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A Critique of Malthusian Limits to Population Growth

Both Thomas Robert Malthus and Adam Smith claim population growth is regulated by the finite capacity of the food supply. Malthus, in his *Essay on the Principle of Population*, describes a system of positive and preventative checks that act to keep the population below the limit. Similarly, Smith claims in *The Wealth of Nations* that scarcity has a regulatory effect on population growth, such that "no species can ever multiply beyond [the means of their subsistence]" (182). However, they reached different conclusions. Whereas Malthus claims that the conflict between the human urge to reproduce and the unavoidable limits on food production will lead to famine and suffering, Smith is optimistic and believes that growth can continue without serious consequence. The reality lies between these two extremes. Smith's famous economic theory about the power of division of labor allows him to claim that an increase in population is also an increase in available labor, which can provide food to support a greater population; Malthus's mathematical arguments about the food supply are flawed because they do not take this into account. However, though the population can continue to reach increasingly higher levels, the Malthusian scarcity of resources implies that poverty and suffering among the lower classes of society cannot be avoided.

Malthus and Smith both view the human population as a regulated system whose growth is controlled by the resources available, and they describe many of the same factors that act to regulate the population increase. However, they disagreed as to the impact of some of these regulating factors. Malthus believes that the primary means by which societies are prevented from multiplying beyond their limits are what he refers to as "positive checks," which slow or reverse a population increase before it reaches the limits of subsistence. The most direct example is famine: when there is not enough food available, starvation and malnutrition slow reproduction and increase mortality. Malthus observes this throughout England as sickness and "mortality among the children of the

poor … attributed to a want either of proper or of sufficient nourishment" (36). Since this is not an economic problem but simply an unavailability of sufficient food, Malthus asserts that it cannot be solved by economic policy; to allow one poor man "to live much better than he did before" requires "proportionably depressing others" (38). Smith likewise claims that "the scantiness of subsistence limits the further multiplication of the human species … by destroying a great part of the children" produced; he observes the great increase in infant mortality among the poor (182). In a similar manner, war acts as a positive check. According to Malthus, when a society has grown excessively large, they may find that themselves needing to compete violently with their neighbors for natural resources in order to survive. This "struggle for existence" can result in a war that reduces population by (29). Though Smith does not discuss war, it follows as a reasonable consequence of the poverty he describes. Both authors agree that these factors can control the population growth. However, Malthus notes that war and famine cause terrible suffering for many people. Smith appears to be aware of this effect, but he does not consider it extensively. Malthus's considerably more pessimistic viewpoint thus results from his awareness of and focus on the negative impact of these positive checks.

Both Malthus and Smith also describe factors that discourage reproduction before the population reaches the maximum sustainable level; however, the two disagree about the effectiveness of these "preventative checks." Smith is optimistic about their potential, because he takes an economic approach to analyzing the limit on population growth. He views the population as labor and considers its supply and demand. When the population is low, the supply of labor is limited and its value increases, encouraging "the marriage and multiplication of labourers;" when the population is high, the market is "over-stocked with labor," lowering wages to an undesirable state and increasing poverty (183). Thus "the demand for men, like that for any other commodity, necessarily regulates the production of men; quickens it when it goes on too slowly, and stops it when it advances too fast" (183). This analysis leads to an optimistic conclusion because it suggests that population growth will slow before it reaches the limit of maximum subsistence, allowing widespread famine to be avoided. However, viewing the human population strictly as an economic quantity is a problematic simplification because of the complexities of human motivation.

Malthus takes this into account when he claims that economic concerns can provide an incentive not to reproduce, but it is not necessarily strong enough to overcome the power of instinct. Malthus notes that raising children involves considerable expense, as a worker must provide for the rest of his family as well as himself. This new expense will subject him to a decrease in wealth and social status, and possibly even "the heart rending sensation of seeing his children starve" (35). This provides a motivation from self-interest to resist his natural impulse to reproduce. However, he observes that humans are not entirely rational and "guided either by a stronger passion, or a weaker judgment, [will often] break through these restraints" and follow their urge to reproduce anyway, so this check cannot effectively curb population growth (34). He also refers to "moral restraint" as another preventative check that can occur if people rationally recognize the dangers of unchecked population increase and the moral "duty of each individual not to marry till he has a prospect of supporting his children" (132). If this obligation is followed, it will slow the population increase, but Malthus does not believe it can overcome instinct well enough to be effective. He does not even acknowledge the possibility of moral restraint in the first edition of his essay, and he claims that while "vice and misery" may slow the process, the population will nonetheless grow until it reaches the maximum sustainable level. This reveals the flaw in Smith's economic arguments about population: they discount the power of the reproductive instinct, which can overshadow even the strongest economic constraints. Accordingly, while preventative checks regulate population growth to some extent, Smith is overly optimistic about their capability to do so.

