



Multidimensional Poverty Among 9-year-olds

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Introduction

- Increasing focus on multidimensional approaches to measuring poverty and social exclusion – in both academic literature and Official Statistics. EU 2020 poverty reduction target (relative income; material deprivation; joblessness).
- Approach reflected in research on childhood and children.
- Ridge (2002) found effects of poverty and disadvantage permeate every aspect of children's lives – material, social, emotional.
- Trying to tap into the different domains of the child's life.



Introduction

- Atkinson (2003) distinguishes between the “Union” and “intersection” approaches. “Union” approaches to multidimensional poverty involves counting as poor those who are deprived on any of a set of dimensions.
- The “intersection” approach counts only those simultaneously deprived on all dimensions.
- “Union” approach probably leads to over estimates. “Intersection” approach probably leads to under estimate. Alkire and Seth (2009) in a study of 10 dimensions in India found 97% of the population poor if used union approach. 1% if used intersection.
- Recent methodological contributions by Alkire and Foster (2011) attempt to address these issues.



The Method and Assumptions

- Four decisions to be made by the researchers in MD approach
 - A. Choice of the dimensions to be included.**
 - B. Dimensional cut-offs** - when is a child considered poor on a dimension?
 - C. Dimensional weights** – relative importance of the different dimensions.
 - D. A poverty cut-off** – where does one set the multi-dimensional threshold for poverty. When does one experience ‘enough’ poverty to be considered poor.



The Method and Assumptions - 10 dimensions in GUI study

A. and B. Choice of dimensions and cut-offs.

1. Income deciles
 - low income, deciles 1&2.
2. Strengths & Difficulties Questionnaire
 - above average or abnormal range.
3. BMI
 - overweight or obese.
4. Adverse life events
 - divorce/separation
 - stay in foster home/residential care
 - conflict between parents
 - parent having been in prison
 - mental disorder in immediate family.
5. Deviant behaviours
 - often starts fights or bullies
 - been physically cruel
 - deliberately destroyed or damaged property
 - often lied to obtain goods or favours.



The Method and Assumptions - 10 dimensions in GUI study

6. Negative environment

- rubbish & litter
- houses and gardens in bad condition
- vandalism and deliberate damage to property
- people being drunk or taking drugs in public.

7. Unsafe community

disagree/strongly disagree:

- safe to walk alone after dark
- safe for children to play outside during day
- safe parks, playgrounds and play spaces.

8. Drumcondra reading scores lowest two deciles

9. Unprepared for school

- inadequately dressed for the weather
- too tired for school
- without lunch/snack
- hungry
- lack of cleanliness

10. Parental report of having been bullied



The Method and Assumptions

C. Choice of dimensional weights – old problem in constructing all composite indices. We assumed equal weight for all.

D. A poverty cut-off –

- Count the number of dimensions on which the child is ‘in poverty’ – depending on our threshold. This is the ‘uncensored’ deprivation matrix.
- Say that a child needs to be ‘in poverty’ on 3 or more dimensions to be considered as being poor. If above threshold only on 1 or 2 dimensions they are set back to zero dimensions.
- This is referred to as the ‘censored’ deprivation count – the setting back to ‘0’ of those in poverty on ‘1’ or ‘2’ items only.
- ‘Censoring’ is central to the method.



Percentage of children recorded in each of the 10 dimensions

Dimension	% of 9-year-olds
Income	20.0
SDQ	22.5
BMI	25.7
Adverse life events	22.7
Deviant behaviour	9.8
Negative environment	18.6
Unsafe community	19.9
Low reading scores	21.5
Unprepared for school	12.7
Parental report on bullying	23.5



Distribution of scores on the “uncensored” data

No. of dimensions	% of 9-year-olds
0	21.5
1	26.3
2	21.1
3	14.0
4	8.6
5	4.4
6	2.4
7	1.1
8	0.5
9	0.2
10	0.0



Distribution of scores on the “censored” data

No. of dimensions	%	%
0	68.9	—
3	14.0	45.0
4	8.6	27.5
5	4.4	14.0
6	2.4	7.8
7	1.1	3.5
8	0.5	1.5
9	0.2	0.6
10	0.0	0.0
Total	100.0	100.0

Note: Due to censoring no-one has a score of ‘1’ or ‘2’ – reset to ‘0’



