Nutrition in Western Europe and the USA before the First World War

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This paper analyses the nutritional value of food consumed by working households in the United States, UK, Germany Belgium and France in the twenty-five years before the beginning of the First World War. This is a crucial period in the history of the nutritional transition, as an increasing proportion of households during this period are able to purchase sufficient food to derive the energy required for sustained, heavy, physical work.

The evidential basis for this analysis is the results of household budget studies, in particular the large-scale comparative enquiries carried out by the United States Commissioner of Labor and the UK Board of Trade. The former enquiry collected details of expenditure on food, and the quantity purchased, by over 8,000 households in the USA, UK, Germany, France, Belgium in 1889-90, where the head of household was employed in one of nine export industries (mainly heavy industries such as iron and steel, textiles, coal etc.). The UK Board of Trade undertook surveys of household expenditure and consumption in a similar set of countries between 1908 and 1912, covering around 20,000 households. The focus of these surveys was a comparison with earlier Board of Trade investigation on living conditions in major British towns and cities and as such, these surveys have a broader industrial coverage than the earlier United States Commissioner of Labor enquiry. In addition, we make use of other budget study based evidence relating to Germany and Belgium carried out during this period.

Energy and nutritional availability is estimated using standard food composition tables, adjusted for modern fortification. Energy availability is analysed for a variety of physical activity levels, depending upon occupation, age and sex, and allowance is made for the smaller physical stature of individuals at this time. On this basis, we find substantial differences between countries in the proportion of households with diets that provide sufficient energy to meet the needs of industrial work. We also examine household nutrition intakes relative to modern standards and find quite similar patterns of vitamin and mineral deficiencies across countries, though for well-known reasons the likely health consequences of these shortfalls are more problematic to ascertain. Finally, we relate energy intakes to existing estimates of labour productivity.