National incomes and economic growth in pre-industrial Europe: insights from recent research


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The capacity of pre-industrial European economies to resist the Malthusian tendency for increases in national income to be absorbed by further expansion of population and, instead, generate and sustain improved material well being and real per capita economic growth remains a matter of considerable debate. Gregory Clark, for instance, believes that Malthusian relationships remained paramount until right up to the industrial revolution, as evidenced by the fact that 15th century levels of real wage rates and his own consumption-based estimate of English per capita GDP were not significantly bettered until late in the 19th century. R.C. Allen takes a more optimistic view and claims that relatively high real wage rates paid in England and its immediately neighbouring North Sea economies spurred investment in labour-serving technology and human capital formation, culminating in adoption of the raft...
of innovations associated with the industrial revolution. For this privileged minority of economies, take off to sustained economic growth was thus preceded by a long era of economic dynamism and structural change when Malthusian pressures were mostly kept in abeyance and Smithian processes of commercial expansion and specialisation were to the fore.

Estimates of English per capita GDP by Crafts and Harley from 1700, largely corroborated and extended back to the 13th century by Broadberry, Campbell, Klein, van Leeuwen and Overton, endorse this more optimistic view. Between 1500 and 1750 England’s population grew from 2.2 million to 7.3 million and, on the latter’s estimates, its per capita GDP improved from $1,135 to $1,680. Other countries which successfully reconciled modest improvements in per capita wealth and prosperity with sustained demographic expansion include Holland during its early modern “Golden Age” (Table 3) and Italy during the 12th and 13th century commercial revolution (Table 4). In each case, Smithian trade-based specialisation, Ricardian investment in improved institutions and new technology, and Boserupian intensification of land-use delivered enhanced returns to land, labour and capital. Rising urbanisation levels provide one of the clearest symptoms of the real economic progress thereby achieved, as secondary and tertiary activities grew in importance and economic structures became more complex and differentiated.

Pre-industrial rates of economic growth were always modest, invariably less than 1 percent and typically well below 0.5 percent per annum, and prone to falter and decline. Nevertheless, from the 15th century they were sufficient to generate a widening divergence within Europe between the leading and lagging economies and their respective capacities to resist the negative
consequences of population growth and achieve higher average levels of per capita material wellbeing. Both economic groups contained significant numbers of poor households living at a bare-bones level of subsistence, but with the difference that as per capita GDP slowly rose in the leading economies, so the proportion of such households gradually diminished and provision grew of institutionalised welfare intended to sustain them through hard times\textsuperscript{6}. In England Malthusian positive checks to population growth had consequently been more-or-less eliminated well before advent of the industrial revolution\textsuperscript{7}.

**PER CAPITA GDP**

Discussion of pre-industrial rates of economic growth and the wealth and poverty of nations ultimately hinges upon effective estimation of national income, population, and, thence, per capita GDP. Angus Maddison’s per capita GDP estimates for a range of European countries in 1850 provide a reasonably secure benchmark against which levels of development in earlier centuries may be judged. At that time per capita GDP ranged from less than $1,000 (Geary-Khamis 1990 PPP International dollars) in poor and relatively under-developed European economies such as Finland, Norway, Greece and Portugal, to a maximum of over $2,300 in the leading economies of Great Britain and the Netherlands, and averaged approximately $1,600 in Western Europe as a whole\textsuperscript{8}. Maddison has also offered a range of estimates for earlier centuries, extending as far back as the Roman Empire, but methodologically these are less robust and his estimates for countries since subject to close empirical examination have all turned out to be too low\textsuperscript{9}. By implication, therefore, gains in per capita GDP between 1000 and 1850 were substantially smaller than those estimated by Maddison and rates

\textsuperscript{6} S.N. Broadberry, B.M.S. Campbell, A. Klein, M. Overton, B. van Leeuwen, *op.cit.*


\textsuperscript{9} His estimates for Italy ($1,100), the Netherlands ($761), France ($727), the United Kingdom ($714), Germany ($688), and Spain ($661) in 1500 are on average 40 percent lower than the re-estimates given in Table 1.
of economic growth slower, which lends support to stagnationist verdicts on the period. Exceptions nevertheless existed and the transformation of first Holland and then England from lagging to leading economies, with per capita GDPs which more than doubled over the 400 years between the eves of the Black Death and industrial revolution, demonstrates that cumulative growth could and did occur (Graphs 8 and 10).

Historical national incomes may be estimated by totalling the value of incomes, expenditure or net output, with results from each method of estimation providing a crosscheck on the others. Further, net output can either be measured directly (from data on agriculture, mining and manufacturing, and services and valued using data on prices) or inferred indirectly from data on population size, wage rates and estimated levels of urbanisation (on the principles that domestic food production was proportionate to the population to be fed and non-agricultural output proportionate to the non-agricultural, i.e. urban, population). Rigorous methodologies exist for deriving estimates in these alternative ways and thereby making best use of available empirical data. For England from 1253 and Holland from 1348 directly estimated output-based per capita GDP series are now available on an annual basis (Graphs 8 and 10) and are complemented by equivalent output series estimated indirectly for Spain from 1277 and Italy from 1310 (Graphs 6 and 7). Additional indirect estimates have been derived for selected European countries for a range of benchmark dates (Table 1).

Table 1: Per capita GDP and urbanisation ratios for selected European countries and benchmark dates.

<table>
<thead>
<tr>
<th></th>
<th>1300</th>
<th>1400</th>
<th>1500</th>
<th>1600</th>
<th>Mean 1400, 1500, 1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) Per capita GDP (Geary-Khamis 1990 PPP International dollars):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holland</td>
<td>$1,264</td>
<td>$1,461</td>
<td>$2,448</td>
<td>$1,724</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>$1,650</td>
<td>$1,682</td>
<td>$1,544</td>
<td>$1,302</td>
<td>$1,509</td>
</tr>
</tbody>
</table>


Generally, the wealthier and more developed an economy the higher its urbanisation ratio, since urban growth was contingent upon production of agricultural surpluses and expansion of demand for manufactured goods and services. Deviations did nonetheless occur, when per capita GDP rose but urbanisation ratios did not, as, most strikingly, following the Black Death when the contraction of populations exceeded the shrinkage of national incomes and crowded urban populations were hit hard by plague. This raises the intriguing question whether per capita GDP growth under such negative circumstances and without increasing urbanisation amounted to real economic growth at all. The fact that per capita GDP improved by less than real wage rates, and sometimes even declined, also suggests that the impression of 15th century prosperity and growth implied by labourers’ real wage rates may be an illusion. Certainly, as Luis Angeles has shown, changes in relative factor prices, the length of the working day and year, and the labour-force participation rates of men, women and children might all raise or depress real wage rates relative to per capita GDP. Much is therefore to

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be gained by considering real wage-rates, urbanisation, and per capita GDP trends comparatively, especially when, as in the case of England, each has been estimated independently of the others.

