



Population approaches to equitable behaviour change intervention

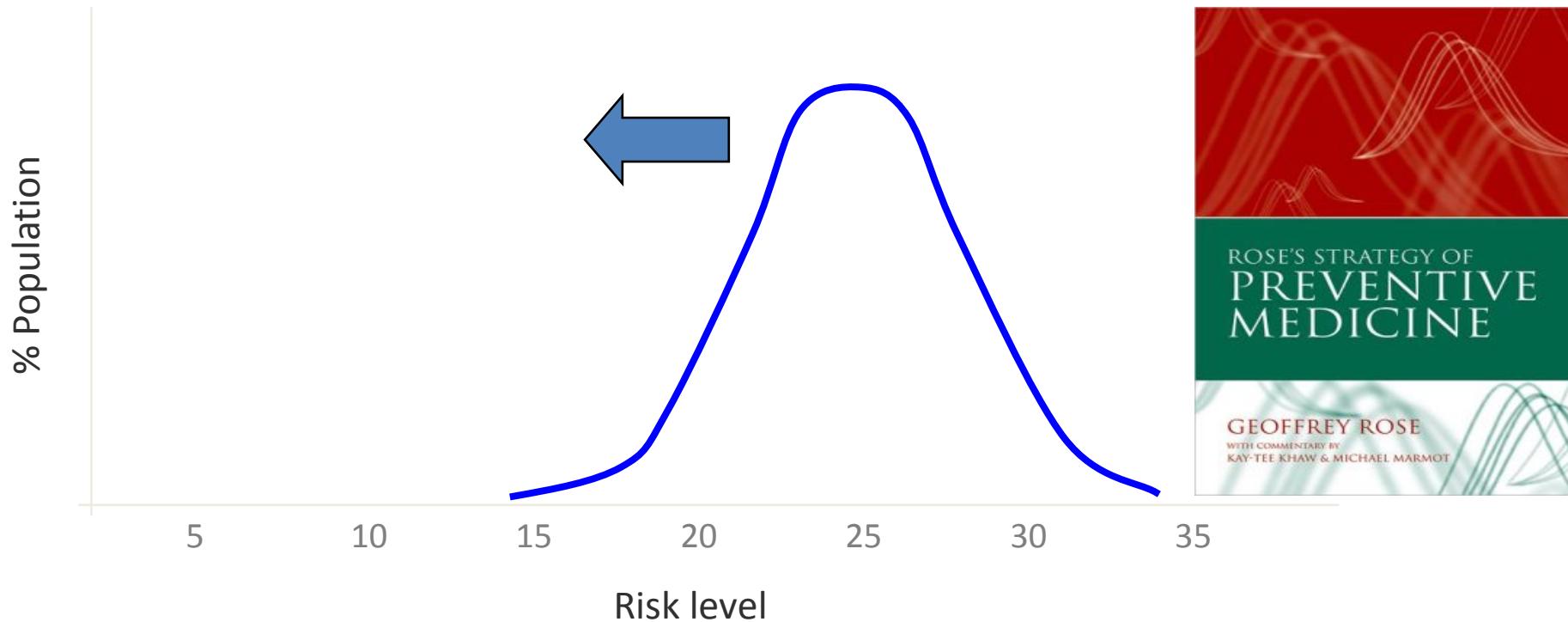
Martin White MD FFPH

17th January 2019

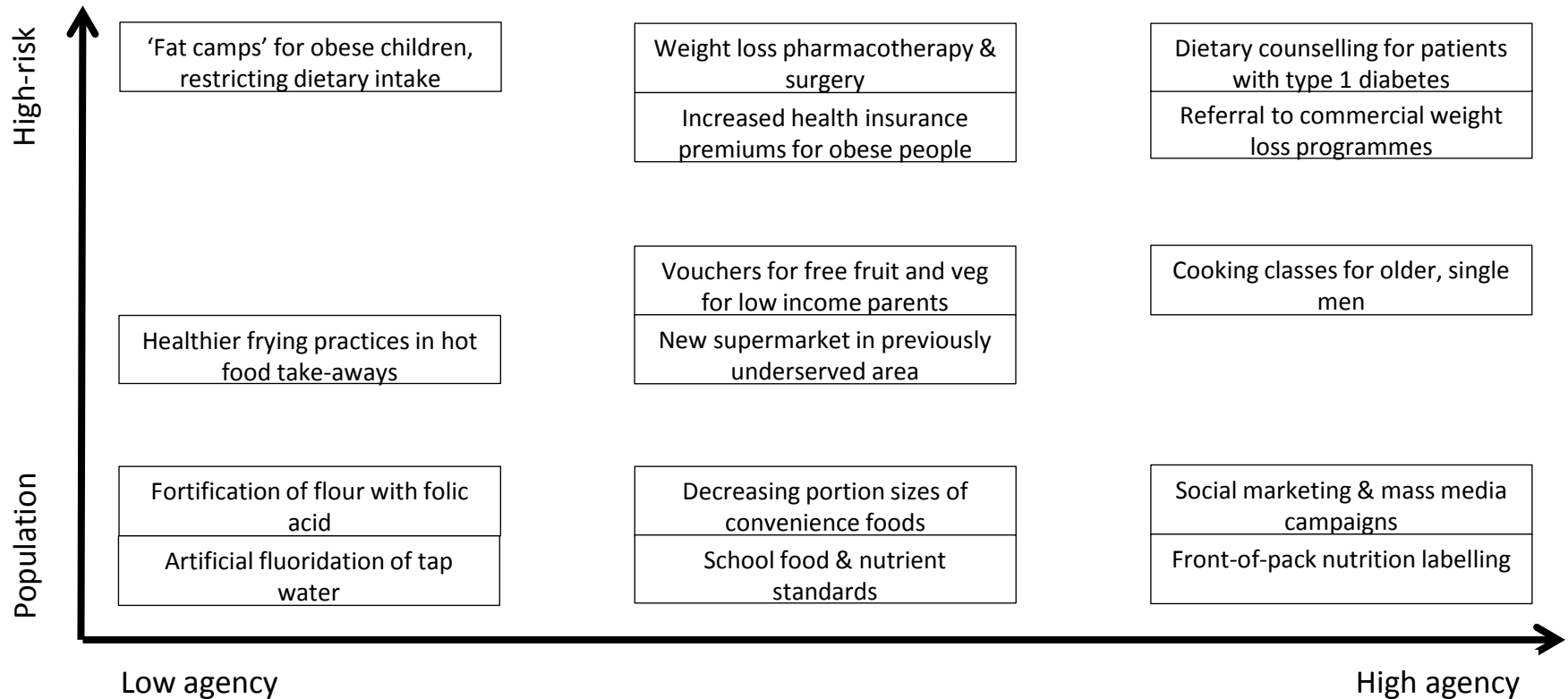
Targeting of interventions: population vs high risk

- A **population intervention** is one delivered to a whole population, *irrespective of baseline risk* for the condition of interest (e.g. mandatory wearing of seat belts, front of pack food labelling)
- A **high-risk intervention** is one delivered to individuals (sometimes in groups) *according to their level of risk* for the condition of interest (e.g. screening and brief intervention for risky alcohol consumption, or a weight loss intervention for people with a BMI over 30)

