Income Shocks, Food Expenditures, Calorie Intake and Body Weight:
A multilevel structural equation modelling analysis

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A large literature examines the effects of income (shocks) or economic conditions on individual health and nutritional outcomes. With the global economic expansion until 2007/08 and the subsequent recession, this remains an important area of research. We develop multilevel structural equation models to jointly estimate the extent to which unanticipated income shocks affect household-level food expenditures, and individual-level calorie intake and body weight. Drawing on economic theory, we start by decomposing the income process into shocks (specified as latent variables or factors) that only affect the current period ('transitory shocks', such as getting a bonus) and those that affect the current period as well as all future periods ('permanent shocks', such as a promotion or being made redundant). We then exploit time variation in the second order moments of the income process to estimate the effects of permanent and transitory shocks on household- and individual-level responses to such shocks, accounting for the clustering of individuals' diets within households. If income shocks do not affect the responses of interest, it would suggest that individuals are 'insured' against shocks. By allowing the factor loadings on the shocks to differ between different household members, we test whether men and women in the household are differentially insured. We use a high-quality and unique longitudinal Russian dataset that includes detailed individual- and household-level data on incomes, expenditures, health and nutritional intake. We find that – consistent with the economic theory – permanent income shocks have large effects on food expenditure, calorie intake and body weight, with much smaller, often insignificant, effects of transitory shocks.