A Demographic Analysis of the Senegalese Population of Reproductive Health Care Organizations*

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June 14, 2005

Abstract The population of organizations in the reproductive health care field in Senegal serves as the analytical focus of this paper. Adapting the standard tools of demographic analysis, I examine how global and national factors, such as health paradigms, population policies, and fertility levels, have influenced the structure and dynamics of the Senegalese population of reproductive health care organizations. The data gathered for the analysis provide new and unique information on organizational activity in Senegal and make it possible to test hypotheses from organizational ecology. The analysis shows how policy at both the national and global level affects organizations at the country level, which in turn impacts the types of services provided to Senegalese women and men. I pay particular attention to the interplay between services for, and concerns about, reproductive health and HIV/AIDS. By taking the perspective of a population of organizations, the analysis presented in this paper informs on the evolution of reproductive health care in Senegal over the past 30 years.

* Paper prepared for Session 180 of the 2005 Annual Conference of the International Union for the Scientific Study of Population, Tours, France, July 18-23, 2005. I would like to acknowledge the National Science Foundation and the UC Berkeley Department of Demography for funding, and to warmly thank my interviewees in Dakar for their patience, time, insights, and assistance.

INTRODUCTION

Foreign aid to developing countries has been privatized over the past 20-25 years (Luke and Watkins 2002), with much of it going to non-governmental organizations (NGOs). For example, in 2002, 57% of donor expenditures for population assistance to sub-Saharan Africa were channeled through NGOs (UNFPA 2004). Because so much reproductive health funding is distributed and provided via organizations *other* than governments, research on this organizational sector is necessary to understand how reproductive health care is delivered in developing countries. Through a demographic analysis of the population of organizations in the reproductive health care field in Senegal, this paper aims to explain how the provision of reproductive health care has evolved during this period of aid privatization, specifically following the 1994 United Nations (UN) International Conference on Population and Development (ICPD) in Cairo, Egypt, where delegates formalized a new concept of reproductive health. By examining how this population of organizations has grown and changed, it is possible to understand the factors that influence the creation and livelihood of the organizations that have become crucial to the provision of reproductive health care services in developing countries. Organizational missions, in turn, help inform on the breadth of reproductive health care provided to Senegalese people.

The population of organizations in the reproductive health care field in Senegal serves as the analytical focus of this paper. This population includes any organization that works in Senegal and either provides services related to family planning, reproductive health, sexually transmitted diseases or HIV/AIDS, studies reproductive health (including academic ventures), socially mobilizes people around reproductive health issues, or provides technical capacity building skills to any of the previously mentioned groups.

This paper is part of a larger project which explores the responses of African countries to rapid population growth, starting with how these growth rates became "problems" in need of attention and solutions. Once deemed an issue, either by a government or an important international lender, primary responses to population growth have included governmental policy and programs, local and foreign organizational activity in the arena of reproductive health and family planning, and other changes at both the individual and institutional levels. The increase in HIV-prevalence in the 1980s followed on the heels of concerns about population growth and induced an organizational response that interwove itself with reproductive health areas. The overlap of reproductive health and HIV/AIDS services resulted both because HIV has primarily been transmitted heterosexually in Africa and because of the influence of the new reproductive health paradigm promulgated by the 1994 ICPD. Responses to the AIDS epidemic have tended to follow the channels laid by responses to population growth, making a thorough understanding of the factors that influenced population activities important to exploring the responses to the AIDS epidemic.

The data collection and analysis presented below encapsulates the part of the project addressing organizational responses to population growth. In the spirit of organizational ecology, I apply the standard tools of demographic analysis to the reproductive health care population in Senegal since its beginnings in the 1970s. The goal is to understand how this population has been influenced by global and national factors, such as health paradigms and population policies. Specifically, the central question is whether the shape and dynamics of the population of organizations involved in population and AIDS activities can be predicted based on assumptions about external factors that drive organizational births, or whether these trends are best understood in terms of the organizational dynamics of the population.

West Africa is an ideal setting for studying reproductive health care organizations -- fertility remains high, with a current total fertility rate of 5.8 (PRB 2004), and thus the region supports multiple different reproductive health care organizations. Senegal in particular has a large reproductive health care organizational population, both because Dakar serves as a regional capital, and most likely because of the country's relatively early (1988) implementation of a national population policy. Also, the country is stable and democratic. Because HIV-prevalence remains extremely low, at less than 2% of the adult population in 2003 (PRB 2004), the organizations involved in population activities have not become completely focused on HIV/AIDS, as in much of southern sub-Saharan Africa. The reasons combined make Senegal an excellent place to examine the population of reproductive health care organizations.

The paper achieves three main goals. First, knowing how many organizations in Senegal are addressing population and AIDS concerns can help prevent overlap in organizational mission as well as identify areas of need. Though many people involved in the organizational population in Senegal have a feel for such matters, hard numbers are difficult to come by, and overall trends are only anecdotally known. Second, by emphasizing the organizations that exist in-country, we get a glimpse at the actors who are, arguably, the most important players in the reproductive health care field. The members of the organizational population analyzed in this paper assess needs, collect data, and provide services. Third, by extending organizational ecology to a unique population consisting largely of nonprofit organizations in a developing country, the analysis serves as a test of the methods which have proved so informative about the behavior of firms in industrialized countries. Despite organizational ecology's basis in demographic methods and despite the importance of organizations to areas of demographic concern, demographers have tended not to use the tools of organizational ecology or to study organizations in and of

themselves. This paper begins to address this omission by focusing on the population of reproductive health care organizations in Senegal over the past thirty years.

BACKGROUND

The following section provides background information on responses to rapid population growth and the threat of HIV/AIDS in Senegal. It also covers existing research on NGOs as well as outlines the methods and theory of organizational ecology.

A History of Responses to Population Growth and HIV/AIDS in Senegal

Many small steps lead up to the announcement of Senegal's official population policy in 1988. Like most developing countries, Senegal firmly supported the "development as the best contraceptive" stance at the UN's 1974 population and development conference in Bucharest (Locoh and Makdessi 1996). Despite this position, only two years later (in 1976), President Senghor recommended the creation of a family planning program to lower growth rates (Nortman and Hofstatter 1980). By 1978-79, the government had integrated family planning into all maternal and child health facilities, had solicited support and technical assistance from USAID, the Pathfinder Fund, and UNFPA (ibid.), and had established a National Population Commission (World Bank 1992). In 1980 Senegal repealed the 1920 French anti-contraceptive law that had up until that point made even the distribution of information about contraception illegal (Locoh and Makdessi 1996). The World Bank influenced Senegal's decision to announce a national population policy in 1988 by tying the creation of such a policy to the release of part of the Bank's third structural adjustment loan to Senegal (World Bank 1992). The Bank felt that

Senegal was open to the development of a population policy, though reported in 1992 that there had as of yet been "minimal public support by high-level government officials" (ibid. 59).

The 1988 policy is broad and integrated, including strategies related to: 1) maternal and child health, 2) fertility and birth-spacing, 3) promotion of women, youth, and senior citizens, 4) protection of the family, 5) migration, urbanization, and land use, 6) employment, 7) research, and 8) information, education, and communication (ECA 1993). The policy justifies intervention in citizens' lives as a right given to the state by the Constitution, such that population is as worthy of attention as the areas of hydraulics, agriculture, or fishing (République du Sénégal 1988a). The parts of the policy related to fertility are strongly oriented towards birth-spacing, not birth-limiting, and "protection" of the family is paramount in the document (ibid.). A great deal of the policy's text covers areas perhaps more related to development, and certainly not explicitly tied to population (e.g., promotion of the youth and elderly, full employment) (ibid.). After the policy's announcement, working groups were created to formulate projects related to each of the strategy areas, which were then presented to potential donors (ECA 1993). Donors were allowed to change the content of these projects, and the end result was that the maternal and child health and family planning components made up about half of all projects (ibid.). Thus multiple actors, both local and foreign, were involved in the creation of Senegal's population policy, which resulted in a broad-based policy open to a variety of interpretations.

No studies have examined the impact of Senegal's population policy on fertility levels, organizational activity, or quality of reproductive health care provided. We do, however, know about the experience of reproductive health in Senegal based on changes between the 1986 and 1997 Demographic and Health (DHS) surveys, though it is impossible to causally attribute these changes to the population policy. Between the two surveys, the number of women who knew of

a modern method of contraception increased from 69 to 82%, the percentage of women *using* a modern contraceptive method went from 2.7 to 7.0%, the mean ideal number of children decreased from 6.8 to 5.3, and the total fertility rate (TFR) went from 6.6 to 5.7 (République du Sénégal 1988b, 1997). Over the same time period, an increasing percentage (from 47 to 68%) of women using modern contraceptive methods received them from public sources (ibid.).

