The sun has an eleven-year cyclic magnetic activity. This activity is thought to be sustained by the dynamo. The flux-transport dynamo model can explain some features of the solar cycle such as the poleward migration of general magnetic field and the equatorward migration of the active latitude. In addition, the sun has distinct parity, i.e., the dipole like global magnetic field. In the flux-transport dynamo model, the parity depends on some parameters. The coupling of the magnetic field between hemispheres by the turbulent diffusivity is significant factor for the solar global magnetic parity.

In this study, we investigate the dependence of the parity on two parameters, i.e. the turbulent diffusivity and the meridional flow in the axisymmetric mean-field numerical simulation based on the flux-transport dynamo model. Our conclusion is as follows. (1) The stronger diffusivity near the surface is more likely to cause the magnetic field to be a dipole. (2) The thinner layer of the strong diffusivity near the surface is also more apt to generate a dipolar magnetic field. (3) The faster meridional flow is more prone to cause the magnetic field to be a quadrupole, i.e., symmetric about the equator.