$$\int_1^n \frac{|T_n(v)|}{v^2} + \frac{|T_n'(v)|}{v} \, dv \leq C^i \left(1 + \int_1^n \frac{1}{v^{3/2}} \left(\int_1^n \frac{1}{\sqrt{u}} F_{\rho, 2i}(u, v) \, du \right) dv \right) \leq C^i,$$