

North American Forest Industry:

Its Changing Economic Structure

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and Yale University
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The Irland Group

- ❑ Participant in 1975 Timber Harvest Issues Study by USFS (concentration issues)
- ❑ 1989-90 GP-GNP merger competition issues
- ❑ 1991 Adequacy of Supply for Alaska Region (TTRA)
- ❑ 1993 AFPA Assessment of pricemaking forces 2 vols.

TIG background cont.

- 1999 Major Labor Dept study of bonded worker issue in Maine
- NCASI 2001, BMPs etc in Northeast
- Current:
 - Compet. Position of Maine paper
 - Landownership change in NE

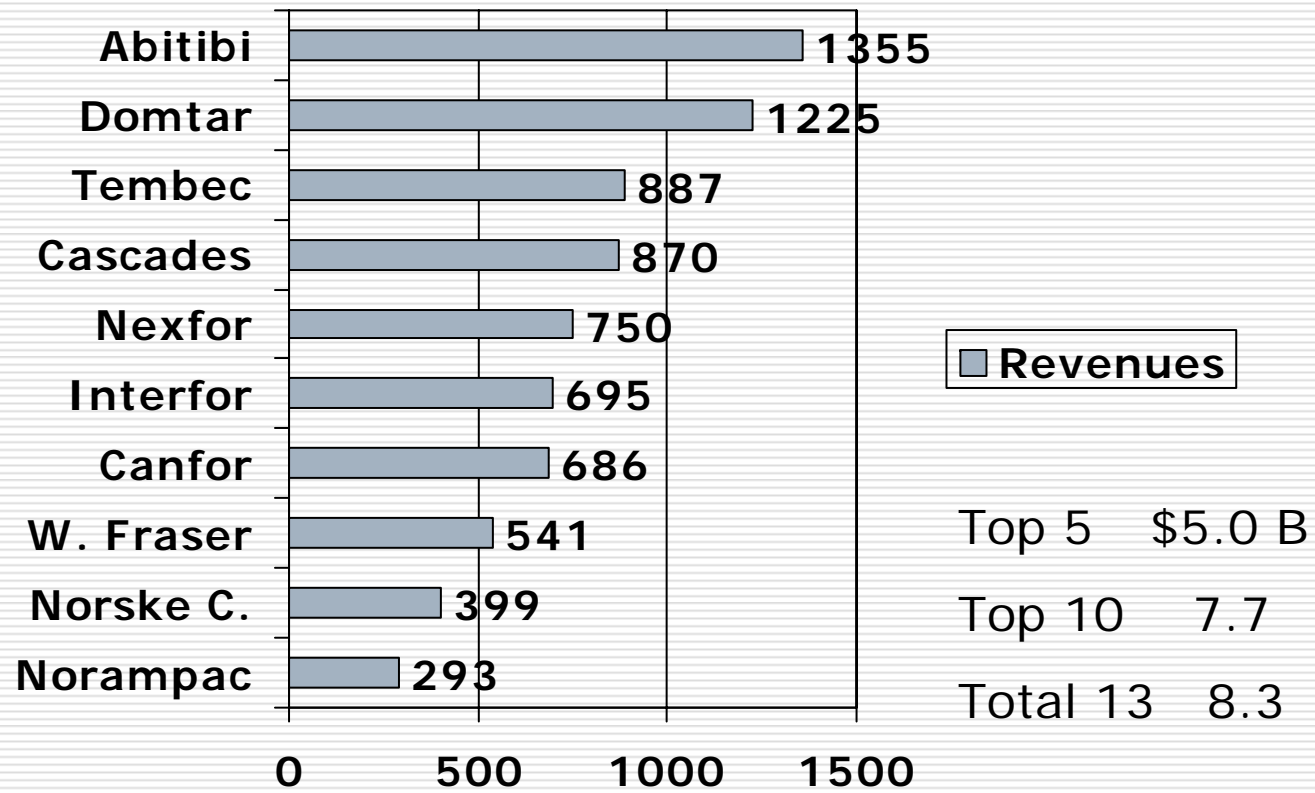
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- Industry size & Significance
- Market Context
- Dimensions of Structure
- Paper
- Lumber
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- Summary

