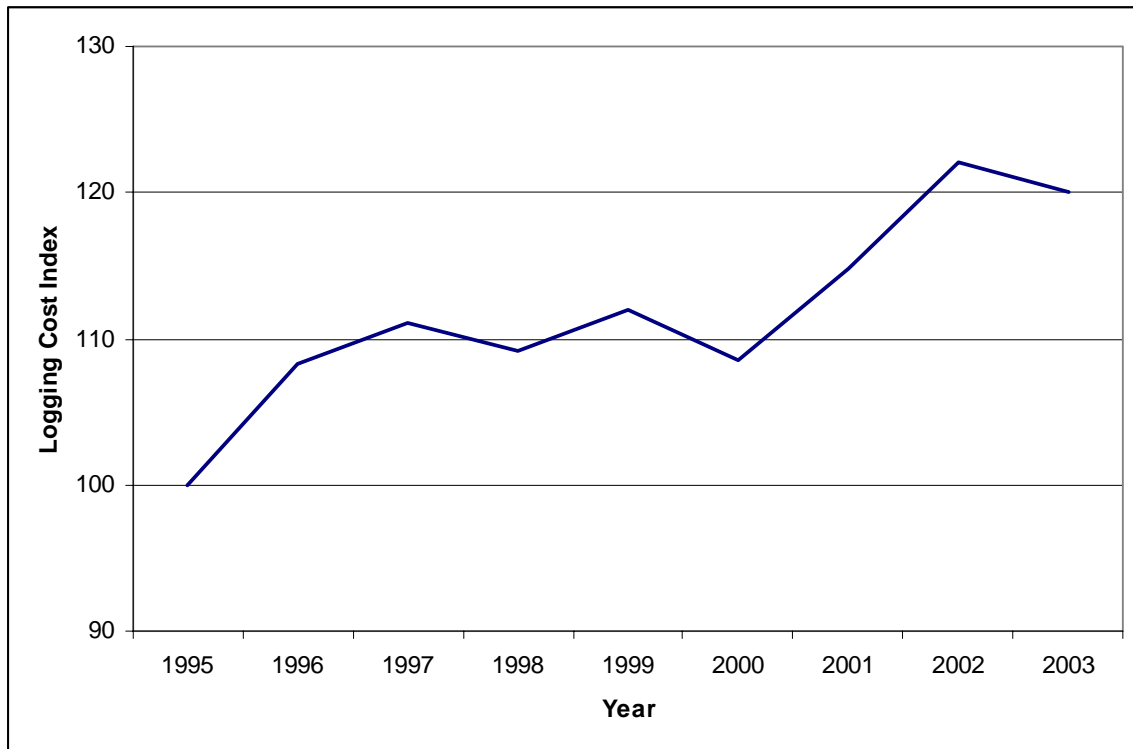


Final 2003 Logging Cost Indices



1995-2003 Logging Cost Index

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Table of Contents

Table of Contents	ii
List of Figures	ii
Preface.....	iii
1 Final 2003 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).....	2
Figure 1.2. Annual production by firm size.	3
Figure 1.3. Average total logging cost indices by firm production size.	4
Figure 1.4. Cost components as a percentage of total logging cost per ton.	5
Figure 1.5. Component cost/ton indices for all participating firms.....	6
Figure 2.1. Percentage change (2002 – 2003) in total production and cost for 39 firms. ...	8

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 at Mississippi State originated within the Industrial Forestry Operations Research Coop at Virginia Tech in 1990. The study has been supported by the Forestry 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, to monitor the effects of externalities such as weather, tax law, fuel prices, labor legislation on business structures, and 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 2003 index based on a sample of 40 contractors for whom complete data were available on 3/31//2005.

This is the sixth in a series of reports from this project. The previous reports are listed below:

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.

1 Final 2003 Logging Cost Indices

1.1 Introduction

Capturing logging cost and productivity information is a process that is never complete, there always remain a few firms for whom some data are missing or an element that needs verification. There comes a time when an annual index must be fixed and released if it is to have value.

