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ECONOMIC DEVELOPMENT IN AFRICA AND EUROPE: RECIPROCAL COMPARISONS

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Abstract: Recent advances in historical national accounting have allowed for global comparisons of GDP per capita across space and time. Critics have argued that GDP per capita fails to capture adequately the effects of new technology on living standards, and have developed alternative measures such as the human development index (HDI). Whilst recognising that this provides an appropriate measure for assessing levels of welfare, we argue that GDP per capita remains a more appropriate measure for assessing development potential, encompassing production as well as consumption. Twentieth-century Africa and pre-industrial Europe are used to show how such data can guide reciprocal comparisons to provide insights into the process of development on both continents.

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1. INTRODUCTION

Quantitative comparisons in economic history based on national accounts were once largely limited to a small sample of countries over relatively short periods of time (Maddison, 1964; 1991). However, recent advances in historical national accounting for a wider variety of places over longer historical periods have provided the foundation for a new body of comparative research on regions sometimes far distant in space and time (Maddison, 2001; 2010; Broadberry, 2014). This paper uses twentieth-century Africa and pre-industrial Europe to show how GDP per capita data can be used to guide reciprocal comparisons between regions to provide insights into the process of development.

However, comparisons between these two regions using GDP per capita have often been criticized on the grounds that they fail to capture the gains offered by new technology as well as improved health and education outcomes (Jerven, 2012). One response has been the use of alternative measures of economic performance, such as the human development index (HDI), which includes data on life expectancy and educational attainments as well as per capita income. We argue in this paper that the HDI is an appropriate measure for comparing levels of consumption, but that for researchers interested in the level of economic development, encompassing production as well as consumption, GDP per capita provides a better guide for comparisons. This is demonstrated using data on the share of the labour force in agriculture, which also suggests that many African countries today are at a similar level of development as Europe in the medieval and early modern periods.

New work in historical national accounting illuminates the long process of economic development in Europe, demonstrating the importance of specialisation for ending growth

reversals and making the transition to sustained economic growth. A necessary condition for people to leave the land permanently is a guarantee of food security in bad times as well as good times, and this aspect of economic development provides an illustration of how the historical national accounting approach can provide the basis for genuinely reciprocal comparisons between Africa and Europe, using each continent as a mirror for the other (Fenoaltea, 1999). Looking first at Africa in a European mirror, the focus on the contribution of the welfare system to food security and structural change potentially sheds new light on the low levels of specialisation and economic development in many African economies. Turning to Europe in an African mirror, survey evidence from Africa today can be used to understand the institutional changes that underpinned earlier economic development, where historical actors can no longer be questioned.

The paper proceeds as follows. The next section discusses the recent advances in historical national accounting and presents data on Europe since 1086, and Africa since 1700. Section 3 then confronts the criticisms levelled against comparisons between countries widely separated in space and time, acknowledging that whilst the HDI measure favoured by critics of historical national accounting may provide an appropriate guide to comparisons of overall welfare, GDP per capita provides an appropriate guide to reciprocal comparisons for questions of economic development encompassing production as well as consumption. Section 4 elaborates further on this point by examining structural change as measured by the agricultural share of the labour force. Section 5 explores the implications for our understanding of African economic development using a European mirror, while section 6 draws out the implications for European development using an African mirror. Section 7 concludes.

2. RECENT ADVANCES IN HISTORICAL NATIONAL ACCOUNTING

Until recently, most historical comparisons using national accounts covered a limited range of countries and a limited span of time. In his early work, Maddison (1964; 1982, 1991) focused on rich, developed countries during the period since 1870, before extending the coverage to more countries and a much longer span of time (Maddison, 1995; 2001; 2010). Maddison (1995) for the first time reported levels of GDP per capita in 1990 international dollars for a wide range of countries over the last two millennia. For each country, GDP in 1990 was measured in local currency but converted to 1990 international dollars by comparing local prices with dollar prices in the same year, and using a weighting scheme based on international rather than just US patterns of consumption. The purchasing power parities used to make the comparisons were drawn from detailed surveys conducted by the Income Comparisons Project (ICP), which was taken over in the 1980s by the United Nations/EUROSTSAT/OECD.

The use of 1990 international dollars for historical comparisons of GDP per capita has now become standard for all times and places, partly as an accidental by-product of controversy over later rounds of ICP, which produced some severe anomalies, particularly with respect to India and China (World Bank, 2008). One feature of this stability in the benchmark over a long period of time is a familiarity in the economic history community with the "bare bones subsistence" level of GDP per capita at $400. This arose from the fact that the World Bank in 1990 used the figure of a dollar a day as the poverty line for an individual. If everybody lived in poverty, therefore, GDP per capita would be $365. But since even the poorest economies have a small elite with much higher levels of income, Maddison hypothesised that the minimum GDP per capita that could be observed would be around $400.

2.1 European Growth and Development, 1270-2008

Although Maddison's (2010) dataset represents a major breakthrough for quantification of long run economic growth, it contains a large amount of "guesstimation" for the pre-1870 period, with a number of observations set at or close to $400 in 1990 international prices, or at "bare bones subsistence". Also, Maddison provided his conjectural estimates only for a small number of benchmark years, switching to annual data only after 1870.

