

## DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY IN BRAZIL

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### Contents

1. Introduction
  2. The Historical Background of Population and Environment Questions in Brazil
    2. 1. An Overview of Brazilian Population
    2. 2. Population, Environment and Development: from 1970 to 1990
  3. Toward an Environmental Demography
    - 3.1. Beyond anti-neo-Malthusianism
    3. 2. Population Carrying Capacity
  4. Analytic Frameworks for the Study of Population and Environment
    4. 1. Components of Demographic Dynamics
    4. 2. Population segments
    4. 3. Populations in risk situations
    4. 4. The “problem approach”
  5. Methodological Considerations for the Study of Population and Environment
    5. 1. New Technologies for Population Analysis
    - 5.2. Measurement Problems
  6. Future Challenges
- Glossary  
Bibliography  
Biographical Sketch

### Summary

The relationship between demographic dynamics and environmental change has been present in man’s thinking since the origins of the written word. Demographic science itself originated in the context of the polemic on the limits of nature to meet the demands of a growing population. But for two centuries, Demography limited its participation in this debate to confirming or refuting Malthus. When the “environmental crisis” emerged in recent decades, therefore, Demography was unprepared. Its response to this challenge has been partial and unarticulated.

This has also been true in Brazil, where rapid population growth has now given way to slower growth, a change which has occurred simultaneously with the emergence of the environmental question as a central issue for development. Early attempts to link these processes were marked by polemics on population control.

The field of studies on population and environment has grown considerably more complex in the nineteen nineties. New analytical frameworks have begun to emerge and some consensus on how to incorporate this dimension in demographic research is now

visible. The challenges for demographers are many: to refine “umbrella” concepts, such as environmental quality, quality of life and sustainability; to rethink units of analysis to capture ecological dynamics; to incorporate new technical resources to deal with global aspects in their analyses; to re-dimension the range of the ecological phenomenon. Students of population share many of these challenges with other specialists. For some aspects demographers have an advantage, with the treatment of temporal scales, for example.

## **1. Introduction**

The relationship between demographic dynamics and environmental change has been present in human thinking since the origins of the written word. Greeks, Romans, the Bible, Confucius—nowhere did population and environment go unobserved. Demographic science itself originated in the context of the polemic on the limits of nature to meet the demands of a growing population. But for two centuries, Demography limited its participation in this debate to confirming or refuting Malthus, and only recently seeks to place its theoretical and analytic arsenal at the service of the environmental question.

When the “environmental crisis” emerged in recent decades, Demography was unprepared. Its response to this challenge has been partial and unarticulated. The urgency of environmental problems, however, has not permitted the comfortable pace of the evolution of scientific thinking and those who sought to answer this challenge did so from a varied range of theoretical approaches. In little over a decade, demographers have produced a respectable contribution to the environmental debate. It is possible to see, today, some return to this investment in the form of critical rethinking of its concepts and methodologies. This essay discusses this work in the Brazilian context and identifies some promising paths.

One of the first challenges for demographers, when they identified a place in the environmental debate that was not limited to the neo-Malthusian polemic, was to confront the near unanimity of environmental activists and environmental scientists as to the “population explosion”. While this is not an irrelevant issue, the exclusive focus which it has received left population specialists at the margin of the debate. For them, both causes and consequences of rapid population growth were complex phenomena. To attribute the environmental crisis to this factor was to simplify demographic analysis. It would take many years for the discipline to see that it had a contribution which went beyond this issue. The reciprocal impacts between environmental factors and health or between resource use and population distribution processes would come to be recognized as important issues with demographic content. Efforts to deal with these issues in the 1990s led demographers to question their theories and research techniques.

## **2. The Historical Background of Population and Environment Questions in Brazil**

The 1990s brought a new—and different—urgency to the population/environment question in Brazil. Expressing solidarity with Third World positions in the 1970s and 1980s, both government and intellectuals expressed resistance to the idea that population growth or environmental degradation were major obstacles to development.

These were *consequences*—not causes or obstacles—of underdevelopment, whose roots were to be found in unequal economic relations between Brazil and the developed world. In Stockholm in 1972, the Brazilian delegate to the United Nations Conference on the Human Environment declared that pollution was a sign of progress and that environmentalism was a luxury only developed countries could afford. In 1974, in Bucharest, at the World Population Conference, “development was the best contraceptive.” By contrast, the head of the Brazilian delegation at the Third Session of the Preparatory Committee for the International Conference on Population and Development (Cairo 1994), declared:

Family planning is not a panacea for achieving social development, environmental equilibrium and economic growth. It is only one of the means, *although one of the most important*, for interrupting the intergenerational transmission of poverty, especially when combined with appropriate policies of social development. ... It is impossible to believe that the pregnancy of a 16 year old girl is really desired. A principal objective should be avoiding all pregnancies before 19 years. ... Immediate measures should be taken to diminish unwanted pregnancy and to guarantee universal access to reproductive health services. (my emphasis)

Today, none of the major actors who resisted family planning programs—the military, the Catholic Church and the Left—have remained immune to the changing social conditions and the evolution of values and behavior. The environment, on the other hand, has moved from a non-question to a guaranteed place on the agenda of public opinion. The same declaration cited above goes on to say that “Sustainable development is central to any viable strategy directed to the improvement of the quality of life and the fight against poverty. Population levels, consumption patterns and production systems are directly linked to environmental quality.” These changes in social thinking represent fundamental transformations in national life.

