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Discussion Section 105

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Geo 130 Mid-term Exam

Question 1

Explain how Marx theorizes urban growth and development, including its positive and negative implications for the use of natural resources, environmental quality, and public health. Then draw on other readings from the course to describe some of the key issues of urbanization and the environment today.

As one of the first historical materialists, Marx approaches urban growth and development through the lens of production. Engels writes, "the materialist conception of history starts from the proposition that the production of the means to support human life and… the exchange of things produced, is the basis of all social structure" (Engels Socialism: Utopian and Scientific Part III). By tracing the history of production as it evolved from a means of subsistence into a market of exchangeable commodities, Marx offers a new perspective for examining the consequences of human development. While Marx agrees that human activity is influenced by "circumstances existing already, given and transmitted from the past," his theories reflect the overarching belief that "men make their own history" (Marx The Eighteenth Brumaire of Louis Bonaparte Part I). Therefore, the implications of human development on natural resource use, environmental quality, and public health all depend upon how humans proactively develop their modes and relations of production.

In this essay, I will use Marx's theories on the history of human production to understand

his comments concerning the consequences of human development and urbanization. I will start by tracing Marx's analysis of the division of labor, its growth, and its effect on urbanization. I will then explain how Marx examines this development as it relates to natural resource use, environmental quality and public health. After illustrating how Marx's critiques manifest themselves within the current issues of urbanization and the environment, I will end by emphasizing the importance of Marx's belief in the possibility for change.

Marx begins his analysis of production with three premises: 1) men must be able to live in order to make history, 2) the satisfaction of the first need – that of survival – creates more needs, and 3) men make other men through propagation (Marx The German Ideology Part A). These principles are the basis of Marx's theory on the historical progression of ownership and the division of labor. In the first stage of human development, ownership of property was tribal. People survived by hunting and gathering, and the division of labor was "confined to a further extension of the natural division of labor existing in the family" (Marx The German Ideology Part A). The second stage was marked by "the union of several tribes into a [town] by agreement or conquest" (Marx The German Ideology Part A). While communal ownership still existed, people began to recognize tools of production – hoes, scythes, plows, etc. – as movable private property that could be rented out to others for profit. Immovable private property also evolved in the form of land. Marx discusses how "the whole structure of society based on… communal ownership… [decayed] as, in particular, immovable private property [evolved]" (Marx The German Ideology Part A). With private property came the division between those who owned the means of production and those who used them.

The evolution of movable and immovable property led society into the third state of production, in which ownership was feudal. Property consisted "on the one hand of landed

property with serf labour chained to it, and on the other of the labour of the individual" controlled by small capital that accumulated in towns (Marx The German Ideology Part A). However, as new modes of industrial production grew, they "[annihilated] the peasant, that bulwark of the old society, and [replaced] him by the wage labourer" (Marx Capital Vol. I Sect. 10). Factories made it more profitable for feudal lords to use their land to produce sellable goods than to support the old practice of serfdom, and in doing so they redefined the relationship between the worker and the soil. For example, as a result of the industrial textile boom in Great Britain, high wool prices pushed Parliament to pass the Inclosure Acts, which turned previously feudal land tilled by peasants into pastures for sheep. Lacking means of subsistence, the peasants migrated to the city and joined the masses working as wage laborers in the factories. In describing the transition from communal ownership to industrial capitalism, Marx explains urbanization as a result of the evolution of private property, the division of labor, and the development of factories as new modes of production.

While Marx primarily focuses his analysis of urbanization on the consequences for the worker, he also discusses the implications that the urban growth has on the use of natural resources, environmental quality, and public health. He states, "All progress in capitalistic agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil" (Marx Capital Vol. I Sect. 10). As large-scale industry drove people into the city, the symbiotic relationship between humans and the local soil grew parasitic. The cycle that once involved harvesting the land's nutrients for food and clothing, consuming them, and then re-fertilizing the soil with manure, broke down into a one-way road of extraction that brought resources from the country to the city, where they were consumed and exposed of through rivers like the Thames. To mitigate soil de-fertilization, nations shipped in vast quantities of guano from around the

world and hauled them to the countryside. Marx comments on the irrationality and inefficiency of such a system, saying, "Capitalist production, by collecting the population in great centres… disturbs the circulation of matter between man and the soil, i.e., prevents the return to the soil of its elements consumed by man in the form of food and clothing; it there violates the conditions necessary to lasting fertility of the soil" (Marx Capital Vol. 1 Sect. 10).

