TESTING SOME TRUISMS ABOUT POVERTY IN OKLAHOMA

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Abstract

Four truisms about poverty are often heard in Oklahoma: Dependency causes poverty, education solves poverty, discrimination is no longer a problem, and a rising economic tide floats all boats. This paper uses publicly available sources – such as the U.S. Census – to test these truisms in Oklahoma. From 1999 and 2006 it was found that poverty increased in the face of decreased public assistance, that poverty increased in the face of increased education levels, that higher rates of poverty level wages were paid to minorities and women than to white men, that poverty level wages were a part of the labor market and that poverty rises and falls as the proportion of jobs that pay poverty level wages rises and falls. Moreover, real wages fell as per capita gross domestic product rose. After a close examination of various industrial sectors and of recent cross national studies, it was concluded that a rising floor under the labor market is more effective at reducing poverty than a rising general tide of economic growth.

INTRODUCTION

Depending on where one lives and on what media one consumes, one can hear various truisms about poverty and its causes. In my state of Oklahoma, I often hear that assistance to poor people causes them to be dependent and thereby traps them in poverty. A truism that one hears from educators is that education can decrease poverty. Another truism heard is that discrimination does not really happen anymore and therefore has no affect on poverty. I also hear from both conservatives and liberals that a rising tide – meaning economic growth in general – raises all boats, which is another statement of the trickle-down theory of economic growth.

One can find studies that debunk these truisms. For example, Iceland (2003) found that, while poverty decreased in real terms as the gross domestic product increased prior to 1973, the poverty rate marginally increased in a recession and marginally decreased during growth after 1973. Beginning in the late 1970s, Bluestone (1995) found that inequality in wages actually increased after recoveries from recessions. The factors that Iceland and Bluestone found associated with the change in how the labor market affects poverty after the 1970s have been reported in Oklahoma (Maril 2000; Cooke 2001) and include deindustrialization, the growth of the service sector, globalization, the large cohorts of the baby boom, the growth of women in the labor market, the decline of unionization, and the flight of education and jobs from the central cities to the suburbs. Yet, one still finds truisms used in public

discourse based on the performance of the economy before 1973. The purpose of this study is to look at these truisms one more time in the state of Oklahoma.

Truism 1: Welfare causes poverty by causing dependency

One side of the welfare reform debate in the 1990s (Cooke 1998) claimed that welfare causes poverty by encouraging people to stay on the dole and thereby remain poor. One still hears this truism today in arguments against extending unemployment benefits in the face of ten percent unemployment (Noah and York 2010). To test this truism, the Temporary Assistance to Needy Families (TANF) statistics from the Oklahoma Department of Human Services were combined with information about families from the 2000 Census and the 2006 American Community Survey. In 2000, there were 927,703 families in Oklahoma with children under 18. Eleven percent of these families were poor and thereby could quality for welfare/TANF. If one uses the December 2000 TANF case report as an indicator of the number of families on TANF, almost one out of five families that were poor with children under 18 were on TANF. By December 2007 – using the 2006 American Community survey to estimate the number of poor families – just over 1 out of 10 families that were poor with children under 18 were on TANF. With a drop of TANF participation by eligible families of almost half, one would expect the poverty rate to drop if dependency caused poverty. Instead, the poverty rate rose to 13 percent for families with children under 18. This does not support the truism that dependency causes poverty.

Truism 2: Raising education levels reduces poverty

The relationship between education, the labor market, and poverty can be seen in the *Oklahoma Employment Outlook 2014*. In projecting the labor market from 2004 to 2014, the authors projected the educational credentials required for the labor market during this time period (Carpenter et al. 2006:16). About 59 percent of the jobs expected to be created during this period can be done with a high school education or less. Given current poverty rates by education and the study's expected distribution of educational requirements for added employment over the next ten-year period, one could expect that there will be a poverty rate of about 19 percent among those in the jobs created. Thirty-one percent of the jobs projected to be created in Oklahoma between 2004 and 2014 will only require "short-term on-the-job training." The good news is that this type of job requires very few skills, can be learned with a short demonstration of duties, and assures that there will be some jobs for high school dropouts. The bad news is that this type of job lends itself to poverty rate wages, high turnover, and part-time employment.

