Sixth Edition

Population Geography

Problems, Concepts, and Prospects

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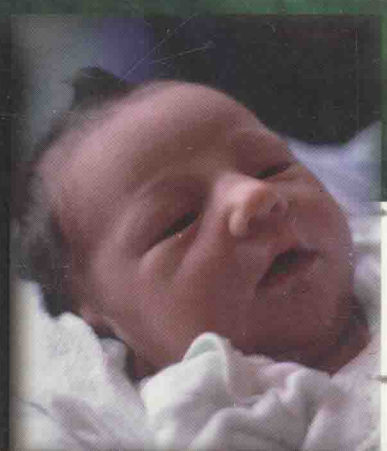
Gary L. Peters

Robert P. Larkin



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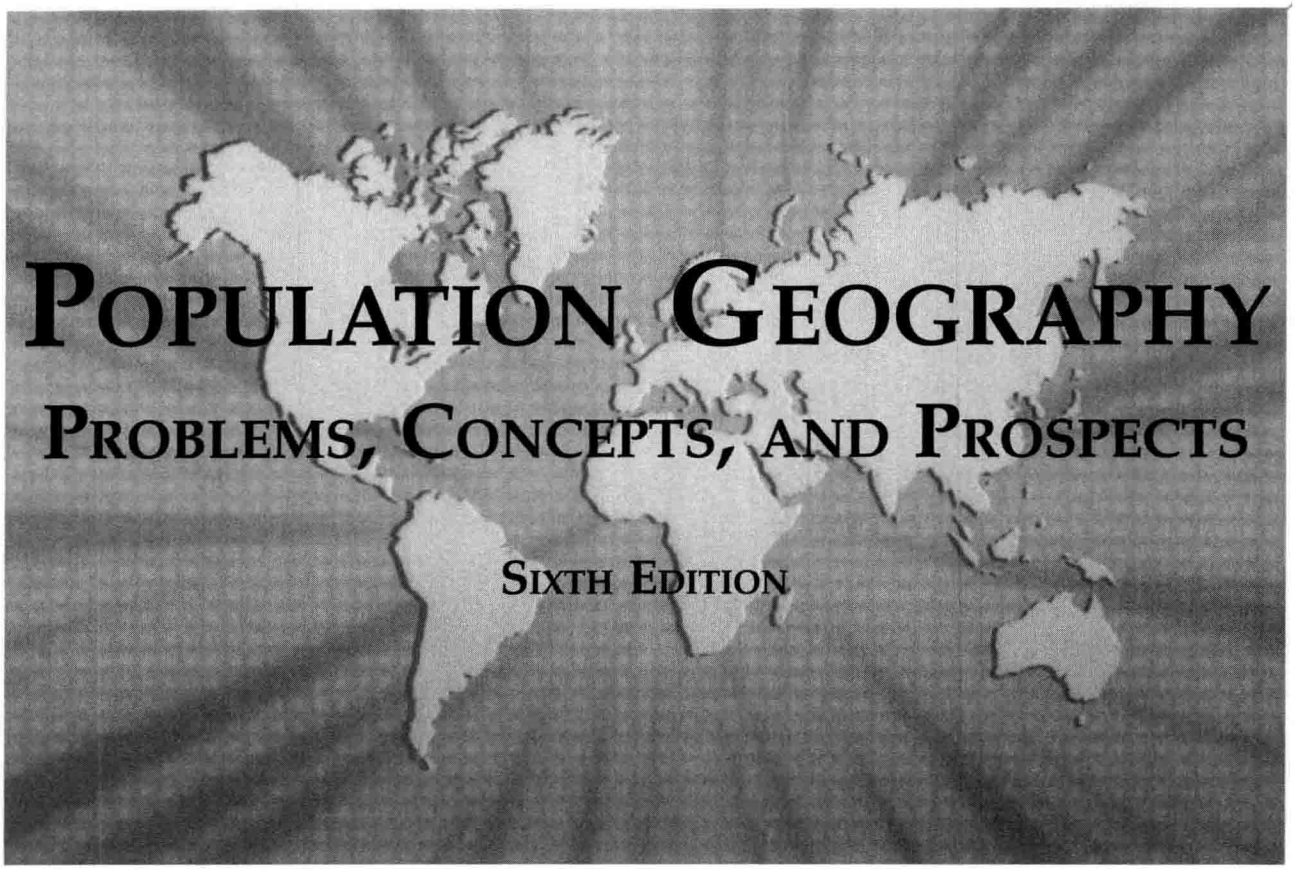

