Data vs MC comparison for 8 and 13 TeV Z using LO PDFs

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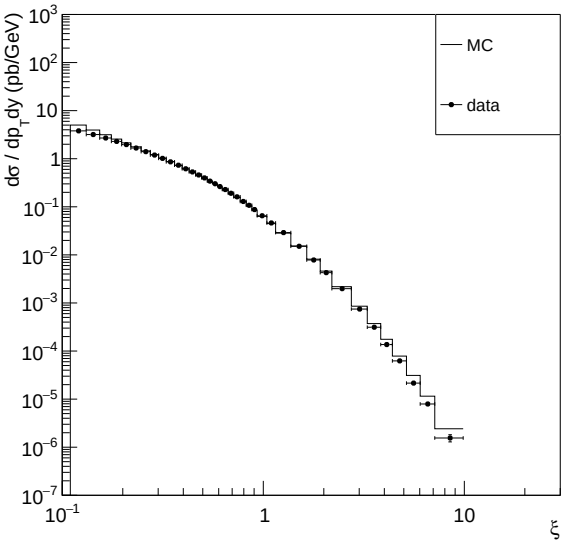
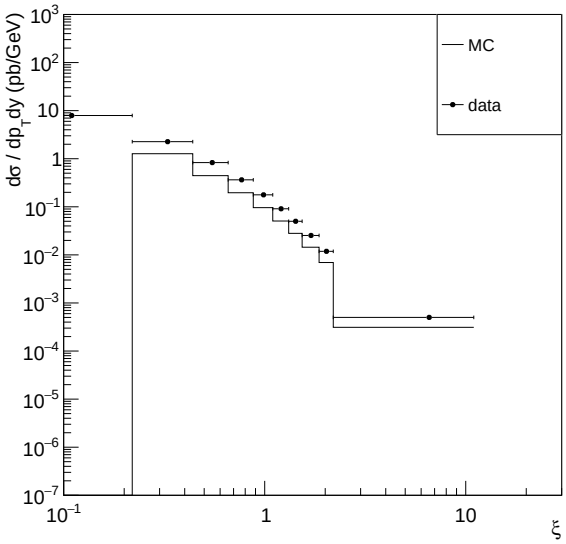
1 Procedure

- The MC distributions are obtained by filling a ξ histogram with events within the fiducial cuts determined for each data measurement.
- The weights are those determined in the MC generation, from the Z production cross-section formula with the assumption of transverse polarization in the ppHX frame, and the Jacobian factor.
- All distributions are then scaled by the same factor (currently 40) to match up with data. No $\sqrt{s}$-based scaling factor is added, such as based on the number of events in the sample or on the sum of all Jacobian factors.
- The 8 TeV ATLAS data, previously scaled up by a factor of 2 that we thought was missing in the corrections, is now back at its presented value, which fits well with the observed $\sqrt{s}$ scaling. It is the 8 TeV CMS data that now falls above the MC by a factor of almost exactly 2.

