Jackson State Forest Management Effects on County Income and Employment

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Summary

Estimates of the effect of SB 1648 provided by the California Department of Forestry greatly exaggerate the effect of changes of timber production on employment. They also ignore the positive income benefits of SB 1648.

A more accurate and balanced analysis shows that passage of SB 1648 would very likely significantly increase Mendocino County incomes and tax revenues.

Estimates from Mendocino Data[1]

A change in timber production of 10 million board feet (mbf) in Mendocino County has historically been associated with these approximate effects:

Table 1: Historical Effects of 10 MBF Change in Timber Production	
(Statistical Estimates)	
Logging Employment (1992-2000)	15 Full-time jobs
Total Wood Products Employment (1980-2000)	30 Full-time jobs
Logging Wages[2]	$0.38 million
Total Wood Products Wages	$0.75 million

The above estimates were made by doing statistical (regression) analysis on actual historical data (see Appendix). As can be seen in the two figures on page 4, there is very little relationship between annual changes in timber production and wood products and logging employment. Logging employment actually increased during the 1990s while timber production fell substantially. Although the above estimates are the statistical "best estimates," the historical relationship between production and employment is so weak that there is very little confidence that there is any effect of changes in production on employment.

A direct estimate from logging cost data indicates about twice as great effect on logging employment as the statistical estimate. When one considers that firms will seek jobs and timber elsewhere if not available at Jackson Forest, the actual

[1] See Appendix for details of the analysis and sources of data.
[2] Wages are calculated on the basis of $25,000 per year, the value use in the JDSF 2002 Management Plan.

impact on employment of a change in production at Jackson seems likely to be less than the directly estimated effect, perhaps close to the statistical estimate.

Table 2: Employment Effects Directly Estimated from Logging Costs (10 MBF Change In Production)	
Logging Employment	28 Full-time jobs
Logging Wages[3]	$0.70 million

Estimates in the JDSF Management Plan

The estimates from Mendocino data are dramatically smaller than the estimates of employment and wage effect presented in the 2002 management plan for Jackson Demonstration State Forest (JDSF):

Table 3: JDSF Management Plan: 10 MBF Change in Timber Production	
Logging Employment	100 Full-time jobs
Total County Employment	185 Full-time jobs
Logging Wages	$2.5 million
Total County Wages	$4.3 million

What explains this discrepancy? The JDSF Management Plan estimates were apparently based upon a general economic analysis unrelated to Mendocino County experience. Data for Mendocino County clearly show that the effects of changes in timber production upon employment are very much smaller than those assumed in the JDSF management plan.

[3] See above note.

Effects of SB 1648 on employment, wages, and county income

The effects of SB 1648 on timber production are impossible to know, because these will emerge from the management plan developed to implement the intent of the legislation. To get an idea of the possible effects, consider the following hypothetical example that includes possible negative and positive effects:

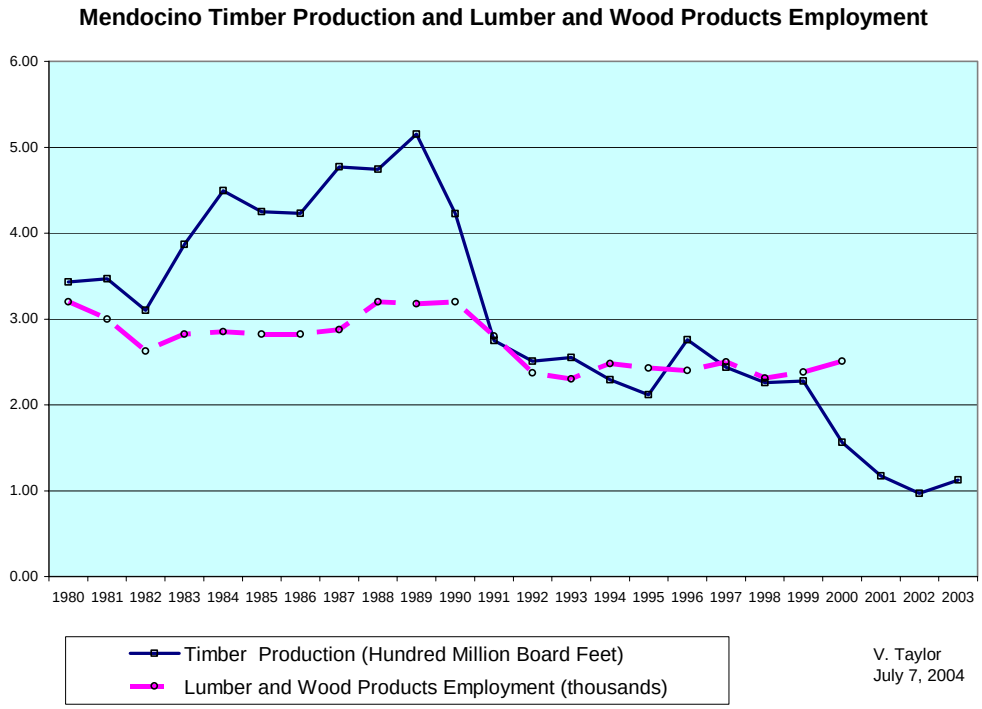
Table 4: Effects Of SB 1648 on Mendocino County Employment and Income

