Converting "Good" to "Lousy" Jobs?
The Impact of Changes in Industrial Structure on Pay in the Inland West, the Pacific Northwest, and Montana

a paper prepared for the

33rd Annual
Pacific Northwest Regional Economic Conference
Boise, Idaho
May 6-8, 1999

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1. Introduction

Since the late 1970s, in the Pacific Northwest and across the Inland West, pay per job has declined relative to national averages, and, in many states, it has also declined in absolute terms. At the same time, these regions have shown impressive economic vitality. Population, employment, and total real income have all grown much faster than in the nation as a whole. The conventional explanation for the deterioration in pay despite strong economic growth is that the structure of employment has changed: high-paid jobs have been replaced with low-paid jobs. Often the inferior structure of jobs is ascribed to the decline in employment in certain industries such as the natural resource sectors or other manufacturing and/or the growth in other industries such as services, retail trade, or "tourism." The complaint that we are exchanging family-wage, blue-collar, jobs for "burger-flipping" jobs is one such structural explanation for declining pay. It is on these types structural explanations for local wage levels that this paper will focus.

The paper begins with the descriptive data that tends to support the structural explanation for declining pay in many areas. It then turns to a more careful analysis of the data to measure the size of the impact of changing industrial structure on pay levels and the relative wages of different types of workers. That analysis indicates that changes in industrial structure have had only a very modest impact on pay.

2. The Loss of "Good Jobs"

There has been significant change in the industrial structure of the inland west and much of nonmetropolitan America. Employment in goods-producing sectors such as mining and manufacturing has declined. The most dramatic declines in goods-producing employment also appear to have coincided with equally dramatic declines in average pay and income. Both took place in the 1980s when much of nonmetropolitan America experienced an extended depression.

Between 1981 and 1990, employment in farming, ranching, mineral production, metal smelting, and lumber declined by 104,000 jobs in the inland west. See Figure 8.1. In the Pacific Northwest states, lumber employment alone declined by 31,000 between 1978 and 1988. Across nonmetropolitan America farm and mining employment declined 15 and 20 percent respectively during that decade as the share of employment in goods production fell 15 percent while that in narrowly defined services rose 25 percent.

[1] This paper is part of a larger research project carried out with Richard Barrett and funded by the Claiborne-Ortenberg Foundation.

During the same time period, real pay per job declined in all of the inland western states, a decline averaging 10 percent across all eight states but reaching 20 percent in Montana. Across all of nonmetropolitan America real pay per job between 1978 and 1988 also declined by 10 percent while in the nation as a whole it rose slightly. See Figure 8.2. Average incomes in all of the inland western states, while rising modestly, rose slower than the national average. As a result, average incomes relative to the nation declined across the inland west. In over half of the states, Idaho, Montana, Nevada, Utah, and Wyoming, the average income gap relative to the nation increased by 10 percent or more. Across nonmetropolitan America, average incomes also fell relative to the nation with the gap increasing by five percentage points.

This coincidence of the decline in employment in natural resource industries and the decline in average real pay is taken by many as proof that changes in industrial structure have seriously damaged local economic well-being. Such casual empiricism based upon the coincidence of events, however, is not a good substitute for careful empirical analysis.

3. The Role of Changes in Industrial Structure in Explaining Declining Average Pay: The Empirical Evidence

A decade of careful empirical economic analysis does not lend much support to the hypothesis that it has been changes in the industrial structure of employment that explains declines in average pay. At the national, regional, and state levels, changes in the relative shares of employment in various industries explains very little of the change in average pay.

A. National Analyses

If demographic data on individual workers across the nation are used to calculate the way wages vary with education, experience, sex, race, etc., the impact of employment in particular industries on the wages of similar