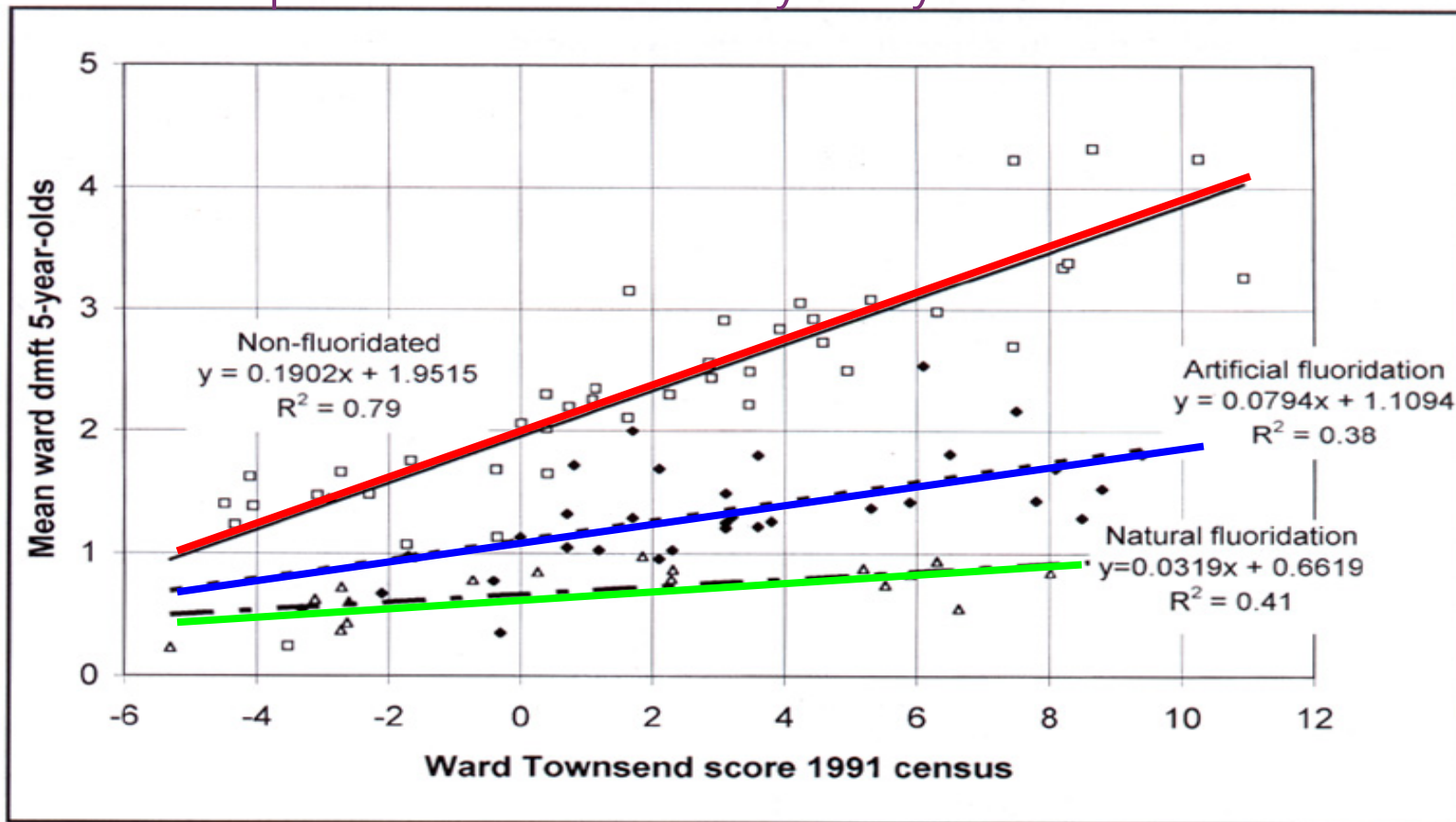
Population interventions, reach and impact



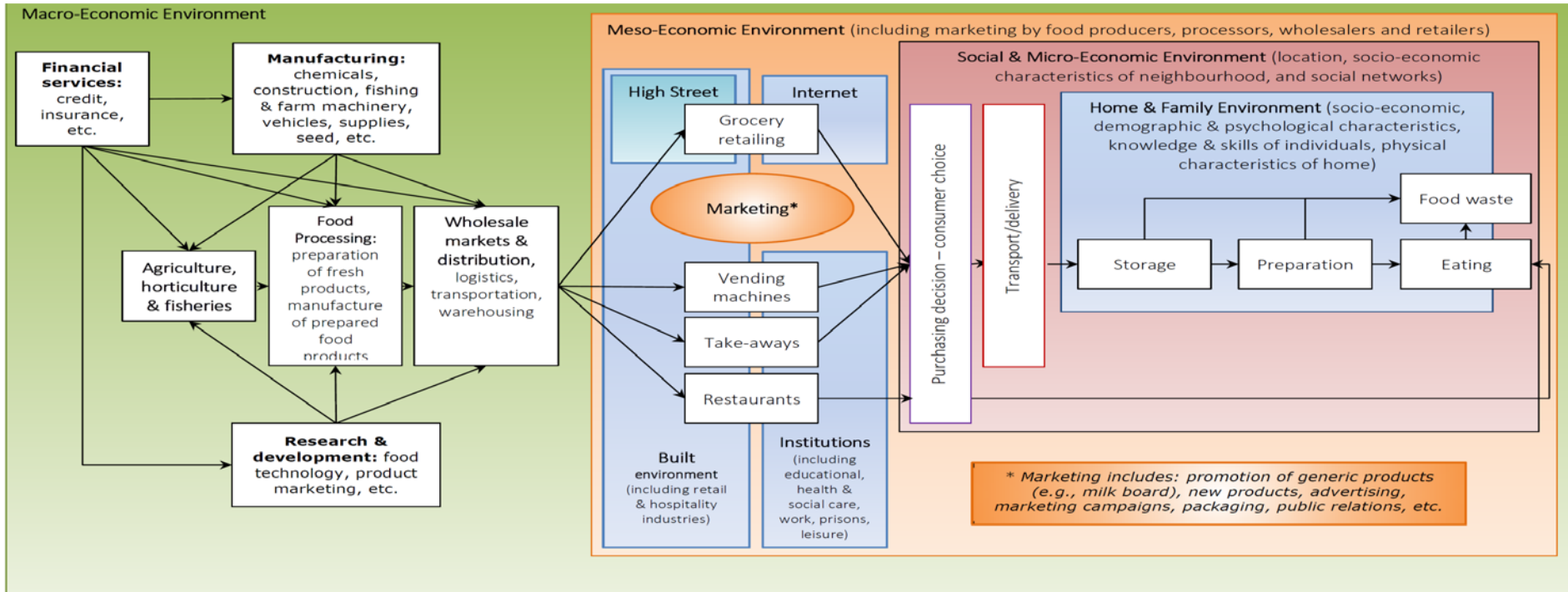
Intervention targeting, agency and equity



