The Babel Effect: Community Linguistic Diversity and Extramarital Sex in Uganda

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Abstract

Objective: To examine the impact of community linguistic diversity on non-spousal sexual activity in Uganda.

Methods: A survey on HIV related attitudes and behavior was conducted in 1726 households in Uganda in early 2001. Households were selected at random from Demographic and Health Survey (DHS) 2000 household listings in 12 districts. Eligible respondents were men and women age 18-60. The DHS listings contained information on the principle language spoken in every household in the cluster.

Results: Rates of sexual activity in the last 12 months were 57% in unmarried men, 20% in unmarried women, Extramarital sexual activity in the last 12 months was reported by 22% of married men and 4% of married women. For the 54% of respondents who resided in a community where only one language was spoken the odds ratio of non spousal sex was 0.406 (95%CI: 0.218-0.739) for unmarried women and 0.475 (95%CI: 0.305-0.737) for married men. These results were robust to multivariate models which included confounders such as urbanity, and cluster distance to market places, cinemas, and transportation.

Conclusion: Multi-ethnic communities are known to have less capability of coordinating the provision of public goods (The Babel Effect). Our results suggest that the Babel effect also may impede the ability of multi-ethnic communities to enforce traditional sanctions against non-spousal sex.

Introduction

Campaigns in Uganda seek to prevent the sexual spread of HIV/AIDS with the slogan A,B,C. (A for Abstinence, B for Being faithful, and C for Condoms.) In Uganda, rates of abstinence, monogamous behavior and condom use have risen (Hogle 2002). Some credit a process of rational self-interest enabled by better information about HIV/AIDS due to media campaigns (Green 2003). It is also possible that selective mortality pressure due to HIV itself could play a small role. Encouraging monogamous behavior has emerged as a top priority at the national and international level.

Individuals who enter monogamous unions typically often prefer that their partner not engage in extramarital sexual relations. Simply being in a couple is not sufficiently protective against sexually transmitted diseases (STDs) and HIV. Either partner's extramarital relationship exposes the couple to sexually transmitted diseases and HIV, and opens the possibility for destructive romantic entanglements.   In a serosurvey of 4507 linked couples in Rakai, Uganda, 22% were found to contain a partner with HIV (Porter, Hao et al. 2004). In 10% the couple was concordantly positive, in 5% female only was positive, and in 7% the male only was positive(Porter, Hao et al. 2004). Besides each partner's jealous efforts to encourage mutual faithfulness, community members can and do assist in raising the stakes against those who pursue extramarital

unions Social sanctions against extramarital sexual relations range from acquiring a bad reputation to being killed.

Communities enforce standards of sexual conduct on their members with varying degrees of success. For people who have publicly expressed a desire to live in a monogamous union, the community's efforts complement individual endeavors to discourage a partner from engaging in extramarital sex. Indeed, a notable benefit of investing in a public wedding with a state-sanctioned marriage contract is to recruit the force of community sanctions to strengthen the union by recruiting the eyes and ears of the community to help monitor the behavior of a partner. The anonymity of modern urban societies could reduce the effectiveness of this traditional community process. Small towns in rural areas are notorious for the rapidity and reach of the gossip network.

This paper focuses on extramarital sexuality in Uganda, specifically on the role of community factors in enabling or discouraging this practice. Uganda is typified by communities populated by between one and a dozen ethnic groups—each speaking a different language. This great heterogeneity of communities makes Uganda an ideal setting for us to identify which type of community is associated with lower rates of extramarital sex.

Background

The story of the tower of Babel offers an early account of how language diversity can impede public cooperation (Genesis 11:1-5). Diversity of preferences based on ethnic, racial, religious, or cultural differences inhibit the development of consensus that is crucial for coordinating public activity that might benefit of all groups. Evidence from the U.S. suggests that people who live in diverse communities are more likely to support

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measures to benefit their own ethnic group (Cutler, Elmendorf et al. 1993). Further evidence of discriminatory preferences can be found in a study that showed that the negative correlation between the percent elderly in a community and funding for public schools was worsened when the population of children contained more ethnic minority members than the population of elderly (Poterba 1997).

