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Part One, chapter 2

Economic development and economic growth: the poverty and imprecision of our terminology and concepts

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I. Conceptual and historiographical introduction

Economic development and economic growth are used sometimes as synonymous. The economist Arthur Lewis once noted: economic growth means growth of output per head of population, which is so long a phrase that it is often referred to simply as growth, or ‘even occasionally, for the sake of variety’ as development.¹ Conceptually, however, we believe that economic development should be thought as the term that is somewhat broader than economic growth. Two of the most fundamental changes humans have experienced are the growth of output per capita and the rise of the market as an institution which allocates goods and services produced. While the former can be discussed in terms either of economic development or economic growth, the latter is regarded as a subject-matter which cannot be covered by the concept of economic growth. Another concept which is not reducible to economic growth is structural change. Similarly, several types of economic growth can be distinguished and, to refer to them, separate terms are being used. As this volume is about economic growth and structural change, we will take up all those second-level terms, and define them, in section A of this chapter (for structural change and market growth in particular, see sub-sections 2.3 and 2.4 below).²

When coming to describe a specific time period in which economic growth did take place, such as the late eighteenth and early nineteenth centuries in England, economic historians

¹ Lewis, *Theory of Economic Growth*, p. 10. There is also a view that there are no distinctions between GDP per capita growth and economic development; see for example Broadberry et al., *English Economic Growth*, p. 3.

² Although we have no intention to go beyond the area we have just defined, the concept ‘economic development’ can also encompass aspects of welfare. Amartya Sen is a leading proponent of what is called the capability approach (Sen, ‘Economic development’). The conceptualisation of United Nations’ *human development* and its measure, Human Development Index (HDI), a combined index of longevity, educational attainment and income (or GDP per capita), is said to have been influenced by Sen’s approach. See UNDP’s 1990 *Human Development Report*.

have used various terms such as ‘industrial revolution’, ‘industrialisation’, ‘economic take-off’, ‘modern economic growth’, ‘the escape from Malthusian constraints’, ‘modernisation’, and many others in our vocabulary, which are all regarded as more or less synonymous for each other. In the process of editing this book, however, it has become clear that the existing terminology used by economists, economic historians and others, such as those just mentioned, is in many ways inadequate and needs to be re-thought. Some of those are too vague or inconsistent, and ways in which they are used by scholars are often unhelpful, leading to confusion. In fact, what the INCHOS project has revealed is that a number of fundamental processes covered by those terms are themselves composites of different processes which may occur in a variety of temporal sequences.

As is well known, the term ‘industrial revolution’ was coined by contemporary intellectuals and adopted later by historians to characterise the economic change that took place in England between 1760 and 1830, which suggests that one can question the applicability of this conceptual term to another, seemingly similar change that occurred in a different country in a different time period. The others are more analytical in nature, introduced by later-day scholars. But those who use ‘industrialisation’ tend to focus on changing shares of ‘industry’ in total output or in the labour force, or both, while the words ‘revolution’ and ‘take-off’ have a connotation that discontinuity and speed of change, or both, are crucially important. On the other hand, the ‘escape from Malthusian constraints’ suggests that there was a moment with which humans broke away from vicious circles of procreation and productivity. Similarly ‘modern economic growth’, the term coined by Simon Kuznets, is defined as being long-term rates of growth, distinctively higher than those of the preceding periods, accompanied by structural change in the economy and hence by social, ideational and demographic transformations associated with the economic changes.³ ‘Modernisation’, theorised first by the American sociologist Talcott Parsons under strong German influences, is another term used by historians to describe this multi-faceted process.

To illustrate all these, in particular the point that industrialisation and the achievement of modern economic growth are not synonymous, take England and the Netherlands, the two cases of very early starters. England was industrialising for several centuries before the Industrial Revolution and did not achieve modern economic growth, if Kuznets’ numerical criterion is adopted, until the Industrial Revolution was nearly over (see sub-section 1.3 below). For the Netherlands, de Vries and van der Woude termed the *early modern* period as one of *modern* economic growth though the levels were low by modern standards.⁴ Moreover, long-term mortality decline is likely to have begun as early as the seventeenth century, leading to the sustained decline in mortality levels, the onset of the so-called demographic transition. From the 1760s, real male day wages ceased to be inversely correlated with population growth but showed little sustained growth before the 1850s, while high levels of GDP per capita growth appear to have been achieved two decades earlier (from

³ Kuznets, *Modern Economic Growth*; see also his Nobel Prize lecture, ‘Modern economic growth’.

⁴ Vries and van der Woude, *First Modern Economy*, ch. 14.

the 1830s).⁵ The 1850s might be termed a ‘turning point’ in the Lewisian sense, which, following Arthur Lewis, seems to lag the onset of modern economic growth (see sub-section 3.3).⁶ All these processes may be understood by the term ‘modernisation’ but if these happen at different times in a variety of sequences, this term may not be very helpful in describing particular periods. The Netherlands and England more than anywhere else defy the conventional narratives/chronologies of modernisation theory which, we think, must derive from countries which were less developed on the eve of their Industrial Revolutions or Transitions to Modern Economic Growth.

Kuznets talked about structural change, which he took to be a shift in the composition of the labour force, capital and output which he believed occurred during the transition to modern economic growth. We know now this is too simple (see sub-section 2.4). In the English context, the two centuries before the onset of mechanisation in the 1780s were characterised by a long-term process of labour-intensive industrialisation. Both the pre- and post-1780 phases saw a shift in the composition of output towards the secondary sector. The first phase entailed a growth in the share of the labour force in the secondary sector. The second phase did not. Thus ‘industrialisation’ can be used to refer to a major increase in the secondary sector’s share of output and where appropriate refer to labour intensive or technologically intensive variants, as made explicit in our suggested usage section. The former commenced in the English case, perhaps as early as the late sixteenth century, with only limited technological change and arguably corresponds to what is often called Smithian economic growth, which probably describes the Dutch republic to around 1650 or 1700 as well (see sub-section 2.3 under the heading of ‘the growth of markets’). From the 1780s a more technologically intensive industrialization growth path was followed in England and this was the Industrial Revolution. By the 1830s ‘modern economic growth’ had taken hold. The period 1780-1830 can be seen as the period of Industrial Revolution, when revolutionarily new technologies diffused, to the extent that they could lead, by the end of the period, to much higher growth rates than had ever been achieved in the past (for the contrast between the two phases, see section B below, where ‘labour intensive industrialisation’ and ‘technologically intensive industrialisation’ are discussed).