The relationship between water fluoridation and socioeconomic deprivation on tooth decay in 5-year-old children



The journey of food from source to consumption: an ecological model



UK Childhood Obesity Plan (v2.0)

Key proposed regulatory measures aimed at whole population:

- Mandatory **Calorie labelling** of menu items in out of home eating outlets
- Restrictions on **in-store promotions** of unhealthy foods, either by **place** (e.g. checkouts) or **price** (e.g. multi-buy discounts)
- Further restriction of **TV advertising** of unhealthy foods (“9pm watershed”)
- Restrictions on **online advertising** of unhealthy food
- Extension of the **Soft Drinks Industry Levy** (SDIL) to milk-based drinks
- Restriction of sales of ‘**energy drinks**’ to children
- Further **industry levies** on key unhealthy foods (e.g. confectionery)
- Tougher **school food/nutrition standards** to reduce sugar consumption

Evaluation of supermarket checkout policies

1. Clarify checkout food policies of major UK supermarkets
 - Desk-based research
2. Determine supermarket's adherence to their checkout food policies
3. Compare checkout foods in supermarkets with and without policies
 - Survey of 69 supermarkets in East of England
4. Compare purchases of common 'less healthy' checkout foods from supermarkets with and without, and before and after introduction of policies
 - Interrupted time series analysis of household purchase data from Kantar Worldpanel