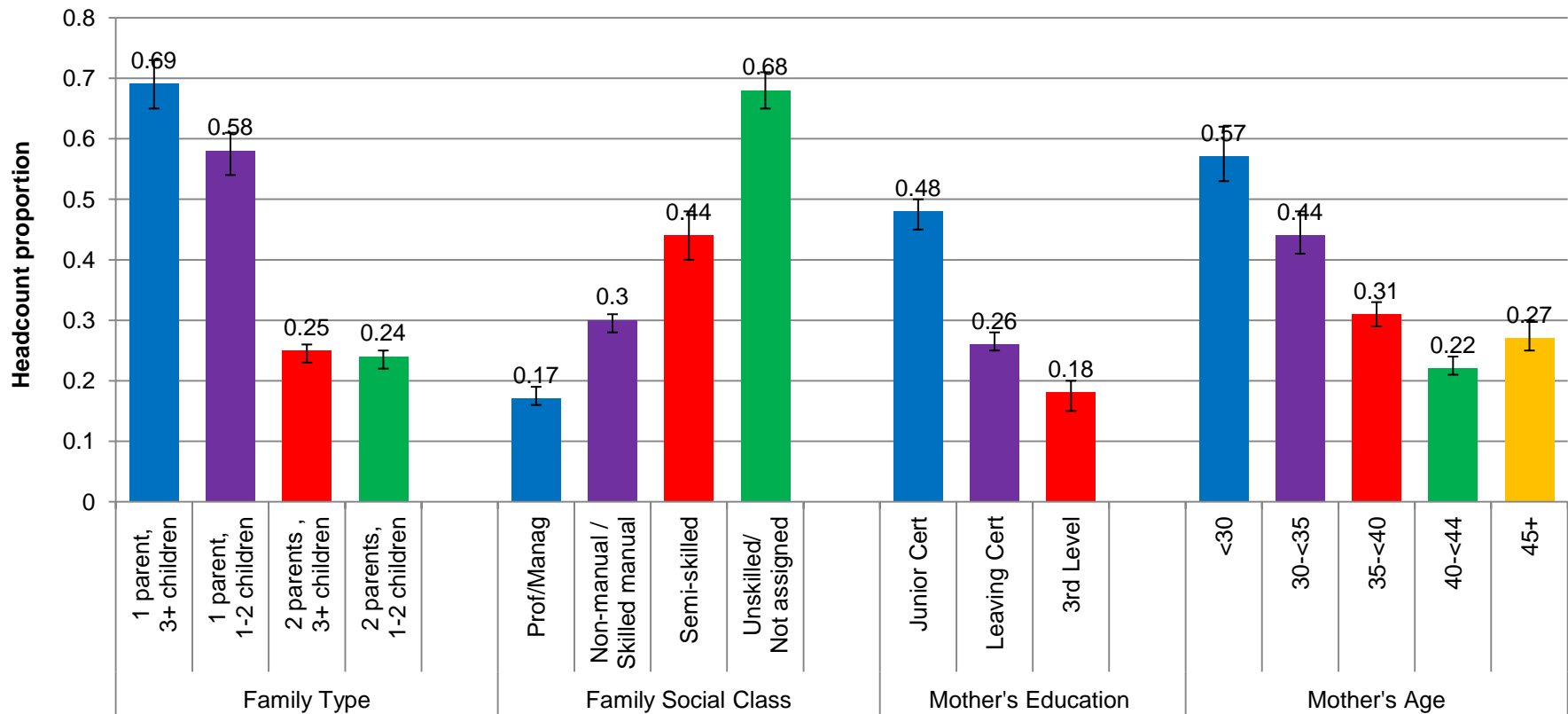
Correlation Matrix

		UNCENSORED									
		Income decile	Strengths & Difficulties	BMI	Unprepared for school	Victim of bullying	Adverse life events	Deviant behaviour	Unsafe community	Bad environment	Reading decile
CENSORED	Income decile		0.089	0.007	0.188	0.068	0.130	0.054	0.039	0.153	0.184
	Strengths & Difficulties	0.260		0.064	0.162	0.257	0.168	0.290	0.046	0.149	0.185
	BMI	0.219	0.284		0.051	0.085	0.010	0.025	0.027	0.019	0.035
	Unprepared for school	0.322	0.276	0.208		0.095	0.147	0.125	0.006	0.079	0.187
	Victim of bullying	0.254	0.445	0.296	0.218		0.133	0.106	0.046	0.112	0.056
	Adverse life events	0.290	0.328	0.221	0.281	0.323		0.154	0.028	0.135	0.103
	Deviant behaviour	0.163	0.402	0.150	0.203	0.219	0.269		0.031	0.094	0.101
	Unsafe community	0.214	0.214	0.236	0.119	0.224	0.212	0.138		0.159	0.018
	Bad environment	0.315	0.296	0.210	0.181	0.271	0.296	0.183	0.332		0.150
	Reading decile	0.369	0.351	0.236	0.321	0.242	0.287	0.203	0.195	0.314	

- Upper quadrant shows uncensored scores
- Lower quadrant shows censored scores
- Correlation coefficients increase on censoring from 0.102 to 0.292
- Reliability of uncensored scores: alpha = .49
- Increases to alpha = .77 for censored scores