POPULATION GEOGRAPHY

PROBLEMS, CONCEPTS, AND PROSPECTS

SIXTH EDITION

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To Carol, Jason, Erika, Joyce, Michael, and Christine

PREFACE

The scientific study of the human population is an interdisciplinary one involving demographers, geographers, sociologists, anthropologists, psychologists, political scientists, economists, biologists, physicians, and even philosophers. The dramatic growth of the human population in recent decades compels us to pay attention to the causes and consequences of population growth.

Our purpose is to provide students with an introduction to population geography, a task that requires drawing upon materials from many disciplines and integrating them into a readable text. We begin with population growth in an effort to generate an interest in the study of population. Following that, we look at demographic data, which is so essential to helping us understand population processes. Population distribution and composition are considered, followed by discussions of theories of population growth and change. After that, the focus turns to the basic demographic processes—mortality, fertility, and migration. The final two chapters examine relationships among population, environment, and food supply.

ACKNOWLEDGMENTS

It would be impossible to acknowledge individually each of the people from whom we have learned about population, though citations give credit to many of them. Without the continued research and writing efforts of many people, this book could not have been written. We would also like to thank all of those instructors who continue to use this text; we encourage you to send us your comments.

Though this book has evolved considerably since the first edition appeared in 1979, it continues to reflect our own graduate learning experiences. We would still like to thank Professor Paul Simkins for stimulating our initial interest in population geography during our student years at Penn State. Many of the ideas in this book can probably still be traced back to Paul, and we hope that he approves of the current edition. Of course, we alone remain responsible for whatever errors and shortcomings this book may have.

About the Authors

Gary L. Peters is currently a Professor of Geography at California State University, Long Beach. He received his B.A. in Geography at Chico State University and his M.S. and Ph.D. in Geography at The Pennsylvania State University. His interest in population studies began when he was a graduate student at Penn State. He is especially interested in migration, regional dimensions of population change, and the changing demography of the United States.

He has been teaching geography at Cal State since 1971. He is co-author of *California* which is published by Kendall/Hunt Publishing Company. He has also authored several other books including *Wines and Vines of California* and *American Winescapes*.

Robert P. Larkin is a Professor of Geography and Environmental Studies at the University of Colorado, Colorado Springs. He received his B.A. in Social Studies Education from the State University of New York, Cortland College, his M.A. in Geography from the University of Colorado at Boulder, and his Ph.D. in Geography from The Pennsylvania State University.

He has been teaching at the college and university level for over twenty years. His interests are in population geography, gerontology, and the teaching of geography. He has published seven books and a variety of articles on geographic topics.

