Combat Poverty Agency

Feasibility Study for a Local Poverty Index

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Structure of Presentation

1. The aims of the study
2. Distinguishing between local poverty indices and small area data
3. The context
4. Considerations in the construction of deprivation indices
5. The new deprivation index for the Republic of Ireland
6. Conclusions and the way forward

The Aims of the Study

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1. To identify best practice approaches to measuring poverty and deprivation at the local level
2. To assess user's needs and potential benefits of establishing a local poverty/deprivation index
3. To identify possible indicators of poverty and deprivation and associated data sources
4. To examine methodologies for compiling, managing, utilising and disseminating the data

Distinguishing between Local Poverty Indices and Small Area Data

Comparison of *Purposes* between Local Poverty Index v. Small Area Data

- Local Poverty/Deprivation Index:
  - To provide insights into the underlying structural dimensions of the spatial distribution of poverty and deprivation
  - To provide a basis for consensus on Targeting Social Need
  - To facilitate inter-temporal comparison
- Small Area Data:
  - To identify the specific needs of specific localities
  - To improve specific services or the integration of multiple services at local level
  - To inform policies that address poverty and deprivation at local level

Comparison of *Requirements* between Local Poverty Index v. Small Area Data

- Local Poverty/Deprivation Index:
  - Data ought to be concise (i.e. brief but comprehensive)
  - Data needs to be consistent for all spatial units
  - Data needs to be consistent over time
  - Data ought to be timely
- Small Area Data:
  - Should be more comprehensive
  - Greater emphasis on domains (to inform sectoral policies)
  - May include data which is not available for all areas
  - Does not necessarily have to be consistent over time

Comparison of *Measurements* between Local Poverty Index v. Small Area Data

- Local Poverty/Deprivation Index:
  - There are very strict requirements for index construction
    - Data has to be available at identical units of analysis (ED/SA)
    - Near-normal distribution of input variables
    - May require transformations
    - Requires dimensional analysis to avoid double counting
  - Results in an Index along a measurement scale
- Small Area Data:
  - May comprise data at different levels of spatial aggregation
  - Overall less restrictive

The Purpose of this Study

The purpose of this study is first and foremost to investigate the feasibility of and requirements for the construction of a Local Poverty/Deprivation *Index*.

The Context

The Context

Overview of next slides:

- EU Context: The Laeken Indicators
- NAPS spatial poverty proofing
- The Irish Spatial Data Initiative (ISDI)
- New EU Directive: INSPIRE

EU Context: The Laeken Indicators

Primary Indicators

- At-risk-of-poverty rate by various classifications
- Inequality of income distribution: (S80/S20 quintile share ratio)
- At-persistent-risk-of-poverty rate by gender (60% median)
- Relative at-risk-of-poverty gap
- Regional cohesion (dispersion of regional employment rates)
- Long term unemployment rate
- Persons living in jobless households
- Early school leavers not in education or training
- Life expectancy at birth
- Self-defined health status by income level

Secondary Indicators

- Dispersion around the at-risk-of-poverty threshold
- At-risk-of-poverty rate anchored at a moment in time
- At-risk-of-poverty rate before social transfers by gender
- Inequality of income distribution: Gini coefficient
- At-persistent-risk-of-poverty rate by gender (50% median)
- Long term unemployment share
- Very long term unemployment rate
- Persons with low educational attainment

Tertiary Indicators

- Open to be defined by national Governments
- Consistent Poverty Rate
- To be further defined (for example rural poverty)

The Laeken Indicators: Some Observations

- Need to extend indicators further beyond income poverty measures
- The key primary indicators (at-risk-of-poverty rates) are dependent upon in-depth surveys and cannot be produced below NUTS 3 or even NUTS 2 level
- Local poverty/deprivation indicators will always have to be built on proxies
- Need to link local poverty/deprivation indices into higher level (regional - NUTS 3) Laeken indicators

NAPS: Poverty Proofing at National Level

- Strength: Acceptance of key indicators to track advances in anti-poverty measures at national level
- Weakness: Exclusively by way of 'at-risk-of-poverty' and 'consistent poverty' rates, both of which are largely income-related poverty measures
- Outlook: Urgent need to extend indicators beyond income poverty measures only
- Outlook: Need to develop third tier indicators for national poverty proofing, notably the adequate conceptualisation of rural poverty

NAPS: Poverty Proofing at Local Level (1)

- To date, the only (consistent) local (ED level) data in Ireland is provided through the Census of Population
- No ED-level information based on administrative data sources has yet been made available by any of the Irish Goverment Departments (or at least not in a comprehensive manner)

NAPS: Poverty Proofing at Local Level (2)

