2 The Logic of the Malthusian Economy

> *No arts; no letters; no society; and which is worst of all, continual fear, and danger of violent death: and the life of man, solitary, poor, nasty, brutish and short. (Hobbes, 1651, ch. 13, 84).*

The vast majority of human societies, from the original foragers of the African savannah, through settled agrarian societies until about 1800, had an economic life that was shaped and governed by one simple fact: in the long run births had to equal deaths. Since this same logic governs all animal species, until 1800, in this "natural" economy, the economic laws for humans were the same as for all animal species.

It is commonly assumed that the huge changes in the technology available to people, and in the organizational complexity of societies, between our ancestors of the savannah and Industrial Revolution England, must have improved material life even before modern economic growth began. The estimates, for example, of Angus Maddison, the much-quoted creator of pre-industrial economic data, of income per person before 1820 are hazarded on this basis.[11] But in this chapter I show that the logic of the natural economy implies that the material living standards of the *average* person in the agrarian economies of 1800 was, if anything, worse than for our remote ancestors. Hobbes, in the quote above, was profoundly wrong to believe that in the state of nature man was any worse off than in the England of 1651.

[11] Maddison, 2001, 28, for example, estimates GDP per capita in western Europe more than doubled from $450 in 1 AD to $1,232 by 1820 (in 1990 $), while for Japan the rise was from $400 to $669.

This chapter develops a model of the pre-industrial economy, the Malthusian model, from three simple and seemingly innocuous assumptions. This model has profound implications about how the economy functioned before 1800, which are then tested and explored in the following three chapters.

The Malthusian Equilibrium

Women, over the course of their reproductive lives, can give birth to 12 or more children. Still in some current societies the average women gives birth to more than 6 children. Yet for the world before 1800 the number of children per woman that survived to adulthood was always just a little above 2. World population grew from perhaps 0.1 m. in 130,000 BC to 770 m. by 1800. But this still represents an average of 2.005 surviving children per woman before 1800. Even within successful pre-industrial economies, such as those in Western Europe, long run rates of population growth were very small. Table 2.1 shows for a number of European countries population in 1300 and 1800, and the implied numbers of surviving children per woman. None of these societies deviated far from two surviving children per woman. Some force must be keeping population growth rates within rather strict limits over the long run.

The Malthusian model supplies a mechanism to explain this long run population stability. In the simplest version there are just three assumptions:

1. Each society has a **BIRTH RATE,** determined by customs regulating fertility, but increasing with material living standards.

Table 2.1 Populations in Western Europe, 1300-1800[12]

Year	c. 1300	c. 1800	Surviving Children per woman
Norway[a]	0.40	0.88	2.095
Southern Italy[c]	4.75	7.9	2.061
France[d]	17	27.2	2.056
England[b]	5.8	8.7	2.049
Northern Italy[c]	7.75	10.2	2.033
Iceland[a]	0.084	0.047	1.930

2. The **DEATH RATE** in each society declined as living standards increased.

3. **MATERIAL LIVING STANDARDS** declined as population increased.

The birth rate is just the number of births per year per person, for convenience normally quoted as births per thousand people. Maximum observed fertility levels have been 50-60. But the birth rate varies significantly even across pre-industrial societies. Pre-industrial England sometimes had birth rates of less than 30. Recently in the area of highest birth rates, Africa, some countries had birth rates which exceeded 50 per thousand: Niger 55, Somalia 52, Uganda 51.

The death rate is again just deaths per head of the population, also typically quoted per thousand people. In a *stationary* popula-

12 [a]Tomasson, 1977, 406. [b]Clark, 2006a. [c]Federico and Malanima, 2002, table 2. [d]Le Roy Ladurie, 1981, 13.

tion life expectancy at birth is the inverse of the death rate.[13] Thus if death rates are 33 per thousand, life expectancy at birth is 30 years. At a death rate of 20 per thousand, life expectancy would rise to 50.

In a stable population birth rates equal death rates. So equivalently in stable populations, characteristic of the pre-industrial world, life expectancy at birth is also the inverse of the birth rate. Thus in pre-industrial society the only way to achieve high life expectancies was by limiting births. If pre-industrial populations had displayed the fertility levels of the modern Niger, life expectancy at birth would have been less than 20.

Material living standards are the average amount of goods and services (religious ceremonies, barbers, servants) that people in a society consume. Where new goods are introduced over time, such as newspapers, Wedgwood fine porcelain, and vacations at the seaside, it can be tricky to compare societies in terms of the purchasing power of their real wages. But for most of human history, and for all societies before 1800, the bulk of material consumption has been food, shelter, and clothing, so that material living standards can be measured more accurately. In societies sophisticated enough to have a labor market, material living standards for the bulk of the population will be determined by the purchasing power of unskilled wages.

