

Meta-Analysis of Demographic Trends among Indigenous Populations in Lowland Latin America

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Introduction

At the close of the UN's International Decade of the World's Indigenous Peoples, we still have a poor overall picture of the basic demographic characteristics of indigenous populations—especially those in remote areas of low-income regions (PAHO 2004; UNICEF 2003). At recent meetings of the UN Permanent Forum on Indigenous Issues, delegates stressed the need for better collection and dissemination of demographic information. What is rarely recognized, however, is that a considerable amount of relevant demographic data on indigenous societies already does exist (UNESCO 2004). Unfortunately, these data are buried in disparate ethnographies, health surveys and state censuses conducted over mismatched sampling intervals and using different sampling methodologies.

Consolidating, disaggregating, reconciling, and reviewing these disparate data is therefore a critical starting point for improving understanding of indigenous population dynamics (UNESCO 2004). Establishing a baseline of existing data holds much promise for—among other things—1) informing nascent health initiatives targeting indigenous women and children; 2) equipping pan-ethnic and often transnational indigenous organizations with the information required to anticipate and plan for their common needs.

In this paper, we demonstrate the potential for meta-analysis of existing demographic data on indigenous populations to achieve these ends. Specifically, we describe the results of our systematic review of contemporary demographic information from indigenous groups living within rural regions of lowland Latin America (i.e., excluding better-studied highland populations). Lowland populations pose particularly interesting demographic questions. For one, despite their tremendous diversity, all share a common—and often sadly recent—history of catastrophic demographic decline. How are these populations doing now, and how does their history shape their modern demographic behavior? Second, rural Latin America is known to have experienced a dramatic and recent fertility decline. But microdemographic research among small indigenous populations points to just the opposite: high and perhaps rising fertility. Does

this trend hold for lowland indigenous populations more generally? Finally, the homelands of Latin America's remote indigenous societies overlap with some of the Earth's most biodiverse—and contested—ecosystems (NGS 2002). How are demographic processes intertwined with the defense and management of these territories?

Methods

To begin to address these questions we scoured state censuses, demographic and health surveys, and ethnographic sources for micro- and macro-demographic data on self-identified indigenous groups with historic homelands in the lowland neotropics. Where researchers have begun to disaggregate indicators for indigenous populations from the 2000 round of censuses, we deferred to these analyses (e.g., Salazar 2001; Pagliaro 2002). With other state censuses, we derived the desired indicators ourselves using data available through CELADE (e.g., for the 2001 censuses of Venezuela, Honduras, and Ecuador). We sought only three basic indices: fertility, mortality, and age-structure data. The most frequently available measures were total fertility rates (TFR), completed fertility rates (CFR), child-woman ratios (CWR), infant mortality rates (IMR), and the percentage of the population under 15. We do not compare census data over time because of the problem of inter-censal changes in citizens' willingness to declare an indigenous identity (e.g., see Warren 2001).

Criteria for inclusion in the analysis comprised a minimum total census of 50 individuals and data collected since 1980. We have now combed over 1,000 sources, with much useful data coming from microdemographic studies (particularly those conducted by ABEP, the Brazilian Association for Population Studies—see, e.g., Pagliaro (2002)), and from demographers' and states' own analyses of recent censuses (e.g., INEI 1994; Salazar 2001). Analysis is ongoing. We recognize that reconciliation of highly 'valid' (microdemographic) and 'reliable' (censal) data is unorthodox, but we follow the assertion by Kennedy and Perz (2000) that these sources are complementary. We draw from Bentley et al. (1993) in our statistical approach for comparing large and small sample sets. To date, our analysis includes indices from over 200 distinct indigenous populations from Mexico and Central and South America. Populations range in size from 54 persons to over 32,000.

Findings

Preliminary findings are published in McSweeney and Arps (2005), and ongoing analysis suggests that the following trends are more widespread than that paper originally reported. With respect to fertility, we find that a) the fertility of lowland indigenous rural women is high, whether assessed directly through TFR or CFR data, or indirectly through CWRs. For example, despite significant cultural, geographical, and socioeconomic diversity across 15 indigenous societies in five different countries, we found that their mean TFR exceeded seven (mean= 7.5 ± 0.4 ; range 3.9-10.5); b) Further, for any given country or time period, studies consistently indicated that the fertility of rural indigenous women is higher than those of non-indigenous rural women.

Infant mortality rates differed dramatically between indigenous populations (with a range of 15 to 232 infant deaths per 1,000 live births). Many microdemographic studies report declining IMRs among specific groups over the past several decades (e.g., Baruzzi et al. 1994; Piñeros-Petersen & Ruiz-Salguero 1998; Souza & Santos 2001). Our analysis of combined IMR data from multiple populations did point to a slight—but statistically significant—decline in IMRs between the 1980s and the 1990s, but indigenous rates remained higher than national rural rates for any time period. A relatively recent combination of high fertility and declining mortality explains why we consistently find that despite tremendous heterogeneity among indigenous groups, all are equally young: almost half of all of their populations is under age 15. In comparison, for Latin America as a whole, the percentage of the population younger than 15 years peaked at 43% in the mid-1960s (Brea 2003).

Discussion

Our analysis remains incomplete and is currently biased towards Amazonian groups. But our experience with this meta-analysis suggests that even for a region in which indigenous populations appear particularly obscure and poorly-known, a basic picture of demographic trends is relatively easily derived by consolidating seemingly mismatched data sources.

Notwithstanding the persistence of indigenous enumeration problems (Banda 2004), we found that even with the most rudimentary census data, crude but comparable indicators of fertility could be calculated as long as indigenous peoples were clearly identified. For example, calculating child-woman ratios (CWR) partially remedies the absence of reliable birth statistics.

Our results lead us to the tentative conclusion that indigenous societies in the rural lowlands of Latin America appear to be experiencing a pluriethnic ‘demographic rebound’ (see Gomes 2000). In general, their demographic characteristics appear to deviate significantly from non-indigenous rural populations. These results bolster recent calls for specific attention to the health of indigenous women and children. Both are at risk under conditions of high fertility, especially where vector-borne diseases such as malaria are endemic, and where health care delivery is notoriously problematic (Terborgh et al. 1995).

This said, however, we caution against uncritical assumptions that access to health care—and modern contraceptives in particular—is the key to reducing fertility rates in Latin America’s remote and small indigenous populations. In the course of our research, we uncovered considerable evidence of active pronatalism. In the case of several specific groups, the desire for large families co-existed with access to and acceptance of modern contraception (Sainz de la Maza Kaufmann 1997). Pronatalism appeared particularly strong in societies recovering from a recent history of near-extinction, and among those facing territorial threats from invading colonists, miners, and others (Flowers 1994; Azevedo 2000; Arias-Valencia 2001; Metz 2001; Pagliaro 2002). In effect, where pronatalism is inspired by the need for ethnic continuity or as a means to validate and defend territorial claims, health practitioners should not necessarily expect fertility decline to precede the achievement of cultural renaissance or effective territorial security (McSweeney Forthcoming.).

Overall, our research offers a baseline of evidence on which future demographic research and health provisioning might build. Results are of particular salience to recent UN initiatives on indigenous women’s and children’s health (e.g., UNICEF 2003). They are also likely to inform ongoing conservation programs that combine environmental education with health care delivery (e.g., Engelman 1998; Ericson et al. 1999).

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