

POPULATION AND LIVING STANDARDS 1914-45

By

**Robert Millward, University of Manchester
and
Joerg Baten, University of Tuebingen***

Chapter for An Economic History of Modern Europe, ed. S.Broadberry and K.O'Rourke,
C.U.P.

First Draft for 3rd RTN Summer Symposium: London, 26-28 October 2007

* Thanks for comments from Sevket Pamuk and others attending the Lund Workshop July 2007. A longer version, with full details of sources, may be obtained by writing to either of the authors.

1) Introduction

The 1914-45 period was littered with civil wars, famines, economic depression, population displacements, ethnic cleansings and World Wars and yet a clear long term demographic trend can be discerned. The total population of Europe rose from nearly 500 million in 1913 to nearly 600 million by 1950, a result of mortality falling more than fertility. In 1913 there were still very large differences in birth and death rates across Europe's regions with the highest in Eastern and Southern Europe. Despite massive short term shocks, the next 30 years was marked by huge overall declines in mortality and fertility and by a considerable narrowing of the differences across countries. Our first task is to explain the large declines and the convergence.

A second distinctive feature of the period was the large movement and displacement of population within Europe. The underlying economic force was a large shift from agriculture to industry matched by the move from villages to towns. Equally important were political forces linked to the collapse of the three multi-cultural empires (Ottoman, Russian, Austrian-Hungarian) which, together with the military expansions and contractions of the German Reichs in the two World Wars, lead to huge population displacements, ethnic cleansings and deaths from wars, famines and deportations.

What effect did these massive changes have on living standards? Over the whole period, real incomes rose as did life expectancy, literacy and education levels. In the last sections of the chapter we examine how these developments varied across countries and how they were reflected in new measures of living standards like human development indexes and in biological indicators like the heights of individuals.

2) Public health and the transformation of life expectancies.

Historical demographers often characterise the period since the 18th century as one of a huge demographic transition in Europe. Population growth was initially modest since high birth rates were offset by high death rates, the latter a product of numerous epidemics, harvest failures, poor sanitation and medical care. A decline in both rates started in the 19th century but the 1914-45 period witnessed a very steep decline to a regime of low birth and death rates. It was interrupted by the 1940s baby boom but by the late 20th century the new phase of very slow population growth was confirmed.

The long term decline in mortality started in the second half of the 19th century more or less everywhere in Europe (see chapter X). The decline during 1914-45 was a true waterfall; more than a half of the rise in life expectancy over the 120 years from 1850 to 1970 occurred in the 30 years from 1914. Figures 1 and 2 plot the death rates for 5 year periods (for countries with continuous time series) in order to display the long term trends. A wide range of mortality existed at the start of our period, with the levels higher in eastern and southern Europe. Deaths in the period 1910-14 ranged from 13 per 1000 population in Denmark and the Netherlands to 28 in imperial Russia and, on some estimates, over 36 in Turkey. What followed in Russia was quite remarkable. The

Russian data have been the subject of much debate but, after careful scrutiny of the sources, Wheatcroft (1999) is convinced that there was a steep fall in the death rate. Despite the prevalence of famines, wars and forced labour movements, the death rate had fallen to 11 by 1948. The combination of massive short term welfare losses

FIGURES 1 AND 2

and a secular rise in life expectancy was, says Wheatcroft, highly unusual. Although the Russian case is dramatic, the mortality decline was also abrupt and late in Germany, some of the features can be discerned in many other countries and the changes are consistent with the fact that the period is one of convergence. Our Figures are somewhat congested but that very congestion tells its own story. By the late 1940s many countries had moved into a range of 9 to 14 deaths per 1000 population. Of course crude death rates mask changes in the age composition of the population. A central element to note is the huge decline in the deaths of infants less than one year old. As Figures 3 and 4 show, at the start, in 1910-14, infant deaths varied from 66 per 1000 live births in Norway to about 150 in many large European industrial towns and even higher in Hungary and the other parts of eastern Europe. Although there was not as much convergence as in the other age groups, infant mortality rates did exhibit the most precipitous fall of all and was the major element in raising life expectancy. In 1910 life expectancy at birth was about 55 years in Denmark, England and Wales and as low as 37 years in Russia and probably less than 35 in Turkey. By 1950 a majority of people had a life expectancy of 65 years or more (Caselli, Meslé and Vallin 1999, Shorter 1985).

FIGURES 3 AND 4

In looking for causes it is important to first note the key medical dimensions of ill health and mortality. At the turn of the century, the major health problems lay in infectious diseases, especially tuberculosis for the 15-64 age group, other diseases of a mainly airborne variety (influenza, bronchitis, pneumonia) for those less than 5 years old and diarrhoeal and congenital defects for infants. The reliability of these disease categories and the associated statistics varied considerably. The data for Italy, England and Wales are as good as any and they indicate that, of the gains in life expectancy 1911-51, about one half arose from reduced mortality from airborne diseases and a further quarter from diarrhoea, enteritis and the diseases and congenital defects associated exclusively with infancy and early childhood. Italy experienced a larger fall of diarrhoea and enteritis than England and Wales (where the fall had occurred in the late 19th century) and a smaller fall for the other categories. Similar patterns have been documented for many other countries including the Netherlands, Denmark, Germany, Spain and Portugal. An interesting contrast is between the Czechoslovakian provinces of Bohemia and Moravia which were economically more advanced than Slovakia and sub-Carpathian Ruthenia. As a mirror image of Western and Eastern Europe all these provinces saw a decline in infectious diseases and a rise in the 'modern' cardio-vascular and cancer ailments in the 1900-50 period but the point in time at which the latter became more important than the former was much later in the eastern provinces.

Now very little of these improvements arose from scientific advances in medical knowledge. Vaccines like Bacillus Calmetten Guérin (BCG) and drugs like Streptomycin, for TB, emerged in our period but had little impact before 1945. The same can be said for gynaecological care. The major health improvements lay in a) reduced exposure to disease via better housing, sewerage and water supplies, b) increased ability to resist disease through higher nutritional status, a product of food intake and past exposure to disease. Infant mortality depended also on the condition of the foetus, itself linked to the health of mothers.

Although these factors point the way, at present there is no universally agreed explanation in the literature for the decisive decline in mortality levels in our period or of their convergence. It is important, we think, to focus on the coalescence of favourable forces from the first decades of the 20th century in the areas of sanitation, housing, health education and counselling as well as on the very strong, continuing rise in the health of mothers. Improvements in public health required funding and in particular investment in sewerage, drainage and water supply systems. It seems that, notwithstanding all the rhetoric of the 19th century public health movements, the major spending efforts did not occur until the 1890s and the early 1900s and even later in some countries. These were big capital works programmes, the major impact of which would be spread over the next 50 years or so. In many German cities, for example, water quality was still poor at the turn of the century, privies were common and the spread of water closets had a long way to go. The evidence about the delays is clear for England and Germany and is probably symptomatic of what was happening in other parts of north-western Europe whilst for southern and eastern Europe these investments came even later (Bell and Millward 1998). An equally important factor for infant mortality was the large increase in support for mothers, which again is dated from the early 1900s. Infant health movement swept the Continent in the decade or so before the First World War. There were more mid-wives, child care centres, promotion of breast feeding, more brochures and counselling and all supported by legislation passed in the 1900-14 period (Brown 2000).

The decline of fertility and family size in the late 19th century (see later), reduced the number of susceptibles in the home and this was well into its stride by 1913. Then there was the inter-war housing boom creating more space for living and working. In most countries the 19th century saw little relief from overcrowded conditions, exacerbated often by poor personal hygiene. Government involvement was largely a matter of regulating standards though this did mean that most new houses had better access to sewers and water supplies and had lower occupancy rates. There was a major housing boom in many countries in the 1920s. An important part was played by municipalities supported by state grants and subsidies and targeted at lower income families, slum clearance and new houses. In German towns with populations of 5000 or more, local authority capital expenditure on housing rose from 900 million marks in 1913/14 to 149,000m. reichmarks in 1925/6 and 205,000m. in 1928/9. As a proportion of all municipal expenditure on new construction and property, housing rose from 0.02% in 1913/14 to 25% in 1925/6 and to 23% in 1932/3. Even in a very rural country like Ireland, capital expenditure on housing by local government rose tenfold from £34 per 1000 population at the start of the inter-war period to £346 by 1936-8. In England and

Wales, much richer countries, it rose from £67 to £1109. Capital investment in housing was not limited to the public sector and indeed in some countries the rise in privately financed home ownership exceeded the rise in municipal housing. In the period 1911-51, the housing stock in Britain rose by 60% and population by 21%. In Ireland the stock rose by only 6% but the population was falling so here again occupancy rates were improving. A final piece of evidence about the enhanced role of public health, water supplies and housing may be found in the pattern of all UK capital formation over the long period 1890 -1945. Aggregate investment in these three key sectors rose to equal that for the whole of UK industrial investment in the 1890s and early 1900s. In the 1920s and 1930s, mainly because of the rise in housing, they became the dominant element of UK investment (Balderston 1993, Mitchell 1988).

The fact that the data for these sectors are readily available for the British Isles and Germany is not an accident since they were often seen as pioneers in public health. The substantial investment in public health and hygiene during the Weimar Republic has been characterised as part of the creation of an embryonic welfare state, a “Sozialstaat”. The messages about clean, more spacious houses, factories and hospitals and investment in sanitation, housing and water supplies were taken on board in the economically less developed parts of Europe. The zemstvos (local governments) of imperial Russia, with their emphasis on public health and hygiene were influenced by the sanitary movement in the West and continued under the Soviets. There was a substantial increase in medical personnel, hospitals and centres for TB, VD and child care in the 1920s. In Spain the improvements in hygiene and health in the 1920s have been attributed to the institution of programmes of public health. ‘Social medicine’ was seen as adding the social sciences to medical knowledge but, with malaria rampant in rural areas, the Spanish government’s commitment to improving the lot of the peasantry had to be gained. New Ministries of Public health were established in Yugoslavia and Czechoslovakia where however the emphasis on collective efforts, so necessary in public health measures, had to confront resistance from the traditional private therapy of the doctors. The damaging delays in conquering malaria in Macedonia (not till the 1960s) has been attributed to the educational problems of implanting a culture of public health.

All these factors reducing exposure to disease (and indirectly raising nutritional status) took place whilst food intake and real incomes were on an upward path, albeit not a very steep one. These developments will be discussed in more detail later in this chapter but in the meantime we may note that both GDP per head and real wages were generally higher in 1950 than 1913. There were of course great differences across different income groups, the depression of the early 1930s saw wages stagnate and many were unemployed. On the other hand, because of falling fertility (cf later) and thereby falling numbers in the 0-15 age bracket, the ratio of dependents to the working population was actually falling so that the need to finance unemployment was, in aggregate at least, offset in part by the smaller needs of the 0-15 year group. A further result of income increases as well as the emergence of large scale refrigeration technique, was that the ratio of meat consumption (and hence protein) to cereals generally rose in this period. Overall however it does not appear that rising real incomes could have been the major element in the huge fall in mortality. Russia is a poignant illustration that the local food

situation (in time and place) cannot explain the downward trends in mortality. World War I lasted from 1914 to 1917 in Russia. It was followed by civil war and famine 1917-22, another famine in 1931-3 and 1942-5 have also been classed as famine years. Yet the long term decline in mortality in Soviet Russia was steeper than in most other European countries.

The very large fall in infant mortality was a product of three factors, First was the already noted improved support and counselling for child care. Secondly the improvement of the physical environment reduced the infant's exposure to disease. Thirdly and possibly even most important was the health of mothers. The latter, and hence the condition of the foetus, improved rapidly during the late 19th century. The smaller number of births which accompanied fertility decline (see later) probably also eased the health of mothers and hence the condition of the foetus. Female mortality levels fell faster than males in the 19th century and by 1913 female mortality was generally lower than that of males except for the 5-49 age group. Thereafter the decline in female mortality was so steep that by 1950 it lay below that for males for all age groups. Females were less exposed to the direct losses of military combat, less susceptible to alcohol, their ranking in family hierarchies was rising as agriculture and mining (with their male dominated cultures) declined and as women became paid employees in the war periods and textiles generally.

Improvements in public health, housing and real income occurred everywhere but in eastern and southern Europe there was more to overcome given their starting high levels of mortality. On the other hand, as we have seen, knowledge of the relevant child care, sanitary and public health measures was spreading. Notwithstanding the de-globalisation in capital and goods markets, the 1914-45 period was one where good health practices were known and spreading. The more benign health environment of north-west Europe was attainable and most countries had come close to that by 1950. The main exceptions seem to prove the point. The remaining very high death rates in places like Albania and southern Italy have been attributed to deficient sanitary conditions, hygiene norms and medical support. In Turkey the long term decline in mortality did not start until after the Second World War. The continuing high level of infant mortality in southern Italy meant that the aggregate figure for Italy as a whole did not fall below 100 infant deaths per 1000 live births until after the Second World War. Albania was of course a region with all the signs of an underdeveloped country whilst in Italy (because of the favourable attention to the north in reconstruction after World War I and in fascist policy thereafter), most of the socio-economic indicators showed the south-north gap widening in the first half of the 20th century. But these regions were the exceptions. For most of Europe, convergence in life expectancy was nearly complete.