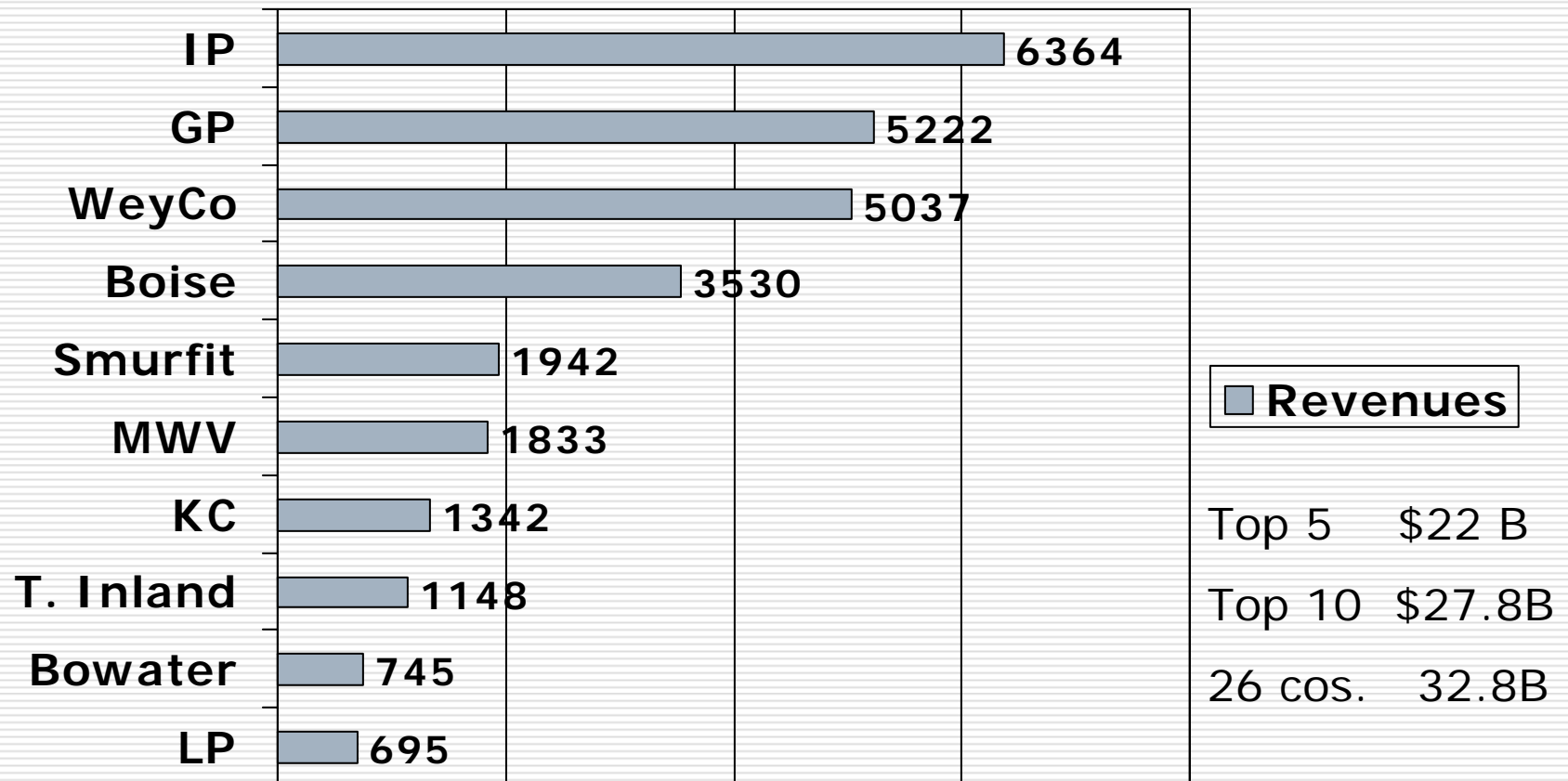
Industry Size: 2002 Census

	Estab.	Sales \$B	Payroll \$B	Jobs MM
Wood Prod. 321	16,912	89.2	15.9	535
Paper 322	5,463	151.4	20.7	476
Furn. & related 337	21,824	73.2	16.5	571
Sector Total	44,199	313.8	53.1	1,102
Pct of All Mfg	12.8	8.2	9.3	7.6

Q1 04 – Revenues, Canadian Cos.



