

## Food insecurity abstracts

Strand organiser: Dr. Jasmine Fledderjohann (Lancaster University)

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### Midday Tuesday 14 September: Social & environmental determinants of food & nutrition security

#### **Perception, environmental determinants, and health complications of obesity in India: a mixed methods approach**

**Somdutta Barua, Jawaharlal Nehru University**

Background: The roots of obesity run deep and are multifactorial. Presently, the obesity rate is rising in developing countries, rapidly in India, especially in urban areas. To view this problem holistically, the study is conducted on individuals with excess weight to study their perceptions, environmental determinants, and health complications of obesity in Kolkata, one of India's major cities. Methods: This study resorted to concurrent mixed methods approach collecting and combining quantitative survey (n=120) and qualitative interview data (n=18). To address this study's objectives, women and men aged 25-54 years with a waist circumference of 80cm and 90cm or higher, respectively, and BMI of 25 or higher was selected. Findings: Participants felt most concerned about the food environment. Data integration confirmed that fast foods, food advertising influenced the risk of obesity. Qualitative interviews expanded that food adulteration, packaged foods, marketing through food delivery applications, lack of affordability of healthy and organic food, profit-making industries (food, medical, and weight loss), and no educational programmes further influenced the risk. Hypertension, cholesterol, and high blood glucose were cited the most to be associated with obesity. They are also most frequently present among study participants, more commonly in females, with a BMI of over 30 and waist circumference of over 102 cm. Participants suggested raising awareness, easy accessibility to healthy foods and wellness programs, promoting participation in physical activities, and regulating fast foods and sugary beverages as some of the preventive measures. Conclusion: Awareness is fundamental, and policymakers should consider the environmental situation while tailoring intervention programmes.

Email: [somduttabarua@gmail.com](mailto:somduttabarua@gmail.com)

#### **Role of low birth weight in determining poor nutritional outcomes among young children in Sri Lanka: evidence from DHS data**

**Gayathri Abeywickrama; University of Southampton**

Background: Child nutrition outcomes have stagnated over a decade (2006-2016) in Sri Lanka, despite improvements in low infant, under-five and maternal mortality rates. Even though determinants of child undernutrition, are well documented, very few investigated the role of low birth weight (LBW) on child undernutrition. Aims: To explore the significance of LBW in predisposing child undernutrition in relation to other risk factors and also to assess the extent of inequalities underlying child nutrition outcomes. Methods: Child anthropometric measures stunting, wasting and underweight are generated using WHO 2006 Child Growth Standards. This study applied three-level logistic random intercept models to investigate the association between undernutrition and LBW. Concentration curves and concentration indices were obtained to examine the extent of socioeconomic inequalities underlying poor nutrition. Participants: The analysis sample consisted of 7,259 children aged 6-59 months, who had reported their complete anthropometric measurements. Results: Overall, about 18.2 per cent of the children had stunting, 14.5 per cent had wasting and, 20.7 per percent had underweight. While adjusted for child, maternal, household and residential factors, children with LBW had significantly increased odds of becoming undernourished compared to normal birth weight children. Findings demonstrated the evidence of socioeconomic inequalities; stunting, wasting and underweight are more concentrated among LBW children born in poor households. Further, the analysis of random effects confirmed that the variance in undernutrition outcomes between communities were less, compared to the variance attributed to differences between households within the community. Conclusion:

Study evidenced the crucial role of low birth weight on child undernutrition outcomes. The findings direct the urgent need to design interventions aimed at improving nutrition throughout the life course to break the cycle of undernutrition in Sri Lanka.

Email: [dga1n17@soton.ac.uk](mailto:dga1n17@soton.ac.uk)

**Using access to examine urban advantage in food and nutritional security in Brazilian Amazonia**  
**Luke Parry<sup>1</sup>, Patricia Torres<sup>2</sup>; <sup>1</sup>Lancaster Environment Centre, Lancaster University, <sup>2</sup>Escola de Artes, Ciências e Humanidades da Universidade de São Paulo (USP)**

We examine urban advantage in food and nutritional security (FNS), engaging with social relations and moving beyond 'productionist' agendas. We use access theory to understand the diverse means, relations and processes through which households derive benefits from things in order to access food. We also account for the capability to be healthy and empowerment. We ask; what is the magnitude of any urban advantage in FNS; how do food access mechanisms and their foundations vary between towns and rural areas? how are these mechanisms associated with urban and rural FNS? We employed field research in four remote towns and 60 rural communities in Amazonas, Brazil, measuring perceived food insecurity (n=1109 households) and child height-for-age (n=610). Moderate/severe food insecurity was more prevalent in rural (68%) than urban households (51%). Rural child-growth was lower (-0.44±0.11SE lower z-scores) and stunting was more prevalent among rural children (31.9% versus 14.7%). We found expected urban advantage in monetary income, education and sanitation but higher horizontal social capital in rural areas. Similarities included food security benefits from higher income, motorized transport and horizontal social capital. Identifying as a rural-urban migrant intersected with severe food insecurity, impaired child-growth, and social and economic disadvantage. Importantly, rural livelihoods (e.g. farming) served as coping strategies for food insecure urban households. Rural FNS was strongly shaped by urban accessibility (remoteness and town visits). Frequent visits conferred 0.38±0.18 z-scores higher growth and 40.3±7.0% lower food insecurity. Policy interventions should recognize socially-mediated access mechanisms and foster individual capabilities whilst confronting deep structural inequities.