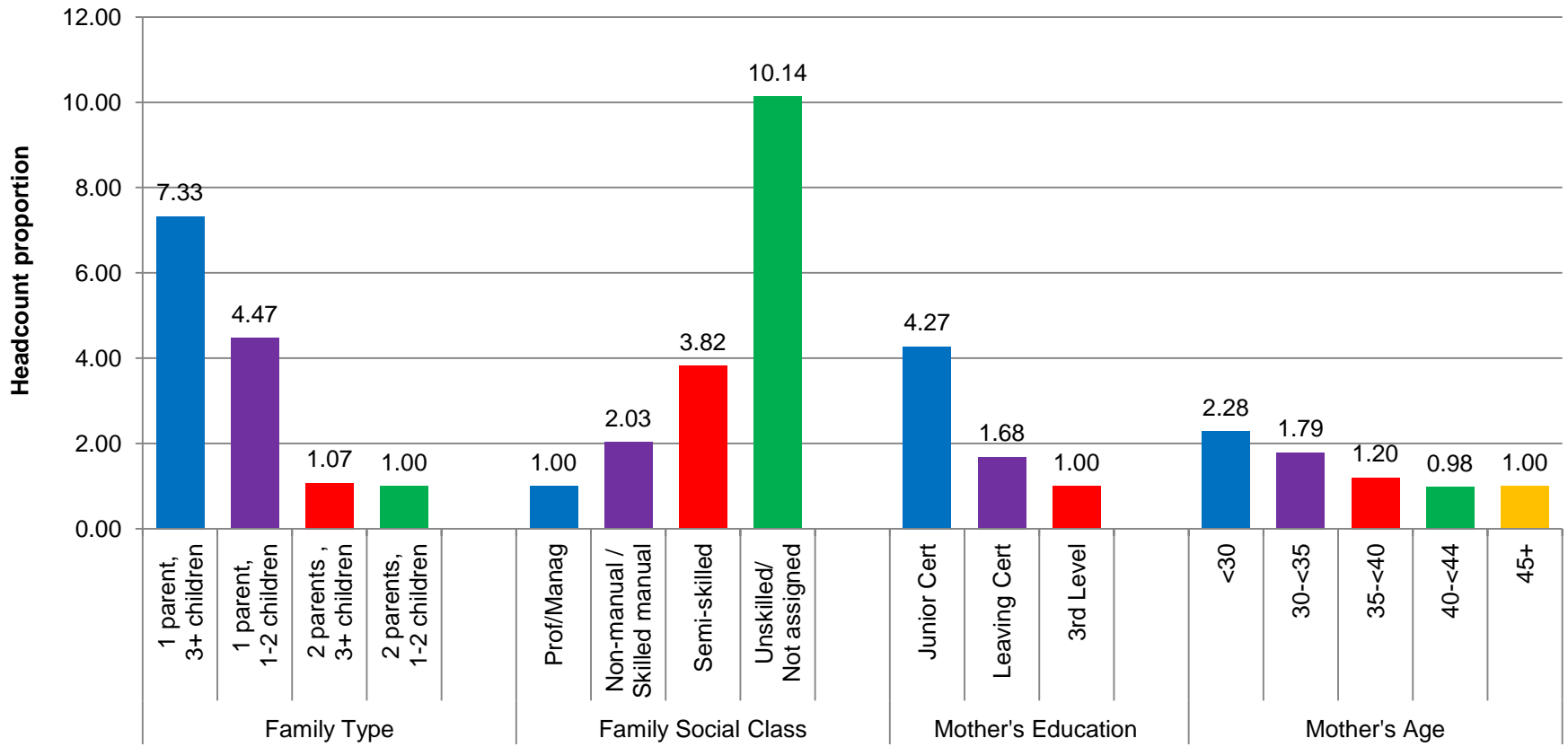


Headcount proportion of 9-year-olds in poverty – 3 or more dimensions from the 10 considered



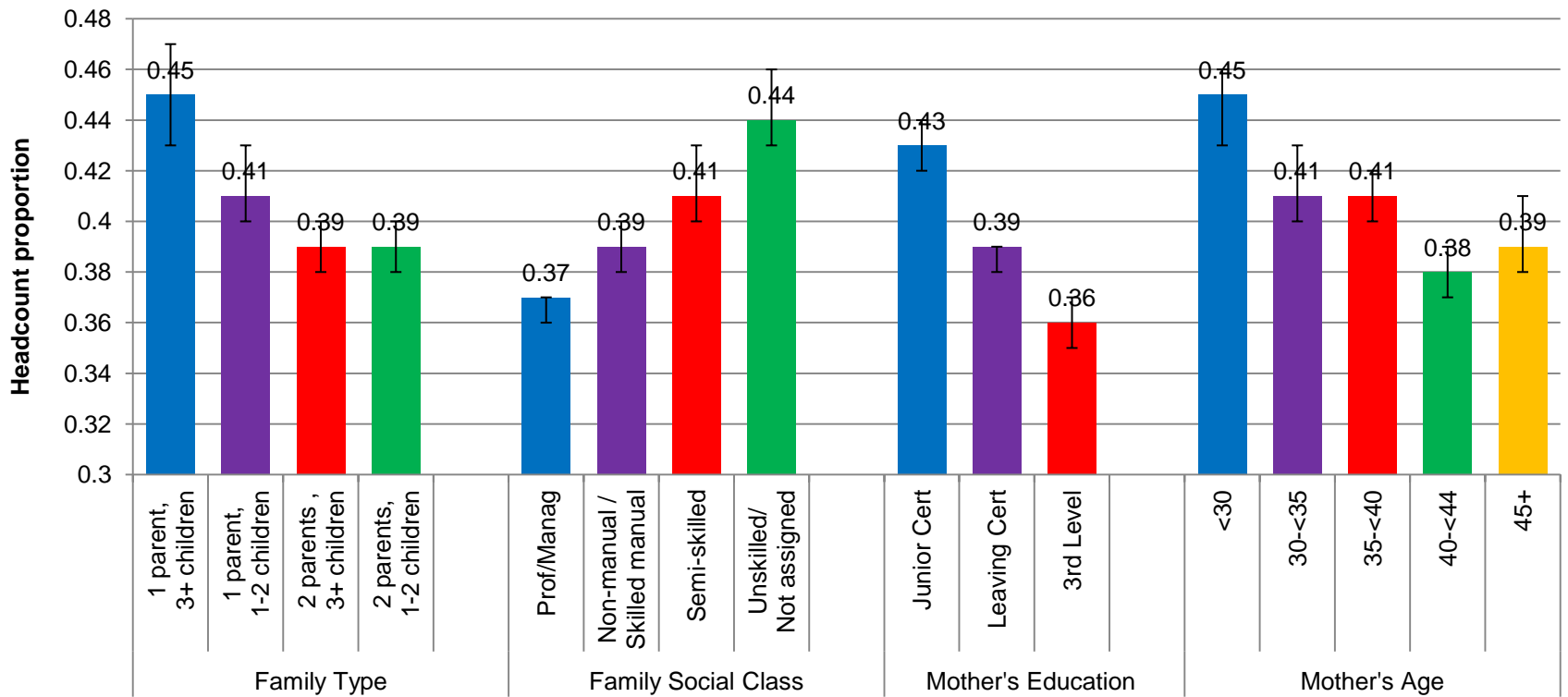


Unadjusted Odds Ratio of being in multi-dimensional poverty





Intensity of multi-dimensional poverty for children with censored score of 3 or more



- Values range from '0' to '1'. '1' where child experiences all 10 dimensions of poverty; 0.5 where child experiences 5/10 dimensions; 0.3 where s/he experiences 3/10 etc.
- Because of censoring 3/10 is minimum value.