1.2 Population

These indices are based on information from 40 firms for which complete data for 2003 was available on March 31, 2005. The 40 firms produced a total of 4,359,900 tons of wood with annual expenditures of \$66,073,522. This represents 3% increase in volume and 3% increase in expenditures compared with the 2002 final report.

Thirty eight of the 40 contractors participated in both 2002 and 2003 indices. Two firms, both in the small firm group withdrew from the study, citing business reasons. A new firm, also in the small group was added, and one firm previously included returned.

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).

Table 1. Logging firm participation by state and year of initial involvement.

Initial Year	State													Total	
	AL	AR	FL	GA	LA	MD	MI	MS	NC	PA	SC	TX	VA		
1988											1		1	2	
1990	2			2									1	5	
1991				2							1			3	
1992	1			1										2	
1993								3					2	5	
1995	1					1	1			1				4	
1996			1					1			1			3	
1997													1	1	
1998									1					1	
1999	1													1	
2000	1													1	
2002	2			3	2								1	2	10
2003		1												1	
2004													1	1	
Total	8	1	1	8	2	1	1	4	1	1	3	2	7	40	

Differences in land forms and forest ownership patterns within physiographic regions, the mobility and versatility of the operations and changing markets make further

stratification difficult. 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, pine and hardwood pulpwood, thinning operations, chipping operations, and Scandinavian style cut-to-length operations. Many of the participating firms move between thinning and clearcuts, tree-length and merchandizing, and single or multiple crews as the market and opportunity dictates.

1.3 Average Total Cost per Ton Index

The 2003 Average Total Cost per Ton Index, shown in Figure 1.1, trended downward between 2002 and 2003, coming back in line with the rate of inflation as measured by the Consumer Price Index (CPI) for the period 1995-2003. The Producer Price Index for Logging (PPI_(Logging)) showed upward movement for 2003. Logging costs, as measured by the index increased 20% over the period 1995-2003. Prices paid for logging services, as measured by the PPI_(Logging) decreased 13% between 1995 and 2002, then increased by 2% in 2003. The divergence between the logging cost index and the Producer Price index for the period 1995-2003 decreased to 33%.