Figure 2.1 shows graphically the three assumptions of the simple Malthusian model.[14] The horizontal axis for both panels is material income. In the top panel birth and death rates are plotted on the vertical axis. The material income at which birth rates equal death rates is called the *subsistence income* denoted in the figure as y^*. This is the income that just allows the population to

[13]Formally, if e_0 is life expectancy at birth, and D is the death rate, $e_0 = 1/D$.

[14]The graphical exposition here follows that of Lee and Schofield, 1981.

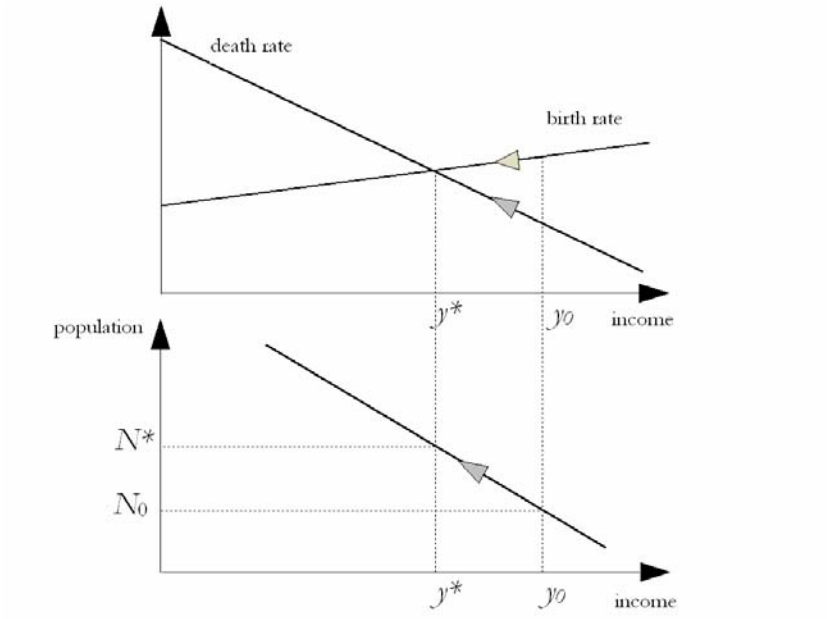

Figure 2.1: Long Run Equilibrium in the Malthusian Economy

reproduce itself. At material incomes above this the birth rate exceeds the death rate and population is growing. At material incomes below this the death rate exceeds the birth rate and population declines. Notice that this subsistence income is determined without any reference to the production technology of the society. It depends only on the factors which determine the birth rate and those that determine the death rate. Once we know these we can determine the subsistence income, and life expectancy at birth.

In the bottom panel population is shown on the vertical axis. Once we know population, that determines income, and in turn the birth rate and death rates.

With just these assumptions it is easy to show that the economy will always move in the long run to the level of real incomes where birth rates equal death rates. Suppose population starts at an arbitrary initial population: N_0 in the diagram. This will imply an initial income: y_0. Since y_0 exceeds the subsistence income, births exceed deaths and population grows. As it grows, income declines. As long as the income exceeds the subsistence level population growth will continue, and income continue to fall. Only when income has fallen to the subsistence level will population growth cease, at the equilibrium level, N*, and the population stabilize.

Suppose that instead the initial population had been so large that the income was below subsistence. Then deaths would exceed births and population would fall. This would push up incomes. The process would continue until again income is at the subsistence level. Thus wherever population starts from in this society it always ends up at N^*, with income at subsistence.

The terminology *subsistence income* can lead to the confused notion that in a Malthusian economy people are all living on the brink of starvation, like the inmates of some particularly nasty Soviet Era Gulag. In fact in almost all Malthusian economies the subsistence income considerably exceeded the income required to allow the population to feed itself from day to day.

Differences in the location of the mortality and fertility schedules across societies also generated very different subsistence incomes. Subsistence for one society was extinction for others. Both 1400 and 1650, for example, were periods of population stability in England, and hence periods where by definition the income was at subsistence. But the wage of the poorest workers, unskilled agricultural laborers, was equivalent to about nine pounds of wheat per day in 1650, compared to eighteen pounds in

1400. Even the lower 1650 subsistence wage was well above the biological minimum of about 1,500 calories a day. A diet of a mere two pounds of wheat per day, supplying 2,400 calories per day, would keep a laborer alive and fit for work. Thus pre-industrial societies, while they were subsistence economies, were not typically starvation economies. Indeed, with favorable conditions, they were at times wealthy, even by the standards of many modern societies.