Sources other than the DHS also provide useful information about the experience of reproductive health in Senegal. From a 1995 survey of young adults in Dakar and its environs, we know that young adults, although uniformly aware of HIV/AIDS, were not so well-informed about family planning and reproductive health – less than 30% had used contraception at their first sexual encounter (Katz and Nare 2002). Furthermore, among a small number of "mock" clients (all young) who tried to obtain information and contraceptive supplies at family planning clinics in the area, many were given unsolicited advice about their behavior, and none actually received contraceptives (ibid.). Echoing the need to better inform both clinicians and women, data from a 1994 Population Council study of all (180) family planning service delivery sites in Senegal found that more than one third of breastfeeding women accepted estrogen-containing contraceptives, when only progestin-containing contraceptives should have been prescribed (Stein, Measham, and Winikoff 1998). Overall, the findings on reproductive health care use, knowledge, and services suggest that although the situation has improved in Senegal over the past 25 years, there is still much work left to be done.

Although Senegal's low contraceptive prevalence rate has been criticized by outsiders, Senegal is widely viewed as a "success" story within Africa and the world for actively addressing the HIV/AIDS epidemic *before* prevalence rates rose to high levels (Gow 2002; Moran 2004). Researchers generally agree that one of the main causes of this success was the

engagement of both religious and political leadership immediately following the identification of the first AIDS cases in 1986, which lead to high-level support for HIV-prevention programs. A national AIDS commission was formed in 1986 (Moran 2004), and all blood used for transfusions was screened for HIV by 1987 (Pisani 1999). Soon after the appearance of HIV/AIDS in Senegal, the government reduced the price of condoms and made them readily available to high risk groups, including soldiers (Moran 2004) and sex workers, whose trade has been legal and registered in Senegal since 1969 (Pisani 1999). Reflecting high levels of political commitment and will to controlling the spread of HIV, in 1996 Senegal spent $221 per adult with HIV (Pisani 2000).

Though Senegalese leaders showed early and intense commitment to HIV-prevention activities, they were helped by the fact that Senegalese men are almost 100% circumcised (which greatly reduces the risk of transmission), that the largely Muslim population consumes minimal amounts of alcohol (reducing the number of situations with impaired-judgment), that women have relatively late sexual debuts (minimizing their potential exposure to HIV), that there is limited extramarital sex, that there are high levels of condom-usage during extramarital and commercial sex, and that effective STD control programs have existed for over 30 years (Pisani 1999). As a result of these factors, sex workers are the only sub-population in Senegal to have experienced a real increase in HIV-prevalence since 1986 (ibid.), with prevalence rates currently somewhere around 15-25% (Diop 2004), and a population prevalence rate less than 2% (PRB 2004). Senegalese commitment to preventing the spread of HIV thus suggests that the government, accompanied by the provision of donor funds and the support of all societal sectors, is fully capable of effective intervention to improve people's health and well-being.

Research on Organizations

Organizational ecology[1], a subsection of the sociology of organizations, uses demographic methods to study how industries change based on the organizations that compose them. The general goal of organizational ecology is the measurement of heterogeneity within populations of organizations in order to analyze its causes and consequences. The various works of Carroll, Freeman, and Hannan (e.g., Hannan and Freeman 1989, Carroll and Hannan 2000) form the backbone of the subfield of organizational ecology.

Transferring demographic methods, used in the scientific study of *human* populations, to organizational populations is not always straightforward. First of all, what exactly is an organization and what does an organizational population consist of? Organizations have three main characteristics: they are 1) corporate actors, 2) mobilized based on purpose, and 3) intended to last (Carroll and Hannan 2000: 77). In other words, they are groups of people with a specific goal or goals who wish to continue to pursue that goal beyond one moment of collective action. (This last criterion separates an organization from a demonstration or meeting.) A group of organizations within a particular boundary, whether it be geographical, structural, or resource-related, makes an organizational population, though this population may contain organizations with multiple different forms.

A second issue inherent in transferring demographic methods from people to organizations is that we desire a means through which to describe the births, migrations, unions, and deaths of organizations. Table 1 provides the organizational correlates of human events, which transfer quite well conceptually, but not always so well in terms of measurement. Specifically, for rates of human events, the people in the denominator produce the events in the

[1] For more information on organizational ecology, see the description in Sullivan (2005), available online at http://paa2005.princeton.edu/abstractViewer.aspx?submissionId=51455.

numerator. Organizational maternity cannot, however, usually be ascribed to another organization, meaning that the population treated as at risk for experiencing the birth of an organization, the population of existing organizations, will not actually "produce" that new organization. This small difficulty in translation aside, it is nonetheless reasonable to use demographic methods to analyze organizational populations.

Once the organizational data are collected, hazard analysis, a method familiar to all demographers, is typically used to estimate a survivor function from the available data (Carroll and Hannan 2000). The ultimate goal is then to predict patterns in hazards of birth and death (and other desired demographic events) based on independent variables that measure either organization-specific factors, or environmental factors of interest.

In addition to providing a method for studying organizational populations, organizational ecologists have also proposed theories of population evolution which are independent of the types of organizations that make up the population. An example of such a theory is "density dependence," a form of demographic transition within organizational populations which is strongly based on an evolutionary theory of organizational survival. Unlike in human populations, where the demographic transition describes a shift in high birth and death rates to low birth and death rates, the density dependence hypothesis posits a curvilinear relationship between population size (density) and birth and death rates. Carroll and Hannan (2000:230) argue that density dependence is a property of organizational populations, regardless of variation in organization size, industry size, and temporal factors. Specifically, the relationship between density and birth rates has an upside-down U-shape, and the relationship between density and death rates has a right-side-up U-shape.

The legitimacy, or "taken-for-grantedness" (Meyer and Rowan 1977), of organizational form or mission explains these density-dependent processes (Carroll and Hannan 2000). In terms of birth rates, when an industry is new, legitimacy is low due to high uncertainty which results in few organizational births. As the industry becomes more attractive, legitimacy increases, and so does the birth rate. Eventually, however, density (population size) increases to a point where competition becomes fierce enough to cause the birth rate to decline. In terms of death rates, they are high when an industry is founded because of a lack of legitimacy for organizational form or mission. As legitimacy increases, death rates decrease, up until a point when competition reaches a strong enough level to cause an increase in death rates. I will use the Senegalese reproductive health care organizational population, a non-standard population for organizational analysis, to test the density dependence hypothesis.

In addition to studying for-profit industries, researchers have also used the tools of organizational ecology to study non-profit and activist organizations, which are the closest correlates to the population explored in this paper. Minkoff's (1993) study of US women's and racial/ethnic voluntarist and activist organizations found that organizations that follow "legitimate" paths, such as lobbying and litigation, are more likely to survive than those that engage in confrontational actions, such as protest, because they are more likely to obtain resources necessary for survival. Looking at founding rates of gay and lesbian interest groups in the US, Nownes (2004) found support for the density dependence hypothesis based on increasing legitimacy and its relationship to environmental factors that influence founding rates.

Much research remains to be done on NGOs in Africa. In a recent study of AIDS-NGOs in 29 African countries (one representative from each country), Benotsch et al. (2004) found that the NGOs tended to have small staffs and budgets, that 83% provide services other than HIV-

prevention, and that the African (as opposed to European or American) NGOs targeted prevention efforts at entire communities, rather than individuals. The authors also made a commonly-heard argument regarding the advantages of NGOs for providing services, namely that they are often better-equipped than governments to work with populations most affected or at-risk for AIDS because they are familiar with marginalized groups and have access to them. African governments have not, however, always welcomed NGOs, mainly because their presence implies political pluralization and, in many cases, the presence of organizations representing foreign interests (Bratton 1989). Nonetheless, "although governments and NGOs may be uncomfortable bedfellows in Africa, they are destined to cohabit" (ibid.: 585).

From the literature on population and HIV/AIDS activities in Senegal, as well as on organizations, we see that organizational data provide a unique way to study the provision of reproductive health care in Senegal. The data analysis presented below will use the tools and measures of organizational ecology to evaluate the Senegalese population of reproductive health care organizations, looking specifically at the environmental factors, both local and foreign, that are associated with organizational births. The analysis will also use these data to verify the density dependence hypothesis. In addition, I present findings from interviews conducted with representatives of organizations in the reproductive health care field in Senegal that inform on the relationship between funding for HIV/AIDS and family planning activities.