3) Family and Work: Economic Factors in Fertility Decline

In the first half of the 20th century, birth rates declined steeply – a waterfall similar to that for mortality. The fall was so strong that, despite the decline in mortality, many countries became worried about population stagnation and 'natality' programmes flourished. In the early 1900s there was still a wide range of birth rates from 26 per 1000 population in Scandinavia to 41 in Bulgaria and 45 in European Russia. As we shall see, France and

Ireland, for contrasting reasons, were distinct outliers at the bottom end, at 19 and 23. In general the propensity to marry was greater and the age of marriage lower in Eastern Europe. In 1920, some three-quarters of women aged 20-24 were still single in Western Europe while in Eastern Europe three quarters were married. In Romania, Serbia, Bulgaria and Hungary less than 5 % of the population in the age range 45-49 were celibate, about half the rate found in Northern and Western Europe (Hajnal 1965).

Changes in birth rates can arise from changes in the age composition of the population and in particular in the number of females in the child bearing age range of 15-49. Young readers will also perhaps need to be reminded that most births in this period took place within marriage. Even if one relates the number of births to the number of women in the 15-49 age group, as we do in the following figures, there is still then the problem that such overall fertility measures may change simply because the numbers getting married change and/or if the rate of illegitimacy changes. During our period illegitimacies remained, with some exceptions, roughly constant at about 10% of births. Also the age at which people married had been fairly constant for a long time. It did not change until the marriage boom of the late 1930s and 1940s. For the large part then, the main changes in the overall fertility levels shown in Figures 5 and 6 reflect changes in levels of marital fertility. The data are for countries with continuous series and relate to 5 year periods in order to draw attention to the long term trends. They record for each period (say 1910-14) the number of babies a woman would have borne during her child bearing years (15-49) if she bore them at the rate all women did in that period (1910-14).

The fertility levels started to decline in the late 19th /early 20th century and the leading lights of the well known European Fertility Project of Princeton University placed the decisive downturn for a large cluster of countries at the turn of the century. France started much earlier. Several countries in Eastern and Southern Europe did not start their long term decline until the 1920s –Russia, Spain, Portugal. A few regions, southern Italy being the best example, had to wait until after the Second World War and, on one estimate, the fertility level in Turkey was actually rising from about 5.4 births per mother in 1923 to just over 7 in 1930-5 (Shorter 1985). For many countries in 1910-14, the range was 3 to 4.5 births per mother which had fallen to about 2.5 in the late 1930s. This is a fall of about 40% with distinct signs of convergence: the more rapid decline in marital fertility in Eastern and Southern Europe was reinforced by a rise in marriage rates in Northern and Western Europe from the late 1930s. That marriage boom raised the central range of overall fertility levels to about 2.8 children by the 1940s. Conditions of war and reconstruction helped but this baby boom was a temporary phenomenon and the fertility levels of the 1930s proved to be a better indication of 20th century trends. Fertility levels had fallen, in some countries, to only about 2 children per mother in the 1930s, as they were to do in the latter part of the 20th century. Allowing for child deaths, that meant a reproduction rate less than 2, that is, below the rate necessary to maintain the population, in the absence of immigration[†]. Such rates were common in Sweden throughout the 20th century and in France in the first half. In Denmark the low rates lead to worries about the

[†] Note that it is common for demographers to focus on the ‘gross reproduction rate’ which is similar to the fertility measure in Figures 5 and 6 but counts only female births so that the benchmark net reproduction rate (the gross rate less the expected deaths of females up to age 49) is 1(unity).

approach of 'extinctness'. In fascist Germany and Italy the nation was deemed to be under threat. The fertility level in Germany fell below 2 in the early 1930s but, allowing for mortality, the reproduction rate had fallen below 2 in 1922. Natality programmes flourished in many countries though the exaltation of motherhood and family life took a racist tone in Germany. Aryans were encouraged to propagate but not Jews and Slavs.

FIGURES 5 AND 6

How can one account for the huge fall in fertility 1914-45 and the tendency to convergence? Before looking at the economic issues, it is important to recognise that the fertility decline was strongly conditioned by socio-cultural factors. This is not surprising in that family size was affected by the age of marriage and birth control practices within marriage. The decline in fertility in this period is often termed 'parity specific' in that it involved controlling family size after some target number of children had been achieved (Coale 1986). Unlike the involuntary control that occurs during breast-feeding, wars etc., it required a willingness to use contraceptive techniques. Demographers have agreed that there was nothing new here in that coitus interruptus and abstinence had been used for a long time and high quality inexpensive condoms were apparently widely available in, for example, Germany by the early 20th century. It was the willingness of adults to use these methods that was important and recent interview evidence from old people suggest that many of the negotiations between partners were tacit with uncertain aims (Fisher 2000).

In sum we might expect fertility to decline more rapidly in middle class and non-catholic areas and to be enhanced by the spread of family planning programmes and increases in family educational enrolment and literacy rates. At the same time, the pace of decline, its spread and convergence was strongly determined by economic forces. We suggest that it was a coalescence of four forces which accounts for the great waterfall decline in average fertility (roughly 40% over the 30 years 1914-45) and the convergence of levels by the late 1940s. First is the fact that as mortality declined, a given target family size could be achieved by a smaller number of births. The crucial long term decline in infant mortality started in the early 1900s and child mortality had been falling in many countries for some 30 years, enough experience to trigger off commitments to a smaller target number of births. In England and Wales for example, in 1871 there were 72 deaths per 1000 boys less than 5 years old, a figure that had fallen to 47 by 1911 and continued thereafter to fall to 23 in 1926 and to 7 in 1950. Similar patterns of child mortality have been recorded in France, Sweden, Norway, Germany and Castille in Spain. The experience of the two outliers reinforces the point. If French families had the same target family size as other European families, then, given they already had relatively low fertility levels by the end of the 19th century, we would expect adjustments to the mortality decline to be smallest of all. That is what happened -- France experienced the lowest decline in fertility 1914-45 and by 1950 it was no longer an outlier. Ireland also showed only a small decline in fertility. This was no doubt due in part to strong catholic traditions but it should also be noted that its relatively healthy rural expanses meant there were only 38 male child deaths per 1000 in 1871 and it was not until 1926 that the recorded levels in Ireland, England and Wales converged at 23. Since, finally, the decline in mortality was steepest

of all in many eastern European countries, that would make some contribution to inducing faster falls in fertility in these countries and hence to convergence.

The second key factor in 1914-45 was the large structural change in the European economies which reduced the significance of sectors like agriculture, cottage industry and outwork where the labour value of children was high and where the merging of work and home made good economic use of mothers' time. Shifts out of these sectors to service employment and factories reduced the labour value of children and raised the time cost of rearing them. A key indicator here is agriculture's share of the economy, measured in Table 1 by the percentage of the male labour force. The huge differences in 1911 match some of the ranking by fertility levels. Agriculture's share ranged from 11% in Britain and 24% in Belgium to over 65% in Poland, Finland, Romania, Bulgaria, Russia, Turkey and Serbia. The large fall over the 1911-50 period was accompanied by some convergence such that the major bunching by 1950 was of countries whose agricultural share lay between 20% to 40%. Of note are the large declines in Austria, Russia, Finland and Poland which also saw some of the largest declines in fertility (Figures 5 and 6). The modest declines in the agricultural sectors of southern Italy and southern Spain were matched by their modest declines in fertility. Turkey lost 20% of its population during WWI, including large numbers of urban dwellers, and was thereby more rural after the war than before.

TABLE 1

Thirdly there is evidence of increasing participation of females in the labour market, raising the cost of children in terms of mothers' wages and use of time. Female employment was always high in textiles in the late 19th century and the decline in fertility was noticeably early in the Czech lands of Bohemia, a big textile area, and was rapid and substantial in the English textile towns (Millward and Bell 2001). In Turkey, over half the textile labour force in the 1930s was female; it was an urban based industry and fertility was distinctly lower in urban areas. Employment in secretarial, teaching and other service jobs rose throughout Europe in the inter-war period. The late 1930s saw a clearly rising number of women in full-time employment in Germany. Data for married females in Britain indicate a labour market participation rate of 12% for those aged 15-24 in 1911, and this rose to 18.7% by 1931 and 36.6% by 1951. For those aged 25-64 it rose from 9.7% in 1911 to 22.5% by 1951. An interesting case is southern Italy where in the first half of the 20th century female paid employment actually fell (because of a decline in textiles and of fascist policy, providing an additional element in the very slow decline in fertility levels).

The fourth factor was the growing awareness of developments in family planning and an important element here was the rising literacy rates in eastern and southern Europe and rising school enrolments generally. Literacy rates were already 90% or more in northern and western Europe in 1913. In Spain the rate was only 52%, Finland 59%, Italy 62% and Austria 66%. These were all countries with fertility levels of four births or more per mother. By 1950 the literacy rates were over 80% with Finland 90% and Austria 99%. The relatively low levels of literacy still found in Turkey (32%), Portugal (56%),

Yugoslavia (45%) and Albania (?) were reflected in their fertility levels being the highest in Europe in 1950 (Crafts 1997). Fertility levels also remained high in catholic regions like Ireland and parts of the Netherlands which witnessed very strong campaigns against family planning. Ireland and Portugal still had relatively low income levels and saw much emigration. Ireland actually saw a strong increase in educational enrolments in our period but many young people emigrated, leaving behind a population containing many men and women not married until their 40s.

Ireland was in fact a single outlier within Western Europe in still having a very low marriage rate by 1950. The marriage boom in Western Europe from the 1930s was a major break from the past. For centuries the age of marriage in Western Europe, which fluctuated in response to economic conditions, had not shown a decisive long term trend, upwards or downwards. The early age of marriage in Eastern Europe –characterised by Hajnal (1965) as a region to the east of a line from Trieste to St. Petersburg -- was associated with a culture of extended families though its origins may have lain in the relative abundance of land. The nuclear family household was more characteristic of Western Europe and the economic independence with which it was associated required couples to have a good prospect of an independent income. A large family size threatened family income per head and the traditional method of safeguarding that income was by delayed marriage. It seems likely that the decisive shift to earlier marriages in Western Europe from the 1930s, even when following the world depression, was a consequence of the new willingness and ability to control fertility within marriage. This is supported by evidence from as early as the 1860s of a fertility decline in some departments in France being followed by rises in nuptiality in those same departments (Watkins 1986). The number of people who became married in 1913 varied from 10 per 1000 population in Ireland to 18 in Hungary and Romania. Such marriage rates rose decisively in Scandinavia, Austria, the British Isles and the Netherlands and by the 1940s many countries were in the range 16-21. The rates in Eastern Europe were somewhat higher but, despite a slight rise, Ireland was still an outlier (plus Greece) with only 11 persons per 1000 population becoming married in 1950.

4) Economic Migration

The most striking feature of population change in this period was not so much its growth over time as movements within Europe. The population increase was modest when compared to the rise in the late 19th century, especially since the large overseas emigration of that century petered out in the face of immigrant quota restrictions in USA from the 1920s and of the economic depression of the 1930s. Russia, Yugoslavia and the rest of Eastern Europe suffered most from the two World Wars but did see their population rise by nearly 40 million (m.). In North-West Europe it rose by slightly more. The remaining 20m. increase in Southern Europe constituted the largest proportionate change. Italy, Spain, Portugal, Greece and Turkey all experienced some decline in fertility but it remained higher than in the rest of Europe.

Economic migration for permanent agricultural employment was not an important element. Some from northern Italy did settle in S.W. France but they were the exception. There were many agricultural settlement and colonisation schemes promoted by national governments – Germany, Poland, Yugoslavia, Russia – but they all failed. The key driving forces in economic migration were industrialisation and the growing gap in income levels between the Americas and Europe. This gap had induced a peak overseas emigration rate of over one million persons per annum in the first decade of the 20th century (Table 2). The highest rates were in Italy where the underdeveloped south was the main source; similar push factors operated in Ireland, Portugal and Spain. Britain was also a major source both to the Americas and the Commonwealth (Canada, Australia, New Zealand etc) and this was given an extra boost by the support provided in the 1922 Empire Settlement Act. Latin America continued to welcome immigrants and 3m. arrived 1921-40. For many Europeans however the 1921 and 1924 Quota Laws in USA were a body blow. They limited immigration to 0.16m. persons per annum and its allocation across countries to the national origins of the US population, thereby effectively discriminating against Italy, Russia and Poland. Whilst 12.4m. Europeans entered USA 1901-21, this fell to 2.8 m. for 1921-40 (Faron and George 1999). Moreover the nationalistic policies of Germany and Italy made for active discouragement to emigration. The exceptions were Jews who were allowed to move and where they were not, they escaped - the major non-economic overseas migration in the inter-war period (cf later).

TABLE 2

The major economic opportunities for emigration in the inter-war period therefore lay in the industrialising regions of Europe and to them large numbers flowed from rural areas in the same countries or from other European countries, with only a small trickle of non-European immigrants. The 1920s was an especially active decade but the world depression of the 1930s reduced the opportunities in urban areas. The changing role of agriculture is shown in Table 1. Some idea of the size of the shift may be given by a crude calculation that the agricultural share over all Europe fell from about 55% in 1910 to 40% in 1950. Given the total European population figures recorded earlier, rural areas would have had over 80m. more inhabitants in 1950 if the agricultural share had remained at 55%; over one half is accounted for by the shift to industrial employment in Russia.