The assumption that is key to the income always returning to the subsistence level is the third one, of a fixed trade off between population and material income per person. For reasons given below, this tradeoff is called the *technology schedule*.

The justification for the decline in material incomes with higher population is the famous the *Law of Diminishing Returns* introduced to economics by David Ricardo (and independently by Malthus). Any production system employs a variety of inputs, the principle ones being land, labor, and capital. The *Law of Diminishing Returns* holds that if one of the inputs to production is fixed, then employing more of other inputs will increase output, but by progressively smaller increments. That is, the output per unit of the other factors will decline as their use in production is expanded, as long as one factor remains fixed.

Land was the key factor of production in the pre-industrial era that was inherently in fixed supply. This limited supply implied that average output per worker fell as the labor supply increased in any society, as long as the technology was unchanged. Consequently the average amount of material consumption available per person fell with population growth.

Figure 2.2 shows assumed relationship between labor input and the value of output for pre-industrial societies that underlies the third assumption of the Malthusian model. The increase in

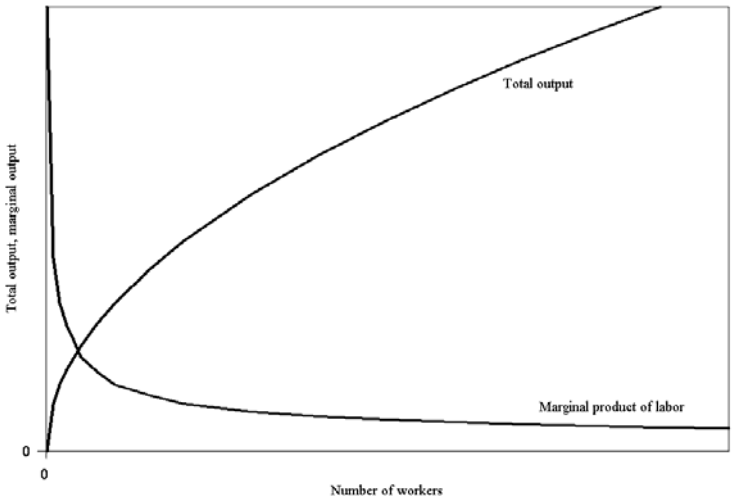

Figure 2.2: Labor Input and Output on a Given Area of Land

the value of output from adding each person is called in economics the *marginal product* of that person. In market economies this equals the wage.[15] As can be seen the marginal product declines as more people are added (and thus wages also fall in market economies with more people). Average output per person falls also as the population rises, since the additional output from each person at the margin is less than the output per person from existing workers.[16]

To appreciate concretely why this will happen consider a peasant farmer with fifty acres of land. If he alone cultivates the land then he will maximize output by using low intensity cultiva-

15 This is just the slope of the curve at any labor input.

16 Average output per person is the slope of the straight line drawn from the origin to the output curve at any given level of labor input.

tion methods - keeping cattle or sheep which left to fend for themselves, and periodically culled for meat and skins, as with the Argentinean pampas in the early nineteenth century. With the labor of an additional person milk cows could also be kept, increasing total output. With yet more labor the land could be cultivated as arable with grain crops. Arable requires much more labor input per acre than pasture for plowing, sowing, harvesting, threshing and manuring. But arable also yields a greater value of output per acre. With even more people the land could be cultivated more intensively as garden, growing vegetables and roots as well, increasing output yet further. Yields are increased by ever more careful shepherding of supplies of manure, and by suppression of competing weeds by hand hoeing. With enough labor input the output of any acre of land can be very high, as in the agricultural systems of coastal China and Japan around 1800, when one acre of land was enough to support a family. In contrast in the same period there was in England in 1800 nearly twenty acres of land per farm worker.

We can also see in figure 2.1 that the sole determinants of the subsistence income are the birth and death schedules. Knowing just these we can determine the subsistence income. The connection shown in the lower panel between income and population serves only to determine what population corresponds to the subsistence income.

Because I want to show that the same economic model applies to all human societies before 1800, even those which had no labor market, and also to animal societies, I have developed the model in terms of income per person. Classical Economists, however, writing about conditions in England circa 1800, developed their thinking in terms of the wages of unskilled workers. Thus in 1817, David Ricardo, using similar logic argued that real

wages (as opposed to income per person which includes land rents and returns on capital) must always eventually return to the subsistence level.[17] Ricardo's proposition later became known as the *Iron Law of Wages*. Classical Economics thus denied the possibility for other than transitory improvements in the living standards of unskilled labor.