Outlook:

- Some Government Departments and Local Authorities have started to work on the question of local data provision/sharing
  - Ordnance Survey and Central Statistics Office
  - Departments: OSI, DSFA, and DoELG
  - Local Authorities: Fingal, Clare, Limerick
- Key questions on the provision/sharing of local data include:
  - Ownership & Confidentiality
  - Standardisation v. local flexibility
  - Development/maintenance costs & 'barriers to entry'

The Irish Spatial Data Initiative (ISDI)

- The need for sharing local data
- New Census Output Areas (COAs) in the 2001 UK Census
- The Role of GIS and relevance of new Small Areas (SAs)
- Progress to Date
- Securing departmental readiness

more to come … INSPIRE

The Need for Sharing Local Data

- Social Welfare
  - Mapping and Monitoring of Payments, Evaluation of Benefit Diffusion, Monitoring Policy Implementation, Links to GMS holding
- Health
  - Public Health modelling, GMS holdings, Hospital Catchment profiles, Accessibility and Utilisation mapping, Links to Social/Educational side
- Education
  - Service need planning in new suburbs, School population forecasting, Special Needs (overlaps with health and social care)
- Environment & Local Authorities
  - Local profiling for planning purposes, Places-at-risk modelling, Impact Assessments (SEA, EIA, HIA)
- DCRGA, Rapid, Clár, Agencies and NGOs (local development)
  - Working with Statutory and other Voluntary Sector Agencies utilising same datasets, e.g. Partnerships and other ABI's

The Creation of New Small Areas (SAs)

- The need for a new Census geography
  - EDs vary from under 200 to over 20,000 population
  - SAs will have a minimum of 65 households and average of 130
  - Maximising homogeneity within and difference between Census tracts
- The process of developing a new Census geography
  - UK Census Output Areas (COAs) provide blueprint
  - developing an algorithm for Ireland ✓ Centre for Geocomputation @ NUIM
  - proof of concept ✓ done for 9 EDs across urban/rural spectrum
  - role out for the rest of the country currently under negotiation
- Sidekick: Postcodes

Developing a new Census Geography

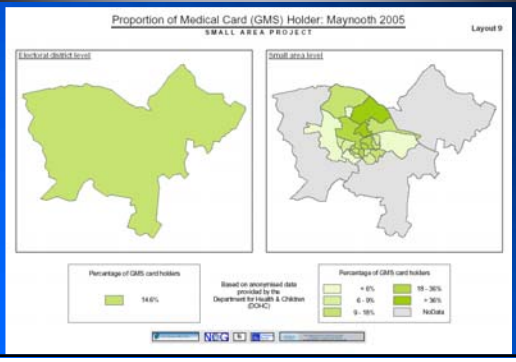
Electoral Divisions (EDs):

- 89 EDs in Kildare
- Populations range from 115 in rural area to over 20,000 (Naas Urban)

Small Areas (SAs):

- Example: Maynooth
- 1 ED >>> app. 32 SAs
- Minimum 65 households
- Average of 130 households
- SAs are evenly sized

Example of Point Input and Small Area Output



New EU Directive: INSPIRE

- A new EU Directive
  with links to Irish Spatial Data Infrastructure Initiative (ISDI)
- Fundamental Mission aims at making available relevant, harmonised and quality geographic information for the purpose of formulation, implementation, monitoring and evaluation of Community policy-making.
- 3 Level of Spatial Data Provision:
  - **Annex 1 (9):** National Grid, Placenames, Boundaries, Addresses, Land Parcels, Transport, Hydrography, Protected Sites
  - **Annex 2 (4):** Elevation, Land Cover, OrthoImagery, Geology
  - **Annex 3 (21):** incl. Statistical Units, Demography, Environmental, Marine, Agriculture etc.

INSPIRE Principles

- Data should be collected once and maintained at the level where this can be done most effectively
- It should be possible to combine seamlessly spatial data from different sources and share it between many users and applications
- Spatial data should be collected at one level of government and shared between all levels
- Spatial data needed for good governance should be available on conditions that are not restricting its extensive use
- It should be easy to discover which spatial data is available, to evaluate its fitness for purpose and to know which conditions apply for its use.

(Source: Fingal Data Sharing Initiative)

From Sharing Local Data back to the Methodological Considerations in the Construction of Poverty/Deprivation Indices

Irish Government Definition of Poverty

- **Relative Poverty**

  "People are living in poverty if their income and resources (material, cultural and social) are so inadequate as to preclude them from having a standard of living which is regarded as acceptable by Irish society generally."

