

## POFO Wealth Index – Technical Documentation

**External Data Source:** Demographic and Health Surveys; Measure DHS; <http://www.measuredhs.com/>

Cambodia:	KHHR51FL.DTA – Battambang	09/2005 to 03/2006
Ethiopia:	ETHR51FL.DTA – Addis Ababa	08/1997 to 12/1997 (verify Gregorian calendar)
Hyderabad:	IAHR51FL.DTA – Hyderabad Slums	12/2005 to 04/2006
Kenya:	KEHR41FL.DTA – Western Province	04/2003 to 09/2003
Nagaland:	IAHR51FL.DTA – Nagaland	04/2006 to 08/2006
Tanzania:	TZHR41FL.DTA – Kilimanjaro Region	10/2004 to 02/2005

**Note:** ET version 5; if dates are on the Gregorian calendar, then ET: 04/2005 to 09/2005.

### Programs:

```
do "D:\Data\DHS\Pull DHS Variables.do"  
do "...\Orphans\Analysis\Variables\Location\Wealth Index Predictions.do"
```

**Write-up:** For each study site we estimated the average contribution of selected household assets and physical characteristics to DHS wealth index (WI) factor scores. Linear regression models predicting WI factor scores were estimated for each site, separately for rural and urban households. Covariates included indicator variables for the presence of electricity, radio, television, bicycle, motorbike, car, and/or phone in the household; clean water on the property, a public tap as the primary water source; variables describing the toilet facility (own flush, shared flush, own latrine, shared latrine, none), natural or rudimentary roof, walls, or floor construction; and the number of rooms used for sleeping. DHS data from Battambang & Krong Pailin Region, Cambodia (DHS 2005-06), Addis Ababa, Ethiopia (DHS 1997/2005), Western Region, Kenya (DHS 2003), Kilimanjaro Region, Tanzania (DHS 2004-05); Nagaland, India and Slums in Hyderabad, India (both DHS 2005-06) were used to derive estimates for each study site. Parameter estimates were used to predict WI scores for each POFO household, with predictions shifted and rescaled such that the minimum at each site equaled zero, with a mean score of one.

### Notes:

- 1) Any number of POFO variables can be added, but the variables should have been used by DHS to construct their scores, or correlated with what was used by DHS, or we get negative contributions (e.g. own land is mostly negatively related to the DHS wealth index, likely because it is inversely related to urban.)
- 2) R-squares of the models are 85-90%, so adding variables probably won't make a huge difference
- 3) Re-scaling was necessary due to great variation between sites, DHS quintiles are useless for our purposes (e.g. in ET almost everyone is in the top quintile, Addis Ababa is just much better off than the rest of the country, even for the poorest study households)

