Arguments and Action in the Life of a Social Problem: A Case Study of "Overpopulation," 1946-1990

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Arguments and Action in the Life of a Social Problem: A Case Study of "Overpopulation," 1946-1990*

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In this paper, we consider the issue of world population growth using a contextual constructionist perspective. We first develop a theoretical model that allows us to distinguish between interpretive packages (which organize the arguments about the pros and cons of population growth) and proposed solutions (such as population control and family planning). We review the political and organizational history of the population control movement in the period after World War II. Based on readings culled from the Reader's Guide to Periodical Literature *during 1946-1990, we examine the relationship between argument claims (packages) and potential ameliorative actions (solutions). We conclude that the emergence of birth control as a politically and technologically feasible solution to overpopulation in the early 1960s helped to unify the packages of arguments favoring population control during the next two decades. We test three specific hypotheses about the role of a proposed solution on the organization of argument claims about a social problem. These hypotheses are only partially confirmed by our empirical analysis, thus underlining that the presence or absence of a feasible solution for a social problem is only one aspect, albeit a potentially important one, of its competitiveness in various public arenas. Building on our distinction between argument claims and proposed solutions, we conclude by reflecting on the relationship between science and ideology.*

Even allowing for spectacular advances in agriculture and industry, the earth simply could not support 4.4 billion people in the year 2048. There would be the constant threat of famine, pandemic disease and unthinkably vicious wars for survival (Brandt and Payne 1948).

Introduction

It is likely that humans have always been keenly interested in the effects of population growth, size, and density, but surely never more so than in the years since World War II. In this paper, we examine the social construction of "the population problem" in the United States since 1945. Our main focus is the popular debate as contained in American magazine articles, but we also review the institutionalization of "demographic orthodoxy" in academic and governmental circles.

Following the social constructionist approach to the study of social problems (Blumer 1970; Spector and Kitsuse 1977; Schneider 1985), we focus on the kinds and composition of arguments about population presented in the popular press but make no attempt to evaluate whether the arguments presented conform to putatively "objective" social facts. Nevertheless, although we have been guided by the social constructionist perspective, our analysis of the population problem should be read as "contextually" rather than "strictly" constructionist

(Troyer 1992; Rafter 1992). Unlike the strict constructionists, we situate the discussion about overpopulation in what we consider to be its relevant social, political, and intellectual contexts. Admittedly, our reading and analysis of the articles reflect our own theoretical understanding of the population debate. Thus, our discussion of the population debate refers repeatedly to related historical events and circumstances in U.S. academia and government, and the international political scene.

In the first section of this paper, we define three levels of analysis for social problem phenomena: issues, interpretive packages, and social problems. We also propose three hypotheses about how these discursive levels may interact. Next, we describe our method of collecting and analyzing the contents of 544 magazine articles sampled from the *Reader's Guide to Periodical Literature* for the period 1946-1990. We then use the results of this analysis to illustrate the interplay between the three discursive levels of social problem phenomena and to suggest that popular arguments regarding the costs and benefits of population increase during this period can be organized into five interpretive packages. To establish the context of the popular debate, we also provide a rather detailed review of the growth of academic and governmental involvement in population issues during this period.

In the last sections of the paper, we use the five interpretive packages to document historical shifts in the popular discussion of the population problem and to test the validity of our proposed hypotheses about the dynamics of social problems. The results of this exercise are mixed: Only one hypothesis is confirmed empirically, one is soundly rejected, and the third is rejected in part. Nonetheless, the analysis helps to illuminate the interaction between the different levels of social problem phenomena and highlights the influence of a feasible policy solution on the argument claims that shape the public debate.

Theoretical Concepts and Hypotheses[1]

The broadest of our analytical concepts is an *issue*. As defined by Gamson and Modigliani (1989:1-2), an *issue culture* is "an ongoing discourse that evolves and changes over time, providing interpretations and meanings for relevant events." In this paper, we are examining the issue of the growth, size, and density of human populations. In lay terms, an issue culture is what people might say some utterance is "about," as in "that article is about population." Of course, the issue can be examined only in its concrete manifestations, as it is constituted in public arenas such as popular and scientific periodicals, newspapers, or television (Hilgartner and Bosk 1988).[2] Here, we consider the arena bounded by all articles indexed in the *Reader's Guide to Periodical Literature* under "Population" (and related headings and subheadings) between 1946-1990.

Issue cultures are not undifferentiated bodies of utterances; instead, they are internally organized by structural regularities. Following Gamson and Lasch (1983) and Gamson and Modigliani (1989), we call these discursive regularities *interpretive packages*.[3] Within a package are various logical and stylistic elements that come to imply one another. For example, a certain analogy implies a certain argument, and vice versa, and thus these two elements

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1. Because social constructionism and discursive theories more generally have been often and variously defined, we try to note how we agree or disagree with other uses of the many terms employed. However, to recount academic genealogy in the text becomes prohibitively distracting, and we have therefore banished to the footnotes our discussion of other uses of similar terminology.

2. Our definition of "issue" is, of course, similar to some aspects of the many definitions of "discourse." See, for instance, the different uses in Sewell (1980), Scott (1988), and Derrida (1976). Further, it parallels Foucault's (1972) description of a discursive "object." Because of its wide variety of definitions, we choose not to use the term "discourse" in this paper.

3. Our definition of packages is similar to Foucault's (1972) notion of discursive "themes."

belong to the same package. Packages are organized by a central idea, or *frame*, which interprets the phenomena of the issue in a particular way. Packages are more than frames or paradigms, however: They also consist of characteristic stylistic and political elements, each of which implies the other elements of the package.[4]

Following Blumer (1970), we argue that a *social problem* is a collective definition of a social phenomenon as bad. Merely identifying a badness, however, does not make a social problem worthy of public attention: In order to compete for attention in the various public arenas, a plan of action is needed. Proposing a solution to the badness, and linking the solution to the cessation or melioration of the badness, helps badness claims cohere as a social problem that can be used to mobilize a collective response.[5]

Notice that a social problem is a less specific concept than an interpretive package. Interpretive packages make specific connections between concrete aspects of social phenomena and specified bad outcomes. Packages do not include specifically proposed actions, though they may make appeals to be taken seriously: This particular causal force, a package asserts, situated in this characteristic narrative and rhetorical context, leads to these grave consequences. Admittedly, packages are certainly more or less in support or opposition of different solutions. What characterizes a package, however, is its distinctive description of what the given phenomenon is, what its causes and effects are, and how that story is told. A social problem, on the other hand, is a call for collective action (a given solution) built on the connection of the phenomenon to outcomes. Put simply, packages are about what is, while problems are about what is to be done.

Our main theoretical focus, then, is the relationship between interpretive packages and proposed solutions. In particular, we examine the role of a proposed solution in altering the organization of argument claims about a social problem. The significance of a discussion about possible solutions has been noted by Swidler (1986:279), who remarks that "bursts of ideological activism occur in periods when competing ways of organizing action are developing or contending for dominance." Therefore, our hypotheses center on changes in argument claims about the population problem, which may be influenced by the presence or absence of a proposed solution. Specifically, we examine the interplay of the various interpretive packages in light of the changing political acceptability of government-sponsored birth control programs.

If there are various packages that all lend a negative interpretation to a social issue, and if the badnesses defined by these packages could be meliorated by a common solution, we say by definition that these packages are *congruent* with respect to the given solution. If two or more packages disagree about the badness of a phenomenon, or if their badness claims could not be meliorated by a common solution, the packages are not congruent according to this definition. A single exposition or argument (for example, a print article, a speech, a radio or television program) may employ multiple packages, which may or may not be congruent with one another.

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4. We use the term "frame" consistently with Gamson and Lasch (1983) and Gamson and Modigliani (1989), but quite differently from Goffman (1974) or Gitlin (1980). By frame, we refer to one of the central arguments in an article, or "what the article says." In our definition, the frame is what authors intend their readers to understand. Goffman suggests that a situation's frame is a collection of the basic principles of organization that govern both the situation and the individual's understanding of it. Gitlin's use of "frame," on the other hand, has much more in common with our definition of an entire interpretive package: the manner of organizing, selecting, and presenting the "news." In this study, we focus on how each author uses one or more packages to make an argument. Thus, our definition of the framing argument is considerably more limited than Gitlin's or Goffman's.

