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**SCIENTIFIC REPORT**  
Third Workshop for Working Group 2 (Rural management of land)

**“Production and productivity in European agriculture in a historical context”**  
Lund, Sweden, June 13-14, 2008

The conference focused on two targets: First, on levels of agricultural production and productivity and, second, causes for changes in these levels. The two earlier workshops in this part of the COST-action dealt with the impact of markets and commercialisation on the management of land and with specialisation in production, respectively. Following this, the third and final step, was to estimate changes in output, and its causes.

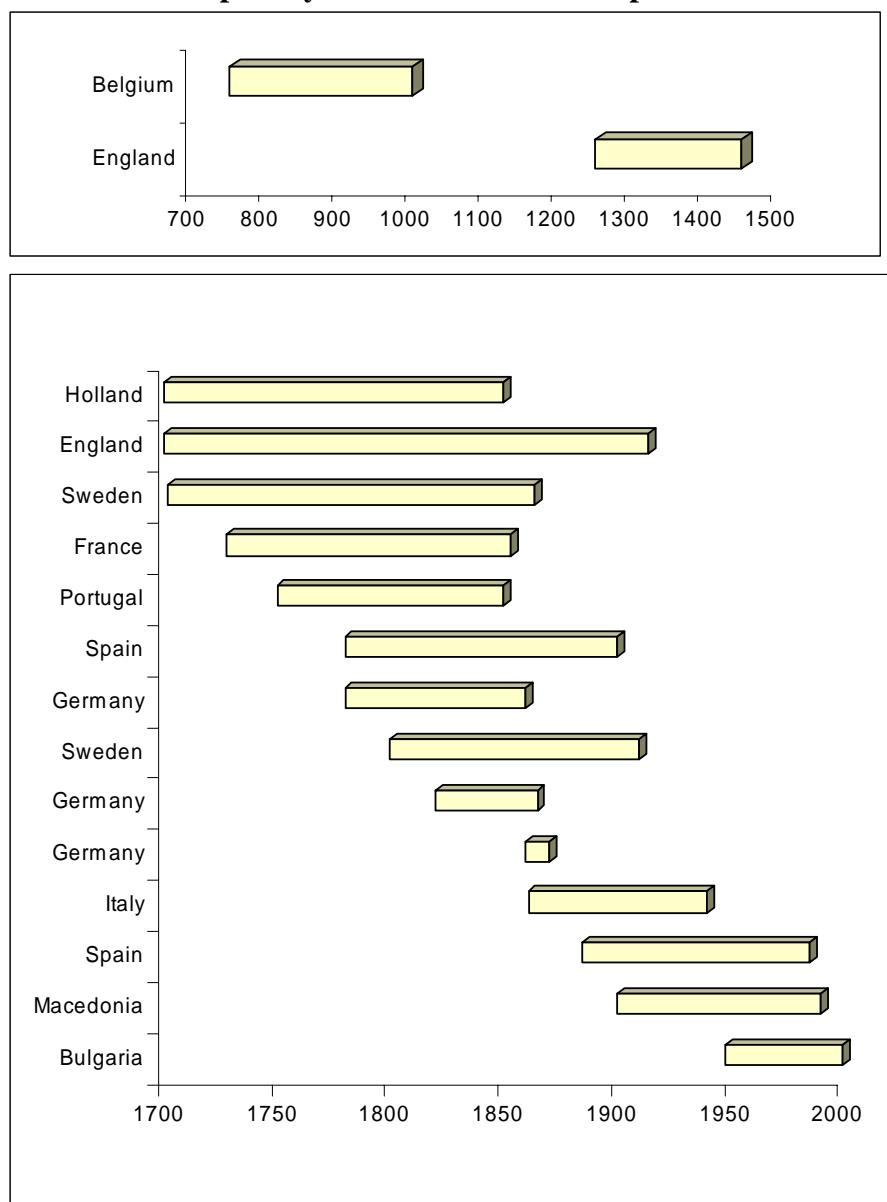
**Table 1 Participants by nationality and function at the conference.**