Social epidemiologists have shown associations between markers of racial diversity and health although the mechanism remains unclear. Controlling for socioeconomic status, African Americas residing as numerical minorities in racially mixed communities in the U.S. experience worse infant mortality rates (Fang, Madhavan et al. 1998) and worse cardiovascular disease rates(Franzini and Spears 2003) than when they are numerically dominant. The authors are careful to note that the mechanism is unclear and may relate to social stress from residence in a minority community. They note that policies should emphasize the reduction of overall discrimination rather than promoting residential segregation (Franzoni and Spears 2003).

Data from Africa also suggest that diversity can impede cooperation. Cross country data indicate that language diversity has a negative correlation with economic development indicators such as paved roads, developed electricity grids, and telephone service (Easterly and Levine 1997). Household data from Ghana show that reciprocal financial support pacts discriminate along the lines of kinship which are carried vertically to subsequent generations (La Ferrara 2003)

There has been surprisingly little attention to the social and community factors that motivate some individuals to seek extramarital sexual relationships. Poverty is cited as a force driving the demand and supply of prostitution and AIDS(Basu 1998). Other

community characteristics are seldom explored. One recent exception is a study of the relationship between community physical and economic development and the prevalence of HIV in Rakai, Uganda (Patil 2003). There have not been prior studies of how ethnic diversity in a community may be associated with sexual risk taking.

Methods

A survey on HIV related attitudes and behavior was conducted in 1726 households in 12 districts in Uganda in early 2001. The districts surveyed range from East, North, West, and South and are shown in Figure 1. Kampala was the only urban area surveyed.   More details on the survey design are available elsewhere (Bishai, Pariyo et al. 2004). Households were selected at random from Demographic and Health Survey (DHS 2000) household listings in 12 districts. Using the DHS listings of households in each cluster we computed the number of different languages spoken and the total number of households in each DHS cluster. We randomly sampled 13 households from each district in the study. Eligible respondents were men and women age 18-60. Up to three eligible respondents were interviewed by trained interviewers matched by sex to their respondents. Interviews were carried out in a secluded location around the respondents household. Each respondent was asked, "In the past 12 months have you had sexual intercourse with a long term (boy/girl) friend or lover who is not your spouse?". In subsequent questions the term "long term (boy/girl) friend or lover" was replaced with "short-term (male/female) friend or a casual (male/female) friend". Men were also asked if they had had sex in the last 12 months with a sex worker. The survey was translated into Luganda, Runyankore-Rukiga, and Luo for use in the respective parts of the country. Back-translations were checked for accuracy. This study

was approved by Uganda National Council for Science and Technology and by the Johns Hopkins University Committee on Human Research.

After tabulating rates of self-reported non-marital sexual contact and self-reported condom use by number of languages spoken in a cluster, we ran multivariate logistic regression models to control for respondent education, wealth, and the total size of the DHS cluster.

Results

In 57 of the 121 clusters studied only one language was spoken by all of the households listed by the 2000 DHS sampling frame—this language was Luganda or Lusoga in 26 monolinguistic clusters. There were 1726 individuals eligible for the interview of whom 1709 agreed to report on their sexual behavior (Table 1). Of those who reported their sexual behaviors 498 were unmarried and 1211 were married at the time of the interview. Overall 32 % of unmarried respondents reported sexual activity (with a non-spouse) in the last 12 months, and 12% of married respondents reported sexual activity with a non-spouse.

Table 2 tabulates patterns of sexual activity of the unmarried respondents. It shows that 90/157 (57%) of unmarried men and 67/339 (20%) of unmarried women were sexually active in the last 12 months. For 3% of men sex workers were the only reported type of partner. The majority of unmarried sexually active men reported only having sex with long term partners (33%). Other unmarried men reported sex only with short term partners (20%) and combinations of long and/or short term partners and/or sex workers (1%). The median for sexually active unmarried men was 4 partners in the last 12

months which was robust to the exclusion of one man who reported 40 partners. Sexually active unmarried women were most likely to have long term partners only (15%) followed by 10% with both long and short term partners and 2% with short term partners only. Sexually active unmarried women reported a median of 3 partners in 12 months with a maximum of 5.

