Growing Up in Ireland
National Longitudinal Study of Children

Social Class Variation, the Effect of the Economic Recession and Childhood Obesity at 3 Years of Age in Ireland

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Background

Impacts of the economic recession after 2008:

- Deterioration of healthcare coverage in many European countries [1, 2]
- Similar health outcomes in families with and without employment [3,4]
- Increases in poverty predominantly among children [5]
- Child health suffered in various ways [6]

Background

- More than 1 in 5 children **overweight or obese** (IOTF criteria) in Spain, Greece, Ireland, Italy, Slovenia, Portugal, and the United Kingdom (2012) [7]

- **Change of lifestyles** during a recession[7-12]
  - lower purchase of fruit and vegetables
  - increased consumption of saturated fat, salt, proteins, processed and high calorie dense food

Source: The Irish Times, May 6, 2015

- **Social class is associated with the risk for childhood obesity** [13, 14]
  - Gap between socio-economic groups widened since 2000 [15-17]

Objectives

1. To determine **early childhood obesity prevalence** rates in families from various **social classes** pre and post the peak of the **economic recession in Ireland.**

2. To investigate whether **social inequalities** in childhood obesity exist during a recession.

Methods

Study population

- Infant Cohort of the **G**rowing **U**p in **I**reland National Longitudinal study
- Quantitative interviews

Table 1: Study population

Year	Age	N
2008	9 months	11,134
2011	3 years	9,793

Methods

Analysis

•**McNemar's test** to compare prevalence rates of overweight and obesity (**OWOB**) in various social classes (2008 – 2011)

•Three **logistic regression models** to identify determinants of obesity:

1. Presence of obesity at 3 years
2. Markov-type transition model with children who were *not obese* at 9 months and *obese* at 3 years
3. Markov-type transition model with children who were *obese* at 9 months and 3 years

•Use of **W**orld **H**ealth **O**rganization growth criteria (body mass index)

Methods

Variables included in the models

Table 2: Measurement of variables

Variable	Measurement (instrument)
Height	Leicester portable height stick
Weight *(child)*	Class III medically approved SECA 835 portable electronic weight scale
Weight *(parents)*	Class III medically approved SECA 761 flat mechanical weight scale
Social class	International Standard Classification of Occupations 1988 (ISCO88)
Perceived crisis effect	Self-reported 4-fold effect categorisation

Covariates:

- Birth characteristics (e.g. weight, delivery type)
- Early development and lifestyle (e.g. breastfeeding, rapid weight gain, sleep)
- Parental factors (e.g. weight, ethnicity, smoking)
- Family characteristics (e.g. parity)

Prevalence of OWOB

Table 3: Prevalence of OWOB categories (WHO criteria)

	Total population	**OWOB**	Over-weight	Moderate obesity	Severe obesity
	9 months				
WHO	10733	**38.9 %**	19.4 %	12.4 %	7.1 %
IOTF	n.a.	n.a.	n.a.	n.a.	n.a.
	3 years				
WHO	9349	**43.1 %**	20.4 %	14.4 %	8.3 %
IOTF	9349	23.6 %	18.4 %	3.8 %	1.4 %

- Overall **relative increase of 10.8% in OWOB** from 2008 – 2011
- Increases in **all OWOB sub-categories** (Table 3)

OWOB prevalence in social classes

- Significant increases in **OWOB** (unadjusted) in most social classes
  - highest absolute increase: non-manual class (6.8%, p<0.001)
  - highest increase in **obesity**: unskilled class (10.1%, p=0.02) (Figure 1)