US Companies Q1 04



Definition: Industry

- An Industry is a group of firms selling a similar product to an identified group of customers
 - Oft. defined geographically
 - “Similar” defined by substitutability
 - SW Lumber is a “quasi-commodity”
- Leading FI Companies operate in many industries.

Market Context

- Generally mature industries
 - Paper shrinking
 - SW Lumber, panels slow growth
 - HW lumber shrinking
- Slow capacity growth hinders innovation
- Some paper markets arguably Overmature/saturated
- Technology moderately dynamic: overcapacity

Market Context

- Technology moderately dynamic: overcapacity
- Highly competitive structure:
 - Productivity gains passed to
 - Raw material suppliers
 - Consumers
- Imports impose severe pricing discipline: Trade conflict

Context, cont.

- ❑ Severe stresses on all American Manufacturing
- ❑ Impacts shared by wood based sector

Market Context

- Fratricidal tendencies
 - Plywood drives out “roofers”, P-pine boards
 - OSB drives out plywood
 - I-s drive out 2X12
- Aggressive competing materials
 - Plastics
 - Composites
 - Metals
 - Cement (South, primarily)

Dimensions of Industry Structure

- Producer Concentration
- Distribution
- Vertical Integration
 - Esp. Land
- Horizontal Integration
 - Within sector
 - Out of Sector Diversification
- Global Diversification

Determinants of structure

- Minimum plant size
- Ease of entry/exit
- Control of patents– product or process
- Control of raw material
- Economies of multiplant operation
- Economies of vertical integration
- Financial factors

US 4 Firm Conc. Ratios for Value of Shipments, 1997

<input type="checkbox"/> Production share SWL:	25%
<input type="checkbox"/> Cigarettes	99%
<input type="checkbox"/> Automobiles	80
<input type="checkbox"/> Snack foods	57
<input type="checkbox"/> Resilient floor cov.	87
<input type="checkbox"/> Computers/ electr equip	19

Source: US Census, EC97M315-CR, June 2001

4 firm CR's cont...

- ❑ Cane sugar refining 99
- ❑ Petrol. Refining 28
- ❑ Paper (322) 31
- ❑ Wood products (321) 10.5
- ❑ Furniture & related(337) 11.2
- ❑ NB: numbers have changed since '97,
....this just gives a comparison

Some Competitors

<input type="checkbox"/> Primary iron/steel	31.9
<input type="checkbox"/> Alumina & alum. Prod/proc.	48.0
<input type="checkbox"/> Fab struc metal	11.0
<input type="checkbox"/> Plastics & resins	25.6
<input type="checkbox"/> Brick & struc. Tile	40.4
<input type="checkbox"/> Cement	33.5

The Paper Industry

		Share No. 1	No 1	Ratio, 1 to 5	Share top 5	Share top 10
Tissue		35%	GP	6.8	77	90
Coated Free sheet		24%	Sappi	3.7	84	98
Uncoated Free sheet		22%	IP	4.3	77	90
Corrug. Medium		22%	Smurfit	3.9	60	77
Newsprint		20%	Abitibi	3.8	61	na
Coated GW		19%	IP	1.5	74	95
Kraft Liner		17%	Smurfit	1.7	69	83
Recycled Board		11%	Smurfit	1.8	42	63
<i>Source: Pulp and Paper, grade profiles, var., issues.</i>						

Paper: Dynamics

- ❑ Extreme stress from imports
- ❑ Overcapacity/Age of mills
- ❑ Market re-adjustments/ some grades shrinking
- ❑ Desperate struggle to overcome thru

Consolidation

This is key factor driving Softwood
Lumber Consolidation

Mill level Scale economies?