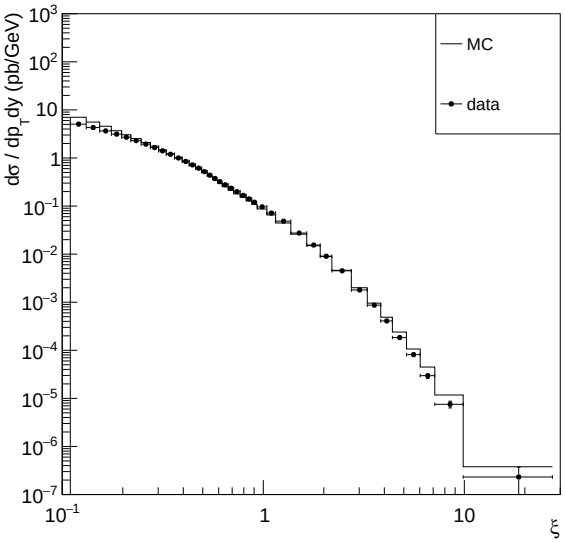
8 TeV ATLAS 0.0 < | y | < 2.4



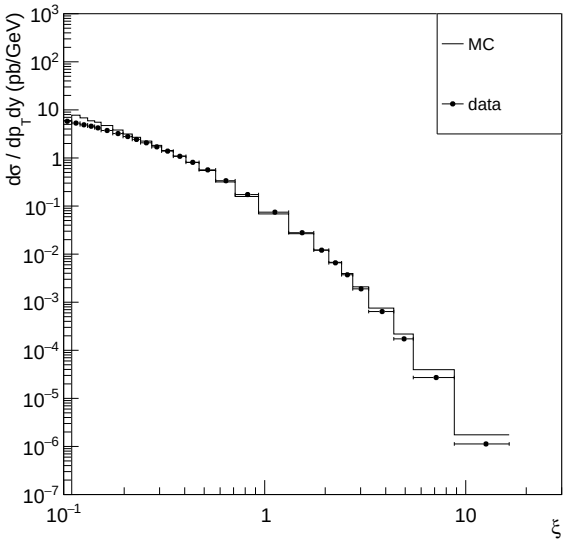
8 TeV CMS 0.0 < | y | < 2.0



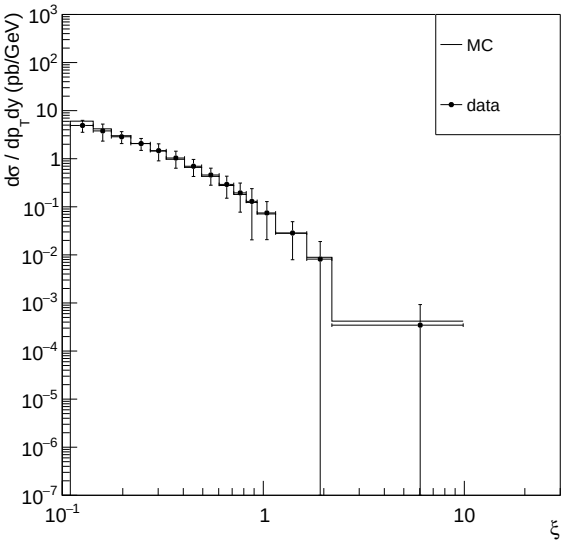
13 TeV ATLAS 0.0 < | y | < 2.5



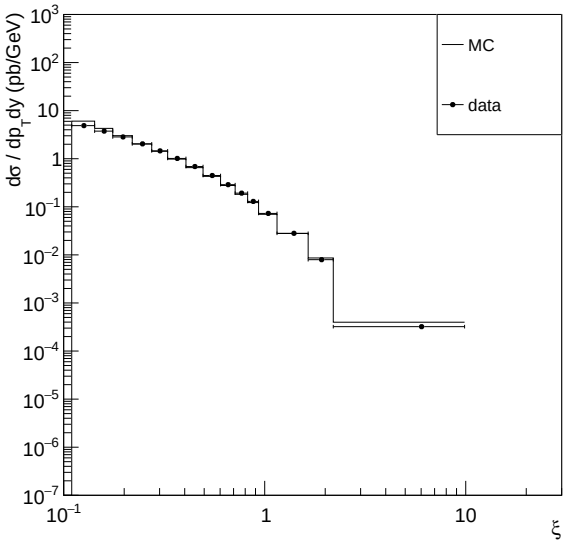
13 TeV CMS 0.0 < | y | < 2.4



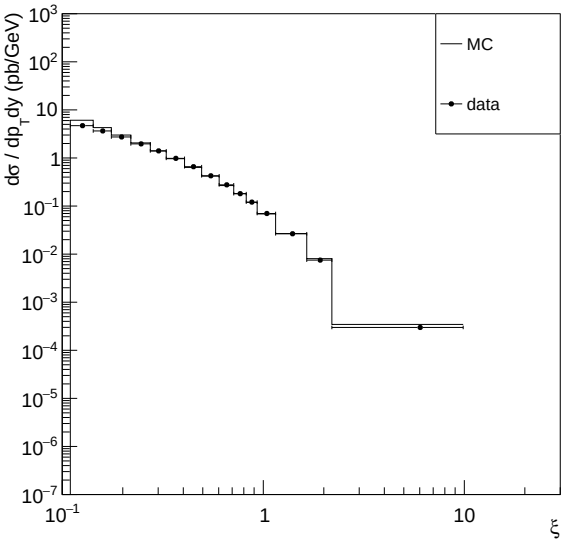