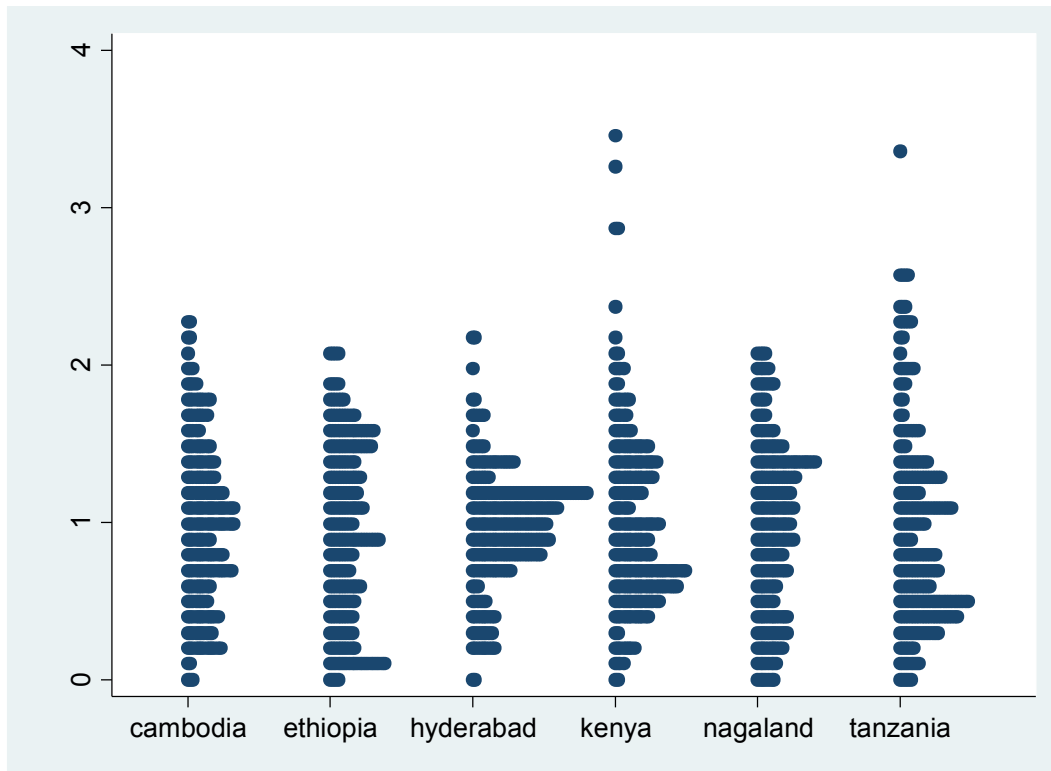
**Distribution of Wealth Indicators across Study Sites (DHS)**

		<b>Cambodia</b>	<b>Ethiopia</b>	<b>Hyderabad</b>	<b>Kenya</b>	<b>Nagaland</b>	<b>Tanzania</b>	<b>Total</b>
Assets	Electricity	26%	97%	97%	5%	87%	21%	73%
	Radio	57%	88%	23%	80%	31%	70%	47%
	Television	61%	57%	77%	14%	46%	7%	49%
	Refrigerator	2%	23%	36%	1%	14%	4%	17%
	Bicycle	65%	2%	29%	45%	13%	19%	22%
	Motorbike	41%	0%	35%	1%	6%	1%	13%
	Car	5%	8%	7%	3%	7%	2%	6%
	Phone	26%	56%	50%	10%	29%	13%	34%
Water source	Safe water into dwelling	29%	70%	88%	17%	37%	24%	48%
	Public tap/standpipe	0%	30%	11%	6%	16%	46%	16%
	Other water source	71%	0%	1%	77%	47%	30%	36%
Toilet facility	Flush toilet, not shared	33%	7%	62%	2%	42%	4%	34%
	Flush toilet, shared	10%	3%	34%	1%	25%	2%	19%
	Pit latrine, not shared	3%	18%	2%	43%	13%	76%	17%
	Pit latrine, shared	0%	65%	1%	51%	6%	16%	18%
	Other or no toilet facility	53%	7%	2%	3%	14%	2%	12%
Housing	Rooms used for sleeping	1.3	1.6	1.5	2.0	2.1	2.4	1.8
Building materials	Natural/rudimentary floor material	11%	14%	5%	75%	47%	55%	39%
	Natural/rudimentary wall material	43%	80%	6%		64%	37%	51%
	Natural/rudimentary roof material	17%	0%	1%	29%	18%	7%	13%
Location	Urban	25%	100%	100%	25%	49%	22%	60%
<b>DHS wealth index (scaled)</b>		<b>3.32</b>	<b>5.00</b>	<b>4.29</b>	<b>2.87</b>	<b>3.43</b>	<b>3.97</b>	<b>3.77</b>

Contributions of wealth indicators to DHS Wealth Indices; estimates from lineare regression models, stratified by site and rural/urban

