Are We Really Poor? Size of Place and Relative Pay and Income In the Small Cities and Non-Metropolitan Areas of the Pacific Northwest and Mountain West

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1. Income and Pay Gaps in the Pacific Northwest and Mountain West

For at least the past decade, low relative incomes and earnings have been a substantial and increasingly urgent public policy concern in the Pacific Northwest and Mountain West states. These earning and income gaps are taken as signs that state or regional economies are failing to provide adequate support for residents. In many ways this is an anomaly, since the economies in question have shown signs of considerable economic vitality: Total employment, total real income, and population have all been rising at relatively brisk rates in a decade long economic expansion. Yet average pay and income relative to national averages have either stagnated or declined.

The statistics, in some cases, are startling. Average income and pay per job in Idaho, Montana and the non-metropolitan areas of Washington and Oregon are twenty to thirty percent below the national average, and the gap has grown considerably over the last two decades. The experience of the Mountain West is similar although somewhat less serious, with a gap of ten to fifteen percent relative to national averages. For both income and average pay, and for both regions, the pattern is similar. This can be seen in Figure 1, which shows the trend in relative average real incomes for the Pacific Northwest states, and Figure 2, which shows the trend for relative average annual real pay per job for the Mountain West.

The deterioration in average pay and income in the West has often been attributed to the loss of relatively high paid jobs in the natural resource sectors (forest products, mining, and metal processing) and their replacement by poorly paid jobs in service-producing sectors. In previous work we have shown that 80 to 100 percent of the declines in average pay would have been experienced even if the industrial structure of employment in 1978 had been maintained over the following two decades. It was not the shift in the structure of employment that caused the decline in average real pay but an overall decline in pay across <u>all</u> sectors, often led by declines in the natural resource sectors.[1]

In this paper we examine another explanation of low pay. Specifically, we argue that low income and earnings in the Mountain West and Northwest are attributable mainly to the small sizes of the communities in which most of the residents of these regions live, and we explore the welfare implications of these size-of-place related differences in earnings.

[1] "Converting 'Good' to 'Lousy' Jobs: The Impact of Changes in Industrial Sturcture on Pay in the Inland West, the Pacific Northwest, and Montana," Thomas M. Power, presented at the Pacific Northwest Regional Economic Conference, May, 1999. Published in the proceedings.

Figure 1: Relative Average Income: Pacific Northwest

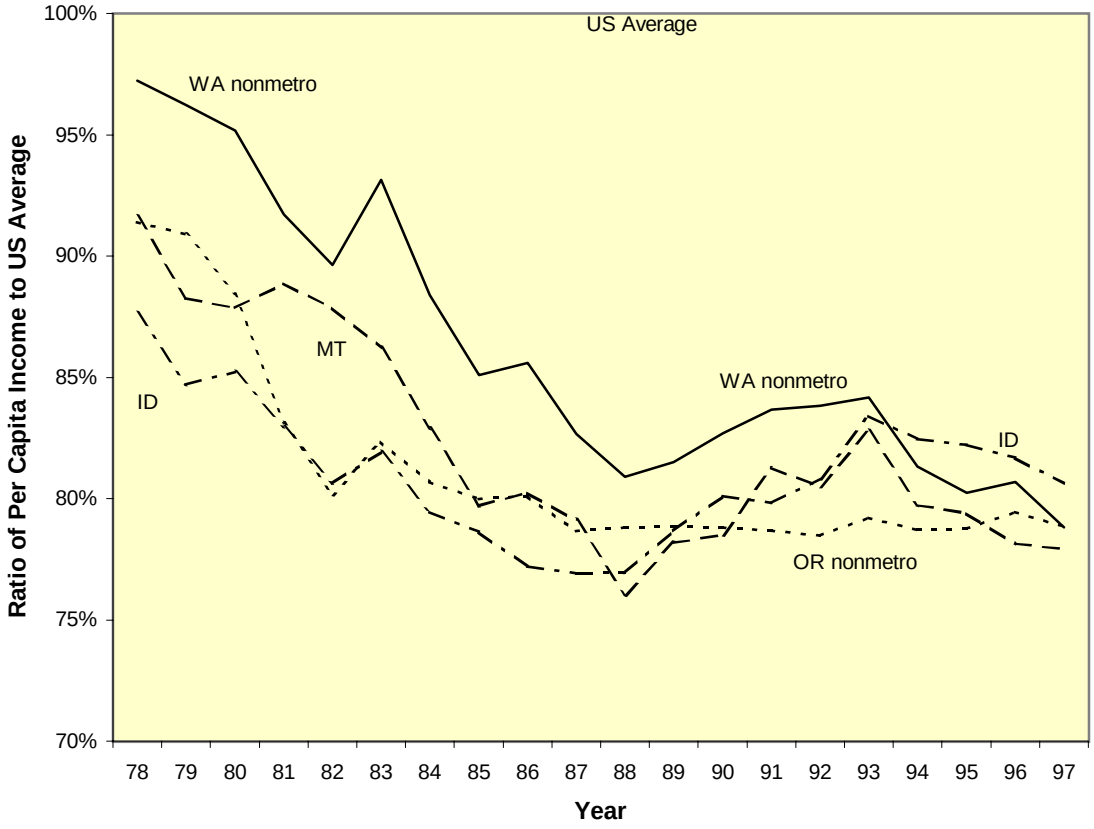
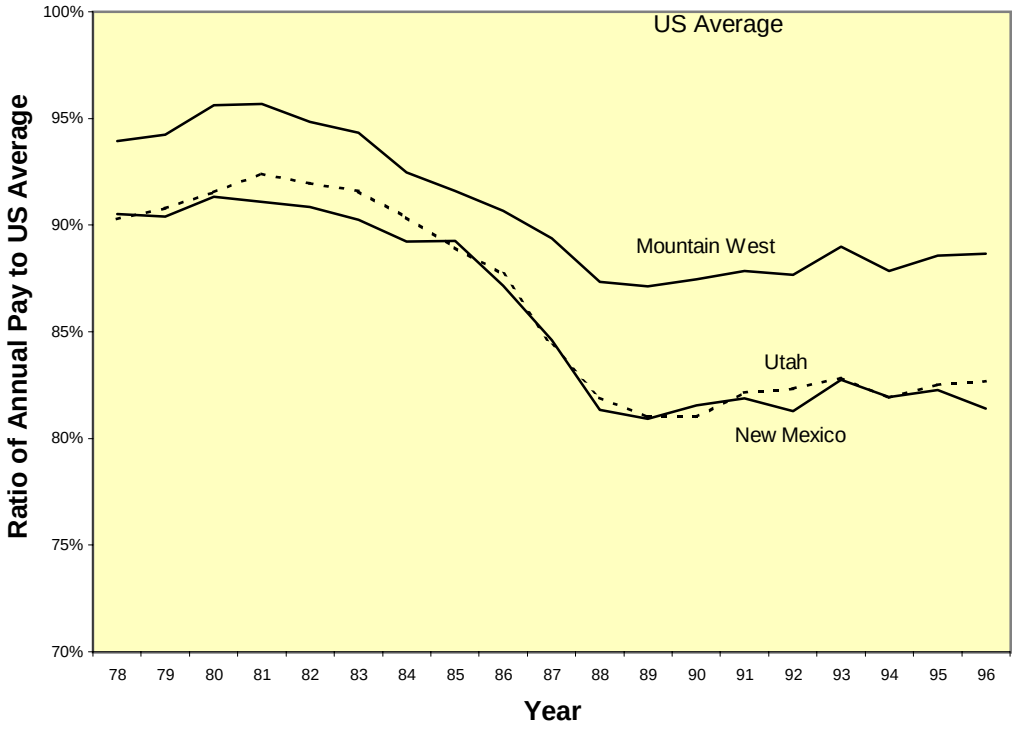