5. The distinction between packages and solution claims united in a social problem claim is similar to Cohen, March, and Olsen's (1972) "garbage can" model of decisions in organizations. They note that problems are somebody's concerns whereas solutions are somebody's product. Therefore, Cohen et al. argue that the link between problems and solutions is governed by highly structured choice opportunities and may be arbitrary.

If the various packages contained in one exposition are not congruent, we say that the argument as a whole is *contradictory*. By this definition, we do not mean to imply that the argument is poorly reasoned: Such an argument may be incoherent, or it may be well-balanced. We use the term "contradictory" to describe the argument's relation to the interpretive packages and the proposed solution, not its rhetorical clarity. We note that there are two possible types of contradiction: An exposition about a social problem may employ more than one interpretive package in a contradictory manner (*interframe contradictions*), or it may contain sub-arguments that suggest contradictory views about the validity of a single package (*intraframe contradictions*).

How does the presence of a proposed solution affect the frequency with which contradictory statements appear in the public discussion about a social problem? The population debate that we describe in this article provides an unusual opportunity to address this question, since before around 1960 the population problem was a social phenomenon without an acknowledged solution. Various interpretive packages had addressed the perceived ills of rapid population growth, but a proposal for a solution was lacking because of the taboo on public discussions of birth control. The increasing social acceptability of birth control after 1960 provided a potential solution for the population problem and altered the structure of the debate by eliminating (or nearly so) contradictory arguments for the next two decades.

We have formulated three hypotheses about the role of a socially feasible solution on the structure of the public debate about a social problem. These hypotheses are as follows: 1) The presence of a socially feasible solution in an issue culture will tend to reduce the incidence of articles[6] that advance contradictory packages; conversely, the absence of such a solution will tend to increase the incidence of articles that employ contradictory packages. 2) The presence of a socially feasible solution in an issue culture will tend to increase the number of congruent packages (with respect to that solution) that are employed in each article; conversely, the absence of such a solution will tend to reduce the number of congruent packages per article. 3) The presence of a socially feasible solution in an issue culture will tend to increase the number of articles advocating interpretive packages that are congruent with this solution relative to articles from other issue cultures that lack such solutions, or to articles in the same issue culture that advocate non-congruent packages.

The first hypothesis seems plausible because the presence of a socially feasible solution should make the contradictions of the various packages more apparent. In addition, when the discussion of a social problem becomes focused on action, the importance of presenting a unified and coherent argument in support of the proposed solution increases. The second hypothesis seems justified by the argument that a proposed solution should cause individual packages to lose their distinctiveness and to become merged into a single argument about the social problem. Again, the focus on action should promote efforts to harness all congruent packages to the cause of advancing the proposed solution.

The third hypothesis seems reasonable because a proposed solution should increase the competitiveness of a social problem in specific "public arenas": scientific journals, popular magazines, television, newspapers. Following Hilgartner and Bosk (1988), we note that such public arenas place practical limits on the presentation of packages. Since there is a potentially infinite supply of issues and packages, but a finite space in public arenas, there must be a selective process between competitors, favoring some but excluding others. We agree with Hilgartner and Bosk that a variety of factors affect the competitiveness of a social problem in these public arenas (drama, culture, politics, carrying capacity, and institutional rhythms), but in this paper we suggest (and limit our analysis to) the importance of a proposed solution.

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6. Because the only form of public statements about population considered in this paper are magazine articles, we have found it convenient to use the term "article" to stand for "any publicly presented argument."

The proposed solution in the case of the population problem was to increase the availability and use of birth control methods among women and couples worldwide. In the following sections, we present an analysis based on several hundred articles selected from the popular press, in order to test the preceding three hypotheses. We especially consider the effect of the proposed solution, population control, on the form and mixture of arguments about the population problem. After considering the political context of the period, we evaluate the hypotheses based on our readings of the selected articles.

Data and Methods

The *Reader's Guide to Periodical Literature* (RGPL) is a subject index to articles appearing in most of the major popular magazines in the United States and thus provides an informative window on popular culture, as illustrated by the works of Spector and Kitsuse (1977) and Rittenhouse (1991). We used the RGPL to define an arena of the issue culture of population: popular magazine articles. Unfortunately, this arena's boundaries are not easily defined. According to Jean Marra, the editor of the RGPL since 1979, there is no written documentation about how the index has been constructed over the years (Marra 1989, personal communication). Instead, standards for assembling and classifying the entries have been passed down as a matter of oral tradition. As noted elsewhere, however, the index appears to have remained remarkably consistent for many decades (Wilmoth and Ball 1992).

The RGPL lists 1,683 articles published between 1946 and 1990 and indexed under "population" or one of its related headings (see Figure 1 for the number of articles indexed by year, Appendix A for related headings). In Figure 1, the most prominent peaks (relative to adjacent years) occur in 1970, 1974, and 1984, corresponding to three important events that affected the issue culture: the first Earth Day in 1970, the World Population Conference in Bucharest in 1974, and the International Conference on Population in Mexico City in 1984. The most published and cited authors include biologist Paul Ehrlich and demographers Kingsley Davis and Philip Hauser (see Table 1). The 20 journals that published the most articles about population account for 60 percent of the articles indexed by the RGPL (see Table 2). Among these 20 journals are a wide range of news weeklies, science journals, political and diplomatic periodicals, and religious magazines.

For our more in-depth study, we took a sample of the RGPL's 45-year aggregated list of 1,683 articles (hereafter, the RGPL list). The sample was stratified along three dimensions: author, journal, and time period. Since we consider the more prolific authors to be the "movers and shakers" of the issue culture, our first priority was to draw all articles by authors who had contributed six or more to the RGPL list (for these authors' names, see Table 1). Second, reasoning that editorial decisions also play a key role in shaping the population issue culture, we decided to oversample articles from the nine journals most frequently publishing on population (for the journals' names, see Table 2). We note that the cutoffs for "mover and shaker" authors and influential journals are arbitrary, although the division provides reasonable blocks of articles for each stratum. Third, we stratified by five-year periods in order to ensure similar levels of variability for our estimates across time. All estimates of the number of articles with various characteristics were derived using weights based on these sample percentages (Cochran 1977). For a more thorough discussion of the sampling method, see Appendix C.

The three-tiered stratified random sample was composed of 548 RGPL citations, of which we located, read, and coded 544 articles (four articles were unavailable at any of the four major research libraries we searched). We first coded each article according to whether it actually addressed issues of population size, growth, or density, leaving us with 478 "relevant" pieces (see Figure 2 for total, sampled, and relevant article counts by time period). We
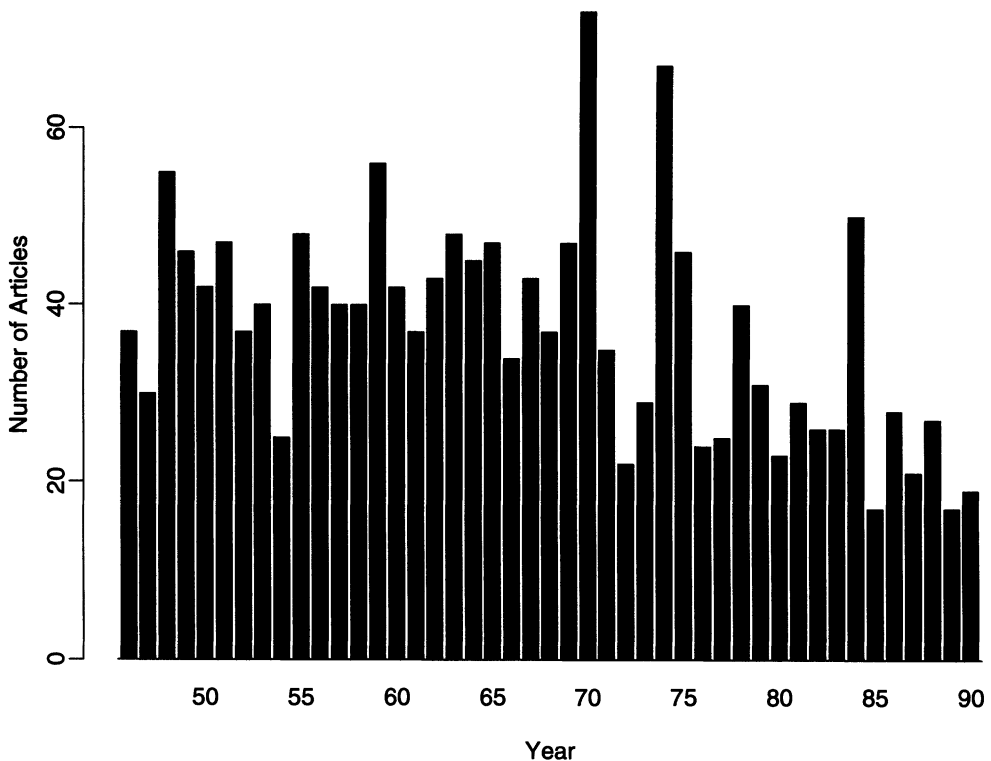
Figure 1 • *Annual number of articles under "Population" and related headings listed in the Reader's Guide to Periodical Literature (RGPL), 1946-1990*

Note:
There were 1,683 population articles indexed in the RGPL during this period. Appendix A lists the RGPL subject headings included in this analysis.

