Final 2002 Logging Cost Indices
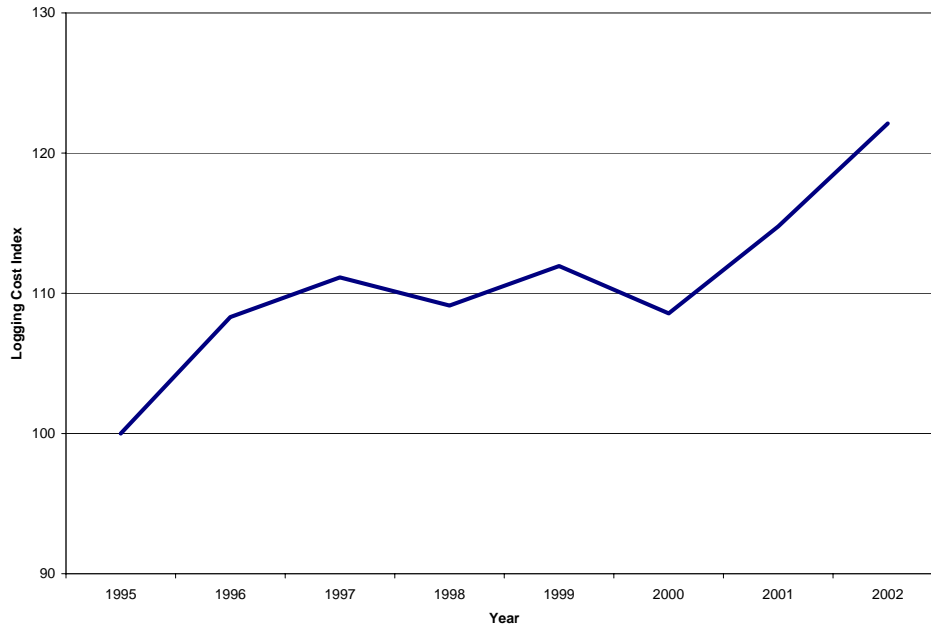# and 2003 Update

1995-2002 Logging Cost Index

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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, indices 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 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, 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 and to enhance the dissemination of this index to a broader audience.

This report sets the final indices for 2002 based on a sample of 44 contractors and gives an update of project status.

This is the fourth in a series of reports from this project:

The first (http://www.cfr.msstate.edu/forestry/Q1_IndicesWSRI_R1.pdf) dealt with basic issues of developing a set of indices that would have utility for harvesting contractors, procurement and management foresters using a base population of 25 contractors for whom seven years of data (1995-2001) were available.

The second, (http://www.cfr.msstate.edu/forestry/WSRI_R2.pdf), used an expanded population of 37 firms to assess the potential instability in the indices as the number or firms expanded.

The third, (http://www.cfr.msstate.edu/forestry/WSRI_R3.pdf), provided preliminary estimates of the 2002 indices based on a sample of 36 contractors and descriptive information concerning the 42 firms included in the sample population at the end of 2001.

1   Final 2002 Indices

1.1   Introduction

Capturing logging cost and productivity information is a process that is never complete, but when developing annual indices, there comes a time when the index must be fixed if it is to have value[1].

1.2   Population

These indices are based on information from 44 firms for which complete data for 2002 was available on April 15, 2004. The 44 firms produced a total of 4,133,048 tons of wood with annual expenditures of $63,923,738. Data from eight additional firms have been added since the release of the preliminary indices in December (Stuart *et al*. 2003). This additional data caused only small shifts in the index, supporting the decision to fix the 2002 index at this level.

These firms are spread over the eastern U.S., three are based in the Lake States, four in the Appalachian region, 12 in the Southern Piedmont, and 25 in the Coastal Plain. Differences in land forms and forest ownership patterns within physiographic regions, the mobility and versatility of the operations and changing markets make 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.

Additional details concerning the operations were provided in Report 3 of this series and in Jackson (2003).