Figure 2: Relative Average Pay per Job: Mountain West



2. Pay Gaps and Size of Place

That low incomes are associated with residence in small cities, towns and rural areas is most vividly illustrated by the case of Montana, which graces the bottom of the national economic barrel in terms of average annual pay per job. Using average annual income allows Montana to climb over a few other cellar dwelling states, but it still remains among the poorest half-dozen. And Montana is in another unique position: In 1996 it was the state with the smallest percentage of its population living in metropolitan areas and was among the ten states with the smallest percentage of their populations living in urban areas.

There is a relatively strong relationship between the size of a metropolitan area and average pay (Figure 3). These relationships have continued to exist over several decades despite strong fluctuations in average pay and income and despite the inter-metro and inter-state movement of tens of millions of people and workers (Figure 4).

Figure 3: Pay per Job by Size of Metro Area, 1997

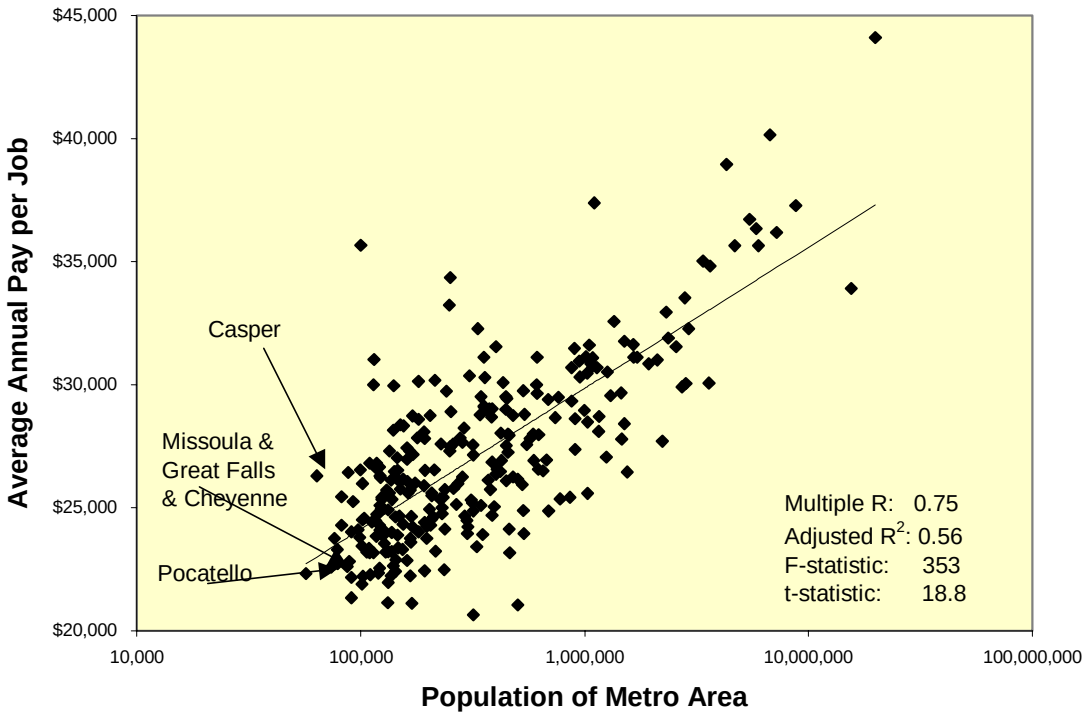
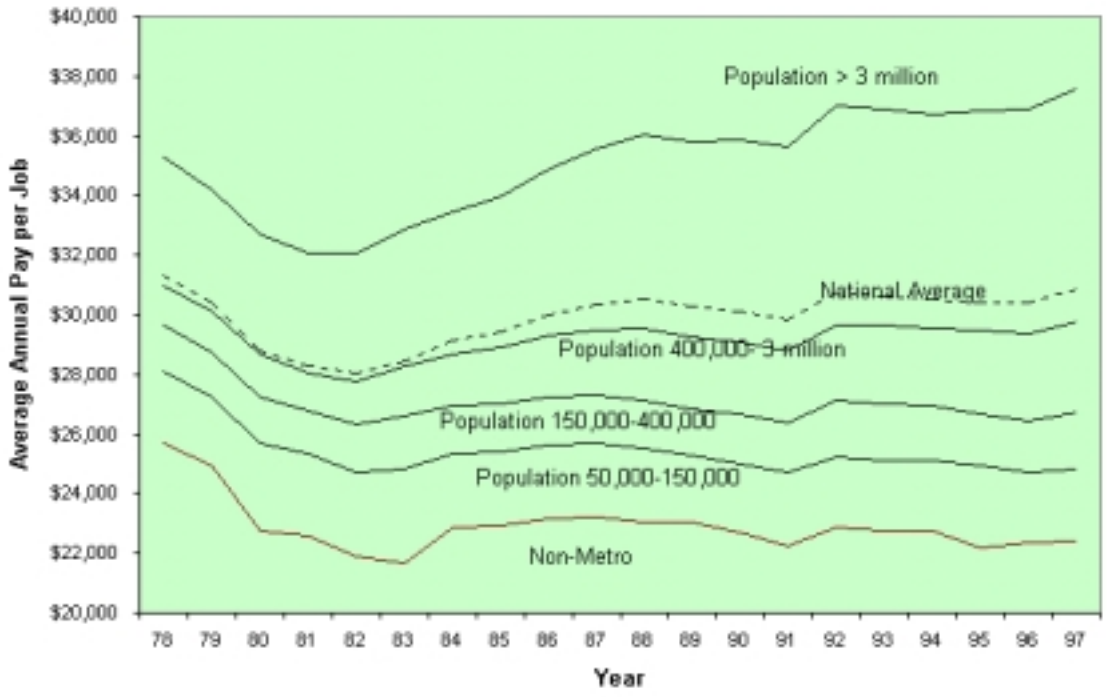