Stimulated by Maddison's work, economic historians have recently begun to produce estimates of per capita income for the pre-1870 period in a national accounting framework, based on hard data, and a firmer picture has begun to emerge of the contours of long run growth and development in Europe. This is possible because parts of medieval and early modern Europe were much more literate and numerate than is often thought, and left behind a wealth of data in documents such as government accounts, customs accounts, poll tax returns, parish registers, city records, trading company records, hospital and educational establishment records, manorial accounts, probate inventories, farm accounts, tithe files and other records of religious institutions. With a national accounting framework and careful cross-checking, it is possible to reconstruct population and GDP back to the medieval period.

For some European countries, abundant quantitative information has survived, so that historical national accounts can be constructed on a sectoral basis in great detail. Britain and Holland have very rich data, with historical national accountants able to build on decades of detailed data processing by generations of scholars as well as well-stocked archives (Broadberry, Campbell, Klein, Overton and van Leeuwen, 2014; van Zanden and van Leeuwen, 2012). For other countries, where information is more limited, or where there has

been less processing of existing data, Malanima (2011), Álvarez-Nogal and Prados de la Escosura (2013) and others have developed a short-cut method for reconstructing GDP. For agriculture, the demand for food is derived from estimates of population, real wages and the relative price of food, with adjustments for foreign trade. For non-agriculture, the short-cut method uses data on the urbanization rate, again with adjustments for specific factors such as agro-towns and rural proto-industry.

The new European estimates for the pre-1870 period, combined in Table 1 with Maddison's estimates for the post-1870 period, revise upwards the level of per capita GDP in the middle ages. Medieval western Europe was substantially richer than Maddison thought, and subsequent growth therefore more gradual. The British data, taken from Broadberry, Campbell, Klein, Overton and van Leeuwen (2014) for the period 1270-1870, cover the territory of England before 1700 and Great Britain between 1700 and 1870,before linking up with Maddison's (2010) estimates for the United Kingdom. The Dutch data for the period 1348-1807 from van Zanden and van Leeuwen (2012) cover the territory of Holland and link up with Maddison's (2010) data for the Netherlands. The Italian data for the period 1300-1860 from Malanima (2011) cover central and northern Italy, before linking up with Maddison's (2010) for the whole of Italy. The data of Álvarez-Nogal and Prados de la Escosura (2013) for the period 1270-1850 cover the territory of modern Spain, and again lonk uo with Maddison's estimates for later years. The data in Table 1 support the notion of a reversal of fortunes between the North Sea area and Mediterranean Europe, sometimes known as the Little Divergence (Broadberry, 2014). Before the Black Death in 1348, per capita incomes were substantially higher in Italy and Spain than in England and Holland, whereas by 1750 on the eve of the Industrial Revolution, per capita incomes were substantially higher in Great Britain and the Netherlands than in Italy and Spain.

2.2 African growth and development, 1700-2008

Maddison's (2010) dataset included very few observations for Africa before 1950. However, extensive colonial records are available for this period, and have recently been utilised to produce estimates of GDP per capita reaching back to 1870 for most African countries and further in a couple of cases. The most ambitious study is Fourie and van Zanden's (2013) paper on South African GDP, which shows much higher per capita GDP levels in the pre-1870 period than suggested by Maddison (2010). Although Fourie and van Zanden's estimates are only for the Cape Colony, they do not differ by very much from Maddison's estimates for South Africa as a whole between 1870 and 1913. Much like in medieval Europe, these estimates revise earlier perceptions of the Cape Colony as largely stagnant, at close to subsistence level, until the discovery of minerals in the nineteenth century. However, the Cape economy was subject to reversals, particularly in the 1710s, the 1780s, and through the early nineteenth century. These crises were linked to external factors interfering with international trade, such as warfare in the 1710s and 1780s, and also to internal factors such as a smallpox epidemic in the 1710s (Fourie and van Zanden, 2013). Manning's (1982) figures on per capita income growth in the Kingdom of Dahomey, based on trade data, are also consistent with this picture of episodic growth.

This pattern of booms and busts, largely linked to international trade, is also apparent from the "indirect" estimates of GDP per capita produced by Prados de la Escosura (2012) for the same sample of countries as Maddison (2010) for the period 1870-1950. Prados de la Escosura uses an association between per capita GDP and the per capita income terms of trade, plus other control variables during the post-1950 period, to infer GDP per capita for earlier years. This is done by applying the parameter values taken from a pooled regression

with nine cross-sections between 1950 and 1990 to the historical values of the right hand side variables. The key right hand side variable is the income terms of trade per capita, obtained by deflating African countries' per capita nominal export values with the industrial countries' export unit values. The other variables control for location (coastal or land-locked), resource endowments, colonial legacy and region. Prados de la Escosura's estimates exhibit per capita GDP growth during the late nineteenth and early twentieth centuries, a period when the production of cash crops for export was expanding rapidly under favourable terms of trade (Havinden and Meredith, 1996; Hopkins, 1973). Many countries then experienced a sharp reversal during the Great Depression of the 1930s, when export prices declined. In Tanzania, this reversal was sufficiently severe that the level of per capita income achieved in 1925 was not reached again until after World War II.