Effect	Total Wood Products Effect	Income Effect	County Tax Effect
10 MBF decrease in timber production			
Wood Products Jobs	-30 jobs	-$0.75 million	
County Yield Tax			-$130,000
Sales Tax			-$8,000
Increased JDSF operating budget		+$2 to $3 million	
Sales Tax			+$20-30,000
Tourism increase of 2 to 5%-- 20,000 to 50,000 visitor days at $100 per day		+$2-5 million expenditures	
Bed Tax			+$200-500,000
Sales Tax			+$100-300,000
Totals			**+$182-742,000**
County Resident Income		**+$1.25-2.25 million**	
Tourist Expenditures		**+$2-5 million**	

Those opposing the legislation have ignored the positive effects of the legislation on Mendocino County revenues and wages. The legislation mandates that the first dollars from timber harvesting in Jackson Forest go to fund the operating budget of the forest, as recommended by the Advisory Committee. This could add $2 to $3 million to the operating budget of the forest, most of it going to wages and contracts in Mendocino County. Additionally, if the forest is promoted as a tourist destination, it should have a significant positive impact on tourist stays and expenditures. The amounts shown are speculative but reasonable.

Historical Data on Timber Production and Employment

Figures 1 and 2



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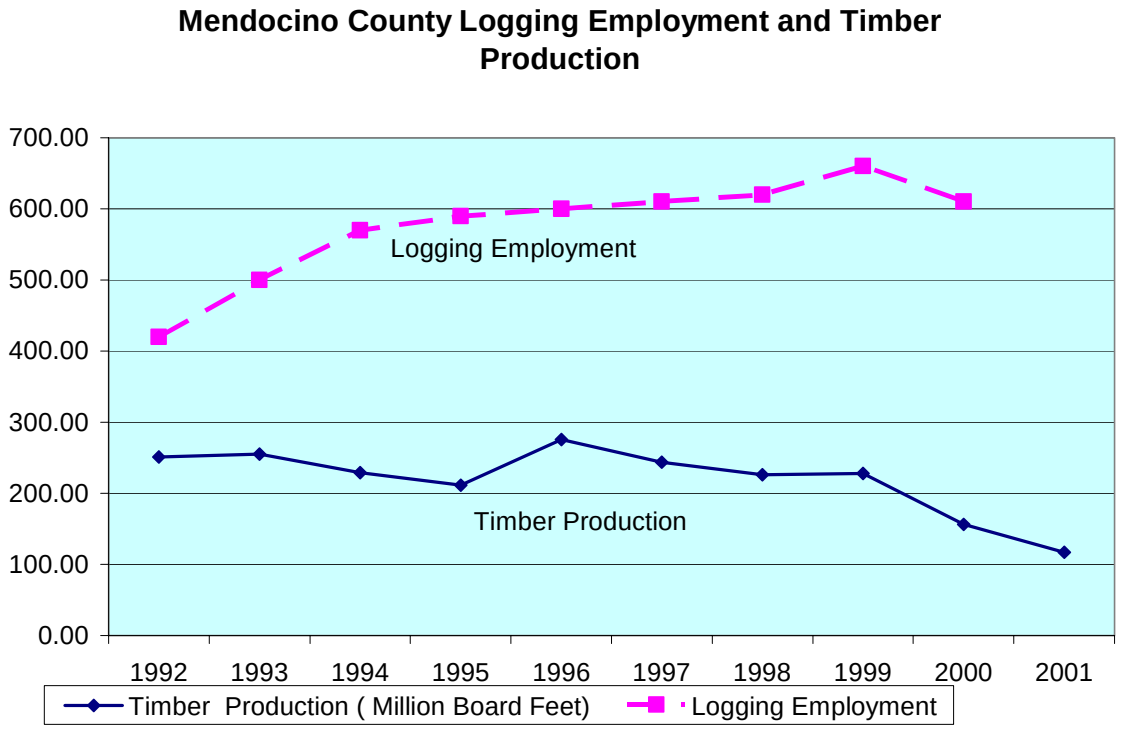