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dropped from the analysis the 66 sampled articles that were indexed under one of our headings in the RGPL but addressed topics peripheral to population size, growth, or density (for example, migration to the Sun Belt or business demographics).[7]

Based on a pre-test of 50 randomly selected articles, we chose 53 arguments about population growth that seemed to be commonly used. We coded each article's position (no mention, supportive, neutral, critical) on each of these 53 arguments (see Appendix B for the list of arguments). We also noted dramatic metaphors employed in each article (if any), and indicated whether each article mentioned any of 22 historical or current entrepreneurs in the population issue (listed in Table 1).

7. The detailed content coding also included a 13-point measure of each article's general tone with regard to population, including "population is increasing rapidly," "population is increasing rapidly and this is a problem," "population is decreasing," and so forth. The scale was applied to 28 countries and regions. We do not present this portion of our analysis in this paper. For a region-specific analysis, see Wilmoth and Ball (1992).

Table 1 • *Number of Articles Written and Estimated Number of Times Cited by Other Articles for Top 24 Authors*

Author	Authored Articles	Estimated Additional Citations
1. Ehrlich, P.R.	24	47
2. Davis, K.	17	28
3. Hauser, P.M.	11	62
4. Cook, R.C.	10	47
5. Brown, L.R.	9	43
6. Ehrlich, A.H.	8	—
7. Taeuber, I.B.	7	4
8. Brown, H.	6	24
9. Green, M.	6	0
10. Holden, C.	6	—
11. Holdren, J.P.	6	—
12. Notestein, F.W.	6	14
13. Petersen, W.	6	—
14. Simon, J.L.	6	23
15. Spengler, J.J.	6	16
16. Davis, W.	5	—
17. Dow, T.E.	5	—
18. Gara, J.	5	—
19. Gardner, R.N.	5	—
20. Greenberg, D.S.	5	—
21. Hardin, G.	5	18
22. Jones, L.Y.	5	—
23. McNamara, R.S.	5	9
24. Thompson, W.S.	5	13
anonymous	730	

The number of articles by author is out of 1,683 articles listed in the *Reader's Guide to Periodical Literature*, 1946-1990, under "Population" and related headings (see Appendix A). Citation estimates are out of an estimated 1,468 relevant articles (only those discussing population size, density, or growth). Citation data were not collected for all authors.

Analysis

Population Packages

Our description of the following interpretive packages reflects only those that we actually found in the articles. There are several plausible packages that we did not find, however. For example, we might have expected to find a Resource Imbalance package. According to this interpretive frame, the discussion about the population problem is a distraction, since it obscures the exploitative political, economic, and military relationship between the previously colonial and colonized nations. Entrepreneurs who advocate this package often compare the population density and wealth of South American countries (low density, relatively poor) to those of Western European nations (high density, relatively wealthy), and thus contend that overpopulation is a poor explanation for underdevelopment. For an exposition of this package, see, for instance, Galeano (1973).

Table 2 • *Number of Articles and Percent of Total for Top 25 Journals*

Journal	Number	Percent
1. U.S. News and World Report	185	11
2. Science (Scientific Monthly)	103	6
3. Science News (Science News Letter)	73	4
4. Scholastic Update (Senior Scholastic, includes Teacher's editions)	53	3
5. Time	53	3
6. Newsweek	47	3
7. Science Digest	46	3
8. New Republic	43	3
9. Scientific American	42	2
10. America	38	2
11. U.N. Chronicle (U.N. Bulletin, U.N. Review, U.N. Monthly Chronicle)	38	2
12. New York Times Magazine	37	2
13. Commonwealth	36	2
14. Business Week	33	2
15. Saturday Review (Saturday Review of Literature)	32	2
16. Christian Century	31	2
17. Department of State Bulletin	30	2
18. Annals of the American Academy of Social and Political Science	29	2
19. Science and Public Affairs (Bulletin of the Atomic Scientists)	28	2
20. Futurist	26	2
21. Vital Speeches of the Day	26	2
22. Reader's Digest	22	1
23. Foreign Affairs	21	1
24. Current History	21	1
25. American City	21	1
Total	1,114	66

The number of articles by journal is out of 1,683 articles listed in the *Reader's Guide to Periodical Literature*, 1946-1990, under "Population" and related headings (see Appendix A). Shown in parentheses are former names of magazines, or names of magazines that have merged operations. Percentages do not sum to total due to rounding.

Interestingly, none of the articles that we examined advanced the Resource Imbalance position. On occasion, authors referred to the high population densities of the countries in Western Europe, but only to highlight their stable population sizes and near-zero growth rates. Because the arena we studied was the U.S. popular press, as bounded by the RGPL, we include neither the Resource Imbalance package nor any other plausible or possible discussion of the population problem that was not represented in our sample. The packages that did appear in our sample include: the Limits to Growth, Quality of Life, Population Pressure, Race Suicide, and Growth is Good packages.

The Limits to Growth package had as its most prominent early promoter Thomas Robert Malthus. The core idea posits that population can grow faster than the increase in the production of key goods, especially food. According to advocates of this package, the imbalance between population and economic growth will inevitably lead to a catastrophic rise in the death rate. If resources are like a pie, then the more slices that are cut out of it, the smaller each must be. Such "fixed-pie" reasoning was frequently linked to examples of starvation in China, South Asia, or East Africa, with the example depending on the article's time period and perspective. With phrases like "resources are finite but population is potentially infinite," package entrepreneurs depicted masses of starving children as the victims of uncontrolled
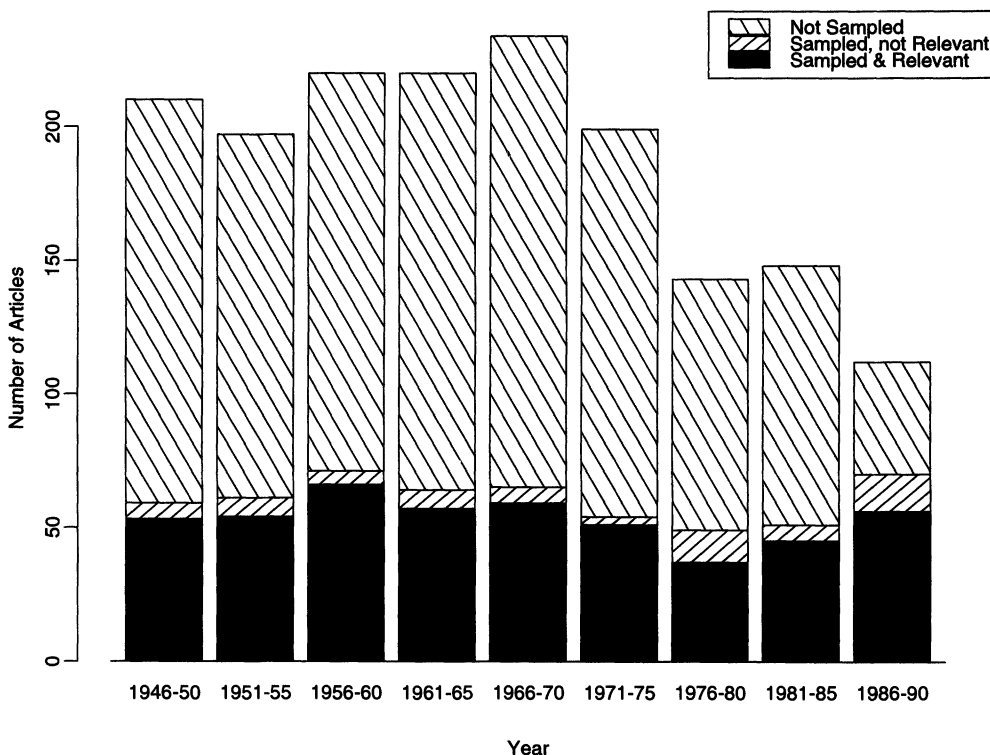
Figure 2 • *Number of articles under "Population" and related headings listed in the* Reader's
Guide to Periodical Literature *(RGPL), 1946-1990, compared with number of
articles sampled and relevant for the present analysis (by 5-year time periods)*

population growth, and predicted global poverty, famine, or epidemics as the inevitable con-
sequences of continued growth. During the latter part of our period of analysis, Limits to
Growth articles suggested that massive ecological catastrophe would result from an exces-
sively large world population. The appeal of the Limits to Growth package has been that in
the struggle to control growth and ultimate population size, human survival is at stake.