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[1] *There are several more participating firms with data elements still missing. When that data is available, observations will be added to the data base and used in related research but not included in the 2002 Index values per se*

1.3   Average Total Cost per Ton Index

The 2002 Average Total Cost per Ton Index, shown in Figure 1, continued the upward trend of 2001, at a pace that exceeded the rate of inflation as measured by the Consumer Price Index (CPI). The Producer Price Index for Logging (PPI(L)) continued to fall in 2002 but shows some upward movement for 2003. Logging costs, as measured by the index increased 22% over the period 1995-2002. Prices paid for logging services, as measured by the PPI(L) decreased 13% between 1995 and 2002, resulting in a 35% combined change.
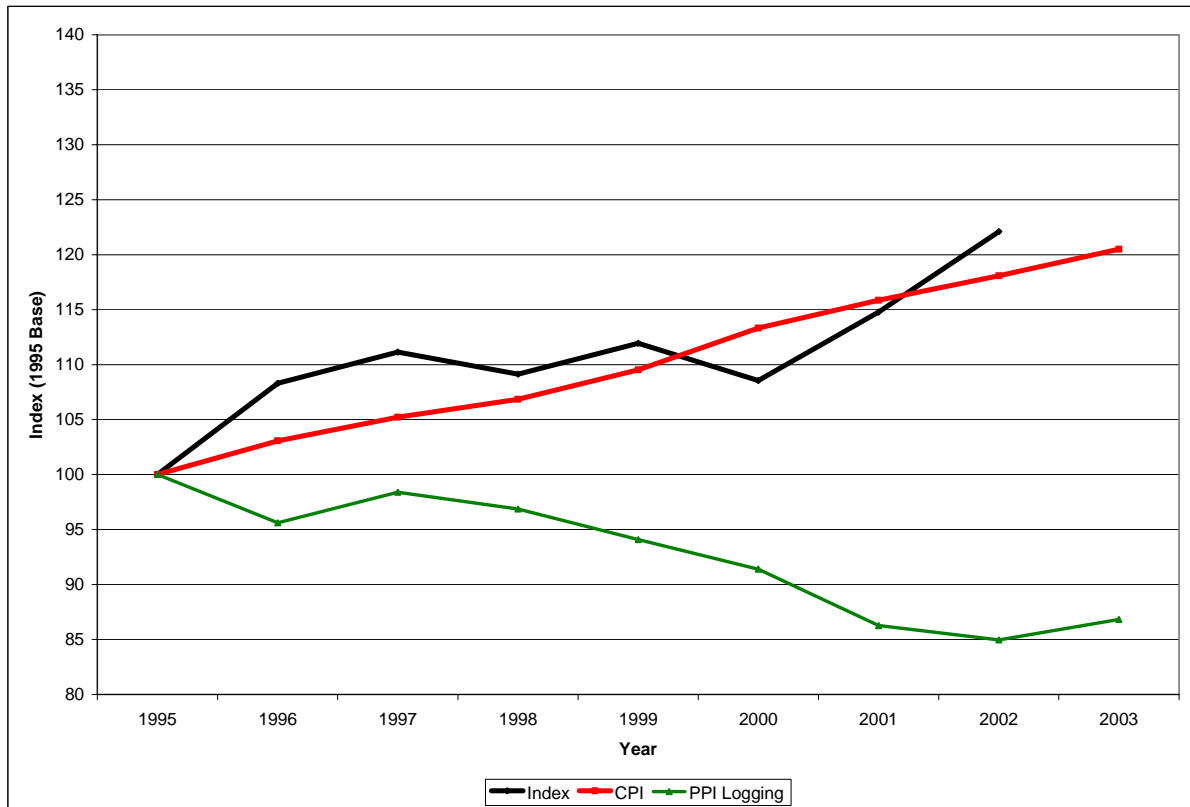

Figure 1. Total average cost per ton index, inflation (CPI) index, and producer price index (PPI Logging).

