Technical note

UK Data Archive Study Number 8678 - Listening to Young Lives at Work: COVID-19 Phone Survey

Constructing the "Home Environment for Protection" Index using Young Lives data

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Young Lives

With no vaccination currently available to slow the spread of COVID-19, much importance has been placed on measures which promote the physical separation (distancing) of individuals or households from each other.[1] While many countries imposed mandatory lockdown (shelter-in-place) conditions, requiring individuals to remain at home for all but essential activities, the capacity to comply with such measures will have depended, to a large extent, on the characteristics of the home and its ability to provide protection for sustained periods of time.

The original "Home Environment for Protection index" (HEP index), created by Brown Ravallion and Van de Walle (2020), is intended to measure how effectively the dwelling attributes of a given population provide protection from the virus and limit the need to travel outdoors. The Young Lives HEP index is based on this scale, modified slightly to reflect the structure of our questionnaire.

The Brown et al. HEP index

The original HEP index for dwelling attributes devised by (Brown et al., 2020), required the following six conditions for a home to comply with recommendations for protection against COVID-19.[2]

1. The household has at least one of the following: internet, a phone, TV, or radio.
2. No more than two people per sleeping room (for social distancing within the household).
3. The household has a toilet and does not have to share it with other households.
4. The dwelling has walls and a ceiling, implying it can be adequately closed off.
5. The household has a water source in the dwelling or the yard (limiting travel outdoors).
6. The household has a place for handwashing with soap.

This index reported the percent of a given population achieving a (stipulated) minimum number of conditions. For example, the index for full compliance reports the percent of those who fulfil all six conditions.

The Young Lives basic HEP index (Basic YL-HEP)

The basic version of the YL-HEP index uses information from Round 5 of the Young Lives survey and was used in conjunction with the first COVID-19 phone survey. This version only represents four of the six conditions listed above.[3] These conditions are as follows:

1. The household has at least one of the following: laptop/computer, working television/radio.
2. No more than two people per room (not including kitchen, bathroom, passage, garage, warehouse, rooms with non-permanent separations).
3. The household has a flush toilet or a private pit latrine.
4. The household has piped water into the dwelling/yard/plot.

1 https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

2 It should be noted that the first condition relates to the ability to receive information on health guideline and announcements, as opposed to protection directly.

3 The information on these two omitted conditions (4 and 6) was either not recorded in Round 5 or was not recorded in a way that was suitable for generating the required information.

Table 1: *The percent of sampled households who meet each condition in the Basic YL-HEP*

	Ethiopia	India	Peru	Vietnam
Condition 1: Access to information	42%	83%	95%	92%
Condition 2: Less than 2 people per-room	41%	61%	74%	79%
Condition 3: Private toilet	59%	51%	96%	87%
Condition 4: Private water	31%	23%	90%	38%
Observations	**2381**	**2749**	**2002**	**2498**

All figures are based on the pooled sample of both the Younger and Older Cohorts

The Young Lives complete HEP index (Complete YL-HEP)

The complete version of the YL-HEP index is calculated using data collected in the second COVID-19 phone survey and is highly comparable to the original, Brown et al. index, as it includes all six conditions. The analogous conditions recorded in the Young Lives data are as follows:

1. The household has at least one of the following: Access to the internet at home through computer, a working television, a working radio, or a working smartphone.
2. No more than two people per room (not including the kitchen, bathroom, passage, garage, warehouse, rooms with non-permanent separations).
3. The household has a private toilet within the dwelling/yard/plot.
4. The dwelling has complete walls on all sides and a complete roof.[4]
5. The household has a private water source within the dwelling/yard/plot.
6. The household always has access to soap or sanitiser when needed.

