

Nutrition Economics: Advancing the Research Agenda

20 September 2016
University of Surrey, UK

Programme



FOOD, CONSUMER
BEHAVIOUR & HEALTH
RESEARCH CENTRE



▶ WELCOME

Welcome to the Nutrition Economics seminar at the University of Surrey.

This event has been organised as part of the programme of work within the FP7 EU funded REDICLAIM project (<http://www.rediclaim.eu>) that includes a work package on nutrition economic modelling. The objective is to bring together academics and policy makers from a range of disciplines and locations to explore the existing state of nutrition economic research and how the research agenda can be developed to address methodological challenges and inform public health policies.

We thank the Institute of Advanced Studies and School of Economics for supporting this event. We hope the seminar will provoke interesting interdisciplinary debate and establish new networks for future collaborations.

Heather Gage, Director of Surrey Health Economics Centre (h.gage@surrey.ac.uk)

Monique Raats, Director of Food, Consumer Behaviour and Health Research Centre (m.raats@surrey.ac.uk)



PROGRAMME

20 September 2106

Venue: Room 32MS01, Rik Medlik Building

09.30 – 10.00 Registration and Refreshments

10.00 – 10.15 Welcome and Introductions

Monique Raats (University of Surrey, UK)

10.15 – 11.00 Impact and cost effectiveness of a price discount intervention (with or without an in-store nutrition education intervention) on purchases of fruit, vegetables, water and diet soft drinks among remote Indigenous communities

Anne Magnus (Deakin University, Australia)

by Skype from Deakin University, Australia

Coauthors: Julie Brimblecombe, Marj Moodie, Linda Cobiac

11.00 – 11.45 Preferred approaches for quantifying the health and economic impacts of nutrition interventions

Janne Martikainen (University of Eastern Finland)

11.45 – 12.30 Do consumers respond to nutritional labels? Evidence from a quasi-experiment

Stephanie von Hinke (University of Bristol, UK)

Coauthor: Eleonora Fichera

12.30 – 13.00 Lunch

13.00 – 13.45 The effectiveness and cost-effectiveness of plant sterol or stanol-enriched functional foods as a primary prevention strategy for people with cardiovascular disease risk in England: A modelling study

Wei Yang (King's College London, UK)

Coauthors: Heather Gage, Daniel Jackson, Monique Raats

13.45 – 14.30 REDICLAIM's draft guidance for the development of models that will be used to predict the health and economic impact of 'reduction in disease risk' claims

Daniel Jackson (University of Surrey, UK), **Wei Yang** (King's College London, UK) and **Monique Raats** (University of Surrey, UK)

14.15 – 14.30 Refreshment Break

14.30 – 15.30 Closing discussion: Future research directions

Monique Raats (University of Surrey, UK) **to facilitate discussion**

Impact and cost effectiveness of a price discount intervention (with or without an in-store nutrition education intervention) on purchases of fruit, vegetables, water and diet soft drinks among remote Indigenous communities

Anne Magnus

Coauthors: Julie Brimblecombe, Marj Moodie, Linda Cobiac

Background

Indigenous Australians suffer a disproportionate burden of preventable chronic disease compared to their non-Indigenous counterparts – much of it diet-related. Increasing fruit and vegetable intakes and reducing sugar-sweetened soft-drink consumption can reduce the risk of preventable chronic disease. There is evidence from some general population studies that subsidising healthier foods can modify dietary behaviour. There is little such evidence relating specifically to socio-economically disadvantaged populations.

Aim

This study assessed the impact and cost-effectiveness of a price discount intervention with or without an in-store nutrition education intervention, on purchases of fruit, vegetables, water and diet soft-drinks among remote Indigenous communities.

Methods

Trial We utilised a randomised multiple baseline (stepped wedge) design involving 20 communities in remote Indigenous Australia with 8000 total population. Communities were randomised to either i) a 20% price discount on fruit, vegetables, water and diet soft-drinks; or ii) a combined price discount and in-store consumer education strategy. These interventions were initiated, at one of five possible time-points, spaced two-months apart in 2013 and 2014. Weekly point-of-sale data were collected from each community store before, during, and for 24-weeks after the 24-week intervention period to measure impact on purchasing of discounted food and drinks. Data on physical, social and economic factors influencing weekly store sales were collected in order to identify important covariates. Intervention fidelity and mediators of behaviour change were assessed.

Economic evaluation Costs of the discount and education programs were derived from actual financial outlays plus estimated economic opportunity costs of community members' participation in education activities. Changes in total dietary energy, sodium, and grams of fruit and vegetables were assessed for each intervention and are to be modelled for impact on future disease risks associated with fruit and vegetables, sodium intake and elevated body mass index, (cardiovascular disease, cancer, diabetes) assuming independence of effect and expressed as Disability Adjusted Life years. The cost-effectiveness ratio will be assessed as per the trial conditions and modelled to the wider remote indigenous population. Both quantitative comparisons with appropriate value-for-money thresholds and qualitative considerations will be presented.