The new cycle that developed as a result of modern industry not only stripped the land of nutrients and inefficiently used resources to replace them, but it also created a public health nightmare. Instead of shipping compostable waste from the cities back to the country, cities instead used rivers as cesspools. This allowed massive centers of disease to grow right alongside areas of dense population. The consequences seem more than obvious.

While Marx holds industrial capitalism responsible for the irrational cycle that degraded environmental quality, inefficiently re-fertilized the soil, and caused serious public health problems, he refuses to believe that this process is inevitable. Earlier thinkers like Ricardo and Malthus proclaimed the law of diminishing returns to be an undeniable truth, but Marx thought otherwise. Since humans created the modes of production that gave rise to such a system, Marx believes that humans have the power to change them. The trend of declining production per unit of land is simply a product of traditional farming, harvesting, and fertilization techniques, all of which are subject to modification and improvement.

Although Marx died in 1883, his critiques remain prevalent to current processes of urbanization and environmental resource extraction. One example exists in the recent movement to use biofuel to offset carbon auto emissions. With the 1950s development of suburban sprawl, cars became the dominant means of transport to and from the cities where they work. Carbon automobile emissions now act as a huge contributor to global warming. Many governments,

including the US and the EU, have recently set goals to increase the percent of transportation running on biofuels by planting more corn. However, as Righelato and Spracklen argue, this approach is as inefficient as 19th century Great Britain shipping in guano to re-fertilize degraded soil. The amount of corn needed to produce enough biofuel to make a visible dent in fossil fuel usage would necessitate massive changes to the current agriculture industry: "A 10% substitution of petrol and diesel fuel is estimated to require 43% and 38% of current cropland area in the United States and Europe, respectively" (Righelato and Spracklen). More importantly, producing 43% more US corn would require clear-cutting forests and grasslands for farmland. Doing so would "result in the rapid oxidation of carbon stores in the vegetation and soil, creating a large up-front emissions cost that would… outweigh the avoided emissions" (Righelato and Spracklen). Instead, Righelato and Spracklen suggest that reforestation would be a more effective method of reducing our carbon footprint.

The emissions problem that the US currently faces represents the future of many developing countries. Leichenko and Solecki discuss the exportation of US residential development patterns as it relates to urbanization in less developed countries. Their research shows how the globalization of consumption in the context of neoliberal economic policies leads "to patterns of urban resource use akin to those associated with suburbanization and suburban sprawl found in more developed countries" (Leichenko and Solecki). Similar to the US in the 1950s, the process of suburbanization carries with it increased car use and carbon emissions. The effects of this type of urbanization include "increased water demand and fossil fuel consumption, increased air and water pollution, and the loss of agricultural lands and natural habitats" (Leichenko and Solecki). However, as we saw earlier, the solution to the problem of carbon auto emissions does not lie in increasing biofuel production.

In conclusion, Marx believes that urban growth was a product of the historical development of private property and the division of labor. However, in a narrower temporal context, Marx theorized that the evolution of the factory as a new mode of production ended the feudal stage of ownership by making it more profitable for lords to use their land to produce raw materials for manufacturing than to allow serfs to farm for subsistence. The newly escalated transfer of nutrients from the country to the city had profoundly negative implications on environmental quality, efficient resource use and public health. The same problems still exist. In an attempt to offset carbon emissions from personal transportation to and from cities, governments are attempting to increase biofuel use. However, since humans have created these problems, we can take solace in Marx's belief that humans have the power to change them.

