The Role of Agriculture in Economic Development

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The Lessons of History

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“The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood.”

J. M. Keynes, The General Theory of Employment, Interest and Money, 1936

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Preface

The purpose of this book is to analyse the role of agriculture in the process of economic development. It is a study of economic history based on the role of agriculture in the economic development of Europe and the USA in the period 1750 – 2000.

Such a study is interesting for several reasons. Firstly, it is interesting to know how the different countries in Europe and the USA have developed differently. The agricultural developments varied from country to country, and these differences had an impact on overall economic development. It is valuable in itself to know how societies which started with overwhelmingly dominant agricultural sectors gradually developed into the modern societies we know today.

Secondly, it is important to understand and to explain why the rural sector developed differently in different countries. It is important to explain how rural development contributed to the development of the urban sector and vice versa. What were the driving forces behind the development of agriculture as a major sector in the western world? An analysis of the historical development contributes to a better understanding of the processes of economic and social development.

Thirdly, a better understanding of the processes which led to the development of today's industrialised countries can contribute to improving the economic performances of contemporary developing countries. The lessons from the past should be taken into account when developing countries choose their development strategies. The purpose of investigations into economics is to acquire an understanding of economic relationships and processes. Such knowledge makes it possible to intervene so as to achieve certain goals.

This book is divided into three parts. In the first part, containing Chapters 1 and 2, there is a description of the general economic trends in the western world from 1750 to 2000. The two chapters focus on population, economic growth and international trade. The data used draws heavily on the comprehensive studies of Angus Maddison who has made estimates of populations and gross domestic products over several centuries for most countries in the world.

The second part of the book analyses agricultural development in the western world. Agricultural development started in the north-western part of Europe, so the focus is on that area. From the second half of the eighteenth century there was a radical change in farming that started a development which has totally changed European society. What were the causes, what were the initiatives, and what were the consequences? The essential elements of agricultural history in the period 1700 - 2000 are discussed in the Chapters 3 - 8.

The third part of the book deals with the lessons that can be learnt from studying the agricultural and economic development of the past. The framework of a development theory is set-out in Chapter 9. Economic development depends on the amount and quality of the resources, technological innovations, institutional changes and attitudes. Chapter 10 covering the period 1750 – 1850 shows how the agricultural sector of the time became the engine of growth, once technological changes and agricultural reforms had taken place. Chapter 11 covers the period 1850 – 1914, when economic integration between the rural and the urban sectors and between countries accelerated. Economic integration was achieved through the establishment of markets and the necessary economic environment. Up to 1914 agriculture played a major role in the development process, but this crucial role was not maintained after the First World War. Chapter 12 shows how the agricultural sector became heavily dependent on public policy interventions in the period 1914 - 2000.

When decolonisation started after the Second World War, the developing countries had to choose development strategies. They did not follow the development pattern of the western world. Why did they choose the strategies they did, and why were their choices of development strategy not successful? These questions are considered in Chapter 13.

In Chapter 14 the lessons of history are summarised. To get a more detailed summary of the main topics and arguments of this book, the reader is recommended to start by devoting some time to the last chapter.

The writing of a book takes time, and during the process several persons are involved. I have discussed parts of the book with many of my students and with colleagues, and I would like to thank them for their inspiration and for suggestions. In particular, the Director General of the Institute of Food and Resource Economics at KVL (The Royal Danish Agricultural University) in Copenhagen, Søren E. Frandsen, has followed the work with great interest. The original manuscript was written in English, but I am grateful to Steven Harris who revised the text so that it corresponds to one written by a native English speaking person. Finally, but not least, I would like to thank Lisbeth Balle, who has with great

patience transcribed my hand written notes and prepared the figures and tables in this final edition, and all the previous drafts, which preceded it.

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Copenhagen,
August 2006

I General economic trends

1. Economic development in the modern era

1.1 The modern era started around 1750

The start of the modern era is often dated to around 1750. Around that time several important changes occurred. Firstly, the population started to increase at a higher rate than previously. Secondly, the average gross domestic product per capita also seems to have increased somewhat more rapidly than previously. Thirdly, at that time some important structural changes started to have an impact on society.