Results

A 20% price discount was associated with increases in the primary outcome, purchases of fruit and vegetables of 13% (95% CI: 4%, 22%) and an increase of 20% (95% CI: 6%, 35%) post discount; which is an increase of 12g and 18g per capita per day respectively. During the discount period purchases of bottled water increased by 18% (95% CI: 1%, 37%). Consumer education provided a small additional benefit for vegetable purchases only. Purchases of all other food and sodium intake tended to also increase. The trial-based assessment of the discount strategy could be regarded as cost-effective at the \$50,000 /DALY threshold, if approximately 4 DALYs are modelled from the multiple small dietary changes.

Preferred approaches for quantifying the health and economic impacts of nutrition Interventions

Janne Martikainen

Nutrition economics, as a branch of health economics, assesses the health and economic consequences of specific changes in the daily nutrition and nutrition recommendations. However, so far, no systematic approach or guidelines have been developed to assess these outcomes while taking into account specific features of nutrition, such as associations between the level of daily consumption and future health status.

An international expert group commissioned by ILSI Europe is currently systematically reviewing published literature to establish the current methodologies used to estimate the impact of nutrition interventions on health, health-related quality of life, and costs. The work of the expert group is expected to lead to a better understanding, consensus and standardisation of models applied to quantify the health and economic impacts of different nutrition interventions.

In this presentation, interventions aiming to reduce daily salt intake will be used as an example to highlight the preliminary findings of the expert group.



Do consumers respond to nutritional labels? Evidence from a quasi-experiment

[Stephanie von Hinke](#)

Coauthor: Eleonora Fichera

Introduction

The recent increase in diet-related health problems has led to much discussion about whether and how we can improve the quality of dietary intakes in the population. Policy makers have explored different ways to improve individuals' diets, such as encouraging manufacturers to reformulate their products and remove artificial trans-fats, launching the "5-a-day" campaign, and introducing targeted benefits for fruits and vegetables.

Aim

This paper studies the nutritional impact of a large-scale UK policy that introduced Front-Of-Pack (FOP) nutrition labels in different retailers. We study how this policy affected household spending as well as the nutritional composition of the food basket, distinguishing between the effects of the introduction of a 'Traffic Light System' and a 'Hybrid system' of nutrition labelling.

Background

In 2006, the UK Food Standards Agency recommended retailers adopt nutrition labelling on all own-brand products within seven specific food categories. Branded products did not see any change in their nutrition labelling. The recommendations were subsequently taken up by several retailers.

Method

We use the Kantar (scanner) data that allows us to observe a panel of households over time, and all products they purchase and bring into the home. Our identification strategy exploits two features. First, we exploit the fact that the timing of the introduction of FOP labels varied across retailers in a quasi-experiment. Second, we account for fixed household characteristics, using only within-household changes in dietary choices. We use two complementary empirical approaches to estimate the effects of the policy. First, we specify a reduced form triple-difference (DDD) approach, comparing within-household changes in dietary choices for those shopping at retailers that introduced labelling to within-household changes in dietary choices for those shopping elsewhere, for own-brand versus branded foods. Second, we incorporate the DDD approach in an Almost Ideal Demand System (AIDS), allowing us to control for prices and total expenditures.

Results

Our preliminary results show that the Traffic Light System did not affect household expenditure, nor did it affect the nutritional composition of the shopping basket. In contrast, however, the introduction of the hybrid system led to a reduction in spending on affected products (i.e. own-brand products within the seven food categories recommended for labelling by the FSA). Nevertheless, we find no clear indication of any change in the healthiness, suggesting that households reduced their spending on 'treated' foods, but did not change the nutritional composition of the food group.

The effectiveness and cost-effectiveness of plant sterol or stanol-enriched functional foods as a primary prevention strategy for people with cardiovascular disease risk in England: A modelling study

Wei Yang

Coauthors: Heather Gage, Daniel Jackson, Monique Raats

This study appraises the effectiveness and cost-effectiveness of consumption of plant sterol-enriched margarine-type spreads for the prevention of cardiovascular disease (CVD) in people hypercholesterolemia in England, compared to a normal diet. A nested Markov model was employed using the perspective of the British National Health Service (NHS). Effectiveness outcomes were the 10-year CVD risk of for individuals with mild (4 to 6 mmol/l) and high (above 6mmol/l) cholesterol by gender and age groups (45-54, 55-64, 65-74, 75-85 years); CVD events avoided and QALY gains over 20 years.

This study found that daily consumption of enriched spread reduces CVD risks more for men and older age groups. Assuming 50% compliance, 69 CVD events per 10,000 men and 40 CVD events per 10,000 women would be saved over 20 years. If the NHS pays the excess cost of enriched spreads, for the high cholesterol group, the probability of enriched spreads being cost effective for men is 100% for men aged over 64 years and women aged 75 and above at £20,000 threshold. Probabilities of cost effectiveness are lower at younger ages and with mildly elevated cholesterol. If consumers bear the full cost of enriched spread, NHS savings arise from reduced CVD events.