Figure 8.1: Loss of Natural Resource Jobs in the Inland West during the 1980s

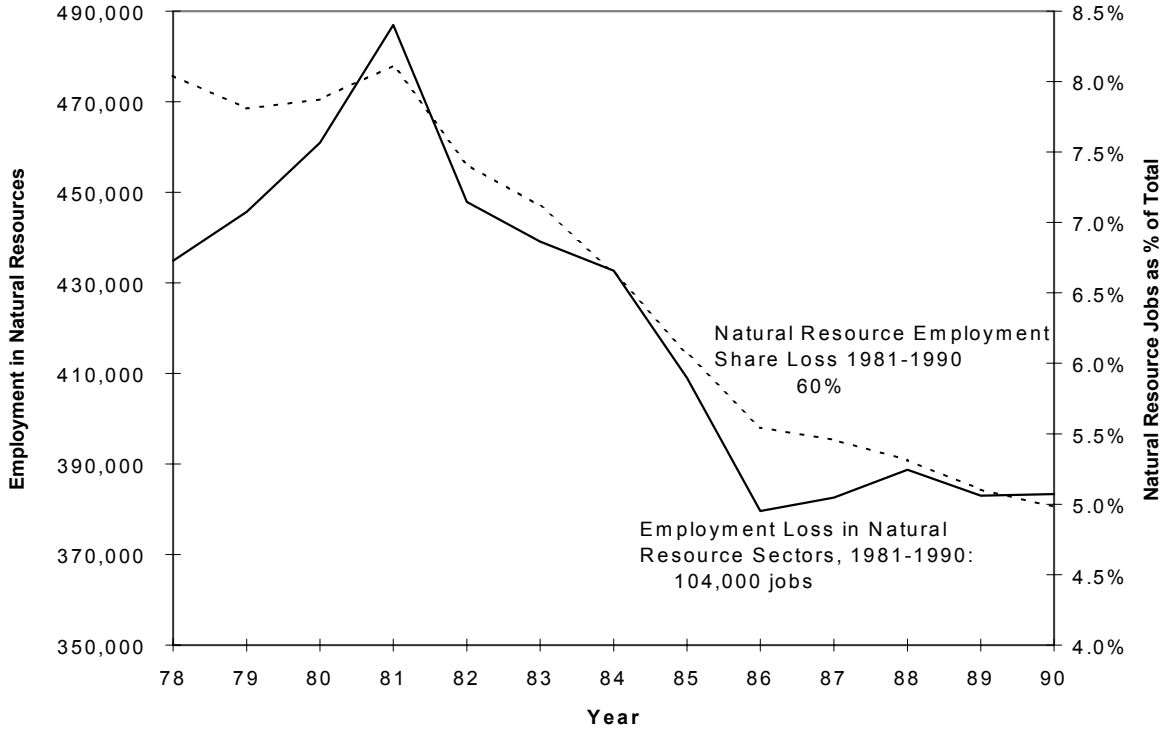
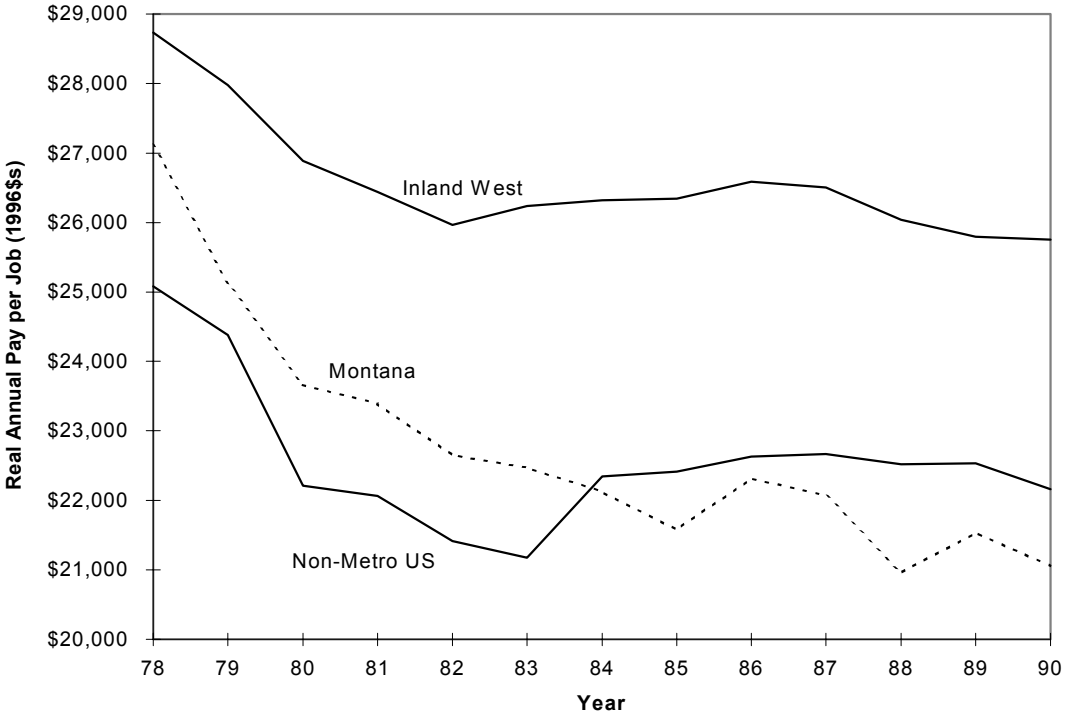


