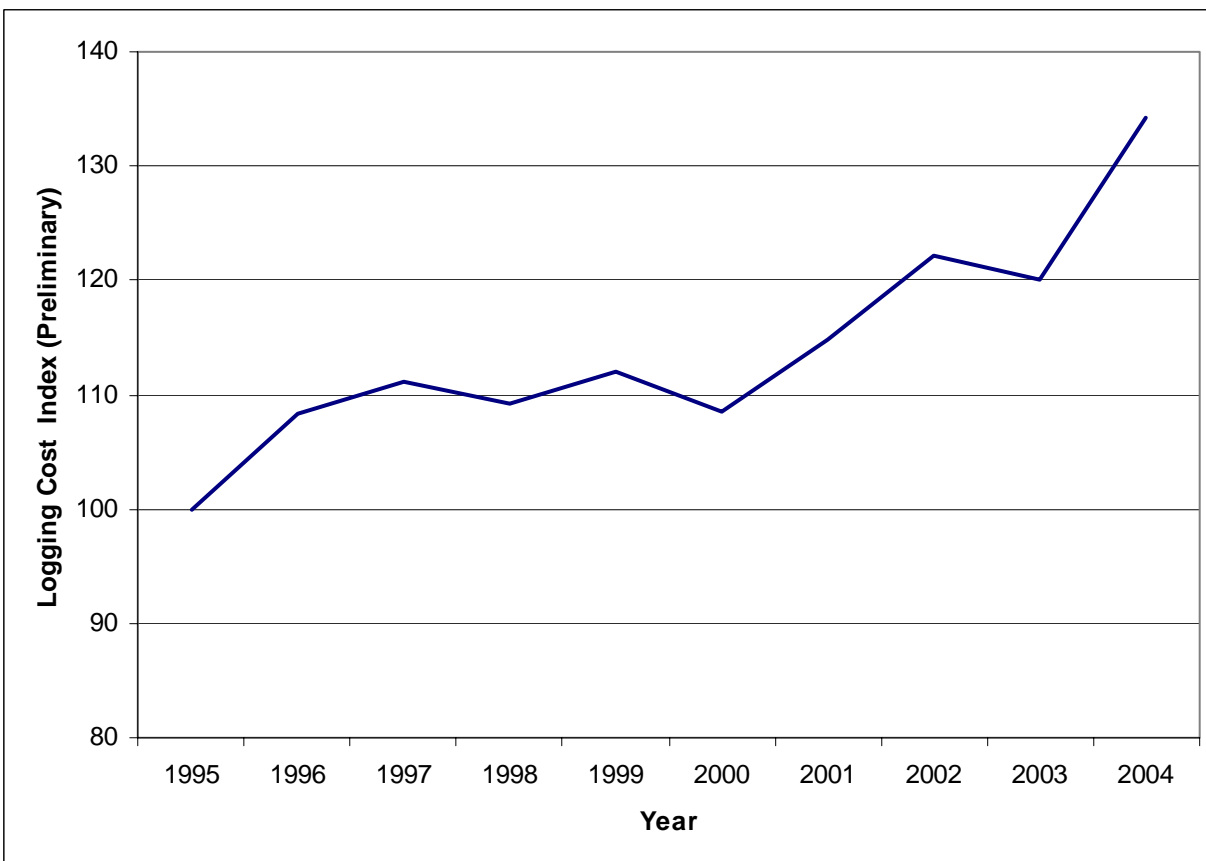


2004 Logging Cost Indices



1995-2004 Logging Cost Index

**William B. Stuart
Laura A. Grace
Clayton B. Altizer**

March 2006

**This research is supported by:
The Wood Supply Research Institute
The Forest and Wildlife Research Center-Mississippi State University
and
The USDA Wood Utilization Research Program**



FWRC # FO 319

Table of Contents

Table of Contents	ii
List of Figures	ii
List of Tables.....	ii
Preface	iii
1 Final 2004 Logging Cost Indices.....	1
1.1 Introduction	1
1.2 Population.....	1
1.3 Average Total Cost per Ton Index	2
1.4 Annual Production.....	3
1.5 Cost Indices by Firm Size.....	4
1.6 Distribution of Total Costs	5
1.7 Component Cost Indices.....	5
2 Discussion	7
Appendix	9

List of Figures

Figure 1.1. Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2004.....	2
Figure 1.2. Ranges in annual production by firm size, 1995-2004.....	3
Figure 1.3. Average total logging cost indices by firm size, 1995-2004.....	4
Figure 1.4. Cost components as a percentage of total logging cost per ton, 1995-2004.	5
Figure 1.5. Component logging cost/ton indices for all participating firms, 1995-2004.	6

List of Tables

Table 1.1. Logging firm participation by state and year of initial involvement.	1
Table 2.1. Shift in production and expenditures between 2002 and 2004 for 30 participating firms.	7

Preface

The fundamental objective of the Wood Supply Research Institute (WSRI) is to enhance pro-competitive awareness of factors that affect the efficiency, stability, and economic viability of the industrial wood supply system. Thus, the members of WSRI believe that the industry needs some continuous, long-term, credible, index of trends related to the cost of producing wood and the financial health of the system.