HYPOTHESES

Most basically, I take a functional perspective that organizations come into existence when there is a need or demand for them, which increases resource availability and provides a market for

their services. This suggests that we would observe an increase in organizational births after the following dates:

- 1980 – repeal of 1920 law forbidding sale of contraceptives (Wilson 1998)
- 1986 – the discovery of the first AIDS cases in Senegal (JICA 1999)
- 1988 – the announcement of Senegal's first population policy
- 1994 – UN ICPD in Cairo
- 1999 – Restructuring of government health system to include a reproductive health division (Ndoye 2004)

Although causality will be impossible to determine, correlations in timing will be meaningful. At first glimpse, it does appear that these events had rapid organizational outcomes: USAID began funding HIV/AIDS in 1987 (USAID undated), and the UN helped to create networks of parliamentarians, journalists, and youth (among others) to promote population activities soon after the 1994 ICPD. One such network, the *Réseau des Parlementaires pour la Population et le Développement* (Network of Parliamentarians on Population and Development), was created in 1995.

In addition to the one-time events listed above, we would also expect to see organizational births track trends in foreign aid. Many organizations in the reproductive health care population rely on grants of foreign aid for their existence, suggesting a direct relationship between foreign aid and organizational births. A more indirect relationship is also plausible, namely that levels of foreign aid reflect the presence of foreign organizations in the country (of all sorts, not just reproductive health), which increases legitimacy for organizational forms and missions and thus increases their birth rates. In terms of foreign aid, Senegal has traditionally been one of the luckiest beneficiaries in West Africa, along with The Gambia, Guinea-Bissau,

and Mauritania, receiving on average 37% more than the average West African country over the period covered in this paper (World Bank 2005).

In addition to overall trends in foreign aid, trends in the distribution of foreign aid are also likely to influence organizational births. Between 1995 and 2002, the percentage of total donor expenditures for population activities (for the whole world) directed towards HIV/AIDS increased from 9 to 43% (UNFPA 2004). I would thus expect for the increase in funding for HIV/AIDS that occurred to increase the birth rate for organizations focusing on HIV/AIDS prevention and service. However, I also expect that Senegal's low HIV-prevalence rate coupled with its high levels of fertility and maternal mortality would keep organizational focus on reproductive health areas other than HIV/AIDS, despite the increase in funding.

Demographic factors may also influence organizational births, specifically fertility levels and population growth rates. High levels of fertility and population growth suggest that there may be a demand for contraceptive services and information, which may in turn spur the creation of organizations to either directly meet these needs or lobby for their importance to the government.

DATA

The goal for data collection was to build a data set of all organizations in the population/AIDS field that had ever existed in Senegal, including their dates of foundation/arrival in Senegal, their mission, and their date of dissolution/departure (if applicable). It was not possible to include any measurement of organizational size (employees, members, clients served, or annual budget) because most organizations do not publish this information, and for those that do, it was often available at only one point in time. If one were to conduct a similar study on organizations

operating in the US, it would be possible to use Internal Revenue Service data for non-profit organizations, or any variety of annually-published directories. With excellent data coverage, it is possible to assume that the first year an organization appears in a directory or tax records is the year of its birth, and that if it disappears from the directories, it has dissolved. Unfortunately, there is no equivalent tactic for studying organizations in the developing world as tax records are sparse or nonexistent, and directories are rarely published annually. Thus the data for this paper come from a variety of sources,[2] including:

- Fieldwork conducted in Dakar during July 2004 with representatives of nine different organizations.
- Print directories of NGOs, development organizations, and women's associations at the country-level. These documents seem to exist in order to provide information to potential donors, and tend to be put together by NGOs or foundations.
- International organizational directories, which tend to be available both online and in print form. The international directories serve the same purpose as those in print, however they are more targeted towards researchers.
- Senegalese phone books for nine various years between 1973 and 2001. Like US phone books, the Senegalese variant has a yellow pages (categorized by business type) and a white pages section (categorized by business name). The later phone books have sections on international organizations and NGOs.

In order to build the data set, I relied on a total of 32 sources, each of which I classified as either primary and secondary based on the amount of information provided for each organization listed. Directories with organization mission information were classified as primary and those

[2] See Appendix A in Sullivan (2005) for more details on organizational sources (available online at http://paa2005.princeton.edu/abstractViewer.aspx?submissionId=51455)

without (e.g., phone books) were classified as secondary. This resulted in 17 primary and 15 secondary sources. Inclusion in the data set was based on directory membership in order to prevent endless searching for organizations (via the internet, for example) as well as to make the sources of bias more known. To be included in the data set for Senegal, an organization had to be in a primary source and be described in its title, mission, or activities as providing services or doing work (including research) in any of the following areas:

- family planing,
- reproductive health,
- maternal health/mortality,
- sexually transmitted infections,
- HIV/AIDS[3],
- demography, or
- population.

The population consists of organizations with a variety of forms, including non-governmental, multilateral, and bilateral organizations. The population also contains associations that do not have official NGO-status with the government, as well as non-profit organizations that do not call themselves NGOs. Despite the population's organizational diversity, NGOs are a particularly important component, as they provide many of the services and are also influential at the international level, as evidenced by the role they played at the 1994 ICPD (Johnson 1995). There is no standard definition for NGOs. The UN defines an NGO as "any non-profit, voluntary citizens' group which is organized on a local, national or international level" (UN 2004c). The popular conception of an NGO is a non-profit organization without

[3] Not including work related to orphans, because this is only tangentially related to reproductive health. It turned out there were no such AIDS orphan organizations in Senegal.

governmental ties that participates in altruistic activities that would most likely be supplied by the public sector in a welfare state. NGOs can be either domestic or international, and they remain understudied, despite their growing importance – in 2002, 57% of donor expenditures for population assistance to sub-Saharan Africa were channeled through NGOs (UNFPA 2004).

The organizational population of interest also includes multilaterals (e.g., the United Nations and World Bank) and bilateral development agencies (e.g., the United States Agency for International Development (USAID) and the German Technical Corporation). Notably and purposefully absent from the population are the domestic government sectors involved in the activities of interest. This absence makes it possible to test the effect of governmental action on the rest of the organizational population. It also facilitates data collection as governmental sub-units are by definition not included in directories of non-governmental organizations.

The process of directory search yielded a total of 142 organizations, with foundation dates (or dates of entry into Senegal) from 1930 onwards. All organizations had information on type, origin, and mission. Because the first Senegalese family planning organization was created in 1974 (*Association Sénégalaise pour le Bien-Etre Familial*, ASBEF) and the UNFPA first arrived in 1975, I set 1975 as the starting year for the analysis. 32 of the original 142 organizations (mainly from two directories) had only one year of coverage because they were missing foundation dates and were each listed in only one primary directory, so these were cut, leaving 110 organizations across thirty years.

For nine organizations missing birth dates, I imputed start dates based on organizational type, origin and mission, which did not change the overall shape of organizational births and population size (results not shown). Organizational "deaths" were based on an organization's failure to appear in a directory I classified as reliable (one that contained a large number of

organizations with a wide variety of missions). An organization that died was assumed to have done so at the midpoint between the date of the directory in which it last appeared and the date of the next directory in which it should have appeared. In other words, an organization that appeared in a 1995 directory but was not listed in the next reliable directory (say from 1999) would be assigned a death date of 1997. Based on this method, there were 25 deaths between 1975 and 2004 (leaving 93 organizations alive in 2004).

The main bias in the data set results from the fact that organizations had to be listed in a directory to be included in the data set. Thus there are approximately 25 organizations that I know exist or existed at some point (from reading reports on population activities in Senegal, as well as from interview respondents), but which could not be included because they never appeared in a directory. Overall, however, the directories captured a wide variety of organizations, suggesting no significant biases and thus the data are at worst an under-approximation of the total number of organizations active in the reproductive health field in Senegal.

I also include a small section on findings from interviews I conducted with representatives of organizations in the reproductive health field in Dakar, Senegal during July 2004. I interviewed 13 people from nine different organizations, including NGOs, multilaterals, and government agencies. The interviews were semi-structured and covered organizational mission and history, challenges and successes, sources of funding, Senegal's experience with population growth relative to other African countries, and the role of the ICPD and HIV/AIDS on funding for population activities. Though my sample was not random, I spoke with a wide variety of actors and obtained a good impression of current, as well as historical, population

activities in Senegal. Appendix A lists the organizations whose representatives I interviewed and provides a brief description of those organizations' activities.

ANALYSIS

The analysis section first describes the basic characteristics of the organizational population. It then presents findings on the relationship between one-time events and organizational births, and on the connection between long-term trends and organizational births. Finally, it tests the density dependence hypothesis using the Senegalese data.

