POVERTY MEASUREMENT

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Why poverty measurement still important?

- Politicians and policy makers need **reliable and actionable information** regarding the wellbeing of its population in all this shapes and forms
- **Growth is not always inclusive** and it can create discontent
- **Crisis happens** and some groups and territories are more vulnerable than others
  - Natural disasters
  - Conflict
  - Migration
  - Refugees
- **International advocacy** and **awareness building**, with efforts such as the SDGs and the Global Poverty Monitoring

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Some new and not so new challenges and opportunities for National Offices of Statistics

CHALLENGES

- **Alternative facts are on the rise**, questioning the general understanding of what is an accurate, reliable and timely authoritative source of information
- Most countries are **fiscally constraint**, and recourses for the national systems of statistics are not always secure
- **Refusal rates are on the rise**
- "Big data" is creating an **industry of "timely" indicators**, not always properly validated
- Significant **demographic shifts** with an **aging population**, and **increasing migration** flows

OPPORTUNITIES

- **Growing demand for data** and for the understanding of **data as a public good**
- Technology can help us **improve traditional processes** (Census grids can be fully or partially updated using remote sensing; continuous census are in many countries both a political and technical possibility)
- Technology can help us **create new types of data**, by augmenting its policy value by linking respondents across statistical operations and administrative records

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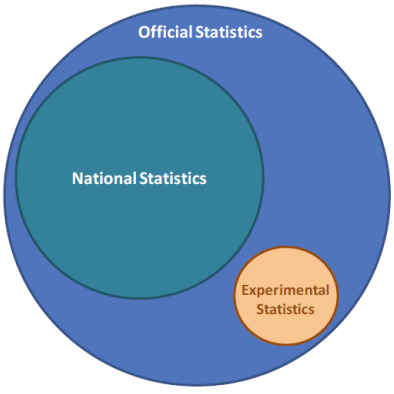
National Systems of Statistics that brings together Official, National and Experimental statistics



Source: "Assessment and Designation of Experimental Statistics". UK Government Statistical Service

Creating the space for and recognizing the value of **innovation** in any Statistical System

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Poverty measures need to be country owned, hence national methodologies are the most relevant for any country dialogue

However, countries often see the need to **benchmark** themselves regarding their level of economic and social development.

Efforts such as the **Monitoring of Global Poverty** and the use of **International Poverty Line** based on PPPs enable countries to benchmark themselves in terms of Monetary Poverty, just like GDP in PPP allow countries to compare themselves in terms of level of economic development.

This is critical for **cross fertilization** and **learning among countries** in terms of what works or not work to promote social and economic progress.

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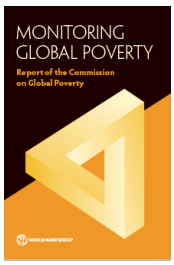
The **Commission on Global Poverty** led by Tony Atkinson provided several recommendation for improvements on the Global Poverty Monitoring exercise.



Commission on Global Poverty website

Cover note can ben downloaded here

Full report can be downloaded here

The World Bank is currently working to implement a number of those recommendations, including:

- Improve the integration of national and international poverty analysis, by reporting **country briefs** with both National and International poverty measures
- Construction of a **Multidimensional Poverty Measure**, which jointly consider both monetary and non-monetary dimensions of poverty (as done by Mexico)
- Creation and reporting of **higher aspirational poverty thresholds**, which can be of greater relevance for countries at higher levels of economic development, such as **lower-middle income and upper middle income poverty lines**.
- Systematic reporting of a **Global Poverty Profile**, with splits by age, urban/rural and gender. The later has the challenge monetary welfare (consumption or income) is always measures at the household and not at the individual level.
- Support countries fill their **national data Gaps,** specially but not exclusively in countries with less than one multitopic household survey every three years

