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Demography: Twentieth-century History

Achille Guillard first used the word 'demography' in 1855 to describe a new science of population dynamics, by which he meant the statistical study of the size, condition, and movement of populations. Malthus, a half century earlier, had initiated a period of speculation on population growth's constraining effect on prosperity, but only by mid-century had the collection of population statistics become extensive enough in Europe and the USA for a 'science' of population to be imagined. The rise of industrial capitalism in Europe and its overseas extensions increased the pace of social, demographic, and economic change, stimulated the development of state structures aimed at directing these changes, and made obvious the usefulness of accurate population statistics. As India's first census in 1868 reflects, such usefulness extended to the administration of colonies as well. In 1882 the fourth International Conference on Hygiene (Geneva) included a section on demography. By its next meeting in 1884 (The Hague) the conference included demography in its title and sections on 'the science of statistics applied to the social well-being of people' were presented. Although the growing body of population statistics was being discussed at international meetings, as the nineteenth century came to an end a unified discipline of demography, with a distinct body of theory and method, had yet to emerge.

For an intellectual activity to become a discipline certain things are needed: a significant interaction among those performing the activity; an organization that directs its investigation and teaching; and entities outside itself who value and use its findings. Using this definition, demography lacked the status of a discipline for much of the twentieth century. The century began with a diverse group of individuals considering themselves population specialists: statisticians, public health officials, biologists, economists, sociologists, geographers, historians, lawyers, political activists, and politicians. There was haphazard interaction among this group and the teaching of demography had yet to find a clear place within the academy. While basic population statistics had an undeniable utility for those engaged in pragmatic planning activities, there had yet to develop a consensus about the larger significance of modern population changes. In fact, while consensus was developing about the causes of modern population changes, the twentieth century began with growing dissension about their societal consequences. Those engaged in examining population trends warned of very different population problems and recommended conflicting population policies. With such disparate voices speaking about population, a harmonizing core discipline was difficult to detect. The lack of a unifying theoretical perspective that explicated why population mattered, and the presence of a fractured population policy agenda were

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two factors that obstructed the development of a distinct discipline of demography; these factors continued to inhibit disciplinary development throughout much of the twentieth century.

During the nineteenth century social movements aimed at influencing population trends arose that attempted to provide the unifying theoretical perspective and clear policy agenda for the study of population statistics. Neo-Malthusianism, based on the belief that growing populations are a major cause of poverty and that lowering fertility by making contraception more accessible will facilitate prosperity, originated in Great Britain early in the nineteenth century and spread gradually throughout Europe. The British Malthusian League was established in 1877, followed by neo-Malthusian leagues in Holland (1885), Germany (1889), and France (1895). But by the time the leagues united at the first International Neo-Malthusian Conference (Paris) in 1900, fertility decline had so spread among urbanizing and industrializing societies that the crisis aura surrounding population growth and large families largely had abated. For countries like France, which were beginning to face the specter of depopulation in the context of an increasingly quarrelsome Europe, it had become less clear that population growth was a social evil or that small families were a social good.

The fertility decline experienced in more developed societies generated new population movements as the twentieth century began. The upper and middle classes were embracing the small family norm more quickly and more fully than other classes. The rediscovery of Mendel's research and the power of Weismann's work on an inviolable germ plasm had convinced many that heredity played a transcendent role in molding human destiny. The educated of the period were much inclined to use social class position as a surrogate measure of biological quality, and they bemoaned the 'race degradation' that resulted from the 'less fit' lower classes contributing an increasing proportion of future generations.

As early as 1891 Sir Francis Galton, addressing the demography section of the International Conference on Hygiene and Demography in London, was urging that the issue of heredity and fertility be dealt with in the 'practical politics' of member states. As the twentieth century began, eugenics movements were forming in a number of countries. In the USA's an active immigration restriction movement allied itself with those expressing eugenic fears. Restrictionists railed against the flood of 'inferior' Eastern and Southern European immigrants who were 'degrading' the high quality of the largely Anglo-Saxon and Northern European 'stock'; they even claimed that the increased number of the 'inferior' was a major cause of fertility decline among the 'superior.'