Characteristics of the Organizational Population

Figure 1 shows the cumulative number of reproductive health care organizations and the organizational population size (density) for Senegal between 1975 and 2004. From this figure we can see that growth leveled-off in the early 1990s, leaving the population size roughly constant at slightly less than 100 organizations. There has been a slight decline in population size since 2000, resulting in a total of 93 organizations in 2004. Table 2 gives basic information on these 93 organizations still alive in 2004. Organizations were categorized into four types (as described earlier): NGO/non-profit, bilateral, multilateral, and other. The "other" category includes organizations termed "associations" as well as organizations devoted to research but who were not classified as NGOs. From Table 2 we can see that the vast majority of organizations (76%) are NGOs or non-profits, though this figure is most likely an underestimate, as the majority of the "other" category consists of organizations who are probably non-profit as well. The high percentage of NGOs reflects the predominance of this organizational form in many developing countries.

Table 2 also shows organizations' origin: domestic (from Senegal), regional (from somewhere in Africa), or international (from outside Africa). The majority of organizations (62%) are Senegalese, indicating that Senegalese civil society is thriving. Almost two thirds of the data set consists of organizations whose primary mission is population (26%) or development (34%). The remainder of the organizations are divided fairly evenly between women, children/youth, health, umbrella organizations, and a set of other missions classified together as miscellaneous (including the environment, education, and professional associations.)

The 24 organizations alive in 2004 whose primary mission is population are of particular interest. As we can see from Table 3, they look basically the same as the overall data set in terms of their type (NGO, bilateral, etc.) and origin. 42% list HIV/AIDS (which usually includes a focus on other sexually transmitted infections) as their primary activity, and another 38% are involved in either family planning or reproductive health (which, though different terms, seem to mean close to the same activities on the ground). The classification "Population" refers to organizations involved in lobbying, research, and awareness activities. The number of organizations whose activities are devoted primarily to HIV/AIDS is slightly higher that expected, given the low level of HIV-prevalence in Senegal (less than 2% of the adult population (PRB 2004)). Undoubtedly these organizations have helped to keep the prevalence-rate low, though their presence also reflects trends in donor funding. Overall, however, the organizations are distributed across a variety of missions, suggesting that they address a range of reproductive health care needs.

Table 4 describes the characteristics of the 25 organizations that died between 1975 and 2004. Among these organizations, the mean founding date was 1988, the mean year of last observation was 1998, and the mean assigned death date was 1999. Compared to the population

alive in 2004, these organizations were all NGOs, non-profits, or associations (not surprisingly, no multilateral or bilateral organizations died). The organizations that died were more likely to be domestic (72% versus 62%), suggesting that domestic organizations have a more tenuous funding base, and were also more likely to list population as their primary mission. These results should not, however, be interpreted to mean that population organizations are more likely to die. Instead, a disproportionate number of the organizations that died came from two directories which appear to have done a particularly good job of finding small population organizations.

The Environment and Organizational Births

First we will consider the relationship between one-time events and organizational births, looking at the graph of organizational births by number and rate. Recall that the denominator for these annual rates is the population size that year. Figure 2 shows these two measures for the period 1974-2004. The vertical lines mark the years of one-time events that I hypothesized would increase organizational births (see hypothesis section above). The peak years for new organizations were 1989 and 1993 (by raw count) and 1987, 1989, and 1993 (by rate). Overall the organizational birth rate increased until sometime in the 1989-93 range, and then decreased thereafter.

The level of births before and after 1980 are about the same, suggesting that the repeal of the anti-contraceptive law that year did not greatly change the environment. There is a peak in 1987 following the discovery of the first HIV/AIDS case in 1986, as well as in 1989 following the announcement of the population policy in 1988. Indeed, USAID began funding AIDS activities in 1987, which included funds for organizations. There are no significant peaks following the ICPD (1994) or the creation of the Division of Reproductive Health within the

Ministry of Health (1999). In fact, the peak year for the raw count of new organizations occurs in 1993, immediately *prior* to the ICPD, suggesting that the forces that lead to the focus of the 1994 ICPD on reproductive health were already in play and influencing organizational action. Although it is impossible to determine causation with this type of analysis, there is some support for the hypothesis that one-time events that increase funding and legitimacy for new organizations do influence their likelihood of birth.

I now turn to looking at the relationship between factors that vary over time and organizational birth rates. Ideally I would use Poisson or negative-binomial regression to test the relationship between independent variables and the organizational birth rate (which is a count, hence the type of regression). However, the sample size was slightly too small (n = 30 years) for this application, as was the number of events per year (births) relative to the population size (density). As a result, I present only a graphical analysis.

Figure 3 compares the number of organizational births to demographic variables over time. There is clearly no relationship between either the TFR or the population growth rate and the number of organizational births: both of the demographic variables have relatively constant trends, unlike the organizational birth rate. Thus it is unlikely that demographic pressures alone explain organizational births, although their presence may be used as justification for funds to start or maintain organizations that address rapid population growth.

Figure 4 compares the number of organizational births to the amount of foreign aid per capita (in constant US dollars) over time. Given that I had no a priori assumption about how long it might take foreign aid to translate into organizational births, I experimented with the number of years by which I lagged the foreign aid variable relative to organizational births. I found that a three-year lag in foreign aid fit the organizational birth data best, such that the 1993

peak in organizational births corresponds with the 1990 peak in foreign aid (at $US 112 per person). With the maxima in the two variables lined up, Figure 4 shows that both foreign aid and organizational births followed roughly the same trends over time, increasing from 1975 to the early 1990s, and then declining thereafter. This graph strongly suggests that foreign aid, whether it directly funded new organizations, gave the impression to entrepreneurs that funding was available, or increased the legitimacy of non-profit organizations working in the reproductive health arena, played a role in organizational births in Senegal.

Now restricting our view to just those organizations whose primary mission is population, Figure 5 tells the story of how their missions changed over time, considering only the 30 organizations founded between 1975 and 2004 whose primary mission was population. Each bar represents the number of organizations founded during a five-year period, divided into groups by the organization's primary mission. The peak year in terms of number of new organizations was 1989 (five new organizations), although the peak period was 1990-94 (10 new organizations). We see that the early births are tipped towards organizations focusing on family planning and reproductive health, whereas the later births are more likely to be organizations involved with HIV/AIDS. Again, given the low prevalence of HIV/AIDS in Senegal, the number of HIV/AIDS entries in the most recent periods suggests the influence of external funding on local activities. As with the entire population of organizations, the activity around 1988-89 corresponds well with the 1988 announcement of a population policy. More than anything else, however, this figure reflects increasing concerns about HIV/AIDS among Senegalese as well as the international community.

Stepping away briefly from the organizational data, I turn to information provided by my respondents in Dakar on these same topics. Almost all of my interviewees acknowledged that

AIDS has changed the context in which their organizations operate. Many were pragmatic, saying that HIV-prevention falls under the umbrella of reproductive health, and therefore it is still possible to obtain funds for reproductive and family planning activities. Two respondents noted, however, that their organizations had had to shift their missions away from other areas and more towards AIDS in order to obtain adequate funding.

Despite the rising emphasis on HIV/AIDS, my respondents still felt the impact of the ICPD. As one put it, the conference had turned programs in the population area on their head ("a boulversé les programmes") (Faye 2004). Though all respondents supported the concept of reproductive health put forward by the ICPD, many expressed concerns about the lack of foundation for the achievement of reproductive health for all. Specifically, one respondent noted the need to educate women further about health and pregnancy before they could possibly be expected to use modern forms of contraception (Mbengue 2004). Another respondent stressed that women were too busy subsisting (fetching water and wood, pounding millet) to worry much about family planning – indeed, this respondent reported that many women were more interested in micro-credit than they were in family planning (Ndoye 2004). Conversations with representatives of reproductive health organizations in Senegal indicate that although there is a strong commitment to reproductive health, taking the steps to implement the concept can be quite difficult and often requires addressing other issues first.

Density Dependence and Organizational Births

Finally we turn to testing the density dependence hypothesis, which states that up until a certain point, as density (population size) increases, so does the crude birth rate of organizations. After that point, the birth rate decreases. Figure 6 shows the density and crude birth rate of the whole

data set from 1975 to 2004. From this figure we can see that density leveled out around 1994, suggesting that the market for reproductive health organizations had become saturated by that point. The density dependence hypothesis posits an inverted U-shape to the curve of density by organizational birth rate. Although the organizational birth rate is far from smooth, it (roughly) has the inverted U-shape predicted by the hypothesis, particularly if one focuses on the peaks and ignores the valleys. The key turning point for organizational birth rates occurred between 1989 and 1993, when the population reached its maximum size and the birth rate peaked as well. Thus the data from this unique population of organizations appear to support the density dependence hypothesis, indicating that factors inherent to the structure of the organizational population, and not just external factors, play a key role in determining the timing of organizational births.

