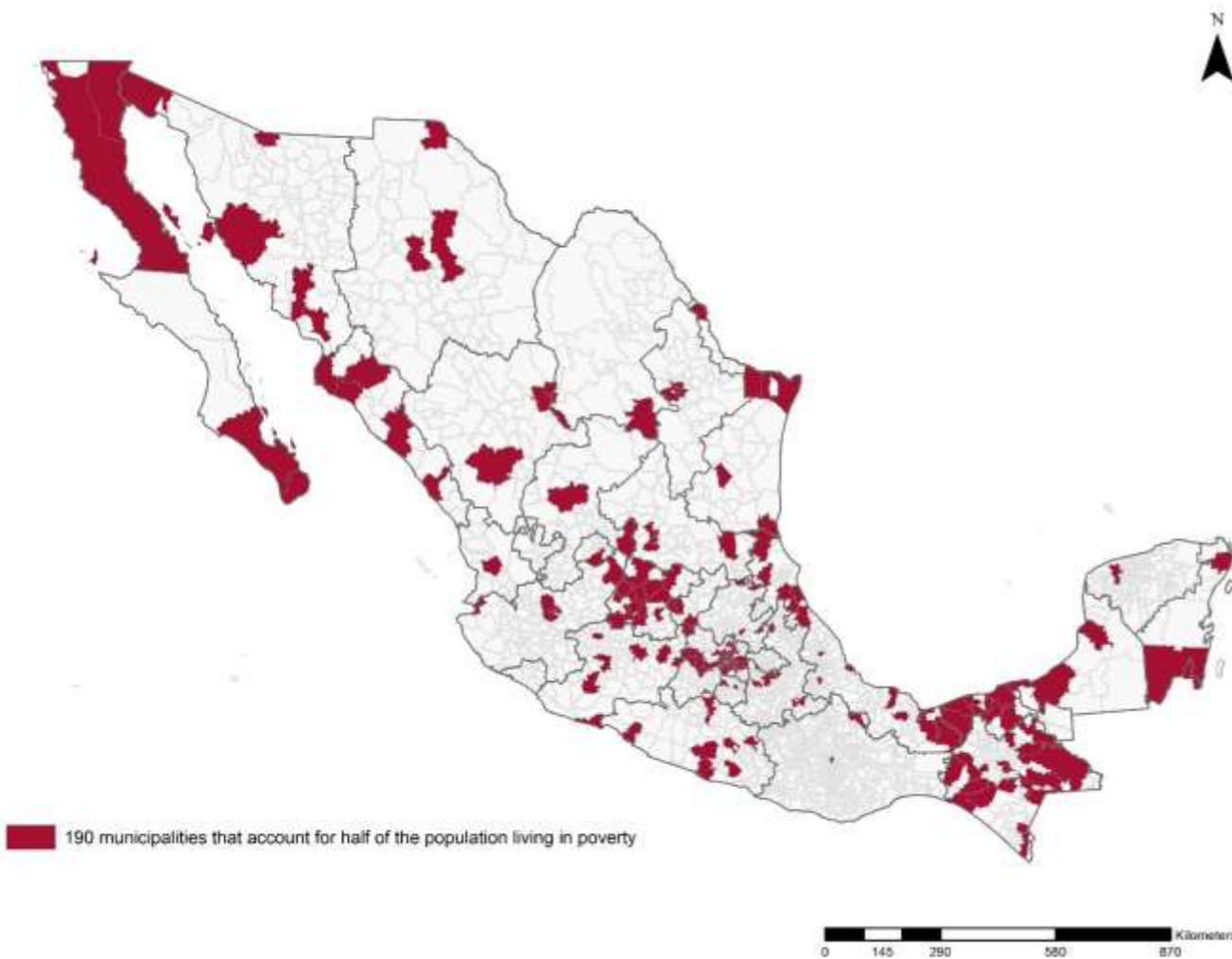
Locate population in poverty status is an important property of multidimensional methodology

CONEVAL has measured national, state, metropolitan and municipal poverty, with rural or urban aggregation and by size of locality

Estimations of poverty in state and municipal level constitute a essential tool for public policy strategies