The Dutch economy, in structural terms, was very industrial long-before the nineteenth century and also had an extremely and precociously large tertiary sector. This means that it necessarily followed a very different pattern from any other economy during the nineteenth century. No other economy underwent the shift to steam-powered industry with as starting conditions such high levels of (i) GDP per capita; (ii) urbanisation rates; (iii) high shares of secondary employment; and (iv) high shares of tertiary employment. The nearest cases are England, which had (iii), and Belgium which had (ii) and (iii). The issue of how to describe the early modern Dutch economy is important here. We may or may not want to accept the de Vries and van der Woude’s description of ‘modern’ economic growth in the early modern

⁵ See Wrigley and Schofield, *Population History of England*; Wrigley et al., *English Population History*; Crafts, *British Economic Growth*; Crafts and Harley, ‘Output growth’; Broadberry et al., *English Economic Growth*.

⁶ Lewis, ‘Economic development’ and ‘Unlimited labour’.

period, but it certainly fails Kuznets' test with respect to its growth rates. We should probably see the Dutch economy as the highest expression of the pre-modern economy but one which failed to make an autonomous transition to modern economic growth (for discussions of 'pre-modern economic growth, see sub-section 1.4 below). Its very success as a pre-modern economy slowed its nineteenth century transition (for reasons, see discussions by Herman de Jong and Joost Veenstra in their chapter below).

Clearly, therefore, the following are all distinct processes: structural shifts in employment towards the secondary sector; structural shifts in employment towards the tertiary sector; structural shifts in output towards the secondary sector; structural shifts in output towards the tertiary sector; the widespread adoption of steam power in factories (the transition from proto-industry to industry); urbanisation; the achievement of pre-modern growth; the achievement of 'modern economic growth' (various definitions); the escape from Malthusian constraints. Here, the distinction between 'pre-modern' and 'modern' is crucial. Both England and the Netherlands in early modern times saw their economy industrialising on the basis of proto-industrial technology and pre-factory work organisation, which explains why the levels of growth rate were lower than in the period after the industrial revolution, but which warns us that structural change could start well before the onset of factory industrialisation. Pre-modern economic growth too was compatible with structural change. This suggests that the term 'modernisation' is analytically unhelpful. It tends to divide time into two binary categories: the past and the present; traditional and modern; developed and underdeveloped. We think the term is useful only to describe conscious modernisation efforts by states, but these necessarily varied from one another and should not be lumped together as a single process. Peter the Great's 'modernisation' in the late seventeenth century was necessarily different from the efforts of Ottoman and Egyptian states in the mid nineteenth century, Japan's westernisation from the 1870s or Deng Xiaoping's 'socialist modernization' of China from 1978 (see sub-section 1.3, note 1, and the entry 'modernisation' in section B).

Another point to be made is that the above processes did not necessarily take place in the same order in different countries. The stylised pattern of evolution Kuznets put forward is very much similar to what Colin Clark called Petty's law: long-run economic growth generated a chain of changes in the sectoral shares of output and employment, first from the primary to the secondary sector, and later from the secondary to the tertiary sector.⁷ The second phase corresponds to the period of industrialisation, which is often sub-divided into two stages with the distinction between light and heavy industry. However, Germany is the only country in our INCHOS sample that followed this pattern. In the English case, the sectoral share of manufacturing in both output and the labour force began earlier while the employment shift to the tertiary sector took place when the output share of the secondary sector increased strongly. Moreover, in many countries which were late to industrialise, a shift to commerce, transport and services had begun before the fully-fledged industrialisation

⁷ The term 'Petty's law' appeared in Clark, *Conditions*, 2nd edition, pp. 395-96; but not in the 3rd edition. In development economics today, it is sometimes called the 'Petty-Clark law' (Hayami, *Development Economics*, p. 36).

started. In the case of Taiwan, as I-Ling Liu and Tadayoshi Taniguchi show in their chapter below, an economic transformation in colonial Taiwan was an increase in the tertiary-sector share in response to an expansion of agricultural exports, while its post-World War II growth saw the stage of ‘heavy’ industrialisation skipped in favour of the state’s policy of promoting industry based on micro-electronics. There were multiple paths to what Kuznets termed ‘modern economic growth’.⁸

In what follows, we lay out in section II, in a structured way, our suggested usage for key terms. Note that while we are trying to impose a consistent terminology on researchers, we have tried to do so in a way which is theoretically neutral. Our aim here is: to make existing terms more precise and consistent; to suggest excising some terms we regard as confusing, misleading or otherwise unhelpful and to suggest new terms where this appears necessary if we are to have an adequate lexicon for describing the full variety of developmental processes.

In section III, we turn to more technical but equally important issues concerning the definitions and usage of such key terms as ‘occupied population’, ‘active population’, and the ‘labour force’. The principal aim of this separate section is to set out our preferred usage for the terms employed in this area by exploring the ways in which present-day organisations such as the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD) use them and discussing problems the use of historical data will raise.

II. Suggested usage of key concepts and terms

A: Economic growth and economic development

Economic growth is defined as an increase in either total GDP or GDP per capita (authors should always make it clear which of these they are referring to), while **economic development** should be understood as something broader than and not reducible to economic growth (see entry 3 below).

1 Types of Economic Growth

Following Angus Maddison’s terminology,⁹ we suggest that growth in total GDP (economic growth) can be resolved into two elements:

1.1 Intensive economic growth

An increase in GDP per capita (derived from productivity increase).

⁸ In the development economics literature too, this has been recognised since the publication of Chenery and Syrquin, *Patterns of Development*.

⁹ Maddison, *World Economy*, p. 29.

1.2 Extensive economic growth

An increase in GDP related to the expansion of production factors, such as land and labour, rather than per capita change. We can think of this as either an intensive increase in the ‘carrying capacity’ if an economy is already fully settled (i.e. there are no large areas of uncultivated land available for colonisation) or as an extensive increase entailing the cultivation of ‘new’ land (as in parts of medieval Europe, North America in the eighteenth and nineteenth centuries or Chinese expansion into Manchuria).

1.3 Modern economic growth

Long-term average GDP per capita growth rates of 1 per cent per year or more. By long-term we mean sustained over a long enough period to say quadruple incomes over their previous level. Whilst not part of our definition this will, in practice, always be driven largely by technological change.