Email: [luke.parry@lancaster.ac.uk](mailto:luke.parry@lancaster.ac.uk)

**Do higher temperatures increase food insecurity? An observational analysis across Indian states, 2014-2017**  
**Carolin Kroeger, Aaron Reeves; University of Oxford, Department of Social Policy and Intervention**

Background: Heat waves directly impact well-being, but they also have indirect effects, in part because they induce an income shock for households by reducing earnings and increasing consumption. This paper explores whether this income shock increases food insecurity, and thereby examines one of the indirect effects of higher temperatures on well-being. Methods: We combine representative data collected by the Food and Agricultural Organization (n=9965) from 2014 to 2017 with temperature data from weather stations across 18 Indian states. We estimate the association between moderate or severe food insecurity and the number of hot days in the state during the previous week, accounting for week and state fixed effects. In effect, rises in temperature constitute a natural experiment because temperature is independent of when individuals responded to the survey. Preliminary results: We find that experiencing at least four hot days in the previous week increases the likelihood of reporting moderate food insecurity by 10.56 [95% CI: 0.0124 to 0.1988] percentage points. Households exposed to higher temperatures were also more likely to report being unable to afford food and unable to afford shelter, suggesting households struggle to make ends meet during periods of high temperatures. Indeed, those with lower incomes see larger increases in food insecurity during higher temperatures than those with higher incomes. Conclusion: Higher temperatures are associated with increased food insecurity in India. These effects are particularly acute among low-income households. Climate adaptation planning needs to closely consider temperature thresholds and pathways that connect temperature and food security.

Email: [carolin.kroeger@sant.ox.ac.uk](mailto:carolin.kroeger@sant.ox.ac.uk)

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### **3.15pm Wednesday 15 September: Socioeconomic & policy determinants of food & nutrition security**

#### **Sociodemographic gradients in food insecurity in India**

**Thomas Lemma Argaw<sup>1</sup>, Jasmine Fledderjohann<sup>1</sup>, Elisabetta Aurino<sup>2</sup>, Sukumar Vellakkal<sup>3</sup>; <sup>1</sup>Lancaster University, <sup>2</sup>Imperial College London, <sup>3</sup>Indian Institute of Technology Kanpur**

India is home to 1-in-9 food insecure people in the world. Food insecurity is a key policy issue in India. However, its sociodemographic correlates have not been investigated in detail. To this end, we use the longitudinal Young Lives dataset to investigate sociodemographic inequalities in household food insecurity. Data were collected in 2002, 2006, 2009, 2013 and 2016 for a pro-poor sample of n~3000 households. Using the household food insecurity measures collected in rounds 2-5, we applied concentration index-based decomposition alongside simple and multinomial logit models to document the risk of food insecurity by household sociodemographics, region and over time (i.e. by study year). Preliminary results show an overall food insecurity prevalence of 24%. The Erreygers Concentration Index (CI=-0.15, p<0.001) show that food insecurity is concentrated amongst the poor. Food insecurity is significantly increasing over time, from 9% of households reporting food insecurity in 2006 to 45% in 2016. The logistic regression estimates show that age of the household head (b=0.001, p<0.05) increases the likelihood of experiencing food insecurity. On the other hand, male-headed households (b=-0.06, p<0.01), households owning livestock (b=-0.06, p<0.01), land (b=-0.04, p<0.05) and households whose head's completed primary education (b=-0.06, p<0.01) have lower likelihoods of experiencing food insecurity. Compared to Backward caste heads, households with heads from other castes are less likely to experience food insecurity (b=-0.06, p<0.01). Next, we will capitalize on the longitudinal data to document which households are most at-risk of chronic (versus transitory) food insecurity.