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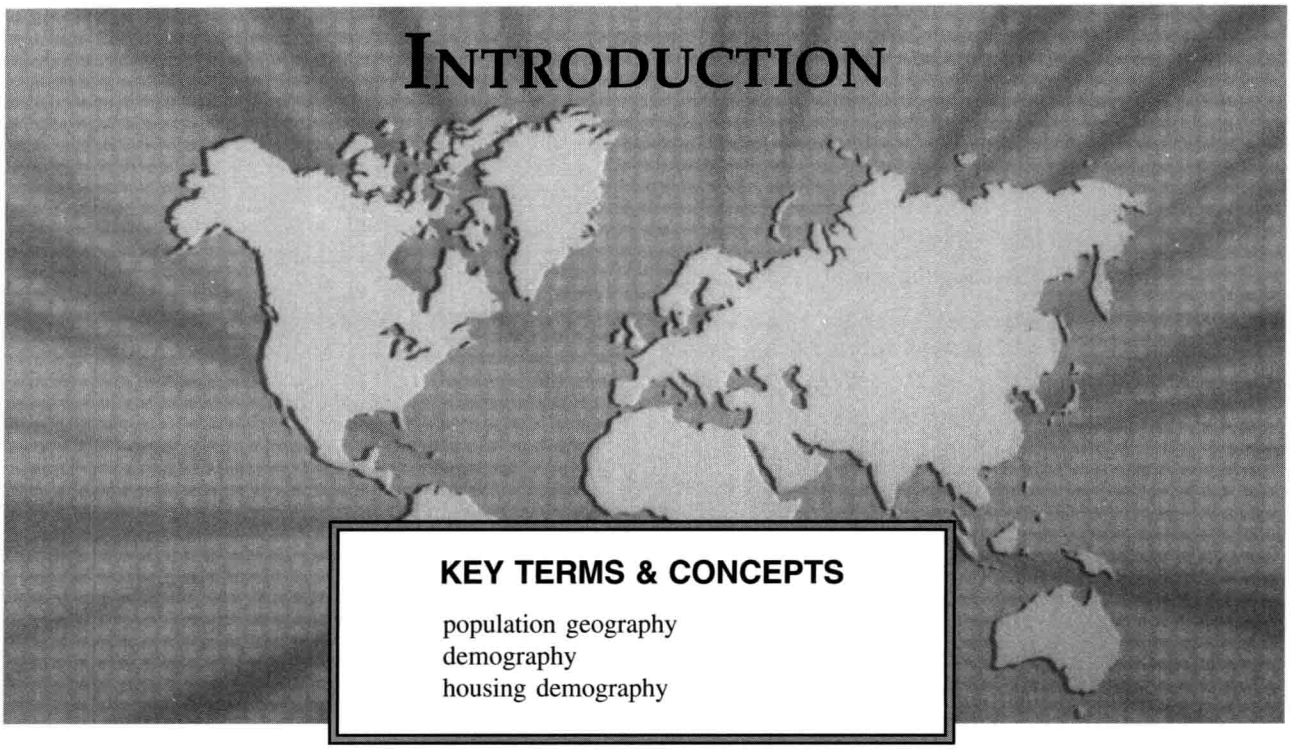

INTRODUCTION

KEY TERMS & CONCEPTS

population geography
demography
housing demography

By the year 2000 the earth's population will exceed 6.0 billion. That number cannot help but further strain this planet's ability to provide support for its many people as the new millennium begins. It is difficult to argue with Sharon Camp's remark (1993, 126) that "The 1990s are clearly the decade of decision for one of the most basic environmental problems: the exponential growth in human populations." Have we done enough?

We're adding nearly 230,000 people to the planet every day (including weekends and holidays!); geographers need to be involved in communicating the causes and consequences of that growth to as wide an audience as possible. As writer Erla Zwingle (1998, 38) recently commented, "Population: We know it's a problem. In fact most of the problems facing individuals, families, communities, and nations are affected by the quantity of humans sharing the planet." A geographic perspective is especially valuable in clarifying and interpreting the considerable variations that exist from place to place with respect to birth and death rates, as well as major patterns of population movements. Most of the world's additional people are added in the developing countries, whereas most of the developed countries are growing slowly or not at all; some are even declining. Such demographic disparities are likely to set in motion other processes, especially international migration, which could easily become the next century's most nagging demographic quandary.

It is hardly surprising to find that more and more attention is being focused on population issues. From scholarly journals to the popular press, a burgeoning literature on population dynamics and population problems challenges us. Business has discovered the importance of demographics as well, as is apparent in publications such as *American Demographics*. Our view of population, the geographic perspective, requires a brief look at the intellectual development of population studies as a geographic concern.