Finally, according to the U.S. Census, the percent of Oklahomans 25 years of age and older that had more than a high school education marginally increased from 49.2 percent in 1999 to 51.2 percent in 2006. Over the same time period, the poverty rate increased from 13 percent to 16 percent. Contrary to

education advocates, the nature of jobs created by the economy tends to affect educational levels required rather than increasing education levels causing good jobs to be created.

Truism 3: Discrimination is not really a problem anymore. Thus, it can have no effect on poverty.

Poverty level wages[1] are a part of the labor market. For workers from 25 to 61 years of age[2], about 1 in 10 were paid a poverty wage rate for a household of three in mining, in transportation, communications, and public utilities, and in wholesale trade. About 1 in 11 was paid at a poverty wage rate in public administration. These were the industrial sectors that had the lowest proportion of jobs that paid at the poverty level or lower. With respect to sex and race among these industries, women are 74 percent less likely to receive a poverty wage rate than men in mining and about equally likely to receive a poverty wage rate as men in wholesale trade. Minorities are 42 percent more likely to receive a poverty wage rate than whites in mining but only 8 percent more likely in wholesale trade. Women are 35 percent more likely to receive a poverty wage rate than men in public administration and 96 percent more likely in transportation, communications, and public utilities. Minorities are 64 percent more likely to receive a poverty wage rate than whites in public administration but are about equally likely to receive a poverty wage rate as whites in transportation, communications, and public utilities. Women composed 18 percent of workers in mining, 22 percent in wholesale trade, 27 percent in transportation, communications, and public utilities, and 44 percent in public administration. Minorities composed 15 percent of workers in mining, 12 percent in wholesale trade, 14 percent in transportation, communications, and public utilities, and 22 percent in public administration. The two industries that proportionally contained more women also were more likely to pay women poverty rate wages. Similarly, the two industries that proportionally contained more minorities were more likely to pay minorities poverty rate wages.

About 1 worker in 7 was paid at a poverty wage rate in manufacturing and in finance, insurance, and real estate. Women were 28 percent more likely to receive a poverty wage rate in finance, insurance, and real estate, which was the industry with next to the highest concentration of women workers at 65 percent. Minorities were 77 percent more likely to receive a poverty wage rate in finance, insurance, and real estate. They composed 14 percent of workers in the 25 to 61 age range in the industry. Twenty-six percent of workers in manufacturing were women, who were 142 percent more likely to receive a poverty wage rate than men. Twenty percent of workers were minorities. They were 78 percent more likely to be paid a poverty wage rate than whites.

About 1 in 5 workers were paid at a poverty rate in construction. Women only make up 10 percent of construction workers and are 17 percent less likely than men to receive a poverty wage rate. Minorities make up 18 percent of

construction workers and are 47 percent more likely than whites to receive a poverty wage rate. About 1 in 4 was paid at a poverty rate in services. Women were 12 percent more likely to receive a poverty wage rate in services, which was the industry with the highest concentration of women workers at 67 percent. Minorities make up 19 percent of service workers and are 63 percent more likely than whites to receive a poverty wage rate. And about 1 in 3 was paid at a poverty rate in retail sales and in agriculture. Women were 80 percent more likely to receive a poverty wage rate in retail sales and made up 52 percent of workers in the industry. Minorities were 63 percent more likely than whites to receive a poverty wage rate in retail sales and composed of 17 percent workers. In agriculture, women were 22 percent more likely to receive a poverty wage rate and comprised 22 percent of workers. Minorities were 76 percent more likely than whites to receive a poverty wage rate and composed 14 percent of workers.