**Real Wage Rates**

Quantitative historical analysis of absolute and relative levels of economic development prior to the industrial revolution effectively commenced with publication in 1956 of Henry Phelps-Brown and Sheila Hopkins’ celebrated chronology of the real wage rates of English building labourers, reconstructed from data on wages and prices gathered during the previous 100 years by J.E. Thorold Rogers and William Lord Beveridge. Since then, real wage-rate series for technologically unvarying tasks such as building and farm labouring have been widely employed to draw inferences about the direction, magnitude and character of economic change. For instance, Allen has recently used building workers’ real wage-rate series for 19 cities to investigate the widening divergence in the relative cost of labour between the countries of the North Sea region and the rest of Europe over the course of the early modern period. Where unit labour costs were highest, as in the cities of the southern North Sea region, incentives to invest capital in labour-saving technology were strongest. Comparisons between wages and prices in Europe and Asia point in the same direction.

English real wage-rate series are chronologically the longest and most robust currently available. As recently corrected and revised by John H. Munro, the Phelps-Brown and Hopkins chronology of English building workers’ real wage rates runs continuously for seven centuries from 1264 (Graph 1). A corresponding chronology of farm labourers’ real wage rates compiled by Clark commences even earlier, in 1209, but remains discontinuous until 1268 (Graph 2). Both series yield closely comparable chronologies, with the prominent exception of the immediate aftermath of the Black Death of 1348-

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Graph 1: John H. Munro’s re-working of the Henry Phelps Brown and Sheila Hopkins index of English building labourers’ real wage rates.


Graph 2: English building labourers’ and farm labourers’ indexed real wage rates.

-1349, when the labour of scarce farm workers rose to a premium but demand for building labourers slumped as most construction work was suspended. Following this initial period of readjustment and during the prolonged demographic decline and stagnation that followed the Black Death, real wage rates of urban and rural labourers both rose to levels that would not be bettered until the closing decades of the 19th century (Graph 2). These peak late-medieval wage rates are one of the most remarkable features of the Phelps-Brown and Hopkins chronology and have now been confirmed as a general phenomenon, showing up in Italy, Spain, Holland and most cities across Europe (Graph 3). Whether they are symptomatic of acute labour scarcity or genuine economic growth nevertheless remains an issue.

Graph 3: Building labourers’ real wages: England, Spain, North-Central Italy, Amsterdam, Paris and Strasbourg.

Equally striking is the inverse correlation that existed between real wage rates and population trends (Graphs 4 and 8), as reconstructed in great detail for England from the country’s unrivalled late medieval and early modern manorial, parochial and tax records. The clear tendency for

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real wage rates to decline during periods of population growth during the 13th, 16th, 18th centuries, sink to their nadir at times of extreme harvest failure and acute demographic pressure, as in 1316, 1597 and 1801 (Graphs 1 and 2), and then recover when numbers declined or ceased to grow, notably from 1350 to 1450 and 1650 to 1750, has naturally lent itself to pessimistic Malthusian interpretations of pre-industrial economic development17. Income-based estimates of per capita GDP derived in part from, and dominated by, these real wage rates naturally suggest a similar conclusion18. If real wage rates are taken as a guide, Ricardian diminishing returns to labour seemingly prevailed and were not reversed until industrialising and modernising processes were well advanced, with the result that unskilled workers did not begin to benefit from sustained gains in purchasing power until well into the 19th century19. In Italy, too, a similarly inverse relationship prevailed between labourers' real wage rates and population trends from the fourteenth to the early 19th centuries (Graphs 5 and 7) but with the critical difference that over these five centuries the Italian manufacturing sector was contracting and urbanisation ratios falling, as this once leading economy steadily declined20.

Wage rates of a single occupational cohort of workers least exposed to technological change are nevertheless an imperfect proxy for estimates of per capita national income and were themselves a function of changes in the relative price of labour and the length of the working day and year. From the mid 18th century as labourers almost everywhere began to work more industriously, thereby increasing the per capita supply of labour, real wage rates in Spain, Italy, England and Holland declined relative to per capita GDP (Graphs 6, 7, 8 and 10)21. Farm labourers needed to work longer in order to maintain their living standards, while urban labourers did so in order to acquire some of the new cheap consumer goods (Graph 9). Workers in the new factories also found themselves subjected to a much tougher work discipline22. Conversely, during the labour-scarce 15th century many

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21 L. Angeles, op.cit., pp. 153-159.
Graph 4: Mean annual growth rates of English population, labourers’ real wage rates and per capita GDP.

Sources: S.N. Broadberry, B.M.S. Campbell, M. Overton, J.-L. van Zanden, *Reconstructing the National Incomes of Britain and Holland, c. 1270/1500 to 1850*, research project funded by the Leverhulme Trust, Reference Number F/00215AR; Graph 2.

Graph 5: Mean annual growth rates of Italian population, labourers’ real wage rates and per capita GDP.

workers found that with the high real wage rates then prevailing (Graphs 1, 2 and 3) they could satisfy their basic subsistence requirements with fewer days of paid work per year (Graph 9). Rather than work more industriously in order to acquire more material goods, most building workers and their rural counterparts found that the drudgery of much manual work made greater consumption of leisure the more attractive option. This further reinforced the contraction in labour supply and upward pressure upon labourers’ wage rates. Because of these changes in relative factor prices and in the number of days that labourers needed or wished to work per year, significant divergences sometimes occurred between the trajectories of real wage rates and per capita GDP (Graphs 6, 7, 8 and 10).

Urbanisation Ratios

Urbanisation ratios (the proportion of the population resident in towns of a given minimum size) provide a useful alternative proxy measure of overall levels of economic development, on the principle, enunciated by Simon Kuznets, that urbanisation represents “an increasing division of labour within the country, growing specialisation, and the shift of many activities from non-market-oriented pursuit within the family or the village to specialised market-oriented business firms”. Other things being equal, therefore, “a rising level of real income per head and a rising proportion of urban dwellers are likely to be linked phenomena in a pre-industrial economy.”

