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THE ENGLISH ECONOMY

FOLLOWING THE BLACK DEATH

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I. INTRODUCTION

This paper examines evidence from late-Medieval/early-Renaissance England in order to determine whether the English economy suffered a secular decline after the first outbreak of plague, in 1348-51. The major conclusion of this analysis is that the plague did not cause an economic depression in England. Instead, economic data--such as food prices, wages, and trade figures--indicate that the economic welfare of the surviving English population improved in the post-plague era. The severe and repeated population declines during the post-plague period appear to have been generated wholly exogenously. The economic improvement was not universal. While the peasants and artisans were better off in the post-plague era, the upper class suffered from the rise in wage rates and the fall in land rents.

The conclusions reached here contradict those of many other economic historians. The disagreement has two basic sources. First, when the population level falls drastically, total and per capita economic activity may move in opposite directions. Many economic historians, most notably Miskimin and Lopez, have looked at trade figures for this period in aggregates, ignoring changes in population (see 19, 20, 21, 22). Such practices implicitly rely on Malthusian theories of endogenously generated changes in population. The problems with applying the Malthusian population theory to this time period are discussed below in greater detail. For now, suffice it to say that population decline may be exogenous or may be affected by economic activity in other than

the usually expected ways. Because the issue of aggregate versus per capita data has been mishandled by many writers, it is necessary to define economic depression precisely. In this paper, the term "economic depression" denotes a general decline in per capita economic activity. While this may seem a simplistic point, confusion over this concept characterizes the debate about economic trends during the Middle Ages and the Renaissance.[1]

Second, several scholars discuss the effect of the plague on Western Europe as a whole. By contrast, this study only considers England. The analysis presented here cannot necessarily be generalized to French, Italian, or other continental European economies of the period. Circumstances in other nations differed greatly from those in England. England had no armies battling on her soil; she was not a city-state easily starved out by a bad local harvest or a siege. While recurrent epidemics and the ensuing population decline were the dominant themes in English history of the period, war and famine took a greater toll on the Continent. Students of medieval France have concentrated on the Hundred Years' War rather than bubonic plague as the chief cause of that nation's misfortunes. Other Continental nations faced a similar multitude of problems. With so many factors differing between England and other countries, any comparison must be drawn with great care.

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[1] Unfortunately, there are very little total- or per-capita-output data from this period for any sector except the textile industry. Most available data are for factor payments. This makes changes in the distribution of income a relevant consideration.

The differences between the English and the Continental experience following the Black Death, which swept all of Europe between 1348 and 1351, point out that the economic trends in England during the 14th and 15th centuries are not uniquely determined by the occurrence of plague, nor by the subsequent loss in population. The English experience, as examined here, is probably most interesting as a counterexample to Malthusian theory, that populations grow until they are unable to support themselves. The theory predicts that once this occurs, economic and population decline follow.[2]

This paper starts with a short presentation of earlier research on the post-Black Death era. Recent studies of the pre-1348 English economy are then reviewed. Because the nature of the disease itself has economic significance other than simply increasing the mortality rates, the epidemiological characteristics of the plague are discussed briefly. The immediate and longrun dynamic paths of adjustments of the economy following the plague are examined using wage, price, rent, and export data. These data are examined within chronological categories. The last section of the paper compares the pre-plague and post-plague economies.

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2 Modern economic demographers embraced Malthusian theory in a relatively sophisticated form. In general, the relationship Malthus found holds so well for preindustrial societies that evidence showing a change in one variable (say, population) can be used to predict a change in the other (say, economic welfare), if independent data are absent.

II. SUMMARY OF PAST RESEARCH AND EVIDENCE

This section contains a short presentation of other views on the subject and a description of the nature of supporting evidence. Within the past century, economic historians have vastly altered their views on the trends in economic activity and in population levels during the centuries surrounding the Black Death. Some turn-of-the-century writers hypothesized that population must have increased throughout this period, with only a brief interlude of decline during the plague years 1348-51. These authors saw a continuous trend of progress and increasing economic activity running from the 11th century to modern times.[3] Tharold Rogers, for example, cited England's economic health and ever-increasing trade activity during this period as evidence that the population grew without serious interruption, from the 12th century to modern times (quoted in 27, p. 221). Today, virtually all scholars argue that the plague depopulated Europe and that recovery was far from immediate.

Unfortunately for researchers, the exact population and level of economic activity in medieval England are unknown. The English did not keep National Income accounts during the middle ages. Only two independent sources of national population figures exist for the entire medieval period. These are the Domesday book of

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[3] For fuller descriptions of turn-of-the-century views on medieval England, see Bridbury (3) and Postan (27).

1086 and the Poll Tax of 1377. Even these are only surveys of households in certain sectors of the population. The total population estimates made from these figures depend critically on assumptions about dependence rates, tax incidence, and tax evasion. Estimated population figures for the three centuries spanned by these two pieces of data depend quite heavily on assumptions about fertility and mortality rates.[4] There are some trade data, most notably exported cloths and sacks of raw wool, but most trends in output (particularly in the agricultural sector) must be projected from selected manorial accounts reporting acreage devoted to various crops, and from changes in prices. These estimates are of course highly sensitive to assumptions about changes in tastes, income, and factor prices.

Since World War II, aerial surveys of the English country side and archeological studies of English towns have produced undeniable evidence of drastic population reductions in the 14th century. The aerial photos reveal hundreds of abandoned 13th- and 14th-century villages and fields, while the archeological studies

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[4] Comparing two estimates based on these sources shows the sensitivity of such estimates to various assumptions. Russell postulates that the population peaked in 1347, that mortality from the plague was 20 percent, that tax evasion was 2.5-percent, and that dependence rates were 35 percent. This gives a peak population of 3.7 million (32). Assuming a population peak in 1315 (the date of the Great Famine), a 10-percent net decline in population between 1315 and 1348, a 50-percent plague mortality rate between 1348 and 1377, a 40-percent dependence rate, and a 25-percent tax evasion, Postan arrives at 8 million as the peak population figure (27, p. 37).

show that in many English towns, outer walls expanded during the 13th century proved adequate to house the town population until well into the 16th century (11, p. 175). These findings, together with contemporary chronicles of the famine of 1315-19 and of the Black Death, present convincing evidence of a drastic population decline in the 14th century. Plague chronicles and epidemiological studies provide evidence that the population declined between 20 and 40 percent due to the Black Death alone, with further reduction caused by subsequent outbreaks.[5] By most accounts, the English population at the beginning of the 15th century stood at not more than 50 percent of its peak level, reached some time between 1275 and 1315.