8 TeV ATLAS 0.0 < | y | < 0.4



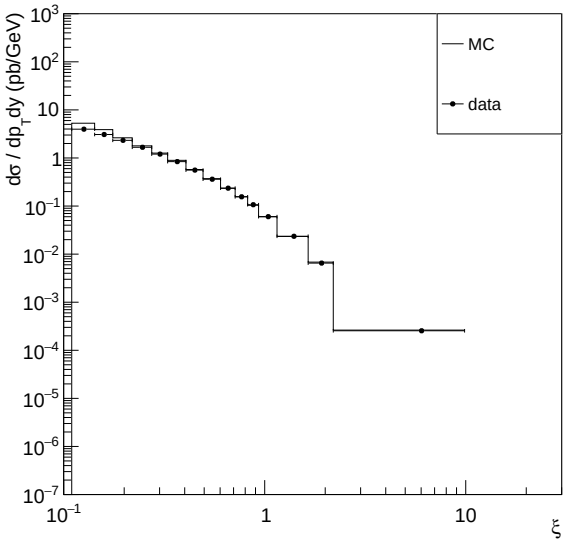
8 TeV ATLAS 0.4 < | y | < 0.8



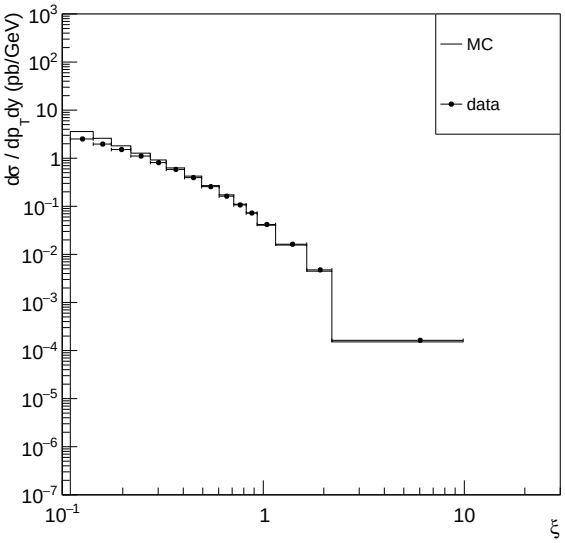
8 TeV ATLAS 0.8 < | y | < 1.2



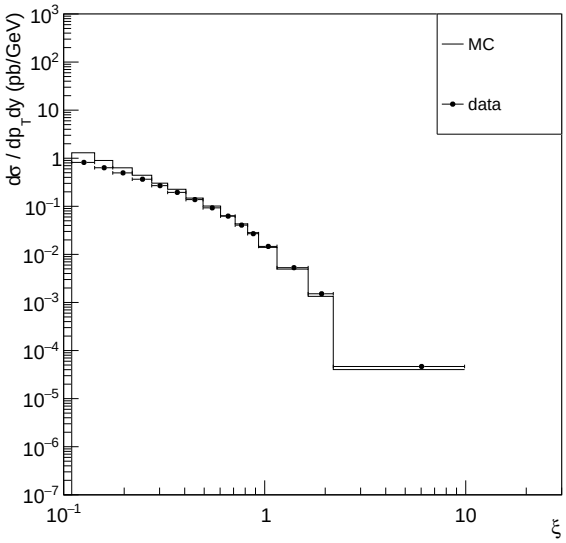
8 TeV ATLAS 1.2 < | y | < 1.6



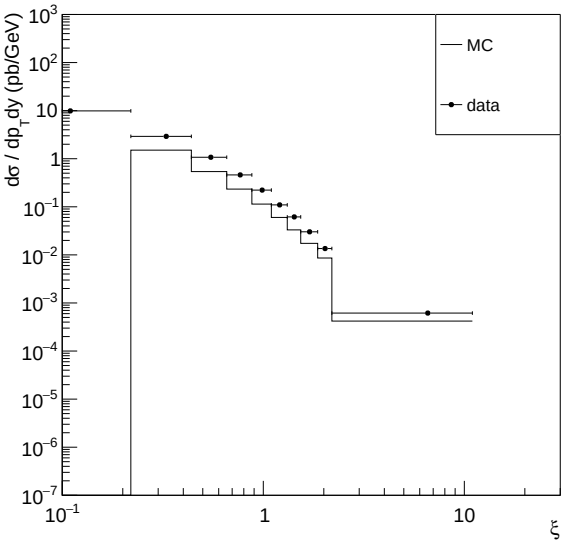
8 TeV ATLAS 1.6 < | y | < 2.0