In England, where per capita GDP and urbanisation ratios have been separately estimated, a clear correlation existed between the two: the correlation coefficient for per capita GDP against the percentage resident in towns of at least 5,000 inhabitants for seven benchmark dates between 1290 and 1801 is a strongly positive +0.96. In tandem with an increase in per capita GDP from $680 to $2,140 and rise in the urbanisation ratio from 5 to 28 percent, the structure of the English economy changed from one in which agriculture contributed at least two-thirds of all output and employment to one in which manufacturing and services together accounted for over

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two-thirds of both output and the labour force\textsuperscript{26}. Export earnings also made an increasing contribution to national income, doubling in value from approximately an eighth of national income at the opening of the 14\textsuperscript{th} century to a quarter of national income at the beginning of the 19\textsuperscript{th} century and exceeding a third of national income during the mercantilist boom years of the mid 18\textsuperscript{th} century\textsuperscript{27}.

Table 2: Measures of economic change in England 1600-1750.

<table>
<thead>
<tr>
<th>ENGLAND</th>
<th>1600</th>
<th>1670</th>
<th>1700</th>
<th>1750</th>
<th>Annual % change 1600-1750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>4.11m.</td>
<td>4.98m.</td>
<td>5.06m.</td>
<td>5.77m.</td>
<td>+0.23%</td>
</tr>
<tr>
<td>London population</td>
<td>200,000</td>
<td>475,000</td>
<td>575,000</td>
<td>675,000</td>
<td>+0.81%</td>
</tr>
<tr>
<td>% in towns of 5,000+</td>
<td>8.25%</td>
<td>13.5%</td>
<td>17.0%</td>
<td>21.0%</td>
<td>+0.62%</td>
</tr>
<tr>
<td>Exports as % GDP</td>
<td>13.2%</td>
<td>*9.5%</td>
<td>22.0%</td>
<td>37.5%</td>
<td>+0.70%</td>
</tr>
<tr>
<td>Agricultural output</td>
<td>100</td>
<td>106</td>
<td>130</td>
<td>171</td>
<td>+0.36%</td>
</tr>
<tr>
<td>Manufacturing output</td>
<td>100</td>
<td>149</td>
<td>204</td>
<td>259</td>
<td>+0.64%</td>
</tr>
<tr>
<td>Real wage rates</td>
<td>100</td>
<td>122</td>
<td>132</td>
<td>166</td>
<td>+0.34%</td>
</tr>
<tr>
<td>GDP per capita $1990</td>
<td>$1,058</td>
<td>$1,244</td>
<td>$1,608</td>
<td>$1,757</td>
<td>+0.34%</td>
</tr>
</tbody>
</table>

* 1660


In England’s case, expanding domestic and overseas demand were plainly fundamental to the processes of economic growth and urban and metropolitan expansion. Well before the industrial revolution had begun to get under way, the dramatic rise in the urbanisation ratio from 8 percent in 1600 to 21 percent in 1750 and parallel growth of London from a population of 200,000 to one of 675,000, are clear manifestations of the Smithian gains then being obtained from trade (Table 2). Development of what Wrigley has termed an advanced organic economy enabled agriculture to keep abreast of the expanding demands for food, fuel and raw materials and Victoria Bateman has drawn attention to the greater integration of internal English grain markets that was


\textsuperscript{27} I am grateful to Bas van Leeuwen for making these estimates.
integral to the same process\textsuperscript{28}. After 1750 building workers’ real wage rates turned down once again (Graph 8) but the momentum of economic growth continued, as borne out by continued shrinkage of the share of the labour force employed in agriculture and a further rise in the urbanisation ratio to 27.5 percent by 1800\textsuperscript{29}.

Table 3: Measures of economic change in Holland 1500-1650.

<table>
<thead>
<tr>
<th>HOLLAND</th>
<th>1500</th>
<th>1550</th>
<th>1600</th>
<th>1650</th>
<th>Annual % change 1500-1650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>273,000</td>
<td>350,000</td>
<td>503,000</td>
<td>796,000</td>
<td>+0.72%</td>
</tr>
<tr>
<td>Amsterdam population</td>
<td>14,000</td>
<td>30,000</td>
<td>65,000</td>
<td>175,000</td>
<td>+1.70%</td>
</tr>
<tr>
<td>% in towns of 5,000+</td>
<td>45%</td>
<td>45%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports as % GDP</td>
<td>21%</td>
<td>27%</td>
<td>38%</td>
<td>25%</td>
<td>+0.12%</td>
</tr>
<tr>
<td>Agricultural output</td>
<td>100</td>
<td>148</td>
<td>167</td>
<td>250</td>
<td>+0.61%</td>
</tr>
<tr>
<td>Real wage rates</td>
<td>100</td>
<td>82</td>
<td>81</td>
<td>69</td>
<td>-0.25%</td>
</tr>
<tr>
<td>GDP per capita $1990</td>
<td>$1,461</td>
<td>$1,685</td>
<td>$2,448</td>
<td>$2,399</td>
<td>+0.33%</td>
</tr>
</tbody>
</table>


The Netherlands, during the Dutch Golden Age 1500-1650 (Table 3), illustrates a similar synergy between commerce, urbanisation and what J.L. van Zanden and B. van Leeuwen describe as “persistent but not consistent” economic growth\textsuperscript{30}. Over almost two centuries of sustained “Smithian” expansion, Dutch per capita GDP doubled from $1,100 to $2,490 and the already impressive urbanisation ratio of the Netherlands rose from 22 percent to 35 percent (Table 1). Greater market integration, expansion of international trade and shipping and rapid structural change were key features of the growth of Dutch national income and accompanying rise of the urbanisation ratio to hitherto unprecedented levels for pre-industrial Europe\textsuperscript{31}. In the


\textsuperscript{29} S.N. Broadberry, B.M.S. Campbell, B. van Leeuwen, op.cit., pp. 16-27; E.A. Wrigley, Urban Growth and Agricultural Change: England and the Continent…, pp. 688.

\textsuperscript{30} J.-L van Zanden, B. van Leeuwen, op.cit., pp. 119-130.

\textsuperscript{31} On the growing integration of Dutch grain markets see V.N. Bateman, op.cit., pp. 462-463.
process, Amsterdam grew from insignificance to become a major maritime metropolis of 175,000 inhabitants. Contrary to these positive developments, Amsterdam building labourers’ real wage rates trended down over this same period in a clear illustration of the divergent course sometimes taken by real wage rates and per capita GDP (Graph 10), as employment conditions changed and the profits of economic growth were shared unequally among occupational groups.