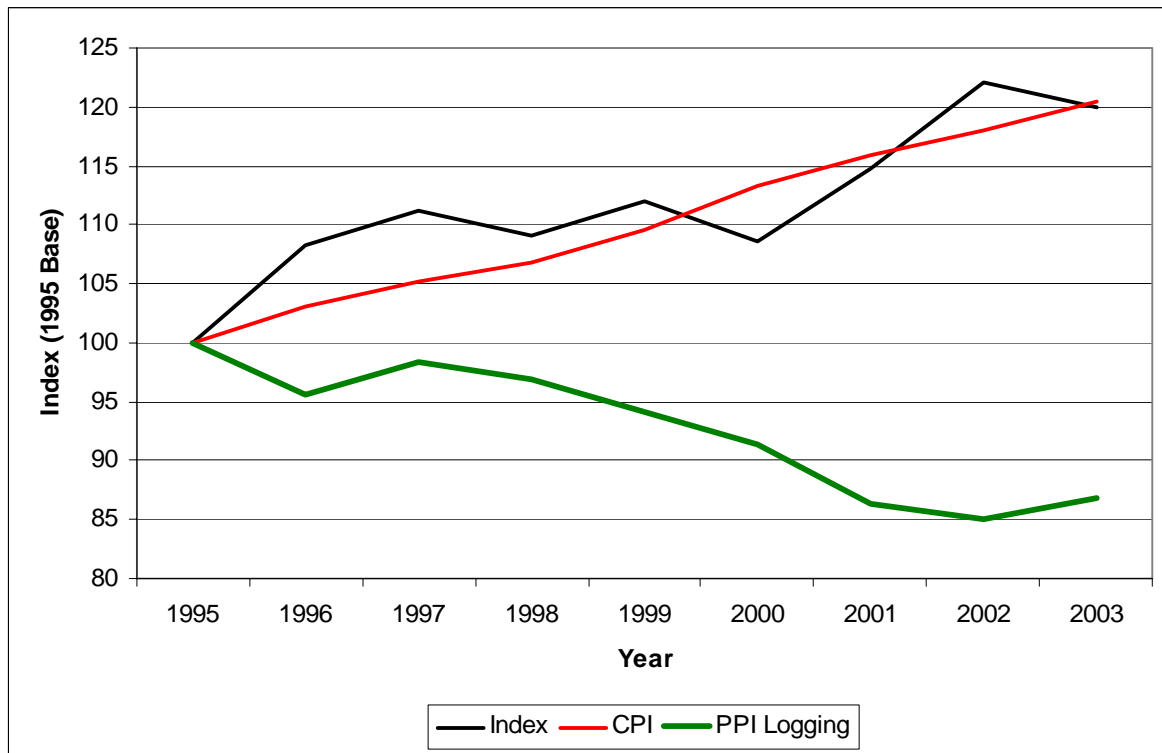


Figure 1.1 Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2003.

1.4 Annual Production

The range in annual production per firm continued to expand as a result of internal growth (Figure 1.2). The production range of the smallest third of the population was relatively stable. The range of the middle third of the firms expanded upward and the gap between medium and large firms widened. The larger firms continued to expand; the increase in maximum production is the result of within firm growth of this sector.

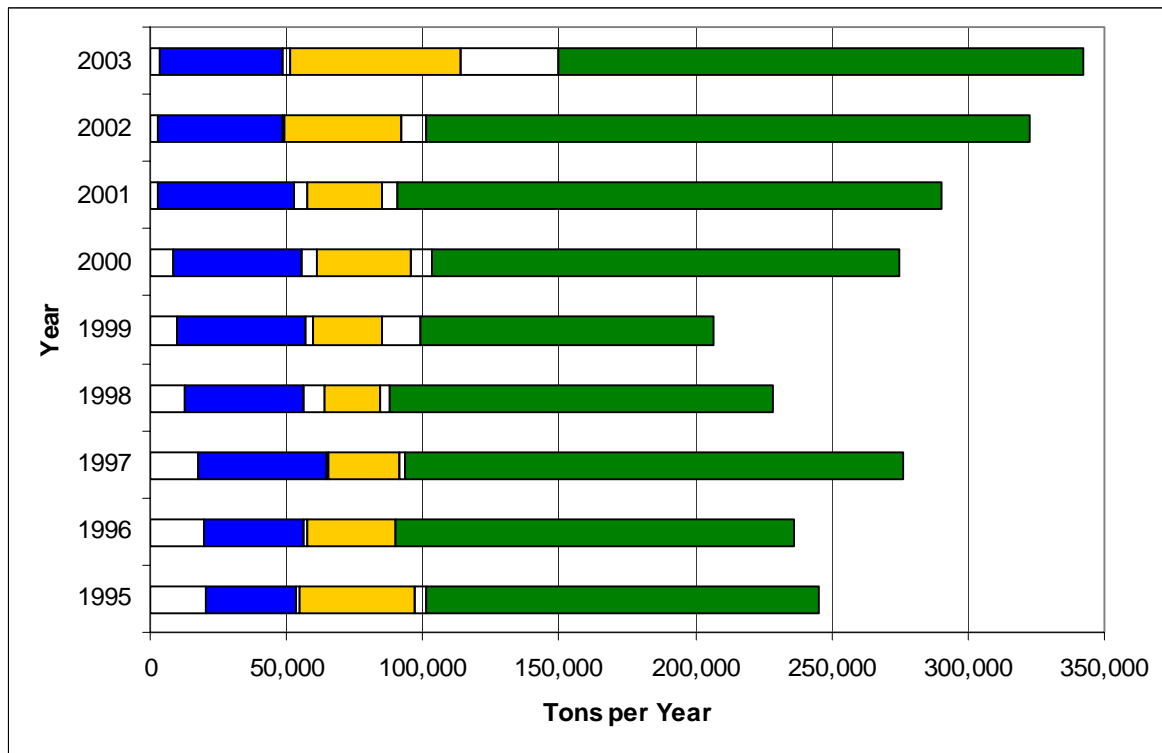


Figure 1.2. Annual production by firm size, 1995-2003. Small firms are indicated by blue, medium firms by yellow, and large firms by green.

