

## Supplemental Online Appendix

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## I. Original Sinhala and Tamil Versions of the List Experiment

### A) Sinhala Version of the List Experiment

<b>[ශ්‍රව අත්දැකීම්: ලිංගික අතවරයන්]</b>
J7. [සමීක්ෂක: ප්‍රතිචාරකයා ට මෙම ප්‍රකාශයන් පෙන්වන්න.] පහත සඳහන් ප්‍රකාශයන් අතරින් යුද්ධය අතරතුරදී ඔබට සිදුවුණු ප්‍රකාශයන් පවසන්න. කරුණාකර ඔබ සත්‍ය යැයි විශ්වාස කරන ප්‍රකාශයන් ඉදිරිපත් නොකරන්න. ප්‍රමාණය පමණක් පවසන්න.
a. මම ලෝකරැයිසක් හෝ තරඟ මුදලක් දින්නෙමි.
b. මම අනතුරකට මැදි වීමි.
c. ආගන්තුකයෙකුගෙන් උපකාරයක් ලදිමි.
d. මම ලිංගික අතවරයන්ට ලක් වුනෙමි.
ප්‍රමාණය: _____

### B) Tamil Version of the List Experiment

<b>[யுத்த அனுபவம் : எதிர்பாரத பாலியல் செயற்பாடுகள்]</b>
J7. [பேட்டி காண்பவர் : விடையளிப்பவர் வெளிப்படுத்துகின்ற வெளிப்பாடுகளை அவதானிக்க வேண்டும்.] யுத்த காலங்களில் கீழே தரப்படுகின்ற விடயங்கள் எத்தனை தடவை இடம் பெற்றுள்ளது என்பதனை குறிப்பிடவும். குறிப்பாக அல்லது சிறப்பாக உண்மையான விடயங்களை குறிப்பிடத் தேவையில்லை.
a. நான் லொத்தர் சீட்டிலுப்பில் / போட்டியில் வென்றேன்.
b. நான் ஒரு விபத்தில் சிக்கினேன்.
c. முன் பின் தெரியாத ஒருவரிடம் உதவி பெற்றேன்.
d. நான் தனிப்பட்டரீதியில் பாலியல் வன்புணர்விற்கு உட்படுத்தப்பட்டிருந்தேன்
எண்ணிக்கை: _____

Figure A1: Original wording of list experiment in the Sinhala and Tamil languages.

## 2. Randomization, Sample Balance and Test of No Design Effect

We used two versions of the questionnaire that the interviewers randomly assigned to the respondents. Treatment and control groups are well balanced in terms of observable characteristics, suggesting that the randomization process worked well and that any differences left are indeed attributable to the sensitive item (see table A1).

**Table A1: Balance Statistics**

	Treatment Group	Control Group	Difference	p-value
Tamil	.389	.396	-.007	.77
Female	.589	.589	.000	1
Age	42.7	42.5	.2	.73
Education	2.8	2.8	-.004	.95
Northern Province	.200	.200	.000	1
Eastern Province	.120	.120	.000	1
Displaced	.294	.290	.004	.84
Member of Army or Military Group	.069	.063	.006	.64
Assisted Army or Military Group	.052	.039	.013	.18
N	900	900		

Note: p-values from two-sided t-tests.

In addition to randomization, the analysis of list experiments rests on two additional assumptions (Blair and Imai 2012). *First*, we have to assume that the presence of the sensitive item does not affect the answers to the remaining control items. A test of this *no design effect assumption* fails to reject the null with a Bonferroni-corrected p-value of 1 and thus supports the assumption (see table A2). *Second*, we have to assume that our participants respond truthfully to the sensitive item. While we cannot directly test this *no liars assumption*, we report the robustness of our results to potential violations further below.

**Table A2: Estimated Response Types and Test for Design Effects**

$y$ value	$\hat{\pi}_{y0}$	$\hat{\pi}_{y1}$
0	66.2 (1.6)	8.4 (2.1)
1	17.4 (1.7)	3.3 (1.1)
2	2.9 (0.8)	0.9 (0.5)
3	0.0 (0.4)	0.8 (0.3)
Total	86.5	13.4

$H_0$ : No design effect

Bonferroni-corrected  $p$ -value = 1

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Note: standard errors in parentheses.