Table 3 shows the sexual behavior of married respondents. It shows that 115/529 (22%) married men and 30/682 (4%) married women reported sex with someone other than their spouse in the last 12 months. Long term extramarital partners were the most common type of extramarital partner reported by 13% of married men followed by 7.4% with both long and short term partners and 1.4% with only short term partners. Less than 1% of married men reported having sex with sex workers. The median number of extramarital partners for men who had extramarital relationships was 4 with a maximum of 20. Of the 30 married women who reported extramarital sex, 24 reported involvement with a long term partner.

The bottom row of Tables 2 and 3 shows the odds ratio reflecting the risk of non spousal sex associated with residence in a multilingual vs. monolingual community. Residence in a monolingual community lowers the risk of non-spousal sex, those these results appear to be statistically significant only for unmarried women and married men. Since the bivariate results in Tables 2 and 3 are not adjusted for the possible confounding with the effects of urban residence a multivariate analysis is presented in Table 4.

Table 4 shows the results of multivariate logistic models showing the odds ratio non-spousal sex. For unmarried persons the protective effect of monolingual communities was robust to the inclusion of confounders such as cluster size, urban

residence and the proportional representation of speakers of each of eight major languages in Uganda. The protective effect was statistically significant only for unmarried women and married men. Income and education had variable effects on the odds of extramarital sex, which only achieved significance in the largest sample pooling married men and women. Here income reduced the odds of non-marital sex, while education increased the odds. Cluster size which might indicate the number of potential partners and informants had no effect on the odds of non-spousal sex. Separate analysis (not-shown) repeated the regression for a sample of only rural residents and found the protective effects of monolingual clusters remained statistically robust and of similar magnitude for unmarried women and married men

Table 5 shows the results of similar models predicting the odds of condom use while having sex with a non-spouse. The sample is limited to only respondents engaging in non-spousal sex, lowering the power of the analysis. Education increases the odds of condom use among men, but not among married people. Older men having non-spousal sex were less likely to use condoms. Note that the regression includes both the number of children and the number of all household members. It is necessary to interpret both variables together to permit an interpretation where an increase in the number of children holding household size constant might reflect a higher proportion of the household who are children-not necessarily more children. Similarly a larger household size holding number of children fixed reflects a lower proportion of children. It would appear that residing in a relatively "youthful" household is associated with greater condom use among all women having non-spousal sex. Conversely residing in a more "mature"

household is associated with greater condom use among married individuals having extramarital sex.

Finally in tests of robustness we included a full set of all of the cluster level data on distances collected on the DHS cluster lists: distances to a primary and secondary school, post office, market, cinema, well, bus station, and urban area. This sensitivity analysis is shown in Tables 6 and 7. Few of these variables were significant in the multivariate specification, but number of languages remained a significant risk factor for non-marital sex among men despite the inclusion of these additional variables. The effect of number of languages on the risk of non-spousal sex for unmarried women was robust to the inclusion of all other cluster data except distance to an urban area, although it remained relatively unchanged by the inclusion of all other cluster distance measures.

Discussion and Conclusion

In conclusion we find a relatively robust association between residing in rural Ugandan communities where multiple languages are spoken and the odds of non-spousal sex for unmarried women and for married men. Overall

Because our data does not allow us to identify characteristics of the sexual partners of our respondent, we cannot be sure whether the typical illicit pair is a married man and an unmarried woman, although this is plausible. We hypothesize that communities with ethnic diversity have a weakened ability to enforce traditional Ugandan cultural proscriptions against non-spousal sex. This would build on prior findings which found that ethnically diverse communities have difficulty coordinating many other activities for the common good. In tribute to the author/s of the Book of

Genesis where this phenomenon was first noted we suggest calling this "The Babel Effect".

