1145-VN-704 **Michael McAsey*** (mcasey@bradley.edu), 1501 W Bradley Ave, Bradley University, Peoria, IL 61625, and **Libin Mou**. *Tax Policy to Minimize the 20:20 Index.* Preliminary report.

The 20:20 index is a simple measure of inequity in the distribution of income (or other attributes) in a society. The index is the ratio of the total income of the 20% of the population with the highest incomes versus the total income of the 20% of the population with the lowest incomes. Thus the index is a number larger than 1. The goal is to find a tax scheme to minimize this index (i.e., get closest to 1). The re-distribution function $q(x)$ of incomes gives the after-tax income; it satisfies (1) $Bx \leq q(x) \leq Ax$, and (2) $q'(x) \geq r \geq 0$, and (3) $q'(x)$ is decreasing. In the discrete case, the index is represented by a quotient of affine functions. In the continuous version, the optimal q is a piecewise linear function with three pieces that allows lower incomes to be most preserved ($q(x) = Ax$ for x small), higher incomes to be least preserved ($q(x) = Bx$ for x large) and has a linear transition between the two. Thus there are at most 3 tax rates in an optimal tax policy. In the discrete case, the middle tax rate can be chosen to apply to only one income class while the other two rates are maximal and minimal. (Received September 13, 2018)