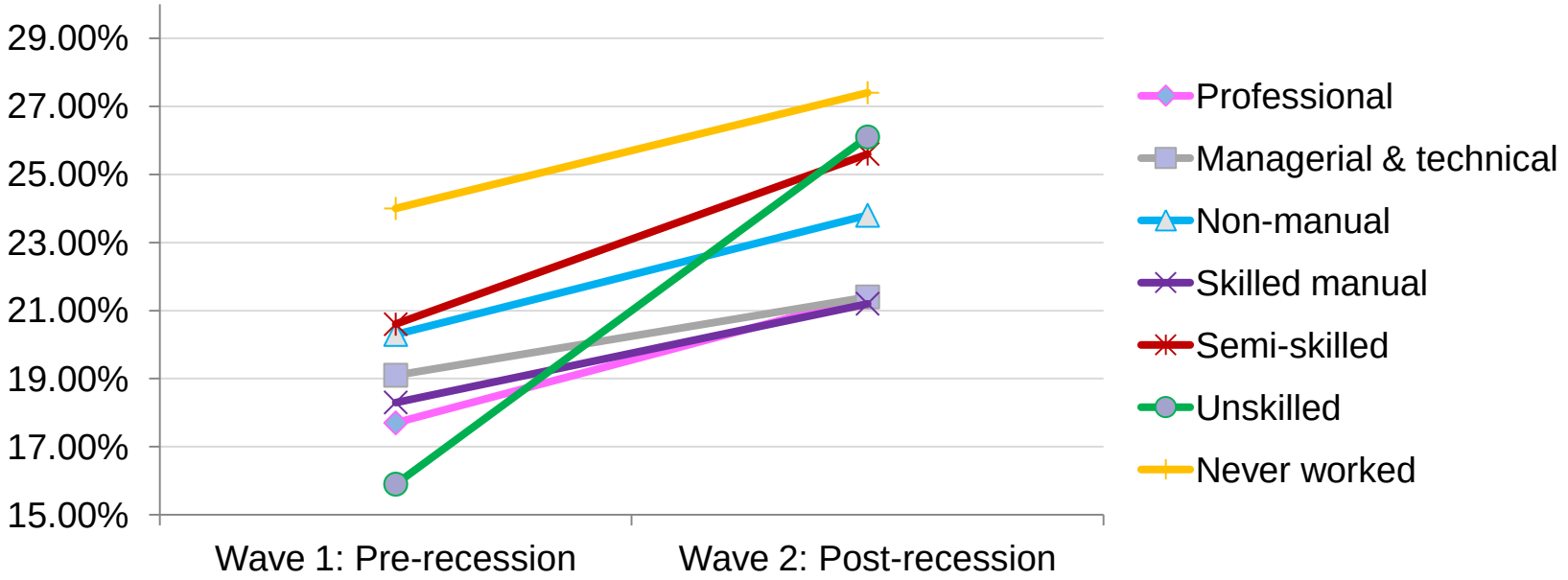

Figure 1: Increase in obesity from 2008 to 2011 (WHO criteria)