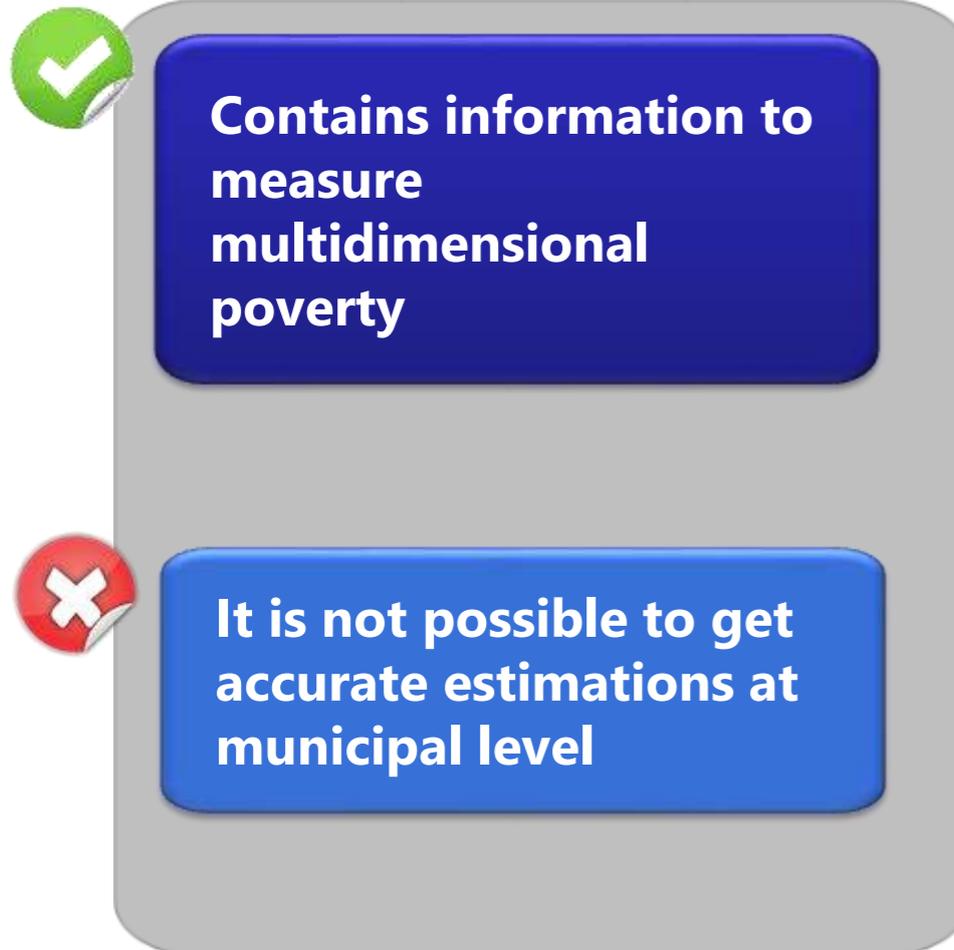
Example: municipalities that accumulate more than half people in poverty status, Mexico, 2010

One common feature of these municipalities is that all are urban localities and belong to one of 59 national metropolitan areas