  (Government of Ireland, NAPS, 1997)

Coombes' Definition of Deprivation

- **Relative Deprivation**

  "The fundamental implication of the term deprivation is of an absence – of essential or desirable attributes, possessions and opportunities which are considered no more than the minimum by that society."

  (Coombes et al., 1995: p.5)

Concepts in the Design of Composite Deprivation Indices

- **Domains –** thematic areas such as income, employment, health, education, social class and housing
- **Indicators –** variables such as the unemployment rate or the percentage of adults with a Third Level education
- **Dimensions –** underlying factors that account for the systematic relationships between indicators
- **Comparability over time –** the need to apply identical structures and units of measurement over successive Census waves

Further Considerations in the Design

- **Choice of Variables –** few or many?
- **Consistency of concepts and definitions over time**
- **Avoiding the 'Small Number Problem' –** less important in context of SAs
- **Indicators of 'material deprivation' or 'at risk' –** a false distinction
- **Domains v. Dimensions –** avoiding double counting – what dimensions?
- **Combining dimensions into a single Index –** what weights?

Taking Space Seriously

- **'Counting the poor' is not the purpose of deprivation indices**
- **Deprivation at the aggregate/spatial level is more than merely the sum of individually- experienced poverty**
  - **e.g. unemployment in rural areas**
  - **e.g. educational outcomes in deprived urban areas**
- **A spatial deprivation index should identify the underlying causal structures and processes, facilitating area-based interventions as a complement to individual-level entitlements/benefits.**

Two Examples of Current Deprivation Indices

- **The UK (and NI) Multiple Deprivation Measures (MDM - Noble)**
- **The Irish Index of Relative Affluence and Deprivation (Haase & Pratschke)**

The Northern Ireland Multiple Deprivation Measures (MDM)

Domains and their Weightings in the MDM:

- Income Deprivation 25%
- Employment Deprivation 25%
- Health Deprivation and Disability 15%
- Education, Skills and Training Deprivation 15%
- Proximity to Services Deprivation 10%
- Living Environment Deprivation 5%
- Crime and Disorder 5%

The Northern Ireland MDM

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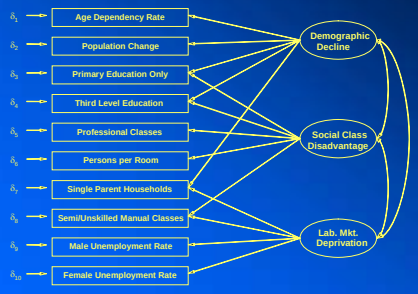
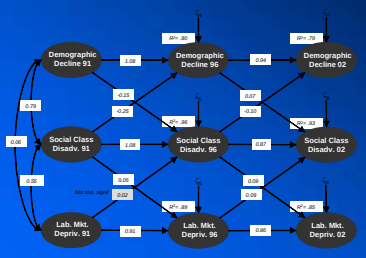
The Index of Relative Affluence and Deprivation

- Demographic Decline
  - population loss and the social and demographic effects of prolonged population loss (age dependency, low education of adult population)
- Social Class Deprivation
  - social class composition, education, housing comfort
- Labour Market Deprivation
  - unemployment, lone parents, low skills base

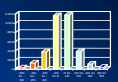
The Model of Disadvantage in the Irish Deprivation Index



Dynamic Path Diagram for 1991, 1996 and 2002



Overall Affluence and Deprivation 1991



Haase & Pratschke 2005

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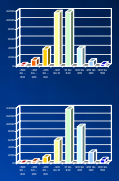

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Overall Affluence and Deprivation 2002

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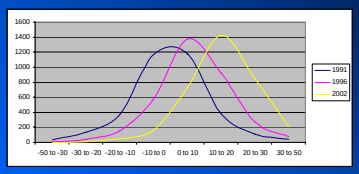
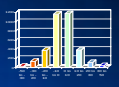
Comparison of *Absolute* Deprivation Scores Over Time



- 1991 to 2002: unprecedented growth in Ireland
- 1991 – 1996: increase of +7
- 1996 – 2002: increase of +8

note: marginally narrowing shape of distribution (i.e. more equal)

Relative Affluence and Deprivation 1991



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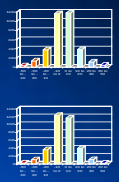

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Relative Affluence and Deprivation 2002

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Comparison of *Relative* Deprivation Scores Over Time

For the country as a whole:

- virtually no differences in the distribution of relative deprivation 1991-2002

Only Exception:

