

Rettevejledning/Europe in the World Economy.

Students taking the Europe in the World Economy course answer two sets of questions, **A** and **B**.

Students doing both Danish Economic History and Europe in the World Economy answer only one set of questions, **A**.

A set of questions is arranged under one common theme . The first, **A**, relates mainly to chapters 2, 4 and 6 in the textbook. (K.G. Persson An Economic History of Europe 600 to the Present, Cambridge University Press, 2010) Ambitious students might also use resources at the textbook homepage www.econ.ku.dk/europe

A:The student should cover all the questions and issues addressed and start by the definitions (typed in **bold** in the opening paragraph) which are quite easy except for the concept of total factor productivity. Students should have learnt about total factor productivity in a Principles of Economics course, but it would be the standard formula, which relies on elaborate national accounts. In that formulation total factor productivity (TFP) is equal to growth of national income minus the weighted sum of the increase in the inputs in production. However, given the lack of robust national income accounts for pre-industrial economies the textbook suggests an alternative, the so-called dual approach, defined along with the standard formulation in the Appendix to Chapter 4, pp.71-72 where

$$TFP = s_k r^* + s_l w^* + s_i i^*$$

where $*$ denotes proportional change in a variable r is the rate of return per unit of capital, w is the wage per unit of labour and i is the rate of return per unit of land. s denotes the weight of each factor of production and typically sum to 1.

It is an advantage if students can give some intuition behind the formula, such as that it is an approximate measure of technological progress. Some students might also mention a method of estimating changes in *labour* productivity by inferring it from changes in the occupational distribution of the labour force.

When it comes to estimates of growth the textbook presents some estimates of income per head, labour productivity and TFP for the pre-industrial period and suggests that the growth patterns differs widely across time and nations. There are some economies, England, for example which seems to have a growth around 0.2 percent per year and that goes for TFP in some , but not all regions in France. Other economies, such as Italy, tend to stagnate from the 16th century but at an income per head far above the subsistence income, conventionally set at 400 \$ (constant 1990 so called international dollars).

There is some evidence that growth in the 18th century, just before the Industrial revolution, was slightly higher in Britain and parts of France.

Some students might discuss the simple Smithian model from Chapter 2 which relates productivity and income growth to population (extent of the market, aggregate demand) and division of labour. If so that model can be applied to the economic impact (de-specialization) of the fall in population after the decline of the (West) Roman empire and the subsequent revival of the European economy when population started to grow again in the early Middle Ages.

In the 19th century GDP per head growth rates speed up, at least in the second half of that century, to in between 1-2 per cent. For the 20th century it should be noted that growth varied in different periods and across nations with very fast growth in the 20 years after 1950 (3-5%) while long term or average growth was in the interval of 2-3%. Average growth rates of course vary depending on the sample of nations.

The question on the Industrial revolution in Britain is related to the new estimates of GDP per head growth. The new estimates, associated with Crafts and Harley, represent a significant re-interpretation of the Industrial revolution. The new estimates land at GDP per head growth rates which are only 1/3 of the earlier estimates, or 0.35 for the 1780-1800 period and 0.5 for the 1801-1830 period. Also in terms of TFP growth rates were only slightly higher than for the pre-industrial period. The background for this reinterpretation is that the modern fast growing industrial sector was initially not as large a share of the total economy as previously believed. Science also played a minor role in the early phase of the industrial revolution. In the lecture notes we have discussed the familiar index problems and the impact that the choice of base year can have on estimates. A ambitious student might refer to that discussion.

Nonetheless Britain became the leading economy, measured by GDP/head, in this period replacing Holland and Italy, who were the early leading economies and centres of innovations in banking, and in the case of Holland, in agriculture, shipbuilding, printing. However, the British lead was eroded already by the end of the 19th century by US. In Europe a number of economies was catching up to the level of UK in the first half of the 20th century and in some industries already before 1914. The textbook compares Germany and England and notes some advantages in the financial system in Germany (universal banking), education and research. The textbook also notes that the domestic investment ratio in Britain was about half that of the most advanced European nations in the 40 years up to the First World War. It is also noted that Britain as a industrial pioneer had difficulties expanding in new and fast growing industrial sectors.

