Supplementary material BMJ Global Health

Table S1. Numbers of counties and villages sampled per state, South Sudan household surveys 2011 and 2015

State	2011 survey			2015 survey		
	Number of counties/ subdivisions by State	Number of counties/ subdivisions included	Number of villages sampled [19 per subdivision/county]**, +	Number of counties/ subdivisions by State	Number of counties/ subdivisions included	Number of villages sampled [19 per subdivision/county]∞∞, +
Upper Nile*	12	12	228	13	9	171
Jonglei/GPAA^	11	7	133	13	13	247
Unity^^	9	9	171	9	0	0
Warrap∞	7	6	114	7	7	133
Northern Bahr El Ghazal	5	5	95	5	5	95
Western Bahr El Ghazal [#]	5	5	95	5	5	95
Lakes	8	8	152	8	8	152
Western Equatoria§	10	9	171	10	10	190
Central Equatoria	6	6	114	6	6	114
Eastern Equatoria	8	8	152	8	8	152
TOTAL##	81	75	1425	84	71	1349
TOTAL excl. Unity^^	72	66	1254	75	71	1349

^{*} In Upper Nile the number of existing counties had increased from 12 to 13 by 2015 due to the separation of Akoka county from Baliet county. In 2015 four counties were not included for security reasons: Maiwut, Luakpiny/Nasir, Longochuk and Malakal.

[^] In 2011 four counties were not included in Jonglei State due to armed conflict: Old Fangak, Khorflus, Akobo and Pochala; in 2015 all counties were surveyed, including the former Pibor and Pochala counties that had been carved out of Jonglei state during peace negotiations in 2014 to create the new semi-autonomous Greater Pibor Administrative Area (GPAA). GPAA had formed seven counties out of the original two Pibor and Pochala counties, but we explained to the new GPAA authorities that for our LQAS design seven small counties were too many, and we compromised to aggregate them to four survey areas (Pibor, Boma, Pochalla South and Pochalla North), all of which were successfully surveyed in 2015. For the purpose of our data analysis, we combined Jonglei and GPAA here for the 2015 timepoint to allow for comparison with the 2011 dataset.

- ^ Unity State was included in 2011, but excluded in 2015 due to armed conflict. For the national comparison of the 2011 and 2015 results, we therefore had to exclude Unity from the national estimates.
- ∞The disputed (South Sudan versus Sudan) border area Abyei in Warrap State was excluded in 2011, but included in 2015.
- # In Western Bahr el Ghazal State, we divided two (out of three) counties into smaller regions (Raja urban and Raja rural, and Wau urban and Wau rural) for logistical reasons thus creating a total of five survey areas/ subdivisions for this state
- § In Western Equatoria State in 2011 the county Ezo was actually initially included and surveyed, but the questionnaires could not be used and data were not included due to poor data quality.
- ## The 'artificial' division of two very large counties in WBeG State into a total of four LQAS sub-divisions (rural and urban) resulted in a number of sub-divisions that is higher than the actual number of counties in South Sudan. The total number of counties (rather than sub-divisions) surveyed was 73 out of 79 (or 64 out of 70 if excluding Unity) in 2011 and 69 out of 82 (or 69 out of 73 if excluding Unity) in 2015.
- ** In 2011, due to missing data the actual number of completed interviews was reduced and varied for different client populations (see table 2)
- $\infty\infty$ In 2015, the questionnaire set of one village in Jonglei was missing, reducing the actual number of interviews for each client population from 1349 to 1348.
- + The survey did not discriminate against villages due to distance or difficulty of access, or lack of convenient transportation. In fact, all selected villages, irrespective of distance or complicated access had to be surveyed. Those selected villages with insecurity problems were replaced by the so called "next-nearest" village, using a technique practiced during training. The replacements were made by supervisors in coordination with the South Sudan National Bureau of Statistics (NBS).