Changes in the Birth Rate and Death Rate Schedules

Different societies will have different locations for the birth rate and death rate schedules, and these can change over time. Suppose, for example, that the birth rate schedule increased, as in figure 2.3. It is then simple to see what happens to the death rate, material incomes, and the population. In the short run births exceed deaths. Population thus grows, driving down real income, and so increasing the death rate until deaths again equal births. At the new equilibrium real income is lower, and population is greater. Any increase in birth rates in the Malthusian world drives down real incomes. Conversely anything which limits birth rates drives up real income. Since life expectancy at birth in a stable population is also just the inverse of the birth rate another important component of material living standards is solely determined by the birth rate. As long as this remained high, life expectancy at birth had to be low. Pre-industrial society could thus raise both material living standards and life expectancy by limiting births.

Again if the death rate schedule moves down, as in figure 2.4, so that at each income there is a lower death rate, then at the current income births exceed deaths so that population falls. This again drives down real income until the death rate again equals the

[17] McCulloch, 1881, 50-58.

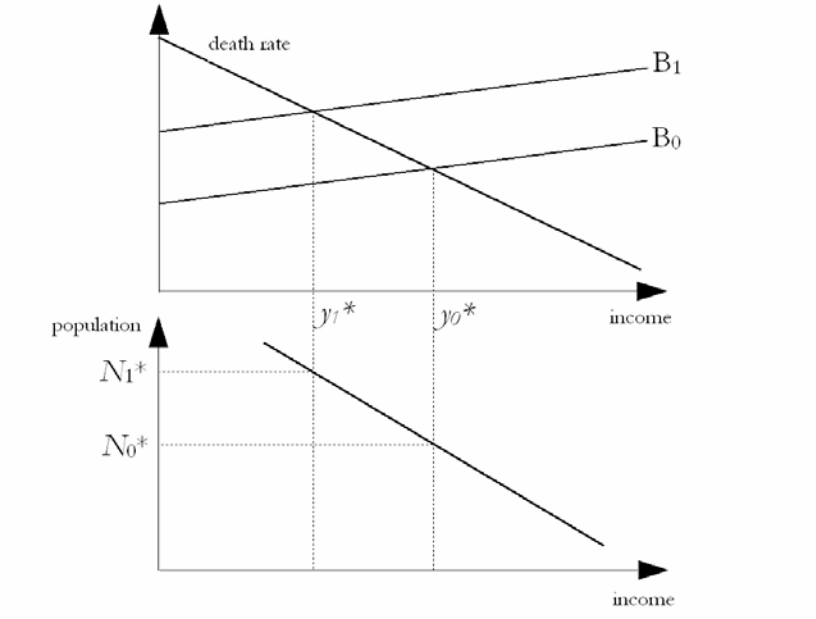

Figure 2.3 Changes in the Birth Schedule

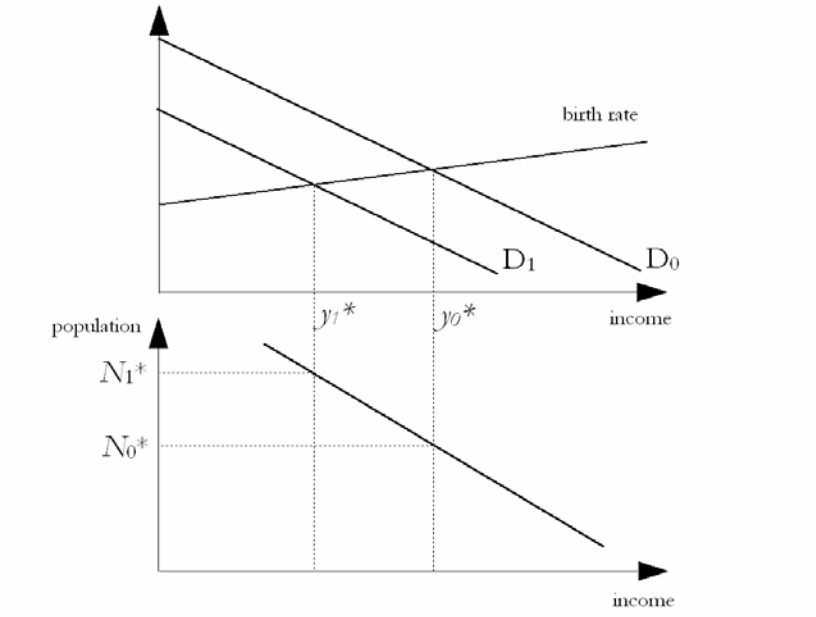

Figure 2.4 Changes in the Death Schedule

birth rate. At the new equilibrium population is higher and income lower. Life expectancy would however, given the now lower birth rate, be somewhat higher. So improvements in sanitation, or declines in violence and disorder, which reduce the death rate schedule in pre-industrial societies can raise life expectancy, but only at the cost of lower material living standards.

