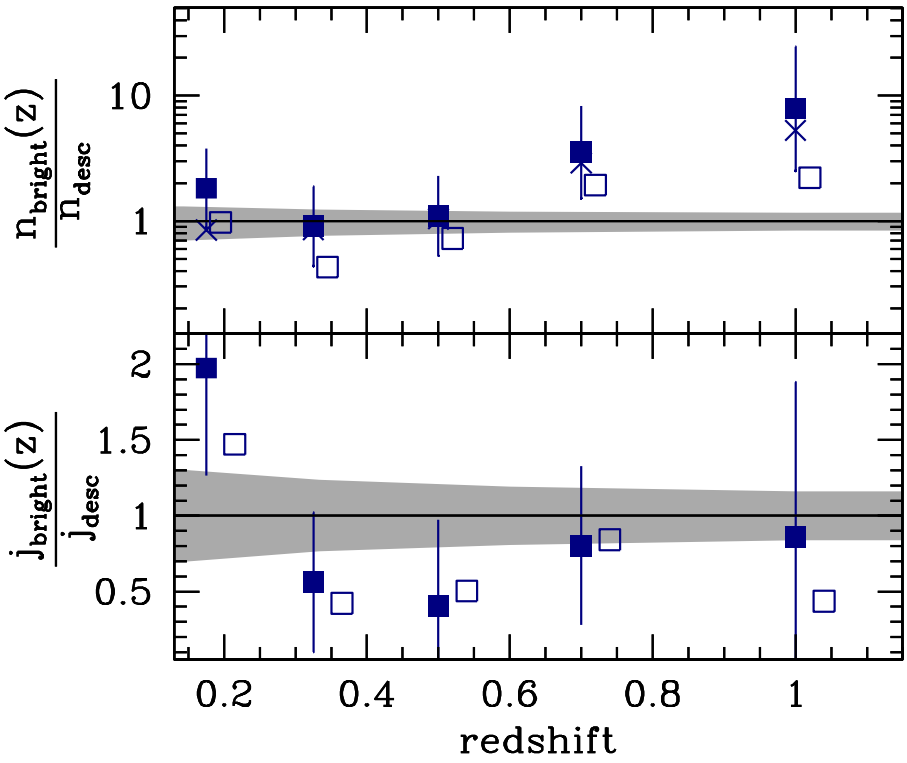


Fig. 1. Top panel: Ratio between the number density of ETGs at a given redshift and their expected $z = 0$ descendants, as inferred from the clustering analysis of P10. The filled squares show the results from using the PML $r$-band LF estimates; open squares show the results for the $B$-band. Errorbars are only shown for the $r$-band result to improve clarity. The crosses correspond to the results from the photo-$z$ based maximum likelihood method to calculate the LF in the $r$-band. The solid line shows the unit ratio and the grey shaded area shows the estimated cosmic variance in a 0.25 sq. degree light-cone survey divided in slices of $\Delta z = 0.1$. Bottom panel: ratio between the luminosity density of progenitor ETGs and that of their $z = 0$ ETG descendants in the $r$- and $B$-bands (filled and open squares, respectively).

native ETG LF measurement from SDSS is provided by Ball et al. 2006).

These luminosity function measurements will allow us to measure the space density of galaxies selected according to limits in luminosity, at different redshifts. The limiting luminosities will be selected using clustering information.

We use the clustering results from P10, in particular those for the MUSYC sample of galaxies corresponding to the brightest absolute magnitude cut, $M_R(0) < -19.7$ corrected by passive evolution, for samples of ETGs in ECDF-S and EHDF-S. As was shown by these authors, ETGs show a higher clustering than the samples that included all galaxy types. When comparing to the clustering of $z = 0$ ETG SDSS galaxies of different luminosities and using the evolution of clustering of dark-matter haloes of different masses, P10 show that ETG samples of equal passively evolved luminosity (i.e. stellar mass selected) at different redshifts do not seem to be connected in a progenitor-to-descendant relationship. Luminous galaxies at $z \simeq 1.15$ evolve into objects with higher clustering than galaxies of similar rest-frame passively evolved luminosity at $z \simeq 0.35$. The present-day descendants of the bright volume-limited ECDF-S and EHDF-S $z = 1.15$ subsamples are roughly within $0.1 < L/L^* < 2.5$.

## 3. RESULTS AND CONCLUSIONS

We calculate the number density of $z = 0$ descendants using the B04 and Be07 SDSS ETG LFs for galaxies with median luminosities corresponding to the descendants of a given sample of MUSYC ETGs at redshift $z$. The number density of progenitors is calculated at redshift $z$, using a lower limit in $M_r(z = 0) = -19.7$, or equivalently, $M_B(z = 0) = -18.55$, consistent with the lower limits used in P10. The results are shown as squares in the top panel of Figure 1 (open symbols for the $B$-band, filled symbols for the $r$-band). The errorbars in this panel