Figure 4: Average Real Pay per Job for Metro Areas of Different Sizes



These relationships between size of place and average pay and income at least suggest that it is this demographic variable that explains the relatively low incomes found in states like Montana, Idaho, and New Mexico as well as the lower incomes found in the "other" Washington and Oregon, i.e. the small metro and non-metro portions of these states.

For Montana, Washington and the Mountain West, this is indeed the case. If Montana's small and non-metro areas are compared to similar small and non-metro areas in the rest of the nation, Montana's economic performance as measured by average pay and income is almost identical. The same is true of the Mountain West as a whole and "the other Washington." Figures 5 to 8 display these comparisons and their trends over time for Montana, the Mountain West and Washington State.

Figure 5: Montana and US Average Real Incomes; Metro and Non-Metro Areas

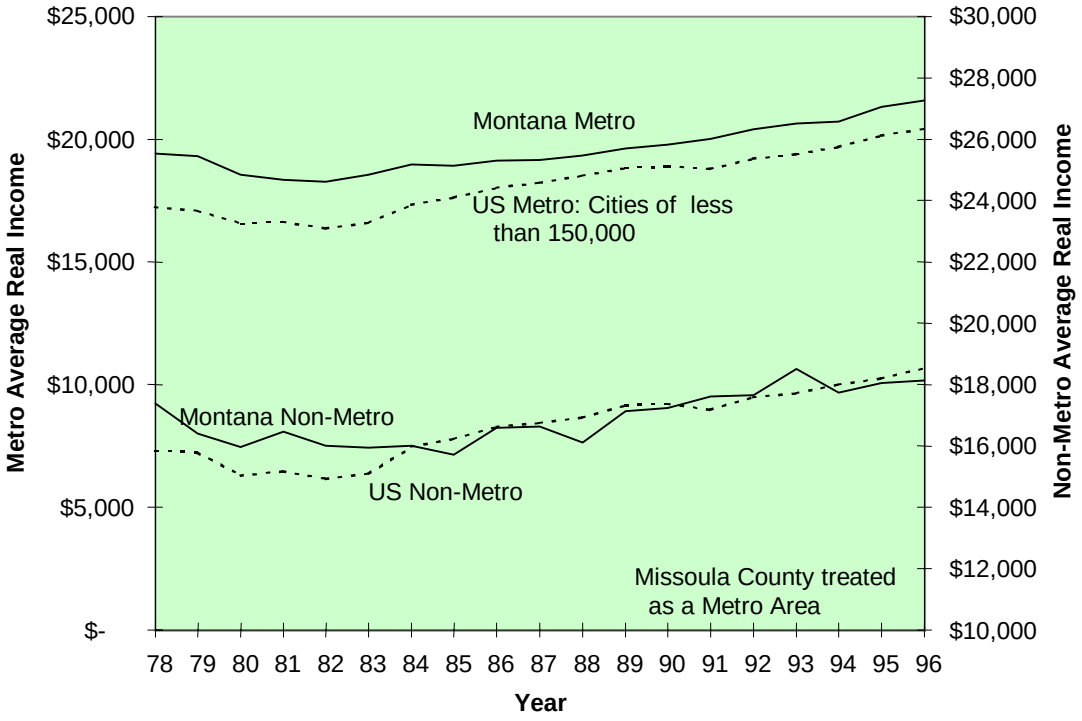


Figure 6: Mountain West and US Average Real Income by Size of Place