This Malthusian world thus exhibits a counterintuitive logic. Anything that raised the death rate schedule, that is the death rate at a given income - war, disorder, disease, poor sanitary practices, or abandoning breast feeding - increased material living standards. Anything that reduced the death rate schedule - advances in medical technology, better personal hygiene, improved public sanitation, public provision for harvest failures, peace and order - reduced material living standards.

Changes in Technology

While the real income was determined from the birth and death schedules, the population size depended on the connection between population and real incomes. Above this was labeled the *technology* schedule, because the major cause of changes in this schedule have been technological advances. But other things could shift this schedule: a larger capital stock, improvements in the terms of trade, climate changes, or more productive economic institutions.

Figure 2.5 shows a switch from an inferior technology, represented by curve T_0, to a superior technology, represented by curve T_1. Since population can only change slowly, the short run effect of a technological improvement was an increase in real incomes. But the increased income reduced the death rate, births

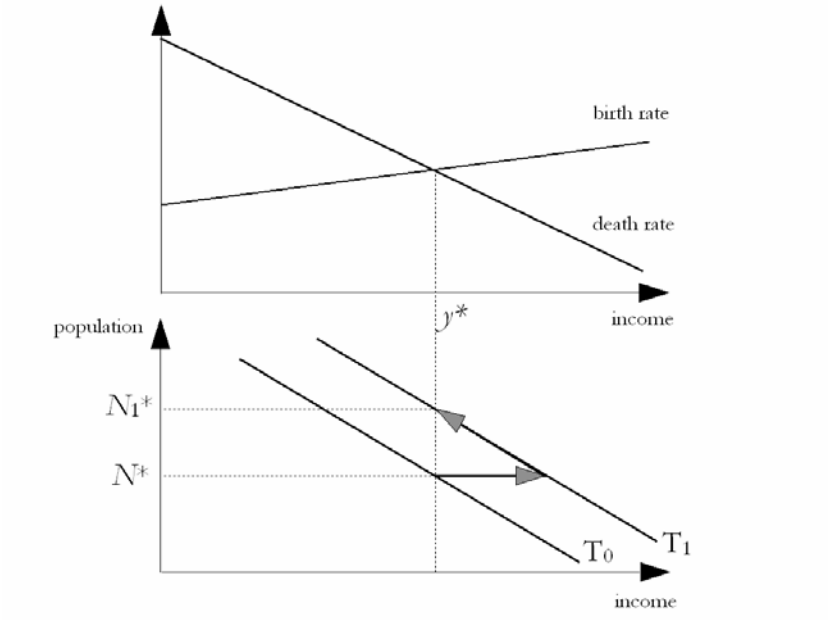

Figure 2.5 The Effects of Isolated Technological Advance

exceeded deaths, and population grew. The growth of population only ended when income returned to subsistence. At the new equilibrium the only effect of the technological change was to increase the population. There was no lasting gain in living standards. The path of adjustment from an isolated improvement in technology is shown in the figure.

The Malthusian Model and Economic Growth

In the millennia leading up to 1800 there were significant improvements in production technologies, though these improvements happened slowly and sporadically. The technology of

England in 1800, which included cheap iron and steel, cheap coal for energy, canals to transport goods, firearms, and sophisticated sailing ships, was hugely advanced on the technology of hunter gatherers in the Paleolithic before the development of settled agriculture.

The degree of advance of technology was revealed in the encounters between Europeans and isolated Polynesian islanders in the 1760s. The English sailors who arrived in isolated Tahiti in 1767 on the *Dolphin*, for example, found a society with no metals. The European's iron was so valuable to the Tahitians that a single 3 inch nail initially could be bartered for a 20 pound pig, or a sexual encounter. Given the enthusiasm of the sailors for the sex trade, nail prices two weeks later had dropped to a half, and

> *the Carpenter came and told me every cleat in the ship was drawn, and all the Nails carried off….most of the hammock nails was drawn, and two-thirds of the men obliged to lie on the Deck for want of nails to hang their Hammocks.*[18]

When Captain Cook arrived at a similarly isolated Hawaii the local inhabitants on a number of occasions stole ship's boats to burn them to retrieve the nails.