CONCLUSION

The data set I gathered and which is presented in this paper gives a more complete picture of organizations involved in population activities in Senegal than has been presented elsewhere. It shows a population characterized by Senegalese non-profits which grew readily between 1975 and the early 1990s, and has stabilized since. This information should be of use to policy-makers, as well as these organizations themselves as they decide how to solicit and allocate funds. The collection and analysis of the Senegalese data set indicates that this method is a useful, if time-consuming, way in which to study organizational response to rapid population growth.

The burst of organizational activity at the end of the 1980s appear to conform to hypotheses about what drives organizational birth, in this case the appearance of HIV/AIDS in Senegal (and the associated funding by large donor agencies such as USAID) and the

announcement of the first government population policy. Furthermore, based on the relationship between foreign aid per capita and the types and number of organizations born, it appears that trends in level and type of foreign aid are very important determinants of organizational activity. In addition to these highly plausible correlations between environmental factors and organizational births, the analysis also provides some support for the density dependence hypothesis of organizational sociology.

There are two main ways to extend the analysis presented in this paper. One is to determine the effect of organizational behavior on environmental factors, particularly governmental population policies, but also on fertility levels. The second is to compare Senegal's response to that of other countries, specifically in West Africa. It may be that Senegal provides an organization-friendly environment which has spurred more activity than in other countries. A comparison with other countries would be particularly useful to determine whether organizational trends in Senegal are actually reflective of the Senegalese environment, or whether the correlation is spurious and the trends instead result entirely from changes in the international funding arena.

Overall the paper shows that analysis of the organizational component of a country's response to rapid population growth provides valuable insights. These findings indicate that continued effort should be put towards the collection of organizational data, particularly in the realm of population activities. In the case of Senegal, there is strong support for the correlation between environmental factors (both one-time and over-time) and organizational births. Patterns in organizational demographic events in Senegal also reflect trends outside the country's borders, particularly the increase in worldwide prevalence of HIV/AIDS and the resultant shifts in international funding. While these changes in funding levels may be warranted overall, knowing

what is happening in Senegal increases the odds that adjustments can be made to existing organizational missions so that they continue to meet the needs of Senegalese people.

REFERENCES

Africa Consultants International. 1999. *Répertoire des Organizations Intervenant dans la Santé de la Reproduction des Adolescents au Senegal*. Dakar, Senegal : Africa Counsultants International.

Arid Lands Information Network. 1995. *Community Guide to HIV/AIDS Resources*. Dakar, Senegal: Arid Lands Information Network.

Benotsch, Eric G., L. Yvonne Stevenson, Cheryl A. Sitzler, Jeffrey A Kelly, Gethwana Makhaye, Eric Dodjii Mathey, Anton M. Somlai, Kevin D. Brown, Yuri Amirkhanian, M. Isabel Fernandez, Karen M. Opgennorth. 2004. "HIV prevention in Africa: Programs and populations served by non-governmental organizations." *Journal of Community Health* 29 (4): 319-336.

Bratton, Michael. 1989. "The Politics of Government-NGO Relations in Africa." *World Development* 17(4): 569-587.

Carroll, Glenn R. and Michael T. Hannan. 2000. *The Demography of Corporations and Industries*. Princeton, NJ: Princeton University Press.

Diop, Ibrahime l'Amin. 2004. Personal communication. Dakar, Senegal: Interview 7/14/04.

Faye, Ousmane. 2004. Personal communication. Dakar, Senegal: Interview 7/7/04.

Fondation Friedrich Ebert. 1998. *Les ONG dans l'Environment au Sénégal*. Dakar, Senegal: Fondation Friedrich Ebert.

----------. 1999. *Associations et ONG Féminines au Sénégal*. Dakar, Senegal: Fondation Friedrich Ebert. Available online at http://www.fes.de/fulltext/bueros/senegal/00720toc.htm.

Gale Research Company. 2004. *Encyclopedia of Associations*. Detroit, MI: Gale Research Company.

Gow Jeff. 2002. "The HIV/AIDS Epidemic in Africa: Implications for US policy." *Health Affairs* 21 (3): 57-69.

Hannan, Michael T. and John Freeman. 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.

Interagency Coalition on AIDS and Development. 2003. *Twinning Directory*. Available online at http://www.icad-cisd.com/content/twinning_search.cfm?lang=e.

Japan International Cooperation Agency (JICA). 1999. *Country WID Profile (Senegal)*. JICA Planning Department. Available online at www.jica.go.jp/english/global/wid/report/pdf/e99sen.pdf.

Johnson, Stanley. 1995. *The Politics of Population: Cairo 1994*. London: Earthscan.

Katz, Karen and Christine Nare. 2002. "Reproductive Health Knowledge and Use of Services Among Young Adults in Dakar, Senegal." *Journal of Biosocial Science* 34(2): 215-231.

Locoh, Therese and Yara Makdessi. 1996. *Population Policies and Fertility Decline in Sub-Saharan Africa*. Translated by Fallon M. Moursund. Paris: Centre Français sur la Population et le Développement.

Luke, Nancy and Susan Cotts Watkins. 2002. "Reactions of Developing-Country Elites to International Population Policy." *Population and Development Review* 28(4): 707-733.

Mbengue, Seynabou. 2004. Personal communication. Dakar, Senegal: Interview 7/9/04.

Meyer, John W. and Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83(2): 340-363.

Minkoff, Debra C. 1993. "The Organization of Survival: Women's and Racial-Ethnic Voluntarist and Activist Organizations, 1955-1985." *Social Forces* 71(4): 887-908.

Moran, Dominique. 2004. "HIV/AIDS, Governance and Development: The Public Administration Factor." *Public Administration and Development* 24 (1): 7-18.
Ndoye, Laty G. 2004. Personal communication. Dakar, Senegal: Interview 7/10/04.
Nortman, Dorothy L. and Ellen Hofstatter. 1980. *Population and Family Planning Programs, 10th Edition*. New York: Population Council.
Nownes, Anthony J. 2004. "The Population Ecology of Interest Group Formation: Mobilizing for Gay and Lesbian Rights in the United States, 1950-98." *British Journal of Political Science* 34: 49-67.
Pisani, Elisabeth. 1999. *Acting Early to Prevent AIDS: The Case of Senegal*. Geneva: UNAIDS.
----------. 2000. "AIDS into the 21st Century: Some Critical Considerations." *Reproductive Health Matters* 8(15): 63-76.
Population Reference Bureau (PRB). 2004. *2004 World Population Data Sheet*. Washington, DC: Population Reference Bureau. Available online at http://www.prb.org/pdf04/04WorldDataSheet_Eng.pdf.
République du Sénégal. 1988a. *Déclaration de la Politique de la Population*. Dakar, Senegal: Ministry of Planning and Cooperation, Directorate of Human Resources. Available online at http://annualreview.law.harvard.edu/population/policies/SENEGAL.htm.
----------. 1988b. *Enquête Démographique et de Santé au Sénégal: 1986*. Dakar, Senegal: Ministère de l'Economie et des Finances, Direction de la Statistique, Division des Enquêtes et de la Démographie et Institute for Resource Development/Westinghouse.
----------. 1997. *Enquête Démographique et de Santé au Sénégal (EDS-III): 1997*. Calverton, MD: Macro International, Inc.
Sonatel. 1973, 1980, 1985, 1986, 1987, 1989, 1992, 1996, and 2001. *Annuaire Officiel des Téléphones de la République du Sénégal*. Dakar, Senegal: Sonatel.
Stein, Karen, Diana Measham, and Beverly Winikoff. 1998. "The Quality of Family Planning Services for Breastfeeding Women in Senegal." *International Family Planning Perspectives* 24(4): 188-190.
Technical Assistance Information Clearing House. 1971, 1978, and 1983. *US Non-Profit Organizations in Development Assistance Abroad*. New York: American Council of Voluntary Agencies for Foreign Service.
Union of International Associations. 2004. *The Yearbook of International Organizations*. Brussels: Union of International Associations. Available online (restricted access).
United Nations. 1999. *Networking: Directory of African NGOs, First Edition*. New York : United Nations.
----------. 2003. *Networking: Directory of African NGOs, Second Edition*. New York : United Nations. Available online at : http://www.unpan.org/NGO-Africa-Directory/index.htm.
United Nations, Department of Public Information, NGO Section. 2000, 2001, and 2004a. *DPI/NGO Conference Attendees*. Available online at http://www.un.org/dpi/ngosection/preconf.htm.
----------. 2004b. *United Nations DPI NGO Directory*. Available online at http://www.un.org/dpi/ngosection/asp/form.asp.
----------. 2004c. "NGOs and the Department of Public Information." Available online at http://www.un.org/dpi/ngosection/brochure.htm.