Overall in 2006, 19.4 percent or about 1 in 5 jobs paid at a poverty rate for a household of three. This is proportional to the household poverty rate for the state of 16 percent. Overall, women made up 47 percent of wage earners in the 25 to 61 year age range. They were 47 percent more likely to receive a poverty wage rate than men. Minorities composed 19 percent of wage earners in the 25 to 61 year olds age range. They were 57 percent more likely to receive a poverty wage rate than whites.

We are about 40 years beyond the passage of the federal legislation that made discrimination illegal. We have had enough time to have the age cohorts who lived under segregation pass through the work force. Should we still see such discrepancies in outcomes if discrimination were not a factor in hiring and promotion? Obviously, since women and minorities are the most likely to receive a poverty wage, simply stopping discrimination should decrease the poverty rate in Oklahoma.

Truism 4: A rising tide raises all boats

Since most of us live by earning a wage, the most likely cause of poverty is the labor market itself. To test this in Oklahoma, look at the proportion of poverty level jobs in the labor market and the poverty rate in a neighboring state, Kansas, and at an earlier point in time for Oklahoma–the 2000 Census, which actually reports labor and earnings information for 1999. In the 2006 Census Bureau's American Community Survey, Kansas had a household poverty rate of 12.3 percent. Almost 1 in 7 jobs in Kansas or 14.8 percent paid a poverty rate wage for a household of three for 25 to 61 year olds in the labor force. From the discussion above, 19.4 percent, about 1 in 5 jobs, paid a poverty rate wage in Oklahoma in 2006, that had a 16 percent household poverty rate. In the 2000 census, 14.7 percent of households were poor and 15.8 percent, about 1 in 6 jobs paid a poverty rate wage in Oklahoma. There is an association between the proportion of jobs that pay a poverty rate and the household poverty rate across time and geography.

As noted, Iceland (2003) found that after 1973, the poverty rate marginally increased in a recession and marginally decreased during growth. Since the proportion of poverty level jobs and poverty both increased in Oklahoma between 1999 and 2006, one would expect that the tide was falling. In fact, the gross domestic product for the state increased by 38 percent between 1999 and 2006 as the population increased by 4 percent. Here one has a case in which the tide was rising while poverty increased.

What would one expect if wages rose at the same rate as the growth in the state's gross domestic product? Using Iceland's (2003) method of calculating poverty rates under different assumptions to estimate what would have happened to the poverty rate in Oklahoma if wages would have changed at the same rate as the per capita gross domestic product for the state. The hourly wage rate for each worker from 25 to 61 years of age in the 2000 census was increased by the change in per capita gross domestic product for Oklahoma between 1999 and 2006, taking inflation into account. If the change in per capita gross domestic product during this period had affected all workers equally, one would expect an 11.1 percent or about 1 in 10 poverty wage rate. Instead, one finds a poverty wage rate in 2006 of about 1 in 5.

Looking at specific industrial sectors, the actual poverty wage rate was less than the expected poverty wage rate from the per capita gross domestic product increase only in wholesale trade. The actual poverty wage rate was somewhat higher than expected in transportation, communications, and public utilities (poverty wage rate of 1 out of 12 workers expected, 1 out of 10 actual), agriculture (1 out of 4 expected, 1 out of 3 actual), and mining (1 out of 14 expected, 1 out of 10 actual). It was higher than expected in finance, insurance, and real estate (1 out of 12 expected, 1 out of 7 actual), services (1 out of 7 expected, 1 out of 4 actual), construction (1 out of 10 expected, 1 out of 5 actual), public administration (1 out of 20 expected, 1 out of 10 actual), and manufacturing (1 out of 17 expected, 1 out of 7 actual). It was significantly higher in retail sales (1 out of 16 expected, 1 out of 3 actual). Clearly, the increase in gross domestic product does not positively affect workers in all industrial sectors.