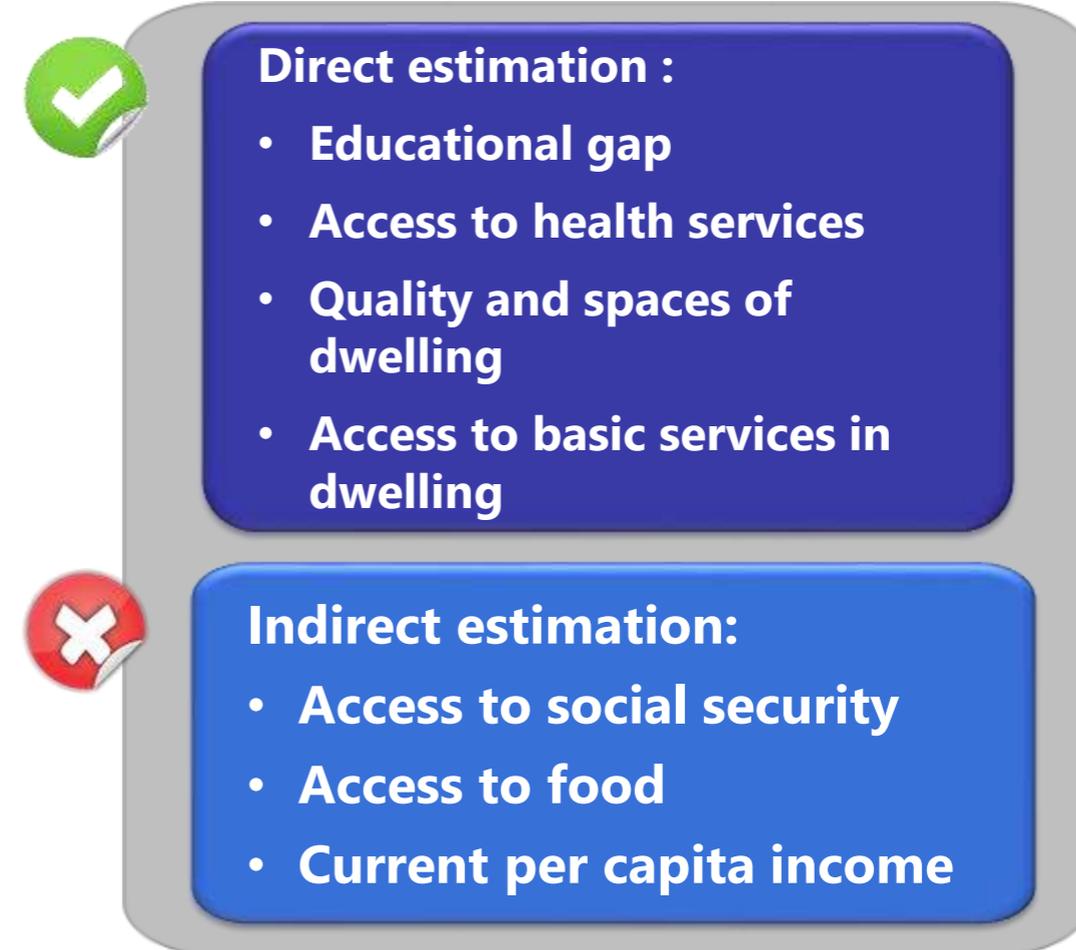


Information sources

MCS-ENIGH 2010



Survey from Census 2010



Research process

There are papers and texts dealing with identification and measurement of multidimensional poverty

There are works which discuss techniques for estimation in small areas

Nevertheless, in 2009 there were no available methodologies for estimate multidimensional poverty using small areas techniques



Research process

**Methodology 2010
(2009 – 2011)**



**Methodology 2015
(2014 – 2016)**

Methodology 2010

**Seminars
and
workshops**

**CONEVAL invited national and international
poverty and statistical experts**

**CONEVAL organized seminars and workshops
concerning small area estimation techniques.
These methods combine information from a
survey (in our case the MCS-ENIGH)
with census information**

**Statistical
experts**

Proposals

**There were five small area
estimation methods**

Methodology 2010

Methodologies exploration

Five methodologies (research with El Colegio de México)

- Hybrid model
- Horvitz-Thompson ratio-estimators in homogeneous areas
- Bayesian model
- M-Quantile methods and empirical best predictor (EBP)
- Geographically weighted regressions (GWR)

Implementation

EBP and Bayesian

CONEVAL explored and implemented:

- Income: hierarchical logistic (mixed logistic) and a combination of a multinomial model
- Food and social security access: hierarchical logistic models

Selection and implementation

Methodological and precision criteria

- EBP: more accurate, nevertheless none of the above met the methodological criteria
- Generalization: (CONEVAL) EBP y ELL (Elbers et al.) for measure multidimensional poverty (6 social lacks and income)