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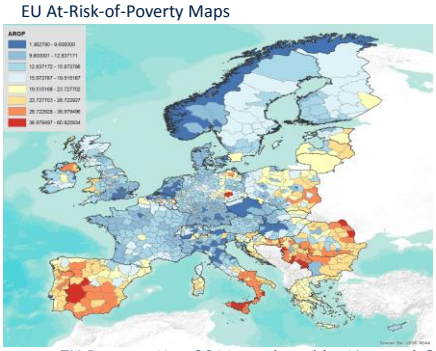
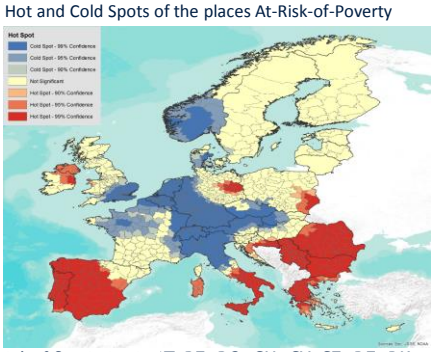
Understanding the spatial distribution of poverty is extremely important, and small area estimation methods are now being used as both official and experimental statistics

EU At-Risk-of-Poverty Maps



Hot and Cold Spots of the places At-Risk-of-Poverty



Note: EU Poverty Map 2011 produced by National Official of Statistics in AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, FI, FR, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK and UK in collaboration with DGREGIO/TiPSE/World Bank.

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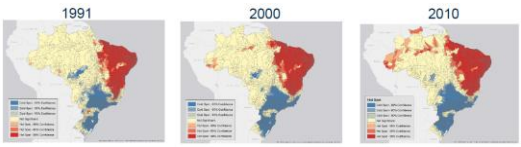
And although the poverty levels might change over time the spatial distribution of poverty and where the poor lives tends to be quite persistent

Poverty Maps

Hot and Cold Spots of the Poverty Rate



Hot and Cold Spots of the Poor

Note: Hot and Cold spots produced by author using poverty map from IBGE/IPEA/UNDP.

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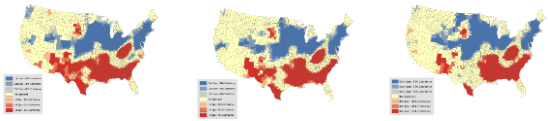
Regardless if the country has experience nor not a significant changes in poverty during the period

Poverty Maps

1995 2005 2015

Hot and Cold Spots of the Poverty Rate

1995 2005 2015



Hot and Cold Spots of the Poor

1995 2005 2015

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Note: Hot and Cold spots produced by author using poverty data produced using the American Community Survey, US Census Bureau.

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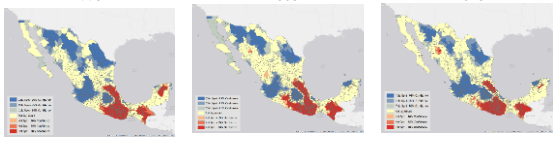
Suggesting that the shelf life of poverty maps is substantially higher than what is often perceived by policy makers, if and when the questions is what are the poor regions of the countries and where the poor lives

Poverty Maps

2000 2005 2010

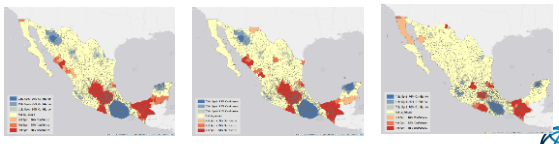
Hot and Cold Spots of the Poverty Rate

1995 2005 2015



Hot and Cold Spots of the Poor

1995 2005 2015



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Note: Hot and Cold spots produced by author using poverty data produced by CONEVAL using data from INEGI.