		CAMBODIA		ETHIOPIA	HYDERABAD	KENYA		NAGALAND		TANZANIA		
		Rural	Urban	Urban	Urban	Rural	Urban	Rural	Urban	Rural	Urban	
Assets	Electricity	58.2** [51.6 - 64.9]	48.4** [25.7 - 71.1]	84.5** [77.1 - 91.9]	22.4** [14.0 - 30.9]	40.8** [14.6 - 67.0]	39.4** [23.7 - 55.2]	17.3** [14.7 - 19.9]	28.2** [24.6 - 31.8]	39.0** [29.5 - 48.6]	81.5** [60.5 - 102.5]	
	Radio	9.8** [6.0 - 13.5]	27.5** [9.3 - 45.8]	41.8** [36.3 - 47.3]	11.4** [4.7 - 18.1]	9.0** [6.3 - 11.8]	44.8** [32.9 - 56.7]	9.0** [6.6 - 11.3]	11.7** [9.1 - 14.4]	23.6** [17.2 - 30.1]	47.7** [24.1 - 71.3]	
	Television	9.4** [5.1 - 13.7]	20.3 [-3.4 - 44.0]	37.3** [32.9 - 41.7]	20.2** [13.1 - 27.3]	15.1** [10.9 - 19.3]	18.9** [6.0 - 31.8]	24.0** [21.1 - 26.9]	22.1** [19.1 - 25.1]	45.7** [30.3 - 61.1]	49.9** [13.3 - 86.5]	
	Refrigerator		121.0** [89.2 - 152.7]	49.1** [43.8 - 54.4]	50.7** [43.5 - 58.0]		41.7** [16.1 - 67.2]	26.0** [21.2 - 30.7]	31.4** [28.0 - 34.8]	47.6** [27.1 - 68.1]	89.1** [52.6 - 125.7]	
	Bicycle	-2.2 [-6.1 - 1.8]	-15.7 [-32.8 - 1.5]	18.9** [7.7 - 30.1]	2.1 [-3.8 - 8.0]	-4.4** [-6.7 - -2.1]	-19.8** [-29.8 - -9.8]	3.5* [0.1 - 7.0]	2.4 [-1.0 - 5.8]	5.9 [-1.7 - 13.5]	-6.0 [-27.6 - 15.6]	
	Motorbike	11.4** [6.6 - 16.1]	30.9** [10.8 - 51.0]	-3.5 [-63.9 - 56.9]	21.8** [14.4 - 29.2]	-14.6 [-38.2 - 9.0]	6.7 [-21.5 - 35.0]	18.1** [12.7 - 23.5]	18.9** [14.4 - 23.4]	26.2 [-2.6 - 55.0]		
	Car	44.2** [32.6 - 55.7]	51.0** [20.4 - 81.6]	38.6** [31.3 - 46.0]	40.1** [28.8 - 51.5]	19.7** [7.9 - 31.6]	13.5 [-5.8 - 32.8]	29.0** [21.9 - 36.1]	25.1** [20.9 - 29.3]	71.4** [48.9 - 93.8]	-32.1 [-119.2 - 55.0]	
	Phone	37.9** [31.7 - 44.2]	50.6** [27.2 - 74.0]	46.5** [42.0 - 51.0]	41.0** [33.6 - 48.5]	21.2** [15.3 - 27.1]	37.2** [24.2 - 50.3]	36.6** [32.8 - 40.4]	30.7** [27.6 - 33.8]	53.3** [42.5 - 64.1]	54.3** [26.9 - 81.7]	
	Water source	Public Tab			-22.5** [-26.5 - -18.4]	-32.0** [-39.9 - -24.0]	19.1** [11.9 - 26.3]	10.8 [-4.5 - 26.1]	-22.5** [-25.5 - -19.5]	-11.7** [-17.7 - -5.7]	-8.8* [-16.8 - -0.9]	10.9 [-12.0 - 33.7]