POPULATION GEOGRAPHY

Because of the interdisciplinary nature of population studies, it is not always easy to distinguish population geography from other disciplinary contributions. However, it seems that we should briefly consider ways in which some important population geographers have defined their realm of study.

Population geography is a relatively young subdiscipline of geography, though geographers have long been concerned with population characteristics as a part of broader regional studies. Though the roots of the subdiscipline developed somewhat earlier,

most would agree that Glenn Trewartha (1953), a noted climatologist as well as population geographer, provided the first definitive statement on population geography. Therein he noted that population geography had been, and continued to be, a neglected aspect of the discipline. Furthermore, he argued that population was a pivotal element in geography, and that its continued neglect would seriously affect the development of geography.

Some geographers would still agree with Trewartha (1953, 87) that "...the geographer's goal in any or all analyses of population is an understanding of the regional differences in the earth's covering of people. Just as area differentiation is the theme of geography in general, so it is of population geography in particular." Other geographers, as we shall see, would find different approaches to the study of population geography more appealing.

The response to Trewartha's plea for increased attention to population geography was neither rapid nor overwhelming, at least not at first. In the year following the publication of Trewartha's presidential address, geographer Preston James (1954, 107) wrote that "...the fundamental problem of population geography is the search for a systematic method of outlining enumeration areas that are meaningful in terms of the question being asked." On the same page he went on to note that "...in the field of population geography the need is to find a way to generalize the distribution of people without obscuring the relationships of man to the other phenomena with which he is areally associated." Additionally, James argued that demographic studies could benefit from the geographic perspective, especially from the regional concept and regional methodology. He also provided a useful review of population studies by American geographers, suggested numerous new research directions, and even offered a discussion of training requirements for population geographers.

After an embryonic decade or so, two books on population geography appeared in 1966, one by American geographer Wilbur Zelinsky (1966) and the other by French geographer Jacqueline Beaujeu-Garnier (1966). Zelinsky (1966, 2) commented that a "...rich harvest of facts and ideas has not yet been reaped by the population geographer because this is still the period of germination in the history of his discipline." Furthermore, he offered the following definition (Zelinsky, 1966, 5):

> Population geography can be defined accurately as the science that deals with the ways in which the geographic character of places is formed by, and in turn reacts upon, a set of population phenomena that vary within it through both space and time as they follow their own behavioral laws, interacting one with another and with numerous nondemographic phenomena.

Perceptively noting the burden that this definition placed on the reader, he offered a shorter version (Zelinsky, 1966, 5) in which he stated that "...the population geographer studies the spatial aspects of population in the context of the aggregate nature of places." He contended that population geography was concerned with three "distinct and ascending levels of discourse": (1) simple description of the location of population numbers and characteristics, (2) explanation of the spatial configurations of these numbers and characteristics, and (3) the geographic analysis of population phenomena. As did Trewartha and James, Zelinsky emphasized areal differences in populations.

Beaujeu-Garnier's concept of population geography was perhaps best expressed in the following statement (1966, 3):

> If the demographer measures and analyzes the demographic facts, if the historian traces their evolution, if the sociologist seeks their causes and repercussions by the observation of human society, it is the business of the geographer to describe the facts in their present environmental context, studying also their causes, their original characteristics, and possible consequences.

In her view the geographical study of population had three foci: (1) the distribution of people over the globe, (2) the evolution of human societies, and (3) the degrees of success that those societies have achieved.

In his major work on the topic Trewartha (1969, 1-2) stated that "...the geography of population (or population geography) is concerned chiefly with one aspect of population study—its spatial distribution and arrangements." As he had in 1953, Trewartha again emphasized the importance of population geography within the broader discipline of geography, noting that "...population serves as the point of reference from which all other geographic elements are observed, and from which they all, singly and collectively, derive significance and meaning."

In the following year Demko, Rose, and Schnell (1970, 4) offered yet another definition, conditioned by changes in methodology that were affecting most fields of geography by that time (spatial analysis, logical positivism, quantitative methods):

> Population geography is, therefore, that branch of the discipline which treats the spatial variations in demographic and nondemographic qualities of human populations, and the economic and social consequences stemming from the interaction associated with a particular set of conditions existing in a given areal unit.

