Unusual Temperature and Field Dependence of Electrical Resistivity of \( \text{Ba(Fe}_{1-x}\text{Co}_x)\text{As}_2 \) YING YANG, RONGYING JIN, Louisiana State University, A.S. SEFAT, M.A. MCGUIRE, B.C. SALES, D. MANDRUS, Oak Ridge National Laboratory — The in-plane electrical resistivity \( \rho_{ab} \) of \( \text{Ba(Fe}_{1-x}\text{Co}_x)\text{As}_2 \) single crystals with \( x=0.02 \) and 0.20 was measured as a function of temperature (2 - 400 K) and magnetic field (up to 14 Tesla). At the under-doped end \( (x = 0.02) \) of the superconductivity dome, we observe positive transverse \( (H \perp ab) \) magnetoresistance (MR) that varies linearly with \( H \), and \( T^2 \) dependence of \( \rho_{ab} \) below and above the structure transition temperature. Surprisingly, the negative MR and \( T^{1.5} \) dependence of \( \rho_{ab} \) were found for the over-doped end member \( (x=0.2) \). The underlying physics of such unusual temperature and field dependence of \( \rho_{ab} \) will be discussed.