United Nations Economic Commission for Africa (ECA). 1993. *An Assessment of the Formulation and Implementation of National Population Programmes in ECA Member States During the 1990s*. Addis Ababa: United Nations Economic Commission for Africa.

United Nations Population Fund (UNFPA). 2004. *Financial Resource Flows for Population Activities in 2002*. New York: UNFPA.

United States Agency for International Development. 1977. *International Directory of Women's Development Organizations*. Washington, DC: United States Agency for International Development.

----------. 2002. *Directory of Association of People Living with HIV/AIDS, First Edition*. Washington, DC: United States Agency for International Development. Available online at http://www.synergyaids.com/announce/PDFs_Announcements_Page/hivaidsdirectory.pdf

----------. 2004. *Directory of Association of People Living with HIV/AIDS, Second Edition*. Washington, DC: United States Agency for International Development. Available online at www.usaid.gov/our_work/global_health/ aids/Publications/docs/hivaidsdirectory.pdf.

----------. Undated. "USAID/Senegal: Supporting Senegal's fight against HIV/AIDS since 1987." Available online at http://www.usaid sn.org/activities/health/facts_HIV_AIDS.html.

Wesselink, Bert. 2005. *The Directory of Development Organizations, Sixth Edition*. Available online at http://www.devdir.org/index.html.

Wilson, Ellen. 1998. *Reproductive Health Case Study : Senegal*. Futures Group International (POLICY Project). Available online at http://www.policyproject.com/pubs/countryreports/sendbl.pdf.

World Association of Non-Governmental Organizations. 2003. *Worldwide NGO Directory*. Available online at http://www.wango.org/resources/NGO_directory.htm.

World Bank. 1992. *Population and the World Bank: Implications from Eight Case Studies*. Washington, DC: Operations Evaluation Department, The World Bank.

----------. 2005. *World Development Indicators*. Available online at http://devdata.worldbank.org/dataonline/.

Table 1. Organizational Equivalents of Population Events

Population Event	Organizational Equivalent
Birth	The establishment of an organization, whether it is the opening of a branch office of a large, international NGO or the formation of a local community-based organization.
Growth	Change in the total number of organizations in the population, which can be either positive or negative.
Union	A partnership, most likely through subcontracting, or an actual merger of two organizations.
Migration	The transfer of an organization across country borders.
Death	Either organizational collapse, or a complete shift in organizational mission.

Table 2. Characteristics of Organizations "Alive" in 2004

Characteristic	Percentage of Total (N = 93)
Type of Organization	
Bilateral	3
Multilateral	6
NGO/Non-Profit	76
Other	14
Origin of Organization	
Domestic	62
International	30
Regional	8
Primary Mission	
Development	34
Population	26
Women	12
Children/Youth	8
Health	8
Umbrella	6
Miscellaneous	6

Table 3. Characteristics of Organizations "Alive" in 2004 with Population as their Primary Mission

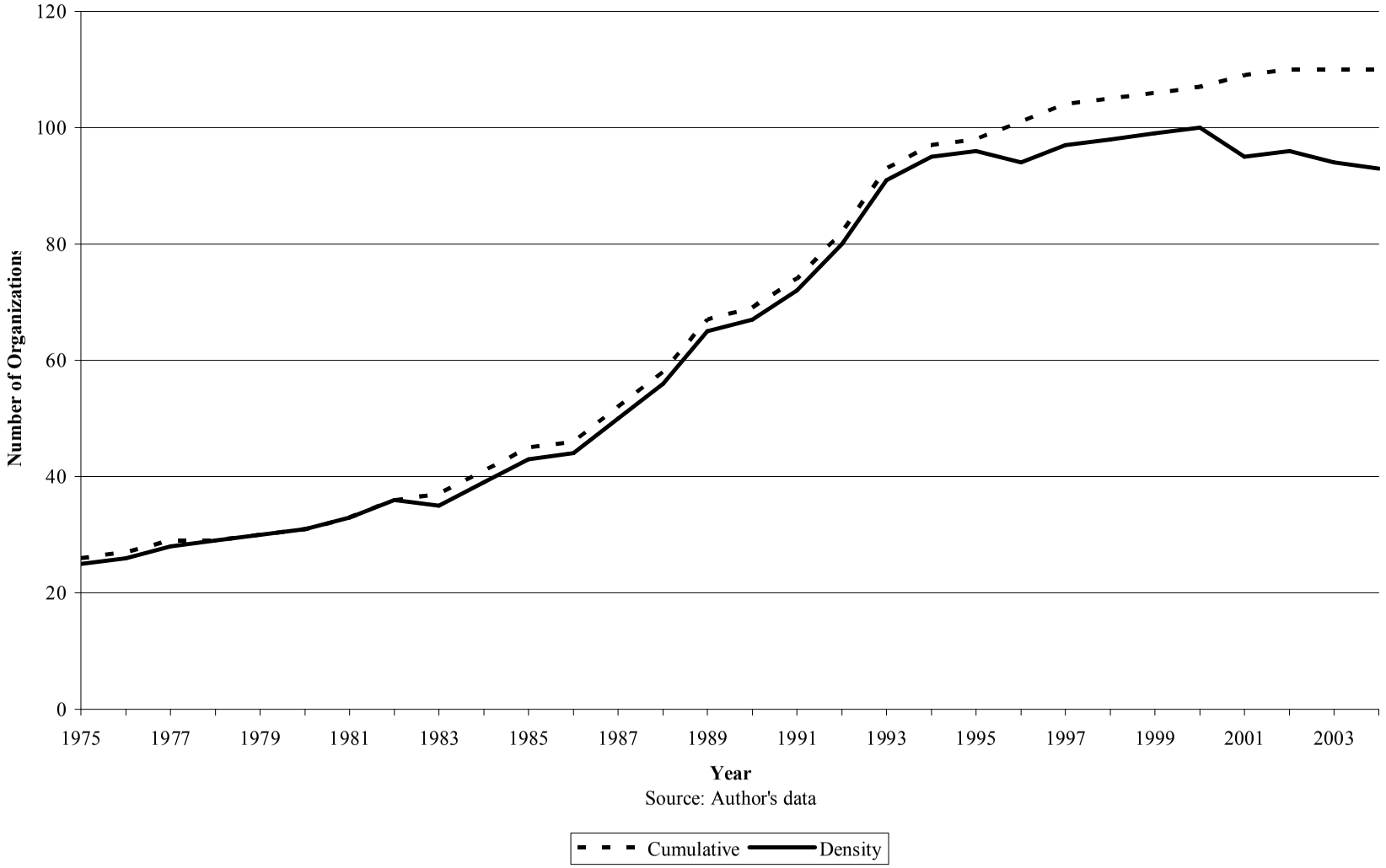
Characteristic	Percentage of Total (N =24)
Type of Organization	
Bilateral	0
Multilateral	4
NGO/Non-Profit	71
Other	25
Origin of Organization	
Domestic	71
International	17
Regional	13
Primary Mission	
HIV/AIDS	42
Reproductive Health	21
Family Planning	17
Population	13
Maternal Health	8

Table 4. Characteristics of Organizations Who "Died" between 1975 and 2004

Characteristic	Percentage of Total (N =25)	
Type of Organization		
Bilateral		0
Multilateral		0
NGO/Non-Profit		60
Other		40
Origin of Organization		
Domestic		72
International		16
Regional		8
Unknown		4
Primary Mission		
Development		24
Population		36
Women		4
Children/Youth		12
Health		4
Umbrella		8
Miscellaneous		12
	Mean	**Median**
Founding Date*	1988	1991
Last Year Observed	1998	1999
Death Date	1999	2000