1.4 Annual Production

The range in annual production per firm continued to expand; the largest firm joined the study during 2002. The production range of smallest third of the population remained relatively unchanged, and the range of mid-sized firms expanded both upward and downward (Figure 2).
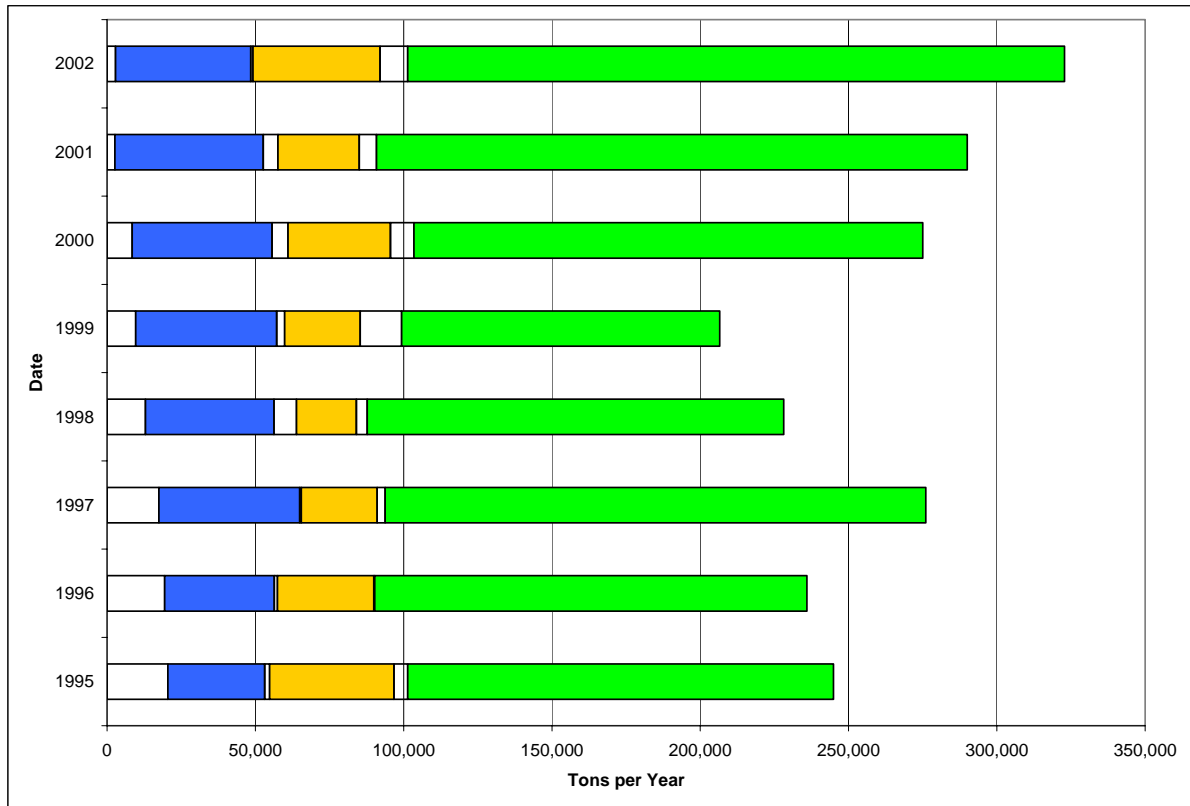
Figure 2. Production ranges by firm size. Small firms are indicated by blue, medium firms by yellow, and large firms by green.

1.5   Cost Indices by Firm Size

Average total cost per ton continued to increase most rapidly for the smaller firms (Figure 3), rising 20 points in 2002 on top of a 7 point rise in 2001. The rate stabilized for the mid-sized firms, after a 9 point rise in 2001. The larger firms experienced an 8 point rise in 2002 following a 5 point rise in 2001.

Figure 3. Total average cost per ton indices by firm size.