Figure 8.2: Real Annual Pay per Job in the 1980s: Inland West and US Non-Metro Regions



individuals can be isolate. Then the impact of shifts in the shares of employment in different industries on average wages can be calculated. Such a nationwide analysis has been done covering the 1980s, the period during which average pay declined in many areas and inequality among workers increased (Bound and Johnson, 1992). That analysis found that shifts in the industrial structure of employment had less than a one percent impact on hourly wages of various demographic groups of workers. In general, less than ten percent of the total change in a demographic group's average wage during the 1980s could be attributed to changes in the industrial distribution of employment. Other national analyses have come to the same conclusion. An analysis of the changes in wages between 1978 and 1989, during which period average real wages declined four percent nationally, found that shifts in employment between industries could explain only 12 percent of the decline among men and none of the change in women's wages. If more narrowly defined groups of workers were the focus, the results were the same. During this period the wages of those workers who did not finish high school declined 14 percent while those of college graduates rose 8 percent. But only 20 to 30 percent of these changes could be explained in terms of shifts in employment opportunities among industries (Murphy and Welch, 1993, p. 113). If the broad shift in employment to the services sectors away from goods-production is the focus, the conclusion is the same: Changes in the industrial composition of employment are relatively unimportant in explaining the decline in the wages of those in the lowest 50 percent of the workforce and have only very minor influences on the level of wages and wage inequality (Juhn et al. 1993, p. 413). Other analyses have looked not only at average or median pay or particular summary measures of inequality, but have reconstructed what the full distribution of wages would have been if the industrial composition of employment had been frozen as it was in the late 1970s but the personal productive characteristics of workers had continued to develop as they actually did through the mid-1990s. The actual distribution of wages in 1995 can then be compared to what would have occurred if industrial structure had not changed. When this is done, there is almost no discernible difference in the mean or median wage or the distribution of wages. Changes in industrial structure explain only about ten percent of the decline in average wage and only about five percent of the increase in wage inequality (Valletta, 1997, p. 28).

B. Regional Analysis: The Inland West

During the 1980s, employment in the natural resource sectors of the inland west, including farm, ranch, mining, metal smelting, and lumber, plummeted. Real pay per job also declined and, even at the end of the 1990s, had not recovered to its 1978 level. See Figure 8.1 and 8.2. The question is what part of the decline in overall pay per job was caused by the shift in employment away from the natural resource sectors? More broadly, one could ask what impact the ongoing relative shift in employment from goods-producing sectors to service-producing sectors has had on pay per job.

Changes in pay per job can be thought of as originating in two different types of changes: shifts in the structure of employment while real pay is held constant and shifts in pay while the structure of employment is held constant[2]. It is important to look at both of these elements because it is possible that it is an overall declines in real pay in all sectors that is responsible for the decline in average pay rather than shifts in employment from high to low paid sectors. The claim that it is the loss of employment in the natural resource or manufacturing sectors that has caused overall pay per job to fall can be tested by asking what would have happened to average pay if the structure of employment had not changed but other economic changes continued. Note that freezing the structure of employment at the level at some previous date does not freeze the level of employment at that past level. Rather, it freezes the percentage share of total employment at a past level. This allows actual employment in each sector to grow proportionately as the overall economy expands.

Table 8.1 reports the results of analyzing two types of shifts in employment in the inland west during the 1980s. One focuses upon the natural resource sectors while the other looks at the broader group of goods-producing sectors including natural resources, construction and other manufacturing. The focus is on the 1980s because that is when pay per job declined most significantly. The results are similar, however, if the 1978-1996 period is used instead.

If the natural resource sectors of the economies of the states of the inland west had expanded proportionately with the rest of the economy, instead of there having been an 11 percent decline in employment in natural resources, there would have been a 35 percent expansion. Even if this dramatic reversal of actual employment trends had taken place, almost all, 96 percent, of the decline in average real pay per job would have occurred any way. Similarly, if goods-production had not lagged behind the rest of the economy, but had expanded almost three times as fast as it did, by 35 percent instead of only 13 percent, 87 percent of the decline in real pay would have taken place anyway.

The reason that average pay would have declined despite expanding natural resource or goods-producing sectors is that average pay in natural resources and goods was declining dramatically itself. In fact, average pay was falling much more rapidly in these goods-producing sectors than it was in services-producing sectors. See Figure 8.3.

[2] There is also a residual component associated with the interaction of changes in the structure of employment and changes in pay. This method of decomposing changes into these components is call “shift and share” analysis by economists.