Table 2 provides a summary of these new data for the pre-1950 period, linked to Maddison's (2010) estimates for the period 1950-2008. Although it has long been common for economists to point to shortcomings in the national accounts produced by African statistical offices, Jerven (2013; 2014) has recently argued that the errors are so large that they systematically distort the picture of African growth and cannot be used to support the common perception of poor economic performance in Africa since World War II. Since these data form the basis of Maddison's (2010) series of GDP per capita used in this study, a consideration of Jerven's arguments is called for. Although many of the issues raised by Jerven concerning the calculation of a GDP series for a particular country are not unique to Africa, and apply equally to other regions, Jerven (2014) particularly emphasises disagreement between GDP series reported by different international datasets, taken from national statistical offices (official series), the Maddison dataset, the Penn World Tables (PWT) and the World bank's World Development Indicators (WDI). However, the

differences in long run trends reported by these agencies are much smaller than the differences in annual growth rates that Jerven emphasises. Also, the different agencies clearly agree on country rankings of performances over the medium run, as can be seen clearly in Table 3. As always, criticism of data quality needs to be accompanied by a careful assessment of the purposes for which the data are being used. If the question concerns the performance of African economies over periods of more than a year or two and if account is taken of levels and growth rates together, then Jerven's bleak assessment of the state of African national accounts since 1950 loses much of its force.

3. COMPARING EUROPE AND AFRICA

Having assembled data on GDP per capita in Europe and Africa in the same units, 1990 international dollars, in Tables 1 and 2, it is natural to compare the two continents. The most obvious way to do that is to compare European and African economies at the same point in time. In 2008, the scale of the per capita income difference between the two continents was very large. Comparing the Netherlands with Tanzania, the scale of the difference was more than 33 to 1. Even comparing the richest African country in the sample, South Africa with the poorest European country, Spain, the difference was more than 4 to 1. An alternative way of comparing two economies is at the same level of development, an approach pioneered by Chenery and Syrquin (1975) in the context of postwar global development and applied to nineteenth century Europe by Crafts (1984), who used it to highlight the distinctive features of British industrialisation. Comparisons at the same level of GDP per capita suggest that the poorer African economies in 2008 were at the same level as England during the late medieval period, 1086-1348. Even moderately well-off African countries in 2008 such as Ghana were at the same level as Britain in 1700, while the richest sub-Saharan countries such as South Africa were still only at the level of the United Kingdom around 1913.

Findings such as these have prompted criticism of comparative research based on national accounting measures (Austin, 2007; Jerven, 2012). This has led to the creation of the human development index (HDI) as an alternative to GDP per capita for comparing economies at different levels of development. After all, medieval Europe did not have access to modern technologies which are available to at least some in all African countries today, such as mobile phones, motor vehicles and effective medicines. Since the prices of these goods in medieval times were therefore effectively infinite, consumers with $400 in 1990 prices today have a wider range of options that consumers in the past. Partly as a result of modern technology, other welfare indicators, such as life expectancy and educational attainments, show much smaller gaps between developed and developing countries.

3.2 The Human Development Index

The HDI is constructed as an unweighted arithmetic average of indices of educational attainments, life expectancy and per capita GDP, with each component of the index transformed linearly to reflect its asymptotic limits. HDI measures from Crafts (2002) are provided in Table 4. They show that, with the exception of South Africa, sub-Saharan Africa at the end of the twentieth century was achieving levels of human development at levels seen in Western European during the late nineteenth century, while South Africa in 1999 was achieving levels of human development experienced by the richest parts of Western Europe in the interwar period. As noted by Crafts (2002), the HDI measure thus provides a much more optimistic assessment of the performance of developing countries relative to OECD countries than GDP per capita.

Prados de la Escosura (2013; 2014) has proposed an alternative measure of human development, which he calls the Historical Index of Human Development (HIHD). This involves taking the geometric rather than arithmetic mean of the component sub-indices and transforming each sub-index in a non-linear way. He also finds that most sub-Saharan African countries today have human development levels at about the same as the weighted average for today's OECD economies in 1890, consistent with the findings of Crafts (2002).

If a researcher is interested in how standards of living compare between sub-Saharan Africa today and Europe in the past, then the relevant point of comparison is with Europe in the late nineteenth century, as suggested by the human development measures. However, if a researcher is interested in issues of economic development, encompassing production as well as consumption, GDP per capita provides a better guide for comparisons. This will become more apparent in the next section, where it will be shown that the share of the labour force in agriculture also suggests that many African countries today are at a similar level of development as Europe in the medieval and early modern periods.

4. STRUCTURAL CHANGE AND ECONOMIC DEVELOPMENT

By the nineteenth century, many European economies were much more diversified than most African economies today, which have economic structures more in line with those of Europe in the pre-industrial period. Table 5 gives the share of the labour force of selected European countries since the medieval period. Rising per capita incomes were strongly associated with declining shares of labour in agriculture. The growth of specialized industrial and service sectors can be seen to have proceeded faster in Holland and Britain than in the rest of Europe. By 1600, the release of labour from agriculture had proceeded further in the Netherlands than in the rest of Europe, as the Dutch economy relied increasingly on imports of basic

agricultural products such as grain and paid for them with exports of higher value added products (de Vries and van der Woude, 1997). By 1700, the share of the labour force engaged in agriculture was even smaller in England, where a highly commercialized agriculture produced enough grain to feed the population without recourse to substantial imports until well into the nineteenth century (Deane and Cole, 1967; Crafts, 1985). The share of the labour force in agriculture remained substantially higher in the rest of Europe well into the twentieth century.