1.6   Distribution of Total Costs

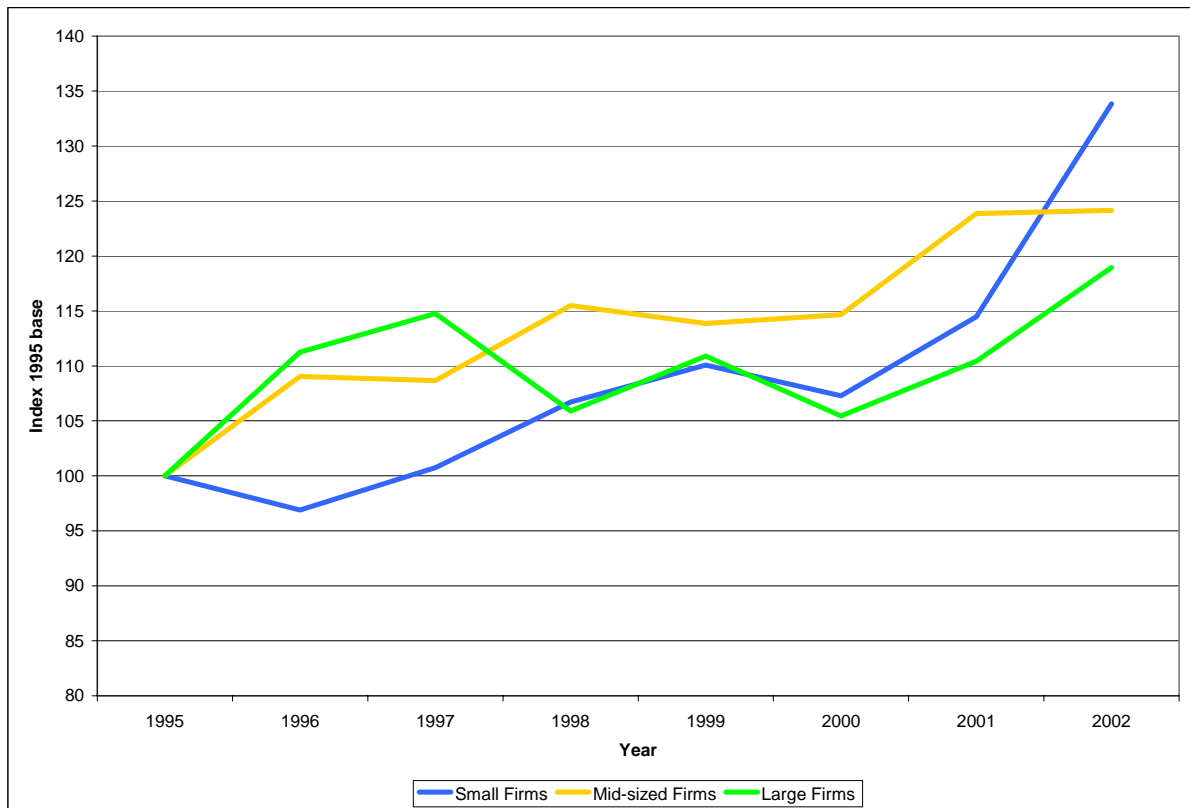The percent of total costs going toward equipment continued to decline, dropping 1.4% to the lowest level for the period 1995-2002 (Figure 4). Both labor and consumable supplies costs decreased slightly, ~ 1 % each. An increase of 3 % in