The eugenicists and restrictionists feared changes in population composition and quality, not population quantity and growth. The trend that neo-Malthusians

praised, fertility decline, was the same one that they bemoaned. Most eugenicists fought to keep access to contraceptives restricted, contending that only the 'more fit' higher classes were sufficiently disciplined to limit their family size. Into this amalgam of population movements Emma Goldman, Margaret Sanger, and Marie Stopes attempted to add 'birth control' movements in the USA and Great Britain. During a period when high-ranking politicians were reminding educated women publicly of their patriotic duty to marry and have children, they began mobilizing citizens to legalize a woman's access to contraception.

With most academic population experts at the time producing works that fed the eugenic-based fears of elites, the task of birth controllers was to develop convincing counter-arguments as to why legalizing contraception was socially beneficial. The socialist arguments that Emma Goldman presented—that working-class women could improve their class' negotiating position with capitalists by restricting the production of new workers—had limited public appeal. Margaret Sanger attempted to attract the allegiance of experts and a wider public by deftly weaving together eugenic and neo-Malthusian themes: restrictive laws do not keep contraception out of the hands of the educated classes and only serve to slow the adoption of birth control among the less motivated 'inferior' classes, an adoption that would benefit both the individual and the society. During the 1920s the pace of fertility decline increased in developed societies, fears of actual depopulation grew, and additional controversy swirled around population trends.

Many consider demography a discipline that is either defined by its specialized techniques or delimited by its particular area of study: the causes and consequences of population change, especially the mortality and fertility transitions that have so dramatically swept the world since the 1750s. But for the first third of this century, for a variety of reasons, those engaged in both areas of research found themselves enmeshed in population controversies that made them less able to focus their energies on disciplinary development. For instance, when Louis Dublin and Alfred Lotka developed 'intrinsic' vital rates in 1925 that controlled for the age structure's influence on crude birth and death rates, they applied their technique to the study of US vital rates and dramatically announced that the average American woman in 1920 was having only half a child more than was needed to maintain a stationary population. Dublin then was moved to write articles identifying excessive birth control as a national problem and attacking Margaret Sanger for fostering a one-sided socially harmful movement. In the late 1920s the technical demographer was hard to distinguish from the movement advocate.

Similarly, experts studying the causes and consequences of modern population movements found the 1930s to be an era in which nationalistic chauvinism made discussion of these trends fraught with contro-

versy. The International Union for the Scientific Investigation of Population Problems was launched in 1928, an outgrowth of the 1927 World Population Conference sponsored by Margaret Sanger in Geneva. The IUSIPP (later to become the IUSSP) planned to hold its first meeting in Rome in 1931. Mussolini's rise to power and hints that the meeting would be used to promulgate his racial theories caused the leadership of the IUSIPP to 'dis-establish' the Rome meeting and convene a hastily planned counter conference in London. The IUSIPP's next official meeting was Berlin in 1935, and was even more controversial. Several national committees, correctly fearing that the conference would be used as a platform from which to spread Nazi racial theories, boycotted the meeting. The first two IUSIPP meetings were exercises in divisiveness, and certainly not venues for establishing a new discipline.

Even the academic study of the causes of modern population dynamics proved controversial during the interwar period. By the early 1930s a number of students of population (Warren Thompson in the United States, Adolphe Landry in France, and A. M. Carr-Saunders in Great Britain) arrived at a quite similar summation of modern population dynamics: as agrarian societies become industrial there is a shift from high to low vital rates during which mortality declines more quickly than fertility, producing a period of population growth. Northern and Western Europe and the United States had largely experienced this 'demographic revolution' (Landry's term), Eastern and Southern Europe and Japan were in the middle of their expansion stage, and much of the rest of the world had just begun the revolution.

Although demographic transition theory was to play a central role in the institutionalization of demography 20 years later, its development in the 1930s proved awkward. Both Germany and Japan were using *Lebensraum* rationales for their imperialist moves into their neighbors' land, claiming that their growing populations needed room to expand. Any summation of modern population dynamics that seemed to confer scientific legitimacy on these claims lost attractiveness to a number of Western policy makers. Explicating the causes of modern population changes during this era did little to establishment a firm foundation on which to build a disciplinary infrastructure for demography.

