

Oct. 15 **Historical Demography**

Discussion #4: Historical Demography

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Laurel Ulrich, in *The Midwife's Tale*, states that if Martha Ballard had not left us her diary, all we would know about her is the dates of her birth and death. For the vast majority of the human population, that is all we know. But even from these bare numbers, we can still construct a picture of human lives. If history aims to be the study of everyone, then this kind of demographic analysis is crucial for understanding how all human beings have lived.

Demography is the social science which studies changes in the size and mobility of human populations. It represents one of the most successful applications of quantitative measurement to the study of human behavior. The field brings together insights from biology, sociology, statistics, psychology, economics, and history, in one form or another. In many ways, demographers model themselves on the "exact" sciences. They pay close attention to measurement techniques, especially, nowadays, the accuracy of censuses; they construct elaborate mathematical models; they debate very fine technical points. But their goal is not merely to count more accurately. Their work implicitly informs all the major theories about long-term large scale change. Individual human events: -- birth, death, and marriage --, turn out to have major consequences when aggregated. There are common patterns to these events: it is the average behavior that demographers study.

Terminology: Demographers study, essentially, only four crucial variables: birth, death, marriage, and migration. What they are really interested in is not the absolute numbers of births in a population at a given time, but the *rate*: total number of births / total population which could potentially produce these births. This is the Crude Birth Rate (CBR). Picking the correct denominator is crucial: this is called the population at risk. Likewise, we can calculate the Crude Mortality Rate, and Nuptiality rate (of marriage) for the whole population. But to get more sophisticated results, we really want to know age-specific rates: how many women age 20 to 40 bear children? how many people over 60 die compared to those under 5? These are the critical kinds of variables that can be connected with other political and social changes.

Historical demography is the application of demographers' techniques to the past. The range of human space and time over which these approaches can be used, however, is severely limited by the available sources. It is not good enough to have general national censuses: to get age-specific rates you need either very good census techniques, or other methods of reconstructing the population. The Chinese empire counted its population ever since the first century A.D.: the total was around 50 million. But since they did not break down the population by age, we can't tell very much. It is only after about the mid-19th century that Western European governments began to conduct systematic national censuses. Developing countries came much later, mainly in the twentieth century. China's first really adequate national census only took place in 1982.

The revolution that pushed demographic study back two centuries began in France in the 1950s, with the family reconstitution studies of Henry and Goubert. Anthony Wrigley and others began doing the same thing in England shortly thereafter. The parish registers of rural France, which maintained detailed records of births, marriages, and deaths ever since the 16th century, allowed French demographers to follow small populations family by family over centuries. Family reconstitution is an extremely laborious method, mainly handicraft in nature: you link families one by one in the records, compute or guess ages, count births, deaths, and marriages, and finally aggregate to age-specific rates for several hundred people. It has been very difficult to computerize (spellings of names change, priests make mistakes, ages or names of spouses are omitted, fires, floods, and wars destroy records, etc.), and covers at best, one small region at a time. This demographic work, coming after Braudel's original work, was perfectly suited to the Annales focus on the long term. Pierre Goubert's *Beauvais et le Beauvaisis au XVIIeme Siecle* (1960) is one of the greatest of the regional studies with a substantial demography section. LeRoy Ladurie's *History of Languedoc* is explicitly based on demographic reconstruction and a Malthusian model.

By now, however, the work has spread across Europe, covered much larger areas, and similar research has begun in China and Japan. Wrigley and Schofield's work is the culmination of decades of work by teams of devoted volunteers collecting and coding data all over England. It has finally given us substantive, reliable results over a large territory. (The French have a similar project underway)

Why was this worth doing? It could have happened that all this work would mainly confirm more securely what we thought we knew. We have all inherited preconceptions about the pre-industrial world that are deeply imbedded in our culture and also elaborated in social theories. The results can confirm or refute important general conceptions of how societies change.

Two of the most influential models that invoke demographic variables are those of Malthus and Marx. Malthus, writing in 1798, argued that there was a close relationship between population size and food supply. Since he did not think agricultural yields could increase indefinitely, and since the size of the cultivated land area could at best increase arithmetically, total food supply increases only linearly, at best. Population, however, if unconstrained, grows exponentially. Eventually total population will exceed total food supply available at subsistence levels. Then the "positive checks" of famine, disease, and war will create large rises in mortality to bring population back into line with food supply, temporarily -- until the next crisis. No wonder Parson Malthus was called the founder of the "dismal science" and was bitterly attacked by other clergymen who wanted to believe in a benevolent God. Malthus did consider "preventive checks" (control of fertility and marriage), but he thought them unlikely to operate effectively. Given that people have irresistible sexual urges and cannot control fertility, the "iron law of wages" operates: people always reproduce up to the maximum size they can support. If their wages rise, the poor will only reproduce faster, bringing wages back down. Many passages in Malthus's *Essay on Population* attack the English Poor Law, which was intended to provide reliable subsistence wages to the poor. Malthus thought this well-intentioned program would only encourage the poor to reproduce faster, make population run up against resource limits sooner, and thus create more useless deaths. The only

possibility he saw for evading the trap was to preach sexual abstinence -- a job suited to ministers, but which even he thought unlikely to work.