Table 8.1

Sources of Declining Pay per Job in the Inland West: 1978-1988

Economic Sectors	1978-1988 % Change in Employment	1978-1988 Change in Pay per Job	Change in Pay/Job Due to Job Shift (Pay Constant)	Change in Pay/Job Due to Declining Pay (No Job Shifts)	% of Loss in Pay/Job if there were no job shift
Natural Resources	-11%	-$9,546	-$971	-$443	
Rest of Economy	39%	-$2,316	$768	-$2,130	
Total Economy	35%	-$2,689	-$203	-$2,573	**96%**
Goods-Producing	13%	-$4,005	-$1,492	-$969	
Services-Producing	43%	-$1,815	$1,059	-$1,376	
Total Economy	35%	-$2,689	-$433	-$2,345	**87%**

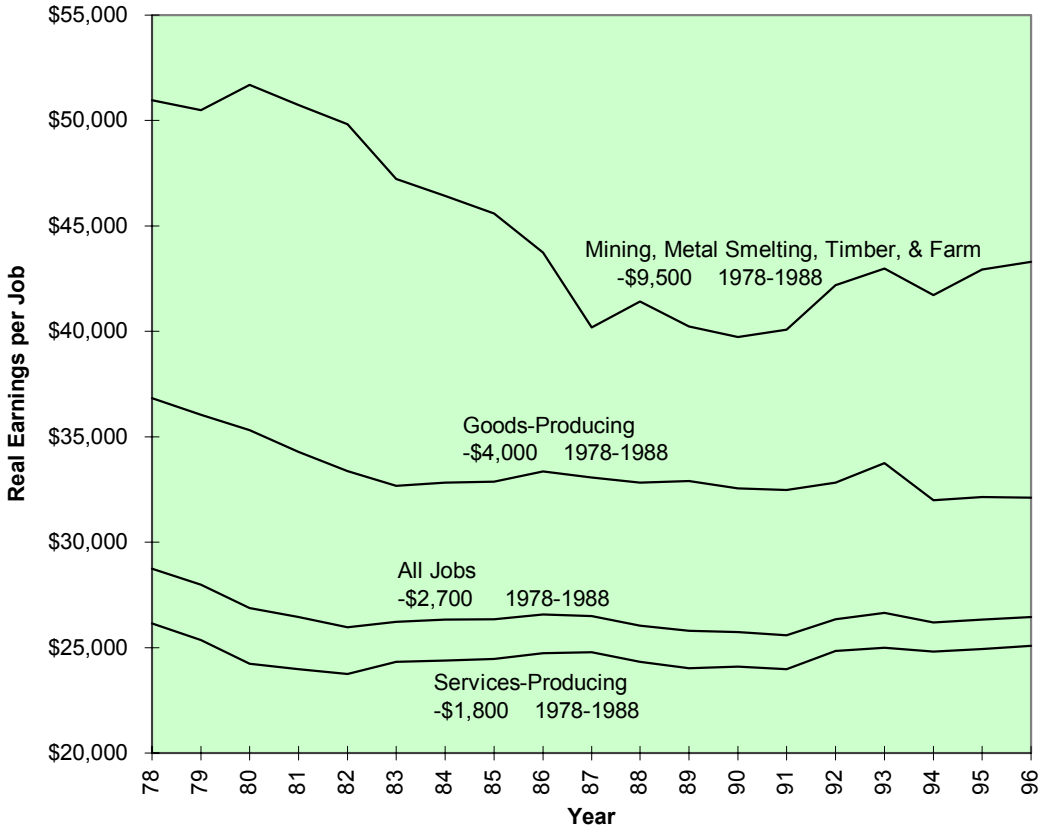
Note: The two sources of the change in pay/job do not sum to the total change because of interactions between job shifts and pay changes which are not reported in this table. Natural Resources include farm, ranch, mining, lumber, and metal smelting.

Between 1978 and 1988 real pay per job in the natural resource sectors fell five times as much as pay per job in the services-producing sectors. Real pay per job in goods-production fell twice as much as in services-production. It was the overall decline in pay per job in all sectors, but led by natural resources and goods, that explains the decline in real pay, not the shift of employment from one group of sectors to another. In this setting, if public policy had been successful not only in avoiding the declines in employment in the natural resource sectors but had also stimulated a boom in employment in these sectors, average pay would have been largely unaffected.[3] Only 5 to 10 percent of the decline would have been avoided.