Appendix

Estimating Employment Effects of Changes in Timber Production

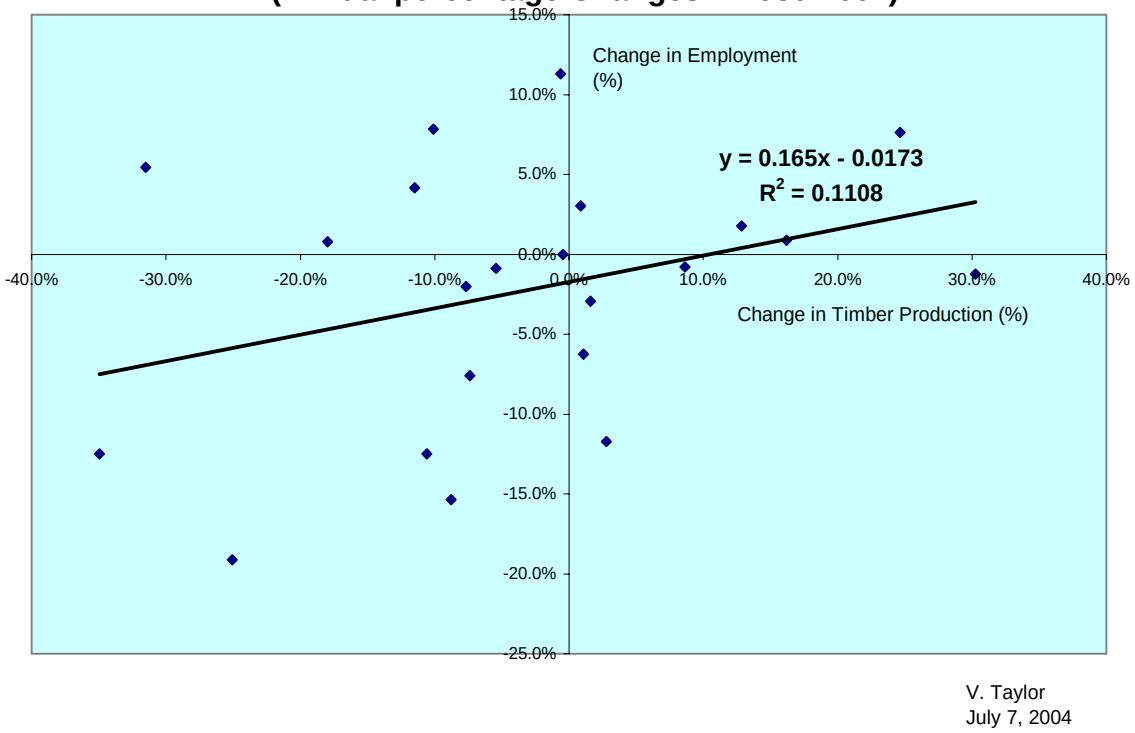
Statistical Estimates

The best statistical estimate of the effect of changes in timber production on employment is made by plotting annual changes in employment versus annual changes in production, and then calculating the relationship line that provides the "best fit" through the points.

Figures A-1 and A-2 display these plots

Figure A-1

Mendocino County Lumber and Wood Products Employment versus Timber Production
(Annual percentage Changes -- 1980-2001)