The long term cost and productivity study conducted by Mississippi State University originated within the Industrial Forestry Operations Research Coop at Virginia Tech in 1990. The study has been supported by the Forest and Wildlife Research Center at MSU since 1999. The objectives of this study have been to: monitor the effects of changes in the wood supply system on logging business performance, monitor the effects of externalities such as weather, tax law, fuel prices, labor legislation on business structures, and to gather information and insights that could lead to the development of better understanding of, and management tools for, the wood supply system.

This research project, funded in part by WSRI, is designed to expand the current work being done at Mississippi State University and to enhance the dissemination of this index to a broader audience.

This report presents the final 2004 index based on a sample of 40 contractors for whom complete data were available on 10/25/2005.

This is the eighth in a series of reports from this project.

Stuart, W.B., L.A. Grace, B.D. Jackson, and R. Stutzman. 2003. Logging Cost Indices. http://www.cfr.msstate.edu/forestry/Q1_IndicesWSRI_R1.pdf. 23 pp.

Stuart, W.B., L.A. Grace, B.D. Jackson, and R. Stutzman. 2003. Logging Cost Indices: The effect of increasing sample size. http://www.cfr.msstate.edu/forestry/WSRI_R2.pdf. 20 pp.

Stuart, W.B., L.A. Grace, and C.B. Altizer. 2003. Preliminary 2002 Logging Cost Indices and Demographics of Participating Firms. http://www.cfr.msstate.edu/forestry/WSRI_R3.pdf. 30 pp.

Stuart, W.B., L.A. Grace, and C.B. Altizer. 2004. Final 2002 Logging Cost Indices and 2003 Update. http://www.cfr.msstate.edu/forestry/WSRI_R4.pdf. 14 pp.

Stuart, W.B., L.A. Grace, and C.B. Altizer. 2004. Preliminary 2003 Logging Cost Indices. http://www.cfr.msstate.edu/pubs/WSRI_R5.pdf. 15 pp.

Stuart, W. B., L. A. Grace, C. B. Altizer, 2004. Preliminary 2003 Logging Cost Indices. Wood Supply Research Institute. http://www.cfr.msstate.edu/fwrc/pubs/WSRI_R5.pdf 15 pp.

Stuart, W.B., L.A. Grace, C.B. Altizer. 2005. Final 2003 Logging Cost Indices. Wood Supply Research Institute. <http://www.cfr.msstate.edu/fwrc/pubs/WSRI-R6.pdf>. 15 pp

Stuart, W.B., L.A. Grace, C.B. Altizer. 2006. Preliminary 2004 Logging Cost Indices. Wood Supply Research Institute. <http://www.cfr.msstate.edu/fwrc/pubs/WSRI-R7.pdf>. 15 pp.

1 Final 2004 Logging Cost Indices

1.1 Introduction

This report is based on 2004 final reports from 40 logging firms, 36 of which participated in the 2003 reporting, three who rejoined the project after a year's absence, and one that joined the project during 2004. Two new firms joined the study this year, three returned after a one year's absence, all provided data for 2003. Like everything else in Gulf South, Hurricane Katrina has affected logging as well. Several of the contractors with incomplete data are in the affected region, and recovery and salvage are their top priorities. One of last year's firms asked for a one year recess while the transition of ownership from father to son is completed.

1.2 Population

The 40 firms produced a total of 4,523,447 tons of wood with annual expenditures of \$76,671,103. The year 2004 offered mixed opportunities for these contractors. Twelve of the 21 contractors producing less than 100,000 tons per year, who are in both the 2003 and 2004 data sets, increased production, but the total production of this group fell by 18,947 tons. Similarly, nine of the sixteen contractors in both data sets and who produced over 100,000 tons per year in 2003 also increased production. The productivity of the larger contractors increased 138,240 tons.