Canada Top 30 in Softwood Lumber

- ❑ Total 2003 prod 33 bbf
- ❑ Top 5 cos 33%
- ❑ Top 10 50%
- ❑ Of T-30, 6 cos. Have one mill
- ❑ 4 have 2 mills
- ❑ Ave mill sizes in top 5 not obviously larger than of all the others.

Source, Russ Taylor, Logging & Sawmilling J. Mar 04

NA SWL Consolidation 1973- 03

	<i>Company</i>	<i>No. mills</i>	<i>Prodn</i>	<i>Prod/</i>	<i>Conc. Ratio</i>
			<i>MMbf</i>	<i>mill</i>	<i>percent</i>
1	Weyerhaeuser	22	2,405		
2	Louisiana-Pacific	44	2,162		
3	Macmillan-Bloedel	7	1,286		
4	Georgia Pacific	35	1,147		
	Subtotal	108	7,000	65	13.0%
5	Boise Cascade	20	744		
6	US Plywood	15	665		
7	Pack River	14	598		
8	Canadian For Prods	9	595		
	Subtotal	58	2,602	45	
	Total top 8		9,602		17.8%
	Prodn US &				
	Canada		53,800		

NA SWL: 2003

	<i>Company</i>	<i>No. mills</i>	<i>Prodn</i>	<i>Prod/</i>	<i>Conc. Ratio</i>
			<i>MMbf</i>	<i>mill</i>	<i>percent</i>
1	Weyerhaeuser	43	7,113		
2	Canfor	23	4,586		
3	IP	28	3,381		
4	West Fraser	16	2,592		
	Subtotal	110	17,672	161	25.4%
5	Abitibi-Consolidated	21	2,000		
6	Georgia-Pacific	20	1,730		
7	Sierra Pacific	14	1,556		
8	Tembec	19	1,335		
	Subtotal	74	6,621	89	
	Total top 8		24,293		34.9%
	Prodn US &				
	Canada		69,584		

30 Yrs. Of Structural Changes

North American Softwood Lumber Industry

	1973	2003	Pct Change
Weyco Share	4%	10%	132%
Top 4 share	13%	25%	95%
No.mills top 4	108	110	2%
Total NA Production Bbf	53.8	69.6	29%
Prod of Top 4 Bbf	7	17.7	152%
Prod to make top 8 MMbf	595	1335	124%
Ave mill prod. top 4 MMbf	65	110	69%
Canadian in top 8	2	4	100%

Sources: 1990, Irland, FPJ, June '95, p. 55; R. Taylor, WMM, Jun/Jul 2004. p. 2

Panels & EWP

- SW Plywood:
 - Top 3: 50% of production
 - Top 5: 66%
- OSB:
 - Top 2: 50%
 - Top 4: 66%
- EWP
 - Top 4: 80% or more

Distribution is fairly stable

<input type="checkbox"/> Western Producers	<u>1990</u>	<u>2003</u>
<input type="checkbox"/> Direct to user	6.4	6.4
<input type="checkbox"/> Direct to retail	15.1	22.7
<input type="checkbox"/> Wholesaler	57.3	29.0*
<input type="checkbox"/> Stocking Distr.	N.a.	19.7
<input type="checkbox"/> Company yards	6.2	6.1
<input type="checkbox"/> Internal, remfg	15.0	13.3

■ Source: WWPA Yearbooks, 1990, 2003.

■ * for 2003, indep. office whlsr only

The Customers; Builders

- Builder Top 100:
- 21 firms exceed \$1 B in revenues
- Four build 30,000 homes/yr
 - (approx 500 MMbf/yr each!)
- Seven exceed \$3.4 B in sales, are in Fortune 500
- Top 10 grew faster than the industry did. (BuilderOnline 5/12/04)