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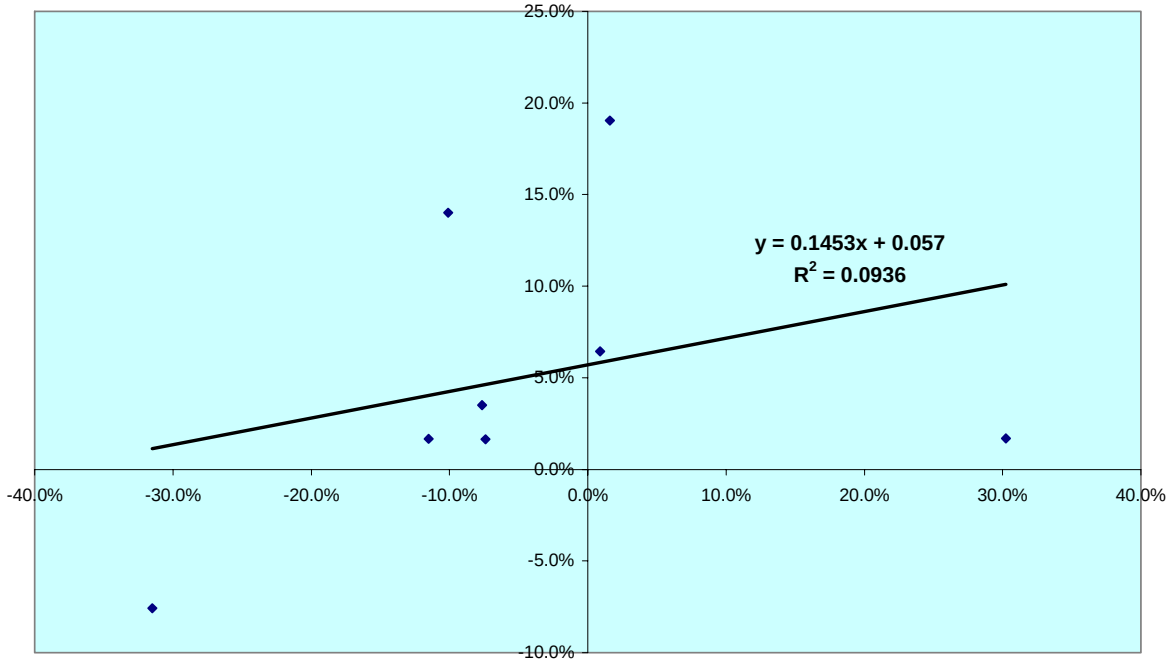
Only 11% of the year-to-year variance in wood product employment is explained by changes in timber production. The best estimate is that a 10 percent change in timber production will change wood product employment by just 1.65 percent. You can see, though, that this has little predictive value, because while employment has varied significantly from year to year, the variations appear almost independent of the level of timber production.

The lack of a strong relationship between timber production and employment is explained by a number of factors. During the period of falling production, mills and wood processing plants were responding by importing trees from other counties and even from out of the state and country. For example, in recent years Harwood mills has imported 50 mbf of timber from Washington State and British Columbia (50 percent of recent Mendocino timber production). Mills have also been increasing the amount of processing done on the logs they receive. The result was that wood products employment (including logging) was relatively stable during the 1990s while timber production fell by a half.

Figure A-2

Mendocino County Logging Employment versus Timber Production
(Annual Percentage Changes -- 1993-2000)



There are many fewer years of data available for logging employment; thus there is even less statistical confidence in the results. Logging employment was increasing at 5.7 % per year, independently of timber production. A 10 % change in production was associated with a 1.45 % change in logging employment. Again, this has little predictive value. There is no consistent relationship between logging employment and timber production.

Reasons for the lack of strong relationship between timber production and logging employment are: During the period, the size of trees harvested were falling, and regulations were increasing. Both would tend to increase the number of loggers per tree harvested.

Notes:

The data used in the statistical analysis are presented in Table A-2 in this Appendix.

The analysis ends with 2000, because unfortunately, the employment data series were revised in 2000, and the new data series are not consistent with the prior series (showing much lower wood product employment figures), and logging employment is not reported separately. Although the prior series data were available for 2001, logging employment showed such a sharp change, declining by one-third, as to be suspicious, and there are no later years to use to see if this was a data error.

Direct Estimate from Logging Cost Data

The bidding sales document for the Brandon Gulch Timber Harvest Plan (THP) in Jackson State Forest contains an estimate of the costs of logging and transporting the logs to the mill. [4]

Excluding overhead, bonds, and taxes, the estimated cost per thousand board feet was $175, equal to $175,000 per million board feet (mbf). I estimated the labor costs of the listed components as shown in Table A-1

Table A-1: Brandon Gulch Logging Costs

Component	Cost per thousand board feet	Estimated percentage labor (%)	Estimated labor cost per thousand board ft.
Fall, buck, and limb	$30.00	100	$30.00
Yard, skid, and load	$84.60	25	$21.15
Log Haul	$46.82	25	$11.71
Road Construction	$ 1.86	25	$ .47
Road Maintenance	$6.77	25	$ 1.69
Landing Cleanup, final roadwork, and erosion control	2.66	50	$ 1.33
Equipment move	$ .34	25	$ .09
Lopping and scaling	$2.84	10	$ 2.84
Total			$69.28

I estimated labor costs for the those components that were primarily hand work at 100% of the estimated cost, and those that involved heavy equipment or transportation at 25% of the total cost. A few minor components I estimated labor to be 50% of the total cost.