These firms are spread throughout the Eastern U.S. Participating firms operate in the Lake States and the Appalachian region. The majority of firms are located in the Southern Piedmont and in the Coastal Plain (Table 1.1).

Table 1.1. Logging firm participation by state and year of initial involvement.

Initial Year	AL	AR	FL	GA	LA	MD	MI	MS	NC	SC	TX	VA	Total
1988										1		1	2
1989													0
1990				1					2	1			4
1991				2						1			3
1992	1			1									2
1993								3				2	5
1994													0
1995	1					1		1					3
1996			1				1	1		1		1	5
1997													0
1998									1				1
1999	1												1
2000	1												1
2001													0
2002	2			3	1						2	2	10
2003		1											1
2004	1											1	2
Total	7	1	1	7	1	1	1	5	3	4	2	7	40

Further stratification is difficult because of differences in land forms and forest ownership patterns within physiographic regions, the mobility and versatility of the operations and changing markets. Many of the operations are located near the fall line, the border between the coastal plain and piedmont, and work in both regions. The Gulf South coastal plain includes land forms and land ownership patterns similar to the Eastern Piedmont.

The population includes firms that harvest pine and hardwood sawtimber as well as pine and hardwood pulpwood, conduct thinning operations and chipping operations, and Scandinavian style cut-to-length operations. Many of the participating firms move between thinning and clearcutting, tree-length and merchandizing, and operate as single or multiple crews as markets and opportunities dictate.

1.3 Average Total Cost per Ton Index

The 2004 Average Total Cost per Ton Index, shown in Figure 1.1, rose by 14 points, while the Consumer Price Index rose four points and the Producer Price Index (Logging) rose three points. Logging costs, as measured by the index have increased 34 points over the period 1995-2004. Prices paid for logging services, as measured by the PPI (Logging), have decreased 10%. The divergence between the logging cost index and the Producer Price Index for the period 1995-2004 increased to 44%.

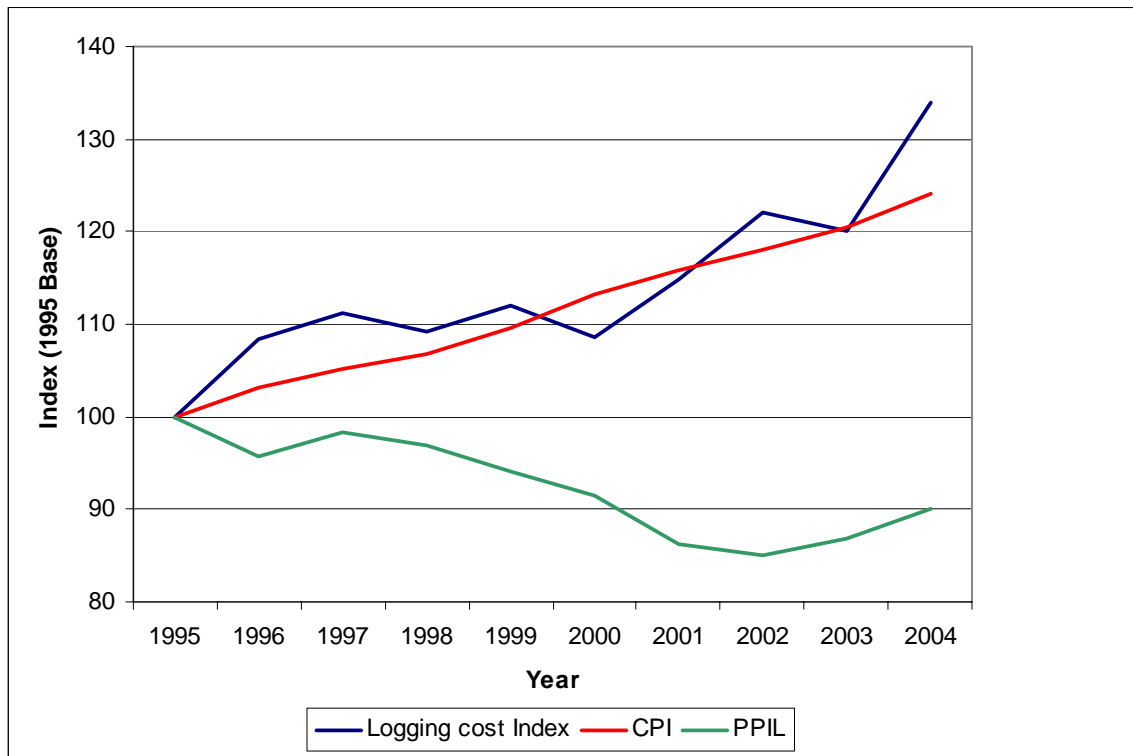


Figure 1.1. Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2004.