Data on the agricultural share of the labour force in African countries are shown in Table 6. As in Europe, there is a general negative relationship between the level of per capita income and the share of the labour force in agriculture, although it seems to be looser than in Europe. Thus the countries in the poorest category of income, Malawi and Tanzania, clearly have higher shares of labour in agriculture than the countries in the richest category, South Africa and Botswana. However, in the intermediate categories, the relationship is not monotonic. Thus, for example, Kenya has a lower agricultural share than Nigeria, despite being poorer.

Comparing tables 5 and 6, it is clear that agriculture's share of the labour force in African countries today is in most cases still much higher than in late nineteenth century Europe. By contrast, the human development index in Table 4 suggests that welfare levels were similar in these two cases. If the question of interest is structural change and economic development, then human development measures will not be helpful in guiding researchers to the appropriate period of European economic history for comparison with Africa today. By contrast, Tables 1 and 2 suggest that the GDP per capita measures do indeed capture the relevant dates for comparison. GDP per capita and the share of the labour force in agriculture

both suggest Europe before 1700 as an appropriate comparator for most Africa This has important implications for reciprocal comparisons between the two continents.

5. RECIPROCAL COMPARISON (1): AFRICA IN A EUROPEAN MIRROR

Figure 1 plots the annual data underlying Table 1, but with the data for England spliced to the data for Great Britain in 1700, and the data for Holland spliced to the data for the Netherlands in 1807, so as to provide continuous series within constant boundaries. For Italy and Spain, there was a clear alternation of periods of positive and negative growth, with growth booms typically followed by growth reversals, leaving little or no progress in the level of per capita incomes over the long run. Per capita GDP therefore fluctuated without trend between 1270 and 1870 in Italy and Spain, consistent with the phenomenon labelled by Jones (1993: 1) "growth recurring". For the cases of Great Britain and the Netherlands, however, although there were alternating periods of positive and negative growth until the eighteenth century, there was also a clear upward trend, with the gains following the Black Death being retained, and the growth reversals eventually disappearing with the transition to modern economic growth. One way to think about Europe's Little Divergence is therefore not so much the beginning of growth, but rather the dampening and eventual elimination of growth reversals. This underlines the point that low per capita incomes in pre-industrial economies are not due to persistent failure, but rather to inconsistency, so that the fruits of short run success are quickly lost.

An important difference between those economies experiencing long run sustained growth and those stagnating over the long run was structural change. In this context, it is worth emphasising that there are two ways to achieve diversification at the level of the aggregate economy. One possibility is for individuals to perform multiple activities, dividing

their time between working on the land and other occupations. This leads to a peasant economy with some proto-industry, but such economies tend to remain subject to growth reversals. A second possibility is for each individual to specialise in a single sector, with those remaining on the land becoming large-scale farmers, while those who leave the land become specialised workers in industry or services. This tends to result in rising productivity and a greater resilience to growth reversals. We would characterise Italy and Spain as remaining in the diversified peasant economy category experiencing growth reversals until the late nineteenth century and Britain and Holland as moving towards the diversified but specialised category from the fourteenth century. Britain pioneered the transition to sustained economic growth during the Industrial Revolution, followed by the Netherlands and other northwest European nations during the nineteenth century.

5.1 Institutional change and diversification

An important question raised by this approach is how the North Sea area economies came to have incentive structures which encouraged individuals to take the risk of leaving the land permanently and engage in specialised non-agricultural production. One issue clearly concerns food security. Peasants leaving the land must have been confident that they could maintain access to reliable supplies of food through markets in good times, and through a system of welfare support in bad times.

Dealing first with the issue of market integration, a number of authors have recently investigated the degree of grain market integration in different parts of Europe during the late medieval and early modern periods. Epstein (2000: 147-168) was interested in this because he believed that the continued fragmentation of states in central and north Italy after the Black Death was responsible for the subsequent relative economic decline of the region,

while he saw the emergence of strong, centralised states in northwest Europe as leading to greater grain market integration and a reduction in grain price volatility. Although Epstein lacked the empirical evidence to fully substantiate his case, the greater degree of grain market integration in the North Sea area has been borne out by recent empirical work by others on the degree of grain market integration in different parts of Europe. Chilosi, Murphy, Studer and Tunçer (2013: 58) analyse grain prices in one hundred European cities during the period 1620-1913, measuring the degree of market integration by some simple descriptive statistics, the coefficient of variation to capture price convergence and the correlation coefficient to capture market efficiency. They find that both measures suggest a gradual process of increasing integration of grain markets across Europe between the early seventeenth and early twentieth centuries. They also find interesting regional differences: the average coefficient of variation of grain prices was substantially lower in northwestern Europe than in the rest of the continent, while the correlation coefficient was substantially higher. They thus describe northwestern Europe as standing out as "a beacon of integration already in 1620-1789", with grain prices moving closely together across the region and exhibiting low levels of volatility. Using a larger dataset covering more cities and extending back to the fourteenth century, Federico, Schulze and Volckart (2014) identify an earlier period of increasing grain market integration in the fifteenth and sixteenth centuries, again led by northwestern Europe.