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, perform thinnings and/or other specialty harvests (Figure 1.3). The small firm index rose four points on top of a 20 point rise in 2002. The index for the mid-sized firms decreased eight points; returning to near the 2000 level. The larger firms experienced a one point drop. Mid-sized firms remained the most cost efficient, with average costs per ton 10 percent less than the larger firms.

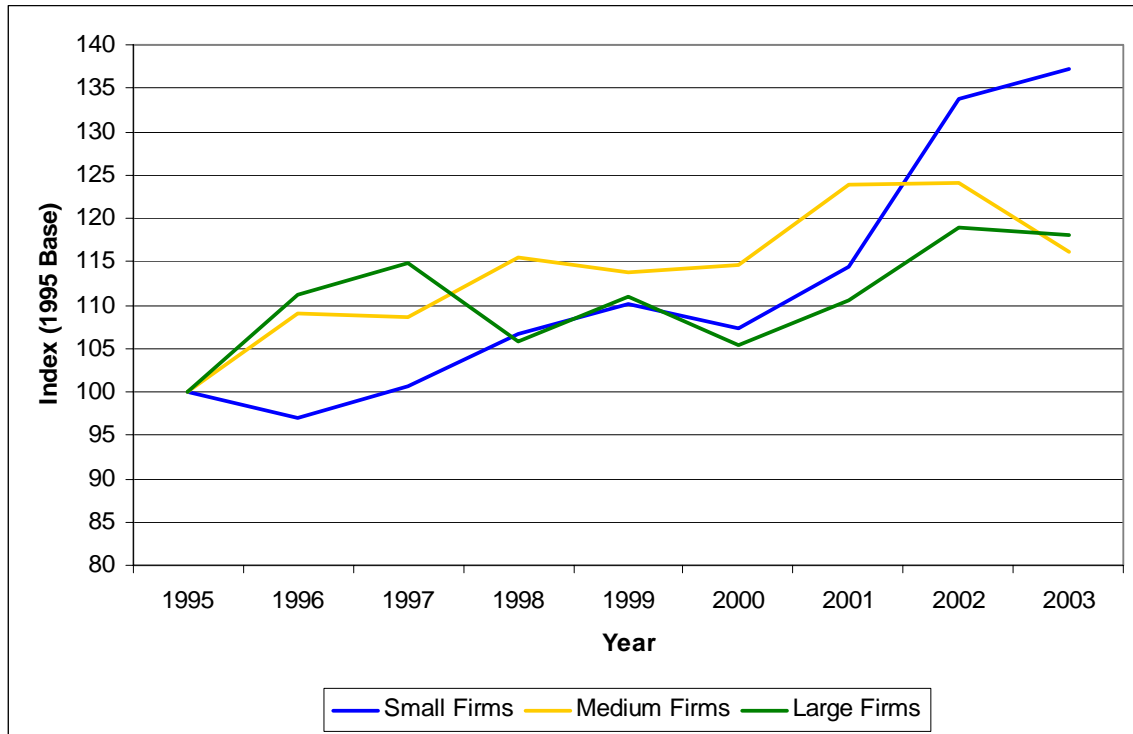


Figure 1.3. Average total logging cost indices by firm size, 1995-2003.

1.6 Distribution of Total Costs

The percent of total costs going toward equipment continued to decline, dropping from 18.1% to 15.8%, the lowest level for the period 1995-2003 (Figure 1.4). Consumable supplies increased from 18.7% to 19.9% of total costs. Labor costs decreased from 34% to 32.2%. Contracted services costs rose from 22.9% to 25.8%. The administrative overheads percentage stabilized. The percentage going for insurance (other than worker's compensation insurance which is included in labor) increased by 0.2% and the proportion for administrative overheads decreased by 0.2%.