1.4 Annual Production

The range in annual production per firm changed in 2004. The largest firm in 2003 held the same position in 2004, but annual production decreased by roughly 10 percent. As has been the practice in the past, the population was divided as nearly as possible into thirds, based on annual production. The production range of smallest third of the population shrunk, the data for the smallest contractor of 2003 are not complete. The range of mid-sized firms shrunk downward by approximately 6,000 tons and the gap between mid-size and large firms widened.

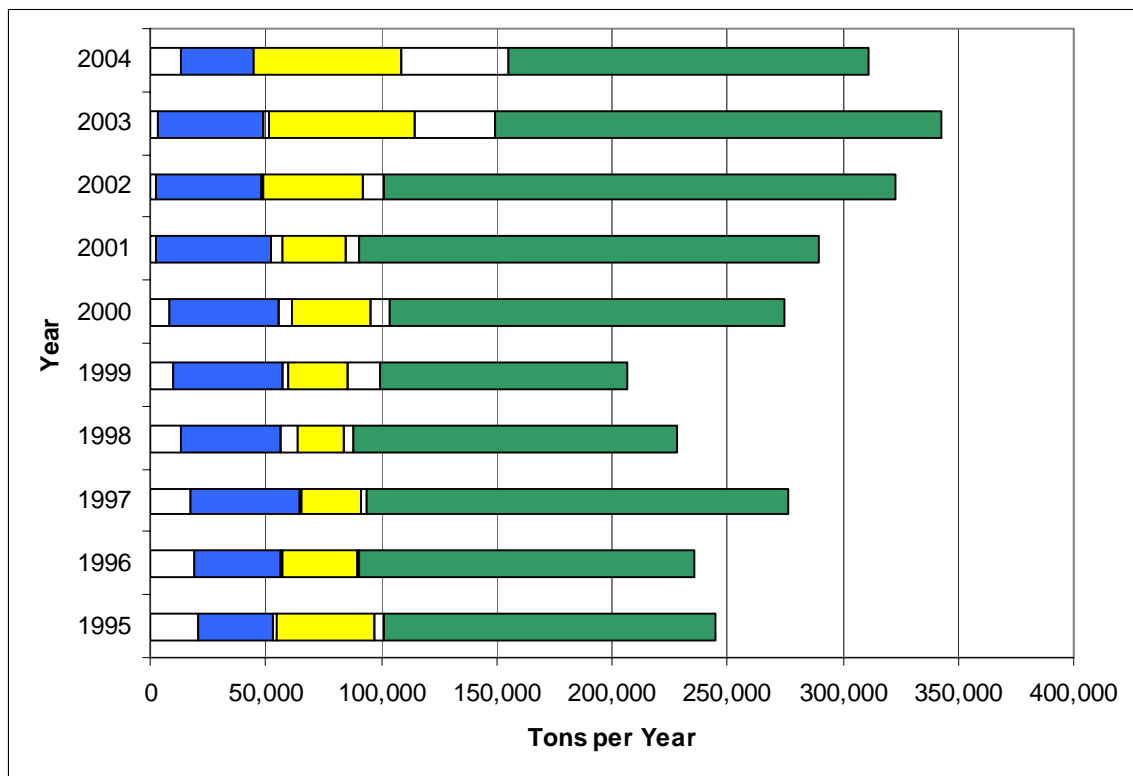


Figure 1.2. Ranges in annual production by firm size, 1995-2004. Small firms are indicated by blue, medium firms by yellow, and large firms by green.

1.5 Cost Indices by Firm Size

Average total cost per ton continued to increase for the smaller firms, which tend to be hardwood loggers, those performing thinnings and other specialty harvests (Figure 1.3). The small firm index rose ten points on top of a 24 point rise in 2002 and 2003. The index for the mid-sized firms increased 26 points, wiping out the 2003 decrease. The larger firms have been stable for three years.