Individuals leaving the land permanently to work in non-agricultural occupations thus had good access to food supplies via the market in northwestern Europe as early as the late medieval period. However, on its own, this would not have been sufficient to guarantee food security in the circumstances of loss of income for a sustained period. What was needed here was a system of welfare support. Solar (1995: 9) emphasises the insurance function provided by the English system of poor relief from the early modern period, suggesting that "by

providing protection form destitution, (it) made obtaining access to land less urgent." Solar (1995: 3-7) points to three distinctive features of the English system compared to continental Europe: (1) its uniformity and comprehensiveness; (2) its source of finance from a local tax on income from property; and (3) its relative certainty and generosity. Solar focuses on the formalised system of poor relief which originated in the Elizabethan period, but this formal system had its origins in earlier developments at the local level, reaching back to the late medieval period (Dyer, 2012) as well as the early Tudor period (Slack, 1988; Hindle, 2004; McIntosh, 2012). This argument is clearly helpful in understanding the high degree of structural change in the English economy, but needs to be supplemented by a wider consideration of all forms of formalised charity if it is to shed light on the even earlier shift of labour out of agriculture in Holland. A recent paper by van Bavel and Rijpma (2014) sheds light on this, by collecting data on all forms of formalised relief in England, the Netherlands and central and northern Italy. They find that the Netherlands spent an even higher share of GDP on formalised relief than England, which spent a higher share than Italy.

5.2 Implications for African development

The above focus on the contribution of the welfare system to food security and structural change in Europe potentially sheds new light on the varying levels of specialisation, and hence levels of development, in African economies. South Africa's early economic growth was linked to resource exports – principally, gold - but from the 1920s it managed to diversify to such an extent that manufacturing had become the largest sector of the economy by the 1970s (Feinstein 2005). The early phases of South African industrialization were accompanied by the rise of the welfare state, introduced in the late 1920s to help resolve the growing 'poor white' problem (Seekings, 2007). Fourie (2007) looks to the 1920s to develop lessons for poverty reduction in South Africa today. He argues that while the policies of the

South African government during this period did not reduce white poverty, they ‘did alleviate poverty for some of the poorest in the cities’ and that the ‘improvement in education and health for the poorest of the poor’ increased the gains of more rapid economic growth from the 1930s and 1940s. More recently, ‘the rapid expansion of the social grant system since 2002 has been a very effective weapon in the fight against poverty’.

Though restricted in its early years only to the white and coloured population, the approach taken by South Africa stands in marked contrast to that of colonial governments elsewhere in the continent which did not provide the same types of security. Operating with limited resources, colonial governments took on a minimalist role, focusing their efforts on maintaining order and building infrastructure links key to the growth of export production. Labour migration was encouraged, as it was believed that in times of crisis unemployed Africans would simply return to their rural homes and make few demands on an under-resourced state. The Zambian Copperbelt provides a key example. Like South Africa, Zambia’s relatively high level of industrialization in the 1960s was linked to the success of the mining industry. Unlike South Africa, however, the urban sector was not resilient to crisis. This was partly the result of colonial labour policies. When copper prices fell in the early 1930s, there were token efforts to assist white miners who found themselves unemployed through the establishment of work camps after initial efforts to resolve the crisis through the repatriation of white workers failed. Little or no resources were devoted to the thousands of African mineworkers who, it was assumed, could ‘return to their villages and support themselves in that manner of life to which they are most accustomed’, as one government committee put it (quoted in Gardner, 2012: 137).

The assumptions which informed policy in the 1930s had echoes later on. During the downturn which enveloped much of the continent in the 1980s, progress towards structural change was stalled and even reversed in some cases, in part owing to declining security and the withdrawal of state action in providing for the poor. Zambia, for example, with a share of 7.8 per cent in 2010, is the only country listed in Table 6 where the agricultural share of the labour force actually increased from the 1960s to 2010. The rising share of the labour force in agriculture reflects the decline of the copper mining industry. Production declined in terms of both volume and value between the 1960s and the 1990s (Ferguson, 1999: 7). With the decline of the urban economy, the rural share of the population increased in the 1980s and 1990s (Loxley 1990; World Bank 2013). In other countries, household income surveys showed that even Africans who were earning some income from wages or commerce devoted energy to subsistence production (Sahn and Sarris, 1991).