However, the absence of partner data makes it difficult to exclude an alternative hypothesis that individuals who live in multilingual communities are seduced into non-spousal sex by the allure of mysterious partners from a different background. This behavior would be consistent with the infamous "Coolidge Effect" in which the availability new or foreign partners stimulates greater interest in sexual activity (Francoeur, Perper et al. 1991). Whether a Babel Effect or Coolidge Effect is behind our results is less important than the practical importance of recognizing the heightened risk borne by linguistically diverse communities. Despite the richness of cultural life in these communities, past studies have found that they have difficulty building public works, and coordinating their civic activities. Our results suggest that HIV/AIDS prevention programs need to especially target these communities because they have heightened risk of non-spousal sexual behaviors that can spread this epidemic.

Table 1. Descriptive Data from Analytical Sample

	Total Sample (N=1726)	Married (N=1227)	Unmarried (N=499)
Percent who had sex with someone (other than a spouse)	16%	11%	28%
Only one language spoken in the cluster	54%	56%	49%
Urban	17%	14%	23%
Imputed Log Income	14.326 (1.188)	14.291 (1.106)	14.415 (1.369)
Education Level	2.197 (0.859)	2.135 (0.815)	2.372 (0.940)
Number of Children in Household	4.305 (2.562)	4.637 (2.482)	3.489 (2.575)
Age in Years	32.498 (10.641)	33.536 (10.090)	29.950 (11.507)
Total Number of Households in Cluster	199.004 (101.405)	199.923 (103.328)	196.767 (96.636)
Number of People in Household	5.794 (3.036)	6.088 (2.882)	5.072 (3.279)
Married	71%		
	Rural (N=1434)	Urban (N=292)	
Percent who had sex with someone (other than a spouse)	16%	18%	
Only one language spoken in the cluster	65%	0%	
Married	73%	60%	
Imputed Log Income	14.213 (1.153)	15.045 (1.155)	
Education Level	2.086 (0.796)	2.803 (0.924)	
Number of Children in Household	4.494 (2.539)	3.373 (2.469)	
Age in Years	32.986 (10.791)	30.090 (9.525)	
Total Number of Households in Cluster	194.332 (92.590)	221.671 (134.230)	
Number of People in Household	5.997 (3.013)	4.801 (2.958)	

Table 2. Sexual Behavior of Unmarried Respondents by Language Heterogeneity			
	Number of unmarried respondents having sex. Parentheses indicate percent of individuals in the groups defined by language heterogeneity		
	Both Sexes	Men	Women
More than one language spoken	94 (37%)	48 (60%)	46 (26%)
One language spoken in cluster	63 (26%)	42 (53%)	21 (13%)
Reported Sexual Contact Last 12 m.	157	90	67
Total Unmarried Persons	498	159	339
Odds Ratio by Language Heterogeneity (95% CI)	0.592 (0.396-0.885)**	0.757 (0.385-1.488)	0.406 (0.218-0.739)**

Table 3. Sexual Behavior of Married Respondents by Language Heterogeneity			
	Percent of married respondents having sex with someone other than a spouse. Parentheses indicate percent of individuals in the groups defined by language heterogeneity		
	Both Sexes	Men	Women
More than one language spoken	82 (15%)	67 (29%)	15 (5%)
One language spoken in cluster	63 (9%)	48 (16%)	15 (4%)
Reported Non-spousal Sex last 12m	145	115	30
Total Married Persons	1211	529	682
Odds Ratio by Language Heterogeneity (95% CI)	0.561 (0.389-0.808)**	0.475 (0.305-0.737)**	0.77 (0.347-1.737)

Table 4. Multivariate logistic regression presenting odds ratios of extramarital sex