Because economic data from this period are scanty, many economic historians have tried to piece together a picture of the era using population estimates to postulate probable economic conditions.[6] This method produces scenarios that accord well with traditional assumptions about the correlation between economic activity and population but fall apart if this correlation is questioned. Applying the Malthusian law to 14th- and 15th-century population data has led many historians to claim that the post-

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[5] Postan estimates the death toll by 1351 at 40 percent, with a total reduction of 50 percent from all outbreaks (26, p. 32). Russell puts the increase in mortality at 20 percent, or a death toll of 25 percent in the 3-year period (32, p. 55). Miskimin quotes 25 percent by 1351, with an equal amount every 10 years thereafter (21, p. 27).

[6] See Bean (2) or Saltmarsh (35) for examples of such theories.

1348 era was characterized by economic depression. They draw further support for their claims from the lack of a quick population recovery. The weakness in this argument lies in the lack of independent substantiating economic evidence, as well as outright contradictory evidence, such as improved diet, shelter, and clothing among the urban working class.[7]

Recently, Thrupp gathered independent evidence of population decline in manors with increased economic activity by studying previously unexamined manorial accounts and inheritance records. Her work and that of students of medieval epidemiology point to autonomously increased mortality rates and decreased replacement rates in the late 14th and 15th centuries. The outbreak of plague was not only associated with an increased death rate; it may also have been the major force behind decreased replacement rates, because it caused sterility in many survivors and struck down a disproportionate number of children and young people in the periodic post-1351 outbreaks (2, p. 431).[8] While a malnourished population is more susceptible to disease than a well-fed one, the automatic association between high death rates and Malthusian

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[7] Bridbury (3) provides a full discussion of changes in the peasant's standard of living following the plague.

[8] Shrewsbury (37) agrees that plague causes sterility but contends that survivorship does not provide immunity from subsequent attacks. He views the higher mortality rates among the young as evidence that these epidemics must have been caused by other diseases. This view is not widely shared.

overpopulation is not always appropriate. Increased trade and communications are also causes of heightened incidence of disease. Outbreaks of plague depend on the biological cycles of rats and fleas as well as humans. The evidence for a causal connection from economic hardship to increased mortality rates is not overwhelming in the medically unsophisticated society and generally unsanitary conditions of medieval England (41, p. 152).

To test the Malthusian hypothesis for the population decline of the late 14th and 15th centuries and to develop a reference point for measuring the economic health of the English economy during this period, it is necessary to look at the population and economic trends in pre-1348 England in some detail before moving on to the plague period itself and finally to the post-plague era.

III. ENGLAND BEFORE THE PLAGUE

Knowledge of the English economy before the Norman Conquest of 1066 is almost nonexistent. There is virtual consensus, however, on the nature of English development between the Conquest and the end of the 13th century. During this 250-year period, the population grew steadily, at approximately 3.8 per mille per annum (26, p. 33). The amount of land under cultivation increased by hundreds of thousands of acres. Networks of small and large villages sprang up and covered the countryside. These villages were inhabited by the 90 percent of the population directly or indirectly involved in agriculture (11, p. 167).

Despite the overwhelmingly rural character of medieval England, towns and cities continued to grow and increase in importance as centers of economic activity. Nonagricultural goods and services were mostly produced by individual artisans or miniscule cottage industries.[9] The role of guilds in town life and the regulation of commerce is well documented. The presence of these cartels and the general lack of social mobility in the society partly explain the differential between living standards of town residents and those of peasants.

The 250-year period following the Norman Conquest was marked by tremendous innovation in agricultural techniques. In the 11th century, the preferred areas of settlement were on light, loamy soil suitable for intermittent cultivation with a light plow. By the 13th century, two-field or three-field systems of crop rotation were universal. The three-field system was a particularly significant innovation because it allowed the growing of barley and oats, which provided fodder for horses. The horse, together with the four-wheeled wagon with a pivoted front axle, provided a improved and less expensive transportation, which aided the expansion of cash crops, such as wheat and wool, by making more regions accessible to markets. The development of the stiff collar enabled a single horse rather than three oxen to be used on the heavy plow, reducing the amount of capital investment in

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[9] Homans (16) and Chambers (4) discuss medieval production and marketing techniques in detail.

livestock needed for peasant communes to farm heavy and rocky soil.[10] These improvements in technology, together with the reclamation of marshland, greatly increased the food supply (22, p. 34). This, in turn, allowed the English countryside to support a larger population.

One of the unanswered questions of the period is why known techniques did not spread more rapidly. Helleiner hypothesizes that innovation took place in response to population pressure and that it was the agricultural crises in the late Middle Ages (i.e., following the plague) that eventually compelled lords to adopt somewhat more experimental attitudes towards inherited agricultural practices (12, p. 369).

The explanation that crisis lead to innovation runs counter to the observed behavior of peasant populations in modern developing nations. On the other hand, however, Postan compares innovation on freeholdings to that of peasant commune lands, and finds no substantiation for the modern hypothesis that change is generally initiated by nonconformist individuals and hence stifled by communal organization (29, p. 342). In fact, many of the innovations of this period, particularly the use of the heavy plow, were well suited to a communal setting, where capital equipment and livestock could be easily shared or where investments

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[10] Higden's work (14) traces the spread of technology within the British Isles. White (41, p. 39) discusses the nature of important innovations and their effect on society.

could be made by a large landowner, although the changes often necessitated the redistribution of land (12, p. 369).

There is a more appealing explanation for the slow spread of less labor-intensive methods of cultivation. The three-field system of crop rotation, for example, requires much less fallow acreage to be plowed annually and thus is land-intense, but labor saving. However, in pre-plague England, labor was in such abundant supply that any substitution of scarce land for plentiful labor was economically irrational. While more acres of crops can be grown using this technique, fewer of those acres can be devoted to the high-calorie spring-planted cereal staples, which might also make three-field cultivation less attractive when land is the scarce factor.

Evidence shows that by the late 13th century, excessive growth was causing overpopulation. There is little doubt that the population grew faster than the number of acres under cultivation. Between the 11th and the 14th centuries, plot size fell and dependence rates increased (28, p. 227). The hypothesis of a changing land/labor ratio is supported by examining both manorial accounts and graveyards. Land shortages were severe. Queuing for vacant holdings became common practice, and landowners raised entry fees (4, p. 13). Transfers of land by sale rather than inheritance became more commonplace (27, p. 34). The price of arable land, the obligations of serfs, and money rents of tenants all continued to rise in the 13th century. Landless families

became more numerous; and with the increased availability of hired labor, the real wage fell.[11]

Compounding the problem of an ever-increasing population was the loss of productivity of newly reclaimed lands. Much of this land was marginal at best, requiring frequent fallowing and heavy fertilization to retain its fertility (26, p. 40). But hungry people cannot always afford to take the land out of production, even when they know it is necessary. With inadequate husbandry, the marginal lands proved ever more inadequate to feed the population.[12]

In classic Malthusian style, overpopulation brought forth its own solution--depopulation--through malnutrition, rising mortality rates, and declining marriage and birth rates (6, p. 523). Famines became more frequent, caused both by increased dependence on marginal lands and by a worsening climate.[13] Undoubtedly, much of the population lived very close to the subsistence level,

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[11] Postan presents evidence that the real wage in 1320 was between 25 and 40 percent less than the real wage in 1210, although, due to price inflation, the money wage was approximately constant (27, p. 232).