Santis and Livi Bacci (1999) have shown that in Italy the tendency to emigrate from any given region was greater, the larger was the share of agriculture in that region's economy and the lower was output per head. There is little doubt that applied to Europe generally. The general movement was from south and east to the west typified by what happened in Czechoslovakia. The net outflow 1921-30 from the eastern provinces was 1.2 m. from Slovakia and 0.15m. from Carpathian Ukraine whilst the industrialised western province of Bohemia had a net inflow of 0.03m. which rose to 0.33m in the 1930s (Kulischer 1948). For Italy, the industrial centres in the north like Milan and Turin replaced USA as the destination for emigrants from the south, in the same way that Britain became the main destination for the Irish whilst Spain also saw a massive shift from the south and west to the Basque, Catalonia and Centre regions. Even France, one of the least urbanised

countries in North Western Europe saw the share of its population living in villages fall from 56% in 1911 to 45% in 1951. In 1911 only 27% of those aged 45 were borne in a different department; by 1932-6 it was 37%. The main destinations were the Ile de France and other industrial areas to which the net inflow was about 1m. persons during the years 1920-31. Within Poland there was considerable movement in the 1920s from the centre and south to western regions which promised access to the sea and industry. In 1918-21 some 0.9m. moved from former Russian and Austrian Poland to the (former German) western regions of Poznan and Pomerania where 'Polonisation' was more successful than the attempt at Germanisation had been in the years before WWI. In the 1930s with urban outlets and overseas emigration closed, many central and southern areas of Poland were seen to be overpopulated -79 persons per square kilometre, about double that of France.

Nor were the migrations limited to transfers within each country. There had always been movements of seasonal agricultural labour across the French, German and Russian borders but industry now attracted those willing to stay. The main emigrants were from Poland, Italy, the Balkans, Russia, Spain and Portugal and the main destinations were northern France, the Ruhr and ports like Rotterdam and Hamburg. In Germany in 1914 there were already half a million Poles, Ukrainians and Byelorussians, accounting for 90% of the foreign labour force. They reinforced the internal rural exodus which in the 1930s saw the armament factories emerge as an important destination. From 1935 they were being built in the safer central zone and in the Berlin suburbs. By that time, with unemployment rising, new immigrant labour was being curtailed though in 1939 there was still half a million foreign workers. However, the most striking feature of the inter-war cross border economic migration was the flow to France. Faced with significant war losses and a long prior history of a stationary population level, it opened its doors to foreign labour. The emigrants entered mining, building, chemicals, steel and public works; over 60% of the labour in the Longwy steel works in 1929 was foreign. Some 0.6m Poles entered in the 1920s and up to 0.4m. Spaniards. Residents of foreign origin in France rose by 1.7 m. from 1911 to 1931 by which time they totalled 3.3m. or 7.9% of the French population (Bardet 1999).

5) Population Displacement and Ethnic Cleansing

The most harrowing features of population movements in the 1914-45 period were those linked to political disruptions and ethnic cleansing. Two factors were at the heart of this. One was the emergence of new nation states following the disintegration of the Ottoman Empire from the 19th century and of the Russian Tsarist and Austro-Hungarian empires during WWI. Secondly there was the rise of strong nationalist ideologies in a Europe where, at least initially, democratic constitutions were being erected. Each nation state was perceived as a territorial area where the majority of the population was of one ethnic group and where a unified system of government was promoted. The 1919 Versailles Peace Treaty recognised that, for the new hopes to materialise, minorities would have to be protected but the viability of the new Europe was under immediate pressure because many of the nation states contained either a minority which was very large (some 6 m. Ukrainians and Byelorussians in Poland) or had a large number of minorities (in Romania

there were Germans, unassimilated Jews, Ukrainians, Russians, Magyars, and Bulgarians).

The character of the displacement was vitally determined by the failure of the new Parliamentary systems and the consequent rise of dictatorships. Minorities were threatened as their allegiances were questioned, a situation worsened in the 1920s by inflation in Germany, a fall in agricultural prices generally and the onset of unemployment in the 1930s. In Russia, the Soviet system generated huge disruptions as the Civil War was followed by a rush to industrialisation and collectivisation of agriculture, though it did have some success initially in gaining the support of minorities within the new federal system of republics (Masover 1998). In several countries the new nationalism came to be fired by racist ideology; ethnic cleansing, forced labour and concentration camps followed. Measuring the losses in economic terms is beside the point, but it is important to note that minorities like the Jews and Armenians often formed crucial elements of the urban merchant and professional classes.

The deaths, horrors and devastation of the two World Wars are analysed in a separate chapter but it is relevant to note here that the pattern was consistent with the underlying factors in population displacement. Whereas the fatalities of WWI (recently estimated at 10m.) arose largely on the battlefields, in WWII there were 40 m. fatalities, including huge civilian losses from forced labour, concentration camps and the destruction of the Jewish population. Here we focus on population displacement whose incidence was closely linked to the way the German armies and their allies advanced in WWI westwards but especially eastwards into Russia and south into the Balkans and then were repulsed back into Germany; this pattern was repeated in WWII on a much bigger scale. At the end of WWI, the defeat of Germany and collapse of the Austria-Hungarian empire created major population displacements through their loss of territories and the emergence of new states --Czechoslovakia, Yugoslavia, Latvia, Estonia, Lithuania, Poland, Ukraine-- with the last two engaged in 1920 in a further military incursion to Soviet Russia. In a final phase of conflict the Russians repulsed Poland and absorbed Ukraine and Armenia as Soviet Republics. It is estimated that 7.7 m. persons were moved because of WWI and its aftermath. Austria was obliged by the 1919 Versailles Treaty to recognise all the new states and many Austrians returned to their homeland - 0.78m. were recorded in the 1934 census as being borne outside Austria. Hungary lost Slovakia, Carpathian Ukraine, Banat and Transylvania and 0.4m. Magyars are estimated to have returned home; by 1930 there were still 0.62m. persons recorded as borne outside Hungary. Expatriates from Germany's lost territories (West Prussia, Danzig, Memel, Hultschin, Schleswig, Alsace, Lorraine, Eupen et Malmédy) numbered 0.78m. in the 1925 census and there was a further 0.6m. immigrants from other areas, quite apart from those Germans in the Rhineland who fled for safety to the interior (see Kulischer 1948 and Kosinski 1970 for much of this detail). The population of Poland fell by 4 m. during the war --deaths, prisoners of war, forced labourers and migrants in Germany. Over the years 1918-23 some 1.26m. Poles were repatriated.

The largest number of refugees after the war were however Russian. Some 0.51m. were actually recorded at the Polish border in June 1921 and the total in Europe at that time

has been put at 1.44 m. Even as late as 1938, 1.5m. Russian refugees were living in Europe and the Far East. They included Jews, remnants of the 'White' civil war armies, intellectuals, 'kulaks'. The Civil War period saw considerable food problems and many moved from the more industrial north and centre to the grain producing areas of the Caucasus, Volga, Ukraine, Urals and Siberia. Becker suggests that anything from 9m. to 14 m. persons may have died or left Russia in the years 1917-20. The population of Petrograd fell in these years by 71%, Moscow by 45%. Deaths came from violence, malnutrition, 'Spanish flu', cholera. From 1921 there was something of a reflux with the onset of the New Economic Policy but this was followed by the collectivisation programmes which saw many urban dwellers flock to rural areas whilst the number of peasant households fell from 25.8m. in 1928 to 19.8 by 1940.

The Turks had been leaving the Balkans over a long period often under international agreements with Bulgaria and Romania. There were wars in the Balkans in 1912/13 and, in 1914, Britain and France declared war on Turkey who also faced attacks from Russia through Armenia. The departure of the Turks was hastened by the creation of Yugoslavia as a new state, the dismantlement of the Ottoman Empire in 1920 and the establishment of a new Turkish Republic in 1923. Bitter tensions between Turkey and Greece were temporarily resolved by the 1923 Treaty of Lausanne under which at least 1m. orthodox refugee Greeks left Asian Turkey (Anatolia) with up to 0.6m. Turkish muslims moving in the other direction. Even by the 1935 Turkish census, there were 0.83m. persons recorded as being borne in the Balkans. Then finally there is the tragedy of the deportation of Armenians from Anatolia. The Ottomans sided with Germany in WWI but were heavily defeated in December 1914 by the Russians who advanced into Anatolia. The Armenians are largely of Christian origin and there were over 1.5m. in the whole Ottoman Empire (equivalent to 10% of the population of Anatolia) and they were keen to establish a separate state in the East, hopefully with Russian support. Some even joined the Russian army. Mistrust of the Armenians was therefore widespread amongst a population who had themselves been pushed out of the Balkans. About 0.13 m. Armenians are estimated to have departed for the European mainland. But the main tragedy occurred in 1915/16 with a huge deportation of Armenians eastwards, at fairly short notice under terrible conditions. Stated government policy was to walk them to the Syrian desert in the south. How many were deported and how many died is still a matter of dispute and political sensitivity. Estimates of the number of deaths vary from 0.2m. to 1m. and there are questions about how far the deportations were militarily necessary and how far there was an intention to massacre (genocide) (Simpson 1939, Zurcher 2000).

Although population displacements declined in the 1930s, the rise of fascism induced new disruptions. A German law of 15 September 1935 deprived Jews of civil rights and forbade inter-racial marriage. It is estimated that some 0.4 m. were refugees from Nazi Germany in the years 1933-9 of whom over one half went overseas. Few doors were open except USA and Palestine. In Poland, the net flows to Palestine have been estimated as 0.05m. for 1931-5 and 0.003m. in 1937; other overseas countries received 0.21m and 0.02m. Overall, up to 0.35m. European Jews left for Palestine 1919-39. In Russia, Jews had been restricted to the Pale of Settlement in the Ukraine and related southern regions but the disruptions and dangers following the 1917 Revolution and the 1918-20 Civil

War induced attempts to move to the north and east, changes which became officially sanctioned from 1926; some 0.33 m. are estimated to have moved. Spain saw three years of bitter fighting from 1936 in the Civil War with the fascist rebels (Franco and others) supported by Germany, Italy and Portugal, and the Republic backed by Soviet Russia and the international brigade (0.06m. volunteers). In 1938 there were 2m. refugees and by the next year the Republican army was in France together with 0.55m. Spanish refugees, of whom one half were later to return. The fall in fertility and the excess mortality have been estimated to cause the Spanish population to fall by at least one million.

6 Changes in Income and Human Development

In the last sections of our survey, we will consider three different strategies to measure welfare development during the interwar period: (1) GDP growth as a proxy for purchasing power increase (2) the Human Development Index (HDI) as a more comprehensive measure to include life expectancy and education, and (3) human stature as an indicator of the quality of nutrition and health. Mapping those indicators will offer an overview of a large number of European countries simultaneously.

The increase of purchasing power during this period contains a number of paradoxes. Given the terrible destructions of WWI and WWII, the Great Depression after 1929, and the economic disintegration during the whole interwar period, we would not expect much growth of purchasing power. But national incomes did grow substantially and Foreman-Peck (1983) has argued that the wide diffusion of new basic technologies such as electricity and the combustion engine, while already developed before WWI, still led to income gains from their application in many fields. Moreover (cf. earlier), Europe benefited during this period from the demographic gift of having a modest share of population who were children and elderly persons who were not working.

FIGURE 7

The typical measure of purchasing power is GDP per capita. The UK was clearly the richest country in Europe in 1913, with almost \$5000 measured in 1990 dollars (Maddison 2001). In the next group, between \$3500 and \$4500, we find Switzerland, Belgium, Netherlands, Denmark, Germany, France, and Austria. The poorest countries were those in the Balkans, Turkey, and the Russian Empire. The growth of GDP per capita between 1913 and 1938 is displayed in Figure #7. In the map, we have recalculated all contemporary statistics to match modern borders. This makes the maps more easily readable for the modern reader, even if some historical relationships are not as visible, such as the unity of the Czech and Slovak territories, and the Soviet and some Yugoslav regions. In the figure, GDP in 1990 dollars is so measured, as an index, as to make it comparable with the HDI maps discussed later; it ranges between 0 and 1[‡]. Note that both Germany (under the Nazi government in 1938) and parts of the Soviet Union, might not have provided entirely reliable statistics. At the least, we can claim that in most countries the change of purchasing power was positive between 1913 and 1938. Only Spain, which

[‡] 0 is set equal to the log of \$100 and 1 equals the log of \$40,000.

experienced the civil war of 1936-39, and Romania which suffered heavily from rural overpopulation and unsuccessful reforms, showed a decline in GDP between 1913 and 1938 (Feinstein, Temin and Toniolo 1997). Very modest were the increases in Bulgaria, Austria, Belgium, and Ireland. The strongest growth on the other hand can be found in Scandinavia, Switzerland, and Greece, whereas the countries of the Soviet Union, Turkey, and Portugal also performed relatively well, as far as we can tell from their GDP statistics. The latter three countries were converging from initially quite low levels of purchasing power.

Another way to measure living standards is by the Human Development Index (HDI). The idea behind this is to include life expectancy and education levels as well purchasing power. As the aim of our chapter is to bring living standards and population development together, this index is particularly attractive. Its calculation takes into account minimum and maximum levels of the three components:

- a) GDP per capita in 1990 dollars ranging from \$100 to \$40,000 \$
- b) Life expectancy ranging from 25 years to 85 years
- c) Primary school enrolment and literacy from 0 to 100 percent.