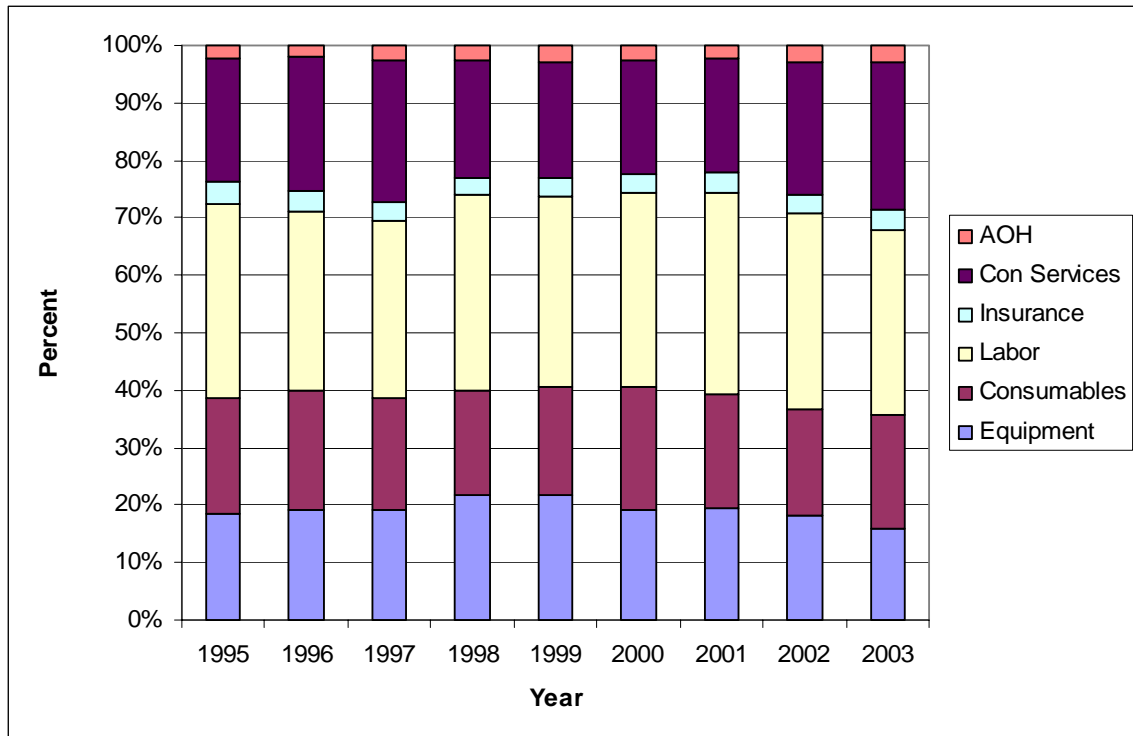


Figure 1.4. Cost components as a percentage of total logging cost per ton, 1995-2003.

1.7 Component Cost Indices

Cost per ton indices for expenditures moved upward for three of the six component costs: contracted services (15%), consumable supplies (4%), and insurance (2%) (Figure 1.5). Indices for the other three components fell, equipment by the greatest amount (-17%), followed by administrative overheads (-10%), with labor showing the smallest decline (-8%).

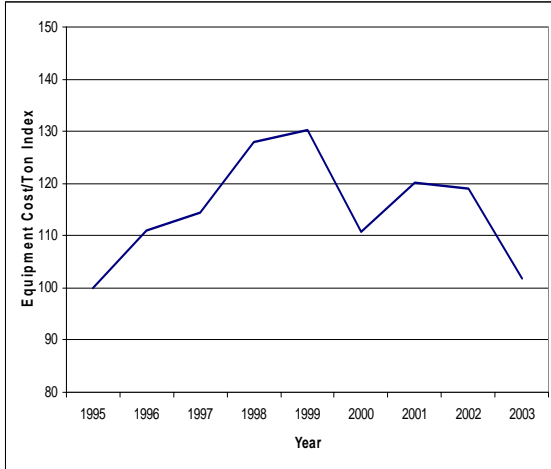


Figure 1.5a. Equipment cost/ton index.