[12] Bridbury claims that the severity of the famines is probably somewhat exaggerated because they hit various parts of the country with very different intensities (3, p. 577).

[13] Duby reports 10 years of universal famine in Europe between 1270 and 1335: 1272, 1277, 1283, 1292, 1311, 1315-19, and 1333, which, he claims, is considerably more frequent than in earlier periods. In addition, most countries had local famines during this period (9, p. 183). Russell and Genicot both cited geological evidence that there was global cooling between 1275 and 1300 (32, p. 55; 10, p. 673).

vulnerable to the slightest reduction in the available food supply. Even small rises in the price of grain during this period were associated with increased death rates. There is some evidence that famines were followed by increased real wages, as the stock of landless workers was temporarily depleted.

There is virtual agreement among modern economic historians that by the beginning of the 14th century, most of Europe--England included--had ceased to advance. Colonization stopped. Population levels stayed constant or fell. Bad weather and exhausted soil prevented the realization of agricultural surpluses.

The overpopulation and repeated famines of the late 13th and early 14th centuries culminated in the great famine of 1315-19, which devastated all of Europe. The severity of this natural disaster is indicated by the tremendous rise in crop prices, to levels greater than those seen again for at least a century and a half, whether measured in shillings or grains of silver (30, p. 565, table V). Writings from the period from every European country tell horrible stories of people eating the flesh of dead kin. Cipolla estimates the magnitude of the death toll for these 4 years alone at between 15 and 20 percent of the population (7, p. 88).

The famine decreased the proportion of landless poor for two reasons. First, this class relied more heavily on the availability of grain in the marketplace and were therefore harder hit by famine. Second, as landed peasants died of famine, the landless poor rushed to take up vacant holdings. The massive exit

of wage laborers had repercussions in the marketplace. Nevertheless, the change in the land/labor ratio did not cause nominal rents to fall, although their rise was halted (3, p. 577).

There is little doubt that England's population did not again regain its pre-1315 peak until well into the 1500's. However, there is no evidence that the famine caused major social and economic upheavals. Rather, the decline of the manorial system did not begin to gain force until the 1360's and 1370's (3, p. 578).

After the famine, real wages rose sharply (28, table I). Land prices rose less steeply than before. While some scholars (notably Postan) see this as an early sign of economic decline, others (such as Bridbury) have recently argued that the countryside was so overpopulated at the time of the famine that the decrease in population had a purgative rather than a toxic effect (3, p. 587). This second school of thought subscribes to the hypothesis that in early 14th-century England, the marginal product of labor was close to zero and that the value of labor in production was not significantly increased by local losses of 25 to 35 percent in population (9, p. 200).

The support for the view that the countryside suffered extreme overpopulation has been pieced together from several sources. These include evidence of high dependence rates and large household groups found in the examination of manorial and monasterial records (16, p. 420). Together with contemporary sources telling tales of unimaginable rural poverty, these data

sketch a picture of a peasantry so destitute, so hungry for land, that even large reductions in the population by famine or disease did not significantly affect the number of tenants and wage earners working on desirable estates. Holdings on manors suffering heavier-than-average losses did not remain vacant long.[14]

The famine of 1315-19, which wiped out approximately 15 percent of the national population, represents a Malthusian suppression of a population that has grown beyond its outer limits of subsistence. While 4 consecutive years of very bad weather was the immediate cause of the disaster, there is much evidence that the rate of population growth had previously slowed down because the food supply could not be increased as exhausted soil yielded less and less.

Postan presents evidence that the population was cut back sufficiently by the famines to begin once again to grow. (27, p. 41). After this devastation, marriage and fertility rates again rose. Bridbury points out that the standard of living improved somewhat, at least if welfare is measured by the availability of an adequate food supply (3, p. 582). Although the countryside again teemed with people, it is clear that the population did not reachieve its 1315 peak in the pre-plague period.

In 1348, on the eve of the Black Death, England was a country rebounding from recent population decreases. Many authors

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[14] This also indicates that medieval England's population was more mobile than is usually supposed.

represent England at that time as a country slowly regaining its feet, when the plague sent the economy diving into depression.[15] According to Bridbury, there is every indication that while England was not quite in the state of overpopulation it had been in two decades earlier, the countryside still had an abundance of human life at the time the plague struck (3, p. 578). Nevertheless, he agrees with the vast majority of economic historians that the outbreak of plague represented a Malthusian check.

IV. THE PLAGUE AND ITS IMMEDIATE EFFECTS

The outbreak of plague in England in 1349 was part of a European and Oriental pandemic that lasted in the British Isles until 1665.[16] A pandemic is characterized by an initial explosive outbreak of plague that decimates the rat and flea populations necessary for the spread of the disease. Successive outbreaks are of reduced severity, both because the human population gains (limited) immunity to the disease and because plague breaks out whenever the rat and flea populations reach a threshold well below the original level. Outbreaks become increasingly frequent, localized, and less severe. By the late 15th century, plague had

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15 See Lopez and Miskimin (20) for an example of this view.

16 There have been three such pandemics in recorded history: the first began in Constantinople around 500 A.D.; the second outbreak began with the Black Death years of 1348-51, affecting both Europe and the Orient; the third, the Great Eastern Plague, started around 1800.

ceased to be a rural phenomenon in England. The last several outbreaks in the 17th century were almost entirely confined to London. The Great Fire of 1665 wiped out plague in England entirely, probably because it destroyed the wooden buildings in which the plague-carrying fleas and their rats lived.[17]

Mortality rates among plague victims vary widely, depending upon the form contracted. The most common and least virulent version of plague is the bubonic form, which depends upon the rat and flea to spread the infection.[18] Without antibiotics, the bubonic version is fatal in man approximately 60 percent of the time.

Because the flea's reproductive cycle is extremely sensitive to climate changes, the bubonic form is characterized as a warm-, but not hot-weather disease. The outbreaks of 1348-51 continued year-round because the epidemic developed a pneumonic form. In this form, the bacteria can be transmitted through the air from person to person. This form is highly contagious and is fatal in

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[17] Between 1348 and 1485 there were 19 years when plague infected most of England: 1348-51, 1361-62, 1369, 1375, 1390, 1398-1400, 1407, 1413, 1438-39, 1465, 1471, and 1479. Plague infected sectors of the country in 1389, 1406, and 1440. London alone suffered in 1405, 1413, 1434, 1439, 1464, 1470, and 1484-85 (4, p. 132).