[3] Some might argue that if there had been a "boom" in employment in these higher wage sectors, wages would not have beeen depressed in those sectors and average pay would not have declined as much. However, wage levels in a local economy are largely influenced by national economic forces. The workforce is highly mobile and firms are unlikely to have difficulty attracting the workforce they need, especially in high amenity areas and in high wage industries. After all, the overall rapid expansion of employment in the inland West did not lead to higher wages. Quite the contrary, real wages fell as employment expanded.

Figure 8.3

Changes in Real Pay per Job in the Inland West



C. Regional Analysis: The Pacific Northwest

Some of the analytical tools used in the national analyses of the impact of industrial change on wage levels and inequality have also been applied to the Pacific Northwest.[4] Changes in hourly wages between two time periods were analyzed, 1977-1981 and 1988-1993. As discussed earlier, it was in the interval between these two time periods during which the most dramatic declines in real earnings too place. In the Pacific Northwest, real wages for young, less educated workers plunged 20 to 25 percent while overall real wages stagnated. In the Pacific Northwest, it was also during this interval that timber, mining, and metal smelting employment plummeted.

[4] Washington, Oregon, Idaho, and Montana. Current Population Survey data on workers provided too small a sample of workers with particular skills, occupations, and industry of employment to allow the individual states to be analyzed. The need to increase the size of the sample of workers also explains the aggregating of the data over several years.

The method of analysis was similar to that used in the national analyses discussed above. The contribution to changing wages that was associated with changes in the education, experience, and other personal characteristics of the workforce was isolated so that the impact of changes in industrial structure could be analyzed. Such changes in the distribution of employment among industries had, at maximum, only a very small negative impact on hourly wages, two percent or less, usually much less. For the groups that suffered the greatest declines, the 20 to 25 percent decline in wages for the younger less educated workers, only a tenth to a fifth of the decline could be explained by industrial shifts in employment. (Templeton, 1998, Tables 4.5 and 4.13)

It might be argued that looking at a four state region that contains large metropolitan areas such as Seattle and Portland tends to obscure the impact of structural changes in employment on smaller, less diversified, nonmetropolitan areas. The structural hypothesis is more likely to be confirmed in less diversified economies that have been heavily dependent on a particular industry that recently has been in relative or absolute decline. In the Pacific Northwest, timber-dependent areas would provide such a context. Southwest Oregon is one such timber dependent area. In the six county area in the southwest corner of the state, 27 percent of total earnings were derived from the wood products sectors in 1978. In some counties, the dependence upon wood products for earnings was as high as 37 percent. Between 1978 and 1988, total earnings in lumber and wood products declined by almost 25 percent; between 1978 and 1996 those earnings fell by almost 50 percent. Also between 1978 and 1988 average real pay per job declined by $6,100 per year in southwest Oregon. It is easy to conclude that it was declines in employment in the industry upon which the region was particularly dependent that caused this decline in average pay. The data, however, contradicts that hypothesis.

The dramatic declines in average pay during the 1980s in southwest Oregon were led by even more dramatic declines in pay within the wood products sectors, not by shifts of employment out of wood products. Average pay in wood products declined by $8,300 per year while average pay in the rest of the economy declined by $4,200 per year. Employment in wood products actually rose although its share of total employment declined by 2.5 percentage points. If one asks how much of the decline in average pay would have taken place if there had been no decline in wood products' share of total employment (that is, if employment in wood products had actually increased significantly), the answer is that 93 percent of the decline in average real pay would have taken place anyway. It was not shifts in employment, but the overall decline in real earnings in all sectors that caused the pay loss.

This type of analysis can be extended to all of the timber dependent counties in the Pacific Northwest states including those clustered in northern California, western and eastern Washington, northern Idaho, western Montana, as well as

southwest Oregon.[5] Between 1976 and 1996 real annual earnings per job in these timber-dependent counties fell by $6,500. However, if employment in the goods-producing sectors had been frozen at its 1976 levels, 95 percent of this decline would have taken place anyway. That is because real annual pay per job in the goods sectors plummeted $10,400 while it "only" fell $3,900 in the service-producing sectors. In 1976 the goods sectors paid $8,000 per year more than the average jobs while the service-producing sectors paid $4,000 per year less than the average. By 1996 pay in the goods sectors had declined to where it was only $3,000 above the average and the service-producing sector was only $1,000 below the average. It was becoming harder to distinguish the "good" jobs from the "lousy" jobs because of the more rapid decline in pay per job in the goods sectors. In explaining the overall decline in average pay, clearly the focus has to be on the fall in pay in the high paid sectors as well as the decline across almost all sectors, not the shift in employment shares from goods to services.