By implication, countries with lower urbanisation ratios were less developed and correspondingly poorer. By 1600 P. Bairoch, J. Batou and P. Chevre reckon that the Netherlands’ urbanisation ratio was treble the European average of 12 percent, which only the Balkans, Portugal, Italy and Flanders also clearly exceeded. At the opposite extreme, urbanisation ratios in most of east-central and northern Europe were substantially lower and in Scandinavia sank to a European minimum of less than 4 percent. Significantly, an independent estimate by Lennart Schö̈n and Olle Krantz reckons Swedish per capita GDP in 1600 to have been $847 (Table 1), barely a third that of Holland’s $2,448 and two-thirds that of Italy’s $1,302, which until the beginning of the 16th century had been the most urbanised and developed economy in Europe with an urbanisation ratio of around 20 percent and per capita GDP in the range $1,500-$1,900. Yet even in poor and weakly urbanised Sweden estimated urbanisation ratios and per capita GDP yield essentially similar trends, “even if variation is within narrow margins”.

Italy’s economic golden age had been in the 11th, 12th and 13th centuries, when it had reaped maximum gains from what Robert Lopez has justifiably called the “commercial revolution”. Its many self-governing urban communes, led by the maritime republics of Genoa and Venice, prospered on the re-expansion of Mediterranean commerce and new opportunities for trans-Alpine trade promoted by the Champagne Fairs operated under the politically neutral jurisdiction of the quasi-independent counts of Champagne. Commercial privileges in the Middle East secured following the unexpected success of the First Crusade gave access to lucrative Levantine markets and a growing volume of high-value Asian trade goods reaching the crusader ports of the eastern Mediterranean across the Syrian desert from

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Baghdad and the Persian Gulf. Further commercial gains were made when Venice won direct access to the Black Sea in 1204, to be superseded by Genoa from 1261. Genoa was 13th-century Italy’s most successful maritime city-state and over the course of that century, as the value of its long-distance trade grew rapidly, its population more than doubled.36

Paolo Malanima’s estimates imply that the population of the centre and north of Italy grew by an average of 0.3 percent per annum between 1000 and 1300 and per capita GDP by 0.2 percent over the same period. Meanwhile, the proportion of the population resident in towns of at least 5,000 inhabitants more than doubled from 5-12 percent to 21.4 percent and the country’s per capita GDP peaked at a hitherto unprecedented $1,700 (Table 4). By the close of the 13th century Italian cities accounted for almost a third of Europe’s urban population and 24 of the continent’s 103 largest cities with populations of at least 20,00037. The country’s high urbanisation ratio (rivalled at the time solely by that of Flanders, its major but much smaller trading partner in northern Europe) is thus symptomatic of its place in the vanguard of contemporary commercial developments.

Table 4: Measures of economic change in Italy 1000-1300.

<table>
<thead>
<tr>
<th>ITALY (CENTRE-NORTH)</th>
<th>1000</th>
<th>1300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population c.3.20m.</td>
<td>c.7.75m.</td>
<td></td>
</tr>
<tr>
<td>Density per km²</td>
<td>20</td>
<td>48</td>
</tr>
<tr>
<td>% urban (towns of 5,000+)</td>
<td>5-12</td>
<td>21.4</td>
</tr>
<tr>
<td>GDP per capita (1990 $)</td>
<td>c.$1,000</td>
<td>c.$1,640</td>
</tr>
<tr>
<td>Population growth rate</td>
<td>0.3% per annum</td>
<td></td>
</tr>
<tr>
<td>Economic growth rate</td>
<td>0.2% per annum</td>
<td></td>
</tr>
</tbody>
</table>


Spain at the same date, after adjustment for agro-towns, had a substantially lower urbanisation ratio of 9 percent and correspondingly smaller per capita GDP of $1,050 (Table 1); just 60 percent that of Italy. England was less commercially developed and urbanised than either, with only 5 percent of its population in towns of at least 5,000 inhabitants and a lower per capita GDP

of $750 (less than half that of Italy) (Table 1). According to Bairoch, Batou and Chevre, urbanisation ratios were lower still in much of east-central and northern Europe, as, presumably, was per capita GDP$^{38}$. Maybe in the poorest and least populous of these commercially most peripheral economies per capita GDP was as low as the $500-600 that Maddison took to be the norm almost everywhere in Europe at this date (and the level prevailing in the poorest countries of sub-Saharan Africa today)$^{39}$. If so, estimated urbanisation ratios imply that at the close of the 13th century the per capita GDP of virtually all European countries lay in the range $500 to $1,700 (Table 1). By 1850 the latter had shifted upwards to $750 to $2,350 and the economic fortunes of some individual countries had changed even more dramatically.

**Decline, Stagnation, Stability and Growth: The Experience of Late-medieval Italy, Spain, England and Holland**

By 1300 England, Spain, Flanders and Italy were all at different stages of economic development (Table 1), as reflected by per capita GDPs which ranged from a minimum of $750 in England to a maximum of at least $1,650 in Italy and corresponding urbanisation ratios in the range 5 percent (England) to 21 percent (the centre and north of Italy) and maybe 30 percent (Flanders). The leading economies of Italy and Flanders (whose per capita GDP can scarcely have been less than that of Italy) had risen to European commercial prominence during the 12th and 13th centuries when they became increasingly involved in international trade and developed their substantial manufacturing and service sectors. Both were exceptionally densely populated to the extent that morcellation of holdings and rural congestion were significant problems. The opposite was the case in the lagging economy of Spain, whose energies for much of the 12th and 13th centuries had been absorbed in the Christian re-colonisation of land re-conquered from the Moors. Here, under-population hampered fuller development of economic forces and kept wealth and urbanisation levels well below those prevailing in Italy$^{40}$.

England was not thus disadvantaged. Rather, its merchants and manufacturers had failed to achieve the dominant position acquired by the Italians and Flemings with the result that, notwithstanding centuries of active commercialisation, its secondary and tertiary sectors remained circumscribed.

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$^{38}$ Ibidem, pp. 258-259.


in scale. Two centuries of strong population growth in combination with lax
tenurial regulation of access to land and limited opportunities for making
a livelihood outside agriculture meant that rural congestion and concomitant
structural poverty were mounting problems. From at least the mid 13th century,
its increasingly bottom heavy socio-economic structure, in which
70 percent of households received only 40 percent of income and occupied
barely a third of all arable land, was exerting downward pressure upon
real wage rates and per capita GDP, depressing mass demand, polarising
consumption patterns and thwarting further urbanisation. The upshot was
that England remained significantly less developed and poorer than either
Flanders or Italy.