Candy prohibition: Aldi bans confectionery at UK checkouts

By Oliver Nieburg

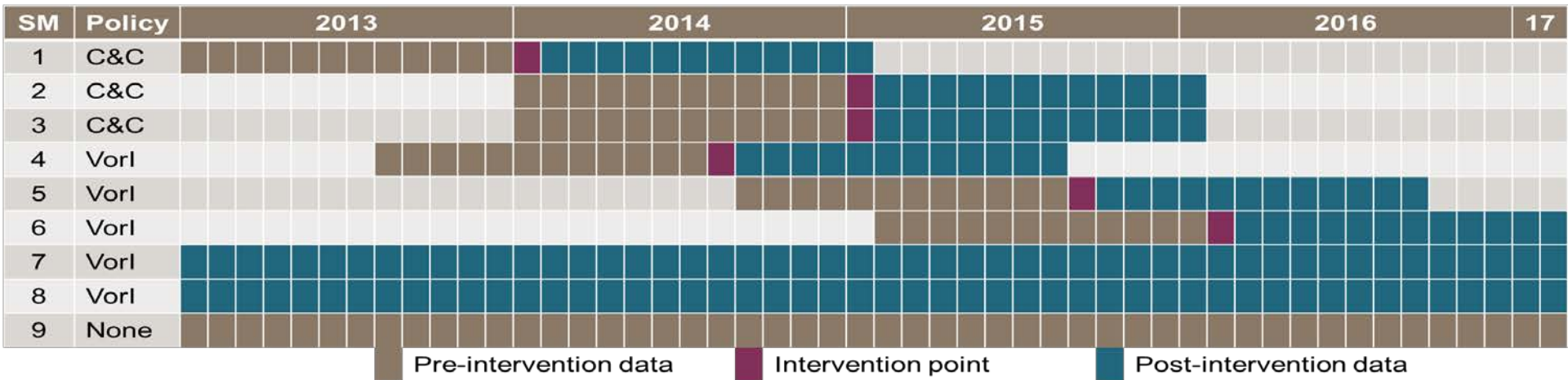
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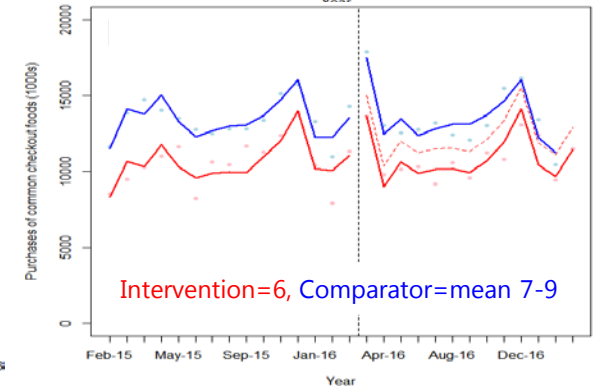
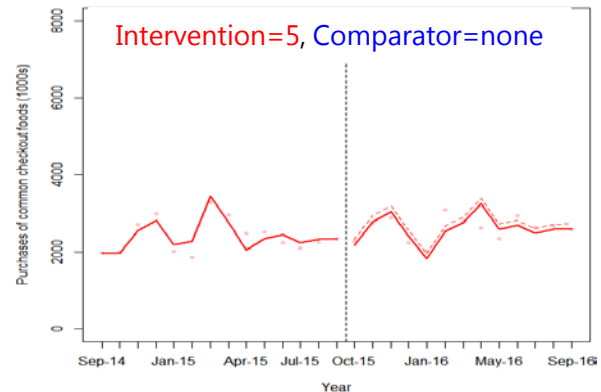
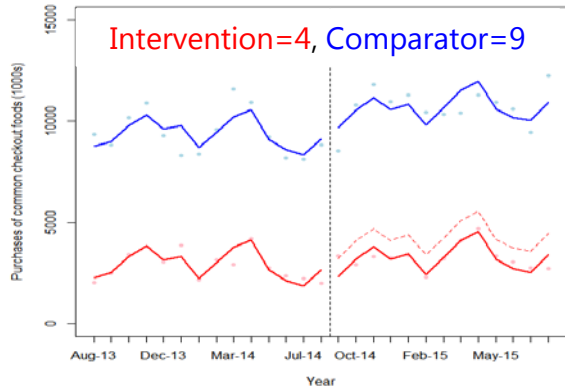
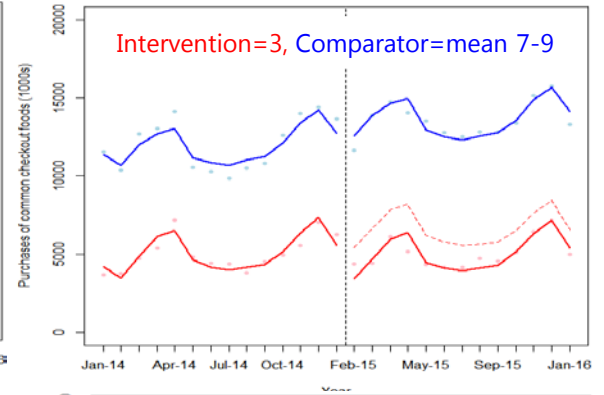
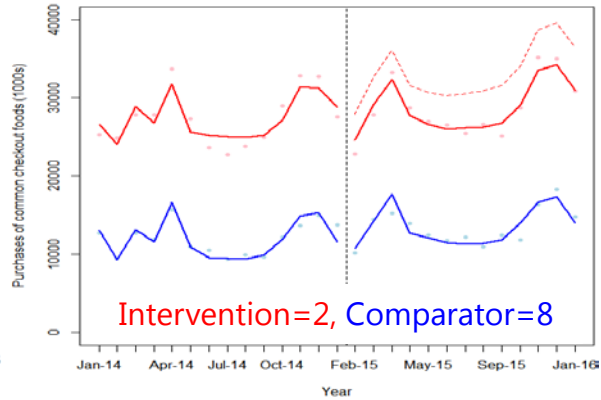
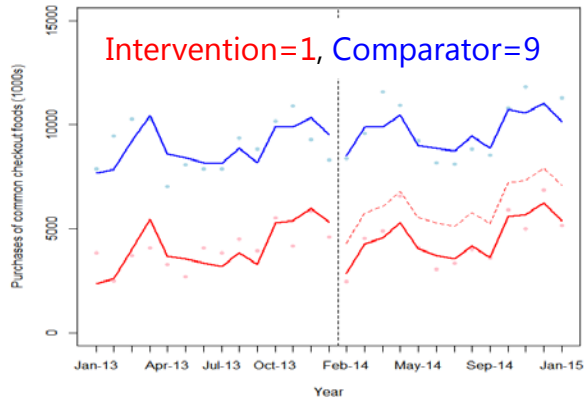
Aldi joins Lidl, Tesco, Co-op and Sainsbury in UK confectionery free till pledge