6. RECIPROCAL COMPARISON (2): EUROPE IN AN AFRICAN MIRROR

There remains much we do not know about the nature of this transition to sustained growth in Europe – in particular, which institutional changes were most important in providing sufficient security for individuals to specialise. Studies of institutions in Europe have tended, owing largely to the nature of surviving sources, to focus on politics at the macro level rather than individual choices at the micro level (North and Weingast, 1989). This section will use evidence from studies of Africa – particularly, first-hand accounts from surveys – to support Solar's hypothesis about the importance of the English poor laws. There are precedents for the use of evidence from development research to fill in gaps in our knowledge of economic history. For example, recent studies of per capita calorie consumption (an important indicator of living standards) in pre-industrial Europe have used evidence from modern developing countries to estimate the number of calories needed to survive (Livi-Bacci, 1991; Allen,

2009; Humphries, 2012: 6-11), while other studies have made use of estimates of income and price elasticities of demand from later developing countries to work out food consumption trends in pre-industrial Europe (Álvarez-Nogal and Prados de la Escosura, 2013; Broadberry. Custodis and Gupta, 2014: Kelly and Ó Gráda, 2013: 1139). This section argues that similar insights into people's responses to institutional change can be gained by looking at survey and experimental data.

The following offers some tentative conclusions based on data from Afrobarometer, a cross-national survey undertaken across a growing number of African countries and repeated at regular intervals. An early briefing paper on the results of the first round of surveys, completed in 2001, described the project as 'a pioneering effort to systematically measure public opinion in a dozen African countries using survey research methods' (Afrobarometer 2002). Since then, five rounds of the surveys have been completed, providing a view into the responses of individuals to economic and political changes across the first decade of the twenty-first century. Each country uses a clustered, stratified, multi-stage, area probability sample, usually of 1,200 adults, but with a larger sample size of 2,400 in larger countries such as South Africa and Nigeria. The survey is extensive, and asks a series of common questions about the current economic and social circumstances of subjects as well as their attitudes to government and politics. The results have been widely used in political science, economics and development research. Sacks and Levi (2010: 2326) argue that one of the virtues of Afrobarometer data is that they can help 'identify how government institutions affect individual outcomes'. They have also been used to investigate the impact of historical events on current conditions – Nunn and Wantchekon (2011) make use of data from the 2005 Afrobarometer survey to examine the lasting impact of the slave trade on levels of trust.

In the current analysis, we focus on three questions from Round 5 (completed in 2011) relating to food security and the use of public services. Data on the food security of survey respondents is collected through a question asking how often, if ever, they or anyone in their household has gone without enough food in the last year. Sacks and Levi (2010) argue that the share of respondents answering 'never' from the Afrobarometer survey can provide a measure of the quality of government, as it captures the ability of institutions to provide for a basic level of social welfare in the population. The second question relates to the use of public or private institutions for law enforcement. Respondents were asked to whom they would turn if they were victims of a crime. The third question asks whether the respondent or anyone in their household receive food for children from a government-run school feeding program.

Table 7 uses the same income categories as in Table 6 to present the results. Here, 'food security' refers to the percentage of respondents who answered 'never' to the question about lack of food; police refers to the percentage who said they would call the police (as opposed to a customary court or ruler or other source of private enforcement) if they had been the victim of a crime; and 'school food programme' refers to the percentage who said that someone in their household had received food from a government-run programme. Food security, use of public law enforcement and receipt of state food aid for children were all highest at the highest level of income. At the lowest level, by contrast, 62 per cent of respondents had at some point been without enough food and only 16 per cent received public food aid. More people said they would turn to a customary ruler (40%), a street committee (4%) or their families (4%) if they had been the victim of a crime, as opposed to the police (37%).

Additional support for Solar's hypothesis can be derived from a fourth question, which was only asked in selected surveys, about the receipt of government pensions or grants. The question was asked in none of the economies in the poorest income category. Table 8 gives the results of that question by country, with countries divided by income category. At lower levels of income, very few receive any sort of grant, while this increases sharply at higher levels of income. The link with structural change is best illustrated by the case study of welfare in South Africa, discussed in the previous section.

Clearly, further research is needed to measure the importance of food security, public services and structural transformation in Africa. The aim of this section has been to show the relevance of evidence taken from surveys of developing countries to research on European countries when they were at similar levels of income. Data from broader surveys like Afrobarometer, or indeed specifically designed surveys used in other research (see, e.g., Bodea and LeBas, 2013), can provide insights into how the macro-institutional changes so widely studied in economic history influence the lives of individuals, and how individuals respond to them.

7. CONCLUSIONS

As a result of recent advances in historical national accounting, it is now possible to make comparisons of levels of economic development between regions that are far distant in space and time. Critics have argued that income measures exaggerate differences between developed and developing countries, and hence between Africa today and Europe in the past, which led to the creation of the human development index. By including factors such as life expectancy and literacy, which have improved substantially for even the poorest Africans on low incomes, the HDI narrows the differences in welfare levels between developing and

developed countries. This provides an appropriate tool of analysis if the question of interest is the comparison of levels of welfare. However, if the question of interest is economic development, encompassing production as well as consumption, comparisons using GDP per capita are more appropriate.

We believe that there is still much to be learned about the development process in both Europe historically and Africa today. Reciprocal comparisons can therefore aid our understanding of both. Examining Africa in a European mirror, our focus on the contribution of the welfare system to food security and structural change potentially sheds new light on the low levels of specialisation and development in many African countries. However, it must also be recognised that much less is known about the underlying institutional changes that provided incentives for people to give up their attachment to the land and gave them food security in bad times as well as good times. This is where examining Europe in an African mirror can help to shed light on European development, as well as vice versa. Surveys of Africans today can shed light on how individuals respond to institutional change at a micro level, rather than having to infer this from macro changes.