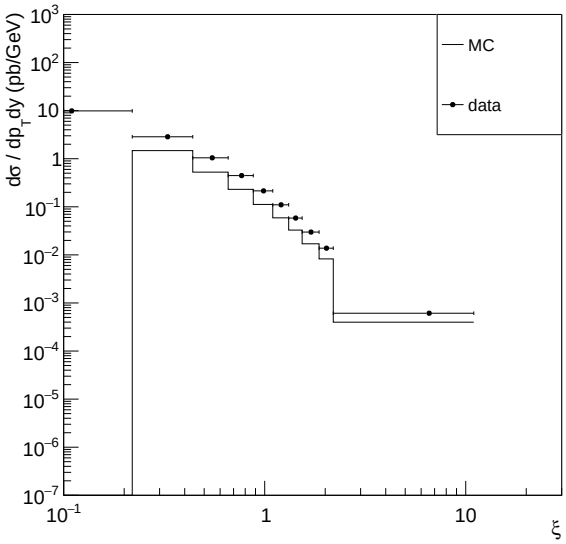
8 TeV ATLAS 2.0 < | y | < 2.4



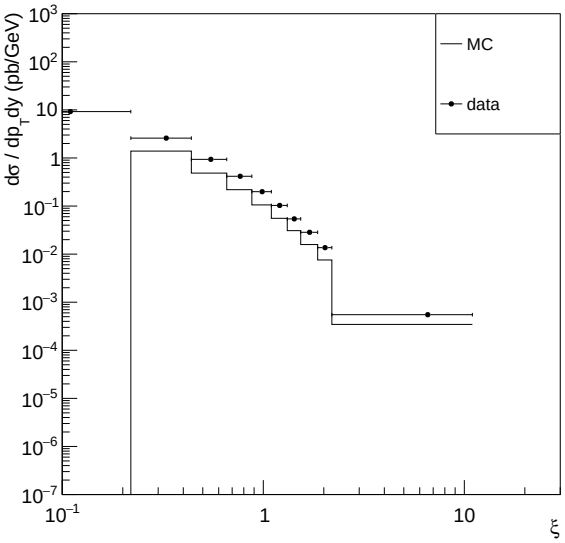
8 TeV CMS 0.0 < | y | < 0.4



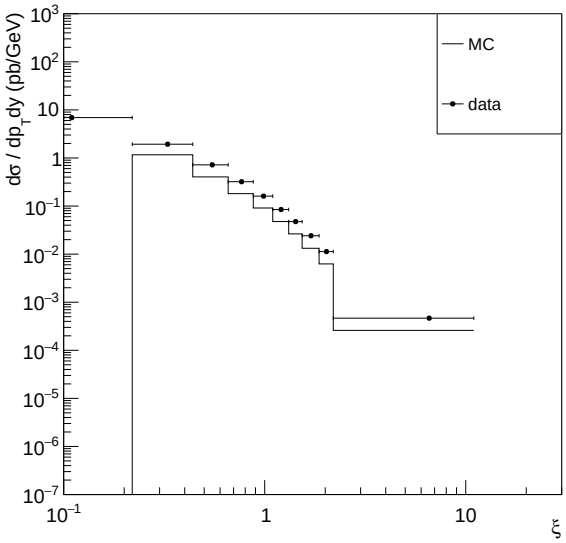
8 TeV CMS 0.4 < | y | < 0.8



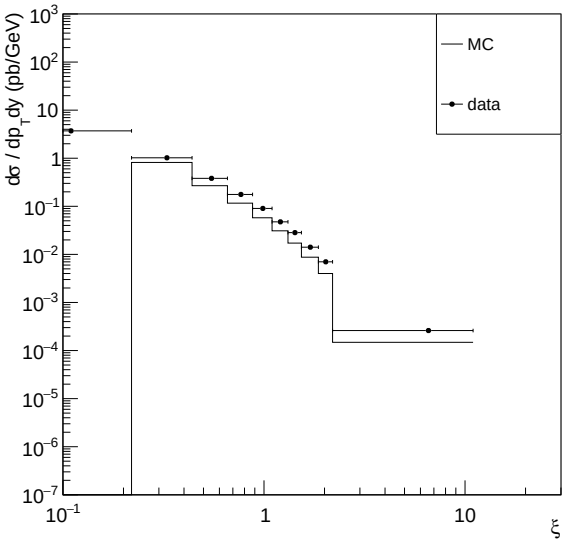
8 TeV CMS 0.8 < | y | < 1.2



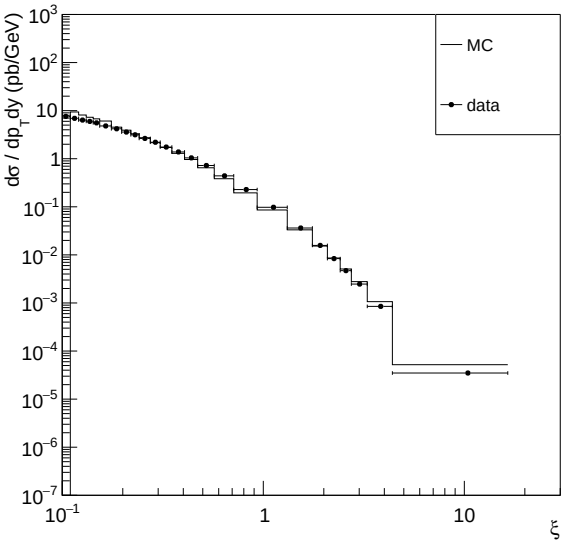