Heather Gage has coordinated health research in the School of Economics since 2008. She became Professor of Health Economics in 2012 and Director of the Surrey Health Economics Centre in 2015. Previously, Heather has held visiting positions at the Boston University School of Public Health and the Center for Health Quality, Outcomes and Economic Research of the US Veterans Healthcare Administration. Heather's research interests encompass many aspects of health service delivery, but particularly focus on evaluative studies and outcomes measurement. She is currently involved as economist in a variety of multidisciplinary projects funded by the National Institute for Health Research, Department of Health, Economic and Social Research Centre, various charities and the European Commission. She has published over 100 articles in international peer reviewed journals. Heather is a research adviser, and leads on health economics, for the NHW Research Design Service in Kent, Surrey and Sussex.

Monique M Raats is Director of the University of Surrey's Food, Consumer Behaviour and Health Research Centre. Her portfolio of research is wide ranging in terms of topics being addressed (e.g. food choice, food preparation, policy development, food labelling), and methodologies used (e.g. qualitative, quantitative, stakeholder consultation). She has published over 110 peer-reviewed papers, 19 book chapters, and co-edited two books (The Psychology of Food Choice; Food for the Ageing Population). She is a founding member of the International Society of Behavioral Nutrition and Physical Activity. In 2011 Monique joined the UK's Scientific Advisory Committee on Nutrition and is a member of its Subgroup on Maternal and Child Nutrition. Currently she is a partner in the Horizon 2020 RICHFIELDS project that aims to design a consumer-data platform to collect and connect, compare and share information about our food behaviours, to revolutionise research on every-day choices made across Europe; and the PROSO project that is to providing guidance on how to encourage engagement of citizens and third sector organizations, like non-governmental organizations (NGOs) and civil society organizations (CSOs), in Europe's research and innovation processes. She also coordinates the REDICLAIM project, which investigates how EU legislation impacts on the substantiation and use of "reduction of disease risk" claims on food and drinks.

► PRESENTERS' BIOGRAPHIES

Dr Daniel Jackson is a Senior Research Fellow in the Surrey Health Economics Centre. He is a graduate of the MSc Health Economics programme at the University of York, with over 10 years of experience in health economics and outcomes research, both for industry and academia. Daniel has worked closely with the National Institute of Health and Clinical Excellence (NICE) in the UK since its inception and has also been closely involved with the Scottish Medicines Consortium (SMC), not only in demonstrating the cost effectiveness of an intervention, but also in developing and analysing patient-reported outcomes. He has extensive experience in reviewing and developing economic models in many healthcare settings, and in conducting systematic reviews and meta analyses. He has served as the health economics member of the Joint Committee on Vaccination and Immunisation (JCVI) for the UK. He is an elected fellow of the Royal College of Medicine, the Royal Society of Public Health, and the Royal Society for the encouragement of Arts, Manufactures and Commerce. Daniel is the author of 'Healthcare Economics Made Easy', an advisor on health economics for the NIHR Research Design Service – SE, and an honorary Fellow in Health Economics at the University of Warwick.

Stephanie von Hinke is a Senior Lecturer in Economics at the University of Bristol. Her main research interests are in health economics and applied microeconometrics, with a particular focus on the economics of obesity, diet and nutrition. Her research looks at both potential causes and consequences of the recent rise in body weight, as well as at evaluating ways to improve dietary choices. Prior to Bristol, she held an MRC Early Career Fellowship in the Economics of Health (2011-2014) at the University of York, and an ESRC Post-Doctoral Fellowship at Imperial College London (2009-2011). She is a Research Associate at the Centre for Market and Public Organisation (CMPO, 2009 –), at the Institute for Fiscal Studies (IFS; 2013 –), and has held visiting positions at Cornell, IFS, and VU University Amsterdam.

Anne Magnus is a Senior Research Fellow in Faculty of Health within the School of Health and Social Development at Deakin University, Australia. Anne's research interests lie in the economic evaluation of various health interventions which have ranged in recent years over treatments for the mental health conditions of depression and schizophrenia; childhood obesity prevention; and cardiovascular disease prevention. Anne has developed models that quantify the production gains likely to be associated with preventive health interventions leading to reductions in the prevalence of important modifiable health risk factors. These models have been widely applied and published.

Janne Martikainen is Associate Professor of Pharmacoeconomics at University of Eastern Finland. His research focuses primarily on health economic evaluations and registry-based outcomes research, with a particular focus on the preventive interventions of type II diabetes and cardiovascular diseases. At the moment he serves as an advisor on the EU funded REDICLAIM project, and he is a member of an international expert group coordinated by International Life Science Institute (ILSI Europe) aiming to develop international guidelines for quantifying the health economic impact of modifying nutrient intakes.

Wei Yang is a Lecturer in Global Health at the King's College London and a member of the Redicclaim team at the University of Surrey. Wei has an expertise in the cost-effectiveness of health interventions to improve health across different population groups, and has participated in a number of Department of Health funded projects. Wei holds an Economic and Social Research Council Future Research Leader award.

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