The end of World War II, however, began a most propitious period for establishing such a foundation. War-torn nations, both allied and axis, entered into a period of state-planned national reconstruction. The production and analysis of population statistics were vital for such planning. The National Institute of Demographic Studies (INED) was established in France in 1947 as a planning arm of the Ministry of Social Affairs and National Solidarity. Although not engaged in the teaching of demography, INED did much to enhance the reputation of the discipline, as

did the publication of the first volume of *Population* (Paris) in 1946. One year later *Population Studies* made its debut in London. The establishment of two scholarly journals that focused exclusively on publishing analyses with a distinct demographic focus did much to solidify the boundaries of demography as an academic subject. On a more functional level, the Population Division of the UN Secretariat was established in 1946 and worked to standardize demographic measures and promulgate a common set of techniques for demographic analysis.

The war's conclusion also resolved many of the more fractious issues that had fueled earlier population controversies, and the link between population discourse and divisive controversy weakened considerably. Knowledge of the enormity of the holocaust led to the eugenics movement quickly dissipating. A widespread post-war baby boom dispelled many countries' worries of depopulation. The removal of German and Japanese military threats broke the association between transition accounts of modern population dynamics and population-pressure rationales for imperialism. In fact, in the postwar world the transition framework would provide Western policy makers with a needed policy tool: a way of interpreting the unprecedented demographic changes arising in the world's underdeveloped regions during the 1950s and 1960s.

The rapid decolonization of the world that followed World War II produced a 'Third World' of newly independent governments that became a Cold War battleground where the USA and the Soviet Union fought for supremacy. Unprecedented mortality decline resulting from the use of newly developed antibiotics and the application of effective methods for combating malaria produced rapid population growth throughout much of the developing world. Such growth was especially problematic when considered from the perspective of the post-war versions of demographic transition theory promulgated by US demographers working at Princeton University's Office of Population. If the economic strains associated with rapid population growth prevented the transformation of traditional agrarian societies into modern industrial ones, then rapid population growth might forestall the very socioeconomic changes that would induce fertility decline. Without fertility decline, the Third World's period of population expansion would come to an end with mortality rising as starvation and disease increased. Starvation, economic stagnation, and growing poverty were judged propitious for the spread of communism. Inducing fertility decline in still agrarian societies came to be seen as the only way to humanely resolve the Third World's population dilemma; and, additionally, it would protect the geopolitical interests of the Free World.

This vision of the postwar global population situation was promulgated by Princeton demographers during the decade from 1945 to 1955, especially by

Frank W. Notestein and Kingsley Davis. During the early 1950s John D. Rockefeller III and the leadership of the Ford and Rockefeller foundations accepted the validity of this vision and worked to establish a neo-Malthusian movement with a global focus. Their goal was to set up family planning programs throughout the Third World, lower fertility, and lessen population growth. They recognized that only governments could implement effective family planning programs, and their immediate task became converting government leaders, in both developed and Third World countries, to the position that high fertility was a major social problem in need of state intervention. They determined that a dramatic increase in academic research on international population issues was a necessary first step in this conversion process. During the next two decades they expended millions of dollars to develop demographic research centers that focused on international population issues.

These expenditures on demographic research had a profound impact. In the USA in 1950, for example, courses in demography could be found at the graduate level in only three universities. Between 1951 and 1967 major population research centers were established at 16 US universities; all owed their existence to foundation funding, largely from the Ford Foundation. Similar expenditures helped established internationally oriented population centers at a number of major universities in Europe and Australia. Funding from the Population Council, a foundation established by John D. Rockefeller III in 1952 to provide a leadership role for the international population control movement, established UN regional centers for demographic training and research in Bombay, India (1957), Santiago, Chile (1958), and Cairo, Egypt (1963).

Additionally, its fellowship program brought hundreds of Third World students to major population research centers in developed countries for graduate training in demography. The research generated by the rapidly expanding number of demographers found its way into print in the many demographic and family planning journals that foundation funds were instrumental in launching: *Studies in Family Planning* (1963), *Demography* (1964), *Family Planning Perspectives* (1969), *Population and Development Review* (1975), and *International Family Planning Perspectives* (1975). This conscious cultivation of demographers engaged in addressing Third World population issues had the desired effect. While no government leader thought that lowering the fertility of couples was a legitimate state function in 1950, a substantial number did so 20 years later. As governments adopted fertility control policies and implemented family planning programs, additional funds for demographic research became available, as did additional employment opportunities for the alumni of population research centers.