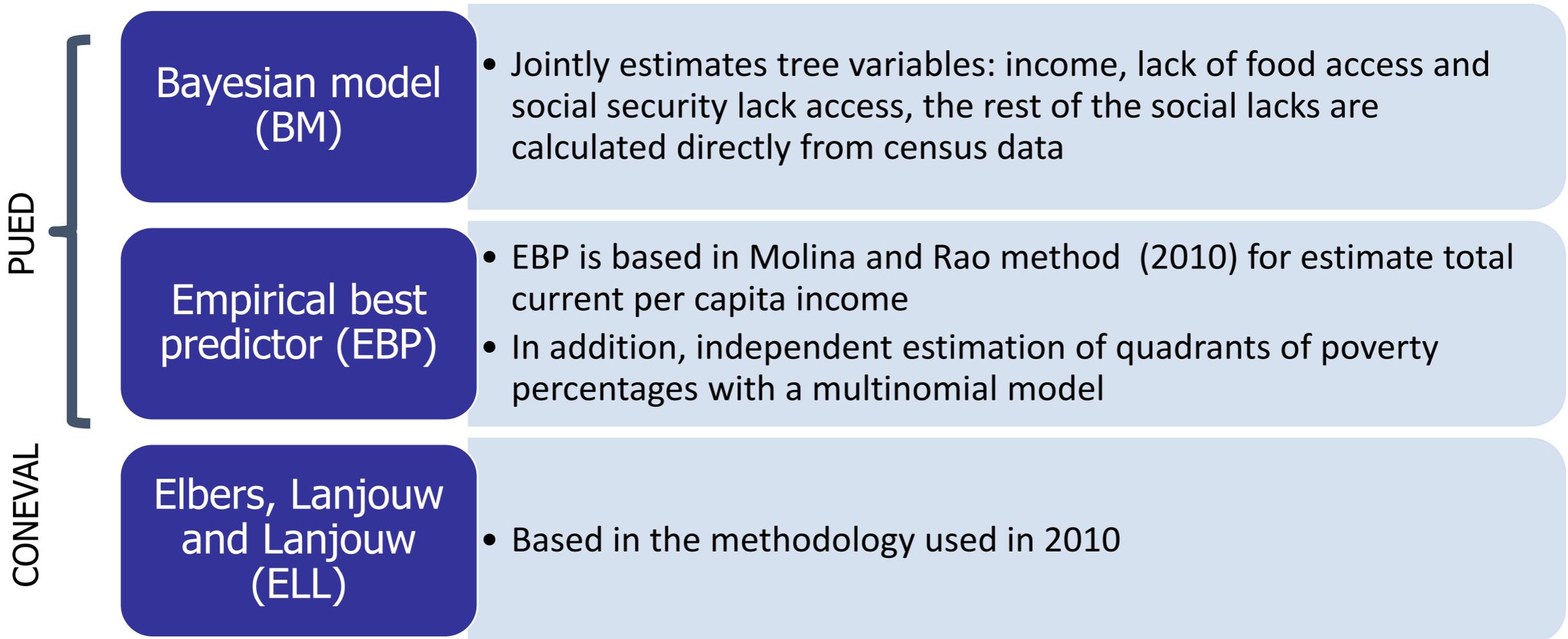
Universities

Iowa State, US
UNAM/UAM, Mexico
SouthHampton, UK
University of Newcastle, UK
ITAM, Mexico
Carlos III, Spain

Outcome: measurement of multidimensional poverty at municipality scale, 2010

Research process: 2014 – 2016

Coordinated research with the University Program of Development Studies (PUED) of the National Autonomous University of Mexico (UNAM)