Question 3

Read the six case studies of demographic change at the end of chapter 2 of Livi-Bacci (pages 38-69). Use a selection of these cases to support or to refute each of the following: a) Malthus's principle of population; b) Smith's theory of population and wages; and c) Marx's 'absolute general law of capitalist accumulation.' (Note: you do not have to use all six cases—use the ones you need to support your arguments.)

Despite living different times and pioneering different academic fields, Thomas Malthus, Adam Smith, and Karl Marx all attempted to address the complexities of demographic change in their studies. Malthus posited that humans reproduced on a geometric scale, while natural resources only reproduced arithmetically. This discrepancy left Malthus to conclude that the human population will eventually outgrow the necessary and available sustenance, leading to a substantial check on demographic growth that will result in poverty, misery and hunger for a large portion of the population. Adam Smith was much more optimistic. He thought that since population growth increases the labor supply, wages will drop, allowing capitalists to invest in new modes of production that will then increase the demand for labor and subsequently increase wages. While Marx agreed that population growth increases labor supply, leading to a suppression of wages and an increase in profits, Marx believed that reinvestment in more productive factories, machines, etc. left less demand for labor, which suppressed wages even further and created a surplus population. This essay attempts to evaluate the validity of each theorists' position based on specific and anecdotal demographic trends explained by Massimo Livi-Bacci. I examine each theory in context before comparing it to a demographic phenomena, and conclude with the argument that while Smith and Marx find support for their theories, Malthus' remains to be proven.

Malthus prefaces his theory on population with two postulata: “First, that food is necessary to the existence of man. Secondly, that the passion between the sexes is necessary and will remain nearly in its present state” (Malthus 12). Based on these two obvious assertions, Malthus proceeds to analyze the discrepancy between the rate at which food grows and the rate at which the human population reproduces. He states, “The power of population is indefinitely greater than the power of the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio” (Malthus 13). Malthus argues that since population increases at a faster rate than food production, eventually the population in a given area will run out of food, causing large-scale suffering and ultimately checking human population growth. The absence of available nutrients “implies a strong and constantly operating check on population from the difficulty of subsistence. This difficulty must fall somewhere and must necessarily be severely felt by a large portion of mankind” (Malthus 13).

While Malthus posits that population growth is constantly checked by a lack of resources, demographic trends in 18th and 19th century Japan provide evidence that refutes his theory. As the feudal general Tokugawa ceded power to the emperor in the Meiji Restoration of 1868, “the agricultural techniques changed from extensive to intensive” (Breen 1996, Livi-Bacci 62). However, despite new gains in agriculture yields, population growth began to stagnate. The intensification of farming methods “brought with it a notable increase in workloads for men and even more for women.” This reduced marital fertility and increased infant and maternal mortality, significantly checking the growth of Japan’s population. Japan’s situation illustrates how demographic transitions may occur independent of resource limitations.

Malthus’ theory also runs into problems when compared to the demographic growth

of Ireland before the potato famine. Between the end of the 17th century and the census of 1841, "the Irish grew from just over two million to eight million" (Livi-Bacci 58). However, until the introduction of the potato in the second half of the 18th century, Ireland was "subjected to an agricultural tributary economy dominated by absentee landlords," which held the large majority of the population in extreme poverty. The growth that occurred before large-scale potato farming provided the relative means of subsistence shows how demographic expansion can occur despite a lack of food. Instead, in the case of Ireland, "the wretchedness and hopelessness of their living conditions" pushed people to marry early, causing population growth in the face of extremely limited resources.

Adam Smith's theory on population and wages argues for the existence of a causal relationship between demographic growth and prosperity. In a cyclical process, population growth increases labor supply, which in turn lowers wages. This wage decrease translates into higher profits for capitalists, who accumulate and invest capital. The investments create new demand for labor, which raises wages, boosts prosperity, and refuels the growth of the population. As Smith writes, "the demand for men, like that for any other commodity, necessarily regulates the production of men. It is this demand which regulates and determines the state of propagation in all the different countries in the world" (Smith 33). Since population growth is directly related to wage levels, "the most decisive mark of the prosperity of any country is the increase of the number of its inhabitants" (Smith 29). In addition, since the growth of wages is contingent on new capital accumulation that allows for new investment and drives up the demand for labor, "It is not the actual greatness of national wealth, but its continual increase, which occasions a rise in the wages of labour" (Smith 29). Smith's theory illustrates the mutually supportive relationship between population growth, capital accumulation, and prosperity.