		Other water source	-5.7* [-10.1 - -1.2]	-45.5** [-61.4 - -29.5]	-45.0* [-87.6 - -2.4]		-7.5** [-11.9 - -3.2]	3.8 [-6.7 - 14.4]	-18.2** [-20.8 - -15.6]	-11.7** [-14.2 - -9.2]	-23.6** [-32.0 - -15.2]	-19.4 [-62.7 - 23.8]
Toilet facility	Flush toilet, shared	-20.8** [-27.7 - -14.0]	-28.4* [-52.5 - -4.3]	20.9** [9.4 - 32.5]	-25.8** [-32.5 - -19.1]	8.5 [-20.8 - 37.8]	56.2** [26.4 - 86.1]	-5.2** [-8.8 - -1.6]	-11.5** [-14.3 - -8.7]		23.0 [-19.4 - 65.4]	
	Pit latrine, not shared	-28.0** [-39.3 - -16.8]	-23.3 [-85.8 - 39.2]	24.4** [17.1 - 31.6]	-32.4** [-49.1 - -15.7]	-17.3** [-23.5 - -11.1]	-25.0** [-43.0 - -7.0]	-15.3** [-18.3 - -12.2]	-19.6** [-24.3 - -15.0]	27.4** [16.8 - 38.0]	-30.2 [-64.3 - 3.9]	
	Pit latrine, shared	-25.4* [-50.2 - -0.6]		28.1** [21.3 - 35.0]	-18.5* [-36.7 - -0.4]	-7.0* [-13.0 - -0.9]	21.8** [9.2 - 34.4]	-16.4** [-21.3 - -11.4]	-36.6** [-41.6 - -31.6]	30.5** [17.3 - 43.7]	-6.0 [-37.0 - 24.9]	
	Other or no toilet facility	-46.6** [-51.5 - -41.6]	-62.3** [-87.3 - -37.3]	8.1 [-1.1 - 17.4]	-51.9** [-68.7 - -35.2]	-18.3** [-26.9 - -9.7]	-18.6 [-53.9 - 16.7]	-31.1** [-34.0 - -28.2]	-21.1** [-28.7 - -13.6]	35.4** [12.8 - 58.0]	-31.8 [-101.6 - 38.0]	
Housing	Rooms	11.8** [7.9 - 15.7]	25.9** [15.7 - 36.1]	7.1** [5.3 - 9.0]	-4.6* [-9.1 - -0.1]	-2.3** [-3.5 - -1.1]	-5.3* [-10.4 - -0.1]	1.5** [0.7 - 2.4]	2.2** [1.1 - 3.3]	8.0** [5.5 - 10.5]	15.4* [3.1 - 27.8]	
	Building materials	Natural/rudimentary floor	-2.0 [-7.9 - 4.0]	-24.2 [-53.2 - 4.8]	-37.4** [-42.7 - -32.0]	-42.7** [-58.9 - -26.5]	-51.1** [-54.9 - -47.3]	-60.9** [-73.9 - -47.8]	-29.6** [-32.3 - -27.0]	-33.7** [-37.1 - -30.4]	-61.2** [-68.7 - -53.7]	-56.8** [-81.6 - -31.9]
		Natural/rudimentary wall	-22.8** [-27.1 - -18.6]	-4.9 [-29.5 - 19.6]	-13.0** [-17.8 - -8.2]	-27.8** [-41.1 - -14.6]			-30.3** [-33.2 - -27.5]	-31.2** [-34.1 - -28.4]	-10.8** [-17.1 - -4.5]	3.1 [-20.6 - 26.8]
Natural/rudimentary roof	-15.6** [-20.6 - -10.5]	36.6 [-10.6 - 83.9]	-11.8 [-46.5 - 23.0]	-24.5* [-43.6 - -5.4]	-17.5** [-20.0 - -15.1]	-30.0** [-49.9 - -10.0]	-28.1** [-30.8 - -25.4]	-21.4** [-25.7 - -17.1]	-35.3** [-46.0 - -24.5]	-5.2 [-78.5 - 68.0]		
Number of observations		529	182	1271	464	748	251	1973	1865	292	82	