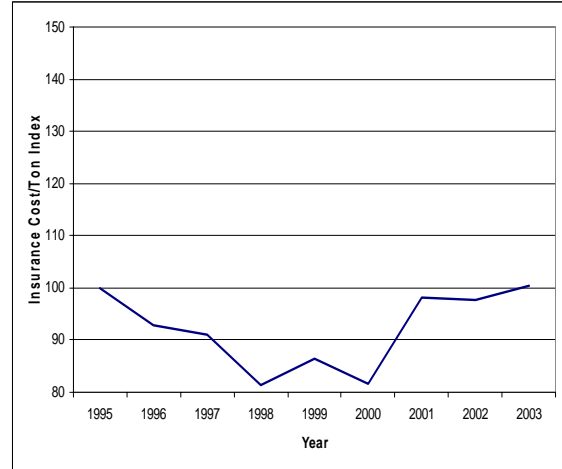


Figure 1.5d. Insurance cost/ton index.

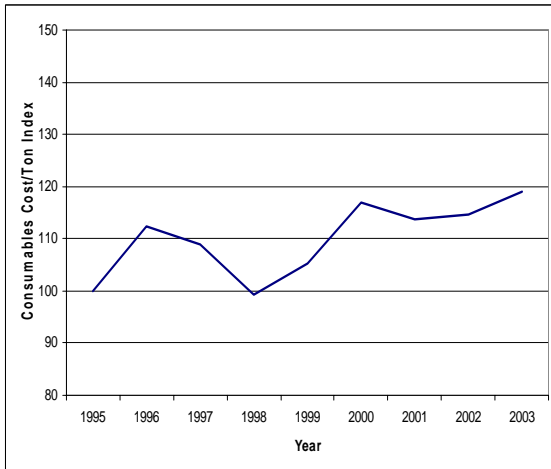


Figure 1.5b. Consumable supplies cost/ton index.

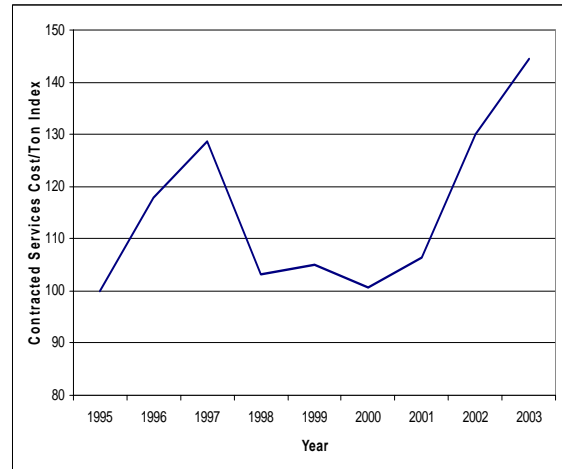


Figure 1.5e. Contracted services cost/ton index.

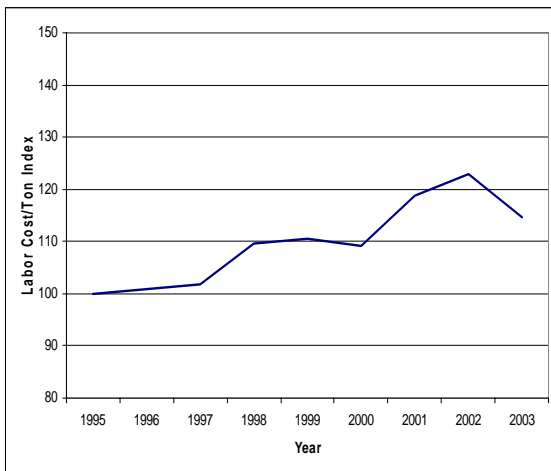


Figure 1.5c. Labor cost/ton index.