### 3. Detailed Description of Data Collection and Field Work

#### *Questionnaire Construction*

The standardized questionnaire was constructed in close cooperation with local senior researchers who provided us with the necessary social, cultural and political background and advised us in adapting question wording to the specificities of the Sri Lankan context. Survey questions were originally formulated in English and then translated into Sinhala and Tamil with re-translations as a quality check. To be able to implement the experimental logic of treatment and control group, we used two versions of the questionnaire: one version included all items in the list experiment including the sensitive item, the other version only included the control items. An equal number of both questionnaire versions was printed on paper and randomly assigned to respondents.

#### *Pre-Test*

Prior to the actual fieldwork, a pilot survey was carried out and 26 pre-test interviews collected. In these 26 pre-test interviews 14 respondents were male and 12 female. Age ranged from 24 to 63 with a mean of 42.6 years. 16 respondents were Tamil, 6 Sinhalese, and 4 Moor. The pilot was carried out in 9 different districts (Colombo 4, Galle 3, Anuradhapura 5, Hambanthota 3, Nuwaraeliya 5, Batticaloa 3, Vavuniya, Mullaitivu, and Killinochchi 1 each). These pre-test interviews were not formally analyzed but general experiences and feedback from the pilot survey were taken into consideration for the final questionnaire. Another workshop was held in the beginning of February 2016 with the Tamil research assistants of the Northern and Eastern Provinces to discuss issues and difficulties they faced in collecting data. A similar workshop was held for the Sinhala enumerators. Major concerns were the interview duration and the sensitive nature of some of the questions on war experiences. The questionnaire was revised accordingly.

#### *Survey Administration, Sampling Procedure and Non-Response*

The survey was administered through face-to-face interviews in both the Sinhala and Tamil languages and across all 25 districts of Sri Lanka, including the Tamil dominated Northern province

as well as the ethnically mixed Eastern province which lay “at the heart of the post-independence conflict” (International Crisis Group Asia 2008: i). A total of 30 graduate research assistants consisting of both males and females, Tamil and Sinhala, carried out the interviews. They were given extensive instructions in a training workshop held for the research assistants and field coordinators in beginning of January, 2016. The workshop focused on interviewing techniques, research ethics, sample selection, and the selected *Grama Niladhari* (GN) divisions (the lowest administrative units).

The actual fieldwork in Tamil dominated regions was conducted by Tamil enumerators, started in February 2016 and was completed in May 2016. Fieldwork in Sinhala regions was carried out by Sinhala research assistants, also started in February 2016 and was completed in July 2016. A group of field coordinators were deployed to supervise the data collection process during and after the fieldwork, including spot-checks to ensure sampled households had indeed been visited. In addition, local senior researchers and one of the authors visited the field sites during the fieldwork period in order to ensure the quality of the data collection.

Respondents were sampled using multi-stage stratified random sample with oversampling of Tamils to guarantee reliable estimates for this important ethnic minority group in the context of the Sri Lankan conflict. In each of the 25 districts we randomly sampled three lower level administrative units, the GN divisions. From these we again randomly selected 24 households based on the updated voter registry of the Election Commissioner Department of Sri Lanka. Within the household the household member with the last birthday and at least 18 years old was interviewed. If the relevant respondent was not present on that particular day, another day was selected to return to the particular household and complete the interview. If the members of a selected household refused to participate in the study, the household was replaced by a new one using the same sampling procedure. But somewhat surprisingly, non-response seemed not to be an issue at all. According to our field coordinators the response rate was an incredible 99 percent. Even after our repeated inquiry they insisted that only very rarely did a selected target person refuse

to participate in the survey. We have no reason not to believe our coordinators, who were well-trained academics and already had ample field-experience in the Sri Lankan context. One possible explanation for the high response rate is that the survey had certain official air to it (since it was conducted by a members of university) that may have encouraged respondents to participate. The final data set contains N=1800 valid interviews.

#### *Research Ethics and Participant Compensation*

The respondents were thoroughly briefed before the interviews. This included the objectives of the research study and research ethics (voluntary participation as well as confidentiality and privacy of information). Informed consent was obtained from each respondent prior to conducting the interview. Interviews took between 45 minutes to one hour. At the end of the interview, respondents were given a list with the contact details of psychologists and doctors in nearby hospitals, in case they required assistance. Respondents also received an umbrella as a gift of appreciation for their participation.