D. Analyzing the Impact of Structural Change in One State: Montana

In terms of the percentage decline in real pay, Montana leads the inland west. While the decline across the inland west was ten percent between 1978 and 1988, it was twice that in Montana. In addition, between 1988 and 1996 when real pay recovered slightly across the inland west, in Montana, it deteriorated slightly. Montana is not only the least metropolitan state in the inland west, but in 1996 it was also the least metropolitan state in the nation. Because it has no large urban centers such as Denver, Phoenix, Salt Lake City, Albuquerque, or, even, Boise, Montana might be assumed to be even more dependent upon its natural resource sectors. During the 1980s Montana's copper mining and smelting and oil and gas exploration sectors nearly shut down, laying off thousands of workers. Wood products entered an extended depression during which technology permanently displace thousands of workers. Agriculture suffered from both low prices and droughts. Declines in these parts of the economic base often were simply assumed to be driving the dramatic decline in average pay shown in Figure 8.2.

This popular explanation for the decline in real pay in Montana can be tested in the same way that assumption was tested for the inland west as a whole above: freeze the structure of employment as it was in 1978 while allowing pay levels to vary and then freeze pay at 1978 levels and let the structure of employment change. This allows one to answer the question of how much of the decline in real pay could have been avoided if there had been no change in the structure of employment.

Table 8.2 reports the results of this analysis for several different ways of characterizing the structure of employment in Montana. First goods-producing

[5] Timber dependency was defined as ten percent or more of county earnings originating in the lumber sector in 1990. Those counties have been identified by the US Forest Service (McGinnis et al., 1996).

and services-producing sectors are focused upon. Second, the focus is on more narrowly defined services, including professional, personal, and repair services, but not including trade, finance, or government. Finally, the focus is on those high-wage industries that declined in Montana during the 1980s. These included metal mining, logging and wood products, oil and gas exploration, heavy construction, and railroads. If employment in these industries not only had not declined but had expanded proportionately with the rest of the economy, 90 to 100 percent of the substantial decline in average pay would have taken place anyway. Again, the dominant source of declining pay was not shifts in employment from high wage to low wage industries but an across the board decrease in pay, including large decreases in pay in "high wage" sectors.

Table 8.2
Sources of Declining Pay per Job in Montana: 1978-1988

Economic Sectors	1978-1988 % Change in Employment	1978-1988 Change in Pay per Job	Change in Pay/Job Due to Job Shift (Pay Constant)	Change in Pay/Job Due to Declining Pay (No Job Shifts)	% of Loss in Pay/Job if there were no job shift
Goods-Producing	-8%	-$14,312	-$1,255	-$3,535	
Services-Producing	13%	-$3,525	$896	-$2,655	
Total Economy	7%	-$6,157	-$359	-$6,189	**101%**
Narrow Services	35%	-$2,100	$1,157	-$443	
The Rest of the Economy	0%	-$7,053	-$1,578	-$5,565	
Total Economy	7%	-$6,157	-$421	-$6,008	**98%**
Declining High Wage Secto	-32%	-$7,515	-$1,405	-$648	
The Rest of the Economy	11%	-$5,434	$796	-$4,966	
Total Economy	7%	-$6,157	-$608	-$5,614	**91%**

Note: The two sources of the change in pay/job do not sum to the total change because of interactions between job shifts and pay changes which are not reported in this table. Natural Resources include farm, ranch, mining, lumber, and metal smelting. Similarly, the percentage of the pay loss due to job shifts can be more than 100% because the other factors can work in the opposite direction to raise pay per job.

The decline in real pay per job in the goods-producing sector (and also in the "rest of the economy" in the other characterizations of the economy in Table 8.2) was so substantial because goods-production includes agriculture where pay per job fell from $25,000 to $4,000 between 1978 and 1988 due to drought and low farm prices. When the analysis is done in terms of non-farm earnings and employment to avoid these agricultural fluctuations, pay in non-farm goods-production declined about $10,000 instead of the $21,000 shown for the goods sector in Table 8.2. If only non-farm employment is analyzed, the impact on average pay of shifts in jobs between the sectors shown in Table 8.2 remains very small. Ninety percent or more of the decline in average pay in the non-farm sectors between 1978 and 1988 would have taken place even if there had been no job shifts between these sectors.

The discussion so far has focused on the fall in average real pay between 1978 and 1988 because it was during that time period that most of the decline in

average pay took place. See Figure 8.2 above. If the longer time period 1978-1996 is used instead, the results remain the same: If employment had not shifted from goods to services, over 90 percent of the decline in average pay between 1978 and 1996 would have taken place anyway. Even more dramatic: If, instead of Montana losing 10,000 high wage jobs between 1978 and 1996, it had gained 10,000 high wage jobs so that the proportion of high wage goods-producing jobs remained the same, 84 percent of the decline in average pay also would still have taken place. It was downward pressure on wages in all sectors that explains the decline in average pay, not the shift of workers from one sector to another.

