"NOMINAL" AND "REAL" INTERSTATE INCOME INEQUALITY IN THE UNITED STATES: SOME ADDITIONAL EVIDENCE

BY RATI RAM

Illinois State University

Using a good inequality index, and data on personal income and cost-of-living estimates for the period 1981–90, interstate inequality in "nominal" and "real" personal income per capita is compared. Four points are noted. First, inequality in real income is smaller than that in nominal income. Second, while the nominal-income inequality shows the well-known increase over the 1980s, real-income inequality declined during the period. Third, inequality patterns in the wage and the non-wage components of income are somewhat different. Last, even the nominal-income inequality indicates a decline in the early 1990s.

I. INTRODUCTION

An assessment of the patterns of income inequality across the U.S. states is of obvious importance. In addition to other researchers, who documented and analyzed the increase in interstate inequality since the late 1970s or the early 1980s, Ram (1992) addressed several aspects of interstate income inequalities. One significant point of his work was a comparison of interstate inequality in conventional ("nominal") personal income per capita with that based on "real" personal income per capita that is adjusted for state-level cost-of-living variations. The comparison indicated that inequality in real income was much smaller than that in nominal income, and, contrary to the behavior of nominal-income inequality, inequality in real income did not seem to have increased between 1977 and 1988. However, since price-level information by state is scarce, and he had cost-of-living estimates only for the two years 1977 and 1988, his analysis and conclusion were tentative.[1] The main purpose of this study is to use state-level cost-of-living estimates prepared by McMahon and Chang (1991) for the more extended period 1981–90, and to shed additional light on the important question concerning the relative position of interstate inequality in nominal and real income during the 1980s. The main finding is that not only is the magnitude of real-income inequality much smaller than that of inequality in nominal income, but the two inequality measures show almost opposite patterns of movement during the 1980s.

[1]It might be useful to note that the implicit deflators obtained from current-price and constant-price gross state product (GSP) cannot be used as price-level measures for states. As is well known, constant-price GSPs are estimated on the basis of identical prices across states for all sectors. Moreover, the deflators show an identical price level (100) for all states for the base year, which would be obviously incorrect.

II. Inequality Index, Data and the Main Results

Following Ram (1992), Bourguignon's (1979) "L" is used as the basic indicator of inequality. Bourguignon has explained the many appealing features of this index.[2] For interstate inequality in any given year j, the index may be computed as

$$(1) \qquad L_j = \sum_{i=1}^{n} p_{ij} \ln (p_{ij}/y_{ij})$$

where p_{ij} is the share of state (unit) i in total (U.S.) population in year j, y_{ij} is the income-share of state (unit) i in year j, ln denotes natural logarithm, and there are n states or units of observation.

The inequality index is computed for two different measures of income. One is the familiar personal income per capita by state, which is termed as "nominal income," and the data are taken from a September 1993 printout of the U.S. Bureau of Economic Analysis (BEA). The other is "real" personal income per capita, which is obtained by adjusting BEA's numbers for state-level cost-of-living variations estimated by McMahon and Chang (1991, p. 13).[3] The adjustment is straightforward, and real income (RI) is computed as

$$(2) \qquad RI_{ij} = 100(PI_{ij}/P_{ij})$$

where PI_{ij} is BEA's personal income per capita for state i and year j, and P_{ij} is McMahon–Chang's cost-of-living index for state i and year j.[4]

Since cost-of-living data by state are available from 1981 through 1990, the main focus is on that period. However, data on PI are available through 1992, and inequality indices for PI have been computed for 1991 and 1992 also, so as to show the nominal-income inequality in these two recent years.

Table 1 contains the main results. It provides values of L for nominal income for the period 1981–92 and for real income from 1981 through 1990.[5] Three main points may be noted.

First, as might be expected due to the high positive covariance between nominal income and the cost-of-living index, the inequality in real income is much smaller than that in nominal income in every year.[6] Perhaps more interesting, the divergence between inequality in nominal and real income increased over the period. The ratio of nominal-to-real income-inequality was about 2.0 in 1981–83 and nearly doubled to about 3.8 in 1988–89.