Data structure

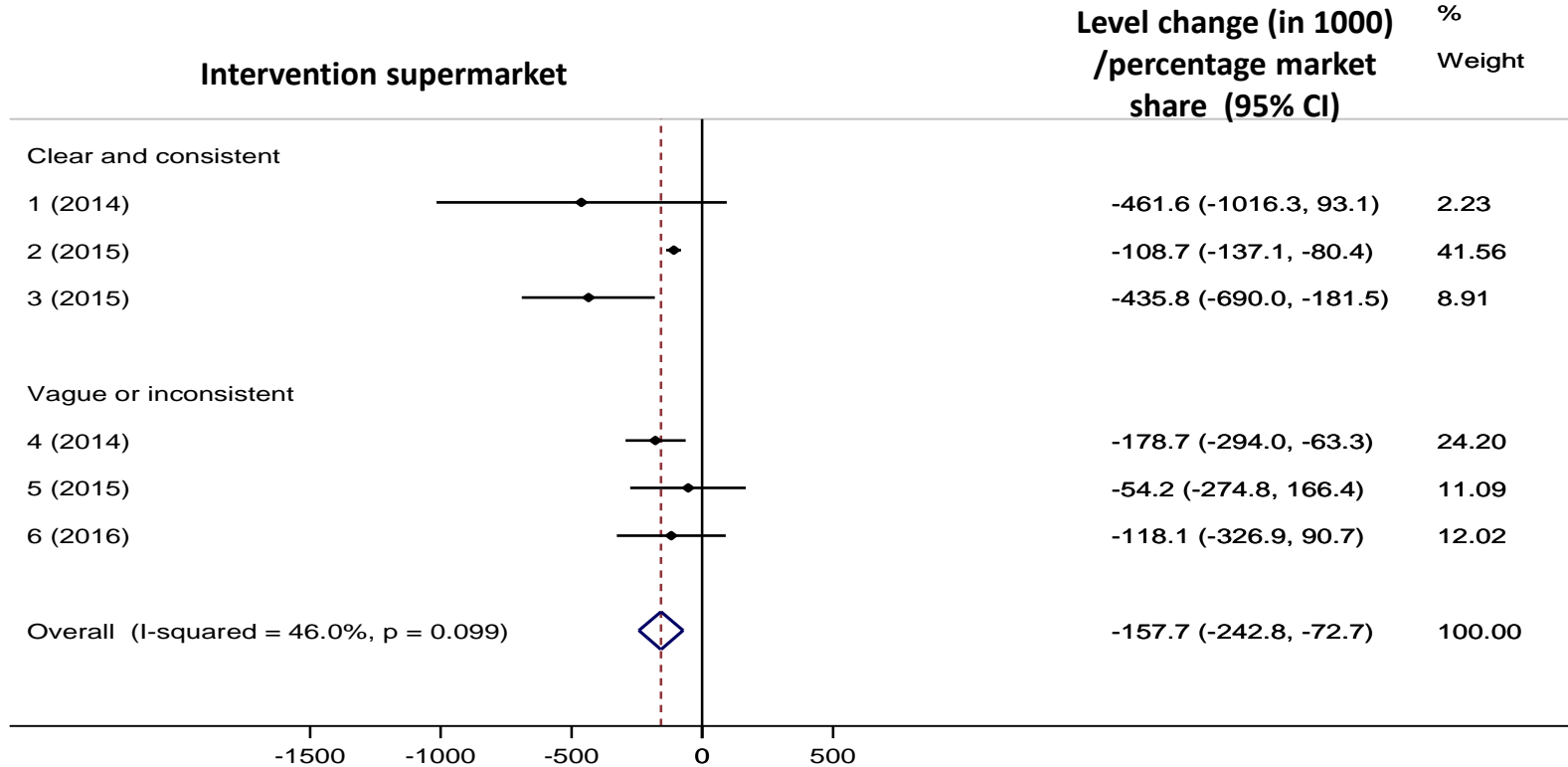


Purchases of checkout foods before/after introduction of policies in 9 UK supermarkets