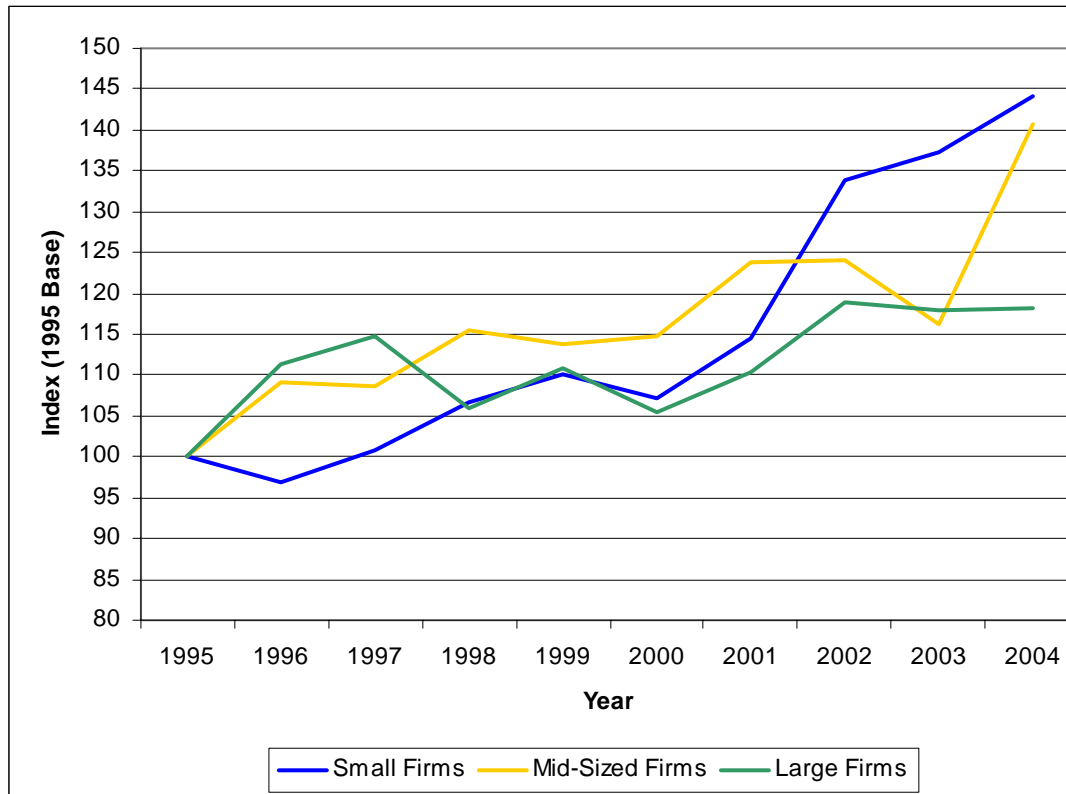


Figure 1.3. Average total logging cost indices by firm size, 1995-2004.

1.6 Distribution of Total Costs

The distribution of expenditures across the six summary categories continued to change (Figure 1.4). The percent of total costs going toward equipment continued to decline, dropping to 15.4% in 2004, the lowest level for the period of 1995-2004. Consumable supplies increased to 20.7% of total costs in 2004. Labor costs decreased 29.9% 2004. Contracted services costs rose to 27.4% in 2004. The administrative overheads increased by 0.3% in 2004. The percentage going for insurance (other than workers' compensation, which is included in labor) decreased by 0.1% in 2004.

