Health and mortality

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Unemployment and mortality in Scotland: towards a causal explanation.
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Unemployment is related to poorer health and mortality. However, the extent to which this relationship is causal is a matter of continuing research. In particular, the issues of both direct selection (poor health causing unemployment) and indirect selection (differences in individual characteristics) are both suggested as possible explanations of the unemployment health association. In this paper we bring together routinely collected administrative data (from the Scottish Longitudinal Study) that is unique in the UK context and an innovative research design (propensity score matching) to ask; is there a mortality risk of unemployment in Scotland and to what extent is this risk attenuated by (health) selection? We discuss our findings in light of other recent studies conducted in Nordic countries that have also explored whether unemployment heightens mortality risk. Within this literature we focus particularly on the role of differences in welfare state provision between these Nordic countries and the UK.

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It's not 'just deprivation': why do equally deprived UK cities experience different outcomes?
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Background The link between socio-economic circumstances and health is well established. However, not all poor health can be explained purely in terms of deprivation: this is particularly true in Scotland, where high levels of 'unexplained' mortality have led to talk of a 'Glasgow Effect'. However, Glasgow's characteristics of high deprivation and poor health are shared with other UK cities, notably Liverpool and Manchester.
Objectives To establish whether there is evidence of a so-called 'Glasgow effect': • when compared to its two most similar and comparable UK cities; • when based on a more robust and spatially sensitive measure of deprivation than was previously available to researchers. Methods Rates of 'income deprivation' were calculated for small areas in the three cities. All-cause and cause-specific SMRs were calculated for Glasgow relative to Liverpool and Manchester, standardising for age, sex and deprivation. A range of historical data were also analysed.
Results The deprivation profiles of the three cities are almost identical. Despite this, premature deaths in Glasgow are more than 30% higher, with all deaths around 15% higher. This 'excess' is seen across the whole population including both deprived and non-deprived neighbourhoods. Analyses of historical data suggest that the 'effect' is a relatively recent phenomenon.
Conclusion While deprivation is a fundamental determinant of health, it is, however, only one part of a complex picture. As currently measured, deprivation does not explain the higher levels of mortality experienced by Glasgow in relation to two very similar UK cities. Additional explanations are required.

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Unemployment and poor health: Testing the robustness of self-reported health measures.
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Self-reported health is a commonly used measure of physical and mental morbidity in the UK and elsewhere. It is well-known that those who are unemployed are more likely to suffer from poor health than those who are working. This paper compares the population of areas with chronic (long-term) unemployment to areas with lower rates of unemployment to explore the economic (in)activity of the potential workforce and their self-reported health status. It would be expected that, ceteris paribus, those who have poor general health are more likely to be economically inactive than those who report good general health. However, some of those who are healthy may also be economically inactive, while some who are ill may stay in work; how does this compare between areas of high and low unemployment? The Northern Ireland Mortality Study is an exercise in data linkage which contains the full population of Northern Ireland enumerated in the 2001 Census linked to subsequent mortality in the six years which follow. Using these data, we assess how poor general health affects the likelihood of suffering mortality, and how this differs according to an individual's economic (in)activity and the (un)employment rate for their area of residence. Results are reported in the context of assessing the robustness of self-reported health measures and differences in how health may be reported by individuals.

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Temporal and epidemiological heterogeneity in the impact of adult deaths on survivors' consumption.
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This paper examines the impact of adult deaths on households' welfare using longitudinal data from a demographic surveillance system in a rural sub-district in South Africa in which households' per capita food expenditure was measured three times between 2003 and 2006. The analysis explores the temporal dimension of the impact of adult deaths on survivors' consumption; shows that their impact differs by cause of death, gender and the employment status of the deceased individual; and finds that their effects tend to be greater in better-off households than very poor ones. The three waves of data are used to address methodological issues such as the endogeneity of adult deaths to consumption, unobserved heterogeneity, and bias due to the temporal auto-correlation of household consumption.