Their emphasis was somewhat broader than those of previous definitions, leaning more toward process than simple areal differentiation, more toward hypothesis-testing than simple description.

Soon afterward, geographer John Clarke (1972, 2) wrote that population geography was "...concerned with demonstrating how spatial variations in the distribution, composition, migrations, and growth of populations are related to spatial variations in the nature of places." A few years later Courgeau (1976, 261) added that:

> Demography and population geography are concerned with the same topic: the study of human populations. Basically, they are quantitative disciplines that mainly use statistical data, but they also employ qualitative approaches. The main difference between the two sciences is the fact that the demographer places his emphasis on time whereas the geographer places his emphasis on space.

At least to some degree this distinction remains acceptable.

In the following decade Clarke (1984) noted the success that population geography had experienced as a subdiscipline, especially since the 1970s, and pointed out that since Trewartha's seminal paper in 1953 nearly ten percent of all published geographical papers had dealt with some aspect of population. He also noted the diversity of studies under the population geography umbrella, along with a look at population and political changes, as well as data and advances in quantitative methods. However, he ended up noting that, despite many of the methodological advances of the 1970s and early 1980s, "The search for general methods and laws has often obscured the complexities of reality." (Clarke, 1984, 9)

Demography

Definitions of demography also vary, both over time and among practitioners. According to demographer Donald Bogue (1969, 1), "...demography is the empirical, statistical, and mathematical study of populations." In his view "formal" demography focused on: (1) changes in population size, (2) the composition of the population, and (3) the distribution of population in space.

Demographer William Peterson (1975) defined demography as "...the systematic analysis of population phenomena...." However, he differentiated between formal demography and population studies, arguing that formal demography was concerned with the gathering, collating, statistical analysis, and technical presentation of data, whereas population studies were concerned with population characteristics and trends in their social setting. Along this latter line, Thomlinson (1976, 4) stated that "...population study involves the number and variety of people in an area and the changes in this number and variety."

Along with formal demography and population studies, a third dimension has emerged in recent years and deserves mention, namely "housing" demography. Describing housing demography, Dowell Myers (1992, 6) commented that, "This theory stresses the detailed interconnections between populations and their housing stocks." Both urban and population geographers have found this concept useful and have incorporated it into their work (Gober, 1992).

Trends in Population Geography

Since 1980 several new texts have appeared in both demography and population geography. Among them are Myers (1992), Murdock and Ellis (1991), Overbeek (1982), Weeks (1996), and Weller and Bouvier (1981) in demography, along with Hornby and Jones (1980), Plane and Rogerson (1994), Schnell and Monmonier (1983), and Woods (1982) in population geography. Though they are collections of readings rather than texts, Coleman and Salt (1992), Lindahl-Kiessling and Landberg (1994), Turner, Hyden, and Kates (1993), Menard and Moen (1987), Noin and Woods (1993), Pacione (1986), and Woods and Rees (1986) provide considerable material of interest to both demographers and population geog-

raphers. The array of new texts in recent years affirms the growing interest in population issues in the social sciences, issues that will become more prominent as we move toward the new millennium.

Obviously geographers and demographers share many common and overlapping interests in their respective studies of population. However, population geographers tend to place more emphasis on the spatial patterns of population characteristics and processes, whereas demographers, though often interested in population distributions, seldom make spatial patterns their central interest.