Using the same method from Iceland (2003), one can look at the effect of the rising gross domestic product on each quartile of the income distribution for the state. To do this, the wage distribution expected in 2006, based on the assumption that all wages in 1999 increased at the rate of change of the per capita gross domestic product, adjusted for inflation, were compared to the actual wage distribution in 2006 for each income quartile. On average, actual wages were 88 percent of what would be expected from increases in the per capita gross domestic product. This means that an increasing proportion of gross domestic product is returning to capital instead of labor. Beginning with the lowest quartile, actual wages were 81 percent of expected wages for the lowest quartile, 85 percent for the second

quartile, 87 percent for the third quartile, and 91 percent for the top quartile. Thus, more of the growth of the gross domestic product is going to higher income quartiles rather than to lower income quartiles as well as more of the gross domestic product going to capital.

To understand this distribution of poverty wages by industry, it is instructive to look at wage level, wage distribution, and the use of part-time or temporary workers. Using the population of employed persons from 25 to 62 years of age in 2006, the four sectors with the highest proportion of poverty wage jobs had the lowest average hourly wage rate for full-time workers, ranging from $11.85/hr. to $17.32/hr. The four sectors with the lowest proportion of poverty wage jobs had the highest average hourly wage rate for full-time workers, ranging from $19.90/hr. to $26.06/hr. Retail sales also had the widest standard deviation of wages as a proportion of the average wage rate for full-time retail sales workers, 0.97. A wide standard deviation indicates that there are more jobs that pay further below and above the average for the industry than usual. The narrowest standard deviation of wages as a proportion of the average wage rate for full-time workers was for transportation, communications, and public utilities, 0.57. A narrow standard deviation indicates that the pay for most jobs bunch more closely to the average. Services had the widest standard deviation of wages as a proportion of the average wage rate for part-time workers, 6.48. The narrowest for part-time workers was 1.22 for workers in public administration. Services, retail sales, and construction industries used the largest proportion of part-time or temporary workers, ranging from 28 percent to 36 percent. The four industrial sectors with the lowest proportion of poverty rate wages used the smallest proportion of part-time or temporary workers, ranging from 14 percent to 18 percent. These three factors with a strategy of using part-time workers as a method for holding down wage demands from full-time workers.

To get another picture of the relationship between the increase in gross domestic product (the rising tide) and the incomes of workers (the boats), Table 1 was constructed based on the Bureau of Economic Analysis' "*Gross* average hourly wages[5] for the industrial sector and for three occupational clusters in each industrial sector[6] in 1999 dollars, and the percent of part-time workers – working less than 35 hours per week or less than 50 weeks per year – for the three occupational clusters in each industrial sector. This is a direct refutation of the truism that a rising tide raises all boats.

To look at what factors cause some boats to rise and others to sink in terms of wages, consider Botwinick's (1993) work on social inequality. He found three major sources of wage inequality. First, differences in earnings between and within industries set different limits to the wages of workers. Second, the disparate efforts of workers to increase their wages will affect wage differences. Finally, the ever-present reserve army of labor will set limits to wage variation. These three factors can be seen at work in Table 1.

As one looks at Table 1, industrial sectors with high rates of growth in real market value of gross domestic product were those with higher rates of growth of average wages. Both mining and wholesale trade experienced significant increases in the real market value of productivity between 1999 and 2000. The real market value of productivity for mining increased 197 percent and for wholesale trade increased 134 percent. While the average hourly value of real wages fell during this time period for almost all other industrial sectors, the real value of wages increased 18 percent for mining and 42 percent for wholesale trade. Thus, higher wages can be paid to workers in industrial sectors that have higher rates of real market value growth.

As an aside, one often hears management admonish workers to work harder to increase productivity as a means of potentially increasing wages. Ironically, real productivity actually decreased for mining by 20 percent between 1999 and 2006. The reason for the increase in real market value of productivity for mining was an increase in the price of gasoline from 1 to 2 dollars per gallon in 1999 to 3 to 4 dollars per gallon in 2006. The increased return on an hour worked was rooted in market conditions for the product. The increase in the real market value of productivity for wholesale trade appears to reside in an increase in real productivity. Chained productivity per hour of work increased for wholesale trade by 194 percent. However, the total hours worked in wholesale trade decreased by 60 percent between 1999 and 2006. The proportion of part-time workers was cut in half over that time period. Without a detailed history of the wholesale trade sector, it is impossible to tell the story of this sector. But clearly, either less productive enterprises left the state, went out of business, or some found means of seriously increasing productivity, such as computerization and automation that resulted in more output with less labor. The real market value of productivity for all other industrial sectors was either stagnant or declining. With respect to the stagnant sectors, the real market value of productivity increased for finance, insurance, and real estate by 1 percent and decreased for services by four percent and for construction by 6 percent. Real wages decreased for finance, insurance, and real estate by one percent, for services by 1 percent, and for construction by 11 percent.

