REPLY

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Mr. Kondor is correct in pointing out that the Kuznets measure of inequality is insensitive to rank-preserving equalization or disequalization *on the same side of the mean*, whereas the Gini coefficient is sensitive to such transfers.[1] However, his point is not relevant to the main statement I made regarding the properties of these two summary measures. Although it may present semantic difficulties, this statement of mine is correct, as is the geometric presentation in Figure 2. (Alternative portrayals of the way in which the Kuznets measure is estimated from the Lorenz curve are both possible and necessary!)

In my article, I said, "The Kuznets index is more sensitive to concentration at the extreme ends of the distribution than is the Gini coefficient." [3, p. 74] By this and "sensitivity to extreme points," I meant that a rank preserving disequalization *on opposite sides of the mean*, e.g., a reallocation of income from the lowest to the highest quintile, would increase the Kuznets index by a greater absolute amount than it would the Gini coefficient. To prove this proposition, write the two inequality measures in the form

$$G = 1 - \left(\frac{1}{n^2 M}\right)(y_1 + 2y_2 + \ldots + ny_n) \tag{1}$$

$$K = 1/n\left[\sum_{i=1}^{k} (y_i/M - 1) - \sum_{i=k+1}^{n} (y_i/M - 1)\right] \tag{2}$$

for $y_1 \geq y_2 \geq \ldots y_n$, and $y_{k+1} \leq M \leq y_k$

G = Gini coefficient
K = Kuznets index
n = number of income groups with equal numbers of persons
M = mean income for all groups
y_i = total income of group i.

Now consider a transfer from the *mth* group to *lth* group ($y_m < M < y_l$) which is represented by

$$-dy_m = dy_l > 0 \tag{3}$$

and assumed not to affect the ordinal income ranking of any of the groups. Then, after substituting (3) into the differentials of (1) and (2), the relative change in the two inequality measures may be expressed as

$$dK = \frac{2}{nM}\,dy_l > dG = \frac{(m-l)}{n^2 M}\,dy_l \tag{4}$$

[1]This undesirable property of the Kuznets measure has been recognized independently by Atkinson [1, pp. 254–5]. See also Fields and Fei [2].

since $(m-l)<n$. This result indicates that a rank-preserving disequalization on opposite sides of the mean causes an absolute increase in the Kuznets measure which is more than twice as great as that in the Gini coefficient. Commonly observed values of the Kuznets measure generally exceed those of the Gini coefficient by substantially less than a factor of two. See, for example, Table 1 in my article [3, p. 75]. Therefore, in many cases, a rank-preserving disequalization *on opposite sides of the mean* will cause the Kuznets measure to rise by a greater percentage, as well as absolute amount, than the Gini coefficient. Finally, when Lorenz curves intersect twice, an example can easily be constructed of the Gini coefficients being identical but the Kuznets measure being greater for the distribution where the income divergence is larger between the richest and poorest recipient group.

REFERENCES

[1] Atkinson, Anthony B., "On the Measurement of Inequality," Journal of Economic Theory, 2, 244–263 (1970).

[2] Fields, Gary S. and John C. H. Fei, "On Inequality Comparisons," Center Discussion Paper No. 202, Economic Growth Center, Yale University (April, 1974).

[3] McCabe, James L., "Distribution of Labor Incomes in Urban Zaire," *The Review of Income and Wealth*, Series 20, No. 1, (March, 1974).