There is a debate about whether the HDI should include declining marginal utility effects of GDP per capita – that is, it is clear that 100 additional dollars for a person close to starvation provides more additional utility than 100 additional dollars for a millionaire. As a compromise, the most recent version of the HDI employs (as we do) the log of GDP per capita in order to account for those effects. Another issue is whether political freedom, human and gender-specific rights and capabilities, inequality, environmental quality etc. should also be included, and a number of extended HDI versions have been suggested. An additional version of HDI including human stature as a substitute or complement to life expectancy has also been proposed (Costa and Steckel 1998). However, given scarcity of the historical data and a preference for simplicity, we will present the standard form of the HDI in the following, and discuss the stature indicator separately below (the only difference: our HDI is calculated on the basis of schooling only, not literacy plus schooling).

FIGURE 8

Looking at the year 1913, that is, before the wars and interwar distortions, we find a strong core-periphery structure in Europe (Figure #8). The group with the highest HDI values consisted of the UK, France, Germany, Austria, Switzerland, the Netherlands, Denmark and Sweden. The reasons for belonging to this group varied. In the UK, for example, a high GDP was the key element, Germany and France featured particularly well in education, and in Scandinavia life expectancy was quite high, compared with national income. Also high were the values for Hungary, Belgium, Ireland, Norway, the Czech and Slovak territories (they share one value, although Slovakia might have been in fact less developed). At the other extreme, the regions of the Russian and Ottoman Empires, as well as Portugal, performed badly, and the Balkans were also quite modestly developed. The historical change between this early core-periphery structure in 1913 and 1938 was dramatic (Figure #9). Especially the Soviet Union converged rapidly – according to the statistics available, their education system developed rapidly, as the

communist government aimed at requiring all children to attend school, and mortality declined dramatically. The increase in life expectancy and GDP, as recorded in the official statistics, was remarkable. Apart from the Soviet Union, other initially less developed countries such as Poland, others on the Baltic, Portugal, and to a lesser extent the Balkan countries and Turkey increased their HDI values, whereas the European core made the smallest gains and in some cases even declined; Lindert 2004 argued that France had particularly high pre-war schooling values, and the country might have lost some educational coverage up to 1938.

FIGURE 9

We can conclude that GDP per capita and HDI showed signs of convergence within Europe during the interwar period. Eastern Europe in particular improved in welfare until 1938. But some rich countries such as Switzerland and Sweden also achieved substantial GDP growth. The change of the HDI in contrast shows some unequivocal convergence, which was to a large extent driven by educational efforts in the East.

7) Height as an Indicator of Living Standards 1914-45

The study of human stature is another approach to measuring welfare development. This concept has also been termed the “Biological Standard of Living”, as it tends to be correlated with most biological dimensions of welfare (such as health, life expectancy, and nutritional quality, see Komlos 1985, Steckel 1995). The height of any one individual tells us little about her/his well-being, as there is much genetic height variation between individuals. However, the average of a large number of height measurements can reveal much about the quality of nutrition and health. There is a large literature on these “anthropometric” welfare measurements, which uses a wide range of sources from archaeological bones (Steckel and Rose 2005, Koepke and Baten 2007) to height measurements of schoolchildren in 2006 (for a global overview see Steckel/Floud 1998, Fogel 1986, Komlos and Baten 2004).

The amount of research by economic historians on height in the early 20th century is actually quite limited. We know more about the cycles of height during the 18th and 19th centuries, than about the early 20th century. This is even more astonishing, as the Stalinist Soviet Union and Nazi Germany were economies in which other indicators such as GDP are problematic, due to the government-regulated prices. Height research has many strengths and some weaknesses, but the largest value-added can be obtained if other welfare measures are unreliable or unavailable.

Previous research on the early 20th century focused strongly on Britain, for which Harris (1988) studied the development of school children during the years of high unemployment. On the Soviet Union, a number of studies have been published in a special issue of the *Slavic Review*. The interpretations of the Soviet anthropometric record are quite controversial. Wheatcroft (1999) finds a positive trend in the height of Central Russian male heights, and interprets this as a welfare improvement and success of

communist policies. Quite the opposite, Komlos (1985) compares the Soviet height record with a number of other countries and finds that while the trend was positive, it was not impressive in international comparison. Other countries, Komlos argued, performed much better. Given the global spread of hygienic and medical knowledge, small upward trends of height in this period can be indications of disappointing developments. Only a comparison with a world-wide trend, which is not yet available, will yield a correct interpretation. Mironov aimed at explaining the positive height trend especially during the 1950s by the enormous reduction of fertility. He also suggests a number of adjustments to Wheatcroft's height record, given that a very large number of above-average Soviet soldiers died in WWII, which were biasing the early height estimates downward. Moreover, some older individuals were included among the early cohorts.

Turning to another undemocratic and inhuman regime of the time, Baten and Wagner (2003) studied the biological standard of living during the early Nazi period in Germany before WWII. They found that, in quite ironic contrast to the Nazi's insistence on tall Germanic body properties, the heights of German schoolchildren actually stagnated or slightly declined during the Nazi period, in contrast to other European countries. In a similar vein, life expectancies developed much less favourably than in France, the U.S., or other countries, and some diseases did spread much more than in other countries (diphtheria, for example, and most nutrition-related disease). The reason behind these developments was the disintegration of food markets in Germany due to autarchy and market interventions. Moreover, the investments in public health developed much slower than in other countries, even poorer countries such as Hungary started vaccination campaigns against diphtheria earlier and were more successful than Germany.

FIGURE 10

While those individual country studies are instructive, we need to discuss the broad picture for all of Europe. We first consider the time trends of height (in centimetres) in different European regions (Figure #10). It should be noted that those figures are interpolated to a considerable degree, therefore some short-term movements are not visible. But the broad trends and the slope of height growth yield substantive information. Initially, in 1910-14, there was a "tall" group in Europe (Scandinavia, UK and Ireland), a middle group of Central, Southeastern and Western Europe, and a "short" group of regions in Southern and Eastern Europe. The "tall" groups had a very favourable nutrition, which consisted of substantial amounts of protein and calcium (contained in milk, for example), and a high educational standard. In general, heights trended upward in all of Europe during the early 20th century, but the slope is somewhat different in different regions. The least growth can be found in its richest and poorest parts. The UK and Ireland together fell clearly back into a middle group, and Southeastern Europe fell from the middle group to the shortest height group. What are the reasons for this development? Well, clearly the UK lost the prominent position as the "workshop of the world" during the early 20th century. Moreover, the UK was the world's largest food importer in the pre-war period, and it might have suffered considerably from the great trade disruptions during periods of war and depression. The Balkans on the other hand had initially a fairly good nutrition (relative to their low income) from subsistence

farming in the remote mountains of Bulgaria, Montenegro, and Albania, but the strong population growth and slow productivity change ate up each initial advantage. The Scandinavian countries were among the leaders in developing the classical European welfare state, which had quite a positive impact on the health of poorer strata of society. Whilst stature did not decline in eastern Europe, it did not show much convergence with Scandinavia or other countries with more favourable anthropometric values. The development of the Soviet Union dominates the estimate for Eastern Europe. While growing stronger than the Balkans, East European stature development was not exceptionally strong. The positive effects of the communist schooling efforts, which showed up in the discussion of the HDI above, cannot be found in the pre-1950 height record. However, this cannot be simply attributed to communist economic development. The German armies which invaded the Soviet Union in 1941 also destroyed much of the capital stock and other growth components.

Other interesting developments which can be seen in this figure are the temporary slowdown of Southern European height development during the 1920s and 1930s -- probably influenced by the civil war in Spain. In a similar vein, the socialist and communist experiments also contributed after 1945 to the poor development in Southeastern Europe. Together with the Eastern Europeans, they became the shortest in Europe, whereas Southern Europe started to improve its position. In central Europe, Germany faltered from its long-run growth trend during WWI and its aftermath, whereas the nutritional problems of the 1930s and 1940s are not visible in the maps (perhaps due to the catch-up growth during the early post-war period, or imprecise estimates).

What determined height? Income and the proximity to the bottle-neck factor protein (especially milk) might have played some role. The latter factor can be expected to be important in the early period, before WWI in particular, and then see its influence fall over time, as proteins became more and more transportable and hygienic and medical knowledge grew in importance. We can approximate the availability of animal protein roughly by the number of cattle per capita, although it is clear that we would improve this proxy with an adjustment for per animal productivity. Northern Europe specialized much more on livestock production, whereas the Western Mediterranean had much more grain agriculture (this difference can actually be traced back to the 3rd century BC, when the population expansion of the expanding Roman Empire led to a switch of Mediterranean agriculture (Koepke and Baten 2007). Moreover, for Greece, the number of goats was so large that it provided a substitute for cow milk. Finally, we should control for specialized protein exporters such as Denmark, the Balkan countries, or Ireland. Those countries consumed less protein than they produced. .

FIGURES 11, 12 AND 13

Although we can assess this only for a very small number of cases, in general, the amount of protein produced in a country explains a large share of the height variation in 1913 (Figure #11). We take into account that Denmark was specialized in dairy farming exports, the UK was a major importer and Greece had the only really large goat population, relative to its small population. Even the variation of life expectancies can be

explained with the proximity variable (Figure #12), In statistical work undertaken by Baten, protein proximity explained about 30%-50%, of the variation of height and life expectancy in 1913, with income playing a role mainly in life expectancy.

After the war this changed. GDP came to have an additional significant influence on height, and together with our protein proximity indicator it could explain 73% of height variation. In contrast, during this period protein proximity loses its importance for life expectancy, whereas income is now the only significant variable, and explains around 70%. With the further development of medical and transportation techniques, higher income allowed people to buy efficient medical and nutrition-related goods, whereas medical treatment before WWI had had doubtful consequences in many cases. Starting in the interwar period, the amount of public and private health spending was much closer correlated with actual health and life expectancy.

Summing up, initially income and protein proximity explained a lot of the variation in life expectancies, whereas height was only determined by protein proximity. During the interwar years, income became also important for height, and protein proximity lost its significance for longevity. Hence there is a gradual switch from protein proximity to income and other factors (such as public health) over time as determinants of biological welfare. Was there convergence in heights, 1910-35? Interestingly, in the period of market disintegration 1910-35, there was divergence rather than convergence in heights (Figure #13). As the economies did not export as much of their staples of comparative advantage anymore, consumption temporarily increased in those countries of high protein supply, whereas it declined in the Mediterranean economies. The picture is much more mixed when we move from the late interwar period to the 1950s: Some countries of initially lower heights started to converge, such as Greece, Russia, and Spain, whereas Sweden and Norway had lower than average growth. But there were also counter-examples on both sides, such as Denmark and the Netherlands among the initially tall nations. Most notably, Turkish heights did not grow at all, in spite of a quite a bit room for catching-up.

8) Conclusions

The 1914-45 period will be remembered mostly for the devastations of two World Wars, the collapse of major imperial systems, a major economic depression and civil wars in Russia and Spain. Research studies show how these disasters had major short run effects on incomes and, where such data are unreliable as in Nazi Germany and Soviet Russia, new indicators of stature reveal the stagnation of living standards. In this light, the fact that over the whole 40 years, population rose by nearly one million, income per head by over 25% and average individual height by more than 4 centimetres was remarkable. European society seems to have had strong powers of recovery; after each conflict and population displacement there was an early resumption of long term trends. Indeed the macro movements in population and incomes were perhaps less important than some of the more qualitative dimensions of living standards – life expectancy, family size, literacy, education - and changes in the structure of economies wherein industrialisation

promoted major economic migrations from agriculture to industry, from villages to towns, from the poorer agricultural economies of southern and eastern Europe to western European industrial regions.

The Human Development Index records major advances in this period with a distinct convergence of eastern and southern Europe towards the levels in northwestern Europe. Income growth was not the most important underlying factor. Much more important was how incomes were spent and how governments intervened. Infant mortality fell dramatically and was a major element in life expectancy rising by about 40%, a product mainly of public health expenditures, better housing and a mushrooming of counselling and support for mothers and child care. Knowledge of the key parameters was being spread throughout eastern and southern Europe who were able to catch up. The fall in infant mortality persuaded mothers to have less births, a trend enhanced by the large fall in the share in the economy of those sectors, like agriculture, which traditionally used much child labour, and by the significant rise in the labour market participation of females which, in conjunction with the increased training needs of children, raised the opportunity cost of having children. The eastern and southern European countries which were able to catch up with Northern and Western Europe experienced a greater decline in the share of the traditional sectors, a major distinguishing feature of this period.

References

- Balderston, T., (1993), The Origins and Course of the German Economic Crisis 1923-32, Berlin: Haide and Spener.
- Bardet, J-P, (1999), "La France: la fin d'une singularité?", in J-P Bardet and J.Dupâquier (eds.), Histoire des Populations de l'Europe 1999: Vol 3: Les temps incertain, 1914-1998, Paris, Fayard, 437-88.
- Baten, J. (2006), "Global Height Trends in Industrial and Developing Countries, 1810-1984: An Overview". Working Paper, University of Tuebingen.
- Baten J. and Koepke N. (2007), "Agricultural Specialization and Height in Ancient and Medieval Europe", in Explorations in Economic History (##conditionally accepted, will be forthcoming in Oct.##)
- Baten J. and Wagner A., (2003) "Autarky, Market Disintegration, and Health: The Mortality and Nutritional Crisis in Nazi Germany 1933-37", Economics and Human Biology 1-1, pp. 1-28.
- Bell, F. and Millward, R. (1998), "Public Health Expenditures and Mortality in England and Wales 1870-1914" Continuity and Change 13(2), 221-49.
- Brown, J., (2000), "Economics and infant mortality decline in German towns, 1889-1912: household behaviour and public intervention", in S.Sheard and H.Power (eds.), Body and City: Histories of Urban Public Health, Aldershot: Ashgate, 2000.