[18] The black rat's fleas are the preferred host of the parasite. These fleas will not bite man or other mammals until the rat population is decimated. Once the rats are killed off, its fleas then bite other mammals (humans being a preferred victim), and regurgitate the infected rat's blood into the new host (37, p. 10).

almost 100 percent of its victims if treatment is not quickly administered. The third form of the disease, septaemetic plague, is the most deadly but also extremely rare, even in massive outbreaks (1, p. 403-7).[19] The chronicles of the Black Death years, 1348-51, make it clear that plague was present in all three of its forms.

While the black rat is a weak creature that likes to share human habitation, its inability to migrate has been unduly exaggerated by some scholars, who refuse to accept the possibility of a 25-to-40-percent death rate. Indeed, it appears that this weak creature moved across the sea and from city to countryside quite easily, because it was the common ship rat, and it also lived in grain stores and in the wood and thatched cottages typical in the 14th century (35, p. 114). While not more than 10 percent of the population inhabited urban centers and major market towns in 1348, virtually the entire population lived in villages with between 10 and 400 families (22, p. 19). There were few isolated households in medieval English society.

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[19] Septaemetic plague is transmitted when a person's blood is so infected that when one of his fleas bites another person, it carries such a toxic level of the disease that the second victim dies within a matter of hours. Few plague victims can incubate the infection to such a point without dying, and at death, fleas abandon the body; so the opportunities for this type of plague to develop are extremely rare. In addition, the transmission had a low probability of occurring in the Middle Ages because plague victims were frequently abandoned (1, p. 403).

The incidence of plague in villages is as high as that in the towns, according to comparisons of manorial accounts and town records (2, p. 42). In both, the death rate was highly variable. Some localities had as much as 65 percent of the population die in initial outbreaks. Others were passed over more lightly. Reviewing contemporary accounts and available records, it is not difficult to believe that at least a quarter of the population perished from plague between 1348 and 1351.[20] Exposure of even remote regions suggests that medieval England was a society well connected by many international and domestic trade routes and markets.

Historians present conflicting reports of economic conditions during and immediately following the Black Death. This is not surprising--first, because the plague did not afflict all villages and towns uniformly, and second, because information about this 3-year period comes from chroniclers, supplemented by investigations of manorial records. Chroniclers primarily use

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[20] Cipolla notes that famines eliminating 10 to 20 percent of the local population were not uncommon (7, p. 89). As Bridbury points out, everything in the behavior of contemporaries leads one to believe that plague was far deadlier (3, p. 587).

anecdotal evidence, tending to exaggerate and overemphasize the more dramatic aspects of a period.[21]

By far the most important measure of year-to-year changes in medieval welfare is the presence of adequate food supplies. Studies on the relative supply and demand for grain immediately preceding the plague are contradictory. Bridbury claims that the

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21 One theme repeated by many chroniclers is the change in consumption patterns during the Black Death and subsequent plague years. People appear to have had one of two basic reactions to the threat of death all around them. The first reaction was an increase in religious fervor, accompanied by the divesting of wordly goods, in order to live the life of prayer and devotion. The second and apparently more common reaction was an indulgence in worldly pleasures, characterized by increased consumption of luxury goods. (See Nohl (24) for writings from the period describing the change in living patterns.)

This phenomenon needs little explanation if medieval man's consumption pattern conformed to the life-cycle hypothesis. The spree of spending reported by the chroniclers is predicted by the theory, given (1) decreased life expectancies, as death by plague becomes more imminent; (2) an increase in assets per capita, as inheritance concentrated wealth in fewer and fewer hands; and (3) an increased ability to satisfy basic human needs, so that the increase in consumption primarily affected the demand for luxury goods.

An additional explanation for the often-reported consumption of previously unattainable luxury goods by the common people is that many luxury goods were durable and survived their owners' death. Silk, furs, and delicate furniture came into the hands of servants and those who pilfered the homes of the dead (24, p. 106). Today there is no way of knowing the pervasiveness of consumption of luxury goods by common folk. However, the number of extensive commentaries on the subject provide evidence that the availability of these commodities to the urban shopkeepers and artisans represented a change from the ordinary. Some crude measure of the previous distribution of purchasing power by class is suggested by the emphasis on the consumption of luxury goods by those outside the upper classes as an upheaval in the social order and the apparent restriction of this phenonmenon to urban settings. It also provides a point of comparison for later periods.

Black Death hit England after several fairly good harvests (3, p. 589). Based on accounts from the estates of the bishops of Winchester, it appears that in 1348, on the eve of the Black Death, grain prices were at their 1305-10 level, well below the 1315-19 high but above their 1333-45 level (27, p. 264). This rise in grain prices in the years immediately preceding the plague exceeded the increase resulting from the growth in the per capita monetary stock alone.[22] This analysis leads to the conclusion that grain was relatively scarce immediately before the plague struck, but that the scarcity was not nearly as severe as during the 1315-19 famine.

While it appears that grain was not in particularly plentiful supply immediately before the plague struck, the years before the plague do not seem to have been years of severe hunger, either. This evidence fits Bridbury's characterization of the pre-plague English countryside as still overpopulated but not suffering from the same degree of rural poverty as had been common before the Great Famine.

Grain appears to have been in plentiful supply during the first epidemic. The three years of the Black Death had Indian summers. This both prolonged the plague and also allowed ample time for surviving peasants to harvest the crops (3, p. 578). The year 1352, however, was a year of famine (3, p. 590). The

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22 Cipolla (5) agreed that bullion did not increase by enough to account for the change.

surpluses made available by the drastic drop in population gave out. Both the weather and the harvesters seem to have failed. This sequence of plague years followed by famine years occurred several times in the late 14th and 15th centuries (42, p. 32). It is not known whether it was caused by labor-market dislocations, output adjustments, or early winters simultaneously ending that episode of plague and destroying the crops.

Several commentators have noted that prices for agricultural and manufactured goods rose during and following the first epidemic of plague, with the prices of manufactured goods rising more (34, p. 451). This seems to have also occurred to a lesser extent during subsequent visitations of the disease (12, p. 375). The phenomenon has two causes--the monetary cause (as bullion per capita rose) and the real cause (which has more complex origins).[23] Undoubtedly, the drastic drop in population caused severe labor-market dislocations, with various villages and vocations having suffered differential effects of the plague. The geographic mobility of peasants increased in the general tumult, with landlords lowering entry fees and eliminating traditional obligations in an attempt to attract an adequate labor supply (22, p. 29). Small landlords also pressed for the enactment of the Labor Legislation of 1351, which (unsuccessfully) sought to prevent large and powerful landlords from attracting away their

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[23] For a discussion of monetary issues associated with the growth and decline of the medieval population, see Cipolla (5) and Miskimin (23).

labor supply (22, p. 103). Both the pressure for such legislation and its failure to thwart the offering of incentives to workers and tenants show that mobility was increasing.