Second, inequality in nominal and real income moved in almost opposite directions during the decade. Consistent with what may be called the current

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[2]As noted by Ram (1992), Bourguignon's L can also be viewed as Theil's (1967) population-weighted index of inequality.

[3]See McMahon and Chang (1991, pp. 4–11) for details. While the numbers seem very useful, these should be treated as preliminary estimates.

[4]McMahon–Chang (1991) numbers are constructed with the base being 1981, for which year the U.S. average of the Bureau of Labor Statistics (BLS) SMSA indices is 100. In other words, all numbers reflect cost-of-living by state with the average of BLS's SMSA indices for 1981 being 100.

[5]For the sake of comparability with Ram (1992), Table 1 reports values of L. However, the broad patterns are the same if Theil's (1967) income-weighted index of inequality is used. Additional details are available from the author.

[6]Simple coefficients of correlation between PI and P range between about 0.75 and 0.91. Further details are available on request.

TABLE 1

INDEX OF INTERSTATE INEQUALITY IN NOMINAL AND
REAL PERSONAL INCOME PER CAPITA: U.S.,
1981–1992

| Year | Index of Inequality (Bourguignon's L) | |
	Nominal Income	Real Income
1981	0.0080	0.0039
1982	0.0085	0.0042
1983	0.0089	0.0042
1984	0.0089	0.0038
1985	0.0094	0.0037
1986	0.0099	0.0034
1987	0.0108	0.0032
1988	0.0115	0.0030
1989	0.0113	0.0031
1990	0.0105	0.0028
1991	0.0094	—
1992	0.0089	—

Note: The indices are based on data for the 48 continental states, D.C., and Alaska and Hawaii.

"stylized facts" about income inequality in the United States, interstate inequality in nominal income increased almost steadily during the 1980s, and the inequality index rose from 0.0080 in 1981 to 0.0115 by 1988.[7] On the other hand, interstate inequality in real income declined over most of the period. After a slight increase from 1981 to 1982, it declined steadily by about 33 percent during the 7-year period 1983–90. While caution is obviously appropriate in drawing strong conclusions, it seems that the intertemporal pattern of interstate inequality in nominal income over the 1980s yields an inaccurate picture of the trend in real-income inequality during the period.

Third, after more than a decade of steady increase, interstate inequality even in nominal income seems to show a decline in the early 1990s. Although inferential caution is appropriate here also and it might be too early to analyze the decline, taking the numbers literally, the decline from 1988 to 1992 is about 23 percent and seems fairly sizable.

To shed some additional light on the patterns of nominal- and real-income inequality, separate inequality indices are constructed for the wage and the non-wage components of personal income. Since information on these two components is not included in the BEA (1993) printout, the decomposition has been done on the basis of the details given in BEA (1989, 1990, 1992). The information for the period 1981–86 is taken from BEA (1989, pp. 37–265), that for 1987–88 is from BEA (1990, pp. 30–39), and data for 1989–90 are taken from BEA (1992, pp. 50–59). The sum of line 10 (dividends, interest and rent), line 11 (transfer payments), line 13 (other labor income) and line 14 (proprietors' income) in the cited BEA publications is treated as non-wage income, and the rest is taken as wage income.[8]

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[7]All these numbers are "small" in an absolute sense. It is obvious that interstate inequality is only a part of the total income inequality in the U.S., but is an important component of the overall inequality.

[8]Therefore, although the decompositions seem very reasonable, these should be treated as approximations.