From the 1290s, onset of a deepening and ultimately self-reinforcing
international commercial recession terminated the long economic expansion
of the 12th and 13th centuries and hit the wealthier and commercially more
dependent of these economies hardest as a series of reverse multiplier effects
was set in train. Malanima’s estimates indicate that per capita GDP in the more
developed centre and north of Italy shrank by 15 percent (at -0.46 percent per
annum) between 1310 and the mid 1340s, while the real wage rates of urban
building workers declined by 25 percent (Graph 7). The consequent implosion
of Italian domestic demand compounded the loss of overseas markets and
rising transaction costs of overseas trade. Flanders suffered similarly and
from the 1310s output of its important textile industry shrank significantly,
with consequences for per capita GDP and real wage rates which have yet
to be quantified. Spain, far less dependent upon overseas trade, was less
adversely affected and the relative scarcity of labour prevented real wage
rates from declining. Here, real wage rates attained a temporal peak during
the decades immediately prior to the Black Death (Graph 6).

Waged labour was significantly cheaper in England (Graph 3), whose
labour market was glutted by an over-supply of workers. Yet neither English
real wage rates nor per capita GDP displayed a downward trajectory
comparable to that of once thriving Italy (Graph 8). With no surviving
export industries of consequence, it was less vulnerable to the worsening
international commercial situation and, paradoxically, as overseas textile
producers switched from low- to high-value cloths better able to withstand

41 B.M.S. Campbell, The Agrarian Problem in the Early Fourteenth Century, “Past and
Present” CLXXXVIII (2005), pp. 3-70.
42 B.M.S. Campbell, Benchmarking Medieval Economic Development: England, Wales,
43 J.H. Munro, Industrial Transformations in the North-West European Textile Trades, c. 1290
rising freight and other transaction costs, demand for English wool remained buoyant. Cheap labour also sustained high levels of tin output, of whose supply the country effectively enjoyed an international monopoly. Early 14th century England may have been the least wealthy of these four countries but the relative stability of both real wage rates and per capita GDP independently estimated indicate that, short-term crises apart, it was not becoming significantly poorer.

Graph 6: Spain: population, real wage rates, and per capita GDP, 1300-1850.

Sources: data supplied by L. Prados de la Escosura.

Understandably, these differently circumstanced economies responded in quite different ways to the massive negative demographic shock inflicted by the Black Death of 1347-1353 and successor pandemics of the 1360s and 1370s. For sparsely populated Spain the dramatic reduction in numbers was a serious setback, since labour became so scarce that established levels of productivity proved difficult to sustain. C. Álvarez-Nogal and L. Prados de la Escosura believe that Spanish per capita GDP declined by approximately one-fifth following the plagues to less than $800 during the final quarter of the 14th century and did not regain its pre Black Death level until the closing decades of the 16th century, when the country had emerged as an imperial and colonial power of the first importance (Graph 6). Significantly, although mid 15th century Spanish real wage rates eclipsed those of the era

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of vigorous frontier colonisation before the Black Death, per capita GDP remained stubbornly below the earlier peak level due to the ongoing problem of under population (Table 5). It remains to be seen whether similar trends prevailed in Europe’s other thinly peopled regions where heavy plague mortality may have had equally adverse economic consequences, lowering populations, shrinking market demand and limiting specialisation. Certainly, Spain’s problems appear modest when compared with those experienced by Ireland\textsuperscript{46}.

Table 5: Per capita GDP versus labourers’ real wage rates, Spain, Italy, England and Holland 1300-1349 to 1400-1449.

<table>
<thead>
<tr>
<th></th>
<th>Spain</th>
<th>Italy</th>
<th>England</th>
<th>Holland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per capita GDP</td>
<td>Real wage rate</td>
<td>Per capita GDP</td>
<td>Real wage rate</td>
</tr>
<tr>
<td>1300-1349</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1400-1449</td>
<td>90</td>
<td>123</td>
<td>103</td>
<td>169</td>
</tr>
</tbody>
</table>


The response in Italy reflected its significantly greater density of population. Following the devastating impact of plague upon its crowded and urbanised population, it still supported an average density of 25 per square kilometre, reduced from 40 per square kilometre at the opening of the 14\textsuperscript{th} century, when peak rural population densities reached and sometimes exceeded 75 per square kilometre. Where rural congestion was so great, loss of numbers was more a boon than a misfortune and Malanima’s estimates of real wage rates and per capita GDP indicate that, after a hiatus during the third quarter of the 14\textsuperscript{th} century as successive waves of plague struck the peninsula, both rose (Graph 7). Yet, whereas the mean gain in per capita GDP between the first half of the 14\textsuperscript{th} and first half of the 15\textsuperscript{th} centuries was a mere 3 percent, the improvement in urban and rural labourers’ real wage rates was almost 70 percent (Table 3).

\textsuperscript{46} A New History of Ireland, II: Medieval Ireland 1169-1534, ed. by A. Cosgrove, Oxford 2008.
In Italy the return to per capita GDP growth that eventually followed the successive plagues of 1347-1375 was the product of contraction rather than expansion, as the shrinkage of national income lagged behind the ongoing contraction of population. Nor, tellingly, was there any accompanying improvement in the urbanisation ratio, for Italian overseas trade and commerce were in retreat. The once lucrative Italian-controlled trans-Eurasian trade had shrunk to a heavily tolled trickle, merchants were more risk averse than formerly so that local orbits of exchange were now the mainstay of most mercantile activity, and, with smaller populations to supply, markets were less integrated. Without reinvigorated commercial expansion to underpin it, the renewal of Italian population growth during the second half of the 15th century consequently exerted negative pressure upon both real wage rates and per capita GDP while the country’s urbanisation ratio resumed its inexorable decline (Graph 7). In Italy’s case the post-plague windfall economic gains lacked durability and withered once the exceptional demographic circumstances responsible for them had passed. Insofar as this was growth, it was of a decidedly insubstantial and transitory nature.

England, by far the less-developed country, fared decidedly better. As in Italy, per capita GDP and real wage rates both benefited from the mortality-induced elimination of excess population but unlike Italy these gains were felt immediately following the first pandemic of 1348-1349 and continued to accrue thereafter as the productivity of those who survived the plagues steadily improved and the burden of structural poverty effectively disappeared (Graph 8). They were also on a proportionately greater scale. From $700-800 before the Black Death, English per capita GDP had risen by a third to $1,000-$1,200 by the early 15th century; the concurrent improvement in real wage rates was even greater, more than doubling (Table 3). Nevertheless, in accordance with the intrinsically negative character of the prevailing economic dynamic, these substantial gains in per capita GDP and labourers’ real wage rates failed to translate into any improvement in the urbanisation ratio. This was differential contraction rather than demand generated growth and most gains in per capita consumption benefited rural producers and craftsmen rather than urban artisans and traders.