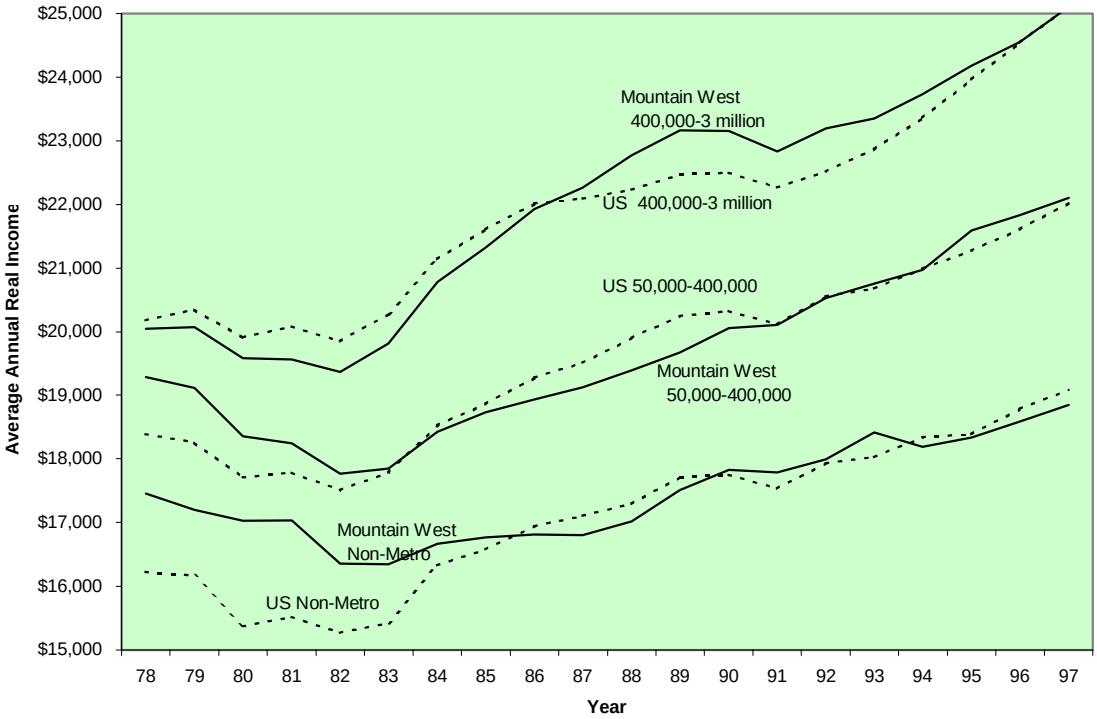


Figure 7: Washington and US Average Real Income and Pay Per Job; Small Metro Areas

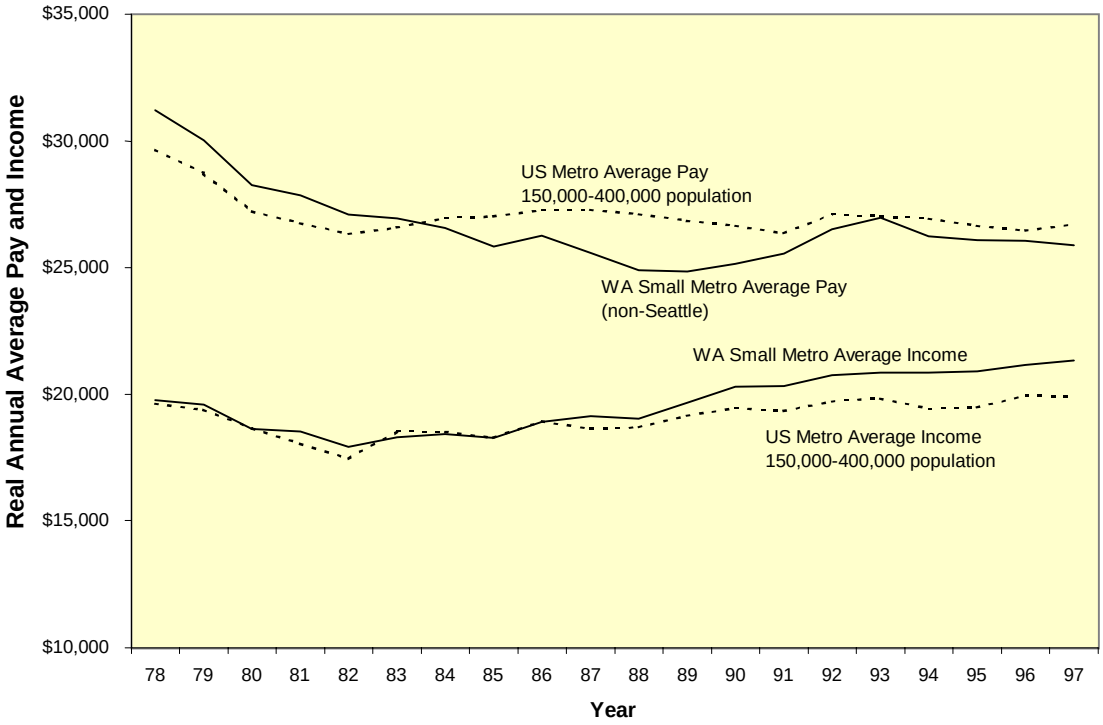
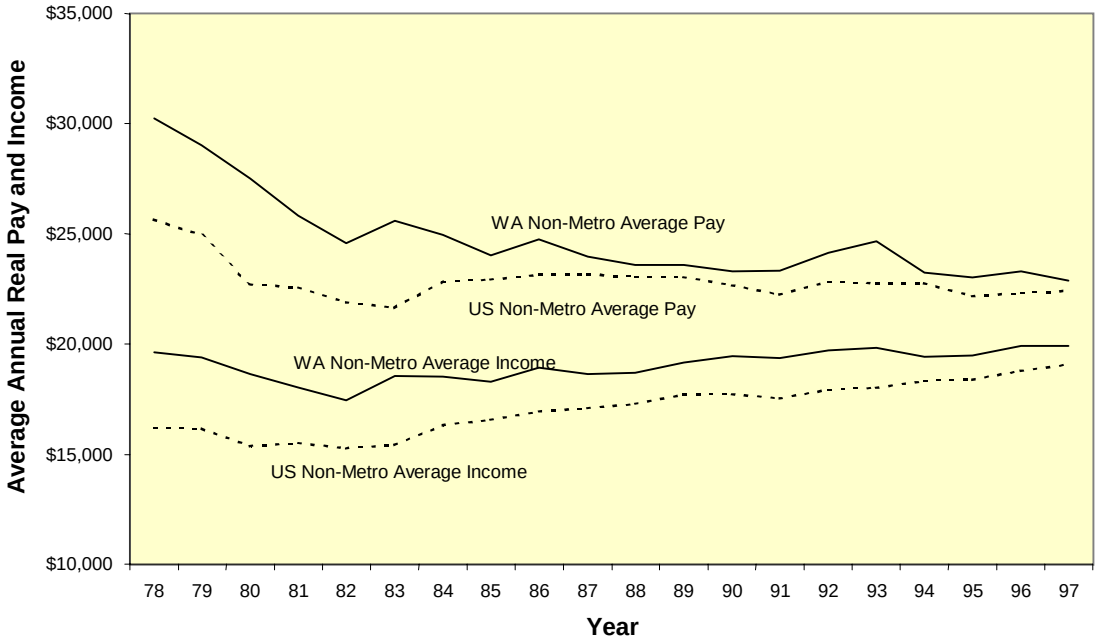


Figure 8: Washington and US Average Income and Pay per Job; Non Metro Areas



One conclusion that can be reached from these comparisons is that in relation to other Americans living in similar small cities and non-metro areas, the residents of Montana, the "Other Washington" and the Mountain West are not faring badly. They are doing about as well as they would living anywhere else in the nation is similarly sized settlements. At the very least, this suggests that whatever the "economic failure" is that leads pay and income to be lower in small cities and towns, it is not particular to the Pacific Northwest or the Mountain West. Given the nationwide character of this pattern, low average pay and income do not appear to be tied to the geographically specific policies of state and federal governments.