Focus on the spatial dimensions of demography and demographic techniques have been central in much of the recent literature of population geography. Findlay (1991, 64) noted that, "The 1980s may well be recorded by historians of population geography as the decade in which the subdiscipline became strongly demographic and moved in the direction of being redefined as spatial demography." This trend, exemplified by such works as Woods and Reese (1986) and Congdon and Batey (1989), was especially pronounced in the United Kingdom. Findlay and Graham (1991) also looked at the nature of recent studies in population geography, first noting the emphasis on the spatial perspective, then criticizing population geographers for their neglect of postmodernist debates that took place in geography in the 1980s. "That these issues were not taken up and discussed in population geography in the 1980s," Findlay and Graham (1991, 156) argued, "meant that population geographers were failing to participate in the mainstream methodological debates within geography, but clung instead to the surer, but dated terrain of the 1960s and 1970s." Perhaps even more clearly, Findlay and Graham (1991, 158) commented that "A narrow definition of population geography as spatial demography is quite simply inadequate to face the challenge of what others expect geographers to contribute to the understanding of population."

Clearly, in population geography, as in most other pursuits in academia, we need to be more involved in solving key problems in society. With respect to geography and the work being done by geographers, Brunn (1992, 2), from his perspective as editor of the *Annals of the Association of American Geographers*, lamented:

> I am sometimes concerned that, unlike other disciplines, we are apparently unwilling to tackle global problems on a global scale. . . we are not prepared to look at global and macroregional problems, processes, and models . . . . The time is propitious for us to get some idea of what we are doing and how we might proceed as a sound and worthy discipline into the next millennium.

Given their roots in geography, population geographers should not lose track of how the subdiscipline fits into, and interacts with, other branches of geography. Whether looking at international flows of refugees or crosstown movements within metropolitan areas, whether considering the relationships between people and global warming or the supply and demand for food in the Sahel, we should be able to find some solid geographic foundations upon which to build. In that process, people, and their relationships to places and environments at all scales, must remain central. As Stoddart (1987, 331) noted, for geographers "The task is to identify geographical problems, issues of man and environment within regions—problems not of geomorphology or history or economics or sociology, but geographical problems: and to use our skills to work to alleviate them, perhaps to solve them." Perhaps the summary by White, et al (1989, 282) provides as clear a picture as any of where we should be going:

> Geographers might disagree about the most significant topics within population geography, the most appropriate research questions, and certainly the most appropriate research methodologies. However, it is clear that despite these honest differences, population-geography research has grown rapidly since 1953, and shows no signs of slowing. Undoubtedly, population geography is pivotal to an understanding of the cultural landscape.

More recently, Findlay (1993) urged population geographers to pursue more specific tasks. For example, he has suggested the need for studies of the demographic disorder that has resulted from the end of the Cold War and the search for a "new world order." Rapid changes in birth rates, for example, have occurred in Russia and other former East Bloc countries. New refugee flows have resulted as well, especially in the region that once was Yugoslavia.

In addition, geographer Alan Nash (1994, 386) beseeched population geographers to improve their scholarship (a message often given to other geographers as well), noting that "The argument advanced here is that we must concentrate our efforts on particular issues or areas in which we have some exper-

tise—and then we must augment that work, deepen our knowledge and hone our skills." He recommended, especially, the pursuit of more focused studies of migration, fertility, and gender issues.

To the extent that geographers continue to be concerned with the earth as a home for humans, we also need to focus more attention on the global and national interactions between growing populations and earth's capacity to support them. The world's population has more than doubled since the end of World War II and will probably double again before it stabilizes. As then Senator Albert Gore (1992, 295) pointed out:

> Human civilization is now so complex and diverse, so sprawling and massive, that it is difficult to see how we can respond in a coordinated, collective way to the global environmental crisis. But circumstances are forcing just such a response; if we cannot embrace the preservation of the earth as our new organizing principle, the very survival of our civilization will be in doubt.

The Growing Population Literature

Before ending this introduction, it is useful to recognize some of the periodicals in which population articles appear, so that both instructors and students can seek out more detailed and current studies with which to enrich this basic introduction to population geography. Before looking at some of the many periodicals, however, anyone interested in population needs to know about *Population Index*, a quarterly publication that indexes population literature from a vast number of both American and foreign sources. Your search for population information should start there. *Geographical Abstracts* provides another useful index, especially for geographers, though it is more limited in the scope of demographic studies that it indexes.