Anti-Malthusians came in many varieties. The strongest secular response came from Marx and his followers, who were extremely hostile to Malthus' entire line of thinking. For Marx, labor was the source of all value. An increase in population would increase the labor supply, which would increase the productive powers of society in general. There could be no subsistence crisis if one had faith in technological progress induced by population growth. Malthus represented to Marx the worst of bourgeois political economy, because his theory doomed the poor to eternal misery and denied the possibility of changes in the forces of production.

Marx was right about Europe and the U.S. Ironically, Malthus described a demographic system which was just about to end in England during his lifetime: confirmation of Hegel's dictum that "the owl of Minerva flies at twilight" (i.e. wisdom about a process is only attained after it is over: one of the historian's favorite dictums). Technological progress in agriculture, in industry, and later on in birth control did rescue the industrial world from the Malthusian trap. But in much of the developing world the jury is still out. And if we look at the global economy and expand our view from merely population to food ratio to, say energy demand vs. global environmental carrying capacity, the bleak Malthusian vision still haunts us.

Marx's hostility to population control had a disastrous legacy, however, in China (and Romania, among other places). In 1958, the economist Ma Yinchu, during a period of liberalization, openly advocated birth control campaigns, directly defying Marxist orthodoxy. He was attacked as a counter-revolutionary during the 1960s, purged, and no serious birth control planning began in China until the late 1970s, when the population was almost double what it had been in the 1950s. China now has the most draconian birth control regulations in the world, and they still are not working.

The Danish economist Ester Boserup has outlined a different version of the anti-Malthusian model which better suits modern conditions. She argues that increases in the labor supply produced by population growth are directly linked to changes in agricultural production technology toward more intensive use of land. Agrarian systems in Africa shift from low-yield seed broadcasting to single cropping with fallows to double-cropping as population grows. There is no real technological constraint on increasing yields. The main constraint is avoidance of work: people only work enough to provide what they need and no more. One can find a similar progression of agricultural intensification in China as population grew from about 100 million in the Sung dynasty (10th century A.D.) to 300 million by 1800 A.D. Over eight centuries, China was able to support a steadily growing population by combining increases in cultivated land area (terracing hillsides, draining marshes) with improved yields on existing land. But will this model still work with a population of one billion as it did with 300 million? Or can the 3% rate of growth per year in Kenya really be accommodated the way 1% rates of growth in the past were?

Much of the motivation behind historical demographic research lies in testing the adequacy of Malthusian models and their alternatives. Clearly something happened in Europe and elsewhere to allow a break out from the trap after 1800. What was it, and how generalizable is the answer? It turns out that the European demographic experience before 1800 is much more complicated than we thought. Whole sociological theories that

seemed to explain the rise of the industrial West now lie in ruins because of the patient workers grubbing through parish registers.

Some of the most pervasive ideas before the revolution in historical demography were, crudely put: "pre-industrial people were poor, their families were large, they had many children, lots of them starved, etc. People had no way to control births, so they reproduced up to maximum that food supplies could support them. This kept living standards low, and made it impossible for economic growth to start. Somehow England broke out of this trap first, when the Industrial Revolution started. France and the rest of Western Europe followed in the 19th century. The secret was new technology applied to both industry and agriculture: people were better fed, had better medical care, worked harder, went into factories, produced more, etc. Once the society got more prosperous, people limited their families: family size declined, fewer children were fed more, so there was less pressure on food supplies. The developing countries of the world today are in the same situation as Europe was before 1780. All they need to do is control their populations and introduce Western technology, and they too can develop."

Most of this story turns out to be wrong. It may work in certain limited places, but it's highly misleading as a general theory. The discovery of the highly unusual Western European marriage pattern (found only west of the line from Leningrad to Trieste) was the first shock. Western Europe had a relatively high age of marriage (26-29 for men, 23-25 for women), and a high percent of unmarried people (20-30% never married). This pattern contrasts with Eastern Europe, Russia and most of the rest of the world. This region also had impartible inheritance and primogeniture: i.e. all of the land went only to the eldest son. And illegitimacy was highly condemned and probably low in practice. This meant that control over the age of marriage strongly affected the growth rate of the population. Young people could not support a family until they had land of their own. The eldest son can't inherit the family farm until his father dies or yields it to him, reluctantly. Thus he cannot marry young. Other sons have to leave the farm and work either in cities or as farm laborers without land. In either case, they are liable to remain poor and mostly unmarried. There are, then, other controls on populations besides the Malthusian "positive checks". Earlier work focused mainly on mortality rates, but recent work concentrates on fertility and nuptiality as much more crucial determinants of population dynamics. (Tilly, ed., *Historical Studies of Changing Fertility*)

For example, here is one of the key questions for demographers and modern historians: why did the population grow nearly everywhere in the world (except Japan) during the eighteenth century, before the Industrial Revolution began? The old explanation, in England, argued that it was mainly a decline in mortality due to improved sanitation, smallpox vaccination, and the agricultural revolution (turnips, end of fallowing, drainage) producing a higher standard of living preceding the industrial revolution. This is probably not true. Wrigley and Schofield argue that it was mainly due to a decline in the age of marriage. Next question: why did the marriage age decline? This may be related to the spread of rural industry, which allowed those sons thrown off the farm to work, gain incomes, and support families even without land. (But it is much more complicated: see proto-industrialization debate (R. Braun; Medick, et.al.).

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