Economic changes

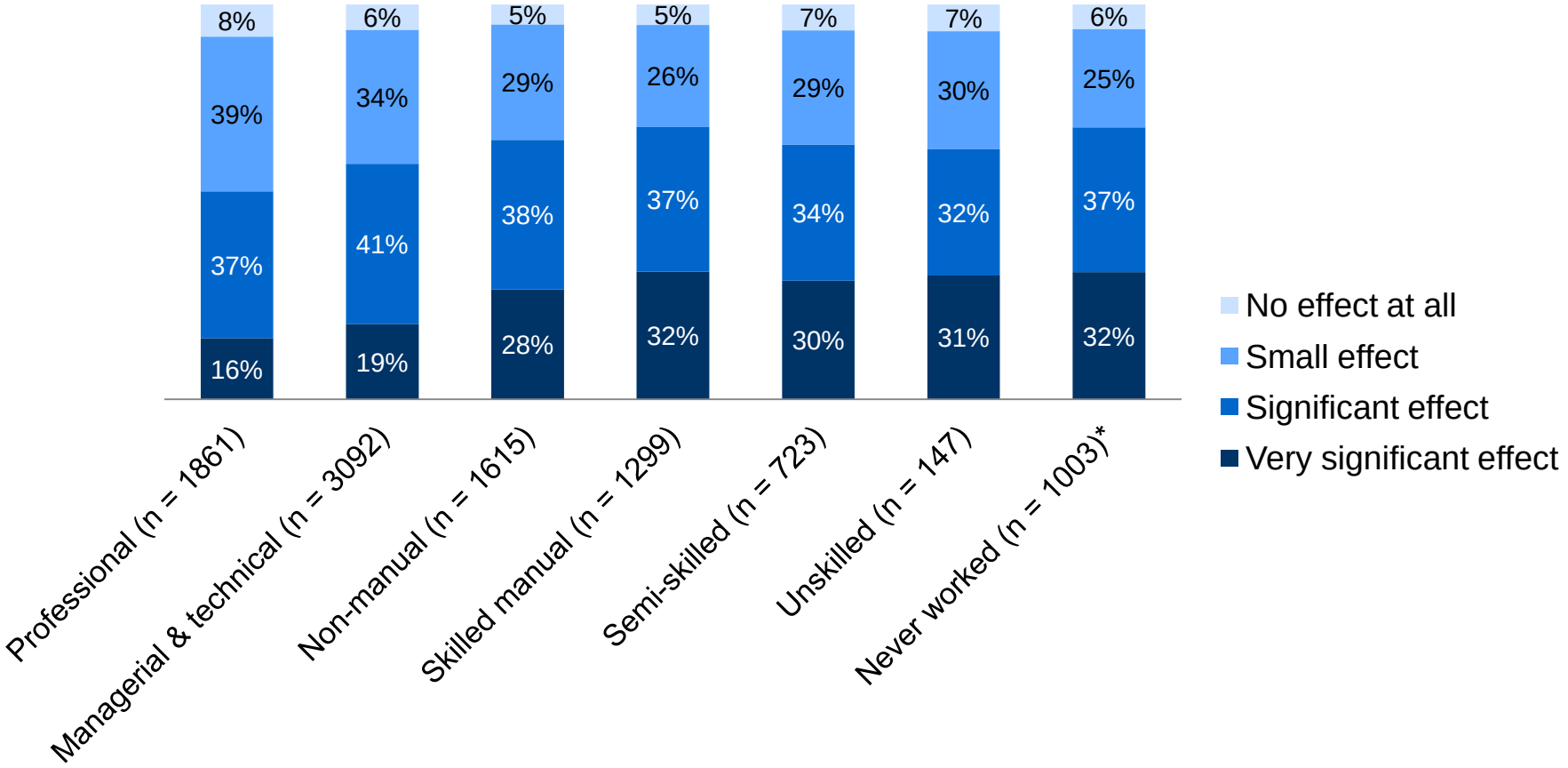

Figure 2: Distribution of recession effects perceived on the family in social classes

Economic changes

Perception of the crisis effect:

- 36% of households dropped into a lower income quintile in the ‘very significant’ effect group vs. 26% in the significant and 18% in the ‘small’ or ‘no effect’ group
- Similar trends seen per social class (except for the ‘never worked’ class)
- Comparable gradient seen in
  - job losses among primary caregivers (5-21%) and secondary caregivers (8-40%)
  - reduction of working hours (16-28%) and social welfare benefits (45-63%)
  - the families’ ability to afford luxuries (33-75%), basic household items (14-54%), rent or mortgages (2-18%) and to pay utility bills (5-26%)

Regression models

Risk factors – explanatory variables

- **Child characteristics** (female gender, high birth weight, early gestational week)
- **Early development and lifestyle** (early rapid weight gain, obesity at 9 months, little sleep and high TV watching hours at 3 years)
- **Maternal factors** (Asian (but no Chinese) background, smoking during pregnancy, gestational diabetes, OWOB) + **secondary caregiver** OWOB
- **Family characteristics** (rural region)

Regression models

Recession & social class

Model 1 & 2: Risk of obesity at 3 years higher in children whose families perceived a 'very significant' effect of the crisis

Model 3 for children who had obesity both at 9 months and at 3 years (n=1573; results not shown):

- No significant change in risk in different social classes
- No significant change in risk in any recession effect group

Table 4: Excerpt from the regression models 1 & 2. [a] p ≤ 0.05

Independent variable	**Model 1:** Obesity 3 years in all children OR (CI)	**Model 2:** Obesity 3 years if 9 months not obese OR (CI)
	N = 8066	N = 6490
Household class = managerial and technical	1.00	1.00
Professional	1.11 (0.92; 1.34)	1.15 (0.92; 1.45)
Non-manual	1.12 (0.90; 1.38)	1.15 (0.89; 1.48)
Skilled manual	1.01 (0.79; 1.29)	1.07 (0.80; 1.42)
Semi-skilled manual	0.94 (0.70; 1.27)	0.81 (0.56; 1.17)
Unskilled	1.36 (0.77; 2.38)	1.42 (0.76; 2.65)
Never worked	1.21 (0.81; 1.80)	1.18 (0.74; 1.90)
The crisis had a significant effect on the family	1.00	1.00
A very significant effect	**1.22**(1.02; 1.46) [a]	**1.27** (1.03; 1.58) [a]
A slight effect	1.06 (0.90; 1.25)	1.10 (0.90; 1.33)
No effect at all	1.08 (0.81; 1.44)	1.05 (0.74; 1.50)

Conclusion

- Increases of both OWOB and obesity similar in families of different social classes
- Children with obesity, at 9 months of age, **maintained their weight** status regardless of social class and perceived recession effect
- **No inequalities in the incidence of obesity** between social classes
- The **'very significant' perceived effect** of the economic crisis on the family was **strongly associated with a 27% increased risk** of developing childhood obesity from the age of 9 months to 3 years