Distribution of predicted, re-scaled POFO Wealth Index measures within study sites



**POFO household distribution across “modified” DHS quintiles (quintiles within DHS estimation sample):**

Note: 1<sup>st</sup> quintile corresponds to the 20 percent of household with the lowest wealth index

RURAL	cambodia	kenya	nagaland	tanzania	Total
1	12.62	14.05	0.00	18.18	12.04
2	11.65	25.62	5.75	24.79	18.06
3	10.68	18.18	20.69	7.44	13.89
4	24.27	20.66	21.84	38.84	26.85
5	40.78	21.49	51.72	10.74	29.17
Total	100.00	100.00	100.00	100.00	100.00

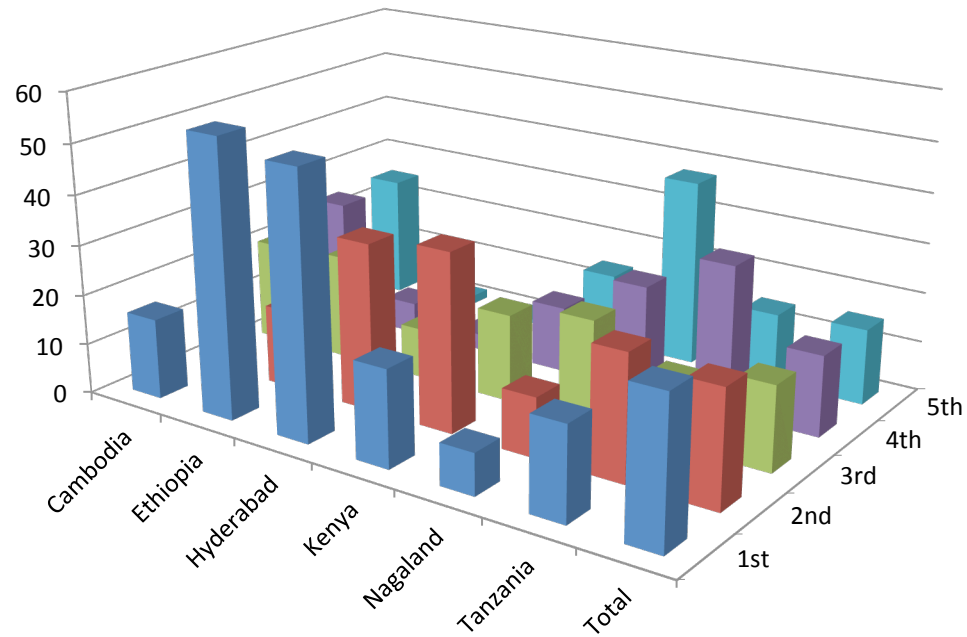
URBAN	cambodia	ethiopia	hyderabad	kenya	nagaland	tanzania	Total
1	19.27	55.16	52.61	24.78	13.74	18.75	36.50
2	16.51	15.70	33.33	46.02	16.03	25.00	25.29
3	29.36	21.08	10.04	16.81	20.61	18.75	18.25
4	24.77	6.28	3.21	5.31	21.37	19.64	11.21
5	10.09	1.79	0.80	7.08	28.24	17.86	8.75
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

ALL	cambodia	ethiopia	hyderabad	kenya	nagaland	tanzania	Total
1	16.04	55.16	52.61	19.23	8.26	18.45	28.78
2	14.15	15.70	33.33	35.47	11.93	24.89	23.01
3	20.28	21.08	10.04	17.52	20.64	12.88	16.87
4	24.53	6.28	3.21	13.25	21.56	29.61	16.14
5	25.00	1.79	0.80	14.53	37.61	14.16	15.19
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

These numbers provide insights into one of two things (or some combination):

- 1) Who takes care of orphans,
- 2) Any selection biases during enrollment (who admits that they are taking care of orphans)

### Distribution of POFO Households Across DHS Wealth Quintiles



	Cambodia	Ethiopia	Hyderabad	Kenya	Nagaland	Tanzania	Total
1st	16.04	55.16	52.61	19.23	8.26	18.45	28.78
2nd	14.15	15.7	33.33	35.47	11.93	24.89	23.01
3rd	20.28	21.08	10.04	17.52	20.64	12.88	16.87
4th	24.53	6.28	3.21	13.25	21.56	29.61	16.14
5th	25	1.79	0.8	14.53	37.61	14.16	15.19

Note: "modified" DHS wealth quintiles, specific to POFO sampling areas; 1<sup>st</sup> quintile = "poorest" / lowest 20%