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Socio-demographic factors affecting birth weight and preterm status of native and immigrant births in Greece: a multivariate analysis based on vital registration records
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Aims: This study aims at exploring associations of socio-demographic factors with adverse pregnancy outcomes among immigrant and native women in Greece. Data and methods: For the purposes of the study restricted access nationwide vital registration data at individual level are used. The data include 103,266 single live births registered in 2006 to women aged 20 or higher. Multinomial logistic regression models are applied. The dependent variable takes into account both gestational age and birth weight, distinguishing between four categories of births: those that are preterm (occurring before the 37th week of gestation) and low birth weight (below 2500 grams), those that are low birth weight but normal term (approximating intra-uterine growth retarded

births), preterm but normal weight and normal births. Results: The findings indicate that important risk factors associated with low birth weight preterm and intra-uterine growth retarded births include female sex, primiparity, age of mother over 35, illegitimacy and prior history of stillbirths, infant and child deaths. These constitute risk factors for normal weight preterm births as well, though associations with sex and primiparity in this case point to the opposite direction. Education has a protective effect among natives while chances of an intra-uterine growth retarded birth are higher among housewives and women residing in large metropolitan areas. Native women fare worse than immigrants regarding the whole spectrum of adverse pregnancy outcomes, even when controlling for socio-demographic characteristics. The results also provide evidence that normal weight preterm births comprise a distinct group and should be treated accordingly.

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First day mortality in the developing world: The two-thirds within the two-thirds?
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Most infant deaths occur during the early neonatal period, particularly within the first 24 hours after delivery. Little is known about the levels and trends of the first-day mortality and how they vary across different populations in the developing world. We estimated the levels and trends of first-day mortality rates for various developing countries and further examined the associated socioeconomic and health-care differentials. Data from 30 Demographic and Health Surveys (DHS) in Sub-Saharan Africa, south and Southeast Asia and Latin America and the Carribbean were used for the analysis. We compared the trends in first-day mortality rates for three consecutive DHS and further examined the absolute differences in first-day mortality rates by (a) wealth quintile also categorised by rich-poor differences within rural areas and (b) antenatal visits and place of delivery. First-day mortality rates varied widely from 25 deaths per 1000 live births [95%CI: 22, 28] in Mali to about 15 per 1000 in Kenya, Madagascar and Nepal and to less than 10 per 1000 in Columbia, Turkey and Philippines. The absolute change in the rates between DHS1 and DHS3 were not significant in about 25 countries and the levels were stagnant in about 10 countries whereas the rates reduced over time significantly only in Indonesia, Turkey and Zambia but showed an increase in Mali, Rwanda and Zimbabwe. Wealth differentials were apparent in a few countries: the rates were significantly higher among rural poor compared to wealthier strata in rural and urban areas. Rates were substantially lower among children born to mothers who had received 4 or more antenatal visits. In contrast, the rates in 19 countries were relatively much higher for institutional births – although the vast majority had high rates of home birth.

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Socio-economic and environmental determinants of childhood diarrhoea in Malawi.
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The aim of this research is to study the socio-economic determinants of childhood diarrhoea in Malawi, a major determinant of mortality in infants and children. Using the 2005 Malawi Demographic and Health Survey, children aged between of 0 and 58 months are analysed using multilevel logistic modelling. Two separate analyses were conducted, firstly studying infants who were still exclusively breastfed, while the second used children who were not exclusively breastfed. This was conducted as the determinants of diarrhoea differ between the two groups. The findings show that the child-level factors are the key determinants of childhood diarrhoea in Malawi, such as the age of the child, cough/fever in the two weeks prior to the survey and which vaccinations have

been received. Interestingly, receiving vitamin A supplements in the first two months after delivery reduces the prevalence of diarrhoea, whilst vitamin A given to older children is positively associated with childhood diarrhoea. Furthermore, the measles and DPT vaccinations are also positively associated with childhood diarrhoea in Malawi. At a household level, having water piped into the dwelling as the main source of drinking reduces the chance of childhood diarrhoea by almost 50%. Environmental factors are only important to the children that are not exclusively breastfed. The findings of this study show that the determinants of childhood diarrhoea extend beyond the socio-economic environment, and highlight some possible associations with other health interventions such as vaccinations and Vitamin A supplementation that may be of concern to policy makers.