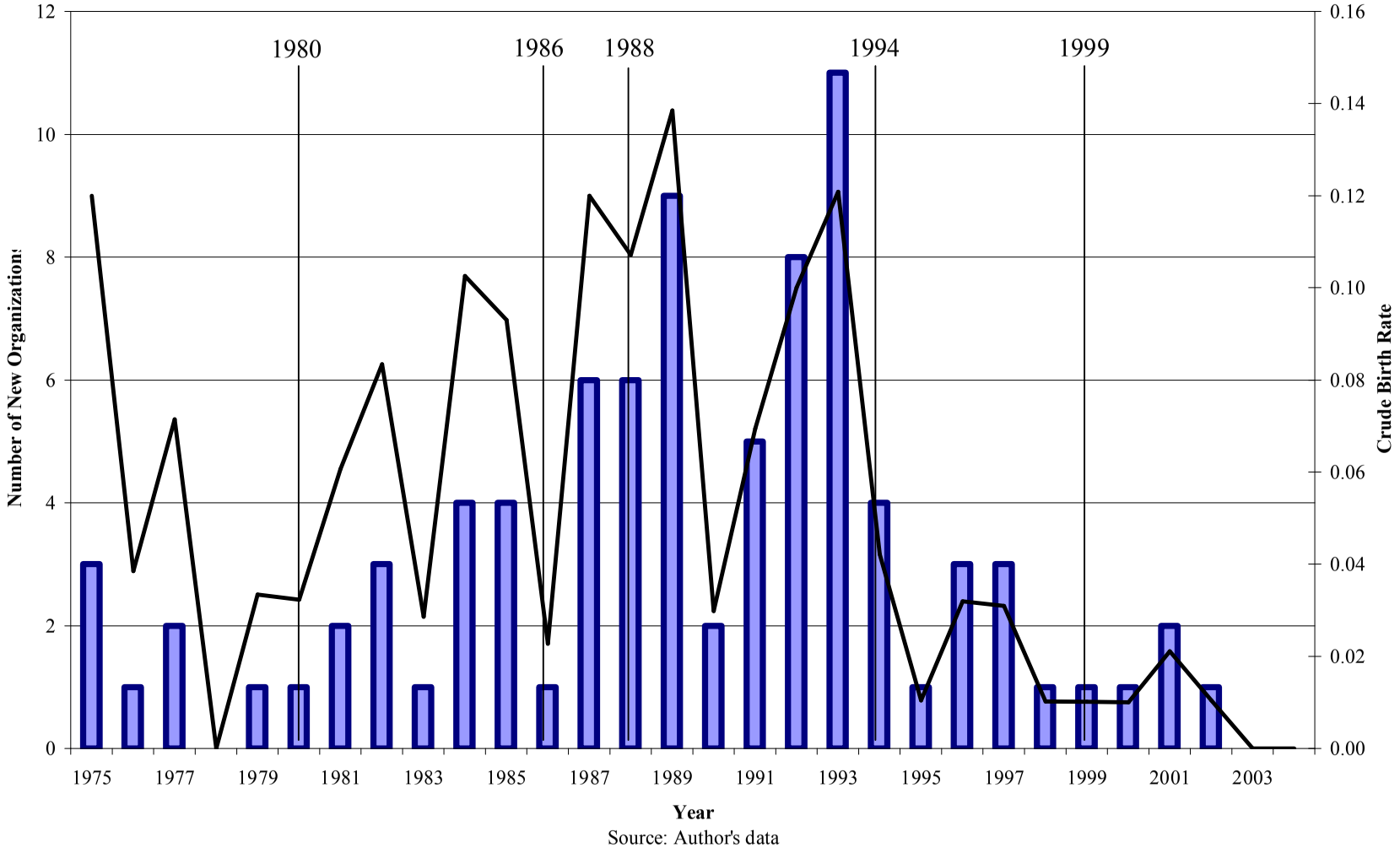
* Missing for three organizations

Figure 1. Cumulative Number of Organizations and Population Density, Senegal 1975-2004