But though technology was advancing before 1800 the rate of advance was always slow relative to the world after 1800. Figure 2.6, for example, shows for England, the actual location of the technology curve of Malthusian model from 1200 to 1800. From 1200 to 1650 there was seemingly complete stagnation of the production technology of the English economy. After 1650 the technology curve does shift upwards, but not at a rate fast enough

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[18] Robertson, 1955, 32, 78, 104. When Captain Cook arrived in 1769 he was shocked to find that the locals now demanded a hatchet for a pig. Banks, 1962, 252.

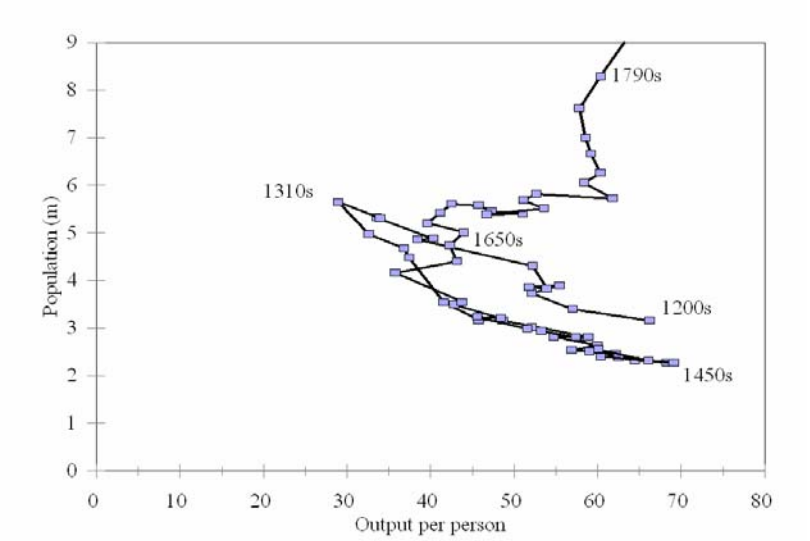

Figure 2.6 Revealed Technological Progress in England, 1200-1800

to cause any sustained increase in output per person beyond what was seen in earlier years in the decades before 1800. Instead technological advance, as predicted, resulted mainly in a larger and larger English population. In particular in the later eighteenth century all technological advance was absorbed immediately into higher population. Before 1800 the rate of technological advance in any economy was so low that incomes were condemned to return to the Malthusian Equilibrium.

This was the historical context in England in the years 1798-1817 when Thomas Malthus (1766-1834) and David Ricardo (1772-1823) developed what became known as *Classical Economics*, with its key doctrine of the subsistence wage. They did not assume, as modern people do, that technical progress is inevitable and continuous, but instead regarded it as sporadic and accidental.

Even in the circumstances of England in 1798-1817, when the economy was well into the period we now dub the Industrial Revolution, this assumption by contemporaries was not just reasonable, but indeed compelling. The innovations associated with the Industrial Revolution begun appearing in the 1760s, but from 1770 to 1817 real wages did not rise, and for some groups such as agricultural laborers in the south of England, actually fell. Sustained real wage gains started only in the 1820s. And much of these initial wage gains were a product not of English technological advance, but of political events such as the victory over Napoleon, which reduced the tax burden, and of the development of cheap supplies of foreign food and raw materials. Indeed one of the great social concerns of the years 1780-1834 in England was the problem of the rising tax burden on rural property owners created by payments to support the poor under the Poor Law.

Thus Malthus and Ricardo predicted that as long as fertility behavior was unchanged, economic growth could not in the long run improve the human condition. All that growth would produce would be a larger population living at the subsistence income. China, for Malthus, was the embodiment of the Malthusian economy. Though the Chinese had made great advances in draining and flood control, and had achieved high levels of output per acre from their agriculture, they still had very low material living standards because of the dense population. Thus he writes of China,

> *If the accounts we have of it are to be trusted, the lower classes of people are in the habit of living almost upon the smallest possible quantity of food and are glad to get any putrid offals that European labourers would rather starve than eat.*[19]

[19] Malthus, 1798, 115.

In the pre-industrial world sporadic technological advance produced people, not wealth.

Human and Animal Economies

The economic laws we have derived above for the pre-industrial human economy are precisely those that apply to all animal, and indeed plant populations. Before 1800 there was no fundamental distinction between the economies of humans and those of other animal and plant species. This was also a point Malthus appreciated.

> *Elevated as man is above all other animals by his intellectual faculties, it is not to be supposed that the physical laws to which he is subjected should be essentially different from those which are observed to prevail in other parts of the animated nature.*[20]

Thus in evolutionary ecology, the Malthusian model dominates as well. For animal and plant species population equilibrium is similarly attained where birth rates equal death rates. Birth and death rates are both assumed to be dependant on the quality of the habitat, the analog of the human level of technology, and population density. Ecological studies typically consider just the direct link between birth and death rates and population density, without considering the intermediate links, such as material consumption, as I have done above. But the Malthusian model for humans could also be constructed in this more reductionism way.