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Children's cognitive development: does breastfeeding really make a difference?
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As well as being associated with significant health benefits for children, breastfeeding is also associated with better cognitive outcomes. However, research in this area is beset by the difficulty of establishing the causality behind this observed relationship. Does breastfeeding actually cause the more favourable outcomes observed in breastfed children? Or does the association arise simply because breastfeeding is more likely to be practiced by mothers whose characteristics (higher social class, higher IQ, higher education, etc.) are themselves associated with more favourable outcomes for their children? We address this question using propensity score matching, an analytical technique which simulates an experimental situation by creating matched "treatment" and "control" samples. This is the first time this technique has been implemented in the study of breastfeeding. We use data from the Avon Longitudinal Survey of Parents and Children (ALSPAC), a longitudinal study of around 12,000 children born in the Avon area during the early 1990s. This data set contains a wealth of information, not only on children's outcomes and mothers' breastfeeding behaviour, but also on the pre-birth characteristics and attitudes of the mother and her partner. Our findings suggest that a substantial part of the relationship between breastfeeding and cognitive development is indeed explained by differences between women who do and do not breastfeed; however, even after controlling for these differences, a smaller but significant relationship between breastfeeding and cognitive outcomes does remain.

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The influence of acculturation on ethnic differences in obesity in England.
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Objectives: To investigate the extent of generational differences in adult health-related lifestyles and socioeconomic circumstances, and explore whether these differences might explain changing patterns of obesity in ethnic minorities in England.
Method: Seven ethnic minority groups were selected from the ethnically-boosted 1999 and 2004 Health Survey for England (Indian n=887; Pakistani n=603; Bangladeshi n=275; Black Caribbean n=762; Black African n=147; Chinese n=413; and Irish n=1,438). A White group was used as a reference population (n=5,899). Age and sex adjusted odds of being obese in the second generation compared to the first were estimated before and after adjusting for generational differences in health related behaviours (snacking, eating cakes and fried foods, having low levels of physical exercise, any drinking including binges, current smoking status), and socioeconomic factors (social class, equivalised income and highest qualification).

Results: Second generation men and women were significantly more likely than the first to have poorer health behaviours. However, there were considerable variations in the uptake of these behaviours within individual groups. Indian and Chinese groups were more likely to be obese in the second generation than the first after adjusting for age and sex, with no significant differences observed in all other groups. Adjusting for health behaviours in each group had a negligible impact on the risk of second generation obesity. However, the risk of obesity increased in all groups after adjusting for the better socioeconomic circumstances of the second generation.
Conclusions: Socioeconomic shifts have stronger influences on obesity than behaviour changes following migration to England.

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Balancing benefits and costs? Transnational households and the nutritional status of children left behind in South-East Asia.

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Transnational migration is typically viewed as a livelihood strategy by parents seeking employment abroad, often with the goal of improving the life chances of their children. Remittances from the migrant parent may confer benefits on children, including better and more secure nutrition. Nevertheless, geographical separation may also involve 'costs' for parents and children. It may be that in some circumstances left-behind children experience a care deficit, which impacts negatively on their diet and physical growth. This is the first study to investigate empirically the benefits and costs of transnational livelihood strategies for the nutritional status of children left behind in South-East Asia. The paper examines the associations between parental migration and the nutritional status of a sample of children in the Philippines and Vietnam. Data are drawn from Phase 1 of the CHAMPSEA study undertaken in 2008. The outcome of interest is stunting, or low height for age. Cases of mild and severe stunting are identified using height-for-age z-scores (HAZ) compared to the international WHO standards, and measures are derived for two groups of children: younger children aged 3, 4 and 5 years; and older children aged 9, 10 and 11 years. Findings from multivariate models indicate that having a parent working abroad is associated with a lower likelihood of stunting for some groups of children but with a greater risk of stunting for other groups. The challenge for future research is to collect and analyse longitudinal data which would allow identification of the causal pathways implicit in these findings.