Smith's theory is based upon and supported by evidence from Europe during the Industrial Revolution. Between 1750 and 1850, the annual rate of population growth grew from .15 percent to .63 percent (Livi-Bacci 65). Despite various checks to demographic expansion, including the Napoleonic wars, the 1816-17 subsistence crisis, and continental outbreaks of typhus and cholera, "population grew vigorously and spilled over, with the beginning of a large-scale transoceanic migration, to the Americas" (Livi-Bacci 65). While this growth can be attributed to a fertility increase or mortality decrease depending on the area, in England – the country that experienced the most growth – greater nuptiality led to improved fertility. The increased frequency of marriages was a direct result of the Industrial Revolution, which "generated a notable increase in the demand for labor" (Livi-Bacci 67). Fitting nicely within Smith's cycle of growth, the augmented demand for labor caused a rise in wages, giving more people the means to get married and reproduce.

In comparison to Adam Smith's theory on wages and population, Marx's General Law of Capitalist Accumulation posits that capital accumulation leads to suppressed labor demand and wages. It starts with the premise that firms compete to produce commodities at the lowest price. Since price is based on the productivity of labor, and since labor productivity increases with the scale of production, large firms are more competitive and either drive smaller firms out of business or absorb them. He writes, "The battle of competition is fought by the cheapening of commodities. The cheapness of commodities depends, all other circumstances remaining the same, on the productivity of labour, and this depends on the scale of production. Therefore the larger capitals beat the smaller" (Marx Capital Part VII Ch. XXV).

While Adam Smith believes that the larger capital creates new investments, a demand for labor and increased wages, Marx maintains that as productivity increases, fewer workers are

needed to complete a job. This allows them to invest the freed up money in means of production, or constant capital. As the process continues, the amount of money invested in constant capital grows while the amount invested in variable capital – human labor – shrinks. For example, there may originally be "50 per cent. of a capital laid out in means of production, and 50 per cent. in the labour-power; later on, with the development of the productivity of labour, 80 per cent. in means of production, 20 per cent. in labour-power, and so on" (Marx Capital Part VII Ch. XXV). Since the demand for labor is determined "by its variable constituent alone, that demand falls progressively with the increase of the total capital, instead of, as previously assumed, rising in proportion to it" (Marx Capital Part VII Ch. XXV). The decrease in demand for labor depresses wages and leads to the growth of what Marx calls a relative surplus population.

In supporting his General Law of Capitalist Accumulation, Marx looks to the same place as Adam Smith: the European Industrial Revolution. However, while Smith died in 1790, Marx was able to examine the consequences of industrial capitalism all the way into the late 19th century. In the decades after Smith's death, "real wages in general declined," indicating a trend of "diminished buying power on the part of salaried workers" (Livi-Bacci 68). Since people during this period spent about four-fifths of their wages on food, diminished buying power translated to large-scale under-nutrition. As a visible consequence, average height declined in England, the Hapsburg Empire, and Sweden. The sustained real-wage decline and under-nutrition that accompanied 19th century industrialization stand as two distinct pieces of evidence that support the existence of a growing industrial reserve army and Marx's General Law of Capitalist Accumulation as a whole.

In conclusion, while Marx and Smith both find supporting evidence for their theories in Livi-Bacci's chronicle of the European Industrial Revolution, Malthus' theory remains

unsubstantiated. While many of the situations of demographic decline were a result of food shortages, these food shortages did not occur through natural population growth eventually overtaking natural nutrient availability. Rather, the check to population stemmed from specific events – the enslavement of blacks in Africa, new diseases in the Americas, the potato famine in Ireland – that had no relation to the discrepancy between geometric population growth and arithmetically increasing natural resources.

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