The vast expansion in resources made available for demographic research by leaders of the international

population control movement from 1950 to 1975 was largely responsible for establishing demography as an academic discipline worldwide. All the prerequisites for an intellectual activity becoming a discipline—a significant interaction among those performing the activity, an organization that directs its investigation and teaching, and entities outside itself who value and use its findings—were deliberately assembled by this leadership. The decision to fund graduate level demographic training programs at leading Western research universities assured that there would be a significant and continuing interaction among those engaged in demographic research. It also assured that academic programs in demography would be established and that standards for the teaching of the discipline would be developed. The many private and government contracts for fertility control research generated a demand for this new discipline's findings by outside entities, a demand that no doubt impressed university administrators.

These resource flows, however, did not simply impact the disciplinary development of demography in positive ways. There were costs as well. The neo-Malthusian impetus behind the institutionalization of demography caused the discipline itself to be tinged with an ideological aura. During the 1950s and 1960s Soviet and Chinese population specialists consistently questioned the objectivity of Western analyses of Third World population issues. The major premise of the international population control movement was that rapid population growth had deleterious effects on development, and this was certainly the premise that guided the vast bulk of orthodox demographic research. It was, however, more hypothesis than fact. Although it is not uncommon among the social sciences to have certain perspectives represented within a discipline that are based on premises not subject to empirical verification, the discipline itself is usually composed of a multiplicity of such perspectives. Except in France, where a pronatalist tradition among French demographers made many suspicious [?] of neo-Malthusianism, significant counter-perspectives did not develop within Western demography until a stream of 'revisionist' literature began to develop in the late 1970s. Until that lively debate over the relationship between population growth and economic development developed, demography's close association with the international population control movement worked to politicize it. At occasions such as the World Population Conference at Bucharest in 1974, demographers found not only the validity of their research findings questioned but also their motives.

The neo-Malthusian impetus for much foundation and government funding of demographic research also made it subject to the shifting fortunes of that movement. Population research centers were established on the basis of grants with time limits and lacked departmental status. Many of their positions were

'soft money' nontenured ones, although all had core faculty with permanent positions in established departments, usually sociology, economics, or public health. During the 1950s and 1960s few universities were willing to subsidize population research centers internally, and the survival of demographic training programs required the continual influx of outside funds. Foundation support for the international population control movement remained strong during the 1950s and 1960s but declined dramatically during the 1970s.

Northern government support of the movement tended to be significant but did vary with elections; the end of the Cold War, however, has dissipated a powerful source of Northern concern over problems associated with Southern population growth. Academic demography has responded to the funding vagaries caused by these movement shifts by becoming leaner, more embedded within the university framework, and less oriented to an international fertility control agenda. In the North, where the discipline still finds its center, every country faces a significant aging of its population and many countries face problems associated with long-term below replacement fertility. These domestic population concerns increasingly are the disciplinary focus of Northern demographers and population research centers. A similar transformation is taking place in many Southern countries where fertility is approaching replacement levels. Only in those Southern countries whose fertility levels remain high does demographic research remain synonymous with fertility reduction research. International migration, not fertility control, is increasingly the population trend garnering the attention of both Northern and Southern demographers. In a world with a global economy and with great disparities in national wealth, the mass movement of individuals across national borders can only increase in intensity.

At the end of the twentieth century the most notable development in the field of population has been that a discipline of demography, much like that envisioned by Achille Guillard in 1855, finally has emerged. The study of the causes and consequences of population dynamics is now a widely recognized intellectual activity that is investigated and taught within an academic setting by individuals with academic credentials who are paid for their specialized knowledge and who reproduce themselves with new generations of demographers. The institutionalization of this discipline in the second half of the twentieth century was largely the result of a confluence of events happening at mid-century, the most notable of which was the rise of an international population control movement.