outlays for contracted services largely offset the declines in the "Big 3" cost categories. The largest proportional increase was in administrative overheads – jump of nearly one third - from 2.3% to 3.0%
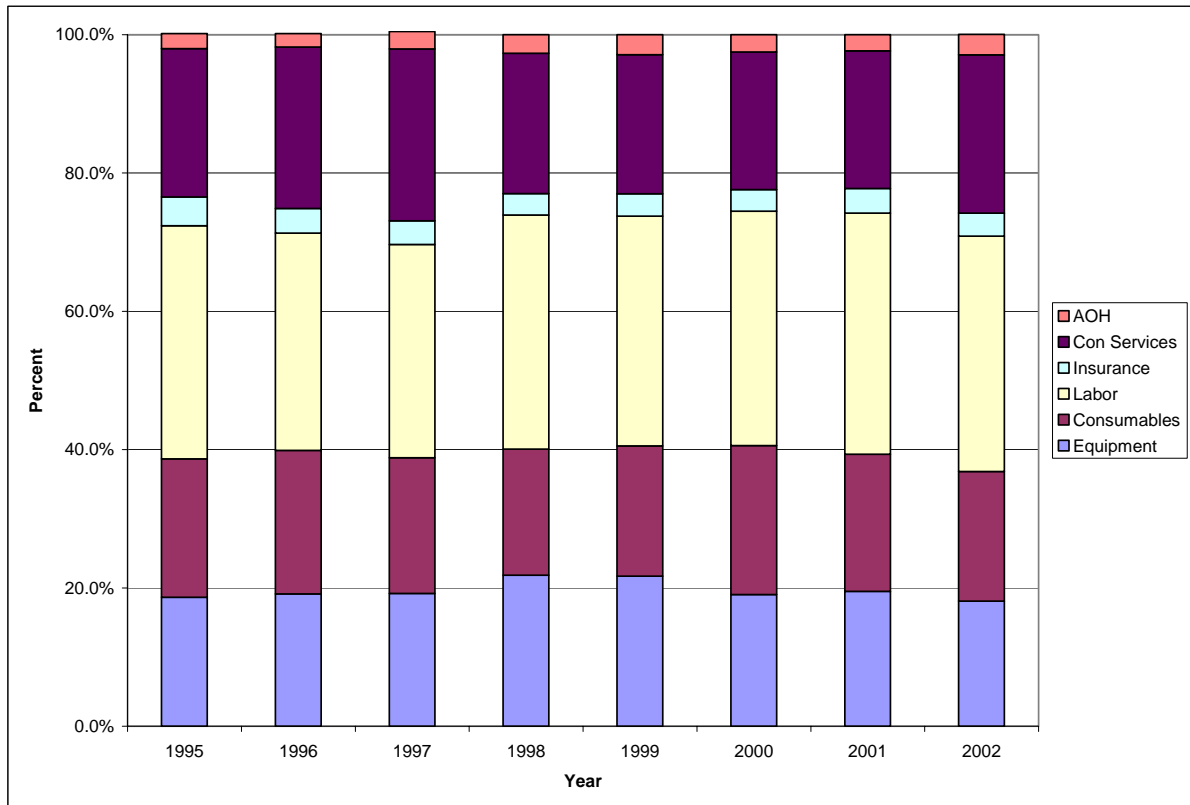
Figure 4. Cost components as a percentage of total cost per ton.