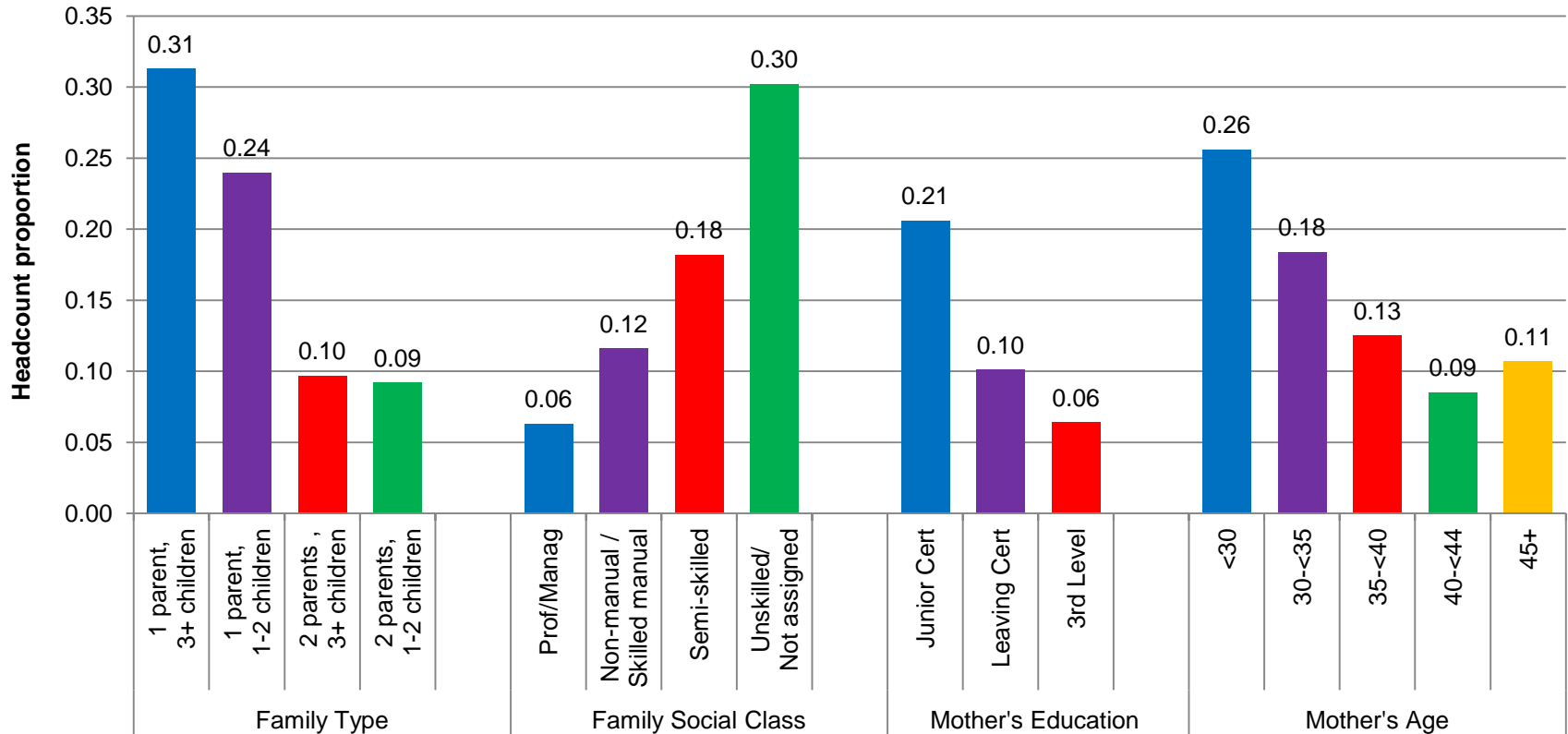
Adjusted headcount ratio

- Headcount ratio is proportion of the people who are poor in a subgroup – a risk measure.
- The intensity is the deprivation share by subgroups for each child in poverty – his/her censored deprivation count divided by the number of dimensions and averaging across all poor children in the group.
- Adjusted Headcount Ratio (AHR) is product of (i) headcount ratio and (ii) the intensity measure.

Family Type	(i) MD headcount Proportion of 9-year-olds above threshold of 3 or more	(ii) MD intensity Ave. proportion of censored scores for children above threshold of 3 or more	(iii) MD adjusted headcount ratio
One parent, 3+ children	0.694	0.4519	0.3136
One parent, 1-2 children	0.580	0.4141	0.2402
Two parent, 3+ children	0.249	0.3898	0.0971
Two parent, 1-2 children	0.236	0.3898	0.0920

AHR runs from 0 to 1 - no children in a subgroup to all children experiencing a lack on 10 dimensions

Adjusted headcount ratio





OLS Regression of Adjusted Headcount Ratio

Constant	0.016
Family Type: Ref – Two parents, 1-2 children	
One-parent, 3+ children	0.130**
One-parent, 1-2 children	0.092**
Two parents, 3+ children	0.012**
Family Social Class: Ref – Professional/Managerial	
Other non manual/skilled manual	0.020**
Semi-skilled manual	0.065**
Unskilled/Class not assigned	0.118**
Mother's Age: Ref – 40+ years	
<30 years	0.094**
30 – 34 years	0.053**
35 – 39 years	0.018**
Mother's Education: Ref – 3rd level	
Junior Certificate or less	0.083**
Leaving Certificate	0.019**
Adj R-sqr	21.8%