At least some ecological studies find that population density affects mortality in ways that are analogous to those we have posited for human population, through the supply of food

[20]Malthus, 1830, 225.

available per animal. Thus one recent study showed that over forty years Wildebeest mortality rates depended largely on the available food supply per animal: "the main cause of mortality (75 percent of cases) was under-nutrition".[21] Hence the Industrial Revolution after 1800 represented the first break of human society from the constraints of nature, the first break of the human economy from the natural economy.

Political Economy in the Malthusian Era

Malthus's *Essay* was written in part as a response to the views of his father, who was a follower of the eighteenth century Utopian writers William Godwin and the Marquis de Condorcet. Godwin and de Condorcet argued that the misery, unhappiness, and vice so common in the world was not the result of an unalterable human nature, but was the product of bad government.[22] Malthus wanted to establish that poverty was not the product of institutions, and that consequently changes in political institutions could not improve the human lot. As we see, in a world of only episodic technological advance, such as England in 1798, his case was compelling.

Certainly one implication of the Malthusian model, which helped give Classical economics its seemingly harsh cast, was that any move to redistribute income to the poor (who then in England were mainly unskilled farm laborers) would result only in more poor in the long run, perhaps employed at even lower wages. As Ricardo noted in 1817,

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[21] Mduma et al., 1999, 1101.

[22] Godwin, 1793. Condorcet, 1795.

Figure 2.9 The church in Okewood, where Malthus earned his living as a curate while working on his *Essay*.[23]

> *The clear and direct tendency of the poor laws is in direct opposition to these obvious principles: it is not, as the legislature benevolently intended, to amend the condition of the poor, but to deteriorate the condition of both poor and rich (McCulloch, 1881, 58).*[24]

The reason the poor laws would lower wages was that they aided in particular those with children, so reducing the costs of fertility and driving up the birth rate.

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[23]Malthus probably lived at his father's house in nearby Albury. Albury's population of 510 in 1801 had grown to 929 by 1831.

[24]Thus Classical Economics was influential in creating the draconian reforms of poor relief in England in 1834. The most influential member of the Poor Law Commission set up to examine the workings of the old poor law was Nassau Senior, Professor of Political Economy at Oxford University.

But Malthus and his fellow Classical Economists did not see that their arguments not only suggested the inability of government to improve the human lot through traditional methods, they also implied that many of the government policies that his fellow Classical economists attacked – taxation, monopolies, trade barriers such as the Corn Laws, wasteful spending – would similarly have no effect on human welfare in the long run.

Indeed if we follow the logic laid out here good government in the modern sense – stable institutions, well defined property rights, low inflation rates, low marginal tax rates, free markets, free trade, avoidance of armed conflict – would all either make no difference to material living standards in the Malthusian Era, or would indeed lower living standards.

To take one example, suppose that the pre-industrial king or emperor levied a poll tax on every person in the economy, equivalent to ten percent of average income. Suppose also that, as was the wont of such sovereigns, the proceeds of the tax were simply frittered away: on palaces, cathedrals, mosques, or temples, on armies, or to stock a large harem. Despite the waste, in the long run this would have no effect on the welfare of the average person.

To understand why, refer back to figure 2.1. The tax would act like a shock to the technology of the economy, shifting the lower curve left by ten percent uniformly. In the first instance, with the existing stock of people, the tax reduces incomes per person by ten percent, thus driving up death rates above birth rates. But in the long run after tax incomes must return to their previous level to stabilize population again. At this point population is sufficiently smaller so that everyone earns a high enough wage that after paying the tax they have sufficient left over to equal their old pre-tax earnings. In the long run exactions by the

state have no effect in the Malthusian economy on welfare or life expectancy. Luxury, waste, extravagance by the sovereign all had no cost to the average citizen in the long run! Similarly restrictions on trade and obstructive guild rules were again costless.

Thus at the time the *Wealth of Nations* was issued in 1776, when the Malthusian economy still governed human welfare in England, the calls of Adam Smith for restraint in government taxation and unproductive expenditure were largely pointless. Good government could not make countries rich, except in the short run before population growth restored the equilibrium.[25]

So far we have just considered actions by government that shift the effective consumption possibilities for a society. Governments could also through their policies directly affect birth rates and death rates. War, banditry, and disorder all increased death rates at given levels of income (though war often killed more through the spread of disease than from the direct violence). But all increases in death rates make societies better off in material terms. Here "bad" government actually makes people better off in material terms, though with a reduced life expectancy. Good governments, those that, for example, as in some periods in Imperial Rome and Late Imperial China, stored grains in public granaries against harvest failures, just make life more miserable by reducing the periodic death rate from famines at any given average material living standard.[26]

It is thus ironic that while the Classical Economists, and in particular Adam Smith, are taken by modern proponents of

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25 It is explained below that high incomes in eighteenth century England probably owed more to bad personal hygiene than to advances in Political Economy.