	UnMarried Persons				Married Persons		
	Having Sex if Unmarried				Sex with Non Spouse if Married		
	Both Sexes	Males	Females		Both Sexes	Males	Females
Only One Language Cited in Cluster	0.619	0.536	0.454		0.483	0.391	0.725
	(-1.74)	(-0.95)	(-1.860)†		(-3.09)**	(-2.71)**	(-.63)
Imputed Log Income	1.136	0.95	1.008		0.711	0.844	0.65
	(1.08)	(-0.20)	(0.04)		(-2.79)**	(-1.00)	(-1.30)
Education Level°	0.999	1.164	0.78		1.536	1.08	1.132
	(-0.01)	(0.39)	(-1.32)		(2.95)**	(0.42)	(0.33)
Number of Children in Household	1.373	1.292	0.771		1.06	0.979	1.226
	(2.37)*	(0.83)	(-1.24)		(0.39)	(0.10)	(0.55)
Age in Years	0.954	0.939	0.969		0.997	0.947	0.969
	(-4.13)**	(-2.70)**	(-2.38)*		(0.34)	(-2.71)**	(-1.07)
Total Number of HH in Cluster	1	0.998	1.001		1	0.999	0.998
	(-.19)	(-0.64)	(0.32)		(-0.12)	(-0.56)	(-0.64)
Number of People in Household	0.715	0.816	1.078		0.902	1.1	0.661
	(-3.05)**	(-0.81)	(0.46)		(-0.78)	(0.55)	(-1.16)
Observations	435	137	298		1095	485	496
Robust z-statistics in parentheses							
* significant at 5%; ** significant at 1%							

Regression also included district dummies, proportion speaking each of 8 different languages, and urban dummy.
°Education level coded on a 0-4 scale. 0=none, 1=primary, 2=secondary, 3=vocational, 4=university.
† p=0.063

Table 5 Multivariate Determinants of Condom Use During Non Spousal Sex

	Reports Always Using Condom While Having Sex With Non-Spouse			
	All	Married	Male	Female
Only One Language Cited in Cluster	0.591	0.635	0.506	1.155
	(-1.44)	(-0.88)	(-1.45)	(0.15)
Imputed Log Income	1.208	1.887	1.198	0.978
	(1.63)	(1.93)	(1.02)	(0.05)
Education Level	1.432	0.989	1.46	1.363
	(2.29)*	(-0.03)	(1.83)†	(0.63)
Number of Children in Household	0.969	0.281	0.891	3.723
	(-0.16)	(-2.43)*	(-0.40)	(2.32)*
Age in Years	0.968	0.919	0.939	1.021
	(-1.85)	(-2.46)*	(-2.59)**	(0.45)
Total Number of HH in Cluster	0.997	0.999	0.997	0.995
	(-1.68)	(-0.58)	(-1.63)	(-1.28)
Number of People in Household	0.961	3.237	1.072	0.286
	(-0.25)	(2.62)**	(0.29)	(-2.43)*
Married	1.547		2.335	0.347
	(1.42)		(1.83)	(-1.23)
Male	2.192	3.753		
	(2.33)*	(2.10)*		
Observations	264	128	180	80
Robust z-statistics in parentheses				
* significant at 5%; ** significant at 1%				

Additional covariates include District Dummies, and Measures of Proportion in Each District speaking Ateso, Lugbara/Lusoga, Luo, Runyankore-Rukiga, Runyoro, English
   † P=0.067

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Table 6. Multivariate Determinants of Extramarital Sex Among Married Men—Sensitivity of Results to Other Cluster Level Variables