The estimated labor cost will vary depending upon the fraction of heavy equipment operations that represents labor, but the based on my experience with renting heavy equipment, the assumed fraction seems reasonable to conservative. Others may be able to supply more accurate information.

The estimate of Table A-1 is that 10 million board feet of timber production in Jackson State Forest would have labor costs of about $700,000. At $25,000 per year of annual wage, the work would provide 28 jobs.

The direct estimate is about twice the statistical estimate. But, firms that do not get work and logs from Jackson Forest will seek jobs and logs elsewhere, and the historical

[4] "Notice of Sale, Brandon Gulch 2003 Timber Sale," California Department of Forestry, Summary of Operating Costs", 2/25/2003

evidence suggests that even if other production work in the county is not available, not all of these workers will be laid off.

Direct Data on Mill Employment

At a Willits City Council meeting on July 14, 2004, Chris Baldo of Willits Redwood Company stated that his mill employed 18 people and processed 7 mbf of lumber a year. **This implies mill employment of 26 people per 10 mbf of timber.**

The effect of a reduction in Jackson Forest timber production will be less than the Baldo data indicate, because mills will obtain logs from elsewhere in and out of county. This happened in 2003. Willits Redwood was the successful bidder on the JDSF Camp 3 THP. This plan would have supplied the annual requirements of the mill, but it was halted by the court. The company then obtained its log supply from elsewhere.

Data Used in the Statistical Analysis

Table A-2
Mendocino County: Employment in All Industries and in Lumber and Wood Products, and Timber Production

Year	Civilian Employment	All Industries	Lumber and Wood Products	Percentage lumber & wood of All Industries	Percentage lumber & wood of Civilian Employ	Timber Production MMBF	Logging Employment	
1972		16,125	3,650	22.6%		540,345		
1973		16,675	3,525	21.1%		529,869		
1974		17,475	3,500	20.0%		519,279		
1975		17,900	3,125	17.5%		490,542		
1976		19,575	3,675	18.8%		573,106		
1977		21,100	3,750	17.8%		617,393		
1978		22,575	3,750	16.6%		454,653		
1979		23,550	3,625	15.4%		333,944		
1980		23,400	3,200	13.7%		343,200		
1981		23,325	3,000	12.9%		346,905		
1982		22,625	2,625	11.6%		310,236		
1983	27,830	23,260	2,825	12.1%	10.2%	386,714		
1984	28,680	23,890	2,850	11.9%	9.9%	449,311		
1985	29,530	24,740	2,825	11.4%	9.6%	424,943		
1986	30,850	25,810	2,825	10.9%	9.2%	423,042		
1987	31,780	26,650	2,875	10.8%	9.0%	477,364		
1988	32,370	27,040	3,200	11.8%	9.9%	474,293		
1989	33,180	27,610	3,175	11.5%	9.6%	515,299		
1990	35,940	27,920	3,200	11.5%	8.9%	422,732		
1991	34,520	27,440	2,800	10.2%	8.1%	274,986		
1992	34,730	26,970	2,370	8.8%	6.8%	250,897	420	

1993	35,700	27,280	2,300	8.4%	6.4%	254,895	500	
1994	36,940	28,350	2,480	8.7%	6.7%	229,123	570	
Year	Civilian	All Industries	Lumber and Wood Products	Percentage	Percentage	Timber Production	Logging	
	Employment			lumber & wood	lumber & wood	MMBF	Employment	
				of All Industries	of Civilian Employ			
1995	37,380	29,300	2,430	8.3%	6.5%	211,583	590	
1996	38,500	30,520	2,400	7.9%	6.2%	275,589	600	
1997	39,340	31,530	2,500	7.9%	6.4%	243,886	610	
1998	39,250	31,820	2,310	7.3%	5.9%	225,878	620	
1999	38,700	32,050	2,380	7.4%		227,878	660	
2000	39,300	32,740	2,510	7.7%		156,100	610	
2001	40,130	33,400	2,030	6.1%	5.1%	117,000	430	

Sources:

Employment Data: Employment Development Department, Labor Market Information Division, "Mendocino County, Industry Employment and Labor Force - by Annual Average," provided by Cecilia Palada, CA Department of Finance, Economic Research, (916) 322-2263 x2429

Mendocino County Timber Production: State Board of Equalization, Timber Tax Division, Mitchell Cari, (916) 322-2158, plus various issues of "Mendocino County Crop Report," County of Mendocino, Department of Agriculture.

Notes:
Employment Data Series were revised starting in 2000. The values presented here are reported on the prior basis, but the data value for Logging employment in 2001seems suspiciously low; thus I have not used 2001 data in the analyses.