TABLE 1: GDP per capita levels in Europe (1990 international dollars)

	England/ GB/UK	Holland/ NL	Italy CN/ Italy	Spain
1086	754			
1270	759			957
1300	755		1,482	957
1348	777	876	1,376	1,030
1400	1,090	1,245	1,601	885
1450	1,055	1,432	1,668	889
1500	1,114	1,483	1,403	889
1570	1,143	1,783	1,337	990
1600	1,123	2,372	1,244	944
1650	1,100	2,171	1,271	820
1700	1,630	2,403	1,350	880
1750	1,710	2,440	1,403	910
1800	2,080	2,617	1,244	962
1820	2,133	1,953	1,376	1,087
1850	2,997	2,397	1,350	1,144
1870	3,996	2,757	1,499	1,207
1913	4,921	4,049	2,564	2,056
1950	6,939	5,996	3,502	2,189
1973	12,025	13,081	10,634	7,661
1990	16,430	17,262	16,313	12,055
2008	23,742	24,695	19,909	19,706

Sources: England/Great Britain/United Kingdom: England 1086-1270: Broadberry and van Leeuwen (2011); England, 1270-1700 and GB, 1700-1870: Broadberry, Campbell, Klein, Overton and van Leeuwen (2014); UK, 1870-2008: Maddison (2010). Holland/Netherlands: Holland, 1348-1807: van Zanden and van Leuwen (2012); NL, 1807-2008: Maddison (2010); Italy Central and North/Italy: Itlay CN, 1300-1860: Malanima (2011); Italy, 1860-2008: Maddison (2010); Spain: Spain, 1270-1850: Álvarez-Nogal and Prados de la Escosura (2013); Spain, 1850-2010: Maddison, 2010).

TABLE 2: Real GDP per capita in sub-Saharan Africa, 1701-2008 (1990 international dollars)

	Cape Colony/ South Africa	Ghana	Kenya	Tanzania
1701	1,703			
1750	1,692			
1790	1,011			
1820	745			
1850	654			
1870	807	474	374	330
1880	1,439	489	382	338
1890	1,148	516	396	350
1900	837	553	420	371
1910	1,500	938	419	371
1925	1,362	896	513	412
1929	1,497	959	526	379
1933	1,423	740	503	334
1938	1,956	942	570	376
1950	2,535	1,122	651	424
1973	4,175	1,397	970	593
1990	3,834	1,062	1,117	549
2008	4,793	1,650	1,098	744

Sources: Cape Colony/South Africa: Cape Colony, 1701-1910 and South Africa, 1910-2008: Fourie and van Zanden (2013); Ghana, Kenya, Tanzania: 1870-1950: Prados de la Escosura (2012: 33-34); 1950-2008: Maddison (2010).

TABLE 3: Average annual rates of GDP growth in African countries, 1966-1995

	Official series	Maddison	PWT	WDI
Botswana	11.5	10.9	9.8	11.2
Kenya	5.2	4.7	5.0	5.3
Tanzania	3.7	3.2	3.4	-n.a.
Zambia	0.9	1.1	1.6	0.9

Source: derived from Jerven (2014: 50-51).

TABLE 4: Human Development Index (HDI) across Western Europe and sub-Saharan Africa, 1870-1999

A. Western Europe

	UK	NL	Italy	Spain
1870	0.500	0.486	0.268	0.301
1913	0.644	0.649	0.485	0.421
1950	0.766	0.784	0.668	0.627
1975	0.839	0.860	0.827	0.817
1999	0.923	0.931	0.909	0.908

B. Sub-Saharan Africa

	South Africa	Botswana	Swaziland	Mozambique	Lesotho	Nigeria	Malawi
1870	--	--	--	--	--	--	--
1913	--	--	--	--	--	--	--
1950	0.479	0.253	0.241	0.175	0.273	0.194	0.161
1975	0.648	0.495	0.507	--	0.478	0.326	0.318
1999	0.702	0.577	0.583	0.323	0.541	0.455	0.397

Source: Crafts (2002: 396-398).

TABLE 5: Share of agriculture in the European labour force (%)

	England	Netherlands	Italy	France	Poland
1300	--	--	63.4	--	--
1400	57.2	--	60.9	71.4	76.4
1500	58.1	56.8	62.3	73.0	75.3
1600	--	48.7	60.4	67.8	67.4
1700	38.9	41.6	58.8	63.2	63.2
1750	36.8	42.1	58.9	61.1	59.3
1800	31.7	40.7	57.8	59.2	56.2
1870	15.3	39.4	61.0	49.8	--
1913	8.8	28.3	55.4	41.0	--
1929	6.0	20.6	46.8	35.6	65.9
1950	5.0	19.3	42.2	36.0	57.2
1973	2.9	6.1	16.4	15.7	38.7
1992	2.1	4.5	8.5	6.0	24.8

Source: Derived from Broadberry, Campbell and van Leuwen (2013); Allen (2000: 8-9); Mitchell (1998).