Caselli, G, Meslé, F and Vallin, J., (1999), “Le triomphe de la médecine”, in Bardet and Dupâquier, Histoire des Populations Vol 3: 1914-1998,125-181.

Chesnais, J-C, (1999a), “La fécondité au XX^e siècle: une baisse irrégulière, mais profonde et irresistible”, in Bardet and Dupâquier, Histoire des Populations, 183-222.

Chesnais, J-C, (1999b), “La population active depuis 1913”, in Bardet and Dupâquier, Histoire des Populations,223-53.

Coale, A.J.(1986), “The Decline of Fertility in Europe since the 18th Century as a chapter in Demographic History”, in A.J.Coale and S.C.Watkins, The Decline of Fertility in Europe, Princeton, New Jersey: Princeton University press, 1-30.

Costa, D. L. and Steckel R. H. (1997),“Long-Term Trends in Health,Welfare, and Economics Growth in the United States”in R. Floud and R.H. Steckel (Eds), Health and Welfare During Industrialization,Chicago: University of Chicago Press for NBER.

Crafts, N.F.R. (1997), “The Human Development Index and changes in the standards of living: Some historical comparisons”, European Review of Economic History, 1(3).

Faron, O and George, P., “Les migrations européennes, de la Grande guerre de no jours” in in Bardet and Dupâquier, Histoire des Populations Vol 3: 1914-1998, 323-58.

Feinstein C. H., Temin P., Toniolo G. (1997), “The European Economy between the Wars”, Oxford University Press.

Fisher, K, (2000), “Uncertain Aims and Tacit Negotiations: Birth Control Practices in Britain, 1925-50”, Population and Development Review, 26(2), 295-317.

Fogel R.W. (1986) , “Nutrition and the Decline in Mortality since 1700: Some Preliminary Findings”, in: S.L. Engerman and R.E. Gallman (eds.), Long-Term Factors in American Economic Growth, Chicago, 439-555.

Foreman-Peck J. (1983), History of the World Economy, Brighton.

Hajnal, J. (1965), “European marriage patterns in perspective”, in D.Glass and D.Everet? (eds.). Population in History: Essays in Historical Demography, London: Edward Arnold.

Harris, B (1998), "The height of schoolchildren in Britain, 1900-1950," in J. Komlos (ed.) Stature, Living Standards, and Economic Development: Essays in Anthropometric History. Chicago: University of Chicago Press: 25-38.

Kosinski, L.A. (1970)The Population of Europe: A Geographic Perspective, London: Longmans.

Komlos J. and Baten J. (eds.) (2004),Social Science History – special journal issue on “Anthropometric History”

Komlos J. (1985) “Stature and Nutrition in the Habsburg Monarchy: the Standard of Living and Economic Development in the Eighteenth Century”, Am. Hist. Rev. 90 (5), 1149–1161.

Kulischer, E.M., (1948), Europe on the Move:War and Population Changes 1917-47, New York: Columbia University Press.

Lindert, P. H. (2004), Growing Public: Social Spending and Economic Growth Since the Eighteenth Century, Cambridge University Press.

Lorimer, F., (1946) The Population of the Soviet Union: History and Prospects, Geneva: United Nations.

Maddison, A., (1995), Monitoring the World Economy 1820-1992, Paris: Organisation for Economic Cooperation and Development.

Maddison, A. (2001), The World Economy: a Millennial Perspective, Paris: OECD.

- Masover, M. (1998), Dark Continent: Europe's Twentieth Century, London: Penguin, 1998.
- Millward, R. (1999), "Industrial Performance, the Infrastructure and Government Policy", in J Dormois and M.Distenfass (eds.) The British Industrial Decline, London: Routledge, 47-64.
- Millward, R. and Bell, F. (2001), "Infant mortality in Victorian Britain: The mother as medium", Economic History Review, 699-733..
- Mitchell, B.R., (1976), "Statistical Appendix" in C.M.Cipolla (ed.), The Fontana Economic History of Europe: Contemporary Economies: Part Two, Collins/Fontana, Glasgow, 648-55.
- Mitchell, B.R., (1985), British Historical Statistics, Cambridge University Press.
- Mitchell, B.R. (1998) International Historical Statistics: Europe 1750-1993, London: Macmillan, 3rd. Edition.
- Schofield, R., Reher,D. and A.Bideau, (eds.), The decline of mortality in Europe, Oxford: Clarendon Press.
- Shorter, F.C., (1985), "The Population of Turkey after the War of Independence", International Journal of Middle East Studies, 17(4), 417-441.
- Simpson, J.H., (1939), The Refugee Problem, London: Oxford University Press.
- Steckel, R. H. and Floud R. (1998), "Height and the Standard of Living Health and Welfare during Industrialization", Journal of Economic History Vol. 58 (3), 866-870.
- Steckel, R. H. and Floud R. (1997), Health and Welfare during Industrialization, Chicago: University of Chicago Press.
- Steckel, R. H. (1995), "Stature and Standard of Living", Journal of Economic Literature, 33, 1903–1940.
- Steckel R. H. and Rose J. C. (2005), The Backbone of History: Health and Nutrition in the Western Hemisphere, Cambridge, Cambridge University Press.
- Watkins, S.C. (1986), "Regional Patterns of Nuptiality in Western Europe, 1870-1960", in Coale and Watkins, The Decline of Fertility in Europe, 314-36.
- Wheatcroft, S.G., (1999), "The Great Leap Forward: Anthropometric Data and Indicators of Crises and Secular Change in Soviet Welfare Levels, 1880-1960, Slavic Review, 58(1), 27-60.
- Zurcher, E.J., Turkey :a Modern History, London:Tauris.

TABLE 1
SHARE OF MALE LABOUR FORCE IN AGRICULTURE 1910-
1950

(%: contemporary
boundaries)

	1910	1938	1950
Yugoslavia	82	70	68
Turkey	Na	77	77
Russia	82	60	48
Bulgaria	72	68	63
Romania	71	65	62
Finland	69	55	41
Poland	68	55	49
Hungary	65	54	51
Portugal	61	55	54
Spain	60	56	55
Italy	58	47	44
Ireland	54	54	47
Greece	54	51	53
Norway	49	40	32
Denmark	47	35	30
Austria	46	30	26
France	40	33	30
Czechoslovakia	39	31	31
Sweden	32	34	26
Switzerland	32	27	22
Netherlands	31	21	19
Germany	28	19	16
Belgium	25	16	13
Britain	12	7	7

Source: Chesnais 1999b

TABLE 2
OVERSEAS EMIGRATION FROM EUROPE 1901-50 (annual average '000 persons)

	1901-10	1911-20	1921-30	1931-40	1941-50
Italy	361.5	219.4	137.0	23.5	46.7
Britain & Irel.	315.0	258.7	215.1	26.2	75.5 ^a
Austria	111.1 ^b	41.8 ^b	6.1	1.1	na
Spain	109.1	130.6	56.0	13.2	16.6
Russia	91.1	42.0	na	na	na
Portugal	32.4	40.2	99.5	10.8	6.9 ^c
Sweden	32.4	8.6	10.7	0.8	2.3
Germany	27.4	9.1	56.4	12.1 ^d	61.8 ^e
Poland	na	na	63.4 ^f	16.4 ^g	na
Norway	19.1	6.2	8.7	0.6	1.0 ^a
Finland	15.9	6.7	7.3	0.3	0.7
Denmark	7.3	5.2	6.4	10.0	3.8
France	5.3	3.2	0.4	0.5	na
Switzerland	3.7	3.1	5.0	4.7	1.8 ^h
Belgium	3.0	2.1 ⁱ	3.3	2.0	2.9
Netherlands	2.8	2.2	3.2	0.4 ^d	7.5 ^a

a) 1946-50 b) Austria-Hungary c) Includes emigration to European countries 1941-9
d) 1932-6 e) West Germany f) Incomplete data g) 1931-8 h)
Includes emigration to European countries 1941-4 i) Excludes 1913-18

Source: Mitchell 1998.

Figure 1: MORTALITY IN NORTHERN AND WESTERN EUROPE 1910-49 (contemporary boundaries: number of deaths per 1000 population)

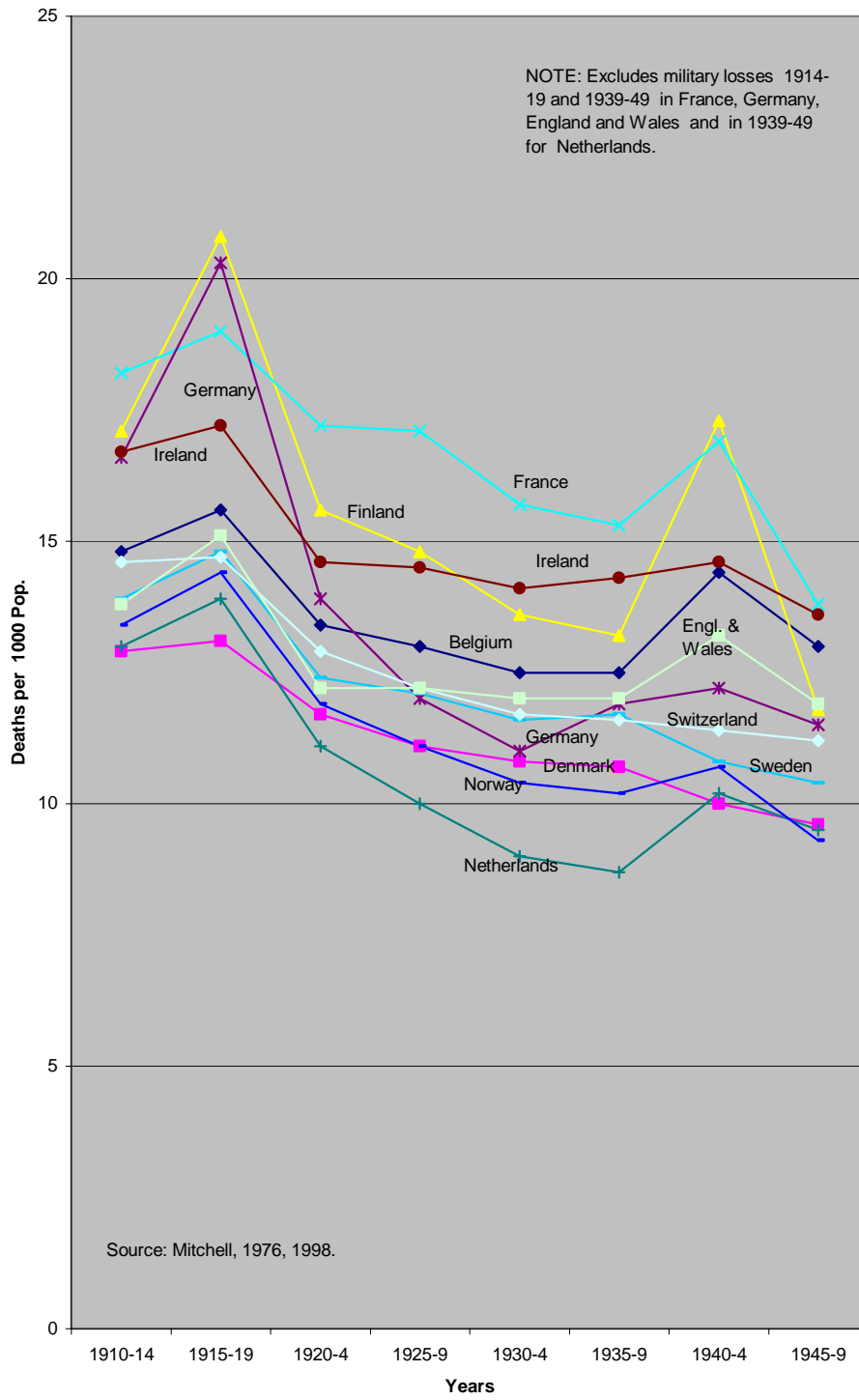


Figure 2: MORTALITY IN SOUTHERN AND EASTERN EUROPE (1910-49) (contemporary boundaries: number of deaths per 1000 population)