It is true that some parts of the world did experience development and progress before 1750. In Europe, for example, there was development before 1750, but the rate of change was slower. Around 1750 there was a significant increase in the rate of population growth, and there was some increase in the rate of growth of the gross domestic product per capita. Most importantly, the period around 1750 saw the start of changes in social and economic structures, especially in Europe.

The period around 1750 saw the start of a process which both continued and accelerated. It was a time of important technological and institutional change. It was also the Age of Enlightenment, when new ideas had an important impact on the development of modern societies. Since 1750 societies have gradually been transformed, first from agrarian societies to industrial societies, and then from industrial to service societies.

The structural changes at the start of the modern era began in Britain, which was the first country to industrialise. At the same time, there were also important changes in agriculture. Again Britain was the country where new technological and institutional changes in agriculture took root at an early stage.

The agricultural changes and the start of industrialisation in the eighteenth century are often called the agricultural revolution and the industrial revolution, respectively. It is true that industrial and agricultural changes led to a radical change to the previous way of life, but it is problematic to speak about an agricultural revolution and an industrial revolution.

The term ‘revolution’ usually refers to a sudden and unexpected event with rapid, dramatic and far-reaching consequences. As will be seen in the following, there was some economic development prior to 1750, but it took a long time to realise the industrialisation and transformation of the agricultural sector.

The initiation of the modern era was dependent on technological and institutional changes, and these took place over a long period. Historical research shows that "the technological changes around 1750 were the completion of tendencies, which had been significantly evident since Leonardo da Vinci" (Usher, 1970). The institutional changes were to a large extent influenced by a new prevailing ideology of liberalism. Also here it took some time before the new ideals were put into practice.

It is the purpose of this chapter to give a short overview of economic developments in Europe, the USA and other parts of the world since 1500, with a special focus on developments since the start of the modern era. At the end of the chapter it is shown how a series of interrelated factors influenced this development.

Clearly, the analysis of economic history is more difficult if the necessary data are not available. The further back one goes, the more difficult it is to get reliable statistics. Fortunately, statistical data collection has improved significantly in recent decades, thanks to the work of Angus Maddison. He has collected and estimated data for the population and the gross domestic product of different countries and different parts of the world. He has estimated data for the selected years 1500, 1600, 1700, 1820, and has provided annual data for the period 1820-2001 (Maddison, 2003).

Gross domestic product per capita may be useful for comparative purposes, but there are some problems which should be considered before the data are applied.

1.2 The data available for comparison

Economic activity in a society is measured by the gross domestic product (GDP) in fixed prices, and the GDP per capita is often used as a measure of the average living standard. There is a series of difficulties in constructing GDP data which are used for cross-section analyses, such as comparisons of GDP in different countries at a given moment, and time series analyses which compare the GDP at different times in a given country.

Comparative analyses between countries can only be made when the GDP is calculated in the same currency. The exchange rate used for conversion to the same currency should be an equilibrium exchange rate, which is not necessarily the same as the present exchange rate because a currency may be overvalued or undervalued. Even where such an equilibrium exchange rate has been found, there is the problem of different price structures. The purchasing power of an equal amount of income in two countries is not able to buy the same amount of goods, regardless of how the money is spent on different goods and services. In some countries, food is relatively expensive, in other countries industrial products are expensive, and in a third group of countries services such as housing, are expensive. When a country is moving from a low income level to a higher income level, productivity increases will often be highest in the agricultural sector, followed by lower productivity increases in manufacturing, and the lowest productivity increases in the service sector. With this pattern, at a given moment services will be relatively cheap in lower income countries with low wages and relatively expensive in high income countries. Therefore, GDP estimates should be based on the concept of purchasing power parity (PPP), which means that the same GDP in two countries should be able to buy the same basket of goods and services in each of the two countries.

There are also problems related to inter-temporal comparisons of data within a given country. It is well-known that inflation rates vary over time, and may replaced by periods of deflation. Comparisons can only be made when the GDP is calculated in fixed prices. A more serious problem relates to the fact that the assortment of products available also changes through time. Many of the products produced today did not exist in the past, and even if they did exist, they would typically be of a lower quality. If the price of a product has increased, this need not necessarily be due only to inflation; it could partly be a result of the extra costs associated with the production of goods of higher quality.

Maddison has tried to eliminate these problems in his calculations, as far as possible. Of course, the reliability of the estimated data can be disputed, especially the older data and data relating to countries outside Europe and North America, where it may be more difficult to find sources. However, Maddison's work provides us with the most comprehensive and most reliable data set.