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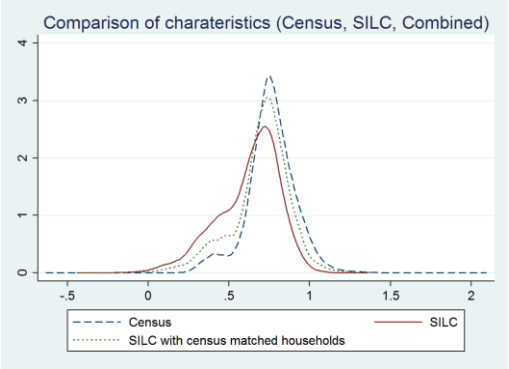
And the quality of small area estimations can be greatly improved as responses across different statistical operations can be linked

For the **2020 round of the population Census** it is critical to enable the link of responses from surveys with Census data.

Bulgaria and Latvia are using this information to improve the quality of their small area estimation of poverty with great success.

This possibility can applied on a number of **other indicators**

This process can be of value even in places where tax records can be link with Census respondents, since in some countries surveys can better capture **informal sources income**.



Source: NSI Bulgaria / World Bank Poverty Map

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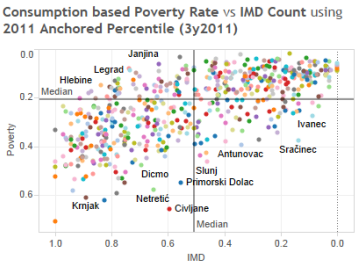
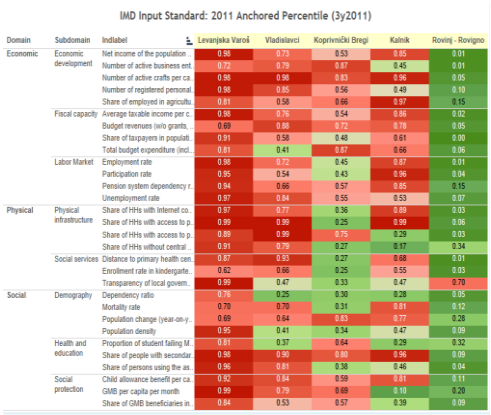
The possibility of linking administrative records across the territory can also be of extreme value to improve the alignment of policies to tackle poverty and deprivation, and NSOs can play a critical role coordinating and integrating those different sources of information

In Croatia the National Bureau of Statistics and the Ministry of Regional Development have created an **Index of Multiple Deprivation by** integrating a **administrative records** from several line ministries with the **poverty map** to create a **municipal score card** to the support the **allocation of EU funds**





Source: Croatian Bureau of Statistics and Ministry of Regional Development and EU Funds

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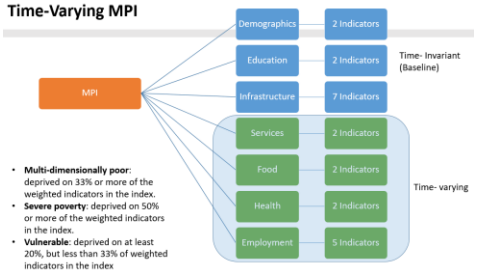
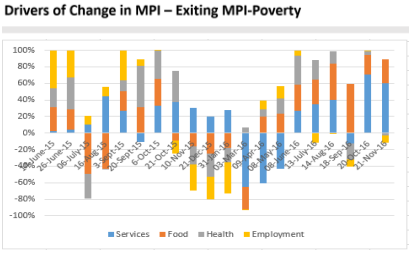
Global measures of welfare, such as subjective wellbeing and life satisfaction can also be of great value to policy makers, specially when monitored over time using high frequency longitudinal surveys and combined with multidimensional measures of poverty to help identify drivers and policy actions.

- The technology for **high frequency longitudinal surveys** has improved substantial and can be a valuable complement to traditional household survey methods
- In Tajikistan, a measure of **subjective wellbeing** has been used to help identify the main components of an **Multidimensional Poverty Index** (MPI)
- The longitudinal nature of the survey enable **monitoring of the main driver of the observed changes** in MPI on a monthly basis.