Conclusion

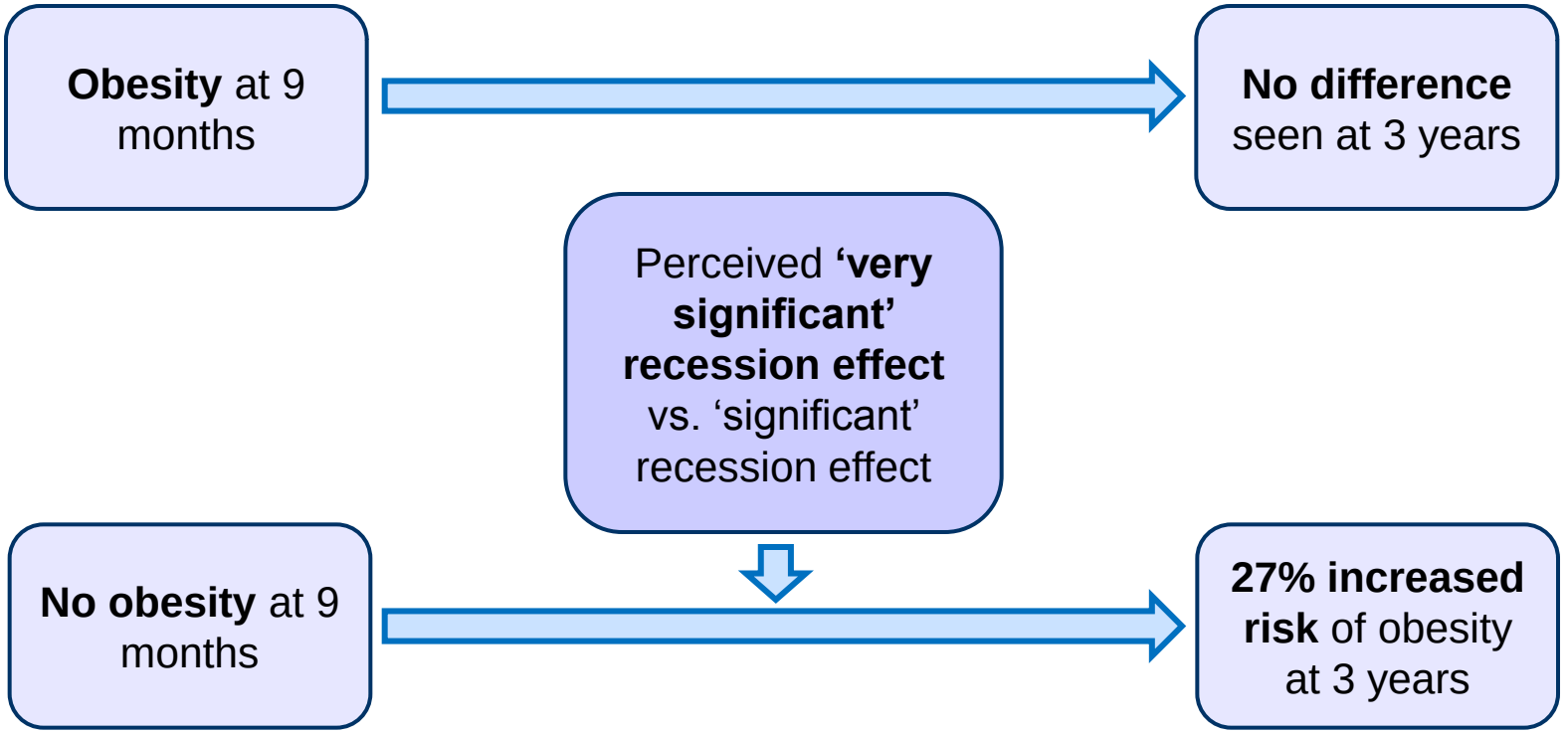

Figure 3: Association of obesity at 3 years of age with perceived recession effects on the family, adjusting for obesity risk factors

Implications for research

Further investigation needed:

- Other age groups
- Other countries
- Potential causes to the association of childhood obesity and recession, e.g. more data may be needed on children's lifestyles (eating, physical activity, …)

Implications for policy makers

1.The (subjective) perception of recession by families of young children appears to be a useful indicator of economic loss and health deterioration in their households.

2.Healthy eating should be supported among families of young children affected by an economic recession, independent of their social class, in order to avoid that children move up into the highest weight category.

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Questions?

Source: UPMC My health matters

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