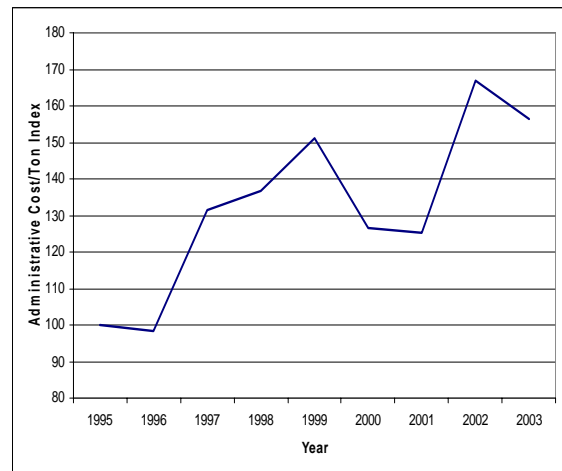


Figure 1.5f. Administrative overheads cost/ton index.

Figure 1.5. Component cost/ton indices for all participating firms.

2 Discussion

Thirty nine of the 40 firms used in this preliminary analysis were participants in the study during 2002. This allowed analysis of year to year, within firm change (Table 2). Total production for these firms increased by 396,000 tons and total costs increased by \$4,976,000, resulting in a marginal cost of \$12.55 per additional ton.

The outlays for equipment decreased by \$600,000; business capital was consumed. The marginal cost per ton of additional production would have increased to \$14.00 per ton if capital had been preserved.

Table 2. Shift in production and expenditures between 2002 and 2003 for 39 participating firms.

	Shift	Percent change
Production (tons)	396,601	10.1%
Expenditures		
Equipment	-\$612,879	-5.5%
Consumables	\$1,408,325	12.2%
<i>Wages</i>	\$16,388	0.1%
<i>Owner's Draw</i>	\$118,980	6.1%
<i>WCI</i>	-\$6,172	-0.5%
Total Labor	\$129,126	1.0%
Insurance	\$300,580	15.2%
Contract Services	\$3,638,596	27.1%
AOH	\$112,625	6.5%
Total Cost	\$4,976,443	8.2%

Some of the reduction in equipment outlays can possibly be explained by the increase in contracted services, notably trucking. The equipment costs are still there, only now included in the contract payments. Expenditures have shifted from dedicated (harvesting) equipment to general purpose (over the road trucks).

Total labor costs rose by \$129,000 or 0.6%. Base wages were nearly the same, year on year. This, too, may be the result of the increased use of contract trucking; the costs are still there, just shifted between accounting identities. The majority of the increase, \$118,000, was “Owners draw”. This change 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 \$118,980 shown ($\$0.30/\text{ton} \times 396,601$ additional tons) may or may not reflect actual salaries of the owners.

The increases in net outlays for insurance, general liability and vehicle, are most likely precursors for continued increases in future years. Worker’s compensation insurance (included in the total labor grouping because of the tie to wages), like wages remained flat.

The relationship between change in production and change in total costs is weak (Figure 2.1). The change in production and costs between 2002 and 2003 for the thirty-nine (ranked in order of annual production with the smallest firm on the left) demonstrates that smaller firms tend to be more volatile, with larger swings in production and costs. Interestingly, only three firms larger than 75,000 tons per year experienced reduced production.

