Subject: Land as negative loading in 1st principal component/wealth index?
Posted by mkaur on Tue, 16 Jun 2015 17:53:56 GMT
View Forum Message <> Reply to Message

I've been looking at the loadings for the first principal component on the DHS Wealth Index Construction page (http://www.dhsprogram.com/topics/wealth-index/Wealth-Index-C onstruction.cfm), which I've found really helpful.

I'm finding that in several countries that land owned (yes/no), amount of land owned, and number of livestock owned have negative loadings in the first principal component. Some example countries where I've seen this include: Benin, Congo (Brazzaville), and Ethiopia. This is not the case for all countries, but I've found a few where it is. I performed my own PCA on a similar set of assets, and had the same direction of loadings.

I find this odd because I would imagine ownership of land would be positively correlated with household wealth. Has anyone else come across this?

Would this warrant using land and animal ownership as variables separately from the wealth index if we wanted to control for wealth?

I couldn't find any discussion on this in the forum, so any thoughts would be appreciated.

Subject: Re: Land as negative loading in 1st principal component/wealth index?
Posted by Liz-DHS on Wed, 01 Jul 2015 18:28:49 GMT
View Forum Message <> Reply to Message

Dear User,
A response from Dr. Shea Rutstein:
Quote:
A small amount of land owned and a few animals occurs in rural/peri-urban areas, where most households are poor if they don't have much else. Richer urban residents may not have agricultural land or farm animals. For that reason, we first calculate separate urban and rural indexes and then combine them, and we have broken the number of animals into size groupings. Having many animals would have a positive sign. We have not yet determined what land sizes to group yet, and making country-specific transformations is too complicated.

Subject: Re: Land as negative loading in 1st principal component/wealth index?
Posted by George Kariuki on Wed, 17 Feb 2016 09:03:46 GMT
View Forum Message <> Reply to Message

Well, this is more econometrics than it is the mere computation of the wealth index. While

computing the PCA, DHS lumps up every observations, whether the individuals are in the urban or rural areas. In Countries you mention, this assets are more likely to be in the rural areas as opposed to urban areas. That correlates to having assets just found in rural areas and not in urban areas. As such, they end up carrying a negative load. To affirm this you can try compute the index keeping the sample different for rural and urban areas then see how the two sets behave. Meanwhile also, you can get more incites from this working paper
"Wittenberg, M. W. (2009). Weighing the value of asset proxies: The case of the body mass index in South Africa. A Southern Africa Labour and Development Research Unit Working Paper Number 39."

I hope this sheds light.