Demography still lacks an overarching theory capable of linking individual and societal demographic action, but currently possesses a significant disciplinary cohesiveness that arises from having a well defined subject matter and, increasingly, from having a common policy focus. Because most populations

have neared completion of their mortality and fertility transitions, a common nexus of population trends is present: population aging in nearly every region; below replacement fertility in much of the North; declining population growth in much of the South. This particular set of demographic trends has so far produced few divisive debates over population policy. The twenty-first century begins, therefore, with demography's immediate disciplinary future assured.

See also: Age Structure; Censuses: Demographic Issues; Databases, Core: Demography and Registers; Demographic Models; Demography, History of; Eugenics as the Basis of Population Policy; Families and Households, Formal Demography of; Family Theory: Competing Perspectives in Social Demography; Fertility Control: Overview; Fertility: Political and Political-Economic Perspectives; Human-Environment Relationship: Carrying Capacity; Population Dynamics: Mathematic Models of Population, Development, and Natural Resources.

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D. Hodgson

Dental Health: Psychosocial Aspects

Dental health is a topic of both practical and theoretical interest. Practically speaking, the pain and loss of dentition that can be a result of dental ill health is a cause of much distress and disability. Although dental ill health is rarely life threatening, it can have severe and long-lasting effects on quality of life. Theoretically speaking, the ways in which people cope with anxiety and seek to maintain oral health can provide many opportunities to test the accuracy of theories of human distress and motivation. In this article, the ways in which psychologists and sociologists have sought to understand dental anxiety and to improve oral health are examined.

1. The Term 'Dental Health'

Dental health can be defined and measured both objectively and subjectively. Objectively, dentists often use the decayed, missing, and filled teeth (DMFT) index as an indicator of dental health, but this may be more appropriately seen as a measure of dental history rather than health. Subjective assessments given by patients may not correspond to professionally developed objective measures. For example, Heyink et al. (1986) found only weak associations between dentists' and patients' appraisals of dentures. For dentists, clinical indicators such as fit, stability, and bite force were important, but for patients, denture quality depended on how well they functioned in practical everyday terms. It is useful to recall the World Health Organization's (1980) distinction between impairment (the objective pathology such as tooth loss), disability (limitation on activities such as not being able to eat certain foods as a result of tooth

loss) and handicap (inability to perform social roles, such as being reluctant to accept invitations to dinner because of the potential social embarrassment of not being able to eat the food that might be served). Although it is possible to define dental health in any of these ways, it is useful to consider impairment primarily as an objective measure of health, while disability and handicap are more subjective in nature. Seen in terms of disability and handicap, dental disease is widespread. Cushing et al. (1986) found that 26 percent of adults had experienced dental pain, 20 percent had difficulty in eating and 15 percent had associated problems of communication within the previous year.

Psychologists and sociologists have been keen to understand the causes of dental ill health, partly with a view towards reducing disease and partly with a view towards using the dental setting to test and develop theories of health behavior. Two areas which have received considerable attention are (a) the development and alleviation of dental anxiety and (b) the exploration of why some individuals engage in regular preventive dental care whereas others place less emphasis on this aspect of their physical well being.

2. Dental Anxiety

Research in this area has addressed three questions. First, there is the issue of the nature of dental anxiety (see *Anxiety Disorder in Children*). Like other forms of anxiety, it has behavioral, somatic, and cognitive components. Second, there is the issue of etiology of dental anxiety. Despite the development of modern anesthetics, it is widespread: depending on how it is measured, 3–5 percent of the general population can be said to have a debilitating level of dental anxiety. Third, there is the issue of treatment. Several treatment approaches show consistently good results.

2.1 Components of Dental Anxiety

Historically, the behavioral aspects of dental anxiety have received the most attention. This is probably due to the consistent finding that anxiety is a powerful barrier to the receipt of professional care. For example, Curson and Coplans (1970) interviewed patients in an emergency clinic and 38 percent reported that they did not make regular visits to a dentist because they were too afraid to do so. Of these, only 12 percent made and kept further appointments for a course of treatment at the clinic. The extent of behavioral difficulties has been measured through both observational and self-report methods. Melamed et al. (1975) used an observational schedule which contained a series of behavioral indices of anxiety in children (crying, refusal to open the