|                       | Paper<br>presen-<br>ters | Discus-<br>sants | Chairs | Others | Total<br>unique<br>part. |
|-----------------------|--------------------------|------------------|--------|--------|--------------------------|
| <i>Belgium</i>        | 1                        |                  |        |        | 1                        |
| <i>Bulgaria</i>       | 1                        |                  |        |        | 1                        |
| <i>Denmark</i>        |                          | 1                |        |        | 1                        |
| <i>Finland</i>        |                          |                  | 1      |        | 1                        |
| <i>France</i>         | 1                        |                  | 1      |        | 1                        |
| <i>Germany</i>        | 2                        |                  |        | 1      | 3                        |
| <i>Holland</i>        | 1                        |                  |        |        | 1                        |
| <i>Ireland</i>        |                          | 1                |        |        | 1                        |
| <i>Italy</i>          | 1                        |                  |        |        | 1                        |
| <i>Macedonia</i>      | 1                        |                  |        |        | 1                        |
| <i>Norway</i>         |                          |                  | 1      |        | 1                        |
| <i>Portugal</i>       | 1                        | 1                |        |        | 2                        |
| <i>Spain</i>          | 3                        |                  |        |        | 3                        |
| <i>Sweden</i>         | 3                        | 2                | 2      | 2      | 7                        |
| <i>United Kingdom</i> | 4                        | 1                |        |        | 4                        |
|                       | 19                       | 6                | 4      | 3      | 29                       |

The conference took place at Lund University. In all there were 29 participants of whom 27 were active as paper contributors, discussants or chairs. The participants came from 15 European countries, representing 22 universities and institutions.

At the conference 16 papers were presented and discussed. The periods studied ranged from the Early Middle ages up to the early 21<sup>th</sup> century, although at least 11 of the papers dealt with the agrarian transformations in the 18<sup>th</sup> and 19<sup>th</sup> centuries.

**Tables 2 a-b. Papers by studied countries and period**



Most papers contain both a quantitative and qualitative approach. The quantitative approach is targeted at estimating historical agrarian production and productivity. The sources and methods vary between countries and periods. The most common sources, dealing with the Middle Ages and Early Modern times, are farm records, tithes, probate inventories, land surveyors acts, prices, population size and contemporary estimates and reports. The sources for the 20<sup>th</sup> century are typically official statistics.

Three of the papers dealt with total factor productivity (TFP), estimating the values added by labour, capital and land. These factors are, besides institutional and governmental impacts, focused on in all the other studies as well, although other methodological approaches to estimate changes in agricultural outputs are used.

In the explanatory approaches basic factors affect the way land is managed and thereby the level of production. These basic factors consist of natural conditions such as climate, topography and soil conditions. There are also economic and institutional factors affecting land management, e.g. traditions, inheritance systems, property rights, proximity to urban centres, population density, transport costs and trade restrictions. Together these factors affect farm sizes, technology, choice of crops and degree of specialisation. Hence, changes in the basic factors create incentives for altered management which eventually would lead to changes in production and productivity.

The papers deal with this approach in rather different ways displaying different access to sources as well as the impact of this on the choice of explanatory models. The first session dealt with production and productivity during the Middle Ages. In a paper by Wilkin a qualitative approach is used when discussing early medieval eastern Belgium. He finds that the manorial system was a profitable structure focussing on the way production was organised. The profitability did not rest upon technical advancement or intensification but on extensive agriculture and dues from the peasants. Wilkin argues that this came about primarily through the rational calculation made by the landlords rather than through technical backwardness or other relative deficiency in eastern Belgium. This paper relates methodologically to the paper on France (Antoine) discussing the use of farm accounts for estimations of agricultural productivity. Antoine highlights the need for precise quantitative methods in order to take account of deficiencies in the source material. She also finds that qualitative methods often provide answers to many of the questions asked.

The second paper on the Middle Ages had a quite different approach. The paper by Broadberry, Campbell and van Leeuwen on English agricultural output 1250-1450 is quantitative and is part of an ongoing research debate dealing with England from the Middle Ages to the industrial revolution. The authors estimate seigniorial production on micro-level using a new methodological approach when scaling these figures to a national level. Besides providing new estimates on agricultural output, the main contribution from the paper is that the authors show that the seigniorial sector responded to changes in prices on as well commodities as on factors of production. A change from arable to pastoral production caused falling land productivity and by 1450 output as well as labour productivity was falling.