Email: [t.argaw@lancaster.ac.uk](mailto:t.argaw@lancaster.ac.uk)

#### **A systematic review of the impact of UK austerity policies on food insecurity and foodbank use**

**Rosemary H. Jenkins<sup>1</sup>, Shirin Aliabadi<sup>2</sup>, Eszter P. Vamos<sup>1</sup>, David Taylor-Robinson<sup>3</sup>, Sophie Wickham<sup>3</sup>, Christopher Millett<sup>1</sup>, Anthony A. Laverty<sup>1</sup>; <sup>1</sup>Public Health Policy Evaluation Unit, Department of Primary Care and Public Health, School of Public Health, Imperial College London, <sup>2</sup>Global Digital Health Unit, Department of Primary Care and Public Health, Imperial College London, London, <sup>3</sup>Department of Public Health, Policy and Systems, Institute of Population Health, University of Liverpool**

Background: Austerity policies were introduced by the UK government in 2010, which led to changes in local council spending and the social benefits system. We systematically reviewed of the impact of these policies on food insecurity and foodbank use. Methods: In September 2020, we searched seven databases, reference lists and grey literature. Only primary empirical studies in English were included, and both cross-sectional and longitudinal studies were eligible for inclusion. The exposure for this review was austerity policies including changes to benefits, and food insecurity and foodbank use were the outcome. Eligibility screening, data extraction, and risk of bias assessment were done by two authors. Results: We included eight studies in this systematic review, two of which were individual-level and the rest ecological. Austerity policies were associated with an increase in food insecurity and foodbank use in all eight studies. The introduction of austerity policies in European countries including the UK was associated with an increase in food insecurity. Changes to the benefits system, including increases in benefit sanctions, were associated with increased food insecurity and foodbank use. Implications: UK austerity policies are associated with an increase in food insecurity and foodbank use. We recommend that impacts of such policies are taken into account by policy-makers aiming to reduce government debt, especially impacts of changes to the benefits system that cause benefit reductions and delays. Further research investigating impacts of changes in local council spending and other facets of austerity policies is needed. Funding: NIHR School for Public Health Research.

Email: [rosemary.jenkins15@imperial.ac.uk](mailto:rosemary.jenkins15@imperial.ac.uk)

#### **Wage setting policies reduce food insecurity but not among the unemployed: A multi-level analysis of 492,078 people in 139 countries**

**Aaron Reeves<sup>1</sup>, Rachel Loopstra<sup>2</sup>, Valeria Tarasuk<sup>3</sup>; <sup>1</sup>University of Oxford, <sup>2</sup>Kings College London, <sup>3</sup>University of Toronto**

Background: Wage-setting policies, which increase earnings, may reduce the risk of food security, but the impact of these policies may vary depending on employment status. Method: We estimated multilevel regression models, using data from the Gallup World Poll (2014-2017) and UCLA's World Policy Analysis Center, to examine the association between wage setting policy and food insecurity across 139 countries (n=492,078). Results: Compared to countries with little or no minimum wage, the probability of being food insecure was 0.10 lower (95%CI: 0.02, 0.18) in countries with collective bargaining. However, these associations varied across employment status. More generous wage setting policies (e.g., collective bargaining or high minimum wages) were associated with lower food insecurity among full-time workers (and to some extent part-time workers) but not those who are unemployed. Conclusions: In countries with generous wage setting policies, employed adults had a lower risk of food insecurity but the risk of food insecurity for the unemployed was unchanged. Wage setting policies may be an important intervention for addressing risks of food insecurity among low-income workers.

Email: [aaron.reeves@spi.ox.ac.uk](mailto:aaron.reeves@spi.ox.ac.uk)

### **Global food insecurity: A collateral damage of the pandemic**

**Andrea Pescatori, Christian Bogmans, Ervin Prifti; International Monetary Fund**

We look into the macro determinants of food insecurity in a rigorous framework, while accounting also for policy variables. This cross-country study covers 142 countries over 20 years, to explore how initial conditions, GDP growth, food inflation and social protection spending affect the Prevalence of Undernourished, the FAO's objective measure of food insecurity used to track progress towards SDG2 on zero hunger. We employ a broad range of estimation methods, including non-parametric fixed effects combined with an Arellano Bond approach to addressing endogeneity in a macro setting. We find that economic growth is the biggest driver of global hunger, whose magnitude is five times larger than food inflation and social safety net spending. Typical changes of the latter two factors have a similar effect on undernourishment, almost perfectly offsetting each other. In our heterogeneity analysis we find that growth is more effective in curbing undernourishment when inclusive. Also, the income elasticity of hunger varies with the level of income, playing a much bigger role in the early stages of a country's development and vanishing as countries grow richer. Food inflation can be strongly detrimental to food security especially for poor countries where a much larger share of expenditure goes for food. Social protection spending has a direct negative effect on curbing undernourishment, but it also acts as a buffer against income and food price shocks. According to our estimates, 64 million people might be thrown into undernourishment in 2020 due to the pandemic.

Email: [eprifti@imf.org](mailto:eprifti@imf.org)

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