Entrepreneurs of the Quality of Life package argue that excess population, whether at
home or abroad, threatens the character of our lives. They depict a dirty, crowded, politically
oppressive world in which the comfortable lifestyle in the more affluent countries may soon
deteriorate. In our sample, cartoons of people falling off a globe accompanied stories about
urban violence, child abuse, and environmental decline (dirty parks, fouled streams). Studies
of animal behavior in crowded conditions were often extended to human situations: When
there is "standing room only" in our societies, we will behave "like rats in a cage," or so this
package's entrepreneurs contended. Congested traffic, ecological degradation, crowded
parks, sexual deviance, and child abuse were some of the ways in which the quality of our
lives would be degraded if population continued to increase.

In the Population Pressure package, war is the result of crowded nations competing for
space and influence. For example, it was suggested that World Wars I and II would have
happened much sooner if Europe's "surplus populations" had not been able to emigrate to
the New World. Population Pressure entrepreneurs argued in the post-World War II period

that "hungry masses are fertile ground for Communism," and that to protect the world systems of capitalism and democracy, we needed to move quickly toward population redistribution or limitation.

The Race Suicide package contends that the wealthy, white, or First World peoples are becoming outnumbered by the poorer, non-white, or Third World peoples; in a few cases, proponents contended that more intelligent people are being outbred by the less intelligent. The imbalance between these groups was said to result either from differential birth rates or from massive, and often illegal, immigration. One article using the Race Suicide package had, in a page margin, a cartoon depicting insects crawling through a hole in a window screen, suggesting the subversion of a home by unwanted, possibly unclean, intruders (Mumford 1985). Often using the example of British decline after World War II, Race Suicide package entrepreneurs appealed to a noble but relatively shrinking group in a barbaric world to increase their own numbers or be overwhelmed.

The last of our defined packages is the Growth is Good package, which contains the upbeat message that each additional person in society is another producer and consumer. Therefore, population growth stimulates economic growth and should be welcomed. Growth is Good entrepreneurs depicted historical shifts in the organization of production as responses to an increasingly crowded world. More people, therefore, mean more economic and technological growth, and a better standard of living for all. People are the "ultimate resource" and do not pose a threat to economic advance, as illustrated by the spectacular growth of the United States during the "baby boom" of the 1950s. Supply more than expands to meet demand, argued the Growth is Good entrepreneurs, who defended their position with the language of neo-classical economics.

Figure 3 provides a comparison of the frequencies with which magazine articles cited Limits to Growth, Quality of Life, Population Pressure, and Growth is Good packages. We have excluded Race Suicide from the figure because the rest of the paper will focus on the proposed solution of population control. The first three of these packages are clearly congruent with respect to population control, whereas the Growth is Good package is not congruent. Race Suicide is ambivalent with respect to the harms of population growth and was rare, in our sample, relative to the other four packages.

The Rise and Fall of Demographic Orthodoxy

The population issue culture (i.e., discussion about the size, density, and growth of human populations) has existed for centuries. The ancient Chinese, Greeks, and Romans, as well as the medieval Christians all wrote on the relationship between population and economic and political strength. At the dawn of the nineteenth century, Thomas Robert Malthus elaborated the theory that bears his name, suggesting that human beings can always multiply their own numbers faster than they can increase their means of subsistence (United Nations 1953).

Around 1960, several factors contributed to the emergence of "overpopulation" as a recognized social problem in the U.S. popular press. Beginning late in the 1950s, population growth was no longer viewed exclusively as a problem associated with poverty and underdevelopment. Earlier in that decade, a common argument of the articles in our sample had been that rapid growth was harmful in poor nations because it was a drag on their development, but in a rich country like the United States, the effect of population increase on economic growth was generally thought to have been positive. Beginning around 1960, however, this distinction was abandoned, and overpopulation came to be seen as a problem of rich and poor countries alike.

Probably the most important changes accounting for the increased prominence of the population problem around this time regarded the social and political acceptability of birth
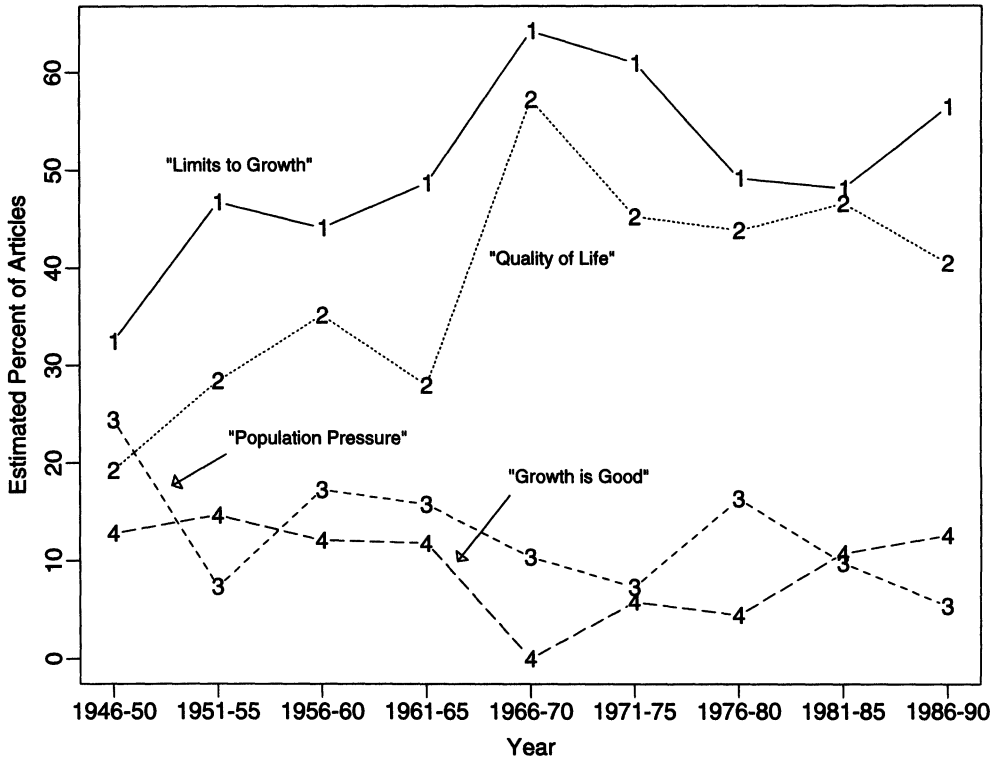
Figure 3 • *Estimated percentages of "relevant" population articles that employed at least one of the specific arguments in four interpretive packages: Limits to Growth, Quality of Life, Population Pressure, and Growth is Good*

Note:
   The specific arguments included in each interpretive package are listed in Appendix B.

control as a solution to overpopulation. Although birth control as a social movement has a history that is separate from the population control movement (Gordon 1976), the traditional moral opposition to intervention in the process of human reproduction held substantial implications for the emerging population control movement. So long as a taboo hung over the topic of birth control, overpopulation would not achieve the recognition sought by population control entrepreneurs. Moral opposition to birth control was translated into opposition to population control. At the same time, arguments in favor of population control became powerful instruments for obliterating the taboo on birth control.