	Odds Ratios of Sexual Activity by Married Men				
Only One Language Cited in Cluster	0.388	0.368	0.355	0.347	0.407
	(-2.76)***	(-2.74)***	(-2.87)***	(3.04)***	(2.35)**
Dist to Primary School in Km	1.019	1.05	1.048	1.044	1.037
	(0.37)	(0.82)	(0.79)	(0.81)	(0.64)
Dist to Secondary School in Km	0.984	0.972	0.961	0.971	0.983
	(-1.04)	(-1.59)	(-2.26)**	(-1.69)*	(1.05)
Dist to Post Office in Km		1.013	1.008	1.02	1.018
		(1.13)	(0.67)	(1.07)	(0.97)
Dist to Cinema in Km		0.998	1.002	0.999	0.99
		(-0.19)	(0.17)	(-0.05)	(-0.82)
Dist to Well in Km			0.979	1.008	1.01
			(-0.61)	(0.24)	(0.32)
Dist to Trad Healer in Km			1.01	1.036	1.02
			(0.26)	(0.68)	(0.45)
Dist to Bank in Km				0.991	1.003
				(-0.55)	(0.20)
Dist to Public Transport in Km				0.909	0.914
				(-1.60)	(-1.58)
Dist to Market in Km				1	0.991
				(0.01)	(-0.37)
Dist to Urban Ct.					0.999
					(-0.19)
Imputed Log Income	0.835	0.78	0.755	0.743	0.776
	(-1.05)	(-1.44)	(-1.63)	(-1.70)*	(-1.00)
Education Level	1.073	1.074	1.129	1.116	1.113
	(0.38)	(0.38)	(0.65)	(0.58)	(0.41)
Number of Children in Household	1.08	1.072	1.067	1.071	1.067
	(1.48)	(1.31)	(1.22)	(1.26)	(0.99)
Age in Years	0.947	0.945	0.945	0.943	0.943
	(-2.75)***	(-2.71)***	(-2.65)***	(-2.61)***	(-2.38)**
Total Number of HH in Cluster	0.999	0.999	0.999	0.999	0.999
	(-0.63)	(-0.59)	(-0.74)	(-0.67)	(-1.19)
Number of People in Household	0.032	0.032	1.955	0.175	0.498
	(-0.40)	(-0.39)	(0.07)	(-0.18)	(-0.06)
Observations	481	472	461	461	398

*p<0.10   ** p<0.05   ***p<0.01

Table 7. Multivariate Determinants of Sexual Activity Among Unmarried Women—Sensitivity of Results to Other Cluster Level Variables

	Odds Ratios of Sexual Activity by Unmarried Women				
Only One Language Cited in Cluster	0.456	0.418	0.366	0.42	0.879
	(-1.89)*	(-1.93)*	(-2.02)**	(-2.11)**	(-0.18)
Dist to Primary School in Km	1.012	0.988	0.98	0.98	0.922
	(0.07)	(-0.07)	(-0.16)	(-0.18)	(-0.98)
Dist to Secondary School in Km	0.981	1.004	1	1.062	1.117
	(-0.39)	(0.09)	(0.01)	(1.77)*	(3.41)***
Dist to Post Office in Km		0.982	0.982	0.996	1.024
		(-1.28)	(-0.91)	(-0.18)	(0.87)
Dist to Cinema in Km		0.985	0.991	0.981	0.959
		(-0.88)	(-0.41)	(-0.99)	(-1.74)*
Dist to Well in Km			0.958	0.983	0.989
			(-0.77)	(-0.33)	(-0.22)
Dist to Trad Healer in Km			1.142	1.231	1.268
			(1.57)	(1.91)*	(2.84)***
Dist to Bank in Km				1.005	0.989
				(0.34)	(-0.40)
Dist to Public Transport in Km				0.957	0.932
				(-0.51)	(-0.83)
Dist to Market in Km				0.862	0.877
				(-1.56)	(-1.84)*
Dist to Urban Ct.					0.992
					(-0.29)
Imputed Log Income	1.042	1.011	1.047	1.054	0.813
	(0.22)	(0.06)	(0.25)	(-0.29)	(-0.88)
Education Level	0.768	0.781	0.784	0.733	0.663
	(-1.39)	(-1.32)	(-1.24)	(1.50)	(-1.44)
Number of Children in Household	0.888	0.897	0.908	0.914	0.962
	(-1.77)*	(-1.67)*	(-1.49)	(-1.40)	(-0.46)
Age in Years	0.97	0.974	0.972	0.968	0.972
	(-2.26)**	(-2.02)**	(-2.11)**	(-2.34)**	(-1.54)
Total Number of HH in Cluster	1	1	1	1	1.002
	(0.12)	(0.21)	(0.18)	(0.10)	(0.81)
Number of People in Household	0.002	0.002	0.001	0.002	0
	(-0.82)	(-0.81)	(-0.72)	(-0.62)	(-1.45)
Observations	292	289	278	278	225