It is not clear that the Black Death and the associated decline in population immediately raised the marginal product of labor. A large proportion of the capital in medieval agriculture was in the form of livestock, which was subject to animal murrains as well as to bubonic plague itself. These diseases cut into the livestock population between 1348 and 1351 (22, p. 57). In addition, this period was not long enough to allow readjustments in technology to take advantage of changes in the land/labor ratio.

The increase in peasant mobility immediately following the Black Death was not confined to intermanorial movements and to the entry of previously landless peasants into demesne farming. The migration to the towns also increased (11, p. 164). The rapid recovery of hard-hit town populations argues that the welfare of the population in urban England increased as well, because migrating peasants always have a base level of subsistance on which they can rely (40, p. 234).

Chambers reports that textile workers were particularly hard hit by the plague because they worked in close proximity to rats' nests (4, p. 89). Other indoor workers were also hard hit. The guilds' ability to control entry into these and other professions broke down in the aftermath of the plague. Apprenticeships were shortened, as those with even minimal training moved quickly up the ranks so more positions opened up at the bottom (42, p. 233).

This phenomenon, which was part of the adjustment process after each major outbreak of plague, provides additional evidence that the surviving members of the lower classes of society bettered their lives in the aftermath of the plague.

The increase in the relative prices of manufactured goods following the Black Death probably stemmed from several complementary causes. First, medieval crafts were manufactured through very labor-intensive processes. Unlike a farmer, who can produce more with two acres of land than with one, an artisan is not significantly more productive with two sets of tools than with one. Thus, there is no reason to believe that the marginal product of labor increased due to a higher capital/labor ratio as the number of artisans fell.[24] Second, the output per worker of manufactured goods probably fell as human capital was destroyed by the plague. Apprentices, suddenly catapulted into the positions of masters, had not refined their skills and probably worked more slowly. The quality of goods probably fell for the same reason.[25] Equivalent quality goods probably commanded a higher price in the market (22, p.87). Third, as per capita income rose, a smaller proportion of that income had to be spent on basic foodstuffs.

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[24] This, of course, assumes that prior to the Black Death, there were not more artisans than tools.

[25] The loss of human capital was a serious problem in all of the fine and decorative arts. The growth and development of perspective and realism were stunted by the premature deaths of the major proponents and their disciples. While Italy was the center of artistic development, the loss of teachers presumably affected England as well.

Thus, an increase in per capita income probably lead to a relative increase in the demand for manufactured goods and hence a rise in price.

Immediately following the first epidemic, the rural sector appears to have lost population relatively as well as absolutely. The landless peasants took up vacant holdings and the entire rural population began to move to the more desirable land (9, p. 212). The aggregate demand for basic foodstuffs fell, partly compensated for by a rise in the demand for nonbasic agricultural products. The marginal product of labor in the nonagricultural sector fell or at least stayed the same, while the demand for manufactured products increased. The effect on the marginal product of labor in the rural sector is uncertain.

The medieval English economy undoubtedly took some time to adjust to the differential effects of the plague in various sectors. It appears, however, that the lower classes in society improved their position by taking up vacant holdings and entering apprenticeships in previously restricted professions. Landlords, faced with vacant holdings, lower agricultural product prices, and higher wage rates, had their profit margins further eroded, as they were forced to lower rents and entry fees to retain tenants or attract new ones. Attempts to legislate wage ceilings and to prevent peasant movements were singularly unsuccessful. The

economic position of landlords began to deteriorate as their factor--land--became more abundant relative to labor.[26]

V. THE LONGRUN EFFECTS OF THE PLAGUE AND THE DYNAMICS OF ADJUSTMENT

The loss of 25 to 40 percent of the population caused dislocations to which the medieval English economy could not immediately adjust. Every sector of the English economy was affected by the decline in population. The equilibrium among industrial areas was thrown off because labor's sudden scarcity affected each sector differently. The equilibrium among geographic regions was unbalanced both because the incidence of plague varied from place to place and because the shift in the land/labor ratio changed the desirability of various locations.

By looking at trends from the last half of the 14th century to the mid-15th century, it is possible to trace the dynamic path of the economy as it adjusted to the decline in the population and to the recurring shocks from subsequent outbreaks of plague. The

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[26] While the above paragraph is based on events directly following the Black Death, the entire description is applicable to events following other major outbreaks of plague. The areas affected by the plague varied and the intensity of subsequent outbreaks was much diminished, but the later epidemics still had dislocating effects on the economy. Although the tone of the discussion of dynamic adjustments is as if there had been one shock, in reality there was one major shock followed by a sequence of smaller periodic shocks occurring over the next 200 years. However, the intensity of the epidemics was reduced, and there is some evidence (particularly from cloth and export data) that output and production were not significantly affected by the later outbreaks (2, p. 434).

possibility of a post-plague economic depression can be addressed by examining this dynamic path. While this is a very long period of time from the modern viewpoint, and one in which there were undoubtedly many ups and downs, it is not too long when one considers the magnitude of the initial shock and the regularity of subsequent shocks.

The most obvious effect of the Black Death was its drastic altering of the land/labor ratio. England was primarily an agricultural society. Prior to the plague, land had been the scarce input. Therefore, it is not surprising that this change in relative factor scarcities sent numerous reverberations throughout the English economy. Hence, the natural place to begin a discussion of the effects of the plague is with the agricultural sector.

Population was drastically reduced in every area of the country, but the proportion of the population dying off varied from region to region. While the variation in the mortality rate from region to region may not have been purely random, investigations have shown little correlation with the economic health of the area (38, p. 242).

As landed peasants died of the plague, they left vacant holdings. Landlords with more productive land or with more profitable manors could lower entry fees or decrease rents more easily without being squeezed out of business. In addition, their lands were more attractive to potential peasants. The more productive land and the more attractive terms could also induce

peasants to migrate from inferior holdings. Thus, the remaining population probably shifted to the more productive land, and subsequent population patterns were probably not deeply influenced by the geographic pattern of mortality from the plague.

There is much evidence to support this scenario. Lowered entry fees and reduced rents are reported in manorial accounts (3, p. 509). Aerial photographs and archeological investigations show that the manors deserted during this period were mostly on recently colonized land, which probably had the least desirable soil and terrain (11, p. 166).