It must be emphasized that population analysts had known at least since the turn of the twentieth century that a properly motivated population could voluntarily limit its own numbers using folk methods, especially withdrawal (Himes 1936; Thompson 1935). Nevertheless, substantial government involvement in population control became politically feasible only as modern contraceptive technology advanced.

The role of population activists was also important in awakening public interest in the topic. In the early 1950s, a small group of influential entrepreneurs began to meet, discuss their perceptions of the problem, and plot strategy. Seeking to avoid a public confrontation

over the birth control issue, these early activists concentrated their efforts primarily on research and education. In 1952 the Population Council in New York was founded with John D. Rockefeller III as chairman of the board (Piotrow 1973).

Several large foundations were responsible for the establishment and support of demographic research centers. The Office of Population Research at Princeton University was founded in 1936 with the support of the Milbank Memorial Fund (Piotrow 1973). The Ford Foundation began to finance population activities·in 1952 with a grant to the Population Reference Bureau and soon became a major contributor to the Population Council. In the early 1960s the Ford Foundation also began to fund population research centers in several major U.S. universities (Caldwell and Caldwell 1986).

The foundations were the major source of financial support for population activities around the world, until contributions from the U.S. government began to mushroom after 1965. In 1965, for example, the Ford Foundation spent $10.8 million on population and family planning, and the Rockefeller Foundation contributed another $3.2 million. In the same year, both the International Planned Parenthood Foundation (IPPF) and the Swedish government each contributed less than $1 million, while the U.S. government contributed only $2.1 million (Donaldson 1990:48-9).

One important function of the foundations in this period was that they contributed to the development of a cadre of scientific professionals who could offer expert advice on questions of population, economic development, and family planning. These professionals whom we refer to as "academic demographers," were mostly professors in major universities (for example, Princeton, Michigan, Berkeley, Chicago) or researchers in private organizations (for example, the Population Council, the Population Reference Bureau). Their approach was generally non-confrontational on the issue of birth control and remained focused on research activities regarding the effects of rapid population growth and the causes of demographic change. Another group of scientists focused on the physiology of human reproduction. Meanwhile, the challenge to the notion that birth control was inappropriate as a topic for public discussion — let alone as a focus of governmental activity — was waged by another group of entrepreneurs, who saw population limitation through birth control as the obvious counter to the evils of overpopulation. The activists' goal was to bring population control into the "calculus of conscious choice" (Coale 1973), both for policymakers and for individuals.[8]

Hugh Moore, founder of the Dixie Cup company, was one of these activists. His deliberately provocative pamphlet, *The Population Bomb*, was sent to 10,000 prominent Americans in the late 1950s and, using "the polite equivalent of shock tactics," asserted that overpopulation was the world's greatest threat to peace (Piotrow 1973:18). Other wealthy and influential population activists included John Nuveen, Eugene Black, John Cowles, Cass Canfield, Lammot DuPont Copeland, and William H. Draper, Jr. As these men became convinced that slower population growth was a necessary prerequisite for economic development in poor nations, they moved to involve government in the effort to lower birth rates.

A milestone in the effort to draw attention to overpopulation was the issuance of the Draper Committee report in 1959. The controversy surrounding this report touched off a "publicity explosion" during the last months of 1959 that included newspapers, periodicals, and television. In November 1959, for example, *CBS Reports* featured an hour-long documentary on the population problem in India that was seen by some 9 million people. An amended version that was rebroadcast in January 1960 drew another 9.5 million (Piotrow 1973).

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8. We take liberties in borrowing this phrase and using it in this manner. Coale (1973) argues that one of the preconditions for a sustained reduction in the fertility level of a society is that fertility must fall within the "calculus of conscious choice" for individuals. In this paper, we also use the term with reference to the growing acceptability of discussing and implementing population control as a solution to the perceived problem of overpopulation.

Birth control and overpopulation were thus poised to become a major issue in the 1960 Presidential election, especially since one of the candidates was a Catholic Senator from Massachusetts named John F. Kennedy. Catholic candidates were vulnerable to charges that, if elected, they would have to oppose government support for family planning programs or else face excommunication from their church. Kennedy successfully diffused the controversy by distancing himself from the church's position, claiming that he would reach a decision on such matters based solely on his determination of the public interest (Piotrow 1973).

The period 1961 to 1965 saw the development of government policy, though few actual programs were established. In December of 1961 the State Department appointed its first population officer, but the idea of government support for birth control remained extremely controversial. Population activists both in and out of government moved cautiously to eliminate barriers to political action. The actual implementation of programs began later.

By some accounts, the U.S. government embarked formally on its program of international population control in 1965. In that year President Lyndon B. Johnson declared in his State of the Union message that he would "seek new ways to use our knowledge to help deal with the explosion in world population and the growing scarcity in world resources." This statement was followed by an announcement by the U.S. Agency for International Development (USAID) that it would provide technical assistance in family planning to countries that requested it (Donaldson 1990).

U.S. funding for population activities, channeled primarily through USAID, increased steadily after 1965. Government expenditures grew from $2.1 million in 1965 to $117.5 million in 1970 and $354.3 million in 1980. Throughout this period, the United States was the major player in the international effort to slow world population growth. Between 1968 and 1972 total U.S. support provided more than 80 percent of all international assistance for population and family planning. Thereafter, as other countries became more involved, the U.S. share of the total dropped to around 50 percent (Donaldson 1990).

One of the first goals of the population control activists was to find and promote a technologically advanced solution to the problem of overpopulation. Preaching withdrawal and abstinence did not lend itself to a massive, centrally administered program, such as those that had become common practice at USAID in other development efforts. Throughout the period marking the ascendence of demographic orthodoxy, activists as varied as M.C. Chagla, the Indian Ambassador to the United States (*New Republic* 1961), and demographer Philip Hauser, were suggesting that unwanted population growth leading to overpopulation could be slowed only through "increased research and experimentation" in technological solutions (Hauser 1960).

At the same time, it was necessary to demonstrate that couples in Third World countries desired better access to modern contraception. During the 1950s, the Knowledge, Attitude, and Practice Surveys (KAP) set out to measure "unmet need" for contraception. Proponents of the KAP studies referred to them as "market research" used to demonstrate a need for population control measures (Warwick 1983).

The intellectual and rhetorical support for these activities grew out of the institutional structures that had been built by the foundations and other early population activists. Funding for demographic research was more plentiful than ever, but to secure their share of this support, individual scientists were under considerable pressure to toe the "received population policy line" (Demeny 1988:464). Much demographic research in this era became "industrial" in character, producing "products that were quantitative, standardized, replicable, and packageable for multi-country use" (Demeny 1988:464). Popular articles, many produced by people in or around academic demography (see Table 1), supported the "line," using one or several of the pro-population control packages (Limits to Growth, Quality of Life, or Population Pressure) in their articles. The argument that rapid population growth impedes economic development in poor countries and degrades the quality of life throughout the

world became accepted dogma in most circles. In this manner the intellectual perspective that has been referred to as "demographic orthodoxy" took hold (Hodgson 1988; Wilmoth and Ball 1992).

The orthodox perspective on population growth was dominant in most circles through at least 1980. Among academic demographers, there had long been controversy about the nature of the causal link between population growth, agricultural output, and economic underdevelopment (Boserup 1965; Kuznets 1967; Easterlin 1967), but the general consensus remained that slower population growth was a desirable, if not obligatory, component of development plans in the Third World. Professional demographers were somewhat more cautious with regard to the adverse environmental effects of population growth. Ansley Coale, for example, argued in *Science* in 1970 that the structure of the U.S. economy, rather than population growth, was to blame for the environmental damage caused by humans (Coale 1970).

The message of non-demographers during this era was substantially more bleak. In 1967, brothers William and Paul Paddock published a book titled *Famine 1975!*, with the subtitle "America's Decision: Who Will Survive?" They argued that population growth was creating a situation in which it would soon be impossible to feed the world's people. Biologist Paul Ehrlich in the next year published a best seller titled *The Population Bomb*, which carried a similar message. The opening paragraph of Ehrlich's book asserted boldly:

> The battle to feed all of humanity is over. In the 1970s the world will undergo famines — hundreds of millions of people are going to starve to death. . . . Nothing can prevent a substantial increase in the world death rate" (Ehrlich 1968).