1.7   Component Cost Indices

Cost indices for expenditures per ton moved upward for four of the six component costs: consumable supplies, labor, contract services, and administrative overheads (Figure 5). The index for insurance was flat after a steep rise in 2001. Only the equipment cost index declined.

Figure 5a. Equipment cost/ton index.

Figure 5d. Insurance cost/ton index.

Figure5b. Consumable supplies cost/ton index.

Figure 5e. Contract services cost/ton index.

Figure 5c. Labor cost/ton index.

Figure 5f. Administrative overheads cost/ton index.

Figure 5. Component cost/ton indices for all firms.

2   Project Update

2.1   *Quarterly Indices*

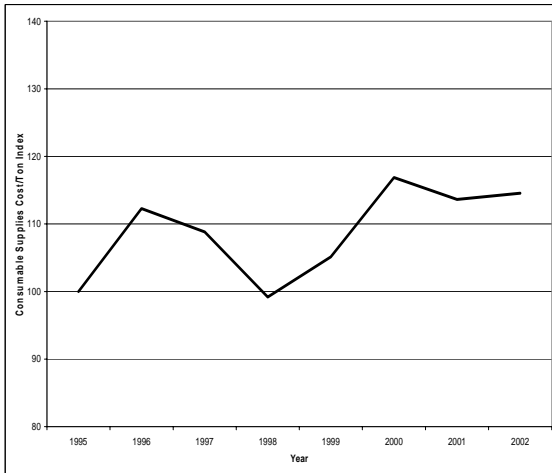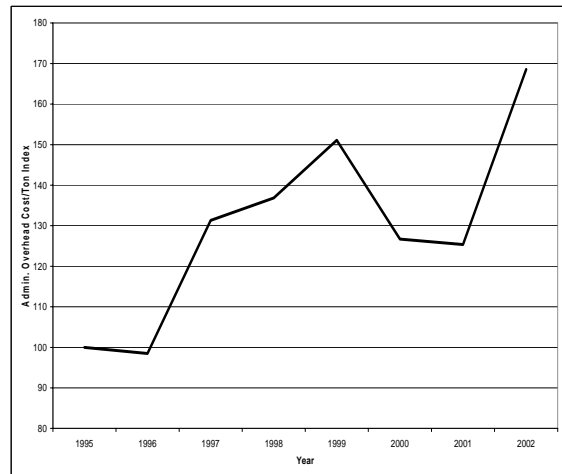Fifty one firms have agreed to participate in the project; and more are being recruited. However, converting the agreement into action takes some work.

Progress is being made on the quarterly indices. Eighteen firms have provided complete quarterly data for 2002, four firms have provided complete quarterly data for 2003, sixteen others have provided partial data. Receipts of 2003 data are expected to pick up now that the filing dates for both personal and corporate income taxes have passed for those on a calendar fiscal year.

2.2   *Constraints*

Two problems that are slowing progress; capturing production information and simplifying the reporting process, are being worked on.

2.2.1   Production Information

Quarterly production continues to be difficult to capture. (Most of the firms with incomplete data for 2003 are lacking only quarterly production information.)

We are offering a program – Loadchaser - to all participants in the project. This program will hopefully
1. simplify the work of reconciling scale tickets with settlements sheets,
2. provide information that will aid in planning and management,
3. while constructing an Excel file of job productivity for our use.

This is an Excel program for entering scale ticket information that can then be sorted by date, market or ticket number to simplify reconciliation with settlement sheets. The resulting data file can be used to construct pivot tables of production by day, week, tract and/or deliveries by market as well as run and cusum charts of periodic production for the contractors' use, and periodic production information for use in this project.

The program is available free of charge to participants in the project and any other firm willing to share production information with the project.

2.2.2   Reporting lags

Reporting has been slow, especially since most firms or accountants print and mail hard copies of the information. Many were concerned about transmitting data to a destination on a widely accessible university based server. Hard copies are fine, except they must be re-entered for analysis, which takes additional time.

We have purchased a dedicated server for this project, accessible only by project staff to enable data transfer via electronic files and serve as a communications medium for cooperators.

Literature Cited

Stuart, W.B, L. A. Grace, C. Altizer. 2003. Preliminary 2002 Logging Cost Indices and Demographics of Participating Firms. Wood Supply Research Institute. 23pp. http://www.cfr.msstate.edu/forestry/WSRI_R3.pdf.

Jackson, B.D. 2003. Examining the performance of independent harvesting firms in the eastern United States. M.S. Thesis, Forestry and Wildlife Research Center, Mississippi State University, Starkville, MS. 167pp.

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 (Figure 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	87

Table A2.   Production ranges by firm size class (Figure 2).

	Operation Size--Tons per Year					
	Small Firms		Mid-Sized Firms		Large Firms	
Year	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

Table A3.   Average total cost/ton indices by firm size class (Figure 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

Table A4.   Cost component allocation as a percentage of total cost per ton (Figure 4).

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

Table A5.   Component cost/ton indices for all firms (Figure 5).

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

Previous Reports in this Series
        Report 1….http://www.cfr.msstate.edu/forestry/Q1_IndicesWSRI_R1.pdf
        Report 2….http://www.cfr.msstate.edu/forestry/WSRI_R2.pdf
        Report 3….http://www.cfr.msstate.edu/forestry/WSRI_R3.pdf