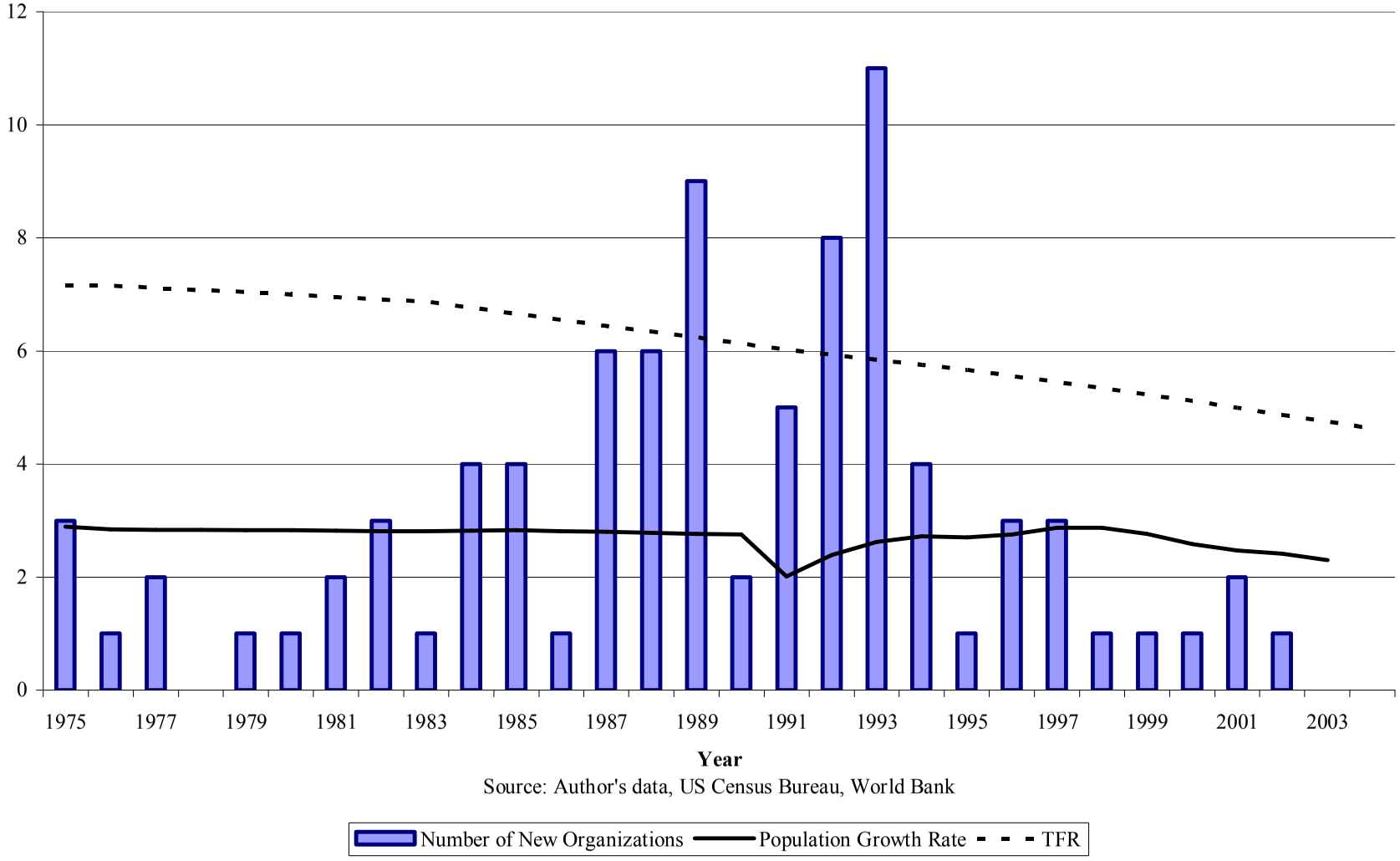
Source: Author's data

Figure 2. New Organizations Per Year, Count and Rate, Senegal 1975-2004



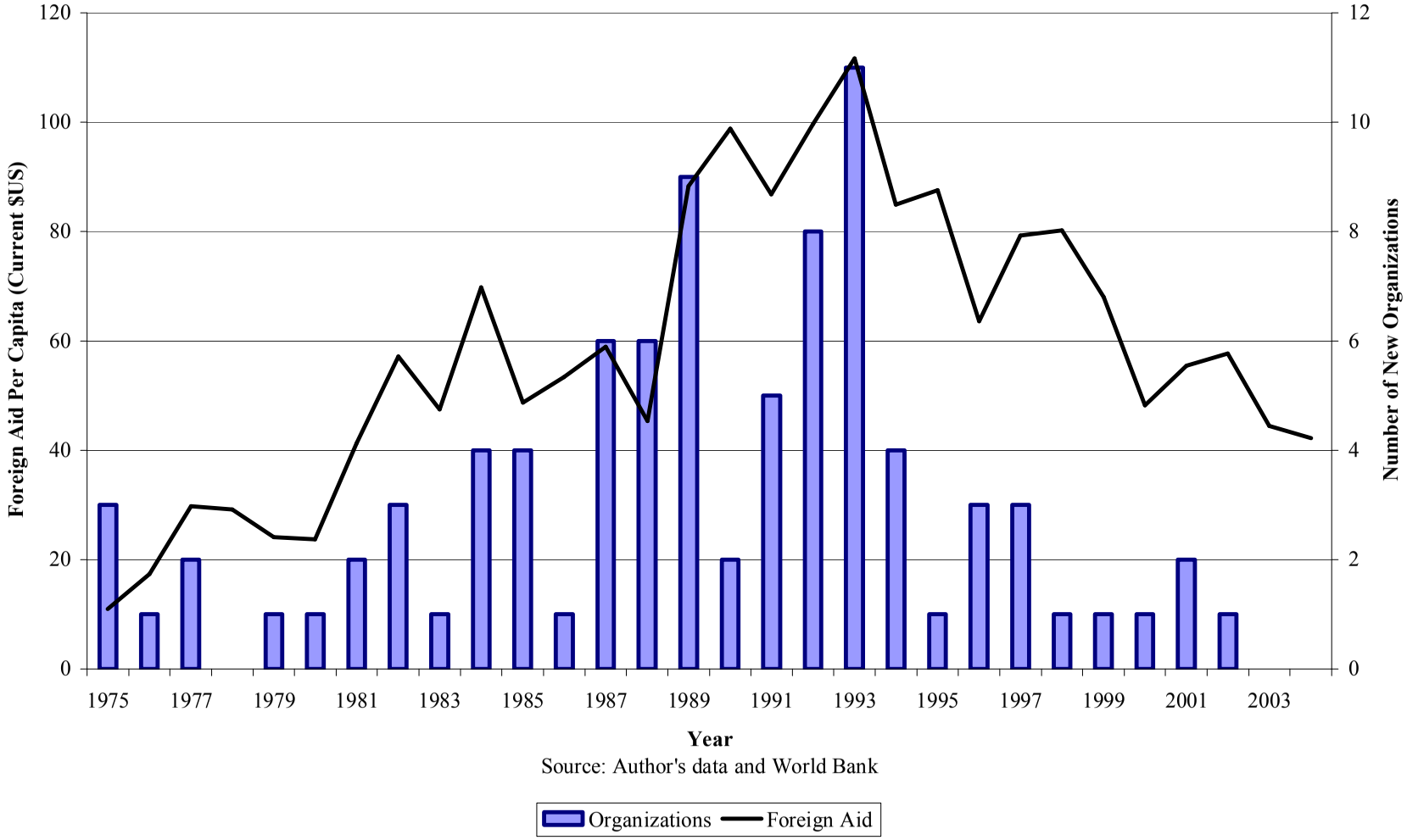
Source: Author's data

Figure 3. Comparison of Organizational Births to Demographic Variables, Senegal 1975-2004



Source: Author's data, US Census Bureau, World Bank

Figure 4. Comparison of Organizational Births and Foreign Aid Per Capita (Three-Year Lag), Senegal, 1975-2004



Source: Author's data and World Bank

Figure 5. Organizational Founding Dates, by Mission,
Organizations with Population as Primary Mission, Senegal 1975-2004

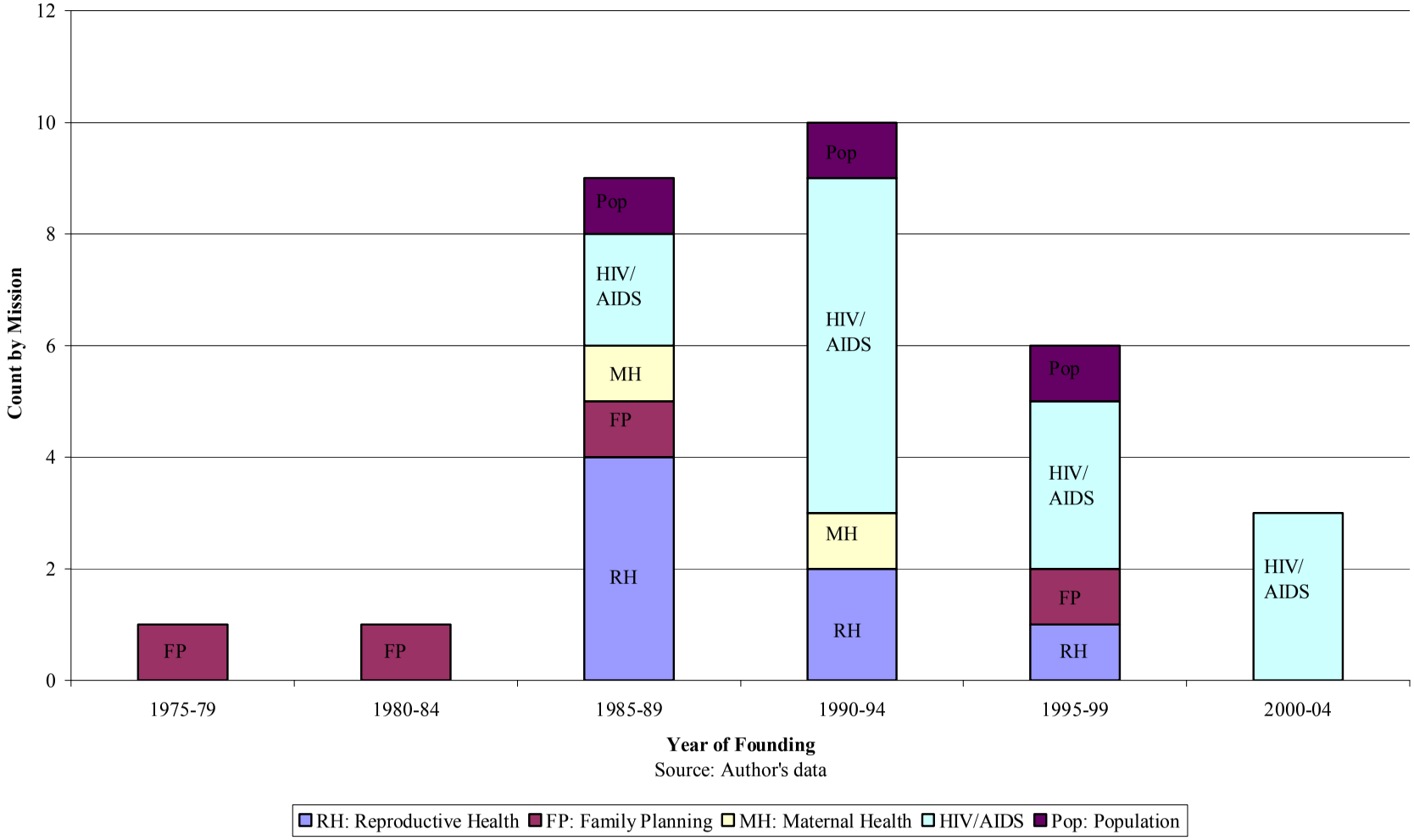


Figure 6. Density and Organizational Birth Rate, Senegal 1975-2004

Source: Author's data

APPENDIX A Organizations Interviewed in Dakar, Senegal July 2004

Organization	Brief Description
Agence pour le Développement du Marketing Social (ADEMAS)	ADEMAS is a USAID-funded social marketing NGO, most well-known for the PROTEC brand of condoms, but also for Securil oral contraceptives.
Agence pour la Promotion des Activités de Population-Sénégal (APAPS)	APAPS is a research NGO targeted towards topics related to population and reproductive health.
Association Sénégalaise pour le Bien-Etre Familial (ASBEF)	ASBEF provides reproductive health services and is the International Planned Parenthood Federation (IPPF) affiliate in Dakar.
Centre for Development and Population Activities (CEDPA)	CEDPA is a USAID-funded NGO that focuses on women's leadership as it relates to reproductive health via the BRIDGE project.
Centre de Formation et de Recherche en Santé de la Reproduction (CEFOREP)	CEFOREP is a research NGO, originally affiliated closely with the Population Council, that studies topics broadly related to reproductive health.
Division Santé de la Reproduction (DSR)	The DSR is the division of the Ministry of Health, Hygiene, and Prevention responsible for providing reproductive health care, including family planning.
Management Sciences for Health (MSH), Projet Santé Maternelle / Planification Familiale (SM/PF)	MSH is a USAID-funded NGO that helps the Senegalese government in a technical capacity regarding maternal health and family planning.
Réseau des Parlementaires pour la Population et le Développement (RPPD)	RPPD is a network of parliamentary deputies that works on legislative issues related to population.
United Nations Population Fund (UNFPA), Senegal	UNFPA is the UN division dealing with population issues.