Kuznets’s himself defined modern economic growth in terms of per capita growth rates and suggested a range ‘from less than 15 to about 30 per cent per decade’, which meant a range from 1.4 to 2.65 per cent on the per annum basis, or on average 2 per cent.¹⁰ However, a glance at table suggests that Kuznets’ original threshold was probably too stringent. Note, in particular, that the US between 1870 and 1913 average a GDP per capita growth rate of 1.8 per cent. We do not want to be overly prescriptive but we suggest, following Crafts’ revised, lower growth estimates as against Deane and Cole’s which are in line with Kuznets’ suggestions, a working definition of 1 per cent a year per year or more over the long-term.¹¹

Kuznets identified a range of characteristics of modern economic growth but one of the contributions of the INCHOS book will be to unpack this cluster of characteristics not all of which will be identified in every case in periods meeting the per capita growth criterion. Kuznets’s list included the following: growth being determined more by a growth in the quality of inputs than the level of inputs; a pervasive growth of efficiency across the whole economy; a decline in the share of agriculture in both labour force and the structure of output; a growth in the importance of larger units of production; technological revolution in transport and communications; a leading role for the direct application of science. Note here that Kuznets seems, in relation to structural change, to consistently conflate changes associated with the *onset* of modern economic growth and the longer-term *characteristics* of modern economic growth.

Note 1: Take-off: This term, popularised by Rostow, is rather vague but is probably generally used to refer to the onset of modern economic growth, i.e. the date of the boundary between transitional economic growth and modern economic growth. Rostow’s use of the term to describe a ‘take-off’ in Britain in the 1780s, that has been

¹⁰ Kuznets, *Modern Economic Growth*, p. 490. The 2 per cent criterion is reconfirmed in his *Growth of Nations*, p. 303.

¹¹ Crafts, *British Economic Growth*, pp. 46-47; Crafts and Haley, ‘Output growth’, in comparison with Deane and Cole, *British Economic Growth*.

comprehensively discredited by modern research (Crafts, 1985) which has led to term being regarded as an exaggeration. We recommend simply referring to the onset of modern economic growth instead.¹²

Note 2: Sometimes periods of unusually high growth following a period of economic contraction simply represents, or partially represents, a recovery of former levels. We should be wary of false-positives for ‘modern economic growth’ here. Part of the especially high rates of growth in the economy in the Province of Holland after 1570 may have this character of **recovery growth**.

1.4 Pre-modern economic growth

It is now widely recognised that a number of economies experienced long-term ‘pre-modern’ economic growth. Obvious examples include England before the Industrial Revolution, the Dutch Republic in the early modern period, Northern Italy and the southern Netherlands in the late medieval period, Tokugawa Japan and probably Song China. Estimates of GDP per capita levels made by economic historians can be found in table 1. This pre-modern growth both gave rise to advanced pre-modern economies and took place within such economies all be it subject to certain limits.

It is important to note that the concept of ‘pre-modern’ growth does not refer to all episodes of economic growth preceding ‘modern economic growth’ but refers to something much more tightly defined. Pre-modern economic growth was both slow compared with modern economic growth and fast compared with that which preceded it. It is clear for instance that GDP per capita in England had risen between say 700 and 1300 or 1400, but this kind of ‘glacial growth’ is not what is generally meant by ‘pre-modern growth’ in the literature. Similarly, whilst ‘stone age’ or Neolithic economies are often ascribed a ‘bare-bones’ subsistence income of GDP per capita of \$400, there were clearly differences between the economic achievements of, say, the Incas, the native peoples of North America in the sixteenth century and the Australian aborigines in the late eighteenth century. These societies suggest both that a very wide range of experiences are lumped together in the term ‘stone age’ and that these societies had their own economic history of growth and development.

A second observation to make is that the ‘pre-modern’ GDP per capita levels achieved in the much more densely populated but livestock poor advanced pre-modern economies of East Asia were much lower than in the less densely populated and livestock rich economies. It does not necessarily follow that these societies were less sophisticated or less ‘advanced.’ These more densely settled areas with less favourable population resource balances may have required equally or more sophisticated agricultural techniques to support their denser populations at lower income levels than their western counterparts.

It is clear that the higher income levels achieved by pre-modern growth were not simply a higher level of food, clothing and shelter but refer also a level high enough to cover areas of safety net provisions, knowledge transfer, and technological complexity as well. At such

¹² Rostow, *Stages*.

levels of income and the quality of life must have been considerably higher, leaving room for investments in human and physical capital for further growth.

From table 1 and from the literature more generally we would note the following. First, there is widespread agreement that a number of pre-modern economies experienced sustained long-term GDP per capita growth and we might characterise this as growth of up to about 0.6 per cent per year sustained over 100 years (three or four generations) or more. Second, societies which underwent pre-modern economic growth had clearly undergone a much longer term process of even slower growth before that. Thus pre-modern economic growth did not develop from a bare-bones subsistence level of \$400. We might tentatively identify a lower bound level for the onset of pre-modern economic growth as around \$800 in the low density economies of north-western Eurasia and perhaps \$600 in the high density economies of east Eurasia but we do not wish to be prescriptive about ‘onset thresholds’ And leave this to the judgement of country chapter authors. Whilst pre-modern economic growth was capable of doubling or even tripling per capita incomes over onset levels over a protracted period of time, there are no cases in the historic record, or to more precise, in the currently constructed estimates, where it quadrupled per capita incomes over the initial levels, or raised per capita incomes to more than six times subsistence levels.

Two further points may be noted. First, all the countries which made early (i.e. nineteenth century) transitions to modern economic growth had experienced pre-modern growth, though not all advanced pre-modern economies went on to make an early transition to modern economic growth. Second, it makes no sense to continue to use the term ‘pre-modern’ growth after around 1830 when the British Industrial Revolution had changed the contours of what was possible, with the exception of Tokugawa Japan which continued to exist in a closed and pre-modern world until the Meiji restoration in 1868.

Thus, slow growth below a sustained rate of one per cent per year in post-1820 Britain should not be referred to as pre-modern growth. We suggest the term **intermediate growth** to refer to either intensive or extensive growth in the post 1830 period which does not meet the criteria for modern economic growth. The same term can be used to describe economic growth during the British Industrial Revolution (1760-1830). More generally, it can be used to describe any economic growth, whether intensive or extensive, in the changed world after 1830 which falls short of meeting the criteria to be recognised as modern economic growth. Intermediate growth may well have been a necessary phase in many countries before a transition to modern economic growth could occur. (Note: we contemplated the term ‘transitional growth’ here but rejected this because its association with ‘post-socialist’ economies could give rise to confusion. Several INCHOS chapters deal with countries which underwent a ‘post-socialist’ transition and we discourage the use of transition to refer to other processes.)

Similarly, the glacial growth that preceded pre-modern growth could do with a label, and pre-pre-modern is not a strong contender! Our current suggestion is **early growth**. We suggest using this term as a catch-all umbrella term for economic growth before ‘pre-modern’ growth. We do not by this mean to suggest that the ‘pre-pre-modern/industrial world’ was

characterised by a single growth regime. The growth and development which took place within Neolithic societies was not doubt quite different from that which characterised Tang China or the Roman empire or England between 1000 and 1400. We merely suggest using this, if a term is required to distinguish pre-modern growth as defined above from the more glacial types of growth preceding it in earlier periods or taking place alongside early modern growth in other societies.