As is evident from Table 1, Ehrlich was also an active contributor of magazine articles around this time, and his gloomy message in those publications dramatically conveyed a sense of the urgency of the population problem (Wilmoth and Ball 1992).

Popular and academic perspectives on demographic orthodoxy began to change again around 1980. By this time, it was increasingly evident that the disaster scenarios propagated by Ehrlich and others had not materialized and that the annual growth rate of the world's population had fallen at least slightly from its peak in the 1960s and 1970s. The massive famines predicted a decade earlier had not occurred. More and more skeptics questioned the doomsayers' credibility.

Also in 1980, the election of President Ronald Reagan altered the political context of the issue culture in two fundamental ways. First, the political philosophy of the New Right avowed the importance of the invisible hand in all public matters. At the 1984 International Conference on Population in Mexico City, the U.S. delegation upheld the view that "the relationship between population growth and economic development is not necessarily a negative one" and that "population growth is, of itself, a neutral phenomenon." Underdevelopment in the Third World had been caused by "government control of economies" or "economic statism," not by population growth (Finkle and Crane 1985).

Second, the U.S. delegation to Mexico City carried with it a domestic agenda opposed to abortion in general and to government support of abortion in particular. Early in the 1980s, there had been unsuccessful attempts to eliminate the USAID population program. Funds previously channeled through USAID to various private agencies working in population and family planning were either eliminated or threatened in an effort to stop all abortion-related activities. By raising the issue of abortion within the context of international family planning at the Mexico City conference, the U.S. delegation hoped to legitimize the domestic pro-life campaign, to lay the groundwork for an international pro-life movement, and to redeem the Reagan Administration for its failure, after more than three years in office, to enact its broad conservative social agenda at home (Finkle and Crane 1985).

Intellectual support for the U.S. position at the Mexico City conference on the effects of population growth was drawn largely from the work of economist and demographer Julian

Simon. In 1981, Simon published an influential book titled *The Ultimate Resource*, in which he argued that humans benefit from population growth since it stimulates economic development and technological advance. Humans are "the ultimate resource," he argued, since most babies come equipped with a brain, two eyes, and two hands that will contribute to the improvement of the human condition. The optimistic perspective put forth by Simon falls within our Growth is Good package. It is one version of the more optimistic view of population growth, commonly referred to as "revisionism" (Hodgson 1988), that took hold after 1980.

The rise of a revisionist perspective on population growth during the early 1980s marked the end of orthodox hegemony, which had reigned since the early 1960s. In spite of its political success, however, revisionism has scarcely enjoyed the intellectual dominance once known by orthodoxy, whether in popular or academic circles. During the 1984 International Conference on Population, for example, *Time* magazine ran a classically orthodox cover story titled "The Population Curse" (Wilmoth and Ball 1992). Among academic demographers, the revisionist challenge has renewed the debate over the effects of population growth and has led to a more cautious statement of the negative consequences of rapid growth (National Research Council 1986).

In general, demographers now seem to reject the notion that population growth will inevitably provoke massive famines or lead to the depletion of natural resources before viable substitutes become available. But, demographers seem to be increasingly concerned about the connections between population growth and threatening environmental crises, such as global warming and the destruction of the ozone layer (Preston 1986; Keyfitz 1989). The recent debate on these issues has shifted the discussion from the environment as a nice place to play (a Quality of Life position) to the environment as the only place we have to live (a Limits to Growth perspective). We now return to the packages used by our sample articles to consider the structure of popular demographic orthodoxy.

Hypotheses Considered

To review, our hypotheses address the structure, incidence, and competitiveness of arguments within an issue culture in the presence or absence of a unifying solution. The first hypothesis posits that in the presence of a feasible solution, arguments advancing contradictory packages will be rare; conversely, if a solution is absent or in decline, arguments employing contradictory packages should be more common. The second hypothesis is that in the presence of a solution, the number of congruent packages employed in a given article should tend to increase relative to those times in which the solution is absent or in decline. The third hypothesis is that the presence of a solution should increase the raw number of articles employing packages congruent with respect to that solution. We begin with the first hypothesis.

In the case of the population problem, the proposed solution was to increase access to birth control through a worldwide network of family planning programs, administered and funded by a combination of government organizations and international development aid agencies. We refer to this solution as "population control." As explained previously, this solution became socially and politically feasible in the United States around 1960. With respect to this solution, three of our interpretive packages are congruent or supportive (Limits to Growth, Quality of Life, and Population Pressure), one package is ambivalent (Race Suicide), and one package is non-congruent or in opposition (Growth is Good).[9]

9. An anonymous reviewer warns that our logic may be circular here: By defining packages as not contradictory when they advocate a common solution, it may be inevitable that articles become less contradictory in the presence of a feasible solution. By this argument, our first hypothesis would be meaningless, since it would follow directly from the definitions. We contend, however, that this hypothesis does not follow directly from our definitions. For example, it would still be possible for an article to contain contradictory arguments in the presence of a solution, perhaps without

Based on this combination of interpretive packages and a proposed solution, we identify three types of *interframe contradictions*: 1) An article advocates one congruent package (LG, QL, PP) but rebuts another congruent package; 2) an article advocates a congruent package but also advocates the opposing package (GG); and 3) the article rebuts a congruent package but also rebuts the opposing package. The focus on interframe contradictions seems to presume that a given article is always a consistent advocate (or opponent) of a particular package. By definition, we say that an article supports a package if it advocates any of a series of specific arguments recorded in our detailed content analysis (see Appendix B). What about an article whose support for a single package is ambivalent? What if the same article supports certain aspects of a package but refutes other aspects? In this situation, we identify an *intraframe contradiction*: 4) An article supports one coded argument within a package but refutes another argument within the same package. A large number of intraframe contradictions would be evidence of badly defined packages or, perhaps, of a shifting definition of the package within the issue culture. Clearly, a given article could be classified as "contradictory" according to one or more of these four definitions.

According to the historical narrative of the preceding section, the population control solution emerged around 1960 and was dominant in the public discussion about population growth until about 1980. Therefore, we should expect relatively more contradictions in articles published before and after this period of demographic orthodoxy. Turning to Table 3, it is evident that although contradictions of all four types were relatively common before 1960, there were no interframe (Types 1, 2, or 3) contradictions between 1963 and 1985 (the three contradictions in the period 1961-65 occurred in 1961 and 1962).

During the period when the orthodox view of population growth was solidifying (roughly 1955-1962) several of the articles with interframe contradictions argued that although the post-war economic boom in the industrialized countries may have benefited from rapid population growth (Growth is Good), population increase was a drag on development in the less developed world (Limits to Growth). Some articles, while acknowledging the positive aspects of population growth as a force driving economic growth in rich countries (Growth is Good), also began to question its long-term consequences in relation to the availability of resources and the cleanliness of the environment (Limits to Growth, Quality of Life). Thus, these articles provide examples of Type 2 contradictions, since they advocate both congruent and non-congruent packages.

Of the 16 articles with intraframe contradictions, 11 were inconsistent on the Limits to Growth package. These 11 articles are clearly concentrated in two periods: four during 1956-1960, and four more in 1986-1990. Like articles with interframe contradictions, most articles with intraframe contradictions appear during those moments in the history of demographic orthodoxy when positions were being established or rethought. In the period 1956-1960, three articles suggested that although worldwide famine was unlikely, rapid population growth did keep poor countries impoverished; thus, these articles were coded as Type 4 contradictions with respect to the Limits to Growth package. Two more articles followed this logic in the period 1986-1990. In general, the Type 4 contradictions were relatively less frequent between 1965 and 1985 than either before or after the period of orthodox hegemony. We thus conclude that the first hypothesis is generally supported by our data: The presence of a consensus in support of population control ordered argument among the congruent packages of the population issue culture, noticeably reducing the incidence of contradictions between or within packages.

The second hypothesis contends that in the presence of a solution, the number of congruent packages employed in a given article should tend to increase relative to those times in

discussing that solution or perhaps by suggesting that the solution is appropriate in some situations (or for some groups) but not always. We have hypothesized merely that the presence of a feasible solution will make these juxtapositions less common.