These comparisons also underline the fact that there are quite large differences in the average pay and income of residents of very large cities and those of small cities and rural areas. Since half of all Americans live in 32 rather large cities (populations of 1.4 million or more in 1997), national averages are heavily influenced by the pay and income opportunities in quite large urban areas. 88 percent of the nation's metropolitan areas and, of course, all of the non-metropolitan areas involve sizes of place smaller than 1.4 million. It is important when using national averages as a reference point to recognize their close association with quite large cities.

3. Welfare Interpretations of the Pay and Income Gaps

From the point of view of residents of the Mountain West or rural Washington, of course, the fact that their low incomes can be attributed to living in small cities, towns and rural areas may be cold comfort; it may simply mean that all Americans living outside of large cities are similarly disadvantaged. On the other hand, variations in city size may be accompanied by variations in both the cost of living and the value of public amenities that compensate for differences in earnings. Such compensated differences in earnings would imply that there is little or no variation in well being across cities of varying size.

A significant literature exists supporting the idea that some substantial part of the pay and income differences among metro areas may be compensating in character rather than representing real differences in welfare. Cost of living and the disamenities of dense urban settlement have been the focus of the literature explaining inter-metro pay and income differences. Borts and Stein (1964) argued that in equilibrium with a competitive national labor market with full worker mobility the only regional differences in wages would be those associated with the attractiveness of different locations to workers.[2] Nordhaus and Tobin (1972) sought to adjust national income accounts to produce a better measure of how economic welfare had changed over time. One of the adjustments they made was for urban disamenities associated with the size and density of the urban areas in which the population increasingly lived. This population size and

[2] Borts, G.H., and J.L. Stein. 1964. Economic Growth in a Free Market. New York: Columbia University Press.

density adjustment reduced national income by about nine percent.[3] Irving Hoch (1972, 1976, 1984) also estimated the way in which city size and density affect both cost of living and quality of life and lead to compensating wage payments.[4] Cebula (1983) showed that geographic living-cost differentials were related to population density and size.[5] More recently Kent Halstead (1992) has sought to explain much of the inter-city wage differentials in terms of local cost of living and amenities.[6]

The next sections explore what information on cost of living and the value of amenities can tell us about the clear pattern of pay and income rising with the size of place in which residents live.

4. Cost of Living and Size of Place

Measures which compare the cost of living across urban areas are hard to come by. A standard source of such measures, however, is ACCRA Cost of Living Index, published by the private American Chamber of Commerce Research Association. This index is based on the prices of a large collection of items which the association deems to be representative of the spending patterns of middle management employees. The value of the index, e.g. 93.0 for Huntsville, Alabama in the first quarter of 1998, gives the cost of the selected items in that city as a percentage of the average cost of the same items across all the metro areas reporting. Data is reported quarterly.

For this analysis, the 1998 annual average value of the quarterly cost of living index was calculated for 211 metropolitan areas (for areas which failed to report in every quarter, the average for reported quarters was used). In some cases, the index is reported for the entire metro area. In others, the index is reported for the central city alone or for the central city and other place within the metro area; in all these cases, the index reported for the central city was used. Since cost of living can vary across areas, this procedure carries some risk of error. Estimates of 1998 population and earnings per job for each metro area are from the Census Bureau and Bureau of Economic analysis respectively.[7]

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[3] Nordhaus, W.D. and J. Tobin. 1972. "Is Growth Obsolete," Economic Growth, Fifth Anniversary Colloquium, Vol. V (New York, National Bureau of Economic Research), p. 12, Table 2.

[4] Hoch, I. 1972. "Urban Scale and Environmental Quality," in Population, Resources, and the Environment, (Washington, D.C., Commission on Population Growth and the American Future, Vol. III). Hoch, I. 1976. "City Size Effects, Trends, and Policies, Science 193:856-863, September 3. Hoch, I. J. Hewitt, and V. Virgin, 1984, "Real Income, Poverty, and Resources, Part III of Rural Development, Poverty, and Natural Resources Workshop Paper Series, National Center for Food and Agricultural Policy, Resources for the Future, Washington, DC.

[5] Cebula, Richard J.. 1983, Geographic Living-Cost Differentials, Lexington, MA: Lexington Books.

[6] Halstead, Kent. 1992. Wages, Amenities, & Cjost of Living: Theory and Measurement of Geographical Differentials, Washington DC: Research Associates of Washington.

[7] See (www.census.gov/population/estimates/metro-city/ma98-02.txt and www.bea.doc.gov/bea/regional/reis/ca34/index.htm

The simple correlation coefficients across urban areas between population and earnings, cost of living and earnings, and cost of living and size of place confirm that earnings and cost of living are positively related to one another, as are both earning and cost of living with size of place. Table 1 reports these correlation coefficients.

Table 1: Correlations (r) of Earnings, Cost of Living and Size of Place

Variables	r
Population/Earnings	.694
Cost of Living/Earnings	.572
Population/Cost of Living	.597

The variation in cost of living and earnings with size of place is represented in another way in Table 2, which shows average earnings and cost of living across cities in various size classes; in calculating these averages, values for each city were weighted by the share of the city's population in the total population for all reporting cities in the size class.

