A typo Correction on the LRE

On p. 48, below Equ (27), the paper states that "Letting $(1, \tilde{\lambda}_a')'$ be the eigenvector (rescaled to make the first element be one) corresponding to the smallest eigenvalue of (27)." Call this eigenvector y. The correct use should be $x = L'y$, where L is as defined in the paper, above (27).

The reason is that, as the proof shows, the eigenvector to be used is from

$$Ax = \zeta Bx.$$

Since this equation is a bit unusual, we re-wrote it or simplified it to the standard eigenvalue form for easier understanding by the readers. (In so doing, the transformation was missed when writing up the paper, though we did compute it correctly in our computational programs. Thanks to Cesare Robotti for pointing this out.)

From $L'L = B^{-1}$, we have $B = L^{-1}L'^{-1}$, and so the above equation is

$$Ax = \zeta L^{-1}L'^{-1}x.$$

Multiplying L from the left, we have

$$L\ Ax = \zeta L'^{-1}x$$

or

$$L\ AL'(L'^{-1}x) = \zeta(L'^{-1}x).$$

which is equivalent to Equ (27) of the paper.

Therefore, if one computes the eigenvector from (27) or

$$(LAL')y = \zeta y,$$

a further transformation is needed to get

$$x = L'y.$$

In short, a transformation of $x = L'y$ is needed to make use of the eigenvector from Equ (27). Otherwise, the estimator would have been incorrectly computed and would not have matched the GMM estimator later in the paper.