Source: Listening to Tajikistan High Frequency Longitudinal Survey of People

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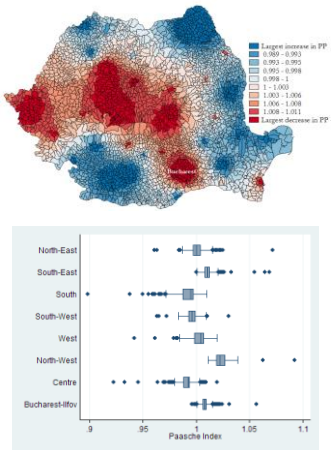
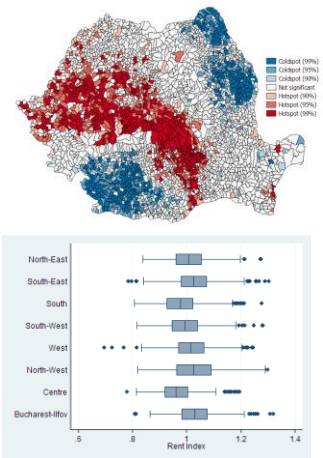
Spatial differences on cost of living can be quite remarkable, and it is important that going forward we experiment more systematically with methods to better capture this heterogeneity in our measures of poverty and deprivation

Getis-Ord Hotspot Analysis of Cost of Food



Getis-Ord Hotspot Analysis of Rent Index



Source: Romania NSO / World Bank Poverty Map

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Income and consumption measures of poverty are highly complementary and can reflect sub groups of the population in very different manners, with direct implications on policy design

	Direct estimates		SAE	
	Income	Consumption	Income	Consumption
Total	20.4	16.3	19.2	17.1
Among children	23.3	41.3	20.3	38.7
Among working age adults	19.3	13	17.1	13.7
Among the elderly	25.6	10.9	26.3	11.8
Among those living alone	35.8	8.7	31.5	6
Among those living with another person	22.3	6.4	19.9	5.3
Among those living with two people	15.3	9.1	14.6	8.1
Among those living with 3 or more people	19	24.2	18.7	26.5
Among those who work	7.6	9.9	6.1	11.5

Source: Croatian HBS 2011 (threshold at 23,919 HRK), and Croatian SILC 2012 (threshold at 24,000 HRK)
Note: Croatian Bureau of Statistics and MRDEUF

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We should be more intentional on the design of experimental statistics based on short consumption modules which can be easily integrated with preferred income based survey

- Household consumption patterns can be a great predictor of overall consumption level
- A limited set of 35 questions if a household has consumed certain COICOP level 4 items can go a long way towards obtaining a comparable consumption aggregate

Table 1: ELL simulation of adult equivalent consumption for Greece

	Sim (1)	Sim (2)	Sub sample 2 sim (1)	Sub sample 2 sim (2)
Model details:				
Observations	5,857	5,857	2,860	2,860
Regressors	35	35	35	35
Adjusted R2	0.67	0.67	0.66	0.66
Max. VIF	3.63	3.63	3.59	3.59
F-Stat	345.80	345.80	249.40	161.51
Het. Adj. R2		2.E-03		1.E-03
Het. F-Stat		6.50		2.52

Source: Greek 2014 HBS, own estimates

Table 2: Simulation exercise for Greece

	Direct estimate	Full sample Sim (1)	Full sample Sim (2)	Sub-sample (50%) Sim (2)	Sub-sample (50%) Sim (2)
Children					
Headcount	21.5	25.1	20.3	25.1	20.0
Gap	4.1	8.4	5.2	8.3	5.2
Severity	1.4	3.9	1.9	3.9	2.0
Elderly					
Headcount	27.3	31.9	26.8	32.3	27.4
Gap	6.0	10.6	6.5	10.7	6.6
Severity	2.1	4.9	2.3	4.9	2.3
National					
Headcount	20.9	25.2	19.9	25.5	20.2
Gap	4.8	8.3	4.9	8.4	5.0
Severity	1.8	3.8	1.8	3.8	1.8
Gini	34.6	42.7	34.7	42.7	34.6
GE 0	20.0	31.5	19.8	31.6	19.7
GE1 (Theil)	21.1	32.1	20.3	32.0	20.2
GE2	28.2	45.7	25.6	45.3	25.2

Source: Greek HBS 2014, Own estimates.
Note: Relative line (60% of median adult equivalent consumption). Sim 1: Only consumption dummies, and nat log. of hosuehold size. Sim 2: Only consumption dummies, heteroskedasticity modeled with share children and elderly. Simulations done using ELL methodology. Full sample (5,888 hh).