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The importance of household and neighbourhood socioeconomic status for body composition among South African adolescents.

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Purpose: To determine which aspects of household socioeconomic status (SES) at birth and 16 years, and neighbourhood SES at 16 years, are associated with body composition at 16 years in urban South African children.
Methods: Linear regression was applied to data from the Bt20 bone health sub-sample (n=429, 75% Black, 52% male) to investigate the influence of household SES at birth and 16 years, and neighbourhood SES at 16 years, on three outcomes: fat mass index (fat mass (kg)/height (m)4), lean mass index (lean mass (kg)/height (m)2), and body mass index (BMI) at 16 years.
Results: BMI for boys was significantly higher at year 16 for those who were born post term (β=4.07, SE=1.93), had both sole and shared use of water and toilet facilities at birth (ref sole use)

(β=2.94, SE=1.29), and whose mother received post school education (β=2.27, SE=0.83). Only birthweight (g) was significantly associated with BMI for girls (β=0.002, SE=0.001). SES at birth and at 16 years accounted for 10.5% and 7.3% of the variance in BMI in boys and girls, respectively.
Conclusions: In contrast to findings in adult studies in this setting that observe SES gradients in BMI, SES was only weakly associated with BMI in this urban adolescent group for males and there was no significant association for females. For males measures of SES in infancy were stronger determinants of BMI than contemporary SES measures taken at age 16 years, highlighting the continuing importance of the early life environment for body composition outcomes.

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Regional disparities in self-rated health, chronic illness, and acute illness in Albania: A multilevel analysis of the Albanian Living Standards Survey 2002.
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OBJECTIVE This research explored regional disparities in three self-reported indicators of health among the adult population of Albania in order to assess whether a north-south gradient in health, paralleling traditional dietary patterns, remained in the population following the post-communist transition.
METHODS Multilevel logistic variance components models were fitted using forward stepwise model selection to data from the 2002 Albania Living Standards Measurement Survey for three dependent variables – self-rated health, acute illness and chronic illness.
RESULTS Region was found to be statistically significantly associated with acute illness and chronic illness; statistically significant regional disparities were not found to exist for self-rated health. The traditional pattern of regional disparities in health remains for acute illness; individuals from the north-east region have the highest odds of reporting an acute illness. Individuals from the coastal region, however, have the highest odds of reporting a chronic illness.
CONCLUSIONS The regional pattern of mortality remains for acute illness. In contrast, the north-south gradient in chronic illness has not remained. It is argued that the higher levels in the coastal region are not likely to be due to a fundamental change in the regional patterns of health status in Albania at present but due to the huge north-south internal migration that occurred during the 1990s.
FUTURE RESEARCH The research will be extended by controlling for previous regional residency of individuals in the analyses in order to assess whether the change in the regional pattern of chronic illness relates to internal migratory patterns.