Table 3 • *Number of Articles with "Contradictory" Arguments, by Type of Contradiction and Time Period*

	Interframe				Intraframe						Total
Years	Type 1	Type 2	Type 3	Any	LG	QL	PP	RS	GG	Any	
1946-50	0	2	0	2	0	0	0	1	0	1	3
1951-55	0	3	0	3	1	0	0	0	0	1	4
1956-60	0	4	0	4	4	0	0	0	0	4	7
1961-65	1	2	1	3	0	0	0	1	0	1	3
1966-70	0	0	0	0	1	1	0	0	0	2	2
1971-75	0	0	0	0	1	0	0	1	0	2	2
1976-80	0	0	0	0	0	0	0	0	0	0	0
1981-85	0	0	0	0	0	0	0	0	1	1	1
1986-90	1	2	0	2	4	0	0	0	0	4	5

There are three types of interframe contradictions:
1) The article advocates one congruent package but rebuts another congruent package;
2) an article advocates a congruent package but also the opposing package; and
3) an article rebuts a congruent package but also rebuts the opposing package.

By definition, "congruent" packages are frames 1, 2, and 3, and the sole "opposing" package is frame 5. The abbreviations, LG, QL, PP, RS, and GG, refer to the "limits to growth," "quality of life," "population pressure," "race suicide," and "growth is good" packages, respectively.

It is possible for the same article to contain one or more inter- or intraframe contradictions; therefore, the number containing "any" of these two categories of contradictions does not necessarily equal the sum of those containing each of the individual types within each category. For the same reason, the "total" number of contradictory articles does not always equal the sum of the numbers of articles with "any" inter- or intraframe contradictions.

which the solution is absent or in decline: "Whatever your cause, it's a lost cause without population control," argued Paul Ehrlich in 1970 at the height of demographic orthodoxy (Collier 1970). Considering Table 4, however, we find only weak and ambiguous evidence supporting this hypothesis. For example, the mean number of congruent packages per pro-population control article was relatively high during 1956-1960, when demographic ortho-doxy was just beginning to emerge; in contrast, during both 1961-65 and 1971-75, the mean number of congruent packages in articles that were generally supportive of the orthodox view dropped to a relatively low level. According to the hypothesis, we should expect to find a uniformly higher mean number of congruent packages during 1961-1980. On the basis of these data, therefore, the second hypothesis should be rejected.

The third hypothesis posits that the presence of a solution will advantage articles advo-cating congruent packages relative to articles from other issue cultures lacking proposed solu-tions, or to articles in the same issue culture advocating non-congruent packages. Again referring to Table 4, the results appear ambiguous. It is clear that relative to other moments, the period 1961-1975 commanded the greatest level of public attention for "overpopulation," as the absolute estimated number of articles is higher during those periods than before or after. However, after 1975, public attention shifted to other issues, and the number of arti-cles advocating one of the pro-population control packages dropped dramatically. Not only the congruent, orthodox packages estimated in Table 4, but the population issue culture in general commanded considerably less attention in the post-1975 periods (see Figure 1).

Table 4 contains other ambiguous results with respect to the third hypothesis when we examine the number of orthodox articles as a percent of all relevant articles (i.e., as a percent of those articles addressing issues of population growth, size, and density). As predicted by the hypothesis, this percentage was at its highest during the middle of the orthodox period, 1966-1975, when articles advocating congruent packages were clearly dominant. On the

Table 4 • *Number and Characteristics of Orthodox Articles by Time Period*

Year	Number of Orthodox Articles	Orthodox Articles as Percent of Relevant Articles	Mean Number of Orthodox Packages in Orthodox Articles
1946-50	81	45	1.69
1951-55	109	66	1.25
1956-60	97	48	1.89
1961-65	120	58	1.56
1966-70	145	72	1.78
1971-75	127	67	1.68
1976-80	60	58	1.88
1981-85	69	53	1.98
1986-90	50	55	1.71
Total	858	58	1.69

Note:
   All numbers are *estimates* of the number and characteristics of orthodox articles in the universe of 1,683 articles, based on a sample of 548 articles. By definition, an "orthodox" article contains at least one argument falling into one of the three orthodox packages, i.e., limits to growth, quality of life, or population pressure.

other hand, the hypothesis would not have predicted the dominance of orthodox articles during 1951-1955, before the establishment of orthodoxy. This 5-year period, we may note, contained an abundance of orthodox articles, either in absolute numbers (109) or as a percent of relevant articles (66). We conclude that the third hypothesis is only weakly supported by our data: A proposed solution apparently does provide an advantage to articles espousing congruent packages, although the success of these articles relative to competitors from within or outside the issue culture does not depend uniquely on the presence of a feasible solution.

   Certainly, some of the rise in public attention to population issues after 1960 can be attributed to the presence of population control as a politically feasible solution. Nevertheless, this increase is modest with respect to previous periods, and the dramatic decline of 1976-1980 came before the revisionist critique of demographic orthodoxy gained a substantial audience during the early and mid-1980s. Apparently, the competitiveness of the population problem in public arenas was always somewhat tenuous, with or without a feasible solution. For example, Schonfeld, Meier, and Griffin (1979), citing an unpublished study of newspaper treatments of environmental issues between 1962-1977, suggest that the population issue was never considered especially newsworthy by *The New York Times* or *The Chicago Tribune.* Perhaps this outlook is because people made little connection between population and pollution, even at the height of demographic orthodoxy (R. Simon 1971).

   It is possible that orthodoxy's claimsmakers, despite a brief opening in the popular media, were unable to establish their packages as the interpretive system by which the public considers the population issue. Perhaps more importantly, there were factors other than the presence or absence of a solution that influenced the declining share of public attention commanded by the population issue culture during the late 1970s, for example, the selection mechanisms suggested by Hilgartner and Bosk (1988). Of these mechanisms, we would propose in particular that the drama of the "population explosion" lost its potency during this period, as earlier forecasts of impending doom failed to materialize. For example, the prediction that shortage-induced famines would claim "hundreds of millions" of lives during the 1970s and 1980s may have seemed plausible to some observers in the late 1960s (Ehrlich 1968; Paddock and Paddock 1967), but one decade later it must have appeared overly alarmist to most people.

Discussion

In this paper we have attempted to separate those parts of public arguments that are descriptive from those that are prescriptive. Drawing on ideas from a variety of constructionist theories about social problems, we derived, operationalized, and tested three hypotheses about the relationships between interpretive packages and proposed solutions. We discussed these packages as components of the population issue culture in light of the political and organizational history of the population control movement and its critics. We tested our hypotheses through a structured reading of 478 articles randomly selected from the popular press.

An unexamined complexity in this hypothesis-testing research model involves an underlying assumption about the independence of the various components of the process being examined. Thus far in our analysis, we have treated the increasing feasibility of the solution of population control as somehow outside the discussion of the problem of overpopulation. In doing so, we have hoped to highlight the effect of the solution's presence on the form and presentation of interpretive packages. Yet, obviously, as entreprenuers built arguments about "too many people," they consciously and simultaneously promoted population control. Articles became more orthodox as entreprenuers began to adopt population control as an organizing solution. Thus the social construction of the solution and the social construction of articles employing interpretive packages are intertwined and may exhibit a number of feedback mechanisms. The relatively large number of orthodox articles in the early 1950s, for example, must have contributed to the eventual weakening of resistance to public birth control programs.[10]

In our opinion, this paper highlights the need for more structured, data-intensive analyses of social problems. Although there are rich and varied theoretical and empirical traditions in social problems research, we have found that it is often difficult to reconcile the two. That is, it is not always entirely clear how to derive plainly testable hypotheses from theories about social problems, and therefore it remains difficult to determine empirically which definitional structures are useful and which are not. On a theoretical level, there is a need to explore in more detail the relations between Hilgartner and Bosk's (1988) principles of selection, including proposed solutions, based perhaps on comparative secondary studies focusing on the histories of several social problem claims that are already in case study form. Such a study could also examine further the likely changes in the composition of arguments under changing political conditions: how, for example, issues that maintain public attention in the long run (e.g., the environment) do so as they evolve from marginal to central issues.