One final note: we have opted for the term ‘pre-modern’ growth rather than pre-industrial. When the term ‘pre-industrial’ is chosen, however, it seems that there is a specific, but implicit supposition: that industrialisation and modern economic growth went hand in hand, and hence the adjective ‘pre-industrial’ is frequently used to refer to economies that have not yet made the transition to modern economic growth. However, as works from the INCHOS as well as other projects have revealed that an increase in the secondary-sector share of output and the labour force did in some cases take place before the onset of modern economic growth and some ‘pre-modern economies’ were in fact highly industrialised’, we would like to discourage the use of the term pre-industrial.

2. Types of economic development

We would four major categories of economic development:

2.1 Intensive economic growth

This is defined as an increase in GDP per capita and is the most straightforward case. It nearly always entails economic development. However, note that there are cases where this does not necessarily correspond to economic development. The growth of GDP per capita in England in the immediate aftermath of the Black Death which Broadberry et al identify as a period of substantial *economic growth* but was not, in our view, necessarily *economic development*. Higher living standards were achieved in the first instance by a sharp reduction in population totals and hence demographic pressure, rather than by any developmental process. Of course, these higher living standards may then have triggered other changes which themselves entailed economic development. Ireland between 1820 and 1913 is another case in point. Per capita GDP grew at 1.2% p.a., which was higher than the average for the 12 West European countries in table 1 below, because population decreased radically during and after the Great Famine of 1844-9, not because Ireland was developing more rapidly than the average West European nation in this period.

2.2 Extensive economic growth.

A major increase in population in fully settled countries with no change in GDP per capita, almost certainly requires technological development and should therefore be understood as economic development even if it is not understood as intensive economic growth. Thus the British Industrial Revolution saw much more economic development than it did economic growth. Rates of GDP per capita were modest 1760-1830 but population nearly tripled in this period while neither *GDP per capita* nor *real wages* nor *life expectancies* collapsed as all

previous experience might have led one to expect. Something similar may have characterised many sub-Saharan African economies over much of the twentieth century.

In addition to intensive and extensive economic growth, following processes should, in our view, be considered as economic development, whether or not they are associated with rises in per capita GDP:

2.3 The growth of markets

Commercialisation has been used by historians to describe long-term economic changes but the term has been used to refer to at least three distinct processes. First, it is used to refer to an increase in the share of purchased goods and services in consumption. Second, it is also used to refer to an increase in the share of production for markets. Third, it can refer to the growth of factor markets (for labour, land and capital). Whichever definition, it may or may not entail any actual growth in output. England must have witnessed commercialisation in all three senses well before the industrial revolution, but economic growth in late-comer countries may well have been, at least in part, a product of non-market forces. Given the range of meanings that have been attached to the standalone term, ‘commercialisation’ we suggest avoiding this term. Instead, we suggest authors refer to: (i) the commercialisation of consumption to refer to the growing share of consumption supplied by the market (ii) the commercialisation of production, to refer to the growing share of the market in production; (iii) the commercialisation of factor markets to refer to the growth in the share of markets for land, labour and capital. Note that at the aggregate economic level (i) and (ii) will be identical. However, at the household level the share of consumption was derived from the market and the share of labour which produced for the market may be quite different.

The commercialisation of consumption and production usually predates the commercialisation of factors of production and historically societies in which factors of production were commercialised were less widespread than societies in which production and consumption were commercialised.

Smithian growth is one named after Adam Smith’s insight in his *Wealth of Nations*, the opening chapter on the division of labour. This important historical pattern consists of all three types of market development described above, but where the second commercialisation of production is sufficiently developed for separate markets to evolve for ‘intermediate’ or ‘producers’ goods. In a Smithian growth regime the dominant source of output growth is the economy-wide division of labour, i.e. product specialisation and the proliferation of markets for those specialised products. The separation of spinning centres from weaving districts in an early modern setting is classic example of the emergence of markets for intermediate or producer goods. This kind of growth can take place without technological change, though this unlikely to be entirely absent. There may of course be highly significant changes in

technology and/or skill intensity within any Smithian growth regime but technological change was not continuous and was not the dominant force.¹³

Institutional and organisational changes are a component of Smithian growth associated with the development of markets. The development of the markets for both products and factors of production is likely to have been accompanied by changes in: ways in which transactions were made; the ways in which capital was raised; labour was employed, and the production process managed.

2.4 Structural change

Structural change is another type of economic development. Colin Clark argued that long-run economic growth generated a chain of changes in the sectoral shares of output and employment, first from agriculture to industry, and later from industry to services (Petty's law or the Petty-Clark law). Kuznets was careful not to pre-judge whether the structural shift from the primary favoured the secondary or tertiary sector is a pre-ordained sequence, noting that with respect to the labour force, 'Less expected is the limited rise in the share of the I [secondary] sector in comparison with the decline in A [primary] sector. ... the dominance of the I [secondary] sector found for the shares in product is not found here'; but he did elaborate on a set of characteristics that accompanied the structural shift out of agriculture which he associated with the onset of modern economic growth.¹⁴ The INCHOS project has shown that the 'classical' pattern, described by Petty's law, is in terms of occupational structure, really rather unusual historically. Petty's law is violated so frequently in the historical record, with respect to *structural change in employment*, that it has to be rejected. It is not our concern in this book, but Petty's law is violated much less often with respect to the *structure of output*, though much may depend on whether base-year, end-year or division price indexes are used.

We suggest that it is essential when describing structural change to be specific as to whether the discussion refers to: **structural change in employment; structural change in output; or structural change in capital**. The inherently ambiguous stand-alone term, 'structural change' should therefore be avoided (see also entries for **labour-intensive** and **technologically intensive industrialisation** in entries B.1.3-1.4 below).

2.5 Summary of economic development

In summary, we can identify four major types of economic development: intensive economic growth (except where this is caused merely by a precipitate decline in population – see above); extensive economic growth; the development of markets; and structural change. Sometimes all four are temporally coincident, but this is not always the case.

3 Specific models of economic development

¹³ The concept of Smithian growth is discussed in Saito, 'Proto-industrialization', pp. 92-95; see also Young, 'Increasing returns'.

¹⁴ See Kuznets, *Growth of Nations*, pp. 255-56.

3.1 Boserupian growth

This has been considered a particular case of extensive economic growth since Boserup argued that population increase precedes economic growth.¹⁵ However, her argument is more complex than often thought. According to her formulation of agricultural growth, the process is accompanied, not only by the expansion of the labour force, but also by an increased land supply in the form of the intensified use of land, and it is this process of land intensification that accompanies technological change.