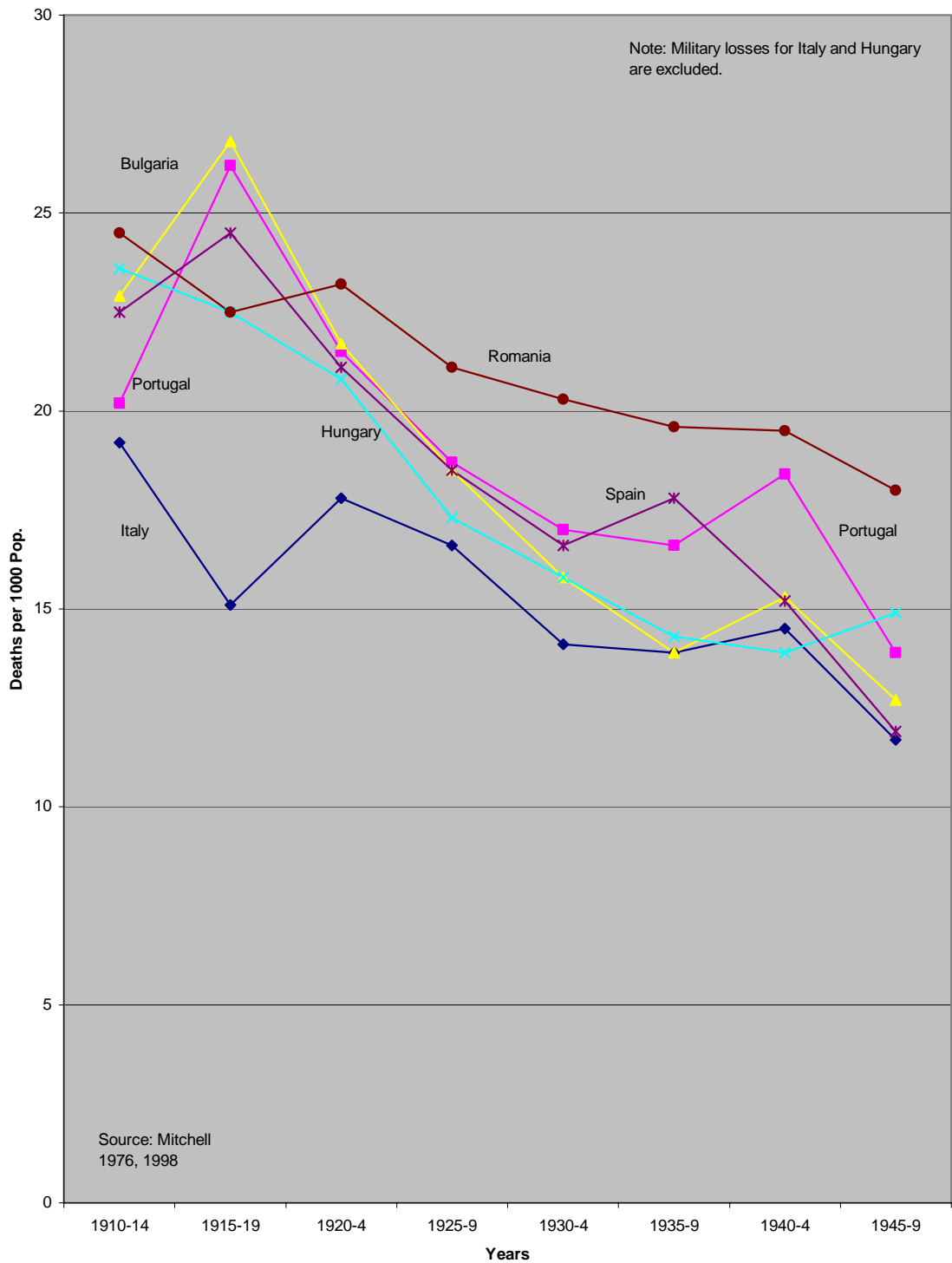


FIGURE 3: INFANT MORTALITY IN NORTHERN AND WESTERN EUROPE 1910-49 (contemporary boundaries: number of deaths of infants under one year, per 1000 live births)

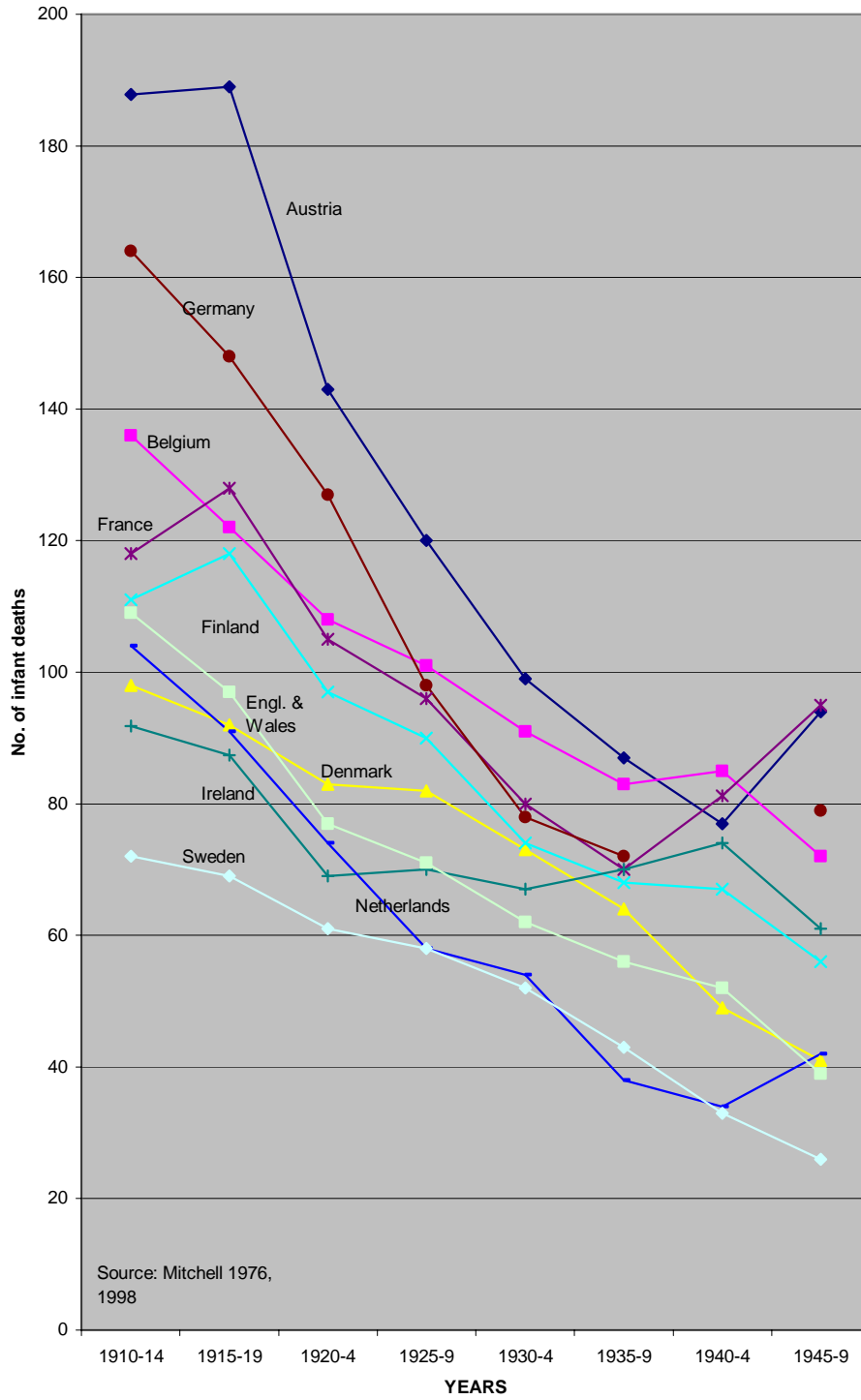


FIGURE 4: INFANT MORTALITY IN SOUTHERN AND EASTERN EUROPE 1910-49 (contemporary boundaries: number of deaths of infants under one year per 1000 live births)

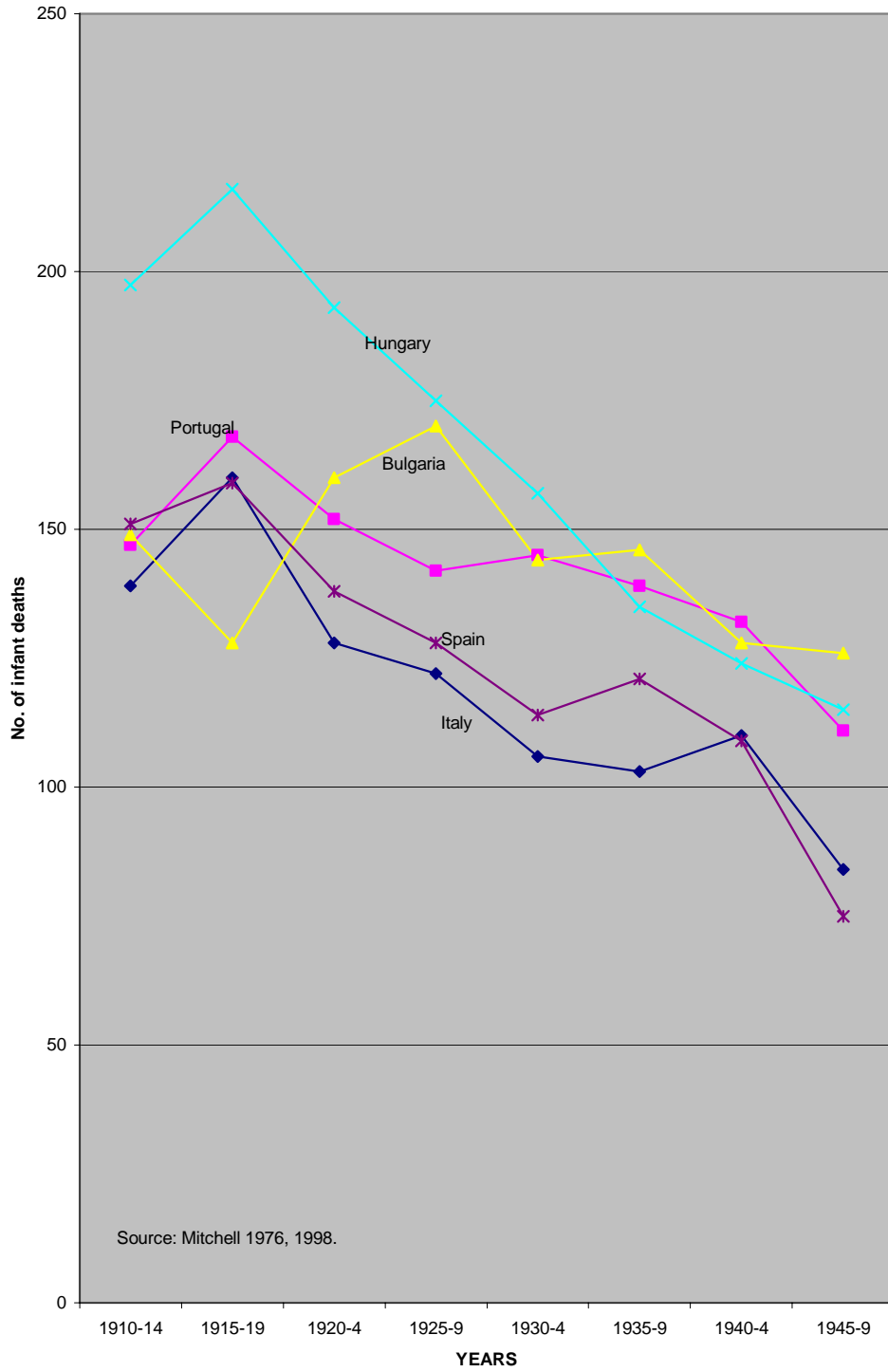


FIGURE 5: FERTILITY IN NORTHERN AND WESTERN EUROPE 1910-45 (contemporary boundaries; average number of births per woman aged 15-44)*