Coda

If packages are fundamentally about ideas and their accoutrements, social problems are about action. One might argue in the abstract that "population growth degrades the quality of life" without suggesting specific countermeasures. On the other hand, the assertion that "the world is now overpopulated" has come to imply the policy solution of population control. This model may be useful, then, for categorizing the logical processes through which

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10. We thank an anonymous reviewer for raising this issue. We note further, however, that there is evidence that the emergence of a solution in this case was at least partly exogenous to the discussion of the problem itself. The election of the first Catholic president in 1960 was almost certainly a major opening toward an expansion of the U.S. government's role in population matters. Just as President Richard Nixon, a staunch anti-communist, was politically well-positioned to promote a rapprochement with China a decade later, so Kennedy, a devout Roman Catholic, was uniquely qualified to engineer the birth of U.S. population policy in the early 1960s.

individuals decide what utterances are about, what they mean, and what they are going to do about them (even if their only action is to accept passively an implied plan of action).

Our model of the organization of meaning by packages, and action by problems, also allows us to speculate about the isomorphism between science and ideology on the one hand, and packages and problems on the other. Packages are, in a loose sense, science. That packages have rhetorical elements should not detract from their scientific status, since all sciences have rhetorics (McCloskey 1985). Packages organize phenomena in ways that are sometimes even explicitly hypothetical: If we have more people, and if food supplies are fixed, then each of us will have less food. Without a proposed course of corrective action, the package does not present a moral difference, only a description of what is. In their statement of the gravity of the badness, packages make moral or ethical claims, but the purpose of these claims is only to ensure that the package is taken seriously. These principled appeals are the aspect of interpretive packages that connects them to a social problem.

In contrast to the knowledge-organizing packages, social problems and their implied policy positions are ideological. Problem claims contain an implicit moral difference, a contrast between a better outcome from accepting the proposed action and a worse outcome from rejecting it. This distinction between packages and problems was not lost on some analysts before the rise of demographic orthodoxy. In the words of demographers Philip Hauser and Otis Dudley Duncan, written in 1959:

> . . . it is almost universally recognized . . . that a sharp division of labor must be effected between research with its related scientific activities and "social engineering" behavior directed toward the formation and implementation of policy (quoted in Demeny 1988:45).

One can almost hear Max Weber (1946:145) insisting that "politics is out of place in the lecture-room."

Ironically, Hauser and Duncan's pronouncement came only one year after Coale and Hoover's classic book (1958) marking the birth of demographic orthodoxy. Coale and Hoover argued that rapid population growth inhibited a rise in standards of living in poor countries, and that population control was feasible — not merely desirable, but feasible as well. The distinction between desirable and feasible is the line between building a package and making the package explicitly congruent with a social problem. It is, perhaps, analogous to the line between science and politics. By our more or less clear division between package claims and proposed solutions, we highlight Habermas's (1970) concern about slipping into "technocratic" or "decisionistic" models of domination, in which debate about desired social ends is thought to be obscured in the technical complexity not only of the issues, but of the decision process itself. Insofar as we can recognize proposed solutions as political programs created to realize the specific social ends embedded in package "badness" definitions, we manage to maintain something of the classic Weberian distinction between scientific reflection and political action.

By focusing on the connection between the science and the ideology of population politics, we do not mean to imply that demographers are "ideological" in any pejorative sense. Demographers are not ideological any differently than other scientists. In a technological society, scientists are routinely approached for their perspectives on political issues because limited knowledge is "a resource exploited by all parties to justify their political and economic views" (Nelkin 1979:16). What we do argue is that the line between science and ideology is thin indeed: The principled appeals that give packages their force are the bridges between packages and social problems. Science is interesting because it matters, because it affects human lives. It would be a paltry science that had nothing to say about the conditions of human existence; it would be a science that did not matter. But why some things matter and others do not, and what we should do about the mattering, are ideological questions inseparable from the science that exposed the knowledge.

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Appendix A

Population-Related Headings in the *Reader's Guide to Periodical Literature*

Our universe included all articles listed in the *Reader's Guide to Periodical Literature* (RGPL) over the years 1946-1990 under the following headings:

> Population
> Population, Distribution of
> Population, Increase of
> Population Association of America
> Population Education
> Population Forecasting
> Population Institute
> Population Policy
> Population Reference Bureau, Incorporated

Under the heading "Population," the RGPL contains several subheadings of a general nature, such as:

> Population—Overpopulation
> Population—Statistics

There are also numerous subheadings referring to specific regions or countries, such as:

> Population—Asia
> Population—France

For more detailed information, please refer to Wilmoth and Ball (1992).

Appendix B
Definitions of Argumentative Frames

Each article was coded based on the following categories of arguments about the posited effects of population growth or decline. For each article and argument, we recorded whether the article mentioned the argument or not, and if so, whether it was mentioned in a supportive, neutral, or negative manner. All categories refer to the possible results of population growth unless they specifically mention population decline. Arguments are organized according to the five interpretive packages, or frames, described in the text.

Limits to Growth

famine, food shortages, overwhelm Earth's carrying capacity
disease, misery, human suffering
bring end of human race, destroy mankind
impoverish entire world
breed poverty, lower per capita income, impede economic development in LDCs†
encourage dependency of LDCs on foreign aid
flood labor market, increase unemployment
increase dependency burden because of more children
consume natural resources

Population Pressure

revolution in LDCs, communist expansion
present political/military threat because of Soviet-bloc growth
past wars caused by population pressure
future wars more likely due to population pressure

Quality of Life

urban sprawl, traffic, congestion
strain schools, housing capacity
require bigger government, threaten human freedom
social or political unrest, riots
crime, juvenile delinquency
destroy environment, increase pollution
overcrowded recreational areas, beaches, parks

Growth is Good

population growth supports economic expansion
younger population is more productive, creative
slower population threatens societal productivity, creativity

Race Suicide

U.S./developed world being outbred by poorer nations/non-European peoples
U.S. fertility higher for lower classes/non-whites than for upper classes/whites
population decline poses military threat
population decline portends the end of U.S./Western cultural pre-eminence

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† Less developed countries

Appendix C
Sampling and Estimation Procedures

The sample was drawn by first partitioning the universe of articles along three dimensions (time period, journal, and author). Define N_{ijk} to be the number of articles on the *RGPL* list for period i, journal j, and author k ($i=1,2,....,9$, corresponding to time periods 1946-50, 1951-55,...., 1986-90; $j=1,2,....,9,10$, where 1 through 9 represent the first nine journals in Table 2, and 10 represents all other journals; and $k=1,2$, where 1 represents authors with six or more articles, and 2 represents all other authors). Similarly, let n_{ijk} be the number of articles sampled from cell (i,j,k) and let x_{ijk} be the number of "successes" (however defined) out of n_{ijk} "trials." (For example, x_{ijk} might be the number of articles espousing a given position out of n_{ijk} articles sampled from that cell.) It is convenient to require that $n_{ijk}=0$ if and only if $N_{ijk}=0$, so that we sample at least one article from all non-empty cells.

Next, define a sample proportion,

$$\hat{p}_{ijk} = \begin{cases} \dfrac{n_{ijk}}{N_{ijk}} & \text{if } N_{ijk} > 0 \\ 1 & \text{if } N_{ijk} = 0 \, , \end{cases} \tag{1}$$

and take $\hat{p}_{ijk}$ as an estimate of the true proportion of successes (out of N_{ijk} articles) in cell (i,j,k). The estimated proportion of successes for time period i then equals

$$\hat{p}_i = \frac{\sum_{jk} N_{ijk} p_{ijk}}{\sum_{jk} N_{ijk}} \, . \tag{2}$$

Similar formulas can be derived for sample proportions by journal or author. An estimate of the variance of $\hat{p}_{ijk}$ is given by

$$\text{vâr}(\hat{p}_{ijk}) = \frac{\hat{p}_{ijk}(1-\hat{p}_{ijk})}{n_{ijk}} \left(1 - \frac{n_{ijk}}{N_{ijk}}\right) \, . \tag{3}$$

Estimated variances and standard errors for $\hat{p}_i$ and other estimates can then be derived by combining equations (2) and (3). Sample sizes, n_{ijk}, were chosen to ensure that standard errors for $\hat{p}_i$ and $\hat{p}_j$ were uniformly below 0.07. Because of the magnitude of these errors, it is important not to exaggerate the significance of small changes in sample proportions over adjacent periods. At the same time, clear trends in sample percentages over several periods should not be dismissed as artifacts of statistical variation.