3.2 The advanced organic economy and the Mineral-based-energy economy

E.A. Wrigley (1988) put forward the influential hypothesis that all ‘pre-modern’ economies were ‘organic’, by which he means that their economies were dominated by the use of resources (wood, grain, meat, dairy-products vegetable fibres, animal hides) which had to be grown in the soil.¹⁶ Energy supplies were dominated by burning for heat and for mechanical energy by human and animal muscle which also derived from the products of the soil. The output of the soil was inherently limited by the limited capacity to generate energy via photosynthesis and expanding production in one area, such as sheep or cotton for clothing, or wood for fuel, necessarily entailed a negative feedback reducing output in another area such as food production. Growth was possible in organic economies but was limited and perhaps largely Smithian in nature. Advanced organic economies emerged in a number of parts of the world, but none could grow indefinitely because of these inherent limits. What made the transition to sustained modern economic growth possible on this account was a shift in the resource base of the economy away from the ‘organic’ products of the soil to mining the mineral resources below the soil. Output here could be expanded rapidly and enormously without negative feedbacks adversely affecting other areas of production over very long periods of time. In more recent writings Wrigley has stressed that in the very long-term (i.e. now) there may be environmental limits to economies based on fossil fuels.

3.3 Economic development with unlimited supplies of labour

This model, put forward by Arthur Lewis, is often regarded as synonymous with economic growth without wage growth. The change Lewis described is one type of economic development, industrialisation, in which the share of the secondary sector in output as well as in the labour force will increase accordingly. However, such development does not necessarily entail ‘modern wage growth’. It is interesting to note in this regard that the classical industrial revolution down to 1830 did not encompass the onset of modern economic growth, either. According to Nick Crafts’ well-known revision of the Deane and Cole estimates, the average annual rate of growth in GNP per capita went up from 0.35 to 0.52 per cent during the industrial revolution period. Modern economic growth is said to have begun in the 1830s, but on the best estimates we currently have, comparable rates of growth in real

¹⁵ Boserup, *Conditions*.

¹⁶ Wrigley, *Continuity, Chance, and Change*.

wages were delayed until the 1850s.¹⁷ This is exactly the situation which Lewis expected under conditions where continuing population increase delayed the full absorption of surplus labour. However, it is important to realise that this situation of unlimited supplies of labour was not a consequence of ‘underdevelopment’ or ‘backwardness’ since Britain was the most developed economy in the world at this time. As is clear from the INCHOS chapter on England and Wales, the English economy had already been ‘advanced’, in the sense that the secondary sector was approaching the primary in size by the early eighteenth century, well before the coming of the factory. The lesson we have to draw from this English story, therefore, is that the Lewisian situation of labour abundance is not a feature which would characterise the entire pre-modern period: the Lewisian situation of labour abundance would have ebbed and waned in long population cycles (much as Malthus argued). Moreover, Lewis’s model suggests that labour abundance may continue for some time after the transition to modern economic growth. In short, we should not assume that wage growth and per capita GDP growth are essentially identical or even necessarily trend in the same direction.

To differentiate such a delayed start of wage growth from the onset of modern economic growth, we may use the term ‘**modern**’ wage growth to refer to long-term rates of growth of real day wages of more than 1% per annum.

B. Processes of Change

1. Industrialisation

1.1 Industrialisation

This term refers to a shift in the structure of output towards the secondary sector.

Note: Despite this terminology, however, we discourage the use of **industry** as a stand-alone term because the word is used in so many different ways: (a) to refer to any specific sector or subsector including agriculture; (b) to refer to the entire secondary sector (Kuznets); (c) to refer to **manufacturing**; and (d) to refer to some kinds of secondary-sector production (in factories but not handicrafts). We suggest that ‘industry’ should be used exclusively to refer to particular secondary subsectors such as ‘the textile industry’ or ‘the construction industry’ or to refer to ‘factory industry’. The term ‘manufacturing’ may be used to refer generally to any form of ‘industry’, i.e. secondary-sector production that is not mining, water/gas/electricity or construction. Manufacturing which has undergone the transition to steam or electrical power is referred to as **factory industry** since the **factory** is defined as centralised powered production whether that power comes from water, steam or electricity (see entry B.3 below).

1.2 De-industrialisation

¹⁷ Crafts, *British Economic Growth*, ch.1; Feinstein, ‘Pessimism perpetuated’; and Shaw-Taylor, mimeo, 2014.

A decline in the proportion of the secondary sector to total output. This term may also be used to refer more narrowly to a decline in manufacturing output rather than for the entire sector, and also with respect to the labour force; but whichever way you use the term please make sure it is explicit which of these variant uses you are employing.

Note: De-industrialisation does not necessarily imply a decline in GDP per capita or stagnation of economic growth. In the late twentieth century, many ‘advanced’ countries de-industrialised, but what happened in most, if not all, of those countries was an increase in the share of tertiary-sector output accompanied by further growth of GDP per capita. There are countries and regions where labour and perhaps other resources used in secondary-sector activity shifted back to the primary sector, and in some cases aggregate GDP may have declined as in the case of nineteenth-century India. It is believed that many regional economies in proto-industrial Europe also became agricultural in the face of competition from rivals or the emerging factory sector in the eighteenth and nineteenth centuries. In such a case, however, national aggregate GDP may well have increased, rather than decreased, on a per capita basis – though regional GDP per capita may have fallen in the de-industrializing regions.

1.3 Labour intensive industrialisation

Industrialisation characterised by an increase in the secondary-sector labour force rather than by pervasive increases in secondary-sector productivity; hence, a shift in the structure of employment towards the secondary sector with a concomitant shift in the structure of output towards the secondary sector.

1.4 Technologically intensive industrialization

Industrialisation whose driving force is an adoption of technologically advanced production methods; hence, a shift in the structure of output towards the secondary sector much larger than any shift in the structure of employment. Sometimes, as now INCHOS reveals, without any increase in the share of secondary sector employment or even a decrease.

Note: Both the terms labour intensive industrialization and technologically intensive industrialization can be used to describe a country’s changing economic structure, as Kaoru Sugihara argues. It should be realised, however, that labour intensity and technological intensity varied from sub-sector to sub-sector within a country’s secondary sector. Moreover, linkages were often at work between these two groups of sub-sectors, with the labour-intensive industries producing finished goods and the technologically intensive supplying them with producers’ goods, implying that there may well have been parallel growth of both types of industries. For labour-intensive industrialisation to be successful such linkages were often critical.¹⁸

2 Modernization

¹⁸ Sugihara, ‘Labour-intensive industrialization’; and Saito, ‘Proto-industrialization’. See also chapter xx below.