1.3 Population growth from 1500 to 2000

Table 1.1 shows the population growth in the different parts of the world from 1500 onwards. The total population of the world grew during the period 1500-1700. In the sixteenth century, the increase was approximately 25 per cent, whereas the increase in the seventeenth century was only about 10 per cent. In the following 120 years, from

1700-1820, the population increased by about 75 per cent. This pattern is found in most regions and certainly in the two regions with the largest populations, namely Asia and Western Europe.

Table 1.1: The population of the world 1500-1820

	1500	1600	1700	1820	1913	2001
Western Europe[1]	48.2	62.6	68.8	114.6	228.0	325.1
Southern Europe[2]	8.8	10.8	12.3	18.5	33.0	67.0
Eastern Europe	13.5	17.0	18.8	36.5	79.5	120.9
Former USSR	17.0	20.7	26.6	54.8	156.2	290.3
USA	2.0	1.5	1.0	10.0	97.6	285.0
Latin America	17.5	8.6	12.1	21.7	80.9	531.2
Asia	283.8	378.5	401.8	679.4	977.4	3653.5
Africa	46.6	55.3	61.1	74.2	124.7	821.1
World	438.4	556.1	603.5	1041.8	1791.1	6149.0

[1] The EU(15) except Spain, Portugal, Greece and Luxembourg plus Norway and Switzerland
[2] Spain, Portugal and Greece
Source: Maddison (2003)

The conclusion is that the population grew before 1700, but that the rate of increase accelerated significantly after 1700. This sharp increase in population growth seems to have been world-wide. From 1700 to 1820, the total world population increased by 438 million. This was followed by an increase of 750 millions in the period 1820-1913, and an increase of 5.3 billion from 1913 to the present.

From 1820 to 1913, the rate of population growth increased in all regions of the world, except Asia, compared to the period 1700-1820. From 1820 to 1913, the population of Europe doubled, while the population increased three times in the former USSR, ten times in the USA and four times in Latin America. The population increase in Asia was much lower, less than 50 percent.

This pattern changed dramatically during the last period, 1913-2001. In the European countries, the former USSR and the USA, the population increased from 0.6 to 1.1 billions, whereas the population in Latin America, Asia and Africa increased from 1.2 to 5.0 billions. In the twentieth century, high economic growth in the developed countries was combined with a decrease in the rate of population growth. In the developing world, low economic growth was combined with an increase in rate of population growth.

1.4 Economic development from 1500 to 1820

Table 1.2 displays the gross domestic product (GDP) per capita in the world for the period 1500-1820. The estimates show no growth per capita in Asia and Africa during these three centuries. In 1500, Western Europe had a GDP per capita which was around 40 per cent higher than in China, India and the other countries in Asia. This disparity increased during the period 1500-1820 because the GDP per capita in Europe increased gradually during the period, while it was stagnant in Asia. GDP per capita in Western Europe grew 30 per cent during the period 1500-1700, and a further 20 per cent during the period 1700-1820, corresponding to a growth of 32 per cent over two centuries.

The comparison between Western Europe and Asia during the period 1500-1820 is interesting. In both parts of the world, the population increase followed the same pattern, see Table 1.1. During the sixteenth century, the population increase was higher than in the seventeenth century, and then there was a significant increase in the growth rate in the period 1700-1820.

Table 1.2: The gross domestic product per capita in the world 1500-1820. Measured in 1990 US$[1]

	1500	1600	1700	1820
Western Europe[2]	798	908	1033	1245
Spain	661	853	853	1008
Eastern Europe	496	548	606	683
Former USSR	499	552	610	688
USA	400	400	527	1257
Latin America	416	438	527	692
Asia except Japan	572	575	571	577
Africa	414	422	421	420
World	566	595	615	667

[1] 1990 international Geary-Khamis dollars. This indicator is based on fixed 1990 prices and exchange rates which are calculated according to purchase power parity.
[2] Including the same countries as in Table 1.1
Source: See Table 1.1

This pattern of population increase was not matched by a similar increase in GDP. In Asia, GDP increased at the same rate as the population so that GDP per capita was stagnant. In Western Europe the growth of GDP was much stronger than the population growth, and GDP per capita increased approximately 50 per cent from 1500 to 1820.