The most significant difference between Malthus's and Smith's arguments about population lies in their predictions about the food supply. Malthus asserts that "population, when unchecked, increases in a geometrical ratio," but "subsistence increases only in an arithmetical ratio," so the population will necessarily outgrow its means of subsistence (20). The claim that the food supply can only increase arithmetically is central to this argument, yet it is one of the weaker points of his essay. He claims that it would be "contrary to all our knowledge of the qualities of land" that agricultural production could double in twenty-five years and then double again in the next twenty-five. "The most enthusiastic speculator cannot suppose a greater increase" than an arithmetical progression (22). However, Malthus does not provide any explanation for why this is

the case; he merely assumes it to be true. Similarly, he claims that, even though "we do not exactly know where it is," there must exist a "limit to improvement" for plants and animals: "No man can say that he has seen the largest ear of wheat or the largest oak that could ever grow; but he might easily, and with perfect certainty, name a point of magnitude at which they would not arrive" (63). Again, this reasoning is circular; he merely claims that the existence of a limit to progress is obvious. In reality, the situation is not so simple, because there are many complex factors that contribute to the amount of food available to support a population. For example, an increase in population implies that more laborers are available to harvest more food; technological developments can also increase the rate of food production. It is thus unreasonable to suggest, based on Malthus's unconvincing argument, that the food supply necessarily grows arithmetically, and Smith's famous economic theories provide an argument to the contrary.

Smith presents "the division of labour" as "the greatest improvement in the productive powers of labor," and it provides an explanation for how the food supply can grow faster than Malthus assumes (109). By specializing in one particular area, workers can improve their productivity and efficiency. Smith uses the example of pin-making: a team of pin-makers can be thousands of times more productive than a worker who does not make make pins regularly, because they can be trained in the trade of pin-making, have access to the appropriate machinery, and spend all of their time making pins. This division of labor is naturally encouraged because it allows the society to be collectively more productive, and is therefore in every individual's self-interest. The same reasoning can be applied to agriculture. Smith does note that "the nature of agriculture does not admit of so many subdivisions of labour … the improvement of the productive powers of labour in this art does not always keep pace with their improvement in manufacturers" (111). Nevertheless, the division of labor can still serve to increase food production: "the most opulent nations, indeed, generally excel all their neighbors in agriculture … Their lands are in general better cultivated, and having more labour and expense bestowed upon them, produce more in proportion to the extent and natural fertility of the ground" (111). Division of labor also makes it possible for a society to support scientists and engineers, who do not directly produce goods but invent technologies that can make production many times

more efficient. Malthus does not account for advances in technology that can overcome apparent limits of nature. For example, improved farming machinery allows land to be harvested more efficiently; fertilizers and pesticides make it possible to grow crops in harsher environments. Modern biotechnology promises higher-yield crops with better disease resistance. These factors can cause the food supply to increase even without dedicating new land to farms. Similarly, new building technologies make it possible for more people to live comfortably in the same area, and they can allow previously uninhabitable areas to be developed. As a result of division of labor and technological advancement, overall agricultural production can increase considerably faster than the Malthusian arithmetical progression.

Because of the division of labor, technological advancement, and other factors, the growth in population does not exceed the increase in the food supply as rapidly as Malthus suggests. This explains the obvious fact that the world population has grown many times as large since Malthus wrote his essay, and it continues to increase. However, this does not invalidate his argument. Famine is clearly present today in many areas of the world. At any given time, there exists a limit on the maximum sustainable population, though this limit may be continuously increasing. As Malthus describes, the population will always have a tendency to expand to fill this limit, and as it approaches the limit, the positive checks of famine and war will be applied. These positive checks, as they slow the growth, will cause suffering and misery. Because of the unequal distribution of wealth, this suffering is felt primarily among the less wealthy people of the world. When workers are plentiful and food is not, "the price of labor must tend toward a decrease, while the price of provisions must at the same time tend to rise," causing the poor to sharply feel the effects of overpopulation (24). Malthus observes that "the histories of mankind that we possess are histories only of the higher classes," so this suffering does not always receive as much attention as it should, but it is no less present (25). Smith makes the same observation when he notes that the "great mortality" of infants is "found chiefly among the children of the common people, who cannot afford to tend them with the same care as those of better station" (182). Similarly, wealth is distributed unequally among nations; the less prosperous nations of the world suffer far more. This effect is particularly dramatic because they must apply the majority of their labor toward the goal of

reducing famine, which means they have only limited division of labor; they are also at a technological disadvantage because their poverty prevents effective technological development. Thus the food supply will grow more slowly in less-developed nations than it does in industrialized ones, while the urge to reproduce is just as strong. Even though Smith's division of labor allows the world to support increasingly large populations, it hardly prevents misery due to poverty and scarcity. Indeed, the lower-class workers in the factories that make possible Smith's division of labor are often among those who suffer the most.

Though Malthus's prediction that misery and famine are the inevitable results of population growth is diametrically opposed by Smith's optimistic prediction of "continually increasing demand [for men] by a continually increasing population," their arguments have several similarities. Both view population as a self-regulating system that, when it grows too large, will be forced to decrease by the "positive checks" of war and famine. Each also considers the potential for economic factors to slow population growth in accordance with scarcity of resources, but whereas Smith believes that this can effectively regulate the population, Malthus's understanding of human instinct reveals the limited capability of these "preventative checks". Because Malthus neglects the power of the division of labor and assumes that population growth will necessarily substantially outgrow the food supply, he reaches an overly pessimistic conclusion. However, Smith's belief that population can be regulated as an economic system in spite of human instinct and his lack of consideration of the suffering of the lower classes leads him to an overly optimistic conclusion. A combination of the two theories is required to explain the reality observed today: that the population continues to increase to ever-greater limits, yet poverty and suffering are still as present as ever.