The analysis summarized in Table 8.2 divides the economy between only two categories, goods versus services, narrow services versus the rest of the economy, etc. Although in is largely in those dichotomous terms that changes in the economy are usually discussed, that type of analysis ignores shifts in employment that are taking place within the goods sectors or within the services sectors. For instance, high wage mining jobs may be lost while minimum wage food processing jobs are gained. Or skilled nursing jobs may be lost while relatively unskilled lodging jobs are gained. In each of these cases, there would appear to be no shift in employment since these changes take place entirely within the goods or services sectors. Instead, average pay would appear to decline in both goods and services. The conclusion reached would be that shifts in employment were not important in explaining declines in average pay even though it was, in fact, shifts in employment between industries that were causing the decline. The shifts in employment, however, would not be shifts that could be categorized as shifts from goods or manufacturing to services.

This problem can be avoided if, instead of focusing on only two broad sectors, all of the job shifts among approximately seventy narrowly defined industries are analyzed. This allows the estimation of the impact on average pay of such employment shifts within the larger dichotomous groups reported on earlier. Such more detailed analysis of the impact of changes in industrial structure of Montana reveals that the impact is significantly greater than reported in Table 8.2 above. However, even these more detailed changes in industrial structure still explain only a small fraction of changes in average pay, about twenty percent. Put the other way, 80 percent of the decline in average pay would have taken place even if there had be no change in the distribution of jobs among this much larger group of industries.

Some of the more important changes in the distribution of employment in Montana between 1976 and 1996 that took place within the dichotomous sectors reported on in Table 8.2 include the following:

the loss of 2,888 jobs in wood products and metal smelting
the gain of 5,000 jobs in other durable manufacturing

the loss of 5,400 jobs in farming
the gain of 5,500 jobs in agricultural services

the loss of 2,500 jobs in federal government
the gain of 14,000 jobs in state and local government

the loss of 1,100 jobs in food processing
the gain of 2,500 jobs in other non-durable manufacturing

the loss of 3,300 jobs in railroads
the gain of 7,400 jobs in other transportation industries.

Clearly there has been significant shifts in employment that do not fall into the "goods to services" dichotomy. Most of the shifts listed above involve movement from higher to lower paying jobs. At the same time, however, pay levels were dropping in almost all sectors. It was these declines in real pay almost no matter where a worker was employed that explain the bulk of the fall in average pay rather than shifts in the distribution of employment.

4. An Alternative Structural Explanation?

Shift-share analysis decomposes changes in a way that allows one to answer a relatively simple "what if?" question. It does not model the interaction of economic forces. Conceptually, it could be asserted that the decline in employment opportunities in the natural resource sectors of the western states' economies so weakened the demand for labor that real pay was depressed in all sectors of the economy, the natural resource sectors as well as the rest of the economy. It that sense, all of the decline in average pay could be attributed to changes in the structure of employment; the opposite of the conclusion reached in this paper.

This alternative structural explanation is not plausible for several reasons. First, it assumes, contrary to fact, that the economies of the western states are isolated from larger regional and national labor markets. Montana's average pay, for instance, has been dramatically below national levels for at least 20 years. During that time there has been a large amount of both in- and out-migration of workers with a substantial net gain in employment and population. It simply is not plausible to assume that Montana's labor markets are cutoff from regional and national markets in a way that would allow events that took place twenty years ago to be still depressing local wages. In addition, the same forces that have been operating within the western states have also been operating across the national economy: goods production has declined; blue collar pay has declined in real terms; etc. These are not regional problems. Finally, the change in industrial structure in the west is not primarily one of declining employment opportunities in the natural resources and goods sectors. Rather it has been very rapid growth in other sectors. In the timber dependent counties of

southwestern Oregon, for instance, manufacturing employment did not decline in absolute terms. The rest of the economy grew faster with the result that the relative share of employment found in manufacturing declined. Thus, the declining share in goods production did not cause a weak labor market but was tied to an expanding labor market. Even where employment in natural resource sectors declined in absolute terms, that decline was a very small fraction of total employment, not enough to explain the dramatic declines in average pay. The labor market conditions that would have had to exist to support this version of the structural hypothesis simply were not present.

