APPENDIX A

SAMPLE DESIGN

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The NRO sample was designed to provide estimates for women and men in Lira and Masaka separately. It was also designed to allow estimation for urban and rural areas within each district.

A.1 Sample Eligibility

In order to complete a full interview, a woman had to pass three eligibility criteria. She had to be a regular resident of the household. She had to be between age 20 and age 44 in completed years. Finally, those women meeting the age and residence criteria were asked a series of introductory questions about marital status. Within the accepted age range, women who reported themselves to be "married" were automatically considered eligible to complete the full questionnaire. Unmarried women were asked to complete the full questionnaire only if they reported being in a conjugal relationship lasting six months or more. The rationale for the six-month cutoff was that nonmarital, short-term relationships would be less likely to involve negotiations about long-term issues of family formation, family planning, and so forth. Teenagers were excluded on the same grounds; even in a young-marrying population, it was thought that the sample would yield a sizeable proportion of short-term, uncommitted relationships.

A different set of eligibility criteria were set for men. They were required to be partners of eligible women, either formally married or living with a woman. No age criteria were set. Residence criteria depended on marital status. Any married or unmarried partner living in the same household with an eligible woman was considered eligible to answer the male questionnaire. Husbands living in a different residence were still considered eligible, and interviews were attempted if the husband could be located within a reasonable distance of the survey area. If the woman was not married and her partner lived elsewhere, however, he was ruled ineligible (to protect the confidentiality of both partners), and no attempt was made to trace him. Men with multiple wives living in the same household and meeting the other eligibility criteria were administered separate questionnaires for each wife. In general, locating males for interview, whether they were resident or not, proved to be the most difficult and time-consuming part of the fieldwork, requiring multiple visits and visits at irregular times in the early morning or late evening.

A.2 Sample Design

The sample was selected in two stages. At the first stage, census enumeration areas (EAs) were selected systematically with probability proportional to size in the 1991 census. In order to take advantage of the household listings assembled for the recent Uganda DHS, all of the DHS EAs in each district were included. The selection proceeded as follows: if 5 EAs were selected in a district for the DHS survey with a selection interval I and the NRO sample required the selection of 10 EAs, then the NRO sample was selected by reducing the interval by half (i.e., I/2) and maintaining the first random selection as in the DHS sample. At the second stage, households were selected systematically within each EA.

A random stratified sample of 40 enumeration areas was selected from each district. Due to the tendency of Masaka EAs to be larger than Lira EAs, a higher proportion of the total sample was expected from Masaka compared with Lira. In order to obtain adequate representation of urban areas, urban areas were oversampled. In Masaka district, with a population that was 10 percent urban at the time of the 1991 census, 20 EAs—or half of the sample—were drawn from urban areas.

Urban areas in Lira also were oversampled. With 5 percent of the population categorized as urban at the time of the 1991 census, 16 out of the total 40 EAs in Lira were selected as urban. The selection procedure in Lira was altered to adjust for varying definitions of "urban" in Uganda. The Department of Statistics in Uganda defines urban in one of two ways. The first is based on a set of objective demographic criteria taken during every decennial census; these include a population of over 10,000 people, access to roads, water supplies, schools, and related "urban" amenities. The presence of such amenities is determined prior to each census during the mapping of enumeration areas. The second way to achieve urban status is for an area legally to register itself as a city or town. At the time of the 1991 census, many northern districts, including Lira, were never mapped due to local political instability. In the absence of mapping to establish demographic criteria for urban status, Lira town is the only officially recognized urban area in Lira district; its status is based on legal registration. Because Masaka was mapped prior to the 1991 census, the two districts have asymmetric definitions of urban areas.

To improve the comparability of the definitions of "urban" between the two districts and to avoid oversaturation of the one official urban site in Lira, a secondary set of potential urban sites was chosen. A list of the 12 largest trading centers outside Lira town was compiled using the 1981 census records. Six of these were selected at random and included in a kind of second tier, "small urban" sample. The remaining 10 urban EAs were drawn from Lira town.

A.3 Sample Implementation

Due to financial constraints which made it impossible to implement a total or partial household listing in the selected sectors for the NRO survey, it was necessary to use the most recent household listing materials available. For the 23 censal sectors selected in the 1995 Uganda DHS survey, it was decided to use the 1995 household listing material for final household selection. For the additional 57 sectors, use of the household listing material from the 1991 census was planned. When this information proved to be unavailable, alternative methods were devised as described below.

Based on the 1991 census information, a simple sampling fraction of one in three households was planned. When fieldwork began, however, the population of some areas was found to be much larger than census estimates predicted. This was particularly true in urban areas of Masaka which have experienced significant in-migration in recent years. Consequently, a different strategy for sample fractions was used in Masaka than in Lira, both of which are discussed below. Once the sampling fraction was determined, the method of selection of households was identical in both areas. Households could be selected using one of the following three methods.

1. For EAs that had been enumerated by the DHS survey earlier in the year, the DHS listings were used. The Department of Statistics provided copies of area maps, sketch diagrams showing the relative location of numbered structures, and corresponding lists of household names and locations within numbered structures. Since the DHS enumeration was relatively recent, a one-in-three sample was taken for DHS EAs in both Masaka and Lira districts. A systematic random sample was taken by randomly selecting the starting point on the household listing and interviewing every third household afterwards. Households that had been interviewed by the DHS survey were skipped to avoid overlap with the DHS sample. If the systematic count fell on a DHS household, the next household was selected in turn, returning to the original count for the following household.

2. For EAs that were not included in the DHS, a systematic random sample was taken from a list of households kept by local political authorities. Census enumeration areas are typically organized to correspond to one or more political jurisdictions known as RC1 areas. Each

RC1 area has an elected RC1 chairman, among whose responsibilities is to keep an updated list of current residents of the area. RC1 chairmen were contacted in advance to prepare updated lists if one did not exist already. A systematic random sample was taken using the appropriate sampling fraction. Occasionally, an EA would contain more than one RC1 area, in which case the process was repeated for each RC1 area.

3. If RC1 lists could not be obtained, an approximate mapping method was adopted. The Census Statistical Office provided sketch maps showing the boundaries for each EA. On arrival, the supervisor of the interview team contacted the concerned RC1 officials and walked the perimeter of the EA. With the maps available for each EA, the team supervisor would estimate with the RC1 official how to divide the households in the area into roughly equal thirds. A random procedure was then used to select one of the thirds, and all households within were enumerated. In some cases, supervisors walked through the area and counted the total number of households in order to make a more exact division into thirds. This was the sampling method of last resort and was used only if a list could not be obtained.

A.4 Sampling Fractions

In Lira district, population growth was found to be within expected ranges since the 1991 census, and the sampling fraction was held constant at one in three households for all EAs. In Masaka, it was decided to tailor the sampling fraction in each EA in order to reach the number of households projected from the census and DHS enumerations. Since the DHS survey occurred only months before the NRO survey was fielded, the normal one-in-three fraction was applied in DHS EAs. For nonDHS EAs, the actual number of current residents was determined from the RC1 lists. If the 1991 census showed EA size at 300 households, the one-in-three NRO sample was expected to be 100. If the actual number of households was found to be 600 at the time of the survey, then the sample fraction would be reduced to one-in-six, in order to attain the expected 100 final respondents. Thus, the sample fraction was adjusted to meet survey targets and avoid yielding a significantly larger sample than the project could afford. Sample weights were appropriately adjusted to take account of differential probability of selection.