Table 2: Cost of Living, Earnings, and Deflated Earnings by Metro Area Size Class

Size Class (x1000)	Cost of Living	Earnings per Job	Deflated Earnings per Job
>2,000	128.0	$36,536	$28,544
1,000 – 2,000	100.5	$30,659	$30,507
500 - 1,000	98.9	$28,206	$28,520
250-500	100.0	$26,987	$26,987
<500	97.7	$25,436	$26,035

As expected average earnings per job rise as size of place increases; cost of living rises over the entire range of size classes, although it takes a small dip in moving from cities of less than 500 thousand to cities between 500 thousand and 1 million. Earnings per job in cities of more than 2 million are 43.6% higher than earnings per job in small cities with less than 500 thousand population, but this difference is reduced to 9.6% when earning are deflated by the local cost of living (earnings per job/cost of living).

Subject to a number of caveats regarding the quality of the cost of living data and the representativeness of the sample (cities are included when local Chambers of Commerce choose to cooperate with ACCRA and submit price reports), the results reported in Tables 2 and 3 suggest that inter-urban variations in earnings per job are at least in part compensating for differences in out of pocket cost of living. Corrected for differences in cost of living, inter urban differentials in earnings are substantially reduced and the earnings advantage of living in a large metropolitan area disappears.

5. Quality of Life and Size of Place

Using data from the 1980 Census, Blomquist, Berger and Hoehn measured the value that Americans place on 16 different amenities that vary from one location to another[8]. They did this by observing what people were willing to pay, in higher rents and/or lower wages, in order to have access to such amenities, which were represented by variables that measured coastal location, crime rates, school quality, and several different dimensions of both climate and environmental quality. The measures of willingness to pay were then used to compute a "quality of life index" i.e. the total value of the package of 16 amenities that was available in each of 253 metropolitan area counties. The winner in this calculation was Pueblo County, Colorado; the authors calculated that an average American family would put a value of almost $3,300 (in 1980 dollars) on the mix of amenities available there. The loser was St. Louis City, where the value of the package was so low that it actually would impose a cost on an average family of $1,860.

The authors did not analyze how the quality of life indices of counties varied with the sizes of the metropolitan areas in which they were located, but that is not hard to do. In Table 3, we have placed each of the 253 counties in one of five groups, based on the 1980 size of the metropolitan areas in which they were located, and have calculated the population weighted average QOLI for each group. Clearly, as the size of the metropolitan area increases, the average QOLI falls. In moving from the smallest to the largest metropolitan areas, the value of the package of local amenities falls by almost $600.[9] As a measure of relative magnitude, that $600 per year represented about 20 percent of the difference in average pay per job between the smallest and largest metropolitan areas.[10]

Table 3: Average QOLI Index for Counties; By Size of Metropolitan Area in which County is Located; 1980

Size of Metropolitan Area (1000s)	Weighted Average QOLI	Weighted Average Earnings/Job
> 2,000	-$194	$15,906
1,000 - 2000	$257	$14,420
500 - 1000	$258	$13,630
250 - 500	$316	$13,855
<250	$393	$12,935

Source: Calculated by the authors from Blomquest, et. al. estimates of the QOLI for 253 counties and 1980 City County Databook estimates of county and SMSA populations. See text.

[8] Blomquist, Glenn C, Mark C. Berger and John P. Hoehn. 1988, "New Estimates of Quality of Life in Urban Areas," American Economic Review, 78 (1), pp. 89-107

[9] In 1980 prices. Inflated to current (1999) prices, the difference would be approximately $1200.

[10] The QOLI estimates are per household; the pay data is per job. In 1980 there were 1.4 jobs per household. If the $600 is expressed in terms of average household pay, it would be about 14%.

6. Migration and Compensating Differences

That geographic variations in earnings and income are compensating for differences in amenities and cost of living rests on the assumption of worker mobility. Workers move from locations where the combined value of real earnings and amenities is low to where it is high. As a result there is an equalizing movement in real wages[11]; migration stops when equalization is complete. In the absence of a zero migration equilibrium, differences in earnings can not be taken to be fully compensated For example, ***if*** workers are earning less in rural areas and also *leaving* those areas in large numbers, they are indicating that whatever the benefits of rural residence may be, they are not enough to compensate for lower earnings.[12]

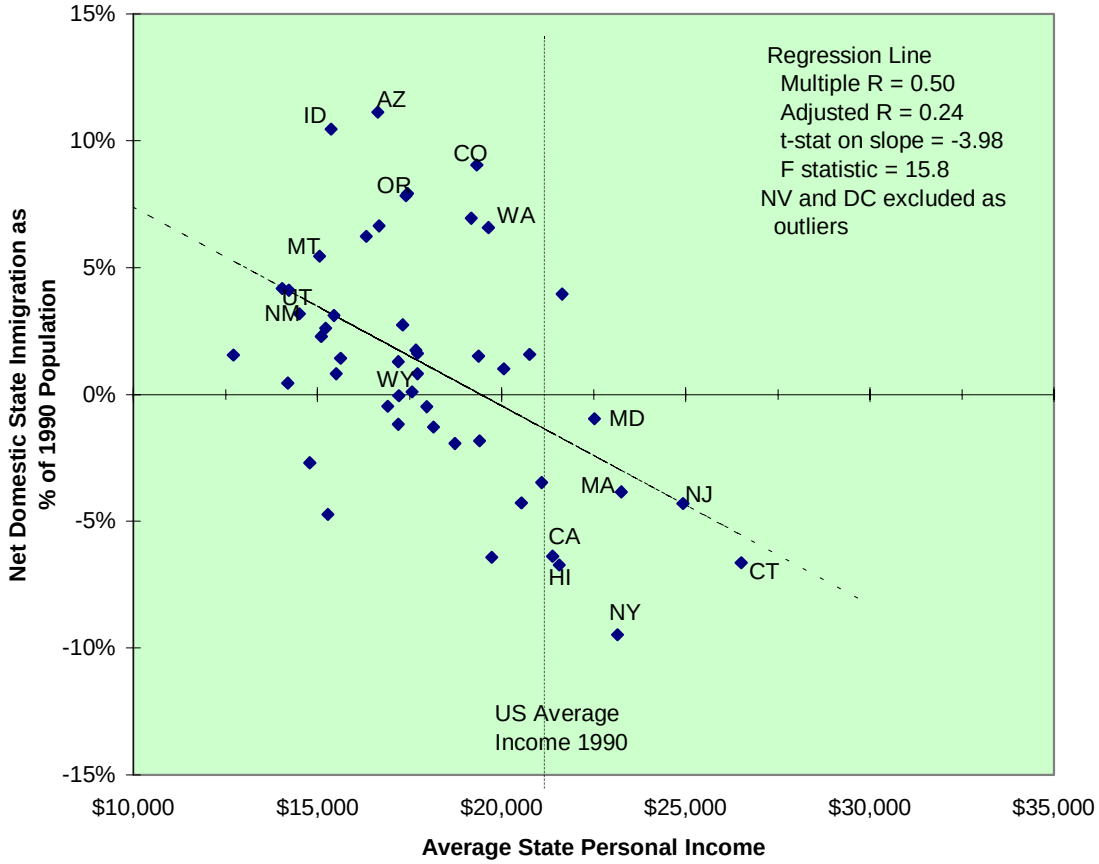
On the other hand, movement of population towards low wage areas would mean that amenities and differences in cost of living were more than compensating. In fact, there is some evidence that in the case of states, such migration towards low wage areas is substantial. For example, during the last decade, the high average income states of the North East have had net outmigration while the low income states of the Mountain West and Pacific Northwest have seen net inmigration (see Figure 9). For metropolitan areas, the evidence is somewhat less clear. Figure 10 depicts the relationship between metropolitan area size and population growth (in excess of the national average), again during the past decade[13]. It is obvious from Figure 10 that a lot of moving around is going on, and that it is not significantly driven by differences in income between metro areas: High income areas are not systematically gaining, and low income areas systematically gaining, population.