But why did issues considered part of the modern progressive agenda meet such resistance in Brazil? How and why did this position evolve? How did these processes mold population and environment programs, separately, and how were perspectives on the relations between population and environment affected? These are not simple questions and their answers require a more profound analysis than this text permits. But it is possible to identify the principle issues and to formulate the question more clearly. The 1990s marked a watershed in terms of Brazilian positions on these questions. The following section reviews Brazil’s demographic situation, after which attention returns to these questions.

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## Bibliography

Bilsborrow R. E., Hogan D. J. (eds.). (1999). *Population and Deforestation in the Humid Tropics*. Liège, IUSSP. [Papers originally presented in a seminar of the International Union for the Scientific Study of Population, dealing with health and population distribution aspects of deforestation in Latin America, Asia and Africa.]

Carvalho J. A. M. de (1997). Demographic Dynamics in Brazil: recent trends and perspectives. *Brazilian Journal of Population Studies* 1, 5-23. [A basic reference on Brazil's demographic situation.]

Clarke J. I. Noin, D. (1998). *Population and Environment in Arid Regions*. Paris, Unesco. [Papers originally presented in a seminar of the International Union for the Scientific Study of Population, dealing with the relationships between population factors and desertification.]

Clarke J. I., Tabah L. (1995). *Population-Environment-Development Interactions*. Paris: Cicred. [Papers originally presented in a joint seminar of the International Union for the Scientific Study of Population and the Comité International des Centres de Recherche en Démographie; this is a state of the art evaluation of studies in this field.]

Cohen J. (1995). *How many people can the Earth support?* New York, Norton. [This is a thorough examination of the carrying capacity concept.]

Hogan D. J. (1992) The impact of population growth on the physical environment. *European Journal of Population* 8, 109-123. [This is a critical view of earlier attempts to link environmental problems with the "population explosion," and proposes new directions for demographic analysis.]

Hogan D. J. (1995). Population, Poverty and Pollution in Cubatão, São Paulo. *Geographia Polonica* 64, 201-224. [This is a study of the "most polluted city in the world," the steel and petrochemical center on the coast of São Paulo.]

Lutz W. (ed.) (1994). *Population-Development-Environment: understanding their interactions in Mauritius*. Berlin, Springer-Verlag. [This is a landmark in the field, which uses the case study approach to develop concepts for analyzing the relationships between population and environment.]

Marquette C. M., Bilsborrow, R. E. (1994). Population and the Environment in Developing Countries: literature survey and research bibliography. New York, United Nations, ESA/P/WP.123. [This is a thorough review of the research literature in this field.]

Martine G. (ed.) (1993). *População, Meio ambiente e Desenvolvimento*. Campinas, Editora da Unicamp. [This is the first collection of papers on population and environment, published by the Brazilian Population Studies Association.]

Paula J. A. de (ed.) (1997). *Biodiversidade, População e Economia: uma região de Mata Atlântica*. Belo Horizonte, UFMG/CEDEPLAR/ECMVS. [This is a major study on population and environment issues in a environmentally degraded region of the state of Minas Gerais.]

Potrykowska A., Clarke J. I. (1995). *Population and Environment in Industrialized Regions*. *Geographia Polonica* 64, 201-224. [Papers originally presented in a seminar of the International Union for the Scientific Study of Population, with papers on environmental problems linked with industrialization in both developed and developing countries.]

Smil V. (1994). How many people can the Earth feed? *Population and Development Review* 20, 2, 255-292. [This is a very thorough analysis of one of the most common issues in the population/environment debate.]

Torres H., Costa H. (eds.) (1999) *População e Meio ambiente: debates e desafios*. São Paulo, Senac. [This is the second collection of papers on population and environment, published by the Brazilian Population Studies Association.]

Working Group on Population Growth and Economic Development. (1986). *Population Growth and Economic Development: Policy Questions*. Washington, National Academy of Sciences. [This is a landmark book which changes the direction of thinking on the relationships between population and development, in which environmental questions are in the forefront.]

### **Biographical Sketch**

**Daniel Joseph Hogan**, full professor of Sociology and Demography at the State University of Campinas, received his Ph.D. in the Sociology of Development from Cornell University in 1974. He has taught at the State University of Campinas since 1972, where he has been Director of the Environmental Studies Center and the Population Studies Center. He is currently Dean of Graduate Studies. He has also served as President of the Brazilian Population Studies Association; as member of the Brazilian National Committee on the Human Dimensions of Global Environmental Change; as member of the Global Science Panel on Population and Environment; and as member of the Committee on Population and Environment of the International Union for the Scientific Study of Population.

His teaching and research activities are concentrated on the relations between demographic dynamics and environmental change. He is author or editor of several books, including *Population and Deforestation* (with R. Bilborrow); *Population Change in Brazil: Contemporary Perspectives*; *Population and Environment in Brazil* (with E. Berquó and H. Costa); *Human Dimensions of Global Environmental Change: Brazilian Perspectives* (with M. Tolmasquim); and a three-volume series on *Migration and Environment in Brazilian Regions*.

In the last decade, his research has focused on spatial dimensions of sustainability.