The Impact of Population Policies, Non-Governmental Organizations, and HIV/AIDS Policies on Fertility and HIV Prevalence in Sub-Saharan Africa[1]

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Abstract This paper considers the impact of macro-level forces, including policies and organizations, on micro-level behaviors in sub-Saharan Africa. Policies, programs, and organizations shape the context in which people make decisions about sex and childbearing – decisions which then drive fertility and reproductive health outcomes, including HIV prevalence. I find evidence for two types of impacts of such institutional factors on individuals: 1) countries that adopted national population policies had greater declines in their total fertility rates between 1987 and 2002 than did countries that did not adopt such policies, and 2) countries that adopted national HIV/AIDS policies, and that had many HIV/AIDS non-governmental organizations (NGOs), experienced greater declines in HIV prevalence between 2001 and 2007. Other factors, such as wealth, degree of donor investment, and extent of international NGO involvement, do a relatively poor job of explaining differential resource availability.

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[1] Extended abstract for submission to Sessions 112 (1st choice) and 407 (2nd choice) of the 2009 PAA.

Introduction
This paper considers the impact of macro-level forces, such as policies and organizations, on micro-level behaviors in sub-Saharan Africa. Specifically, I start from the observation that countries are differentially resourced in terms of policies, programs, and organizations. These resources, whose different levels are themselves driven by a variety of factors ranging from donor preferences to internal capabilities, in turn shape the context in which people make decisions about sex and childbearing. These decisions then drive fertility and reproductive health outcomes, including HIV prevalence rates. Historically, papers at the PAA have done an excellent job examining the micro-level determinants of individual behaviors, but have tended to ignore the impact of macro level factors on aggregate measures of fertility and HIV prevalence. I aim to address this gap with an analysis of the relationship between these macro factors (such as population policies, reproductive health organizations, and HIV/AIDS policies) on aggregated, micro measures (such as total fertility rates and HIV prevalence rates).

I find evidence for such relationships between the macro and the micro: 1) countries that adopted national population policies designed to slow population growth, and that had a history of organizational action around population growth, had greater declines in their total fertility rates between 1987 and 2002 than did countries that did not adopt such policies and did not have such organizational histories, and 2) countries that adopted national HIV/AIDS policies, and that had a large numbers of non-governmental organizations (NGOs) doing work in the HIV/AIDS sector, experienced greater declines in HIV prevalence between 2001 and 2007.

Differential Resources
Not all countries in sub-Saharan Africa have population policies, HIV/AIDS policies, or many NGOs doing work in the population sector. Two thirds of sub-Saharan African countries have national population policies designed to slow population growth, and most of these policies have been adopted since 1988 (Sullivan 2007). The number of NGOs across countries varies greatly, and somewhat randomly. Indeed, Figure 1 shows that the number of NGOs per 1,000,000 population ranges from three (Sudan) to almost 850 (Cape Verde). Despite these variations, all but one country in sub-Saharan Africa (Somalia) has an affiliate organization of the International Planned Parenthood Federation (IPPF), founded between 1932 (South Africa) and 1999 (Somalia) (ibid.).

I measure a country's population-related resources in terms of the date of its population policy, and the date of the founding of its primary family planning NGO, which I identify as the IPPF affiliate. (See Sullivan 2007 for details.) I then divide countries into five groups based on these two pieces of information – the first group has the greatest resources (early policy and founding of IPFF affiliate), while the fifth group has the least amount of resources (late or no policy and late founding of IPPF affiliate). I use this measure because it captures the institutional response to population growth in an objective way, and because it exists for all countries (rather than only for some, as is the case with Ross and Stover's (2001) family planning program effort index).

In terms of resources in the HIV/AIDS sector[2], here countries are differentially resourced as well. Preliminary review of policies, documents from in-country, and donor agency reports

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[2] This area of the paper particularly requires further work. Specifically, I plan to develop a measure that systematically captures countries' myriad responses to HIV/AIDS (e.g., AIDS control programs, national AIDS commissions, and strategic plans). Again, the goal is to end up with a measure that exists for all sub-Saharan African countries, unlike the current AIDS program effort index (USAID et al. 2003).

suggests that only 12 countries in sub-Saharan Africa have such policies. In terms of HIV/AIDS NGOs, the United Nations 2003 NGO directory for sub-Saharan Africa shows great variation in the percentage of a country's overall NGOs made up by the HIV/AIDS sector, ranging from zero in some countries (Comoros, Central African Republic) to 80% in Burundi. In terms of the date of establishment of the first NGO working on HIV/AIDS (either in the form of services, intervention, or support), such NGOs were founded from 1987 to 2002.

Outcomes
The differential resources described above have an impact on changes in individual behaviors, specifically on declines in the total fertility rate (TFR) and in HIV prevalence. Table 1 gives the average percent decline in TFR between 1987 and 2002 based on a country's level of population-related resources. Those countries with fewer resources experienced lower declines in their TFR. There is no such systematic relationship between population resources and a variety of likely factors, including GDP per capita and degree of international intervention (measured both as level of donor expenditures for population assistance, and number of international NGOs per 100,000 population).[3] Similarly, the 32 countries with population policies experienced, on average, a 21% decline in fertility, while the 15 countries without policies experienced only a 14% decline in fertility.