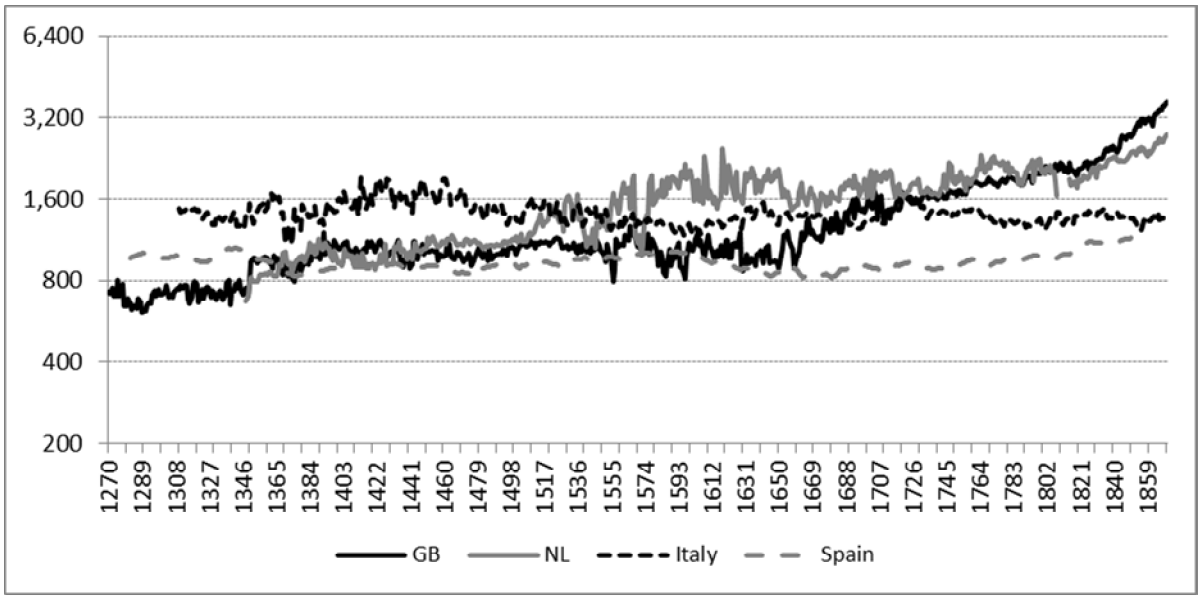
TABLE 6: Share of agriculture in the African labour force, countries grouped by per capita incomes in 2008 (%)

	<$750		$750 - $1,500			
	Malawi	Tanzania	Ethiopia	Kenya	Senegal	Zambia
1910						
1920						
1945						
1960-1965	84.4	91.7	96.2			63.2
1970	86.7	91.4	92.5	81.0	73.3	62.8
1980	87.0	87.4	89.3	78.0	70.2	68.0
1990	86.1	86.1	89.4	71.2	65.8	75.3
2000	82.3	83.5	84.9	56.1	58.3	71.6
2010	65.2	73.4	75.2	48.3	57.4	72.8

	<$1,500 - $2,000		> $2,000	
	Ghana	Nigeria	Botswana	South Africa
1910				58.7
1920				69.5
1945				48.4
1960-1965	60.7	78.1	87.4	48.8
1970	57.0	65.6	82.8	34.7
1980	56.5	64.2	59.9	26.0
1990	53.5	71.7	40.3	21.5
2000	53.6	75.0	38.3	18.7
2010	41.6	58.9	38.6	15.0

Sources: African Sector Database (de Vries et al., 2013); Mitchell (2007).

FIGURE 1: Real GDP per capita in Great Britain, Netherlands, Italy and Spain 1270-1850 (1990 international dollars, log scale)



Sources and notes: Broadberry, Campbell, Klein, Overton and van Leeuwen (2014); van Leeuwen and van Zanden (2012); Malanima (2011); Álvarez-Nogal and Prados de la Escosura (2013). The data for England have been spliced to the data for GB and the data for Holland have been spliced to the data for the Netherlands to provide continuous series within constant boundaries.

TABLE 7: Afrobarometer Survey Results by Per Capita Income Level

	< $750	$750-$1500	$1500-$2000	> $2000
Food Security	38	44	46	49
Police	37	50	45	67
School food programme	16	16	24	29

Sources and notes: Afrobarometer Round 5 results summaries for participating countries in Sub-Saharan Africa. Food Security is the percentage of respondents answering "never" to the question about whether they or anyone in their household had gone without enough food to eat during the last year. Police is the percentage who said they would call the police if they had been the victim of a crime. School Food Programme is the percentage who said that someone in their household had received food from a government-run programme.

TABLE 8: Afrobarometer Survey Results on Receipt of Government Pensions or Grants

	No	Yes	Income category	Agricultural labour force share
Kenya	94	4	$750-$1500	48.3
Uganda	96	3	$750-$1500	
Lesotho	81	19	$1500-$2000	
Botswana	71	29	> $2000	38.6
Namibia	66	33	> $2000	
South Africa	65	34	> $2000	15.0
Swaziland	52	48	> $2000	

Sources: Afrobarometer Round 5 results summaries. Agricultural labour force shares from Table 6.

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