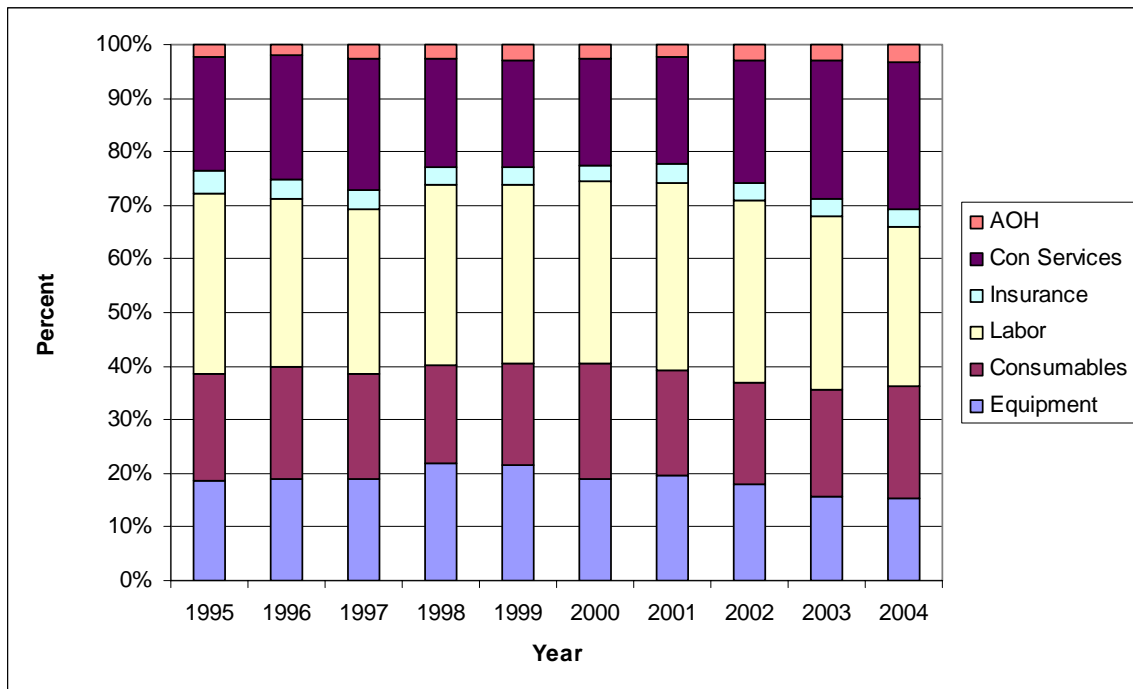


Figure 1.4. Cost components as a percentage of total logging cost per ton, 1995-2004.

1.7 Component Cost Indices

Cost per ton indices moved upward for all six logging cost components. Consumable supplies and contracted services together account for over 48% of the average cost per ton and the increases for these two - 21 and 27 points respectively - had the greatest effect on the total cost per ton. Labor, the largest single expense category rose only four points. The smallest expense category, administrative overheads, had the greatest percentage increases, the vertical axes for had to be extended, but the contribution to total cost is relatively small.

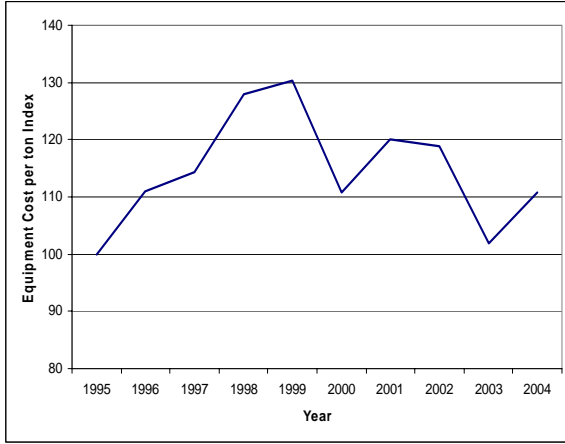


Figure 1.5a. Equipment cost/ton index.

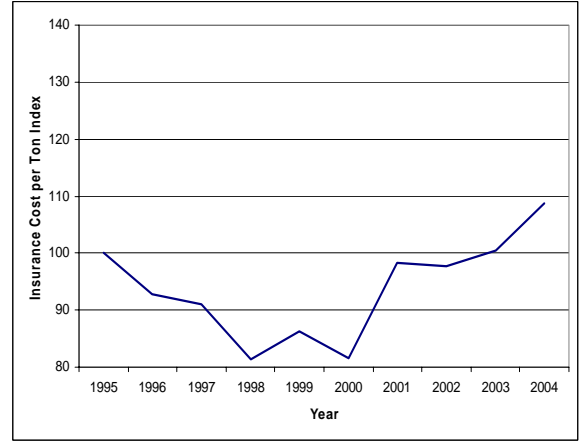


Figure 1.5d. Insurance cost/ton index.

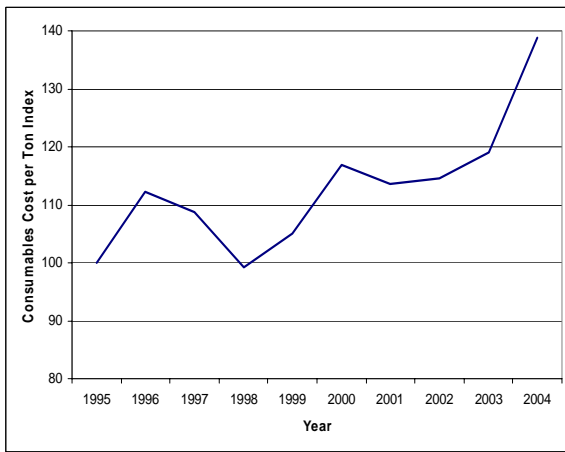


Figure 1.5b. Consumable supplies cost/ton index.