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Estimations of smoking-related deaths: an age-period-cohort model-based approach.
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Tobacco is the second most important risk factor for mortality in Europe. The impact of smoking on the burden of disease varies among countries and sexes depending on differences among cohorts in lifetime exposure to smoking. Although it is widely recognised that many of the smoking related causes of death have a strong cohort effect, especially in the case of lung cancer, most of the estimates are period based. This paper presents cohort-based estimates for lung cancer mortality (using data from the WHO Mortality database) for a range of European countries that include a variety of levels and trends in smoking-related causes of death. We use an Age-Period-Cohort (APC) model-based approach. The APC model for the log-death rates m(apc), at age a, in period p

for persons in birth cohort c=p-a, is: ln(m(apc)) = f(a) + g(p) +h(c). We argue that after attributing maximum variation to the cohort dimension, period patterns are relatively unimportant and therefore a simplified model may be used. We use the cohort function for lung cancer as an indicator of total smoking attributable mortality to detect cohort and gender differences across countries. The pace of increase and decease in lung cancer is related to the pace of cohorts' uptake and reductions in smoking rather than levels per se, therefore we discuss estimation and use the first derivative of the h(c) cohort function to identify the most favoured cohorts.

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Fertility history and cause-specific mortality: A register-based analysis of complete cohorts on Norwegian women and men.

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BACKGROUND: The relationship between women's reproductive histories and later all-cause mortality has been investigated in several studies, with somewhat mixed results. Some authors have also considered cause-specific mortality and some have included men, but none has done both.
DATA AND METHODS: Using register data for complete Norwegian birth cohorts, hazard models for cause-specific mortality 1980-2003 were estimated for women and men born 1935-1968 (i.e at ages 45-68). Age, period, educational level, marital status, region of residence and population size of municipality were included as control variables. In total, there were 63000 deaths.
RESULTS: Relative to parents of two children, childless men and women and those with one child had raised mortality risks for nearly all cause of death groupings. High parity (4+ children) was associated with raised male mortality from accidents and violence, circulatory diseases and respiratory diseases and raised mortality from cancer of the cervix among women. For other cause and gender groupings there was either little difference between those with two children and those of higher parities or an overall negative association between parity and mortality. Early age at first birth was associated with raised mortality for all cause groups except the female cancers and for most causes (except breast cancer) there was an inverse association between age at first birth and mortality risk.
CONCLUSION: Similarities observed across cause groups and for women and men suggest that lifestyle factors and selection effects account for much of the fertility-mortality relationship. However, physiological effects may be involved in some causes of death for women and higher levels of stress among those in high-parity families, and those with an early start to childbearing, may also contribute for some causes.

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Mortality in small urban areas: the age patterning effects of standards of living, traditional family structure, religiosity, and population group.

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Over the past half century standards of living have risen to the point where a growing proportion of the population approaches, or has attained a level of material comfort which is adequate for survival. At the same time, changes in household structures, patterns of household formation and dissolution, and fertility have created a variety of living arrangements in which the traditional, long term family is just one of a number of possibilities. The rise in living standards has led to a decline in their relative importance in determining a population's level of mortality and at the same time has opened up the possibility that other elements of the social condition, not least of which those associated with social solidarity may be taking on a critical role. Furthermore, as mortality

approaches a minimum for the human species, attention needs to focus on the particular ages at which mortality is excessively high, relative to other ages, and the conditions leading to these excess levels. The present paper looks at the relative roles of living standards and social solidarity in their effects on mortality in Israeli statistical areas (enumeration districts). For each SA we calculated a measure of average material living standards (SOL) and of traditional family structure (TFS). We also distinguished between SAs with a Jewish or Arab population, and calculated a measure of religiosity (R) in Jewish areas – two variables often associated with differences in levels of fertility and mortality in Israel. Using age-specific population data from the 1995 census and deaths in the five years 1993 to 1997, we calculated a mortality schedule and life table for males and females in each SA. By analysing the age patterns of mortality associated with different levels of these measures we are able to show: a. SOL, TFR and R are all associated with the overall level of mortality, in declining order b. Once SOL and TFR are accounted for, there are no differences in mortality between Jewish and Arab SAs. Otherwise put, the higher mortality of the Arab population reflects their lower SOL, offset, however, by a more traditional family and household structure. c. The major effect of SOL is to be seen in the prevention of premature mortality in mid-adulthood. By contrast, the major effect of a traditional family structure is in the reduction of mortality at young ages.

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