The sectors that experienced a decline in the real market value of productivity present a mixed picture with respect to wages. Retail sales behave as expected from Botwinick's study. The real market value of productivity declined by 25 percent; real wages declined by 30 percent. The behavior of the manufacturing sector and the transportation, communications, and public utility sector are a bit aberrant with respect to the observation that growth of productivity sets the limits to the growth of wages. While the real market value of productivity for manufacturing decreased by 21 percent, real wages only decreased by 6 percent. As the real market value of productivity for the transportation, communications, and public utility sector declined by 61 percent real wages actually increased

by 6 percent.

One can use Botwinick's (1993) observation that disparate efforts of workers to increase their wages will affect wage differences to account for the rising wages in the transportation, communications, and public utilities sector. The Bureau of Labor Statistics reports that transportation, communications, and public utilities are the private sector with the highest percent of employees represented by unions (Bureau of Labor Statistics 2009b). Moreover, if one examines the databases for stories from the *Tulsa World* and the *Daily Oklahoman* for the last 10 years, almost all of the stories that involve unions are about the transportation, communications, and public utilities

Table 1. Comparison of Gross Domestic Product per Hour Worked, Average Wages, and Percent Part-time Employment for Nonagricultural, Private Sectors for Oklahoma for 1999 and 2006

		Industrial Sector			
Variables	**Year**	**Wholesale**	**Retail**	**FIRE[a]**	**Services**
GDP per hour, chained in 2000 dollars	1999	14.39	25.89	69.18	17.26
	2006	42.32	28.85	73.50	19.14
GDP in 1999 dollars adjusted by CPI[c]	1999	13.99	25.96	66.91	16.58
	2006	32.78	19.39	67.57	15.98
Average hourly wage in 1999 dollars					
For industry	1999	12.22	16.81	16.73	14.13
	2000	17.33	11.74	16.52	14.02
For managers & professionals	1999	18.11	20.79	21.09	18.40
	2000	20.32	22.30	21.07	19.05
For technical, sales, and admin. support	1999	11.83	15.14	15.20	9.67
	2000	21.39	11.08	13.58	9.69
For production, repair, operators, labors, etc.	1999	11.23	16.16	13.47	11.52
	2000	11.05	9.80	13.30	10.88
Percent part-time positions:					
For managers and professionals	1999	28.0%	20.0%	19.0%	40.0%
	2000	17.0%	40.0%	14.0%	37.0%
For technical, sales, and admin. support	1999	51.0%	32.0%	36.0%	58.0%
	2000	20.0%	49.0%	34.0%	54.0%
For production, repair, operators, labors, etc	1999	43.0%	24.0%	24.0%	42.0%
	2000	28.0%	48.0%	47.0%	44.0%

[a] Finance, Insurance, and Real Estate
[c] Consumer Price Index

Table 1 (continued). Comparison of Gross Domestic Product per Hour Worked, Average Wages, and Percent Part-time Employment for Nonagricultural, Private Sectors for Oklahoma for 1999 and 2006