Graph 8: England: population, real wage rates, and per capita GDP, 1250-1850.

Sources: S.N. Broadberry, B.M.S. Campbell, M. Overton, J.-L. van Zanden, Reconstructing the National Incomes of Britain and Holland, c. 1270/1500 to 1850, research project funded by the Leverhulme Trust, Reference Number F/00215AR (N.D.); Graph 2.

England’s post-plague per capita GDP gains also proved more durable than those achieved in Italy, insofar as they endured without significant erosion for the next 250 years. During the 16th century London started to grow vigorously and the urbanisation ratio to rise as the country’s economic
structure began to change with the slow but steady expansion of both the manufacturing and service sectors\(^{48}\). It was these structural developments that enabled per capita GDP gains accrued during an era of demographic decline to survive into the ensuing era of population growth (Graph 8). Although real wage rates trended down again (Graphs 1 and 2), as labour declined in relative value and the working year lengthened as labourers worked more industriously in order to maintain household incomes (Graph 9), with certain notable short-term exceptions, per capita GDP did not. A new dynamic equilibrium had been achieved as the economy entered a commercially more expansive phase and latent processes of Smithian growth gathered momentum that would deliver further significant gains in per capita GDP from the late 17\(^{th}\) century so that by 1700 English per capita GDP finally breached the $1,500 ceiling and overtook that of the now ailing Italian economy\(^{49}\).

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Table 6: Welfare ratios (earnings relative to poverty line) of urban building labourers for nine European cities, 1450s and 1590s.

<table>
<thead>
<tr>
<th>City</th>
<th>Welfare ratio 1450s</th>
<th>City</th>
<th>Welfare ratio 1590s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antwerp</td>
<td>1.57</td>
<td>Antwerp</td>
<td>1.34</td>
</tr>
<tr>
<td>Amsterdam</td>
<td></td>
<td></td>
<td>1.20</td>
</tr>
<tr>
<td>London</td>
<td>1.54</td>
<td>London</td>
<td>1.01</td>
</tr>
<tr>
<td>Valencia</td>
<td>1.53</td>
<td>Valencia</td>
<td>0.87</td>
</tr>
<tr>
<td>Naples</td>
<td></td>
<td></td>
<td>0.78</td>
</tr>
<tr>
<td>Vienna</td>
<td>1.51</td>
<td>Vienna</td>
<td>0.70</td>
</tr>
<tr>
<td>Paris</td>
<td>1.26</td>
<td>Paris</td>
<td>0.65</td>
</tr>
<tr>
<td>Florence</td>
<td>1.32</td>
<td>Florence</td>
<td>0.61</td>
</tr>
<tr>
<td>Strasbourg</td>
<td>1.36</td>
<td>Strasbourg</td>
<td>0.59</td>
</tr>
</tbody>
</table>


England’s ability to hang onto most of its post-plague gains in per capita GDP was evidently unusual to judge from the fact that the wage rates of London building labourers would still just about purchase a “respectability basket of consumables” at the close of the 16th century, whereas those of building labourers in most other European cities had ceased to do so (Table 6). According to Allen’s calculations, the purchasing power of Parisian, Florentine and Strasbourgian workers had at least halved between the 1450s, when real wage rates everywhere were at their peak, and the 1590s. Most resilient of all were the real wage rates of building workers in the southern North Sea *entrepôts* of Antwerp and Amsterdam, the latter situated within a small and advantageously located region whose economy had displayed increasing vitality from early in the 15th century and by the mid 16th century had overtaken Italy in the purchasing power of its wage rates and per capita GDP50.

Late-medieval Flanders, Brabant and Holland are all tantalisingly less well documented and fully researched than their English neighbour immediately across the North Sea. For Holland alone quantifiable data are sufficient to allow a tentative output-based reconstruction of national income and per capita GDP from 1348 until 1500, when the range and quality of available data lend more confidence to the estimates (Graph 10). Initially, following the Black Death, per capita GDP developments in Holland look very much

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like those in England, with the difference that Dutch per capita GDP was marginally higher, varying within the range $1,000 to $1,400 throughout the second half of the 14th century. In an age of contraction, the province’s small size was an advantage: with a population of around 0.2 million (compared with England’s 2.5 million in 1377), its national income was roughly one tenth that of England. It possessed an excellent network of navigable waterways and canals, was blessed with abundant supplies of peat for fuel and clay for brick and tile manufacture, and was strategically well placed to profit from the established maritime commerce of the North Sea and new opportunities for fishing and trade opening in the North Atlantic. In the late 14th and early 15th centuries shrinking peat and rising water tables presented a major ecological setback, displacing population from the land, obliging farmers to switch from arable to pastoral production, deflecting investment into fishing and shipping, and begeting a dependence upon imported grain supplies. Confronted by these environmental challenges, Dutch per capita GDP suffered a modest decline between 1390 and 1430, by which date it was more-or-less on a par with that of England.

Graph 10: Holland: population, real wage rates, and per capita GDP, 1350-1800.
From the 1430s, however, the Dutch economy (probably in parallel with that of Brabant immediately to the south, whose capital, Antwerp, was flourishing) appears to have entered a new growth phase and started to forge ahead of its neighbours. From this time shipping, fishing, dairying, brewing, textile manufacture, brick and tile making and peat digging all grew in economic significance. Sustained by favourable marketing institutions, well-defined property rights and migration from the countryside, towns prospered, so much so that by 1500 the urbanisation ratio had reached almost 30 percent. Concurrently, per capita GDP had recovered and risen to $1,480 at a modest average annual growth rate between the 1420s and 1500s of 0.24 percent per annum. Given that the population was also rising, urbanisation increasing, commerce expanding, the structure of the economy changing, and technology advancing, this was real growth and, as such, almost unique in Europe at the time. It laid the foundation for rapid take off of the Dutch economy in the following century as population growth accelerated to 0.61 percent a year and per capita GDP growth doubled to an average of 0.47 percent, thereby elevating per capita GDP to almost $2,500 by the close of the 16th century (Graph 10). No European country had ever been as wealthy. Only real wage rates ran counter to this growth trend (Table 3): by 1600 an Amsterdam building labourer’s wage rate purchased 24 percent less than in 1500 and 40 percent less than in the second quarter of the 15th century (Graphs 3 and 10).