Thrupp reports that the number of runaway serfs increased tremendously during this period. While that fact alone is ambiguous, because serfs could have been running either away from increased hardship or towards increased opportunity, Thrupp points out the possibility that the tumult following the plague may have increased the peasant's opportunity to escape his duties and obligations, and to better his life elsewhere (37, p. 114).

All evidence from the post-1348 era points to increased mobility within the agricultural sector. Landlords tried both to tie their own serfs more firmly to the land and to attract others to their manors. Upon appeals from landowners, Parliament enacted several laws tying peasants to the land and keeping down the wage bill. None of this legislation appears to have been successful; landlords acting in their own individual interests tried to

attract labor with higher wages and other forbidden tacits, thus undercutting the interests of their own class.

As long as the drawing power of landlords was positively correlated with land quality, the new post-plague equilibrium would be characterized by the best land being settled and the worst land being vacated. This is so whether population losses were positively, negatively, or not at all correlated with land quality. The three possible courses differ only in the amount of time needed for the adjustment.

Postan and several other economic historians have based their discussions of this period on the assumption that the marginal productivity of land did not change as a result of the population loss (27, p. 32; 22, p. 25). Logically, however, there is little reason to suppose that this proposition is true, nor is it supported by the evidence. In 1348, labor was in plentiful supply in the English countryside. The changes in productivity immediately following the Black Death and subsequent outbreaks of plague have already been discussed. While the simultaneous outbreak of cattle murrains prevents our drawing any definite conclusion about the change in marginal productivity of labor immediately following the plague, it seems likely that per capita agricultural output increased, for two reasons. First, proportionately more non-workers (the elderly, the infirm and children) appear to have died of plague. Second, city dwellers and workers in nonagricultural indoors occupations suffered higher incidences of plague because they were more frequently exposed to rats (37, p. 103).

Therefore, following the initial outbreaks, it is likely that the population contained a higher proportion of agricultural workers.

Whether or not the marginal product of labor in agriculture rose in the short run, there are four reasons to believe that it did increase in the long run, as the agricultural sector adjusted simultaneously to the change in the land/labor ratio and to shifts in demand. First, the movement by peasants appear to be from less productive to more productive land. While this redistribution of the population may have been thwarted or even temporarily reversed by subsequent outbreaks of plague, the evidence indicates that the population was slowly moving away from the marginal areas colonized in the 13th century.

Second, the trend of wages in the agricultural sector provides corroborating evidence. While the prices of agricultural commodities stayed constant or fell in real terms, the real wage paid to hired agricultural laborers rose from 1348 until about 1460, considerably after the population had reached its lowest point (10, p. 682; 28, table I).

A third reason to suppose that the marginal productivity of labor increased is that improper care of the soil is a reason often given for the low level of productivity of English agriculture in the early 14th century. With the increase in the land/labor ratio and the increase in the acreage held by the average peasant family, peasants could more easily keep more land out of production on a regular basis without seriously reducing their

total harvest (14, p. 205). This increase in regular fallowing would improve the productivity of soil.

Fourth, prices of agricultural products fell and remained low, in both real and nominal terms (10, p. 682). Since the wages paid to agricultural workers rose at the same time, this implies that the marginal productivity of labor increased. People were not starving. With a smaller proportion of rural people landless, a smaller proportion of society relied on the market for its basic food supply (35, p. 112).[27]

In the long run, the output per capita of basic agricultural products probably declined over its initial post-Black Death high, but crop prices remained below pre-plague levels. For people spending a large enough proportion of income on food, a drop in the price of basic food items constitutes a large increase in real income. With basic food supplies costing less as a proportion of income, people could afford more luxury food items, such as cheese,

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27 While this era, like any other in the pre-industrial age, was marked by periodic famines, they were infrequent and less severe than those of the 50 years before the Black Death. In general, the famines that occurred are attributable either to particularly bad weather, or else followed a year of plague. Why plague years tended to be followed by famines is not clear. Whether the plague killed and sickened enough workers to cause major disruptions in harvesting and/or sowing, or whether the plague caused disruptions in the marketplace or in transportation to the market to cause famine is not known. Data on the wool trade show that the plague did not interrupt shipments overseas in that industry (2, p. 434). That, combined with the fact that plague outbreaks sometimes continued several years and that only the last year was generally followed by famine, points to the possibility that the same weather cycles that ended the plague outbreak may have diminished the harvest.

meat, and beer. Consumption of such items rose and the proportion of land devoted to nonedible agricultural products such as wool also increased (22, p. 132; 9, p. 214).

The increase in acreage devoted to sheepherding is primarily inferred from the increase in the amounts of raw wool and finished cloths exported and from the decrease in imported cloths. The sizable increase in exports cannot be wholly accounted for by the decline in the domestic population. Aside from this, virtually nothing is known for sure about domestic consumption of wool during this time period. Miskimin hypothesizes that domestic-wool consumption in England decreased because with a rise in income, consumption of luxury goods such as silk increases relative to the consumption of basic commodities such as wool (21, p. 93). While there are few facts to substantiate either side of the argument, Miskimin's reasoning seems implausible, since (as Miskimin himself points out) the increased income was mostly in the hands of the poorer classes. The landlords were squeezed from all directions and were the one class of society whose welfare unambiguously declined during the period. With increased income, peasants were more likely to increase their expenditures on wool than to substitute silk for wool, whether for everyday or even for fancy clothing. Therefore, it stands to reason that domestic per capita wool consumption increased as well. However, without any data for pre-plague versus post-plague domestic-wool consumption, the hypothesis that the amount of domestically consumed wool plus

exported wool increased after the plague cannot be substantiated or refuted.

Miskimin, as a supporter of the theory of a post-plague depression, has some interesting comments about the welfare of peasants before and after the plague. He argues that the change in the land/labor ratio most severely affected the small landholder. According to Miskimin, before the plague, when labor was plentiful, these landholders often had servants and hired hands to help them, even on very small plots. After the plague, the inability to hire help put an upper limit on the expansion of family plots, as land became more readily available (22, p. 57). While it is difficult to disagree with this argument as stated, it has little welfare content, for two reasons. First, labor was scarce after the plague precisely because those who were once laborers (or their descendants) were now the farmers who would have liked to hire labor, had it been available. Since hired workers were in such high demand, the welfare of these individuals must have been increased by holding land, or they would have left the land to again become landless laborers. Second, while there may not have been sufficient labor available in the post-Black Death era for peasants to expand their holdings above some maximum amount farmable by the family, the average holding was larger than had been in the pre-plague era (12, p. 371). Since the poorer and landless peasants were more common in the pre-plague era, it seems that the welfare of the typical peasant increased rather than decreased, even though the position of a few wealthier peasants

worsened with the unavailability of landless labor and the associated decrease in the market for cash crops.[28]

The landlord's position clearly worsened in the post-plague period. His position was encroached upon from all sides, as rents fell, wages rose, and the price of output declined. Owners of marginal lands could no longer earn a living off their estates, and many others had considerable difficulty maintaining anything approaching their former standards of living. The declining position of the landed gentry and their complaints are more carefully documented than is the rising position of the peasant (36, p. 76). Until recently, the plight of the landlord received more attention from historians. Combined with the confusion over aggregate versus per capita data, this appears to be the major reason the historians have characterized the post-plague era as a period of economic hardship.[29]

The population loss associated with the plague not only caused an imbalance among various agricultural regions of England, it also caused an imbalance between the urban and rural sectors of the English economy. As the agricultural sector moved to a new equilibrium, marginal lands were abandoned and the uses of inputs changed. The movement to a new equilibrium among the urban and

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[28] Miskimin's argument on the welfare of peasants vis-a-vis labor appears contradictory to his argument for an increase in the demand for silk and a decrease in the demand for wool.