Table 2: *The percent of sampled households who met each condition in the Complete YL-HEP*

	Ethiopia	India	Peru	Vietnam
Condition 1: Access to information	87%	97%	99%	99%
Condition 2: Less than 2 people per-room	52%	54%	85%	74%
Condition 3: Private toilet	75%	86%	99%	95%
Condition 4: Complete walls and roof	94%	91%	97%	97%
Condition 5: Private water	47%	44%	93%	67%
Condition 6: Soap or sanitizer	92%	100%	99%	99%
Observations	**2417**	**2751**	**1986**	**2511**

All figures are based on the pooled sample of both the Younger and Older Cohorts

In both the Basic and Complete YL-HEP indices, the number of conditions which a household complies with is used to generate a household-specific index value, as opposed to the percentage of the sample in compliance (see Brown et al., 2020). To do this, we calculate the index value for each household as the proportion of conditions fulfilled.

4 Enumerators were given the instructions that the presence of a complete walls and roof was important as a means to separate the dwelling from the outside, such that the airborne COVID-19 virus could not enter (the material was not necessarily important, nor was the need to protect from heat/cold).

For example, this implies seven possible index values of: 0, 0.167, 0.333, 0.5, 0.667, 0.833 and 1, for our complete, six-item index.

Based on either the Basic or Complete YL-HEP index, Table 1 indicates that the likelihood of a home possessing the required characteristics for protection increases with household wealth status (measured by the Young Lives wealth index in the first round of data collection in 2002 and in Round 5 in 2016).[5] The key implication of this result is that, on average, poorer households will be less able to follow common recommendations intended to avoid the spread of COVID-19.

Table 3: *Correlation between YL-HEP and YL Wealth Index*

	Mean HEP index score					Mean Hep index score			
	Correlation†	Tercile 1 (poorest)	Tercile 2	Tercile 3		Correlation	Tercile 1 (poorest)	Tercile 2	Tercile 3
	Basic YL-HEP								
Ethiopia	0.37	0.34	0.39	0.57		0.60	0.26	0.42	0.62
India	0.49	0.42	0.51	0.71		0.71	0.32	0.55	0.78
Peru	0.29	0.84	0.88	0.94		0.42	0.82	0.89	0.97
Vietnam	0.50	0.62	0.74	0.86		0.78	0.55	0.76	0.91
	Complete YL-HEP								
Ethiopia	0.25	0.71	0.72	0.81		0.34	0.68	0.75	0.81
India	0.25	0.76	0.76	0.84		0.31	0.73	0.79	0.84
Peru	0.15	0.94	0.95	0.97		0.20	0.93	0.95	0.97
Vietnam	0.22	0.86	0.89	0.91		0.24	0.85	0.89	0.92

† Columns 1 and 5 report Pearson's Correlation Coefficient

While still a clear positive relationship in Table 3, the correlation between either wealth index is notably smaller for the Complete YL-HEP. The relatively higher correlation between the Round 5 wealth index and the Basic YL-HEP, is explained by some overlap in the information used to compute the two indices (for example, water source, sanitation and electricity access). It is also the case that the two further conditions added to the Complete YL-HEP index (complete walls and a roof, and access to soap or sanitizer) were met by almost all households.[6] Subsequently, the standard deviation of the Complete YL-HEP, relative to the Basic YL-HEP (pooled across all countries), falls from 0.292 to 0.166, reducing the potential correlation with the wealth indices.

References

Briones, K. (2017). 'How many rooms are there in your house?' Constructing the Young Lives wealth index. Young Lives Technical Note 43.

Brown, C.S., Ravallion, M. and Van de Walle, D. (2020) Can the World's Poor Protect Themselves from the New Coronavirus? NBER Working Paper No. 27200, May 2020.

5 The Young Lives Wealth index comprises information on household ownership of consumer durables, its housing quality and access to services, and is calculated on a scale of 0 to 1. It has been collected in every round of the YL Survey. For more details please see Briones (2017).

6 Pooling households across all countries, only 5.5% did not have complete walls and roof, while only 2.4% did not have access to soap/sanitizer when they needed it.


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