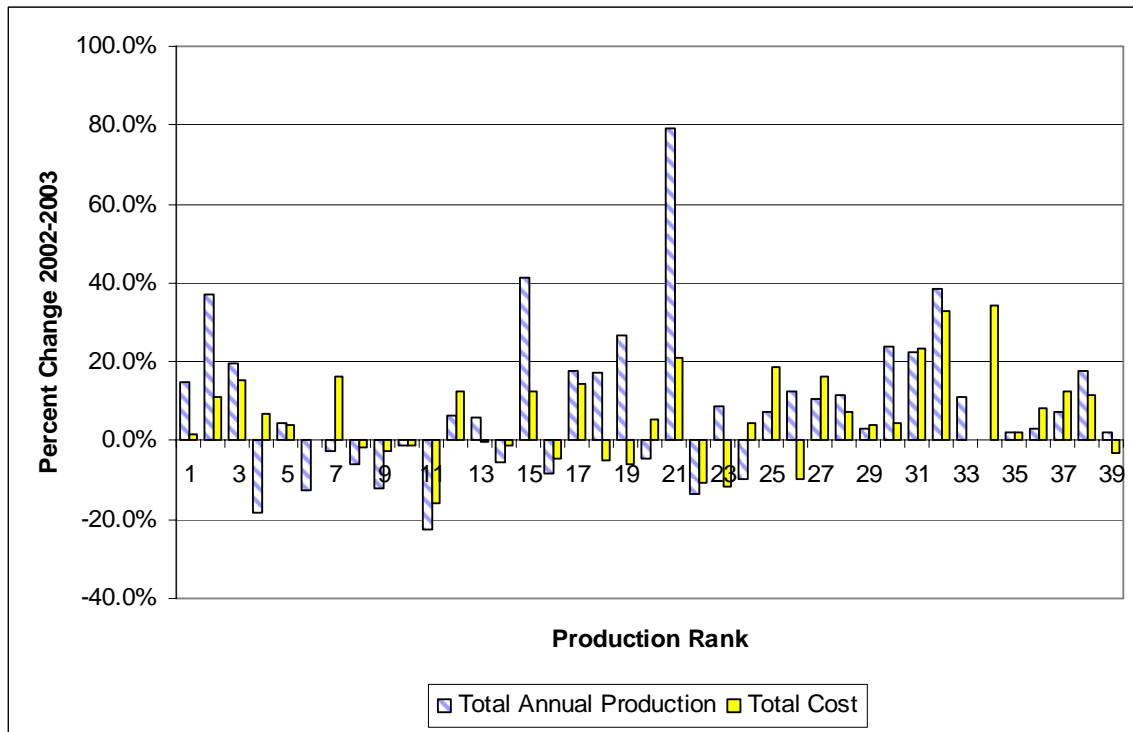


Figure 2.1. Percentage change (2002 – 2003) in total production and total cost for 39 firms.

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.	Total average cost per ton index, inflation (CPI) index, and producer price index –contract logging (PPI)(Figure 1).	10
Table A2.	Production ranges by firm size class (Figure 2).	10
Table A3.	Average total cost/ton indices by firm size class (Figure 3).	11
Table A4.	Cost component allocation as a percentage of total cost per ton (Figure 4).	11
Table A5.	Component cost/ton indices for all firms (Figure 5).	11
Table A6.	Percentage change (2002 – 2003) in total production and cost for 30 firms (Figure 6).	12

Appendix

Table A1. Average total logging cost per ton index, Consumer Price Index, and Producer Price Index (Logging), 1995-2003 (Figure 1.1).

Year	Cost/Ton Index	CPI	PPI- 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

Table A2. Annual production by firm size, 1995-2003 (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

Table A3. Average total logging cost indices by firm size, 1995-2003 (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

Table A4. Cost components as a percentage of total logging cost per ton, 1995-2003 (Figure 1.4).

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

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

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

Table A6. Percentage change (2002 – 2003) in total production and total cost for 39 firms) (Figure 2.1).

Percent Change 2002-2003			Percent Change 2002-2003		
Production Rank	Production	Total Cost	Production Rank	Production	Total Cost
1	14.7	1.7	21	79.1	20.9
2	37.2	11.1	22	-13.3	-10.5
3	19.8	15.1	23	8.7	-11.8
4	-18.4	7.0	24	-9.9	4.3
5	4.6	4.0	25	7.3	18.5
6	-12.7	0.4	26	12.7	-9.7
7	-2.7	16.2	27	10.6	16.4
8	-6.1	-1.8	28	11.8	7.4
9	-12.3	-2.7	29	3.2	4.1
10	-1.4	-1.1	30	24.0	4.4
11	-22.7	-16.0	31	22.3	23.5
12	6.6	12.3	32	38.4	32.7
13	6.0	-0.5	33	11.3	0.2
14	-5.3	-1.4	34	0.2	34.1
15	41.1	12.4	35	2.0	2.2
16	-8.1	-4.7	36	2.9	8.3
17	17.6	14.3	37	7.2	12.3
18	17.3	-4.8	38	17.8	11.6
19	26.7	-6.0	39	2.0	-3.3
20	-4.7	5.3			