[11] If amenities vary with population size, some equalization of amenities will also occur.

[12] During most of the 1990s net inmigration rates to nonmetropolitan areas were above those to metro areas both in the West and in the rest of the nation. The same was true of the 1970s. However, during the 1980s net inmigration was negative in nonmetro and positive in metro areas. See John B. Cromartie and John M. Wardwell, 1999,"Migrants Settling Far and Wide in the Rural West," Rural Development Perspecdtives, 14(2), pp. 2-8.

[13] Differentials in population growth are taken to be principally the result of differential net inmigration.

Figure 9: 1990 Average Incomes and the Rate of Net Inmigration 1990-1997



Is it possible to come up with a measure of the compensating difference in earnings between two locations that takes account of migration? Using data for the period 1971 to 1988, Greenwood, Hunt, Rickman and Treyz analyzed the relationship between interstate migration and state earnings (measured relative to the national average)[14]. On the basis of this analysis, they were able to estimate for each state *equilibrium* relative earnings, i.e. the earnings at which net migration would stop. They judged differences in these equilibrium relative earnings to be correct measures of compensating differences in the bundles of amenities available in the states. The results suggest that the nation's amenity rich states are concentrated in the South and West and that differences in *actual* relative earnings tend to understate somewhat the true state to state compensating differences in amenities.

[14] Greenwood, Michael, Gary L. Hunt, Dan S. Rickman and George I. Trez. 1991."Migration, Regional Equilibrium, and the Estimation of Compensating Differentials," American Economic Review, 81 (5), pp.1382-1390.

Figure 10: Population Change and Average Income in the 1990s: US Metropolitan Areas

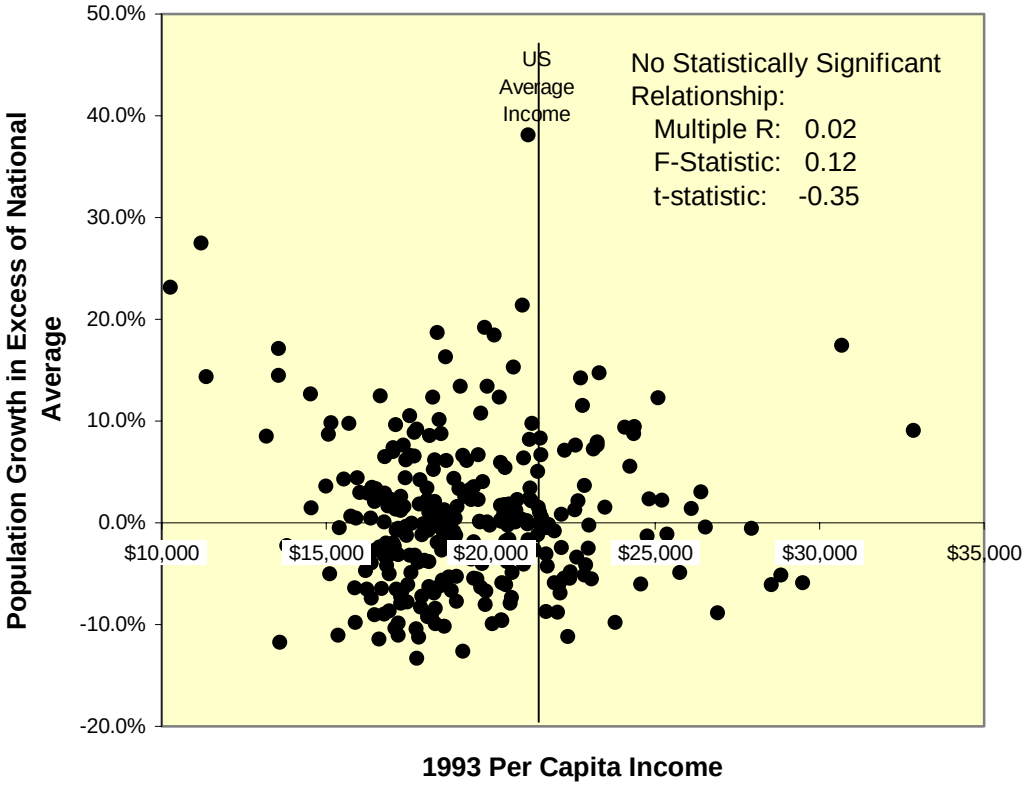


Figure 11 depicts the relationship between the equilibrium relative earnings of states and the share of their populations living outside of metropolitan areas; as expected, the more non-metropolitan a state, the lower the earnings that will attract *and hold* its population.[15] In other words, the residents of the nation's small cities, towns and rural areas appear to accept lower earnings voluntarily, as the price they pay to enjoy the special amenities available to them.