[29] Hirshleifer (15, p. 27) is one exception to this general consensus. He reviews political events as well as economic data and and concludes that the plague did not disrupt economic life.

rural areas led to a redistribution of income and population among these regions as well. How the loss in population affected the marginal productivity of the agricultural worker has been discussed above. The urban worker's productivity was also affected by the plague.

The representative post-plague artisan had less human capital than his pre-plague counterpart in a comparable guild position. The average productivity of each artisan probably decreased. However, the value of the marginal product of labor of an artisan with the same skill level may have risen, for two reasons. First, the prices for manufactured goods rose. Second, each artisan progressed more rapidly up the guild structure, producing to the outer limits of his skills.

In the post-plague era, the per capita demand for manufactured goods rose as real income increased. With the increase in the relative demand for manufactured goods, a greater percentage of people had to be attracted to towns to take these jobs. Because wages in agriculture were rising, wages in manufacturing had to rise faster, to attract enough workers to satisfy the demand. The proportion of the population in towns had to grow by an even greater amount than what was needed to satisfy the agricultural workers' demand for manufactured goods. It also had to increase by enough to attract people to provide urban-consumption goods, such as candles, bread, and furniture, to these new workers. As is still true today, the urban dwellers purchased many items that the rural population made at home (36, p. 84).

One of the significant differences between the pre-plague and post-plague eras is that in the post-plague era, there was little necessity to expend resources on construction. Even though the urban population grew as a proportion of the national population, the absolute number of town residents fell (35, p. 113). Therefore, the number of standing houses was more than sufficient to house the urban populace. Cathedrals, town walls, and municipal buildings had been constructed during the population peak and additional facilities were not needed. In addition, the building trades were very labor intensive, and thus building was very expensive in a period of rising wages, which (one suspects) made the town populations even less eager to erect new edifices.

Many scholars concentrate their attention primarily on the absolute loss in the town population to argue that aggregate level of trade declined during the late Middle Ages and early Renaissance. However, the more interesting question is what happened to the proportion of the national population living in urban centers. The authors who discuss this question speculate that the proportion increased from less than 10 percent to around 12 to 15 percent (24, p. 215; 22, p. 94). These figures, if correct, mean that instead of each urban resident being fed by more than nine people, 7.5 or fewer people were sufficient. Some of this change may be attributable to a decline in dependency rates (since the old, the chronically ill, and the very young are particularly susceptible to disease). Still, this change is remarkably large and if true, supports the hypothesis of increased

productivity in the agricultural sector. It also indicates that the proportion of the population sustained by trade increased.

The urban/rural balance continued to change from the time of the plague until the 1500's, in an irregular pattern. This irregularity was largely due to the recurrences of plague and famine. Famine in undeveloped nations typically sends peasants streaming to the cities in search of food, because towns are more likely to have grain stocks and well-organized markets (12, p. 369). The later plagues, which were primarily an urban phenomenon, sent people running to the countryside to avoid the disease (41, p. 132). Despite these periodic events, the proportion of urban dwellers probably continued to increase. The wage of artisans and laborers in manufacturing industries continued to rise, long after the real wage for agricultural laborers stabilized (28, p. 226). Dealing in percentages rather than absolute terms, these phenomena are hard to reconcile with the theory that there was an economic depression. On the other hand, they are perfectly consistent with the hypothesis of expanding economic activity during this period.

Another major piece of unambiguous evidence that England's economy was expanding comes from records of cloth exports. Before the Black Death, England was a producer and exporter of raw wool and a major importer of finished cloths (21, p. 187). After 1351, all evidence shows that England's imports fell and her exports of finished cloths rose enormously.

Innovations in the early 14th century had improved breeding techniques and the quality of fleece (42). As land became more readily available following depopulation by the plague, wool production, which is a land-intensive process, became relatively inexpensive. Due to climatic factors, English wool was also highly desirable on the European market (30, p. 193).

Immediately following the plague years, England became the major exporter of raw wool, as landowners increased their sheep-herding efforts. Thus, while the English weaving industry was still in its nascent stage, English landowners began to raise the necessary raw material and sell it on the foreign market.

Medieval transportation costs were high, and raw wool is much bulkier than finished cloths. This fact leads Postan to speculate that the savings in transportation costs was one reason for England's comparative advantage in cloth production after she became a major wool producer (30, p. 193).

The transportation costs also meant that the cloth trade was not concentrated only in the larger towns and cities. Instead, much of the industry developed in the small sheepraising villages of the Cotswolds, which had lost their viability as agricultural market towns. The carding, spinning, and weaving processes could be carried out as easily in the workers' homes as in workshops. Only the fulling process required much physical capital, and the area's streams and rivers, which had once driven the (now-abandoned) grain mills, provided the perfect sites for fulling

plants (33, p. 450). Thus, a few of the areas that had marginal cropland retained their population, as the cloth trade prospered and they became the centers of the medieval textile industry.

The cloth industry grew very quickly in the 14th and 15th centuries, with exports leveling off around 1440 and then dropping somewhat, before rising to a new high in 1480 (22, p. 94, chart V). Since almost nothing is known about the domestic market, there is no way of telling whether the slack capacity of approximately 10,000 cloths annually was bought up by the domestic market.