This term has sometimes been used as a synonym for the transition to modern economic growth. We strongly discourage this usage. 'Modernization' should be used strictly to refer to catch-up, in some sense, with the leading economies of the day. Not to be used in the sloppy ahistorical sense of dividing time into two periods only: the modern and the past. The state sponsored modernization programmes of, say, Peter the Great, Meiji Japan or Deng Xiaoping, necessarily varied radically in their content from one another.

3 Mechanisation

This is an amorphous and ambiguous concept in which developments in the textile industry in the late eighteenth century are often taken to be the first example. However, we might distinguish between:

- (1) Hand-powered machines from querns to spinning wheels to the spinning jenny to the early sewing machines. These often had spectacular impacts on productivity but are not normally referred to as 'mechanisation'. The sewing machine is an important anomaly as a hand (or foot!) powered machine widely diffused in 'advanced' economies from the second half of the nineteenth century with revolutionary impacts on productivity but which were not initially or even primarily steam or water powered. The issue of non-powered (or hand/foot powered) machinery is related closely to the question as to the distinction between a tool and a machine. Note that querns process/refine/break down raw material whereas spinning Jennies and sewing machines transform raw materials into something new.
- (2) The application of water-power to the processing/refinement of raw materials from grain and rice milling and timber sawing. Arguably water-powered silk mills fall into this category. Silk reeling is arguably a process of refining a raw material rather than a process of creating something new.
- (3) The application of water power to 'manufacturing proper'. Here there is a case for seeing Arkwright's mill as something fundamentally new in human history. Unlike the earlier silk reeling mills which basically unwound the existing silk thread, this created new thread from a multitude of short fibres and was powered from inanimate sources. Is this not something decisively new?
- (4) But water-power was limited in all kinds of ways and subsequently gave way to steam-powered mechanisation which became capable of producing much cheaper energy and was more locationally flexible. This was the epochal technological shift of the Industrial Revolution with the capacity for endless further developments. In turn this gave way to electrical power (most, but not all of it based on steam-turbines – used in nuclear, coal, oil and gas fired power stations). Steam power (and its successor technologies) allowed powered processing and manufacturing to be adopted at ever lower costs and at much more widely distributed locations.

- (5) We could refer to the first as hand-powered processing and hand-powered mechanisation. We could refer to the as second water powered processing. We could refer to third as water-powered manufacturing. We could refer to the steam-phase of the fourth as steam-powered processing and steam powered manufacturing. We could do with a more general term to cover the transition to either steam or other ‘modern’ forms of energy. Perhaps ‘factory mechanisation’?

Table 1. GDP per capita and its growth rates, 1500-2000

	12 W Eur nations	Of which												USA	BUL	CHN		EGY	ESP	IND		JPN	KOR	Ottoman / TUR	RUS		TWN			
		BEL	DEU	DNK	FRA	England	GB	UK	N-Central ITA	ITA	Holland	NLD	SWE			Maddison	Broadberry et al.			Maddison	Broadberry et al.				RUS	USSR				
		(1)	(2)	(3)	(4)	(5)	(6a)	(6b)	(6c)	(7a)	(7b)	(8a)	(8b)			(9)	(10)			(11)	(12a)				(12b)	(13)		(14)	(15a)	(15b)
GDP per capita (1990 G-K dollars)																														
1500	1,305	1,147	1,146			1,114			1,533		1,454					600	1,127		846	550				660						
1600	1,139	1,589	807			1,123			1,363		2,662		761			600	977		892	550	682	659								
1700	1,312	1,375	939			1,619	1,513		1,476		2,105		1,340			600	841		814	550	622	668		700						
1800	1,473		986				2,097		1,363		2,609		857	1,296			597		916		569	812								
1820	1,528			1,274	1,135		2,074		1,511			1,874	888	1,361		600				533	520	848		740						
1850	1,719	1,847	1,428	1,767	1,597		2,718	2,330	1,481			2,355	1,076	1,849		600	594		1,079		556	897								
1870	2,141	2,692	1,839	2,003	1,876			3,190		1,542		2,755	1,345	2,445	840	526	526	649	1,207	533	526	995	337	825				608		
1913	3,747	4,220	3,648	3,912	3,485			4,921		2,305		4,049	2,874	5,301	1,146	552		902	2,056	673		1,614	485	1,213		1,414	807			
1935	4,350	4,894	4,120	5,480	4,086			5,799		2,654		4,929	4,492	5,467	1,250	565			2,583	680		2,406	746	1,357		1,864	1,361			
1955	6,194	6,280	5,797	7,395	6,199			7,868		4,190		7,326	7,566	10,897	2,148	577		885	2,778	676		2,771	1,169	2,093		3,313	1,189			
1973	12,070	12,170	11,966	13,945	12,824			12,025		10,414		13,081	13,494	16,689	5,284	838		1,294	7,661	853		11,434	2,824	3,477	6,582	6,059	3,448			
2000	20,131	20,809	18,944	22,966	20,392			21,046		18,761		22,148	20,871	28,702	5,483	3,421		3,258	15,724	1,882		20,481	14,998	6,502	5,261	4,458	16,628			
Annual rate of growth (%)																														
1500-1600	-0.14	0.33	-0.35			0.01			-0.12		0.61								0.05	0.00										
1600-1700	0.14	-0.14	0.15			0.37			0.08		-0.23		0.57			0	-0.15		-0.09	0.00	-0.09	0.01								
1700-1800	0.12		0.05				0.33		-0.08		0.21		-0.45				-0.34		0.12		-0.09	0.20								
1700-1820	0.13						0.26		0.02				-0.34			0				-0.03	-0.15	0.20		0.05						
1800-1850	0.24			0.66	0.68		0.54					0.46	0.38	0.61							0.13	0.11								
1820-1913	0.97			1.21	1.21							0.83	1.27	1.47						0.25		0.69		0.53						
1850-1913	1.24	1.32	1.50	1.27	1.25			1.19				0.86	1.57	1.69					1.03			0.94								
1870-1913	1.31	1.05	1.61	1.57	1.45			1.01		0.94		0.90	1.78	1.82	0.73	0.11		0.77	1.25	0.54		1.13	0.85	0.90					0.66	
1913-1935	0.68	0.68	0.55	1.54	0.73			0.75		0.64		0.90	2.05	0.14	0.40	0.10			1.04	0.05		1.83	1.98	0.51		1.26	2.40			
1935-1955	1.78	1.25	1.72	1.51	2.11			1.54		2.31		2.00	2.64	3.51	2.74	0.11			0.36	-0.03		0.71	2.27	2.19		2.92	-0.67			
1955-1973	3.78	3.74	4.11	3.59	4.12			2.38		5.19		3.27	3.27	2.40	5.13	2.09		2.13	5.80	1.30		8.19	5.02	2.86		3.41	6.09			
1973-2000	1.84	1.93	1.65	1.80	1.67			2.02		2.12		1.90	1.57	1.96	0.13	5.15		3.35	2.60	2.87		2.10	6.14	2.26		-0.80	-1.09	5.78		

Sources: Maddison Project Database, except for:

- (1) Bolt and van Zanden (2014) for 1500-1800.
- (12b) Broadberry, Guan and Li (2014).
- (15b) Broadberry, Custodis and Gupta (2014).
- (16) Saito and Takashima (2016); Settsu, Bassino & Fukao (2016). Adjusted for benchmark years by interpolation.
- (17) Bolt and van Zanden (2014) for 1870-2000.