*p<0.10   ** p<0.05   ***p<0.01
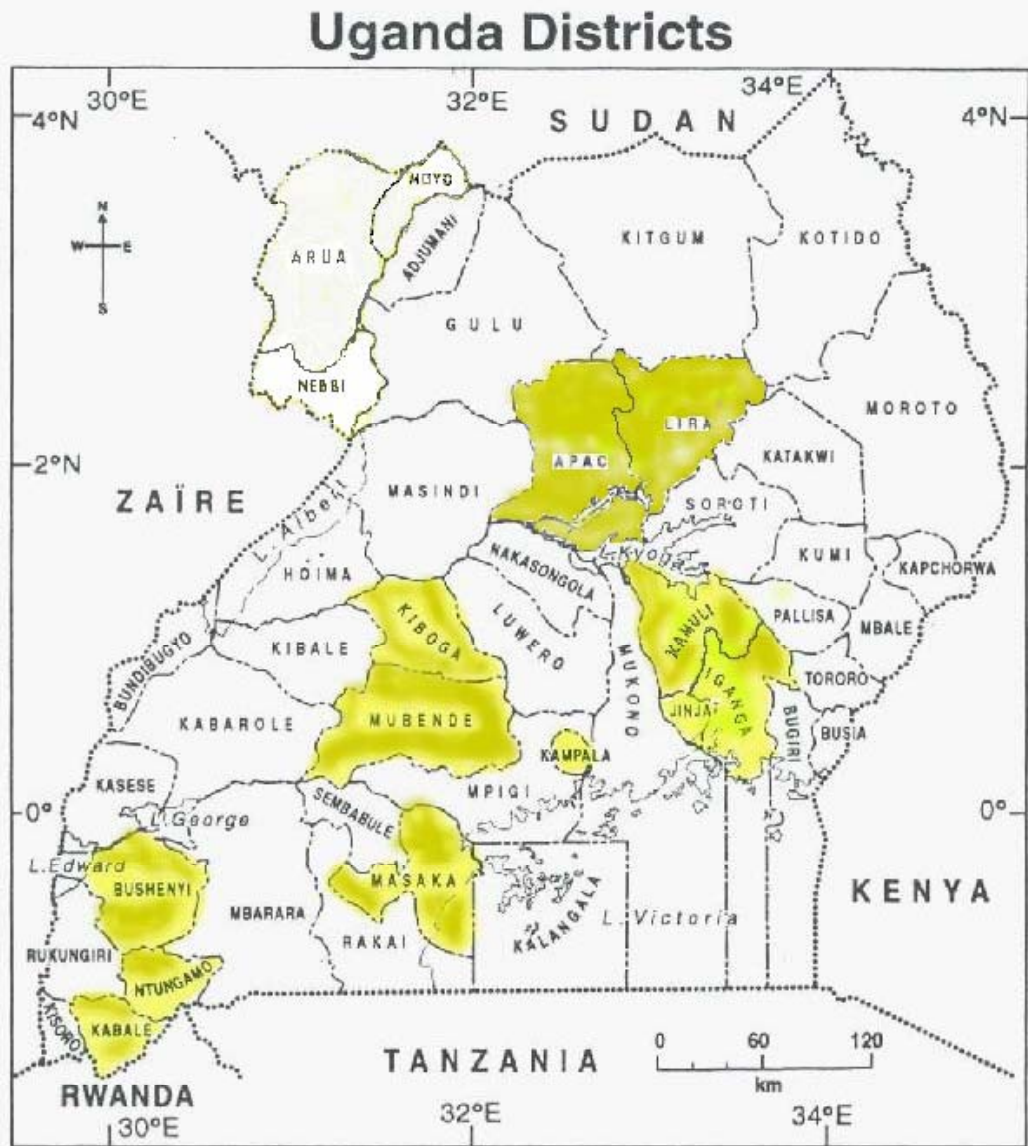
Figure 1. Districts surveyed in the study. ‡

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