Unquestionably, the English market expanded at the expense of other clothmaking nations. The Florentine trade shrank to practically nothing, as did the number of exported cloths from Ypres (22, p. 94, chart V). A comparison of total exports for all Europe is not possible, because data are incomplete. However, there is considerable evidence that the total level of international trade, on a per capita basis, did not fall (6, p. 520). Rather, the balance of trade between England and the Continent shifted, with England gaining at the expense of the Flemish and Italians. What Lopez and Miskimin identify as the symptoms of international recession are actually the symptoms of a change in comparative advantages, instigated by the major shift in relative costs. The decline in economic activity was regional rather than universal. The English economy during the same period was

expanding, and other European countries had experiences different from the Italian one.[30]

VI. THREE PROBLEMATIC ISSUES

There are three major issues to be reconciled with the hypothesis of post-plague economic expansion in England. The first is the apparent lack of innovation in manufacturing or agricultural techniques during the period. Hogden's study of the geographic spread of innovation reveals that very little new technology was developed or employed during this period (14, p. 179). Although students of post-industrial economies tend to identify innovation with economic health, the theory that innovation is a form of investment may not apply to the Middle Ages and the early Renaissance. Instead, the lack of innovation may have resulted from the loss of human capital in the craft professions. It may also lend support to Helleiner's previously mentioned hypothesis that, in pre-industrial societies, innovation occurs when people are desperate.

A second major issue is presented by the fact that the population did not recover quickly--in clear contradiction to demographic theory, which predicts that when economic welfare

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30 One reason these two economic historians describe the late Middle Ages and early Renaissance as a period of depression may well be that they are primarily scholars of Italian economic history and the Italian city-states were hard hit by their loss of the wool-cloth trade.

increases, the population will grow. While Bean claims that there may have been some population growth towards the end of the 15th century, by 1500 the English population was still below the pre-Black Death level (2, p. 425). The static level of population is one of the major reasons many historians are convinced that the economy must have been suffering a century-long depression. However, there is considerable evidence of autonomously increased death rates and decreased fertility rates in this period.

Throughout this period, there were repeated outbreaks of plague. There were at least 30 plague years following 1348-51, 19 of which affected the entire country (see footnote 15). While the early plagues had higher mortality rates, the later plagues also had a devastating effect on the childbearing capacity of the population. The victims of the plagues after 1351 were disporportionately children and young people, especially those who had been born since the last major outbreak. Both the high death rates in this group and the tendency towards sterility among adults surviving the plague significantly decreased the ability of the population to recoup its losses.[31]

In addition to plague, the English population suffered epidemics of typhus, cholera, smallpox, and dysentery during this

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[31] Hirshleifer (15, p. 22) asserts that people also had less incentive to bear and raise children because periodic recurrence of the plague lessened the chance that these children would grow to adulthood. This hypothesis also fits the evidence, but, given the primitive knowledge of birth control techniques at the time, it is a more complicated explanation of the observed phenomenon.

period (4, p. 21). Furthermore, epidemiological historians report that many new diseases were introduced to the English population in the 14th and 15th centuries and they were taking an expectedly heavy toll (37, p. 76).[32] New types of infection are always dangerous. In a society without advanced medical knowledge, a high incidence of disease is not necessarily an indication of economic deprivation. While filth and universally inadequate sanitation methods may aid in incubating bacteria, perhaps the major mechanisms for spreading infection are travel, trade, and communication. Thrupp suggests that when peasants and craftsmen increase their mobility, increased incidence of disease is a natural consequence (38, p. 106). After careful examination of late 14th- and early 15th-century manorial records, she concludes that low replacement rates and high mortality rates were at least as common on the most prosperous estates as on those suffering economic hardship. She reports unusually low replacement rates on manors in the 1390's, a decade particularly noted for its increase in economic activity (38, p. 109). Thrupp's analysis may point the answer to the quandary economic historians have faced in trying to reconcile a falling or stable population with evidence of increased economic activity in an undeveloped nation. The problem was more probably a crisis in public health caused by

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[32] Chambers reports epidemics of nonplague diseases in 14 years between 1380 and 1480: 1433-34, 1444, 1446, 1448, 1449-52, 1453-54, 1465, 1476, and 1478 (4, p. 58).

biological factors and aggravated by increased travel, trade, and communications than an economically induced slump in population.[33]

The third major issue to be reconciled with the hypothesis of economic health is that landlords were clearly worse off. The wages they paid out rose and the rents they received fell. Whether their income from marketing agricultural products went up or down is unknown. However, it seems safe to assume that their overall position had worsened, because many landed families were forced to sell their estates--when buyers were available (12, p. 375).

Because the income of landlords fell while the income of all other groups rose, no definitive statement can be made about real per capita income or about the economic welfare of the population. The existing chronicles of this period were mainly written by and about the upper class, which constituted a small percentage of the total population, and this has colored history's view of the period as a depressed one. However, while there is no way of verifying that real per capita income did in fact rise, one should remember that the vast majority of the population was made up of peasants and urban workers who benefited from the new scarcity of labor.

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[33] Shrewsbury (36, pp. 33-36) points out that black rats are less likely to live in the stone houses of the rich than in the thatched huts of the lower classes. In the past, the lower mortality rates among the wealth have been misinterpreted by some scholors as supporting the hypothesis that economic hardship (rather than the construction of dwelling units) increased susceptibility to the plague.

VII. SUMMARY

The plague affected every aspect of the English economy. Change occurred in the rural, urban, and international trade sectors. A comparison of the English economy in the mid-15th century to the economy before the 1348 epidemic serves to summarize the changes and the evidence arguing that the economic health of England improved during this period.

Looking at England in the mid-15th century, one finds a much smaller population, still only about 50 to 70 percent of its peak level. Rural poverty was less prevalent. The landless rural population was negligible, where it had once been quite large. Workers in all sectors of the economy earned higher wages in both real and nominal terms, with the largest increases going to artisans. Inflation had also helped the peasants, who were net debtors, in reducing the burden of their obligations to their landowners. The mobility of workers and the population as a whole had increased, and the landlords' ability to keep labor tied to the land had waned.

The cities were less crowded, but they held a larger proportion of the country's population. Trade towns and villages connected with the new textile industry had begun to grow. However, 400 or more villages had been or were in the process of being deserted because they were no longer viable agricultural communities. Notably, almost all of these abandoned communities were the 13th- and 14th-century colonies where famines had been common and the soil poor.

Throughout the country, rents fell and many landlords failed to keep sufficient tenants to keep their estates. They began to grow less labor-intensive crops.

The demand for grain fell, because the population was both smaller and wealthier. The English people consumed more meat, cheese, and hops (22, p. 87). They also consumed more manufactured goods, and imported more silk and other luxury items (22, p. 118). Evidence of an increased silk trade suggests that an urban class may have taken the place of the landed gentry in demanding luxury items. All the evidence together points to a relatively wealthy England, with a more equal distribution of income.

The success of England's new textile industry in the international market during this period is particularly impressive. The success resulted from changes in factor prices, aided by the savings in transportation costs by exporting cloths rather than wool. While the English success undoubtedly occurred at the expense of Italy and the Netherlands, it is important evidence that an economic depression during this time period was not universal and not a direct consequence of the loss of population. Instead, it appears that the post-Black Death era was a period of redistribution of income, in which England improved her position in the European economic community and enjoyed a considerable improvement in her economic health.

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