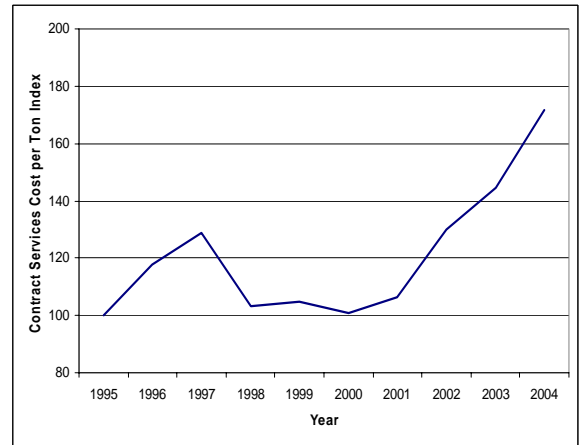


Figure 1.5e. Contracted services cost/ton index.

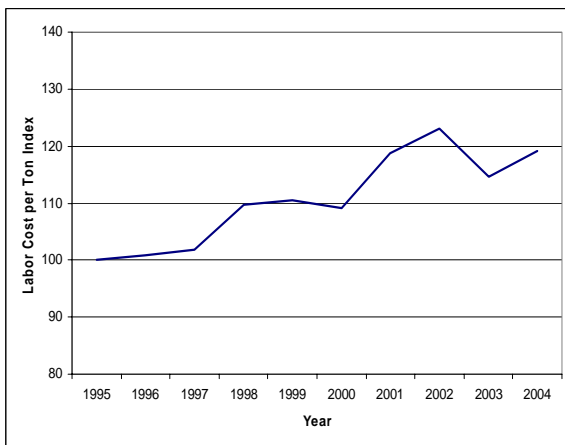


Figure 1.5c. Labor cost/ton index.

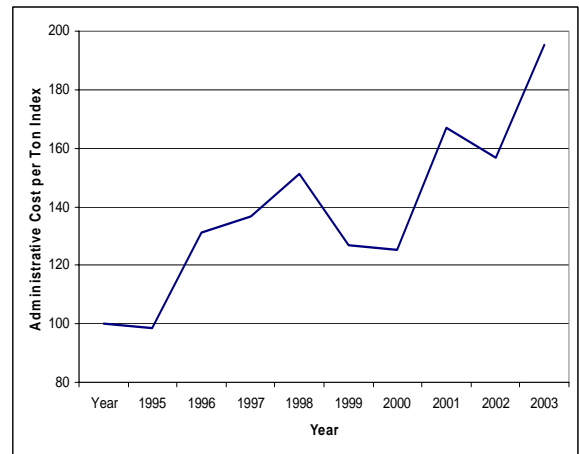


Figure 1.5f. Administrative overheads cost/ton index.

Figure 1.5. Component logging cost/ton indices for all participating firms, 1995-2004.

2 Discussion

Thirty seven of the 40 firms providing data for 2004 were participants in the study during 2003. This allowed analysis of year to year, same firm change (Table 2.1). Production for these firms increased 119,300 tons, whereas costs increased by \$6,770,700 resulting in a marginal cost per additional ton of \$56.76 for each ton of additional production.

Table 2.1. Shift in production and expenditures between 2003 and 2004 for 37 participating firms.

Item	Shift	Percent Change
Production	119,293 (tons)	2.8%
Expenditures		
Equipment	\$1,366,215	13.7%
Consumables	\$1,291,438	9.2%
Labor		
Wages	\$802,999	4.5%
WCI	\$31,374	2.3%
Owners' Draw	\$35,788	1.8%
Total Labor	\$870,160	4.1%
Insurance	\$233,180	10.2%
Contract Services	\$2,792,344	16.3%
AOH	\$216,573	11.4%
Total Cost	\$6,769,911	10.2%

Expenditure for contract services and equipment showed the greatest percentage increase, followed by insurance and administrative overhead.

Contract services have shown the greatest and most consistent increase of the major cost categories. Contracting may be to a sister firm under the same ownership as the logging firm or to external contractors, but the splitting of the harvest and delivery task into two separate undertaking effects the changes in other cost components, especially those for equipment, consumable supplies and labor. The increase may be due to an increased use of contract trucking, or the increased rates charged by contractors to offset their increased equipment, labor and supplies costs for other firms in common ownership.

Expenditures for equipment increased by \$1.37 million. Roughly half (18) of the 37 firms increased their equipment outlays during the year. Four firms, all producing more than 200,000 tons per year, accounted for 78% of the increase. Small and mid-sized firms tended to hold equipment expenditures constant, or simply replaced aging machines. Operations producing less than 100,000 tons per year accounted for only \$16,900 of the increase in equipment expenditures; those producing over 100,000 provided the remaining \$1,349,000.