5. Conclusion

The shift in employment opportunities from goods-producing to service-producing sectors or from natural resource to other sectors is not the primary cause of the decline in average pay that has characterized the inland west and much of nonmetropolitan America. 85 to 95 percent of that decline would have taken place anyway even if the structure of employment could have been frozen as it was in the late 1970s. The structural explanation for declining pay and relative incomes simply is not supported by the facts. Average pay fell because of downward pressures on wages in all sectors including the natural resource and other goods-producing sectors. Often average pay fell more in the traditional high-wage goods sectors than it did in the often disparaged service-producing sectors. Any explanation for the decline in average pay has to focus on the downward pressures that cut across industry lines and are pervasive in most of the economy.

There are national economic forces that explain at least part of this downward pressure. Labor market institutions, in particular the effective minimum wage and the rate of unionization that were important in the past in supporting wage levels at the middle and lower end of the wage distribution were significantly weakened during the 1980s when the real wages of most workers deteriorated. In addition there appears to have been important shifts in the demand for different types of labor with growth in the demand for highly educated and skilled workers outstripping a rising supply and the demand for less skilled workers falling faster than that shrinking supply. Skill-intensive technological change has been suggested by many researchers as the cause for these shifts in the demand for different types of workers. The change in labor market institutions and the shifts in labor demand have been national phenomena. Their sources are rarely local. That is important to understand when evaluating appropriate local economic development policies.

It is possible, however, that particular local labor supply conditions can affect average pay. Areas with high quality amenities may attract a larger labor supply that depresses wages in such a way as to compensate for the value of the locally specific amenities. The impact of the value of those amenities on local pay may not be distributed uniformly among all workers. Some groups of workers may

make larger sacrifices than others. The evidence for Montana suggests that it is the higher wage, professionals who make the largest sacrifice to live in Montana while those at the lower end of the wage spectrum get paid about what they could earn elsewhere in the nation (Barrett, 1999). This phenomenon may have capped the rise in pay at the upper end of the job distribution that otherwise would have tended to arithmetically offset the decline in pay at the lower level in the calculation of average pay. If that was the case, average pay in Montana would have fallen relative to that in the nation. The policy implications of the decline in average pay, however, would be quite different that if, say, the decline was due to the displacement of relatively immobile workers at the lower end of the job distribution.

References

Barrett, Richard. 1998. Industry Attachment and Change Among Montana Workers, 1988-1996. Unpublished report, Economics Department, University of Montana, Missoula, MT, 59812.

Barrett, Richard. 1999. The Montana Discount: Who Earns Less in Montana, How Much, Why, and What Can Be Done About It. Paper presented at the Thirty-Third Annual Pacific Northwest Regional Economic Conference, Boise, ID, May 6-8, 1999. University of Montana, Missoula, MT, 59812.

Bluestone, Barry and Bennett Harrison. 1982. ***The Deindustrialization of America: Plant Closing, Community Abandonment, and the Dismantling of Basic Industry***. New York: Basic Books.

Bound, John and George Johnson. 1992. Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations. ***American Economic Review***, 82(3):371-391.

Gottschalk, Peter. 1997. Inequality, Income Growth, and Mobility: The Basic Facts. ***Journal of Economic Perspectives*** 11(2):21-40.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce. 1993. ***Journal of Political Economy*** 101(3):410-442.

Krueger, A., and L. Summers. 1986. Reflections on the Inter-Industry Wage Structure," in ***Unemployment and the Structure of Labor Markets***, ed. By K. Lang and J. Leonard. London: Basil Blackwell.

Krueger, Alan B. and Lawrence H. Summers. 1988. Efficiency Wages and the Inter-Industry Wage Structure. ***Econometrica*** 56(2):259-293.

McGinnis, Wendy J. et al. 1996. Economic Indicator Maps for Rural Development in the Pacific West. Intermountain Research Station General Technical Report INT-GTR-328. US Department of Agriculture, Forest Service.

Murphy, Kevin M. and Finis Welch. 1993. Industrial Change and the Rising Importance of Skill. In ***Uneven tides: Rising Inequality in America***, Sheldon Danziger and Peter Gottschalk, editors. Russell Sage Foundation: New York.

Power, Thomas and Richard Barrett. 1997. Montana Workers' Labor Market Experiences During Industrial Transition: 1988-1996. Unpublished report, Economics Department, University of Montana, Missoula, MT, 59812.

Templeton, Neil R. 1998. Analysis of Movement in Real and Relative Wages in the Pacific Northwest from 1977 to 1993. University of Montana Masters Thesis.

Valletta, Robert G. 1997. Effects of Industry Employment Shifts on U.S. Wage Structure. ***Economic Review,*** Federal Reserve Bank of San Francisco 1997(1):16-32.