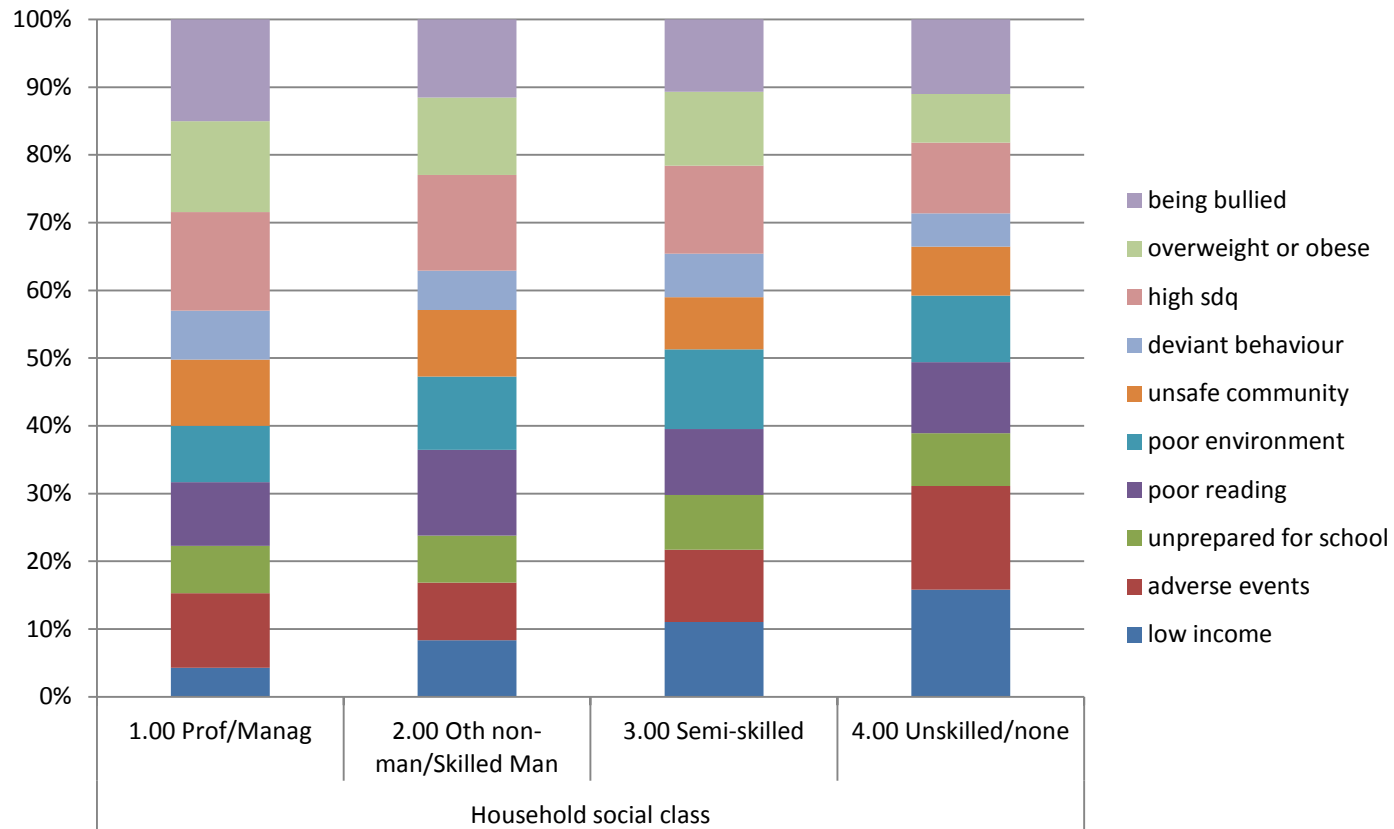
Most advantaged reference category: 0.016