			Industrial Sector		
Variables	**Year**	**TCPU[b]**	**Mining**	**Construction**	**Manufacturing**
GDP per hour, chained in 2000 dollars	1999	72.96	89.74	18.48	30.33
	2006	41.34	72.15	14.20	34.41
GDP in 1999 dollars adjusted by CPI[c]	1999	74.24	54.00	17.34	30.91
	2006	28.84	160.13	16.30	24.34
Average hourly wage in 1999 dollars					
For industry	1999	15.68	17.76	14.05	15.87
	2000	16.63	21.03	12.49	14.89
For managers & professionals	1999	23.69	26.84	21.72	23.91
	2000	20.60	35.19	20.59	24.73
For technical, sales, and admin. support	1999	17.25	15.38	13.87	15.52
	2000	14.57	16.23	13.21	15.00
For production, repair, operators, labors, etc.	1999	11.66	13.98	13.00	13.89
	2000	16.07	18.66	11.07	12.36
Percent part-time positions:					
For managers and professionals	1999	21.0%	20.0%	18.0%	11.0%
	2000	16.0%	16.0%	15.0%	13.0%
For technical, sales, and admin. support	1999	23.0%	21.0%	38.0%	23.0%
	2000	31.0%	23.0%	48.0%	20.0%
For production, repair, operators, labors, etc	1999	25.0%	27.0%	36.0%	23.0%
	2000	22.0%	25.0%	33.0%	25.0%

[b] Transportation, Communications, and Public Utilities
[c] Consumer Price Index

sector. Concerted actions by unions along with the regulated nature of utilities could easily account for upward pressure on real wages in the face of a decline in the real market value of productivity. Additionally, it should be noted that the gross domestic product for transportation, communications, and public utilities actually increased by 15 percent. Thus, there may have been room in budgets to cover wages in the face of declining real market value of productivity. Moreover, the transportation communications, and public utilities sector has the narrowest

difference between the top and bottom of the salary range as measured by the standard deviation of wages divided by the average wage. So, wages to management and non-represented workers could be depressed to cover wage increases to represented workers.

The relative small loss of real hourly wages for manufacturing workers in the face of the significant loss of real market value of product probably cannot be accounted for without further study. One should note that the real productivity for manufacturing rose between 1999 and 2000 at the second highest rate behind wholesale trade. Whether this increase can be attributed to increased automation, more successful management or organization, increased productivity of workers, or some other factor, it likely indicates that the specific skills used by manufacturing workers in new systems, skills, or methods of work would make them more difficult to replace in the local labor market. It is also likely that manufacturers that rely on cheap labor move their operations to low wage countries, such as China. Anecdotally, a former neighbor, an engineer, shared that the small company for whom he works moved its manufacturing to China. I assume that, if my neighbor's small company that manufactures trolling motors for fishing boats can move its manufacturing to China, such a strategy is available to most manufacturers that choose to use low wages for its competitive advantage. Otherwise, increasing productivity rather than beggaring ones workers seems to be the strategy in manufacturing to remain in Oklahoma.

Botwinick's (1993) last finding was that the ever-present reserve army of labor will set limits to wage variation. The effect of the "ever-present reserve army" can be best seen in the retail sales sector. As one would expect from Botwinick's first finding that the growth in earnings limits growth in wages, the decline of the real market value of productivity in retail sales lead to a proportional decline in real wages. One of the ways that the retail sales sector dealt with its situation was to double part-time employment for all occupations. This strategy has obvious benefits for management and owners in the retail sales sector with part-time employees who are flexibly scheduled, casually employed, receive the lowest of wages, and receive no additional benefits. One of the effects of increasing part-time employment is to increase the reserve army of workers. Note from the Consumer Expenditure Survey (Bureau of Labor Statistics 2009a) that households making less than $34,685 spend more than they make. This means that they have additional pressure to earn. So, multiple jobs or multiple workers in the household are required to maintain the household over the long term. With a rise in low-paying, part-time jobs, more workers must work more than one job in order to try to maintain a standard of living. Thus, the effect of increasing part-time, low wage work in the labor market is to increase the reserve army of workers by increasing the number of jobs than any one worker must work.