#### 4. Description of Variable Wording and Coding

**Table A3: Variable wording and coding**

Variable	Wording and Coding
Ethnicity	<p>“What language do you speak most often at home?”</p> <p>Dummy Coding: Sinhalese 0/1 Tamil 0/1 Moor 0/1</p>
Displaced	<p>“Did you or any members of your household have to move as a result of the conflict?”</p> <p>No 0 Yes 1</p>
Member of military group	<p>“Did you join the Sri Lankan army or other military groups during the war?”</p> <p>No 0 Yes 1</p>
Assisted military group	<p>“Did you assist the Sri Lankan army or other military groups during the war?”</p> <p>No 0 Yes 1</p>
Gender	<p>“[Interviewer: Please indicate the sex of the respondent]”</p> <p>Male 0 Female 1</p>
Age	<p>“How old are you? Please indicate in years.”</p>
Education	<p>“What is the highest level of school education you have achieved?”</p> <p>No formal level of education 0 Primary school 1 Junior secondary school (until grade 9) 2 GCE O-Level (grade 10-11) 3 GCE A-Level (grade 12-13) 4 BA level or equivalent 5 MA level or equivalent 6 Doctoral level or equivalent 7</p> <p>Low Education 0-1 Medium Education 2-3 High Education 4-7</p>



## 5. Comparison of Sample to Official Statistics

Table A4 compares our sample to the official 2012 Housing and Population Census of the Sri Lankan Department of Census and Statistics. According to the census 74.9 percent of the population are Sinhalese, 15.3 are Tamil, 9.3 percent are Sri Lankan Moor, and the rest (0.7 percent) are Burgher and Malay. In our survey, Tamils were oversampled to obtain reliable estimates for this important ethnic group in the context of the Sri Lankan conflict. The ethnic breakdown in our sample is 51.2 percent Sinhalese (N=921), 39.2 Tamil (N=504), and 9.6 Moor (N=173). No member of the smaller minorities was included in our sample. Please also note that, because Tamils generally (i.e. if they did not assist the LTTE) have similar rates of being victimized as the other ethnic groups, survey weighting to correct for the oversampling would not yield a different estimate of the prevalence of sexual violence.

Our sample is only slightly more female (58.9 percent, N=1'060) than the population (51.6 percent) and also matches the age structure quite well. Since the census only provides percentages of education categories for the population 5 years and older, we cannot directly compare it to our sample of the population 18 years and older (i.e. we would expect to see higher shares in lower educational tiers when including children). Note that the only major deviation, i.e. the overrepresentation of respondents from the Northern Province, is a consequence of the oversampling of ethnic Tamils (in our sample 92.5% of respondents in Northern Province are Tamil). Overall, our sample provides a good representation of the Sri Lankan population.

**Table A4: Comparing the sample to official statistics**

	Sample	Sri Lanka Census of Population and Housing 2012
	% (N)	% (N)
Female	58.9 (1'060)	51.6 (10'502'805)
Sinhalese	51.2 (921)	74.9 (15'249'220)
Tamil	39.2 (504)	15.3 (3'114'994)
Moor	9.6 (173)	9.3 (1'893'428)
Other	0.0 (0)	0.5 (101'797)
Eastern Province	12.0 (216)	7.6 (1'555'510)
Northern Province	20.0 (360)	5.2 (1'061'315)
20-34 Years	32.5* (569)	34.8* (4'865'000)
35-49 Years	34.3* (600)	29.8* (4'174'000)
50-64 Years	24.3* (426)	23.6* (3'297'000)
65 + Years	8.9* (156)	11.8* (1'648'000)
No Schooling	1.8+(33)	3.8+(773'659)
Primary School	12.2+(219)	23.6+(4'804'828)
Secondary School	20.2+(363)	40.7+(8'286'292)
GCE O-Levels	39.2+(703)	17.0+(3'461'105)
GCE A-Levels	21.8+(391)	12.3+(2'504'211)
University Degree or Higher	4.7+(86)	2.7+(549'705)

Notes: \*) Percentages refer to the population aged 20 or older. Note that the survey includes respondents aged 18 and older, however the census data only provided data in the age category of 15-19 years, which makes the comparison between sample and official statistics at that age hard. Census figures were only provided in thousands. +) Note that the census only provides percentages of education categories for the population 5 years and older, which is not directly comparable to our sample of the population 18 years and older.