Diesel fuel prices increased by 35 to 40 percent over the year, depending on location and state taxes, and accounted for the greatest part of the \$1.3 million increase in consumable

supplies costs. The full impact was apparently moderated by increased attention to fuel economy, haul distances and other operating measures.

Total labor costs rose by \$870,160 or 4.4%. Base wages increased at 5%, year to year. The percentage increases in workers' compensation insurance and owners' draw were more modest. The change in owners' draw is formulaic based on production. By agreement with participants, we do not reveal owners' salaries, but instead use a formula of \$20,000 per firm to reflect the wages of the owner as a working member of the crew (as most are) and an allowance of \$0.30 per ton as payment for management services. The formula has been the same since 1994 and contains no allowance for profit or risk. The 1.8% increase in owners draw is less than half the 4% increase in the cost of living, measured by the Consumer Price Index.

The increases in net outlays for insurance (general liability and vehicle), like those for workers' compensation insurance (included in the total labor grouping because of the tie to wages) and for administration overhead, were modest compared with other cost components.

These relationships are expected to change considerably for 2005, as the firms worked to accommodate the fuel cost increases and a probably steep change in labor costs.

Appendix

The following tables provide the source data used to develop the figures in the body of the report. They are numbered and structured to mimic the figures as closely as possible.

Appendix Contents

Table A1.	Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2004 (Figure 1.1).....	10
Table A2.	Annual production by firm size, 1995-2004 (Figure 1.2).....	10
Table A3.	Average total logging cost indices by firm size, 1995-2004 (Figure 1.3).....	11
Table A4.	Cost components as a percentage of total logging cost per ton, 1995-2004 (Figure 1.4).	11
Table A5.	Component cost/ton indices for all participating firms. (Figure 1.5a-1.5f).	11

Appendix

Table A1. Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2004 (Figure 1.1).

Year	Cost/Ton	CPI	PPI
	Index		Contract Logging
1995	100	100	100
1996	108	103	96
1997	111	105	98
1998	109	107	97
1999	112	110	94
2000	109	113	91
2001	115	116	86
2002	122	118	85
2003	120	120	87
2004	134	124	90

Table A2. Annual production by firm size, 1995-2004 (Figure 1.2).

Year	Operation Size-Tons per Year					
	Small Firms		Mid-Sized Firms		Large Firms	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
1995	20,475	53,172	54,833	96,773	101,352	244,950
1996	19,450	56,403	57,514	89,906	90,239	235,970
1997	17,533	64,926	65,553	91,039	93,771	276,055
1998	12,975	56,278	63,871	84,119	87,722	228,168
1999	9,644	57,170	59,925	85,338	99,334	206,592
2000	8,496	55,596	61,019	95,569	103,507	275,000
2001	2,649	52,633	57,604	85,000	90,862	290,000
2002	2,855	48,447	49,250	92,025	101,337	322,829
2003	3,275	48,566	51,626	114,189	149,526	342,508
2004	13,295	44,456	45,177	108,960	154,945	311,388

Table A3. Average total logging cost indices by firm size, 1995-2004 (Figure 1.3).

Year	Small Firms	Mid-Sized Firms	Large Firms
1995	100	100	100
1996	97	109	111
1997	101	109	115
1998	107	115	106
1999	110	114	111
2000	107	115	105
2001	114	124	110
2002	134	124	119
2003	137	116	118
2004	144	141	118

Table A4. Cost components as a percentage of total logging cost per ton, 1995-2004 (Figure 1.4).

Component Cost	Year									
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Equipment	19%	19%	19%	22%	22%	19%	20%	18%	16%	15%
Consumables	20%	21%	20%	18%	19%	22%	20%	19%	20%	21%
Labor	34%	31%	31%	34%	33%	34%	35%	34%	32%	30%
Insurance	4%	4%	3%	3%	3%	3%	4%	3%	3%	3%
Con Services	21%	23%	25%	20%	20%	20%	20%	23%	26%	27%
AOH	2%	2%	3%	3%	3%	3%	2%	3%	3%	3%

Table A5. Component cost/ton indices for all participating firms. (Figure 1.5a-1.5f).

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004P
Equipment	100	111	114	128	130	111	120	119	102	111
Consumables	100	112	109	99	105	117	114	115	119	144
Labor	100	101	102	110	110	109	119	123	115	119
Insurance	100	93	91	81	86	82	98	98	100	109
Con Services	100	118	129	103	105	101	106	130	145	178
AOH	100	98	131	137	151	127	125	167	157	207