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INTERSTATE INEQUALITY IN WAGE AND NON-WAGE INCOMES IN NOMINAL
AND REAL TERMS: U.S., 1981–1990

| | Index of Inequality (Bourguignon's L) | | | |
| | Wage and Salary Income | | Non-Wage-Salary Income | |
Year	Nominal	Real	Nominal	Real
1981	0.0099	0.0059	0.0103	0.0063
1982	0.0110	0.0066	0.0099	0.0060
1983	0.0113	0.0063	0.0101	0.0059
1984	0.0118	0.0063	0.0101	0.0056
1985	0.0128	0.0065	0.0103	0.0056
1986	0.0143	0.0066	0.0101	0.0052
1987	0.0158	0.0063	0.0099	0.0047
1988	0.0166	0.0062	0.0108	0.0045
1989	0.0162	0.0058	0.0110	0.0052
1990	0.0149	0.0053	0.0105	0.0049

Note: The coverage includes 48 continental states, D.C., and Alaska and Hawaii.
As explained in the text, non-wage income is the sum of lines 10, 11, 13 and 14 in BEA
(1989, 1990, 1992), and the rest is taken as wage income. Real income is computed, as
for Table 1, in terms of equation (2).

The real components are calculated, as for Table 1, on the basis of equation (2).

Table 2 shows the inequality indices for each component in both nominal and real terms. Several points may be noted from the table.

First, as may be expected, inequality in real terms is considerably smaller than that in nominal terms in both components.

Second, inequality patterns in wage-income broadly resemble those in Table 1 for total personal income. The inequality in nominal wage-income increased over most of the period, and the increase is quite large. Wage-income inequality in real terms, however, shows a declining tendency although the decline is more uneven and less marked than in Table 1. The resemblance between Table 1 and the wage-income component of Table 2 probably reflects the fact that wage-income is a larger part of personal income and also that wages and salaries are more likely to be affected by interstate price-level variations.

Third, patterns of inequality in the non-wage income are different from those in Table 1 and in the wage component. In particular, there is no increasing trend in inequality in this component in nominal terms. The inequality index seems fairly steady between about 0.010 to 0.011 during the entire period. Also, while the inequality in real terms does show a declining tendency, the pace of decline appears somewhat uneven.

Last, the aforesaid differences are reflected in the change in the relative magnitudes of the inequalities in the wage and the non-wage components in nominal terms. In the early part of the period, indices of inequality in the two components are of the same order. In the later part, the (nominal) wage-income inequality becomes substantially larger than the (nominal) non-wage inequality. In real terms, however, the indices of inequality for the two components are broadly of the same order during the period.[9]

[9]Since the inequality in each component is larger than in Table 1, there are apparently some offsetting effects when total personal income is considered.

Although caution is obviously needed in drawing strong conclusions, the main point emerging from Table 2 may be summarized by saying that (a) the patterns in Table 1 seem to be dominated by the wage component, and (b) the structure of inequality in the non-wage component is different, and there is no tendency for the non-wage inequality in nominal terms to increase during the 1980s. To some extent, the differences reflect the differential impact of interstate price-level variations on the various components of income. As may be expected, wages and salaries are perhaps more affected by these variations than the non-wage components.

III. CONCLUDING REMARKS

Apart from providing a 10-year comparison of interstate inequality in nominal and real income and showing the latter to be much smaller, the main conclusion of this study consists of two cheerful notes. First, the picture indicated by the steady increase in interstate inequality in conventional (nominal) personal income per capita during the 1980s appears inaccurate as a reflection of what happened to real-income inequality, which seems to have declined during most of the period. Second, interstate inequality even in nominal income shows a declining tendency during the early 1990s. Although it is not obvious whether these scenarios can be generalized to broader measures of income inequality in the U.S., there is some basis for being a little more optimistic than the current stylized facts appear to suggest.[10] An additional point indicated by the decomposition of personal income into the wage and the non-wage components is that while the inequality patterns in the wage component are similar to those in total personal income, inequality in non-wage income shows a different structure; in particular, there seems no increasing tendency in the inequality in non-wage income in nominal terms during the 1980s.

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[10]There is some indication that the overall income inequality might also follow a somewhat similar pattern. For example, U.S. Bureau of the Census (1993, Table B–7) shows that the family-income Gini ratio, which rose from 0.355 in 1974 to 0.401 in 1989, dropped to 0.396 and 0.397 in 1990 and 1991.

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