8 TeV CMS 1.2 < | y | < 1.6



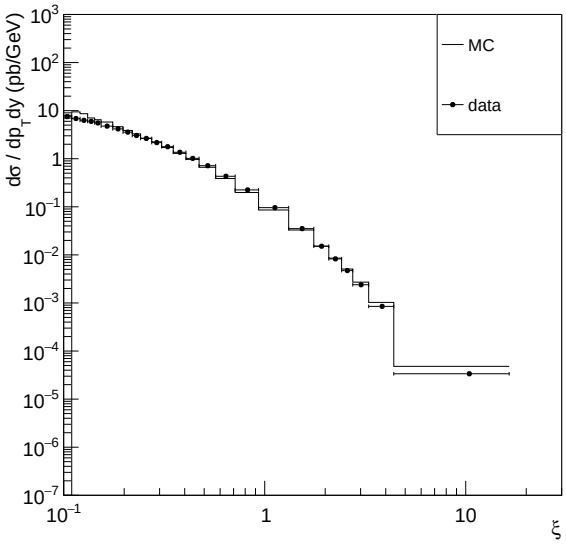
8 TeV CMS 1.6 < | y | < 2.0



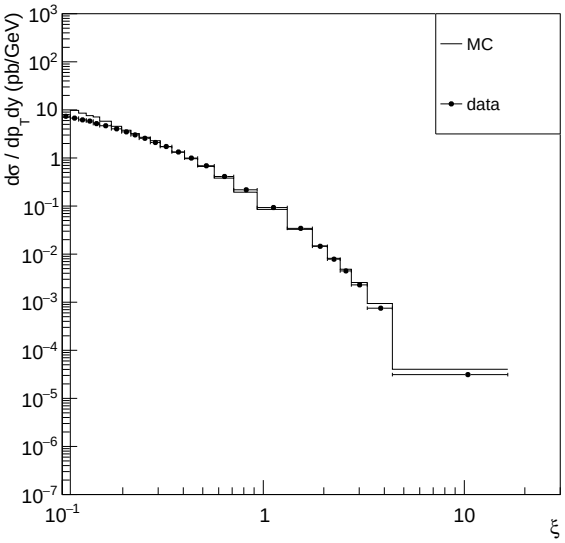
13 TeV CMS 0.0 < | y | < 0.4



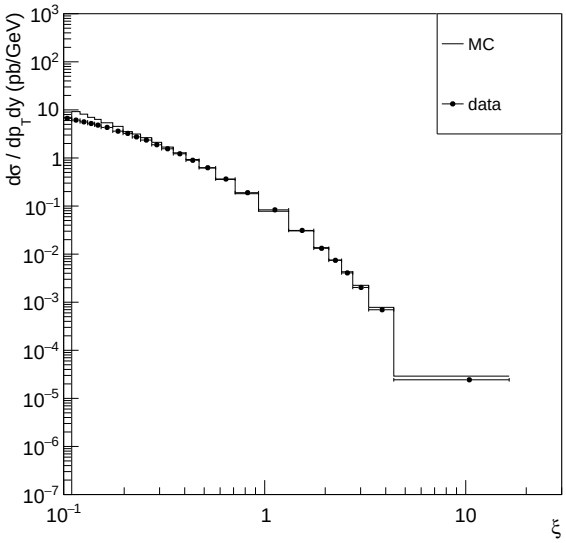
13 TeV CMS 0.4 < | y | < 0.8



13 TeV CMS 0.8 < | y | < 1.2



13 TeV CMS 1.2 < | y | < 1.6



13 TeV CMS 1.6 < | y | < 2.4