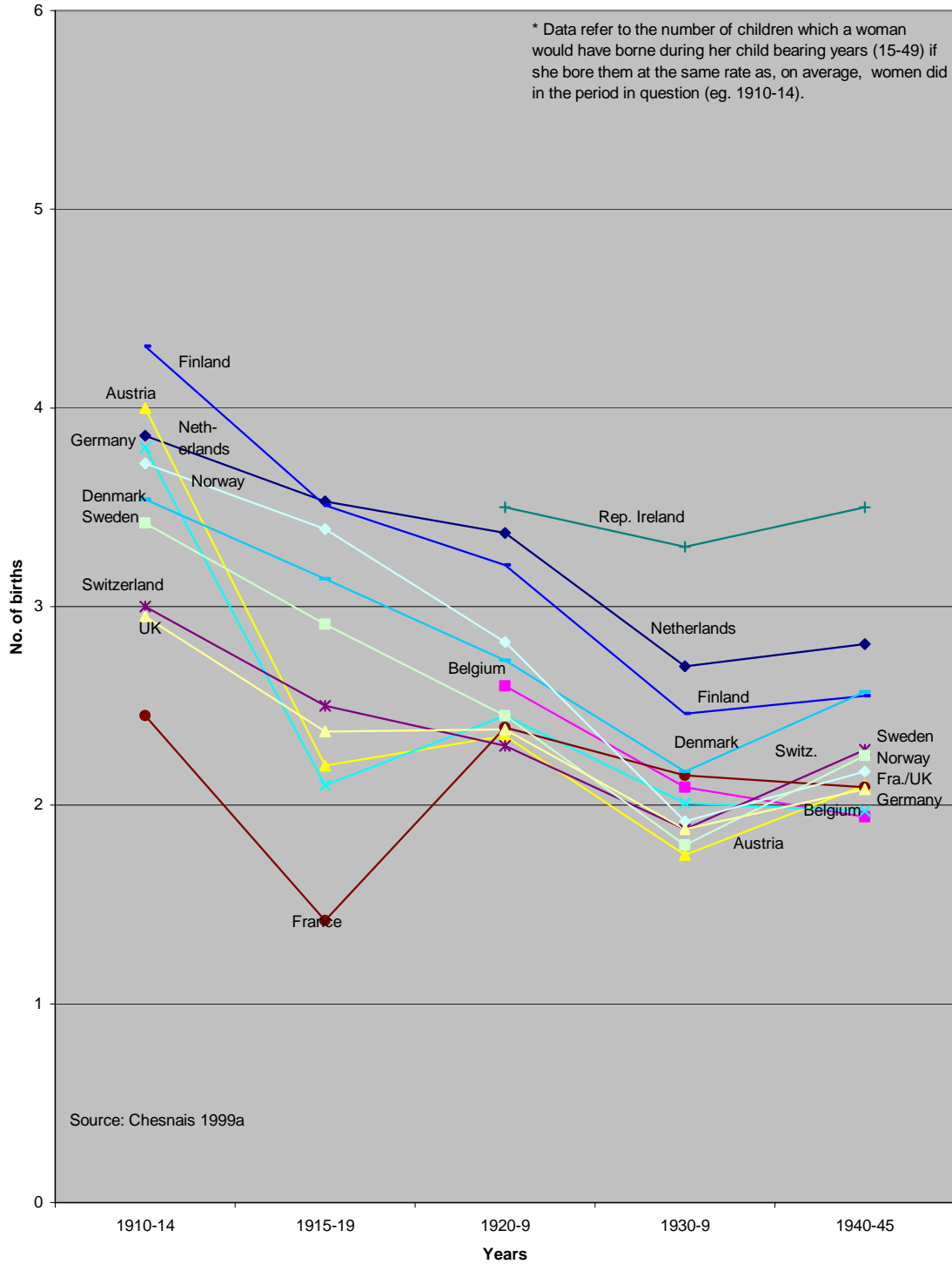
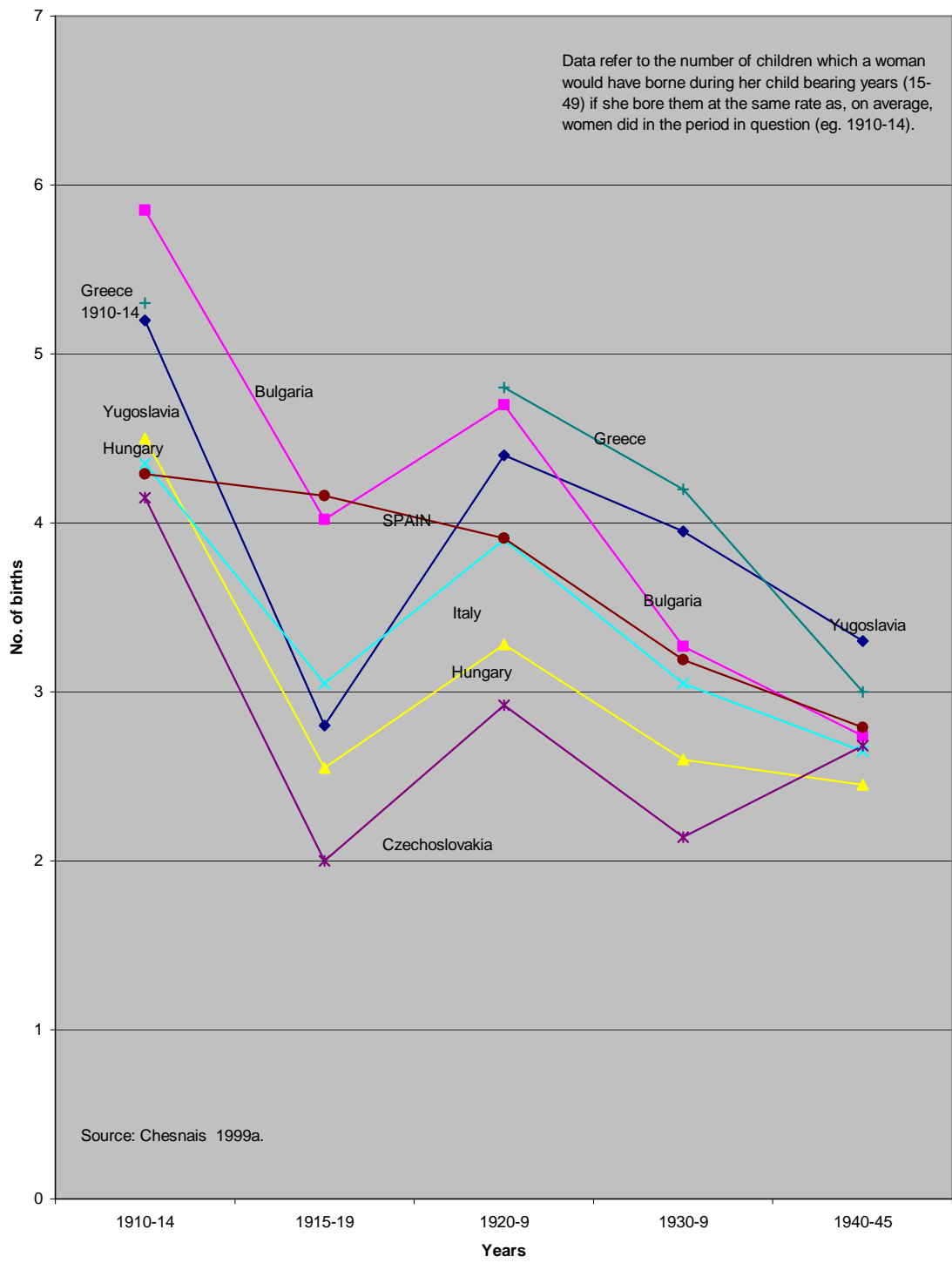


Figure 6: Fertility in Southern and Eastern Europe 1910-45 (contemporary boundaries; average number of births per woman aged 15-49)



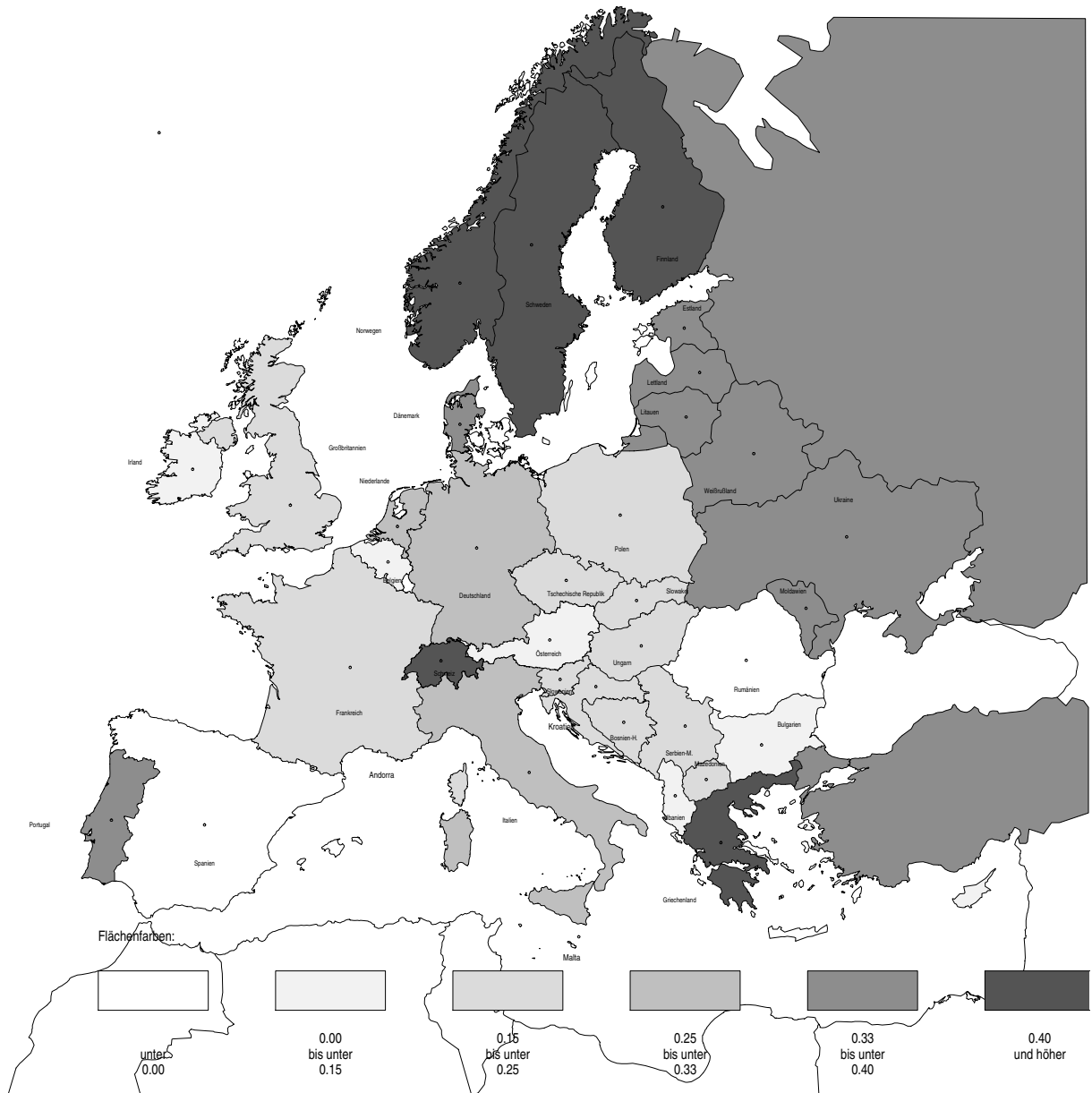


Figure #7: Change of GDP per capita in European countries, 1913-1938 (expressed as HDI component, see text. Calculated from Maddison 2001). ##the map notes will be translated after the editors confirmed that they can be included; “unter” means under, “höher” higher##

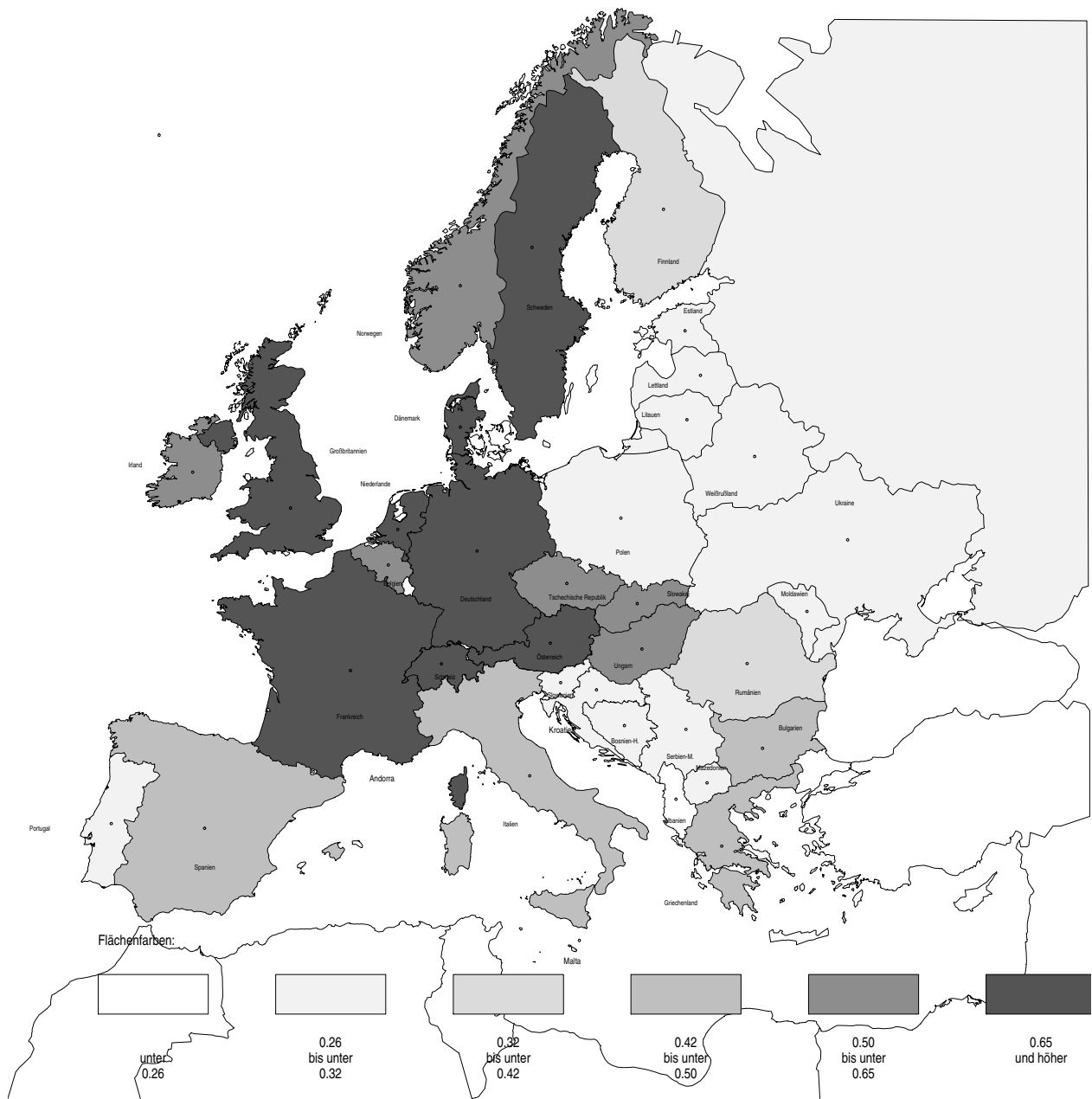


Figure #8: Level of HDI in European countries, 1913 (sources: see text)