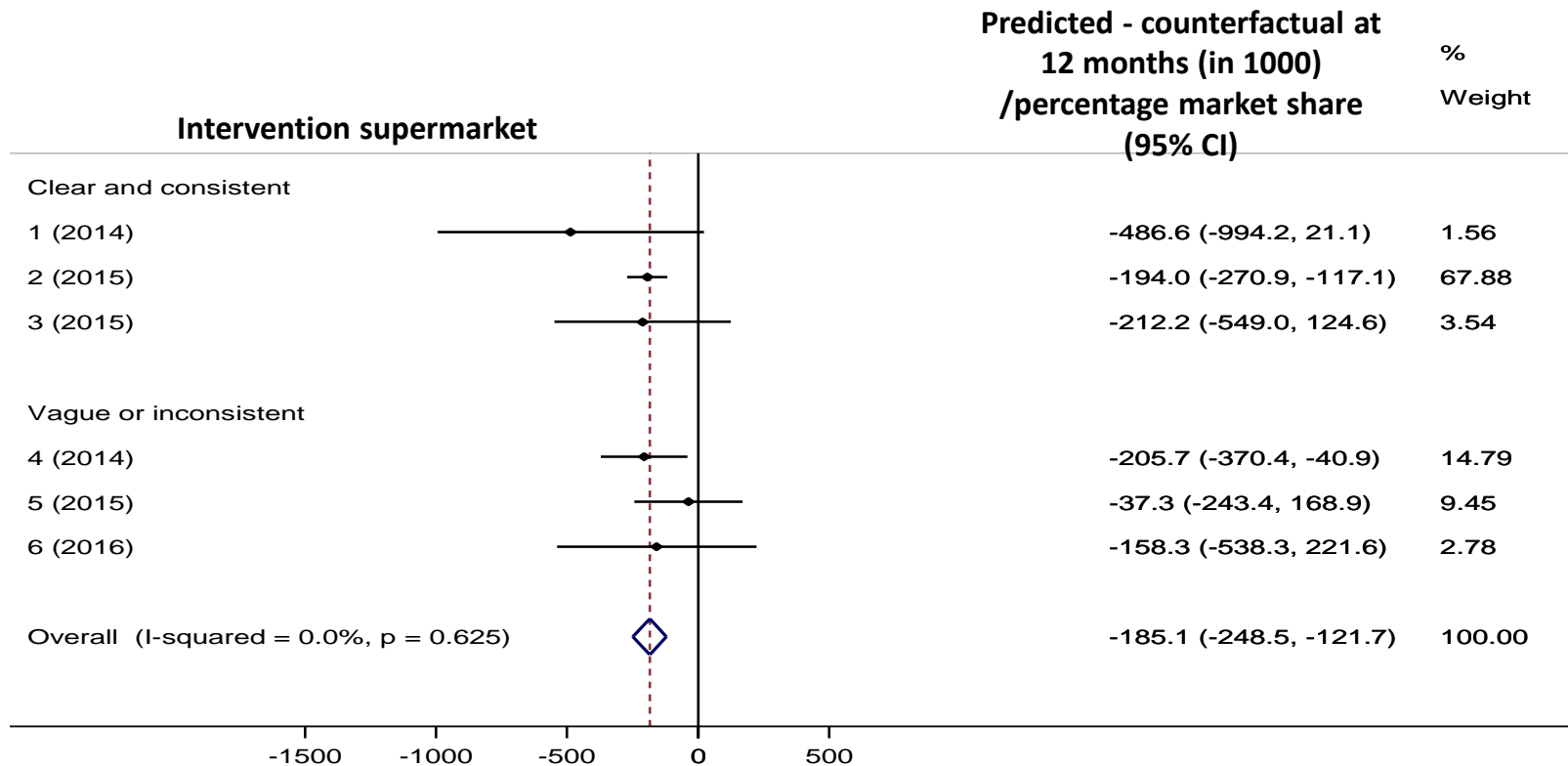
Broken Black = intervention Blue = purchases in control store Red = purchases in intervention store
Broken red = estimated purchases in intervention store without intervention