Meanwhile, during the 16th century per capita GDP of imperial and colonial Spain grew by less than 0.1 percent, that of England displayed zero growth, and that of the once leading economy of Italy (overtaken by Holland in the 1520s) shrank by -0.27% per annum (Graphs 6, 7 and 8). All were maritime nations as exposed as Holland to the revival of European commerce, establishment of a North Atlantic economy, and establishment of direct maritime links with India and the Far East. None, however, enjoyed Holland’s early start, or was as open to, and derived as large a share of national income from (in Holland’s case, a third of the total), overseas trade. Golden Age Holland thus exemplifies the Smithian gains from trade that could be reaped by a small and advantageously located region, endowed with good riverine and maritime communications and cheap and abundant fuel, and with property rights and institutions which promoted and rewarded economic enterprise. In these respects, its success both resembled and exceeded that of Italy and Flanders during the 12th and 13th centuries and anticipated that achieved by England from the late 17th century.

**Growth and the Illusion of Growth in Late-medieval Europe**

Recent reconstructions by a variety of direct and indirect methods of the national incomes of a handful of European countries have yielded a number
of valuable insights and revisions respecting economic growth or the want of it during the pre-industrial centuries. Absolute estimates of per capita GDP emerge as significantly higher than those originally proposed by Maddison. Relatively under-developed agrarian economies dominated by primary production with limited manufacturing sectors and low urbanisation ratios, such as early 14th century England and late 16th century Sweden, had per capita GDPS of around $750-$850. Although materially anything but rich, their food, drink and clothing were relatively costly to produce, which boosted per capita GDP above the bare-bones minimum of $1 a day. During more prosperous times, when demographic pressures were in abeyance, these economies were capable of sustaining a per capita GDP of around $1,000, whereby a substantial majority of households were able enjoy a respectability level of subsistence (Tables 1 and 6). Higher levels of per capita GDP of $1,500 or greater, such as those attained by Italy and probably Flanders in the 13th century, Holland in the 16th century and England from the mid 17th century, required fuller development of value-added activities. These, therefore, were economies with developed secondary and tertiary sectors. Necessarily, they were also underpinned by impressive levels of agricultural productivity. All were actively involved in overseas trade, which made a significant contribution to national income and promoted high and rising urbanisation ratios. The most successful and dynamic of these advanced pre-industrial economies – Golden Age Holland and early industrial England – sometimes achieved a per capita GDP of $2,000-$2,500 (Table 1). Such wealth was, however, quite exceptional and came quite late in the growth process. Most societies had to be content with much less.

Gains in per capita GDP over time were generally modest and episodic and many European economies were little wealthier in the late 18th century than they had been five centuries earlier. Italy, whose per capita GDP declined from $1,650 in 1300 to $1,010 in 1800, was actually poorer (Graph 7). The magnitude of its decline reflected the scope for contraction provided by its precocious early development. Few, if any, economies fared as badly, for the general Western European trend was towards slowly increasing per capita GDP over time. If English per capita GDP in 1300 of around $700-$800 was close to the European median and the average per capita GDP of 30 Western European countries in 1850 was approximately $1,570, per capita GDP roughly doubled across these five centuries at an average annual growth rate of 0.15 percent. A small and quite exceptional group of economies achieved higher rates of growth and successfully trebled their per capita national incomes over this same period. Holland belonged to this elite group and during the final quarter of the 16th century when its economy was developing most rapidly it briefly sustained an annual growth rate of 1.2 percent. Such rapid growth was quite exceptional. The maximum that England achieved
prior to its industrial revolution was 0.78 percent during the final quarter of the 17th century. “Fast” growth by pre-industrial standards was therefore anything in excess of 0.25 percent per annum and was usually contingent upon slow population growth. Even at this rate it would have taken almost 300 years for per capita GDP to double. Any economy that achieved this was therefore doing exceptionally well.

The chronology of economic development revealed by trends in per capita GDP is different from that implied by labourers’ real wage rates and, with the notable exception of the 100 years following the Black Death, more consistent with that suggested by urbanisation ratios. In both England and Italy real wage rates display a strong inverse correlation with population (Graphs 4 and 5), primarily because of the influence of population size upon relative factor prices and, in turn, the number of days it was necessary for labourers to work in order to satisfy their families’ subsistence requirements (Graph 9). Real wage rates consequently lend themselves to a pessimistic Malthusian interpretation of pre-industrial development, whereby population growth was typically at the expense of per capita incomes, which only rose when growth ceased or was reversed. Trends in per capita GDP provide grounds for greater optimism since they tended to hold up better during periods of population growth and were less prone to inflation when populations declined (Graphs 6, 7, 8 and 9). They also better encapsulate the totality of economic activity and consequently are a surer guide to the pace and direction of economic change. A good example is the downturn of Amsterdam building labourers’ real wage rates between 1450 and 1600 at a time when rising population, urbanisation, export earnings and per capita GDP indicate that real economic change and growth were taking place (Table 3).

It might be tempting to argue that the divergent trajectories between per capita GDP and labourers’ real wage rates are in part at least an artefact of the methods of employed in estimating the former. Angeles, however, has provided a convincing economic explanation of why genuine deviations between the two are to be expected in terms of relative factor prices and per capita labour supply52. He demonstrates that this is why English per capita GDP rose but real wage rates fell after 1750, as the working year lengthened and per capita labour supply increased, and his explanation would appear to fit the concurrent divergences that occurred in Holland, Italy and Spain. Replication of this pattern in all four independently constructed chronologies lends confidence to the credibility of both the chronologies and the trend. Much the same applies to the divergence between real wage rates and per capita GDP that followed the Black Death, for this shows up in Italy, England, and Spain (where wage rates rose but per capita GDP actually fell), and is

52 L. Angeles, op.cit., pp. 147-163.
implicit in the high real wage rates of mid 15th century Holland (Graphs 6, 7, 8 and 10). Such a recurrent pattern is unlikely to be an artefact of the time series and is undoubtedly to be explained by a European-wide rise in the price of labour relative to land and capital, reinforced by a per capita reduction in labour supply as higher wage rates enabled labourers to work less.

This chimes with Allen and Weisdorf’s analysis of the number of days per year that English urban and rural labourers needed to work in order to provide their households with a respectability basket of consumables, which they estimate declined to less than three days a week during the real wage-rate peak of the mid 15th century (Graph 9)\textsuperscript{53}. As they point out, this gave manual labourers the option of enjoying more leisure or working more industriously in order to acquire more consumables\textsuperscript{54}. A strong preference for the former is suggested by the fact that, as S.H. Rigby has observed, there was no corresponding rise in the urbanisation ratio\textsuperscript{55}. Contrary to Wrigley’s dictum, during this period a rising level of real income per head did not translate into a rising proportion of urban dwellers, and to judge from Bairoch, Batou and Chevre’s national estimates of urbanisation, this seems to have been repeated to varying degrees right across Europe\textsuperscript{56}. Differences did nevertheless exist in the magnitude of the divergence between real wage rates and per capita GDP (which was far greater in Italy than Spain and greater still in England), mainly because of differences in the relative price of labour on the eve of the Black Death (which was highest in labour-scarce Spain and lowest in labour-surfeited England) (Table 5 and Graph 3).