Table 2 gives the average percent decline in HIV prevalence between 2001 and 2007 based on the founding date of a county's first HIV/AIDS NGO, and on the existence of an HIV/AIDS policy. The earlier the founding date of a country's first HIV/AIDS NGO, the greater the decline in HIV prevalence. Similarly, countries that have such an NGO experienced a 7.3% decline in HIV prevalence between 2001 and 2007, while countries without such an NGO experienced, on average, a 3% *increase* in HIV prevalence. In terms of HIV/AIDS policies, countries that have such a policy experienced an almost 12% decrease in HIV prevalence, while those without a policy experienced virtually no decrease.

Conclusion
Countries that adopted national population policies designed to slow population growth had greater declines in their total fertility rates than did countries that did not adopt such policies. Furthermore, countries with an older IPPF affiliate also experienced greater declines in their TFR. Similarly, countries that have adopted national HIV/AIDS policies, that have had non-governmental organizations (NGOs) doing work in the HIV/AIDS sector, and that have had such organizations for longer, experienced greater declines in their HIV prevalence rate between 2001 and 2007 than those without such resources. Although these conclusions are based on ecological comparisons, the lack of relationship between the degree of population resources as I have measured it and such factors as wealth, degree of donor investment, and extent of international NGO involvement, suggest that macro forces such as policies and organizations are indeed influencing the context in which individuals make decisions about sex and fertility.

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[3] Despite the lack of relationship, the possibility of similar variables influencing both policy adoption/organization formation and fertility decline will be explored via a multivariate analysis in the final paper.

Table 1. Comparison of Population Resources to Change in TFR & Other Variables

| Degree of Population Resources	Average			
	Change in TFR, '87-'02	*GDP/Capita, '95-'99*	*Donor Funds, '95-'99*	*INGOs/Capita, '95-'99*
1 (high)	-19.9 %	$258	$88	4.7
2	-20.8 %	$628	$84	5.6
3	-21.4 %	$858	$82	13.9
4	-17.9 %	$614	$140	10.7
5 (low)	-15.5 %	$1129	$89	11.0
Total	**-19.2 %**	**$682**	**$95**	**9.1**

Sources: Sullivan 2007; UNFPA 2004; World Bank 2008

Table 2. Comparison of HIV/AIDS Resources to Change in HIV Prevalence

Earliest HIV/AIDS NGO Founding Date	**Change in HIV Prevalence, '01-'07**
1985-89	-16.6 %
1990-94	-8.7 %
1995-99	+ 6.9 %
No NGO	+ 3.0 %
At least one NGO	-7.3 %
No HIV/AIDS policy	-0.14 %
HIV/AIDS policy	-11.8 %

Sources: UN 2003; UNAIDS 2008. Note: Table excludes outliers Mauritius and Senegal.

Figure 1. Distribution of Sub-Saharan African Countries, by Number of NGOs per 1,000,000 Population, 2003

Source: UN 2003
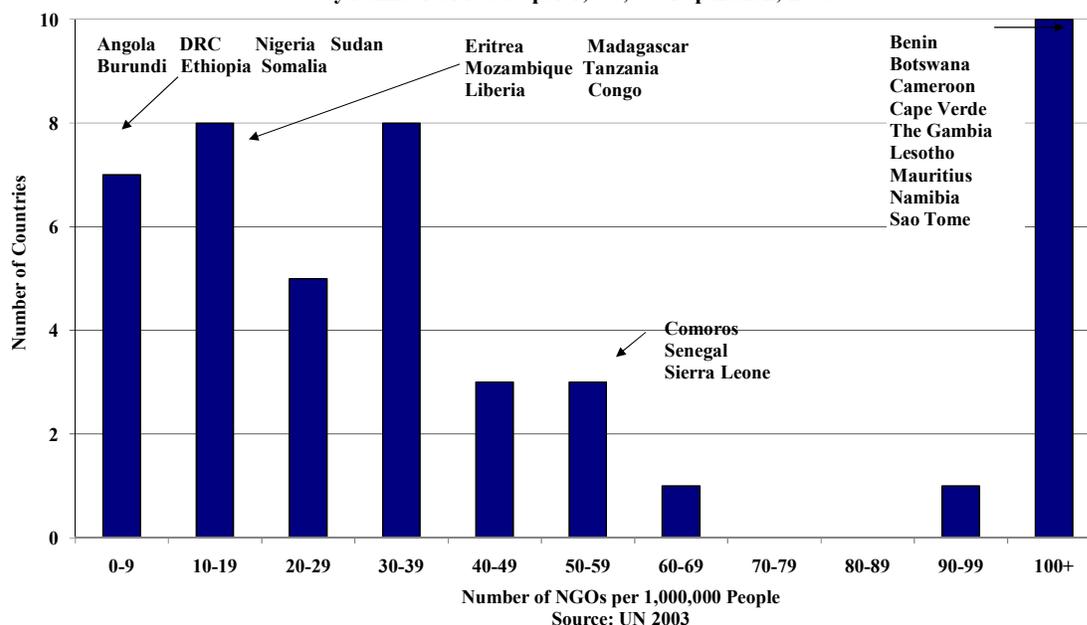
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