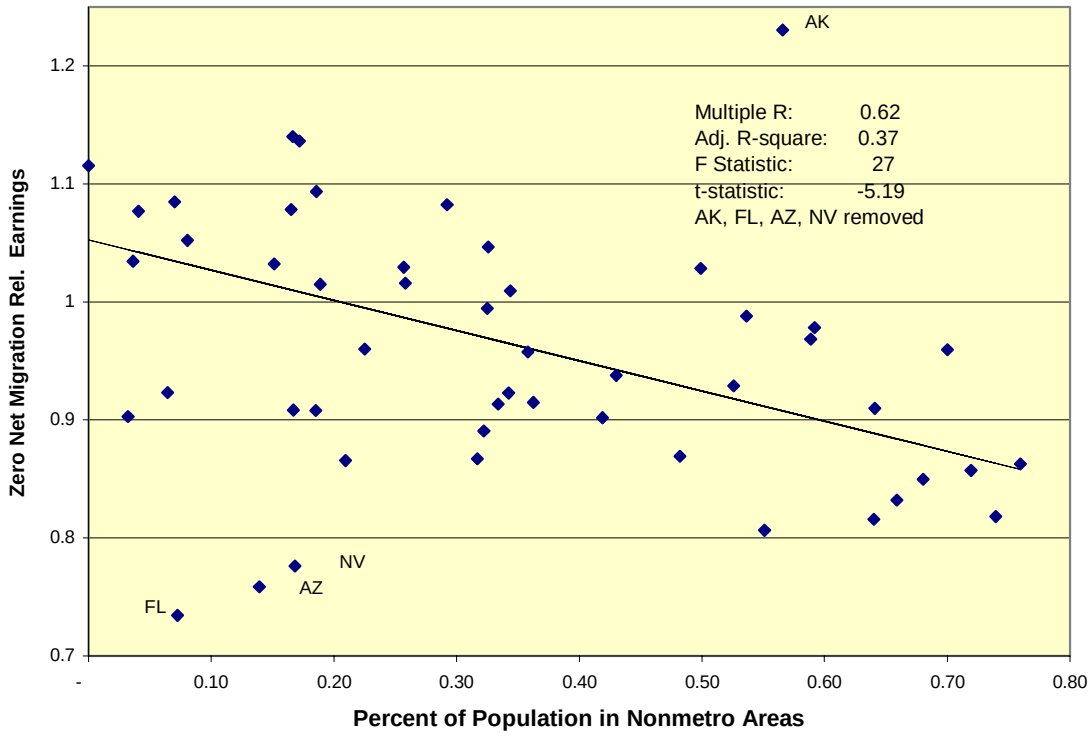
Conclusions

There are quite large differences in the average pay and income between the residents of very large cities and those of small cities and rural areas. These differences increased dramatically in the 1980s and have grown somewhat in the 1990s. Since half of all Americans live in 32 rather large cities (populations of 1.4 million or more in 1997), national averages represent the pay and income opportunities in quite large urban

[15] Points representing four states which appear not to conform with this relationship are labeled in Figure 5.4. Three (Florida, Arizona and Nevada) are highly metropolitan states with low equilibrium earnings; these are states with high climatic amenities. One state, Alaska, has a large non-metropolitan population and high relative earnings; due to the state's high cost of living, these earnings are probably overstated. Excluding these four states, the correlation coefficient between the percent of the population in non-metropolitan areas and the equilibrium wage is -.61.

areas. 88 percent of the nation's metropolitan areas and, of course, all of the nonmetropolitan areas involve sizes of place smaller than 1.4 million. It is important when using national averages as a reference point to recognize their close association with quite large cities.

Figure 11: Zero Net Migration Relative Earnings and Percent Nonmetropolitan: US States, 1980



We have shown that when the small cities and nonmetro areas of the Pacific Northwest and Mountain West are compared to similar sizes of place across the nation, average incomes and average pay are quite similar. There is no pay or income gap.

Migration and population growth data suggests that people voting with their feet do not interpret the higher pay and income in more densely settled areas as representing real differences in potential economic well-being. Analysis of what geographic cost of living information is available suggests that much of the difference in average pay between metro areas of different size is compensating for cost of living. The pay gap between the smallest and largest metro areas falls from about 44 percent to about 10 percent when adjusted for cost of living. Analysis of the hedonic amenity values in urban areas by size of place indicates that 10 to 20 percent of the difference in average pay between small and large metro areas is associated with the difference in amenity values. The two of these in combination suggests that almost all of the difference in average pay between large and small metro areas is a compensating difference that does not reflect

real differences in economic welfare. That would explain the lack of a relationship between population shifts and these regional differences in pay and income.

We believe that relatively low earnings in the Mountain West and Pacific Northwest exist because of, and are compensated for by, substantial public, environmental and social amenities and lower cost of living. Westerners earn less than the national average because they live in rural areas and small towns and cities. In fact, when westerners are compared to other Americans living in communities of similar sizes, the difference in earnings disappears entirely. People living in smaller communities accept lower earnings because by doing so they can enjoy amenities and lower cost of living not available in the nation's large metropolitan areas. Put bluntly, one cannot enjoy the advantages of living in small cities and rural areas and expect to receive the pay associated with big city living. Markets will not allow that.

Despite the wide recognition among economists that significant regional pay and income differences can be compensating in character and not represent real differences in economic well-being, this fundamental economic point usually does not inform public policy discussions. As a result, public economic policy is often ineffective or perverse in improving local economic well-being.

For the region, our conclusion is that despite low earnings, the Mountain West and the Pacific Northwest, its smaller metropolitan areas, and its nonmetro regions, are not uniquely nor generally disadvantaged. At the same time it is important to realize that in the West, as in the rest of the country, there <u>are</u> disadvantaged, distressed and impoverished families, including many children. Concluding that a region itself is not impoverished says nothing about the plight of individuals and families at the lower end of the income distribution. Concerns about low pay and incomes should be focused on these individuals and families, not on the regional economy as a whole.