Most disadvantaged group: 0.425



Decomposition of multidimensional poverty by the 10 dimensions

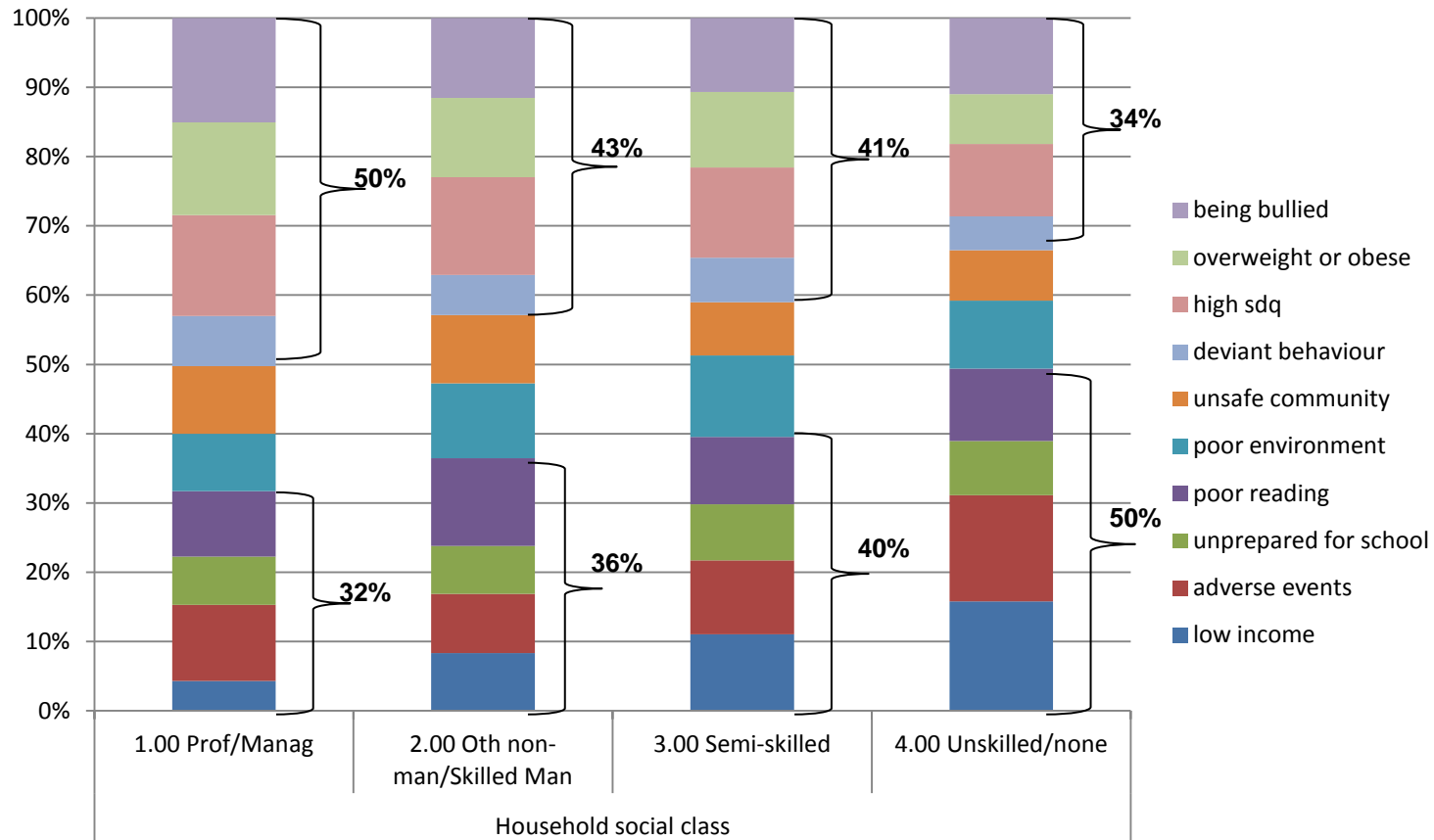
Decomposition by social class





Decomposition of multidimensional poverty by the 10 dimensions

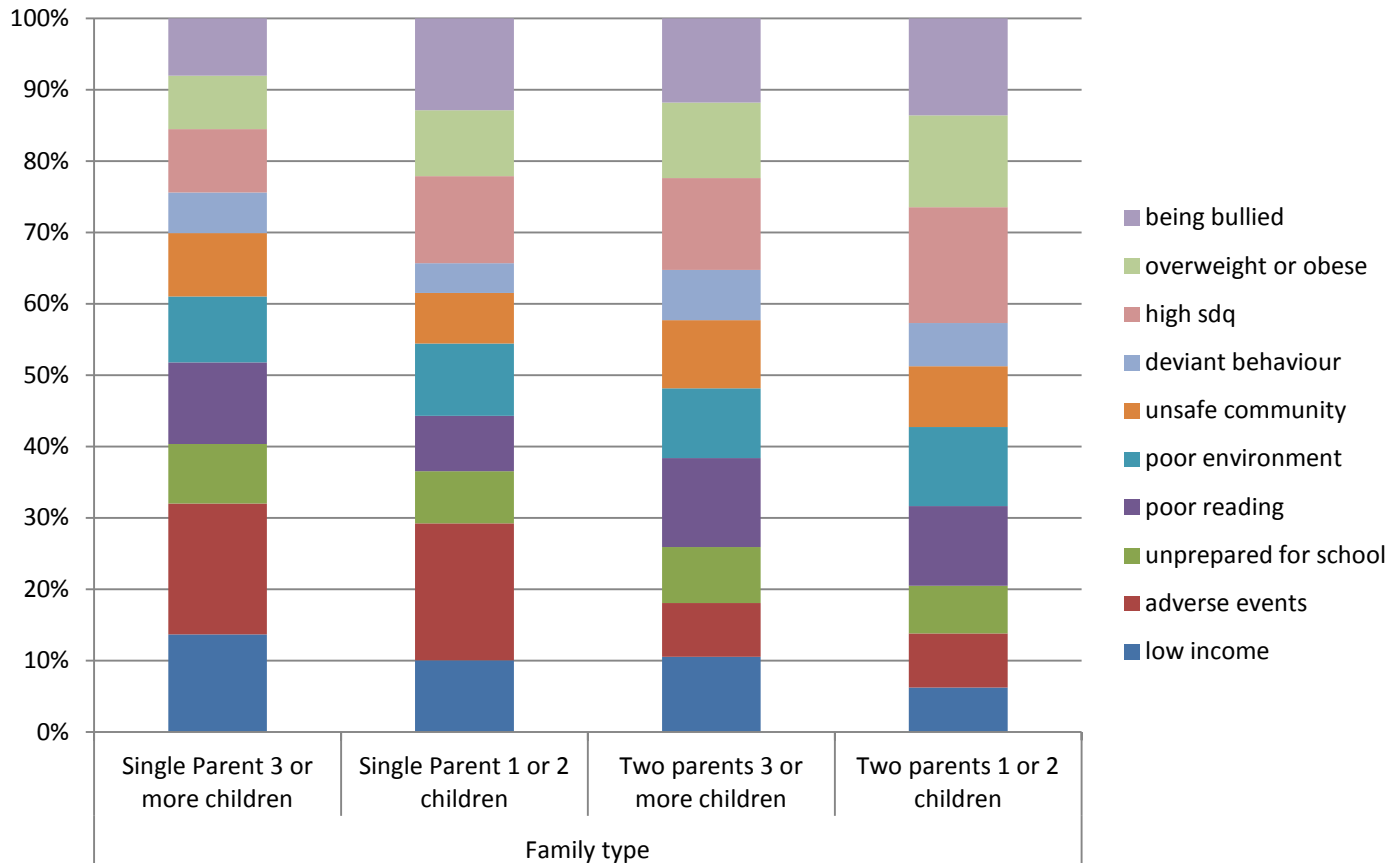
Decomposition by social class





Decomposition of multidimensional poverty by the 10 dimensions

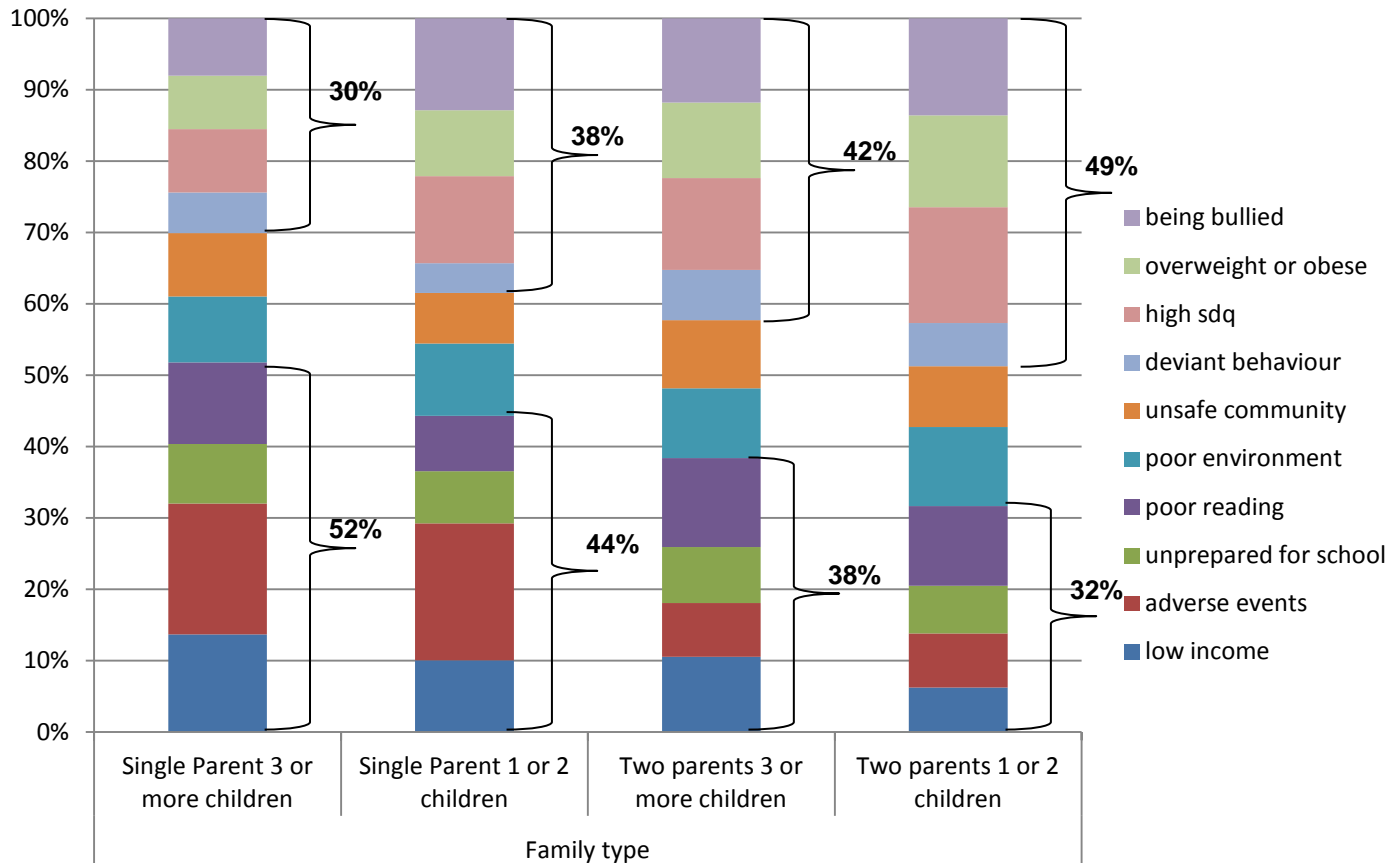
Decomposition by family type





Decomposition of multidimensional poverty by the 10 dimensions

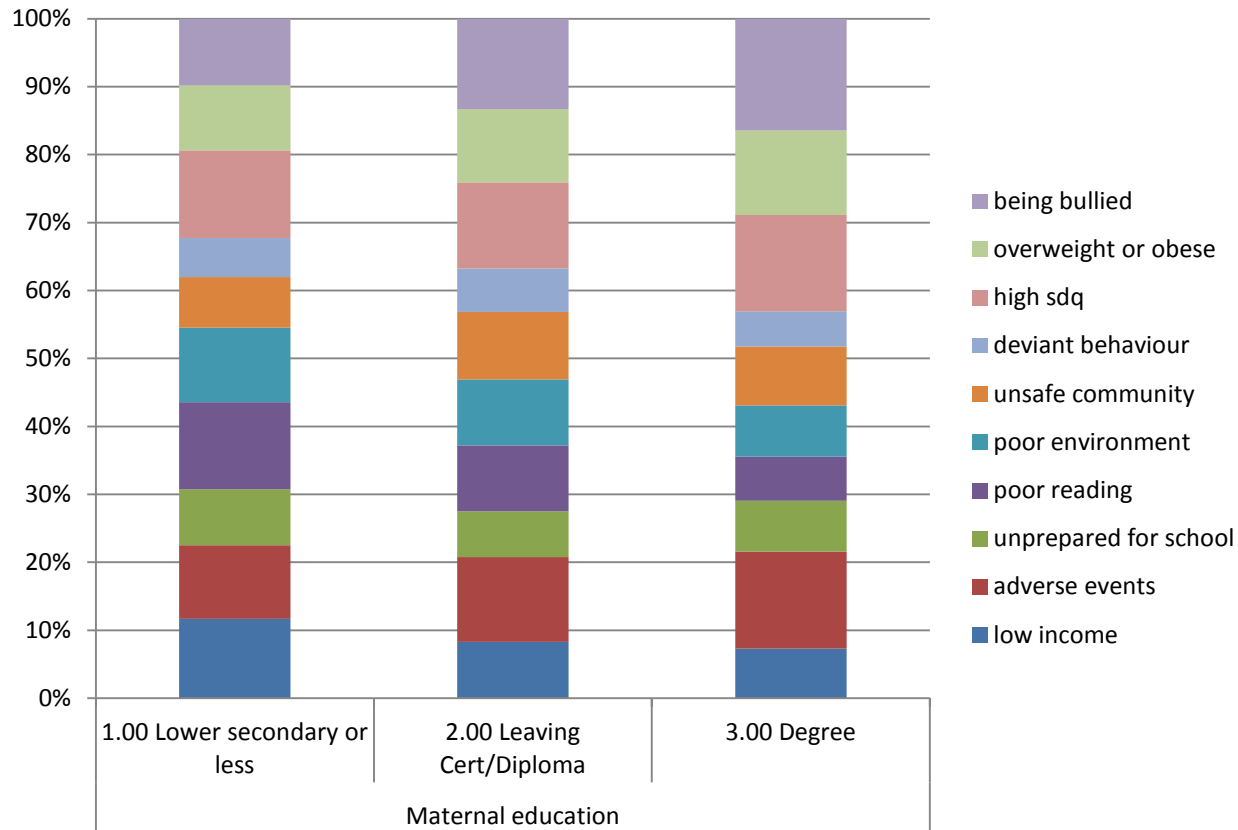
Decomposition by family type





Decomposition of multidimensional poverty by the 10 dimensions

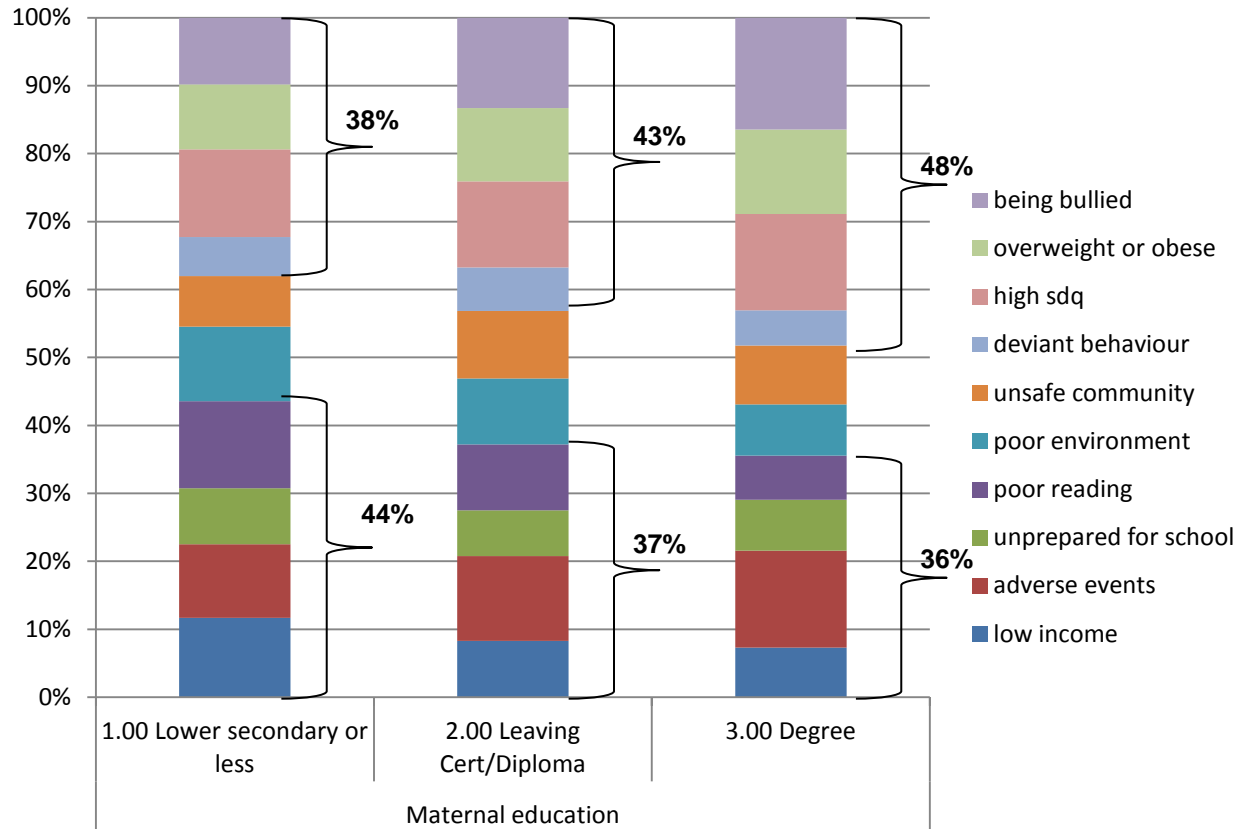
Decomposition by maternal education





Decomposition of multidimensional poverty by the 10 dimensions

Decomposition by maternal education





Summary and Conclusions (i)

- Problems posed by choice between union and intersection approaches
- Deprivation dimensions much more loosely correlated than usually imagined
- AHR approach dealt with by first defining a poverty threshold and then counting only the deprivations of those above the threshold
- Characterised by a range of desirable axiomatic properties identified by earlier work by economists on multidimensional poverty



Summary and Conclusions (ii)

- Correlations of censored dichotomous variables much higher with consequent increase in reliability
- Head count - % above the threshold highly structures in socio-economic terms. The *intensity* (depth of deprivation) less so
- AHR combines both *risk* of being above multidimensional threshold and *intensity* of deprivation conditional on being above the threshold
- AHR varies systematically across socio-economic groups



Summary and Conclusions (iii)

- Profiles of distribution also vary across socio-economic groups
- Advantages & disadvantages of multi-dimensional perspective depends on approach adopted and manner in which it is implemented
- Multidimensionality can clarify or obscure causal mechanism
- With AHR approach it is possible to assess the implications of crucial choices in a consistent and transparent fashion