The gains in per capita GDP that occurred during the pre-industrial centuries arose either for the negative reason that population was shrinking faster than national income, or the positive reason that economic output was expanding faster than population. A rise in the urbanisation ratio, often driven by emergence of a single major metropolis or cluster of great cities, was typically characteristic of the positive, but not the negative, scenario. It was

\textsuperscript{53} I. Blanchard (op.cit., p. 17) estimated that peasant families spent 125-135 days a year on farm work “leaving them 130-140 days of ‘dead time’ [...] free from the agricultural round”.

\textsuperscript{54} R.C. Allen, J.L. Weisdorf, op.cit.: leisure time comprised approximately 100 holy days ordained by the Church and up to 140 days available for popular recreations: I. Blanchard, op.cit., pp. 19-23. For the array of leisure pursuits cheaply or freely available to ordinary people see C. Reeves, Pleasures and Pastimes in Medieval England, Stroud 1995.

\textsuperscript{55} S.H. Rigby, Urban Population in Late Medieval England: the Evidence of the Lay Subsidies, “Economic History Review” LXIII (2010) 2, p. 411: “the share of England’s population living in its provincial towns in 1524 was, at most, no higher than that in 1377 and may even have been slightly lower”.

\textsuperscript{56} E.A. Wrigley, Urban Growth and Agricultural Change: England and the Continent..., pp. 683-728; P. Bairoch, J. Batou, P. Chevre, op.cit., p. 259: Germany, Belgium, Spain, France, Italy, Switzerland, Austria, Hungary and the Czech lands, the Balkans and European Russia all had lower urbanisation ratios in 1500 than 1400, while Romania’s remained unchanged.
symptomatic of the leading role played by expanding trade and commerce in promoting productivity improvements via greater specialisation, fuller market integration, adoption of more efficient institutions, technological innovation, and more intensive use of available resources. Positive growth of this sort is exemplified by Italy during its commercial revolution, Holland during its golden age, and England during the mercantilist prelude to its industrial revolution (Tables 2, 3 and 4).

Such conditions scarcely applied during the 100 years that followed the Black Death, when Europe was in the grip of a deepening commercial recession, urban hinterlands were shrinking and markets becoming less integrated\textsuperscript{57}. Thinly populated Spain is unlikely to have been alone in sustaining a reduction of per capita GDP in the wake of the plague as depopulation rendered established levels of productivity unsustainable: its experience cautions against returning an overly optimistic verdict upon this unusual period. Tellingly, even when real wage rates and per capita GDP both improved, as in the case of both Italy and England, this failed to translate into higher urbanisation ratios, as should have been the case if this was economic growth in a conventional Kuznetsian sense. Moreover, in most of Europe the improved real wage rates and per capita GDP gains of the post-plague era proved transitory and endured no longer than the exceptional demographic circumstances responsible for them. The exceptions were a group of regions around the southern North Sea – Flanders, Brabant, Holland and England – all advantageously located, small in scale, well endowed with cheap energy, and blessed with favourable institutions. Here, post Black Death gains in per capita GDP were successfully maintained into the ensuing era of renewed population growth and commercial expansion, when, first Flanders, then Brabant, Holland and finally England, built upon them (Graphs 8 and 10)\textsuperscript{58}.

Historical national income analysis is in its infancy. The number of case studies is small and biased towards countries – Italy, Holland and England – which at one time or another were in the van of European economic development. Application of the method is contingent upon both survival of relevant historical records and the current state of historical knowledge, in terms of available quantifiable information on key areas of economic activity. All of the national income reconstructions presented and discussed in this paper will in due course require revision, as further research is undertaken and fuller and more precise data become available. Scholarly criticism of


\textsuperscript{58} J.L. van Zanden, B. van Leeuwen, op.cit., pp. 119-130; S.N. Broadberry, B.M.S. Campbell, A. Klein, M. Overton, B. van Leeuwen, op.cit.
data, methods and results is to be expected\textsuperscript{59}. In their methods and results, each, nevertheless, provides a cross-check on the others, hence extension of the approach to additional countries and regions can only refine and increase confidence in the results and place each country’s experience in a clearer economic context. Although many historians may be uncomfortable with such a macro scale of analysis and the challenges this poses and questions it begs, it has the great merits of highlighting historiographic inconsistencies and oversights and generating results which facilitate a genuinely comparative approach to historical analysis of economic development both within and beyond Europe. Key topics that invite closer investigation include the economic multiplier effects of Western Europe’s prevailing mixed-farming agricultural systems, impact of the Black Death upon per capita output in relatively sparsely populated regions, the forms taken by the strong leisure preference of late-medieval wage labourers, the extent of changes over time in the length of the working day and year, the ability of waged labourers to secure regular full-time employment, the labour-force participation rates of men, women and children, and whether the wage rates paid to causal labourers are representative of those received by those on annual contracts\textsuperscript{60}. Historical national income analysis is therefore as valuable for the historical questions it raises, as for the answers it is beginning to provide.

**Abstract**

Pessimistic Malthusian verdicts on the capacity of pre-industrial European economies to sustain a degree of real economic growth under conditions of population growth are challenged using current reconstructions of urbanisation ratios, the real wage rates of building and agricultural labourers, and GDP per capita estimated by a range of methods. Economic growth is shown to have outpaced population growth and raised GDP per capita to in excess of $1,500 (1990 $ international at PPP) in Italy during its 12\textsuperscript{th} and 13\textsuperscript{th} century commercial revolution, Holland during its 15\textsuperscript{th} and 16\textsuperscript{th} century golden age, and England during the 17\textsuperscript{th} and 18\textsuperscript{th} century runup to its industrial revolution. During each of these Smithian growth episodes expanding trade and commerce sustained significant output and employment growth in the manufacturing and service sectors. These positive developments were not necessarily reflected by trends in real wage rates for the latter were powerfully influenced by associated changes in relative factor prices and the per capita supply of labour as workers varied the length of the working year in order to consume either more leisure or more goods. The scale of the divergence between trends in real wage rates and GDP per capita nevertheless varied a great deal between countries for reasons which have yet to be adequately explained.