A number of journals are dedicated exclusively to population articles. Among the major ones in English are *Demography*, *Population Studies*, *International Migration Review*, *American Demographics*, *Population and Development Review*, *Population Bulletin*, *Population Research and Policy Review*, and *Family Planning Perspectives*.

The Population Reference Bureau, located in Washington, D.C., publishes not only *Population Bulletin*, but also a number of other studies of population, as well as numerous materials of interest especially to those who teach population. Also located in Washington, D.C., is the Worldwatch Institute, which publishes an annual *State of the World* and a bimonthly, *World Watch*, along with an assortment of occasional publications that are of considerable value to those interested in population and environmental issues. Additional articles on population topics appear frequently in the following geographic periodicals: *The Geographical Review*, *Annals of the Association of American Geographers*, *The Professional Geographer*, *National Geographic*, *The Canadian Geographer*, *Transactions of the Institute of British Geographers*, and *Area*.

Aside from the above demographic and geographic publications, population articles of interest also appear occasionally in *Science*, *Scientific American*, *Nature*, *The Sciences*, *Urban Affairs Quarterly*, *International Journal of Health Science*, *American Economic Review*, *International Journal of Comparative Sociology*, *Research on Aging*, *Journal of the American Medical Association*, *American Behavioral Scientist*, *The Gerontologist*, *Social Forces*, *Foreign Affairs*, *American Sociological Review*, *Sociology and Social Research*, *Annals of the American Academy of Political and Social Science*, *Economic Development and Cultural Change*, *Rural Sociology*, and *Social Science Quarterly*, the *New England Journal of Medicine*, and the *Journal of the American Medical Association*.

Though the periodicals mentioned above are primarily scholarly, numerous population articles appear in more popular publications as well, including *Time*, *Newsweek*, *U. S. News and World Report*, *The Economist*, *The Atlantic Monthly*, *Business Week*, and *Forbes*, along with newspapers such as *The Los Angeles Times*, *The New York Times*, *The Washington Post*, *The Christian Science Monitor*, and *The Wall Street Journal*. Almost anywhere that you turn today, you are likely to come across something concerning population, so keep your eyes open and become an informed and critical consumer of demographic information.

References

Beaujeu-Garnier, Jacqueline (1966) *Geography of Population*. New York: St. Martin's Press.

Bogue, Donald J. (1969) *Principles of Demography*. New York: John Wiley and Sons, Inc.

Brunn, Stanley (1992) "Are We Missing Our 'Forests' and our 'Trees'? It's Time for a Census," *Annals of the Association of American Geographers* 82:1-2.

Camp, Sharon L. (1993) "Population: The Critical Decade," *Foreign Policy* 90(Spring):126-144.

Clarke, John I. (1972) *Population Geography*. Second Edition. Oxford: Pergamon Press.

Clarke, John I. ed. (1984) *Geography and Population: Approaches and Applications*. Oxford: Pergamon Press.

Coleman, David and Salt, John (1992) *The British Population: Patterns, Trends, and Processes*. Oxford: Oxford University Press.

Congdon, P. and Batey, P. eds. (1989) *Advances in Regional Demography*. London: Belhaven Press.

Courgeau, D. (1976) "Quantitative, Demographic, and Geographic Approaches to Internal Migration," *Environment and Planning* A, 8: 261-269.

Crook, Nigel and Timaeus, Ian M. (1997) *Principles of Population and Development: With Illustrations from Asia and Africa*. New York, NY: Oxford University Press.

Demko, George J., Rose, Harold M., and Schnell, George A., eds. (1970) *Population Geography: A Reader*. New York: McGraw-Hill Book Company.

Findlay, Allan M. (1991) "Population Geography," *Progress in Human Geography* 15:64-72.

Findlay, Allan M. (1993) "Population Geography: Disorder, Death and Future Directions," *Progress in Human Geography* 17:73-83.

Findlay, Allan M. and Graham, Elspeth (1991) "The Challenge Facing Population Geography," *Progress in Human Geography* 15:149-162.