The two remaining question are more analytically demanding. A comparison of Northern and Southern Europe should be correct in the timing, the last decades of the 19th century and the post WWII period respectively. Since catch up convergence is largely related to the ability of a nation to absorb advanced technologies (which are applied knowledge) from the leading economies an explanation should focus on differences in educational standards and openness to trade, people and capital imports. The well read student might note the differences in patent applications as a sign of technological sophistication with Scandinavian countries, such as Denmark, being very active already before 1914. More generally, we have listed the basic institutional conditions for modern growth as linked to markets for goods and factors of production and well defined property rights. Political

stability and religion might be mentioned. We have shortly discussed Weber's hypothesis about protestantism but concluded that there is still no consensus on that issue.

The well-read student might venture into concepts like sigma (declining variance of income across nations) and beta convergence. In this context they might discuss the differences in timing of the convergence as an aspect of conditional (beta) convergence, that is when the initial level of income per head is low relative to leading economies the low income economy has a opportunity to grow faster during a period of catch up, *conditional on* that the institutional, legal, educational and political conditions for growth are present.

The final question refers to the so-called Golden Age of European growth, c.1945/50-1970/5 when both TFP growth and GDP per head growth were exceptionally fast in almost all European nations. (Ireland and Britain are interesting exceptions). The periodization should be correct, of course. As to the explanation of growth several arguments can be put forward.

First it is worth mentioning that an element in the growth was a trend reversal, also known as the Janossy hypothesis. Assuming a long term trend growth the Interwar crisis and WWII made economies depart from their long run growth trajectory. When normality was restored economies therefore returned to that trend. Students should mention a number of other factors. The fast growth was also linked to a massive import of new production technologies from the leading economy, US. That technology diffusion was helped by increased trade made possible by trade liberalization, initially also by the Marshall Aid, and multinational investments. The well read student will mention that the period was characterized by high profits and investments, and paradoxically low inflation and full employment, at least by present standards. An explanation of this pattern marks a good exam and would point out that wages were contained by an ample supply of labour. The labour supply was linked to the increased labour force participation of women and the inflow of labour from agriculture which was mechanized in the period. This structural change is an independent cause of the fast growth in the period since labour is moving out from low-productivity jobs, typically in agriculture, to high productivity jobs in industry.

In short: the exceptional growth was caused by high investments, technology diffusion, gains from trade specialization, trend reversal and structural change.

B:The second set of questions is about to the expansion of welfare state spending and the question relates to section 10.5 in the textbook.

On the quantitative aspects students should be aware of the fact that a century ago public (local and central) spending was very small compared to modern standards, 5-10 per cent of GDP as opposed to 40-50 today.

It should also be clearly stated that welfare spending and spending on education are the areas which explain most of the expansion of public spending and that most of the expansion took place in the post WWII era. Table 10.2 indicates that welfare provisions and education constitute 60-75 per cent of public spending in European nations 2005.

Students should understand that welfare spending is both transfers such as pensions and consumption such as health care.

The analytical part of the question, that is why the state rather than the market provides welfare services and /or subsidies, touches on issues on which there is not full consensus and therefore considerable freedom is allowed in the analysis proposed by the student. The hypothesis advanced in the textbook is that welfare spending is mainly a redistribution of consumption and income over the household's lifecycle. The typical household is a net receiver of welfare services and transfers when in an early phase the household receives parental leave transfers, subsidized child care and education for children and when the household's labour supply and tax payments are constrained. The household becomes a net contributor when households mature with small claims on welfare services and transfers and when labour supply is unconstrained by child care, to become again a net receiver at old age when households are intensive in their use of subsidized health care and public pensions transfers. It is admitted that welfare state transfers include an element of egalitarian redistribution but it is not as important than popularly believed. The question asked in the textbook is then why capital markets and private insurance cannot solve this life-cycle redistribution and the answer goes along several lines

adverse selection in private insurance would generate incomplete coverage

time-inconsistent preferences tend to lead to underinvestment in private pension schemes

man might have preferences which include the welfare of others (altruism) and such externalities are not easy for markets to handle

externalities in education means that social returns are larger than private which can lead to underinvestment in learning and motivate compulsory and subsidized education.