- Dublin's Inner City

Correlations of Local Poverty/Deprivation Measures between 1991, 1996 and 2002

1991	1996	2002
Proportion of households in Local Authority rented acc.	0.98	0.89
Proportion with third level education	0.92	0.86
Proportion with primary education only	0.92	0.86
Combined Deprivation Index	0.92	0.85
Proportion of higher and lower professionals	0.88	0.82
Proportion of semi and unskilled manual workers	0.81	0.74
Unemployment rate - male	0.84	0.72
Lone parents ratio	0.74	0.64
Age dependency ratio	0.76	0.44
Unemployment rate - female	0.54	0.42
Population Change	0.18	0.19

Validation of Local Poverty/Deprivation Measures against higher-level Poverty Measures

Variable	50% Income Risk	60% Income Risk	60% Consistent Poverty
Combined Deprivation Index	.89	.86	.85
Proportion of semi and unskilled manual workers	.88	.84	.83
Proportion with primary education only	.86	.87	.80
Proportion of higher and lower professionals	.83	.80	.78
Proportion with third level education	.71	.72	.66
Unemployment rate	.65	.61	.69
Unemployment rate - male	.63	.59	.68
Unemployment rate - female	.59	.55	.60
Age dependency ratio	.57	.63	.54

Sources: National Survey of Housing Quality, 2002/3 (ESRI) ; Haase & Pratschke, 2005

The Northern Ireland MDM:

Rank Deciles differently coloured

- extremely affluent
- very affluent
- affluent
- marginally above average
- marginally below average
- disadvantaged
- very disadvantaged
- extremely disadvantaged

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The Northern Ireland MDM:

MDM Scores expressed in in Standard Deviations

- extremely affluent
- very affluent
- affluent
- marginally above average
- marginally below average
- disadvantaged
- very disadvantaged
- extremely disadvantaged

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Overall Deprivation in Northern Ireland and the Border Region

2001 / 2002

- extremely affluent
- very affluent
- affluent
- marginally above average
- marginally below average
- disadvantaged
- very disadvantaged
- extremely disadvantaged

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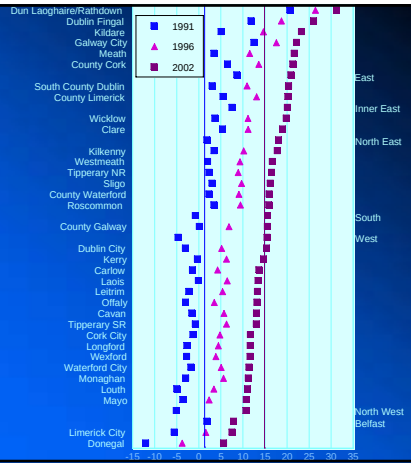
Comparing Robson's and Noble's Deprivation Measures for NI

	Re-scaled 1991 Robson Score	Re-scaled 2001 MDM Score	Weighted 2001 MDM Score
Belfast	-1.9	-7.3	33.2
Inner East	7.5	4.9	14.1
East	8.6	5.7	12.7
South	-0.8	0.4	21.2
West	-4.7	0.3	21.3
North-West	-5.1	-4.5	28.8
North-East	1.8	2.9	17.2
Northern Ireland	0.85	0.06	21.7

Comparable Deprivation Scores for Counties in Ireland and 'Super' LGDs in Northern Ireland



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Comparing Robson's and Noble's Deprivation Measures for NI

- The 1991 Robson and 2001 Noble indices are entirely inconsistent with one another.
- The Robson Index had a strong rural bias due to giving too much emphasis on rurality *pre se*, rather than rural deprivation.
- Noble's MDM has a strong urban bias due to the lack of dimensional analysis across domains and the high weighting given to what are essentially urban indicators of deprivation.

Comparison of Deprivation Measures for Ireland, North & South

- The Northern Ireland Multiple Deprivation Measures (Nobel 2005):
  - Advantage in utilising non-census data relating to larger number of domains and enhancing timeliness, but
  - lacks dimensional analysis across domains, and
  - does not allow comparison over time.
- The Irish Index of Relative Affluence and Deprivation (Haase & Pratschke 2005):
  - Relies on Census variables only, but
  - includes dimensional analysis across domains, and
  - allows comparison across multiple census waves.

Where to go from here ....

1. Getting the Small Area geography implemented (CSO/OSI/NCG)
2. Achieving readiness for holding geographically tagged data in key Government Departments
3. Agreeing on the sharing of departmental data at local output levels (SAs) whilst maintaining confidentiality and departmental control over the individual-level information
4. Agreeing a method of construction for the 2006 Deprivation Index
5. Preparing for new options in Index construction following the 2011 Census of Population and availablitiy of local area information from administrative data sources

Proofs of Concept for Small Areas in Ireland available at:

http://ncg.nuim.ie/ncg/projects/saconcept/index.shtml