UNIVERSITIES

ITAM, Mexico

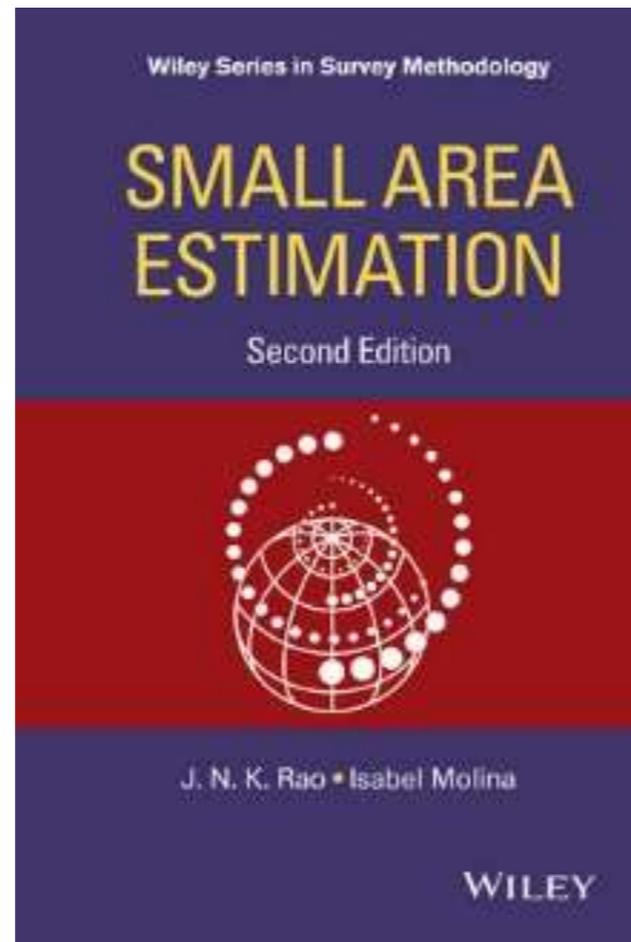
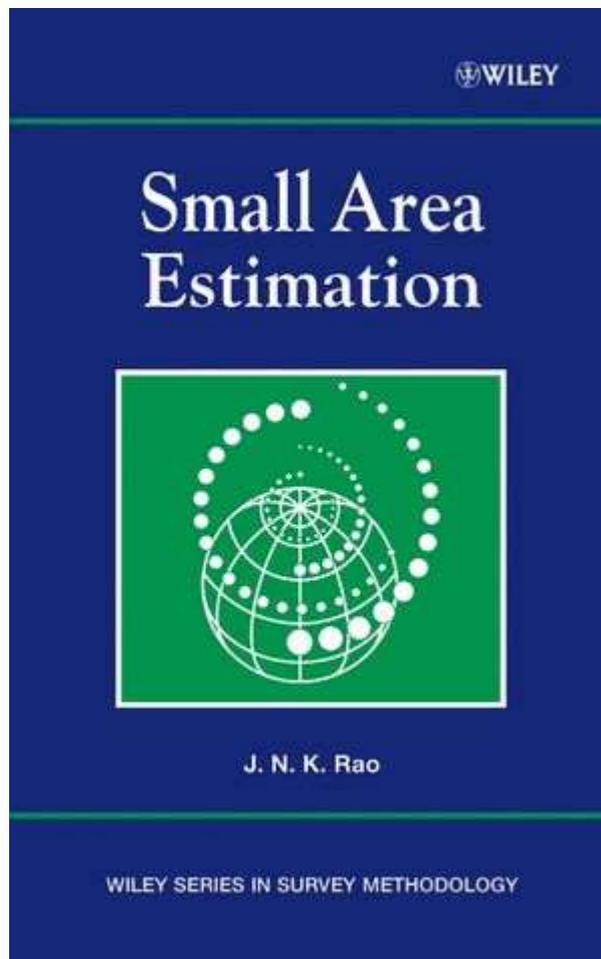
University of SouthHampton, UK

UP Chiapas, Mexico

Freie Universität Berlin

Carlos III, Madrid, Spain

Some basic references



Boletín de Estadística e Investigación Operativa
Vol. 25, No. 3, Octubre 2009, pp. 218-225



ESTADÍSTICA OFICIAL

Small area estimation of poverty indicators

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Abstract

This paper describes some of the research lines of the European project SAMPLE and presents the results of an application to the estimation of poverty indicators in Spanish provinces by the use of a Fay-Herriot model.

Keywords: EBLUP, Fay Herriot model, poverty indicators, small area estimation, survey on income and living conditions.

AMS Subject classifications: 62D05, 62J05.

Research process: 2014 - 2016

From the analysis of the results obtained and the development in in small areas estimation techniques, CONEVAL has proposed to consider heteroscedasticity extension to EBP methodology

CONEVAL developed a study with academics from UNAM

- Jointly estimates tree variables: income, lack of food access and social security lack access

Concurrently, CONEVAL worked on

- Conceptual and operative improvements on income estimation models
- Estimate the lack of access to food and social security through logistic regression models and discriminant analysis