Going forward it is also important to learn how to improve the usage of the microdata produced, since there seem to be significant heterogeneity across countries and statistical operations

Citations on reports, articles, theses, books, abstracts, from government, academic publishers, professional societies, online repositories, universities and other web sites

Country	Keyword	Any Time	since 2017	since 2016	since 2013
Brazil	PNAD+BRASIl	35,200	1,090	4,170	13,100
Brazil	PNAD+BRAZIL	25,500	726	3,120	9,350
Mexico	ENIGH+MEXICO	21,300	5,460	17,400	17,300
Colombia	DANE GEIH	1,470	90	290	816
Colombia	DANE ECV	1,910	51	185	667
USA	"American Community Survey"	44,000	1,630	9,430	17,900
USA	"Current Population Survey"	127,000	1,490	6,410	15,500
UK	"British Household Panel Survey"	16,300	472	1,550	4,920
Multiple	"Demographic and Health Survey" OR DHS	391,000	2,230	22,800	17,800
Multiple	"Living Standards Measurement Survey" OR LSMS	25,600	758	2,290	7,350
Multiple	"European Community Household Panel" OR ECHP	16,800	213	818	3,340
Multiple	"Survey of Income and Living Conditions" OR SILC	26,000	1,040	3,120	10,500
Multiple	"Survey of Income and Living Conditions" OR SILC AND UDB	1,060	51	116	418
Multiple	EUROMOD	3,070	104	359	1,160
Multiple	EUROMOD + SILC	919	46	146	467

Source: Google Scholar as of June 16th 2017

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One last remark: Big data and welfare monitoring

- Predictive analytics methods are **as good as the training data** made available to calibrate those algorithms
- In most countries there is no **high frequency temporal variation of welfare** required for this type of calibration.
- Numbers are being produced using in many cases **only spatial variation to calibrate** those models. As seem earlier, most of the spatial patterns do not seem to change drastically over time.
- There is need to be more **intentional on the creation of good input data**, and validation of such high frequency indicators using “big data” and “remote sensing”
- **High frequency longitudinal surveys** for subsamples of the population can the more systematically used to produce such training data.

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Main takeaways: Official Statistics

Improve the usage microdata produced is important and possible, since there seem to be significant heterogeneity across countries and statistical operations

Spatial distribution of poverty is extremely important, and small area estimation methods are now being produced as official statistics, and those maps have a long shelf live, given the persistency of spatial agglomeration of poverty

The **integration of respondents across statistical operations** is already a reality in many countries, and 2020 round of the Census offers an opportunity to replicate it in other countries, with substantial pay offs

Linking administrative records across the territory can help improve alignment of policies to tackle poverty and deprivation, and NSOs can play a critical role coordinating and integrating those different sources of information

Income and consumption poverty measures can be extremely complementary, and together can provide a nuanced understanding of the different types of poverty and required policy responses.

Global measures of welfare, such as subjective wellbeing and life satisfaction can also be of great value to policy makers, specially when monitored over time using high frequency longitudinal surveys and combined with **multidimensional measures of poverty** to help identify drivers and policy actions.

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Main takeaways: Experimental Statistics

Spatial differences on cost of living can be quite remarkable, and it is important that going forward we experiment more systematically with methods to better capture this heterogeneity in our measures of poverty and deprivation

There is much that can be done on the desing and validation of **short consumption modules** that can be integrated to traditional income based surveys, in order to provide policy makers are more complete understaning of poverty

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Obrigado

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