26 In China state granaries in the eighteenth centuries routinely distributed grain to the poor. See Will and Wong, 1991, 482-3.

limited government as their intellectual fathers, their views made little sense in the world they were composed in.

Income Inequality and Living Standards

Pre-industrial societies differed in their degree of income inequality. Forager societies, on modern evidence, seem to have been egalitarian in consumption. In such communities there was no land or capital to own, while in settled agrarian societies as much as half of all income could derive from ownership of assets. Further forager societies were typically characterized by a social ethic that mandated significant sharing. Thus even the labor income of successful hunters was taxed by the less successful.

Agrarian societies from the earliest times were much more unequal. The richest members of these societies commanded thousands of times the average income of the average adult male. Thus aristocrats, such as the Duke of Bedford in England in 1798, resided in a luxury that the farm laborers on his extensive estates could hardly comprehend.

The Malthusian model developed above takes no account of income distribution. But by analogy with the discussion of the previous section on taxation and living standards we can see that greater inequality will have little or no effect on the living standards of the landless workers, the mass of the population. The more equally land rents and capital income is distributed across the general population the more will these rents be simply dissipated in larger population sizes. If these rents were instead appropriated by an aristocratic elite, as they were in many pre-industrial societies, then they could be enjoyed with little or no cost to the rest of the population. Thus while inequality could not

make the median person better off in the Malthusian world, it could raise average incomes per person, through the higher incomes of the propertied elite.

Thus it was possible that England, France or Italy in 1800 could have a higher income per person that the original foragers. But perversely they would have this only through their achievement of greater inequality than earlier societies. And the boost to incomes per person from inequality was limited. Land rents and capital income made up perhaps half of all income settled agrarian societies. The expropriation of all these incomes by an elite would double income per person compared to a state of complete inequality.

In summary table 2.2 shows Malthusian "virtues" and "vices." But virtue and vice here is measured with reference only to whether actions raised or lowered material income per person.[27]

Material Conditions: Paleolithic to Jane Austen

This chapter explained the first claim made in the introduction, that living standards in 1800, even in England, were likely no higher than for our ancestors of the African Savanna. Since preindustrial living standards were determined by fertility and mortality the only way living standards could be higher in 1800 would be because either mortality rates were greater at a given real income, or fertility was lower.

This conclusion may seem too powerful in the light of figures 1.1 and 1.2. But the upper class that author's such as Jane Austen

[27] It is explained in chapter 3 why indolence is a virtue in Malthusian economies.

Table 2.2 Malthusian "virtues" and "vices"

"Virtues"	"Vices"
Fertility Limitation	Fecundity
Bad Sanitation	Cleanliness
Violence	Peace
Harvest Failures	Public Granaries
Infanticide	Parental solicitude
Income inequality	Income equality
Selfishness	Charity
Indolence	Hard Work

wrote about were a small group within English society. In *Sense and Sensibility* Austen has one of her characters note of a young man that £300 a year is "Comfortable as a bachelor" but "it cannot enable him to marry."[28] In contrast the mass of farm laborers in England in 1810 had an annual income of £36 or less per year.

Even though England was one of the richest economies in the world, they lived by modern standards a pinched and straightened existence. If employed they labored 300 days a year, with just Sundays and the occasional other day off. The work day in the winter was all the daylight hours. Their diet consisted of bread, a little cheese, bacon fat and weak tea, supplemented for adult males by beer. The diet was low in calories given the heavy manual labor, and they must often have been hungry. The monotony was relieved to some degree by the harvest period

[28]Austen, 1811, chapter 39.

where work days were long, but the farmers typically supplied plenty of food. Hot meals were few since fuel for cooking was expensive. They generally slept once it got dark since candles for lighting were again beyond their means. They would hope to get a new set of clothes once a year. Whole families of 5 or 6 people would live in two room cottages, heated by wood or coal fires.[29] There was almost nothing that they consumed – food, clothing, heat, light or shelter - that would have been unfamiliar to the inhabitants of ancient Mesopotamia. If consumers in 8,000 BC were able to get plentiful food, including meat, and more floor space, they could easily have enjoyed a life style that English workers in 1800 would have preferred to their own.

[29]Eden, 1797. Clark, 2001.