## 6. Assessing the Survivorship Bias in Estimating the Prevalence of Sexual Violence During War

Although reliable information on both the number of casualties and the extent of sexual violence is missing, we are able to derive logical bounds on the size of the survivorship bias.

Let  $N_s$  be the size of the surviving population and  $p_s$  the prevalence of experiences of sexual violence in this population (i.e. the estimate of our list experiment). Let  $N_k$  be the size of the killed population and  $p_k$  its prevalence of sexual violence. The true overall prevalence of wartime sexual violence in Sri Lanka would then simply be  $p_t = (p_s N_s + p_k N_k) / (N_s + N_k)$ , where  $p_s = .134$  according to our list experiment and  $N_s = 21\,203\,000$  according to the mid-year population estimate 2016 of the Sri Lankan Department of Census and Statistics. Although we do not know  $N_k$  and  $p_k$  with any amount of certainty, we can put meaningful bounds around the size of the potential survivorship bias,  $b = p_s - p_t$ , by plugging in plausible estimates for these quantities.

Intuitively, if Sri Lankans that were killed during the war had experienced sexual assault at higher rates ( $p_k > p_s$ ), we would underestimate the prevalence of sexual violence during war ( $p_s < p_t$ ) and obtain negative bias  $b < 0$  for any number of deaths  $N_k > 0$ . If those killed actually experienced less sexual violence ( $p_k < p_s$ ), we would overestimate its prevalence ( $p_s < p_t$ ) and get positive bias  $b > 0$  for any number of deaths  $N_k > 0$ . Under each scenario the size of the bias is a function of the number of casualties. The higher the number of deaths, the greater the bias. If the killed population had the same prevalence as the surviving population ( $p_k = p_s$ ) we would not have any bias  $b = 0$ .

## 7. Table for Subgroup Analysis of Experience of Sexual Violence During War

**Table A5: Experience of Sexual Assault During War in Sri Lanka: Comparison of Indirect and Direct Measures for Subgroups**

	List Experi- ment	Direct Item: Personal Experience	Difference List-Direct	Direct Item: Witness	Difference List-Direct
Northern province	0.06 (0.08)	0.05 (0.01)	0.01 (0.08)	0.56 (0.03)	-0.50 (0.09)
Eastern province	0.36 (0.10)	0.02 (0.01)	0.35 (0.10)	0.16 (0.03)	0.20 (0.11)
Other province	0.12 (0.03)	0.00 (0.00)	0.11 (0.03)	0.01 (0.00)	0.11 (0.03)
Sinhalese	0.15 (0.04)	0.00 (0.00)	0.15 (0.04)	0.01 (0.00)	0.14 (0.04)
Tamil	0.13 (0.06)	0.04 (0.01)	0.08 (0.06)	0.43 (0.02)	-0.30 (0.06)
Moor	0.10 (0.08)	0.00 (0.00)	0.10 (0.08)	0.29 (0.05)	-0.19 (0.10)
Displaced	0.16 (0.07)	0.04 (0.01)	0.11 (0.07)	0.44 (0.02)	-0.28 (0.07)
Member of military group	0.16 (0.13)	0.02 (0.01)	0.14 (0.13)	0.32 (0.04)	-0.17 (0.13)
Assisted military group	0.42 (0.18)	0.03 (0.02)	0.40 (0.18)	0.36 (0.06)	0.07 (0.19)
Female	0.09 (0.04)	0.02 (0.00)	0.07 (0.04)	0.19 (0.01)	-0.09 (0.04)
Male	0.19 (0.05)	0.01 (0.00)	0.19 (0.05)	0.09 (0.01)	0.10 (0.05)
<= 31 years of age	0.07 (0.06)	0.02 (0.01)	0.05 (0.06)	0.18 (0.02)	-0.11 (0.06)
32-41 years of age	0.16 (0.07)	0.01 (0.01)	0.15 (0.07)	0.18 (0.02)	-0.02 (0.07)
42-54 years of age	0.14 (0.06)	0.01 (0.00)	0.14 (0.06)	0.14 (0.02)	0.00 (0.06)
55-86 years of age	0.17 (0.06)	0.01 (0.01)	0.16 (0.06)	0.09 (0.02)	0.08 (0.07)
Low education	0.24 (0.09)	0.01 (0.01)	0.23 (0.09)	0.18 (0.03)	0.06 (0.09)
Medium education	0.08 (0.04)	0.01 (0.00)	0.07 (0.04)	0.14 (0.01)	-0.06 (0.04)
High education	0.21 (0.07)	0.02 (0.01)	0.19 (0.07)	0.14 (0.02)	0.08 (0.07)