Gober, Patricia (1992) "Urban Housing Demography," *Progress in Human Geography* 16:171-189.

Gore, Senator Al (1992) *Earth in the Balance: Ecology and the Human Spirit*. Boston: Houghton Mifflin Company.

Hornby, William F. and Jones, Melvyn (1980) *An Introduction to Population Geography*. Cambridge: Cambridge University Press.

Jones, Huw R. (1981) *A Population Geography*. New York: Harper and Row, Publishers.

Murdock, Steve H. and Ellis, David R. (1991) *Applied Demography: An Introduction to Basic Concepts, Methods, and Data*. Boulder, CO: Westview Press.

James, Preston E. (1954) "The Geographic Study of Population," in Preston E. James and Clarence F. Jones, eds., *American Geography: Inventory and Prospect*. Syracuse, N.Y.: Association of American Geographers, pp. 106-122.

Lindahl-Kiessling, Kerstin and Landberg, Hans. eds. (1994) *Population, Economic Development, and the Environment*. New York: Oxford University Press.

Menard, Scott W. and Moen, Elizabeth W. (1987). *Perspectives on Population: An Introduction to Concepts and Issues*. New York: Oxford University Press.

Myers, Dowell (1992) *Analysis with Local Census Data: Portraits of Change*. Boston: Academic Press.

Nash, Alan (1994) "Population Geography," *Progress in Human Geography* 18:385-395.

Noin, Daniel and Woods, Robert. eds. (1993) *The Changing Population of Europe*. Oxford: Blackwell Publishers.

Overbeek, Johannes (1982) *Population: An Introduction*. New York: Harcourt Brace Jovanovich, Inc.

Pacione, M. ed. (1986) *Population Geography: Progress and Prospect*. London: Croom Helm.

Petersen, William (1975) *Population*. Third Edition. New York: Macmillan Publishing Company, Inc.

Plane, David A. and Rogerson, Peter A. (1994) *The Geographical Analysis of Population, With Applications to Planning and Business*. New York: John Wiley and Sons, Inc.

Schnell, George A. and Monmonier, Mark Stephen (1983) *The Study of Population: Elements, Patterns, Processes*. Columbus, Ohio: Charles E. Merrill Publishing Company.

Stoddart, D. R. (1987) "To Claim the High Ground: Geography for the End of the Century," *Transactions of the Institute of British Geographers* 12:327-336.

Thomlinson, Ralph (1976) *Population Dynamics: Causes and Consequences of World Demographic Change*. Second Edition. New York: Random House, Inc.

Trewartha, Glenn T. (1953) "A Case for Population Geography," *Annals of the Association of American Geographers* 43:71-97.

Trewartha, Glenn T. (1969) *A Geography of Population: World Patterns*. New York: John Wiley and Sons, Inc.

Turner, B.L., II, Hyden, Goran, and Kates, Robert W. eds. (1993) *Population Growth and Agricultural Change in Africa*. Gainesville, FL: University Press of Florida.

Weeks, John R. (1996) *Population: An Introduction to Concepts and Issues*. Sixth Edition. Belmont, California: Wadsworth Publishing Company.

Weller, Robert H. and Bouvier, Leon F. (1981) *Population: Demography and Policy*. New York: St. Martin's Press.

White, Stephen E., et al. (1989) "Population Geography," in Gaile, Gary L. and Willmott, Cort J. eds. *Geography in America*. Columbus, Ohio: Merrill Publishing Co., 258-289.

Woods, Robert (1979) *Population Analysis in Geography*. London and New York: Longman.

Woods, Robert (1982) *Theoretical Population Geography*. London and New York: Longman.

Woods, Robert and Rees, P. eds. (1986) *Population Structure and Models: Developments in Spatial Demography*. London: Allen and Unwin.

Zelinsky, Wilbur (1966) *A Prologue to Population Geography*. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Zwingle, Erla (1998) "Women and Population," *National Geographic* (4):36-55.