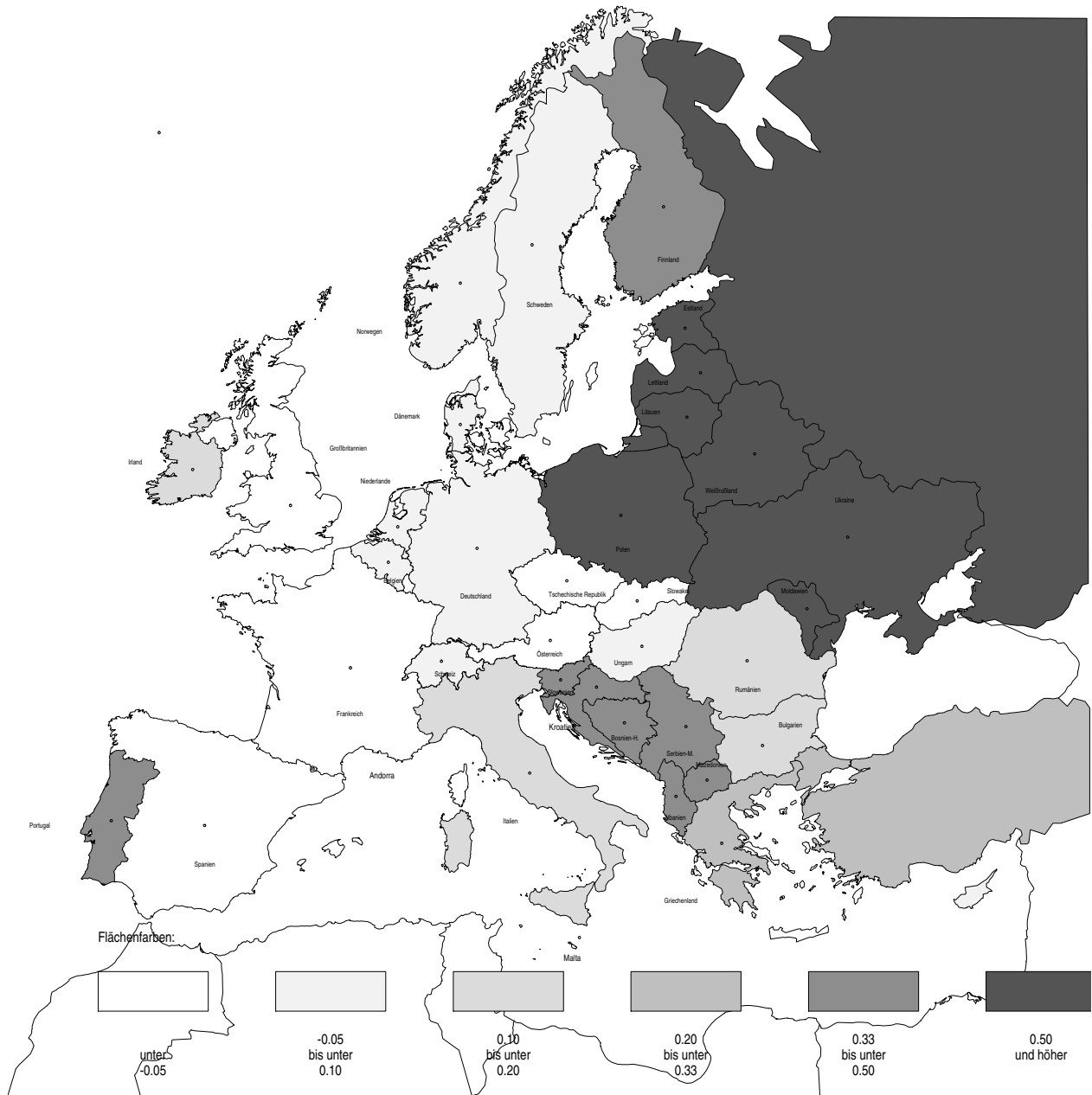


Figure #9: Change of HDI in European countries, 1913-1938

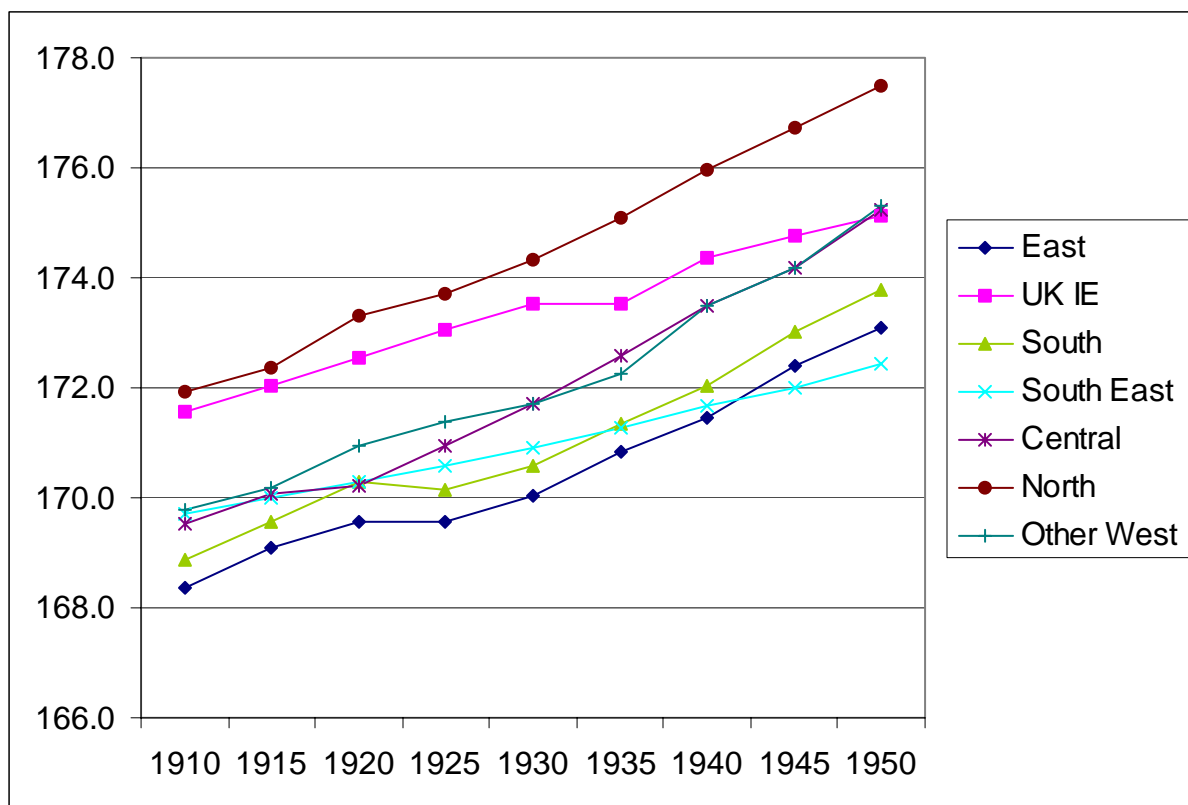


Figure #10: Changes of Height in European countries, 1910/14-1950/54 (Source. Baten, 2006).

Definitions: North=Scandinavia; UK IE: UK and Ireland; South: CY, GR, IT, ES, PT; South East: Balkan incl. RO; Central: DE, AT, CH; East: CZ, HU, PL, SK, and previous Russian Empire countries; Other West: NL, BE, FR;

Figure #11: Cattle per capita and height in Europe ca. 1913

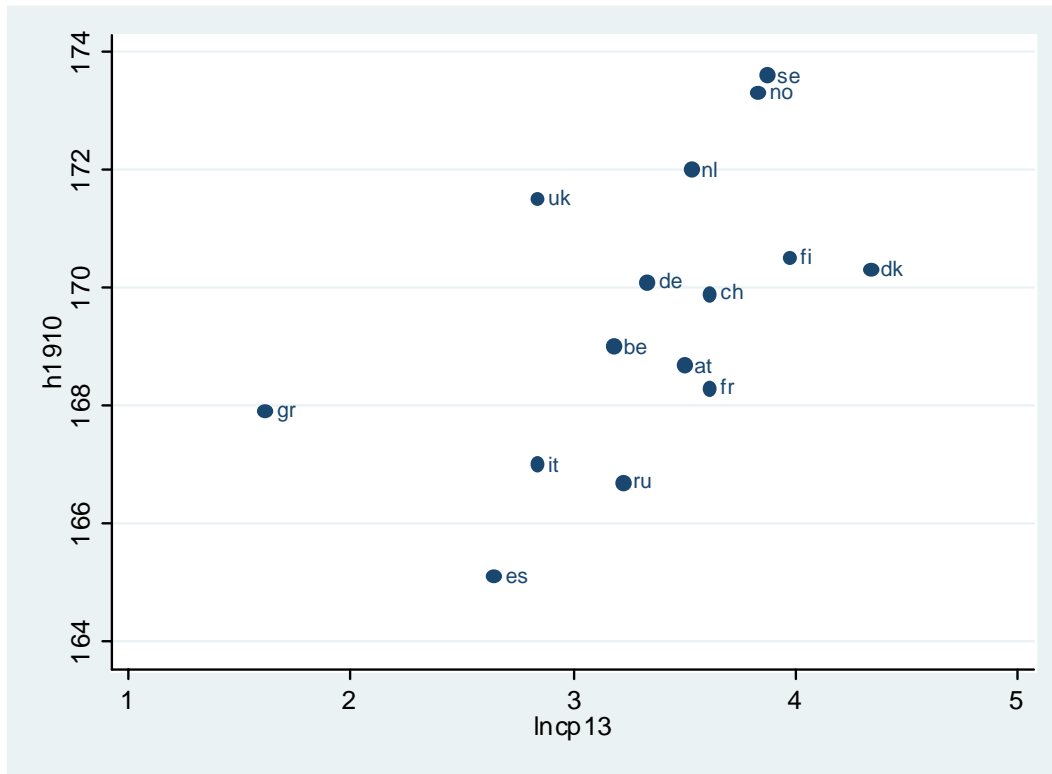


Figure #12: Cattle per capita and life expectancy in Europe ca. 1913

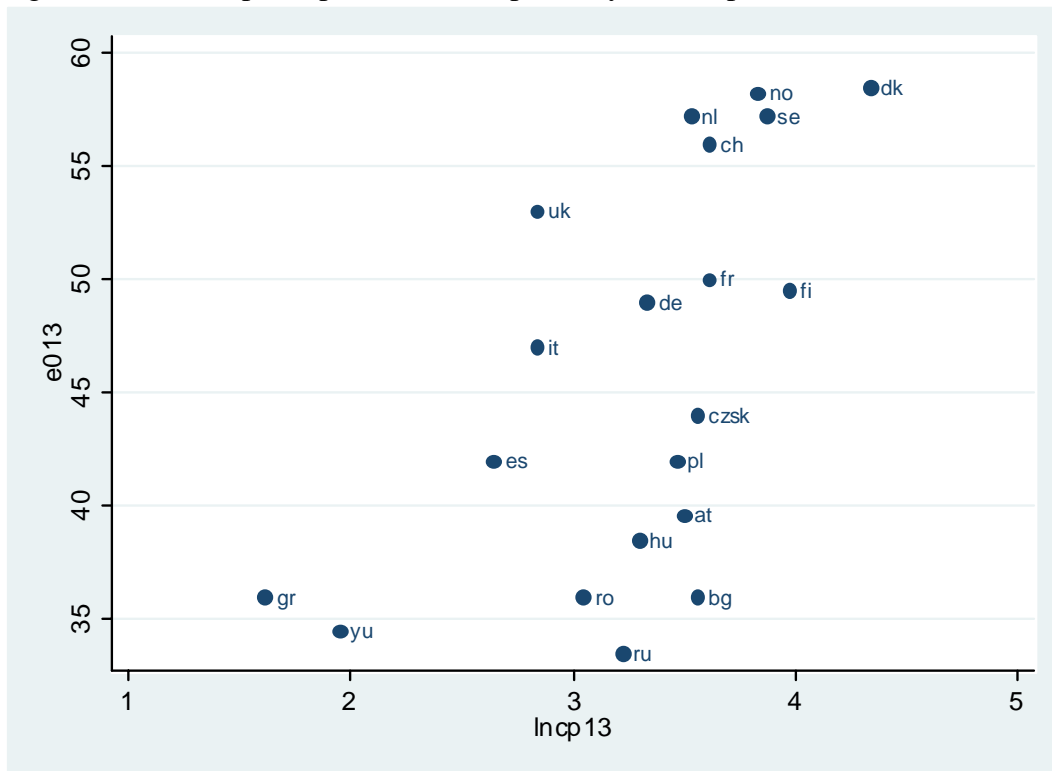


Figure #13: Height level ca. 1913 and height change ca. 1913-38