III. Suggested usage of labour force-related terms: occupied population, active population, labour force, and workforce

Since we approach the issues of economic development and economic growth through the lens of occupational structure, it is crucially important for all the terms employed to describe people in the labour force to be used unambiguously across the chapters in this volume. The terms ‘labour force’, ‘active population’, ‘workforce’, and ‘occupied population’ are each used with a number of different meanings in English and often very imprecisely. In historical studies, moreover, there are data constraints derived from sources we use. It is therefore worth exploring how these terms should be defined in order to use them consistently in all the chapters of the book.

In so doing, we need a brief discussion of how these terms are used by present-day national and international organisations such as the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD).¹⁹

1. Post-World War II standards

Today, the standard measures adopted by national and international statistical authorities are all defined with respect to a *current* – rather than *usual* – status of employment. The former is defined with respect to a *short* reference period such as one week while the latter is defined with respect to a *long* reference period, typically one year. The ILO guidelines begin with the concept of the economically active population, which includes all persons ‘who furnish the supply of labour for the production of goods and services’ as defined within the System of National Accounts (SNA) framework (i.e. excluding unpaid domestic labour which is not part of the SNA framework), ‘during a specified time reference period’.²⁰ In a separate document, this is rephrased as those who ‘contribute or are *available* to contribute to the production of goods and services’.²¹ This latter definition makes it clear that the term includes those who are unemployed but seeking work. Since the economically active population is defined with a specified reference period, there can be ‘two useful measures’, i.e. the currently active population and the usually active population.²² The former refers to a short reference period (typically a week) and the latter to a long reference period (typically a year). Both the ILO and OECD define the labour force as the currently active population.

The currently active population, or the labour force, includes the unemployed if they are available to work, whereas the workforce is usually defined to exclude them. A good example is the term used by the UK’s Office of National Statistics (ONS). The ONS publishes statistics on ‘workforce jobs.’ This is a quarterly measure of the number of jobs *filled* in the economy. Obviously this differs from the labour force in that those still seeking work are excluded. Designed to measure short-term changes in the labour market, estimates of workforce employments are mainly sourced from employer surveys.

¹⁹ For the current ILO-OECD definitions, see the following web-documents: ILO, *Surveys and Training Compendium*; and OECD, *Glossary*.

²⁰ ILO, *Surveys*, p. 11.

²¹ ILO, *Training Compendium*, p. 13.

²² ILO, *Surveys*, p. 11.

In short, the major terms used today in modern labour statistics, i.e. currently active population, labour force and workforce, are the measures that provide a snapshot picture of employment at a given point in time (normally in a reference period of one week), thus enabling researchers to trace how the labour market changes seasonally or even monthly. The first two terms are synonyms for each other.

However, it should be reiterated that the measure constructed on the concept of the usual status and with a long reference period is considered equally useful and relevant by the ILO, particularly ‘in developing countries where, due to agriculture and other seasonal activities, the dominant pattern of activities over the year of a significant proportion of the population differs from the current situation at given points of time during the year.’²³ This measure has an obvious relevance for historical statistics.

2. Historical definitions

In historical studies it makes sense to define all such terms as the labour force, active population, workforce, and gainfully occupied population in relation to the usual status. There are two reasons. One is practical. The short-reference period framework cannot usually be applied to historical data because we lack the data to do so. The data sources historians work with, like population censuses, were typically taken without an explicit reference period. What is certain, however, is that even if they were taken with some kind of reference period, it was unlikely to be a short one and hence corresponds more closely to the modern usage of a long reference period. The other reason is conceptual. Our data for the labour force come from information about occupations. The *occupational* information, as opposed to information about people’s economic activities, is almost always about their *usual* status of employment. For example, to the census enumerator’s question ‘What is your occupation?’, a man may answer, ‘I am a carpenter’, regardless of his current status of employment. He may have experienced a short period of unemployment once or twice in the recent past, but if he thinks retrospectively he was in regular and stable employment, he is likely to answer that he has been a carpenter for at least the preceding year. Even when an individual was unemployed at the time the census was taken, it is most likely that he or she was counted in the total labour force as long as the respondent answered the question with an implicit reference to usual-status over a long-period.

This consideration enables us to re-define the key terms specifically for historical studies, and consistent with the SNA framework. Not only the usually active population, but the labour force and workforce can also be defined on the basis of the usual status and a long reference period – the second (labour force) as synonymous with the usually active population and the last (workforce) as the labour force minus those unemployed. Our definitions are summarised in the table below.

Table 2. Different definitions of the terms

	Actually in work	Unemployed but seeking work	Rentiers	Pensioners/retired	Students/school children	Not working and not seeking work
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²³ ILO, *Surveys*, pp. 47-48.

Usually active population	X	X			
Labour force	X	X			
Workforce	X				
Occupied population	X	X	X	X	
Gainfully occupied population	X	X			

Although the table may suggest that the usually active population and the labour force can be used interchangeably, in this book we have opted to discourage the use of the term ‘usually active population’. This is partly because this modern measure is always based on surveys taken with respect to a ‘specified’ reference period,²⁴ and partly because the use of two synonymous terms may introduce confusion as readers may think different meanings are intended.