The second and third sessions dealt with agriculture in England, Germany, the Netherlands and Sweden during the eighteenth and nineteenth centuries. The three papers in the second session all estimated production and productivity in a quantitative way using different sources presenting their results in annual resolution. This allowed for some comparisons and it is obvious that agriculture in Sweden (Olsson and Svensson) outperformed the Dutch (Knibbe) and English (Beckett and Turner) agriculture during this period. This could be a catching up process and in the Swedish case the authors show that the transformation from “traditional” institutions to “modern” institutions (e.g. development of property rights and enclosure of land) was important for growth. Another paper on Sweden (Gadd) estimates the crop production on national level for the long nineteenth century, presenting a new way of using old data. This contributes to our understanding of one of the most important phases in agricultural change in Sweden. The Dutch case stress the importance of soil conditions and access to markets for growth and presents evidence that it was the pastoral sector that increased productivity the most in Friesland. In England, with its more developed institutional setting, it was more of a step-by-step growth in productivity and the main contribution to the increase in yields came after 1820, rather than before. The results

from this paper can be compared and analysed in relation to the paper on medieval England in many respects. The paper by Konersmann on southwest Germany highlights the importance of certain groups of peasants taking a leading part in the commercialisation of agriculture through engagement in trade and through the adaptation of new techniques and new methods. Konersmann states that this group of “peasant merchants” was important for the spread of new ideas and acted as initiators for the agricultural revolution in the region. In this way their role is comparable to the one performed by the freeholders in the Swedish case. Finally, the paper on Prussia (Weitzel and Kopsidis) presents evidence on institutional changes (e.g. the Zollverein) leading to growth. However, the authors show that although market integration took place it was primarily not on a national level but rather within macro-regions shaped like “Thuenen-belts”. These results are confirmed in another paper by Kopsidis and Wolf studying agricultural productivity in eastern versus western Prussia. The macro-regions in the west supported the ongoing urbanisation and industrialisation while the production in eastern Prussia above all met English demand for foodstuffs.

In the fourth and fifth sessions three papers estimating productivity, adapting total factor productivity (TFP) was presented. This methodology has made it possible to identify phases of growth and stagnation in a better way than before and has also the benefit of direct comparisons between countries and regions. Both the paper on Italy (Federico) and on Spain (Lana Berasain) show that growth during the nineteenth century was higher than earlier research has shown. This is particularly true for the period after the Napoleonic wars (Spain) and for the last quarter of the century (Spain and Italy). Both an increase in cultivated area and intensification played a role in this growth. This finding is supplemented by results from a second paper on Spain (Pinilla and Clar) which reveals a predominance of extensive growth before World War II and intensification after 1945. Other important factors promoting growth were market integration and increased trade. The Portuguese case (Fonseca and Reis), however, reveals that openness and trade was not sufficient for growth in productivity. Natural resources put a limit to ecological and productivity sustainability in Alentejo, a result that is comparable to the one found by Knibbe in his paper on Friesland and findings in the Pinilla and Clar paper on differences between regions in Spain.

Finally two papers dealing with east European twentieth century development of agriculture concluded the workshop. These papers uses official statistics and show that the dramatic changes in political and institutional settings affected growth patterns in agriculture, mainly through changes in property rights and in average farm sizes. One implication of the results is that repeated changes in themselves have an effect on long-term growth. A third result is that growth rates between Macedonia (Sekovska) and Bulgaria (Bachev) differed substantially, a result opening up for a more thorough comparison.

Conclusively, these new estimates have provided new ways of explaining growth patterns in European agriculture. Comparing the papers across regions and countries has shown that the producers of agricultural commodities, seigniors and peasants, responded to markets and economic incentives already from early on. However, property rights and institutions seem to have mattered in this respect. Old traditional structures and serfdom did not promote growth to the same respect as individual management and higher degrees of market integration. Improved transportation, openness in trade and a common national institutional context also mattered although increased supply of agricultural products in the first phase of expansion mainly was traded on a local or regional level, rather than between regions and countries. Another factor affecting growth is the possibility of flexibility and sustainability; soils and other natural conditions limited the ways management of land could be performed both in the short and in the long run. Moreover, the differences in levels and growth rates over time for different regions/countries, and the way these changes are explained by the authors, provide a further possibility of dating and defining the elusive agricultural revolution.