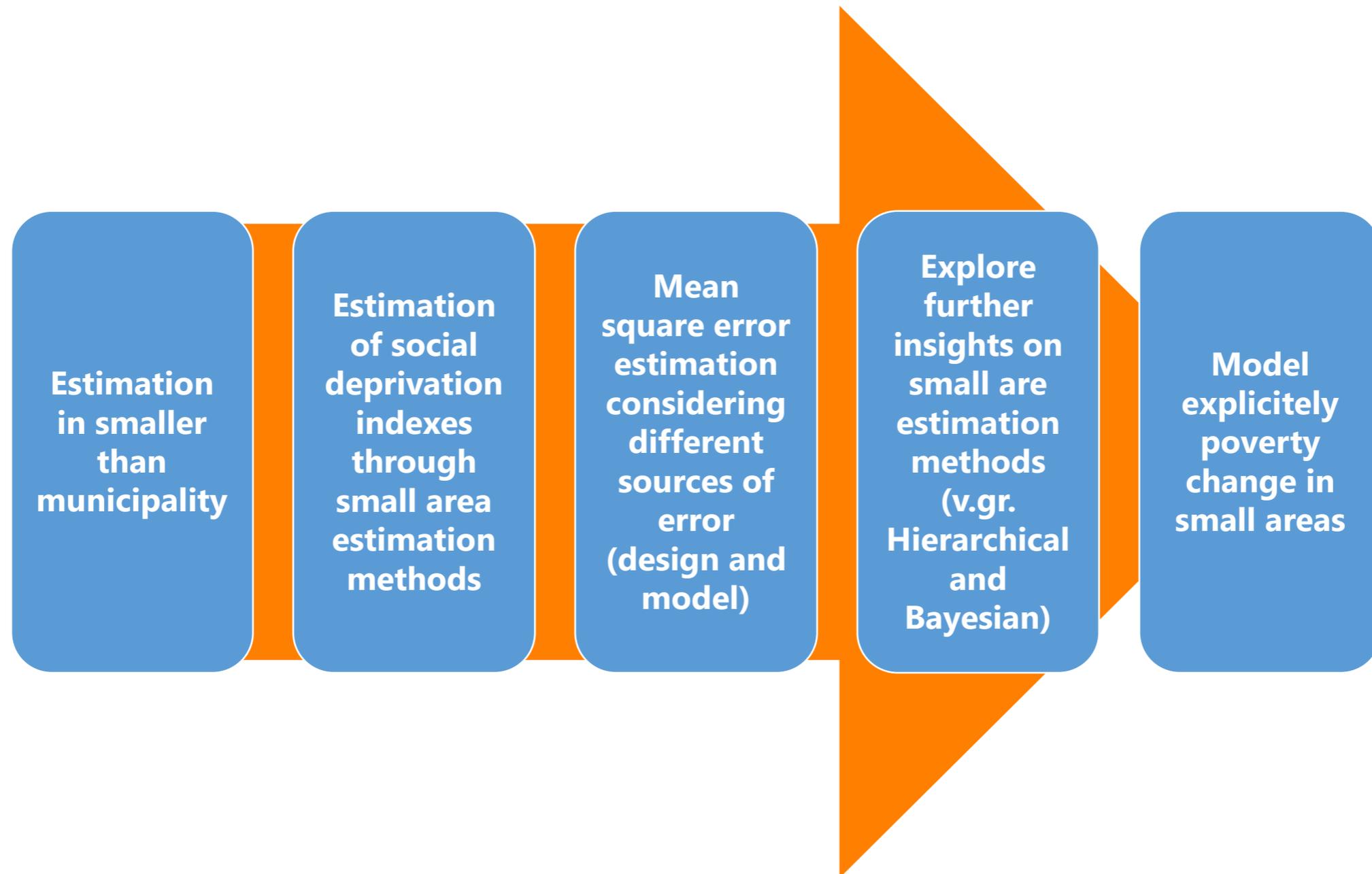


Integration of the six social deprivations and income



Goal: multidimensional poverty measure at municipality scale 2015

Research agenda



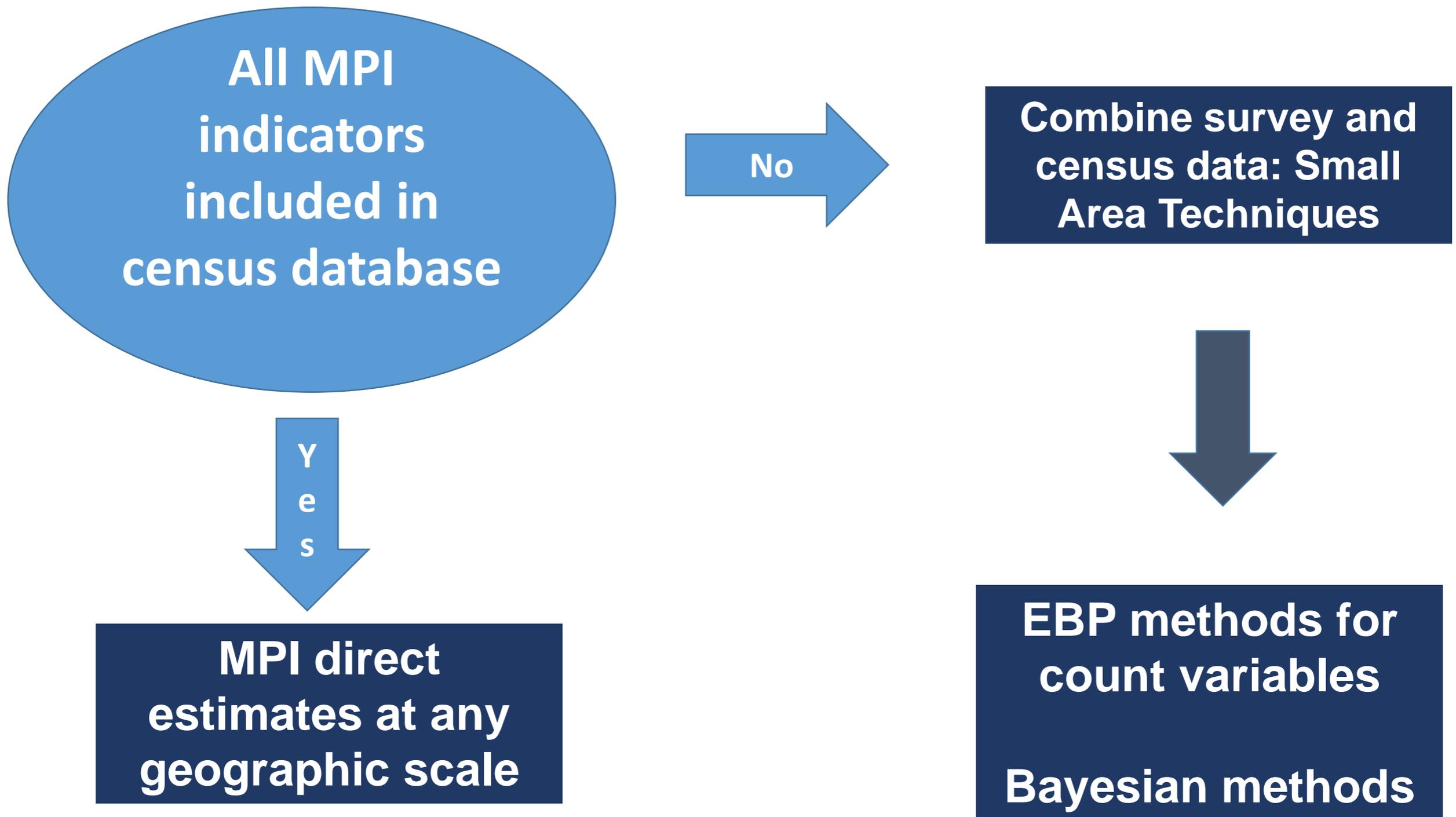
Examples of uses in public policy

National Crusade Against Hunger

- **Participation of all 17 Federal Ministries**
- **Target Population**
 - People in extreme poverty and food deprivation
 - Around 400 municipalities were selected according to extreme poverty and food deprivation indicators (number and %)
- **Aim**
 - Progressive eradication of every poverty dimensions and achievement of full exercise of social rights

Fund for Social Infrastructure at the State and Municipality Levels (FAIS, FISMDF)

- **Financial priority to overcome poverty dimensions**
- **Allocation of the fund based on indicators of extreme poverty (number of people and average deprivations)**



Gracias
Thank you
Merci

Contact information

**Consejo Nacional de Evaluación
de la Política de Desarrollo Social
(CONEVAL)**

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