Change in purchases in 4 weeks post-implementation



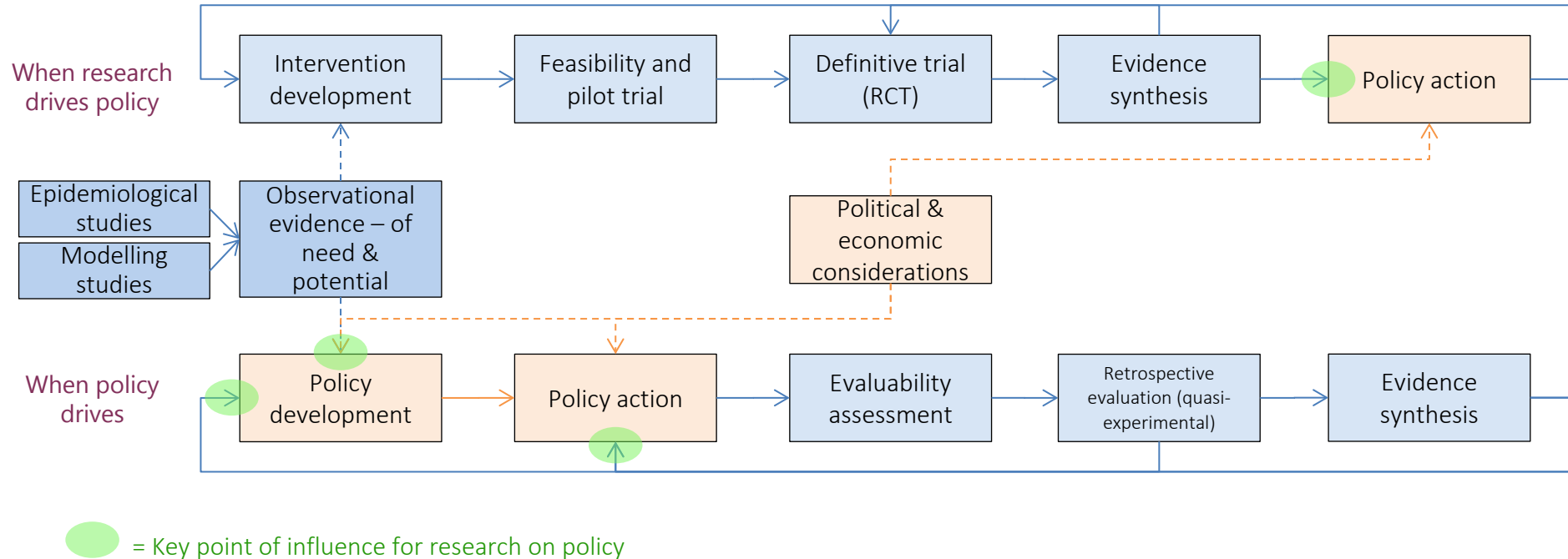
Overall 157,700 fewer units purchased/% market share (95% CI: 72,700 to 242,800), a **-17.3% change at 4 weeks**

Change in purchases at 12 months post-intervention



Overall 185,100 fewer units purchased/% market share (95% CI: -248,500 to -121,700), a **-15.5% change at 12 months**

The two modes of evidence generation



Key principles for impactful population behaviour change

1. Focus on fundamental drivers of attributable risk and outcomes with **high population burden**
(e.g. smoking, diet, alcohol, air pollution, etc., as causes of chronic NCDs)
2. Act on upstream **levers at population level** – aiming to reset whole system
(e.g. overall supply of unhealthy foods, minimum unit price for alcohol, ban on advertising of tobacco)
3. Choose **low agency** interventions – and think about whose agency is required
(e.g. regulatory measures mandated by government)

Research challenges for population interventions

- Change in exposure not manipulated by researcher – usually new policy or other intervention ‘naturally occurring’
- Understanding context and theorising intervention – mapping the system
- Timescale of policy implementation often precludes prospective evaluation
- Implementation/fidelity may be variable over time, place and persons
- May be small changes in exposure at individual level, but may yield worthwhile effect for population. Study power of ITS dependent on number of time points, not sample size
- Demands of evaluations:
 - high quality and comprehensive routinely available data on exposures, outcomes and confounders – from many sectors
 - Suitable counterfactual(s), based on time, place or persons
 - A robust statistical method to model (estimate) impacts
 - Ideally replication and synthesis

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Declaration of interests

- Director of the UK National Institute for Health Research (NIHR), Public Health Research Programme (2014-20)
- President of the UK Society for Behavioural Medicine (2017-18)
- Chief investigator of research grant 16/130/01 from NIHR to evaluate the UK Soft Drinks Industry Levy (£1.5m)
- Chief investigator of a research grant from UK Medical Research Council to develop consensus on the governance of relationships between public health scientists and the food industry (£100k)
- Co-principal investigator of a grant from the Department of Health and Social Care, Policy Research Programme for the Public Health Policy Research Unit (£5m)
- Co-principal investigator of a grant from NIHR for the School for Public Health Research (£20m)
- I have received no funding or funding-in-kind from any commercial organisation