Note: Differences-in-means with standard errors in parentheses.

## 8. Assessing the Sensitivity to the Violation of the No Liars Assumption

We assessed the robustness of our results to the violation of the no liars assumption, by accommodating the possibility of floor effects in answers to the list experiment (Blair and Imai 2012, see table A6). A floor effect occurs when respondents whose truthful answer would be that only the sensitive item applies, instead report that none applies out of fear that their true experience would be revealed. This could happen if the baseline items have low prevalence (as is the case in our list experiment). Intuitively, such an effect should lead to an underestimate of the true proportion of victims (Blair and Imai 2012: 66). We find that the effect for Tamil collaborators of the LTTE is only modestly fragile to violations of the no liars assumption, the effect being an increase in inferential uncertainty. Although technically the interaction term is not significant any more, there is still a posterior probability of 93 percent that it is greater than zero. At least from our point view, this is not enough to threaten the general inference.

**Table A6: Multivariate Regressions of Indirect Measure of Sexual Violence Accounting for Floor Effects**

	M1	M2	M3
	MLE	MLE	MLE
Female	-0.61 (0.51)	0.31 (0.68)	0.14 (0.59)
Age	0.18 (0.19)	0.23 (0.20)	0.27 (0.17)
Education	-0.01 (0.26)	0.17 (0.33)	0.19 (0.26)
Tamil	-0.32 (1.44)	-0.17 (0.60)	-0.42 (0.64)
Eastern Province	0.70 (0.85)	0.80 (0.82)	0.76 (0.77)
Displaced	-0.02 (0.67)	1.47* (0.89)	1.29 (0.83)
Assisted Military Group	0.50 (1.06)	1.20 (1.19)	0.50 (1.22)
Tamil × Assisted Military Group	2.58 (1.79)	--	3.35 (2.30)
Female × Displaced	--	-2.00* (1.16)	-2.77 (2.17)
Intercept	-2.13 (1.44)	-3.45* (1.82)	-3.48* (1.50)
Floor Effects	Yes	Yes	Yes
N	1795	1795	1795

Note: Estimates from binomial-logistic models (MLE). Standard errors in parentheses. \* p<.1, \*\* p<.05.

## 9. Multivariate Regressions Results for Direct Items of Sexual Violence

**Table A7: Multivariate Regressions of Direct Measure of Sexual Violence I**

	Direct Item: Personal Experience of Sexual Assault	Direct Item: Witness of Sexual Assault
Tamil	1.48 (0.98)	0.98 (0.29)
Assisted Military Group	-0.10 (1.69)	1.45 (0.74)
Tamil × Assisted Military Group	0.18 (1.18)	-0.97 (0.81)
Intercept	-9.79 (1.70)	-4.30 (0.59)
Controls	Yes	Yes
N	1423	1423

Note: Estimates from logistic regression models. Standard errors in parentheses. All model equations control for gender, age, education, Eastern province, and displacement.

**Table A8: Multivariate Regressions of Direct Measure of Sexual Violence II**

	Direct Item: Personal Experience of Sexual Assault	Direct Item: Witness of Sexual Assault
Female	-0.41 (1.48)	0.73 (0.65)
Displaced	2.93 (1.46)	3.91 (0.62)
Female × Displaced	0.84 (1.50)	-0.25 (0.68)
Intercept	-9.48 (1.78)	-4.40 (0.73)
Controls	Yes	Yes
N	1423	1423

Note: Estimates from logistic regression models. Standard errors in parentheses. All model equations control for gender, age, education, ethnicity, Eastern province, and assistance of military groups.