2.1 Occupied population

We begin the discussion with the term occupied population. This is not an analytical concept we are going to use, but a set of people who are given at least one occupational descriptor, the information derived directly from historical data. Most of this set of descriptors are occupations or trades or professions from which people can earn an income irrespective of whether they are actually in work at the time of survey-taking. This group of population is a useful starting point, since those who are not yet to report an occupation are excluded. Occasionally different kind of descriptors may be cover, such as student or scholar, on the one hand, and absentee landowner or a person living on unearned incomes, on the other. In such cases we have to exclude them. With those who are described as students and those who are not working nor seeking work, the concept gets nearer to what used to be called **gainfully occupied population**. This term was used widely by national census bureaus of the pre-World War II period and also by the League of Nations and ILO. In fact, when the ILO published their first *Yearbook of Labour Statistics* for 1935-36 it had a section on ‘gainfully occupied population’, presumably because population and occupational statistics were the only sources available at that time. Once surveys conducted on the basis of ‘activity’ principles (such as labour force surveys) became available, therefore, the term was eventually superseded by the labour force and active population in their publications.²⁵ In historical studies, one may argue that the term gainfully occupied population could still be used interchangeably with the labour force or the usually active population as defined above. However, what is problematic with this term is that some of the retired or pensioners may have kept reporting themselves as having the occupation from which they did earn a living before retirement. Today, there are still a small number of countries using this term as synonymous with the modern measures, but since this is the term essentially out-dated, we have included the occupied population but not the gainfully occupied population in the table above.²⁶

²⁴ It is recognised today that surveys specifically designed for the usually active population tend to have more questions in order to reduce errors associated with the long recall period. See ILO, *Surveys*, pp. 267-68.

²⁵ See ILO, *Surveys*, p. 38. In the USA, censuses for 1920 and 1930 reported statistics for ‘gainful workers’. It was in 1940 when the term ‘labor force’ was adopted. See Hauser, ‘Labor force and gainful workers’.

²⁶ One can of course use the term when quoting historical documents and published statistics which included that term.

2.2 Labour force and active population

In this volume the term **labour force** is used to describe all those actually in work, or seeking work, for earnings and incomes in any form if falling within the SNA boundary. It includes employees and employers together with those in the armed forces. It also includes the self-employed and owner-occupiers on farms, on the one hand, and unemployed persons seeking work, on the other. However, it excludes persons who live on unearned incomes (such as pensioners and rentiers) and those who are retired, as they do not supply labour for the production of goods and services. Note that the exclusion of rentiers from the labour force is one of the ways in which PSTI differs from PST.

Data collection practices vary over time, between countries and between sources and these practices can limit our capacity to produce accurate labour force data in precise accordance with our definition. Here we identify three distinct practices (see also the next section on Active population below).

- (i) The male data in the British censuses of 1851-1871 report virtually all adult males with an occupation irrespective of whether the men were in the labour force in the sense defined above. The data therefore include many retired individuals and those unemployed whether or not seeking work in addition to those we would want to include in the labour force.
- (ii) Sometimes pre-census historical sources, for instance parish registers, or testamentary data, provide occupational descriptors, but no indication of whether an individual was still economically active. In such cases the occupational datasets derived, will include some individuals who were economically inactive.
- (iii) In the post-World War II period, statistical approaches were re-defined in relation to the new term **active population**. As we have seen, whether an individual is *usually* economically active or not is determined with reference to the individual's actual work status, i.e. whether or not he or she was actually in work or seeking work, during a relatively *long* reference period of, normally, one year. This reference period also suits our definition of the labour force.

The census-type documents that economic historians are working with refer almost always, at least implicitly, to the usually active status of employment. It is important to realise that people described as usually active include those who occasionally experienced unemployment while mostly in regular and stable employment during the reference year. In some censuses, however, those who were unemployed at the time of census taking and not in regular and stable employment for much of the reference year were excluded from the occupied, or listed as 'occupation unknown or unstated' if such a category existed. In other censuses, such as the British censuses of 1851-1871, such individuals were generally returned with their occupations - even if they were in prison and not in any sense 'available for work'! Measures of the labour force derived from historical census-type documents may therefore include at least some of the retired or unemployed individuals who were not seeking work. This may be generally the case with men of the working age, but it is less commonly the case that women who were no longer 'available to contribute to the production of goods and services' were listed as occupied - especially when married women lost employment, it is more likely that they were returned as 'housewives'.

2.3 Workforce

This term, when used in a distinct way, covers only those actually in work in the reference period. As noted above, UK's statistical office uses the term on the basis of the current status of employment with a short reference period, while the ILO's documents do not discuss how the term should be defined, nor does OECD's *Glossary of Statistical Terms* include an entry for workforce. However, we would like to define the term according to the usual status of employment with a long reference period because for historical research too, it is useful to have a word for those in employment as distinguished from the labour force in that the former does not cover those who are out of employment but are available for income-generating work. See the discussion above on the historical British censuses.

3. Practical considerations: two examples

Many of the sources being used for INCHOS ascribe, in practice, occupations to individuals who do not accord precisely to our categories. There are two major areas of concern. One is how people who were unemployed but seeking employment were treated in the sources. It is expected that this problem is more serious in countries where there were comparatively more wage- and salary-earners than self-employed. The other is concerned with the case in which those occupied were not actually economically active. Rentiers who were given occupational descriptors but lived on unearned incomes are one type of this case, while those who had already withdrawn from the labour force for various reasons are another type.

Take two examples. First, as discussed above the British censuses before 1881 would generally ascribe occupations to all adult males (and many older children) in the labour force, not just those in the workforce, but also, to all males who had in reality withdrawn from the workforce through old-age or disability. In other words, for males, occupations are ascribed to a rather larger group than the labour force. After 1881 it is possible to distinguish the retired, but if we do so, the data will be a more accurate description of the labour force from 1881 onwards but less consistent with the pre-1881 data than if we include the retired. Whatever we do with the available UK male data it will be closer to a proxy for the labour force than to the workforce. However, the rules were different for women, and they were not supposed to be ascribed an occupation in the census unless they were in *regular* employment; so for women, the data, both before and from 1881, should accord more closely with a *workforce* defined with respect to a longer reference period.

The second example concerns the case of absentee landowners. There are two types of landowners: one is a landowner who tills his own land (often called an owner-occupier) and the other a landowner who leases the land out to a tenant (i.e. a landlord). In Japan after about 1880, for example, land areas under tenancy increased, so did the number of landowners who did not till the land themselves. They received rents and lived on rents. In many cases part of their rent incomes were invested in bonds and stocks, increasing their unearned incomes further. Throughout the period before the land reform of 1946, these landlords were listed separately from owner-occupiers and tenant farmers, allowing us to exclude them from the estimate of the total number of gainful workers. But there were also landowners who had a subsidiary business such as a dealer of grains. In this particular case, they should be described as combining a principal occupation which fell outside the SNA boundary with a subsidiary

activity that should be included in the labour force. Japan's Yamanashi census of 1879,²⁷ which was a pilot census, collected information about both principal and subsidiary occupations, so that in principle we could separate them from a genuine absentee class. However, when subsidiary occupations were tabulated by principal occupation in the published report, the landlords, owner-occupiers and tenant farmers were often grouped together under the label of agriculturalists. As a result, absentee landlords who had a subsidiary gainful occupation cannot be separated from other by-employed individuals with a principal employment in the primary sector, thus biasing somewhat the analysis of inter-sectoral by-employment flows.

²⁷ For this, see chapter xx below.

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