CONCLUSION

In the Russell Sage Foundation study of low-wage work in Europe and the United States (Gautié and

Schmitt 2010), the authors found that the proportion of low-wage work, and therefore work that pays poverty level wages, does not correlate with per capita Gross Domestic Product, Gross Domestic Product Growth, the growth in the hourly productivity of labor, or demographic factors such as the growth of women in the labor market. In other words, as with this study, they found that the rising tide does not assure that all boats will rise.

The factor their study found that reduced low-wage work, the thereby poverty, was a rising floor. They found that the rising floor took several forms. In some cases, strong bargaining power of workers affected multiple sectors through various mechanisms to spread the agreement. In Oklahoma, this is most clearly seen in the Transportation, Communication, and Public Utilities sector. In other cases, a strong minimum wage provided a rising floor. While some would argue that a strong minimum wage would possibly decrease employment, Bluestone (1995) found that higher minimum wages only lead to very modest losses of low income jobs that are more than offset by overall higher wages in the labor market. In yet other cases, strong income support provided a rising floor. For example, in countries that had strong income support for the unemployed, wages were forced to be higher than the income support level. While not discussed in the Russell Sage Foundation study, the elimination of the two-tier wage system involving racial and sexual discrimination would help to set a floor to wages. One practice that Iceland (2003) and Ridgeway (2006) found that enable discrimination to continue is the failure to assess and use actual skills required and demonstrate for hiring, remuneration, and promotion decisions. In the absence of good, objective systems to assess skills required and demonstrated, they both found that employers default to stereotypes that privilege white males to make decisions.

The findings on Oklahoma in this study along with the findings of the study sponsored by the Russell Sage Foundation on the United States and Europe turn the truisms about poverty upside down. Tax breaks and incentives thrown at businesses without a strong floor of worker benefits and rights simply result in more profits for businesses and higher wages for management. They do little to lower the poverty rate for the population. Having a generous welfare/unemployment system does not create dependency; it gives workers an alternative to low wages and thereby puts a solid floor on the labor market by forcing employers to pay more to entice workers into the labor market.

Endnotes

[1]The poverty wage rate for this study is a wage rate paid to a worker who works 40 hours per week and 52 weeks per year that would still leave the worker and her or his household in poverty if she or he were the only income earner in a household of three. In the 2006 American Community Survey, the average size of a household in Oklahoma was 2.5, and the average size of a family was just over three.

[2]The values reported for variables were calculated from the Public Use Microdata Sample for Oklahoma from the U. S. Census Bureau's 2000 Census for values identified as 1999 and from the U. S. Census Bureau's 2006 American Community Survey for values identified as 2006. Given the wide variability in employment of persons under 25 and of persons 62 and older, the calculations were based only on adults 25 to 61 years of age.

[3]Gross domestic product values for Oklahoma were drawn from "Gross Domestic Product by State and Industry" (Bureau of Economic Analysis 2009). Real gross domestic product per hour was calculated by dividing gross domestic product values by industry chained to the year 2000 by the number of hours worked in that industry as calculated from the Public Use Microdata Sample for Oklahoma from the 2000 U.S. Census for 1999 and from the 2006 American Community Survey for 2006. Multiplying various amounts of products in an industrial sector by the cost of those products for a reference year, which is 2000 in this case, create a chained value (Bureau of Economic Analysis 2008). The idea is to create a dollar amount that reflects changes in mixes and amounts of products produced in an industrial sector while neutralizing the effect of changes in market prices and inflation.

[4]Using the same databases as identified in Note 3 above, the market value of gross domestic product per hour worked for an industrial sector was calculated by dividing the nominal market value of the gross domestic product for the industrial sector, adjusted for inflation using the Consumer Price Index, by the number of hours worked in that industry. The adjustment by the Consumer Price Index was done to make values in 1999 comparable with values in 2006. Values are expressed in 1999 dollars.

[5]Hours worked in an industrial sector were estimated from census sources cited in Note 3.

[6]Average wages reported by industrial sector and, in Table 1, by occupational cluster within an industry were estimated from census sources cited in Note 3. Once again, the wages are reported in 1999 dollars, and the Consumer Price Index was used to make values in 1999 comparable with values in 2006.

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