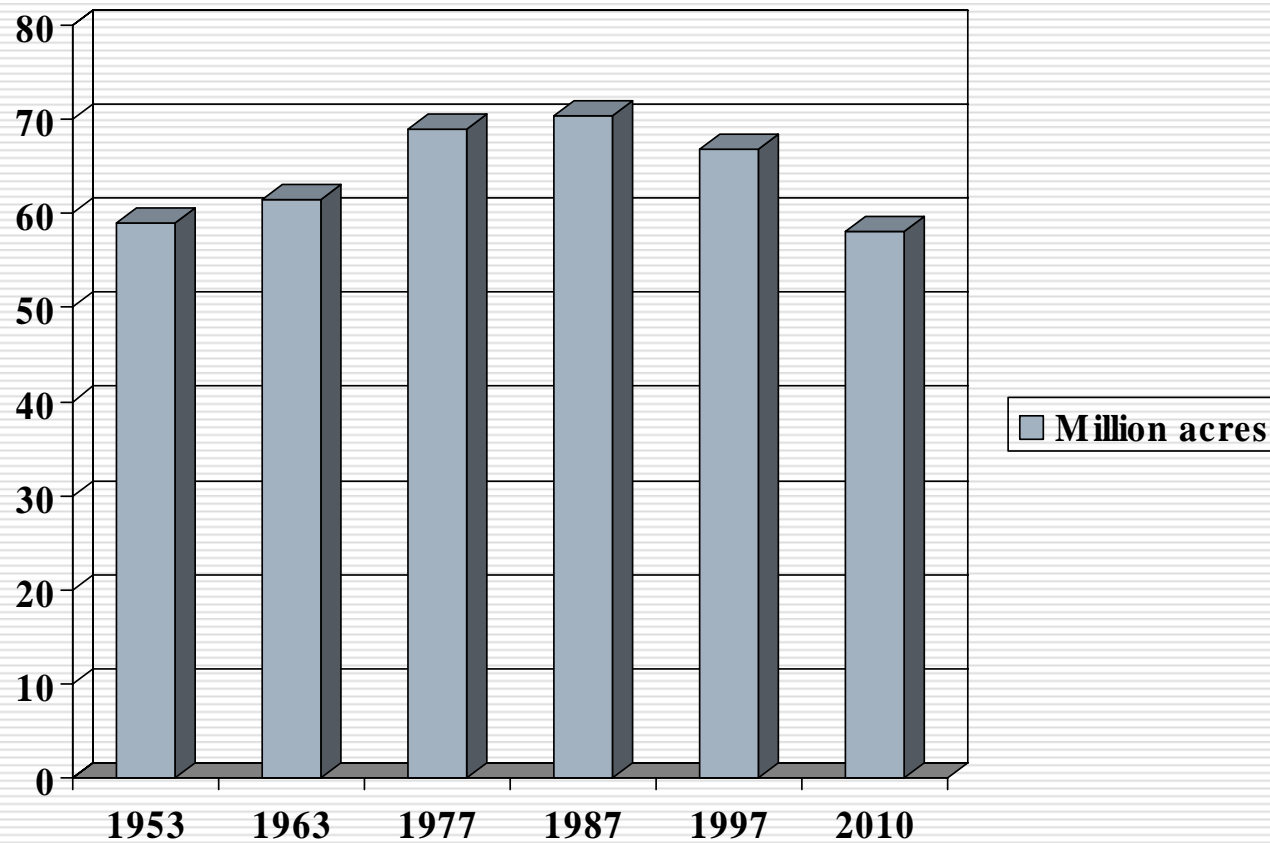
Customers: Big Boxes

<input type="checkbox"/>	Co.	<u>Sales</u>	<u>Stores</u>
<input type="checkbox"/>	1 Home Depot	58.2	1,532
<input type="checkbox"/>	2 Lowe's Cos.	26.5	854
<input type="checkbox"/>	3 Menard	5.5	175
<input type="checkbox"/>	4 Stock Bldg Supply	2.7	224
<input type="checkbox"/>	5 84 Lumber	2.2	437
<input type="checkbox"/>	6 Bldrs First Source	1.6	82
<input type="checkbox"/>	7 Lanoga	1.4	218
<input type="checkbox"/>	8 BMHC	1.2	60
<input type="checkbox"/>	9 Bradco Supply	0.8	103
<input type="checkbox"/>	10 Wickes	0.8	52
	Totals	100.9	3,737

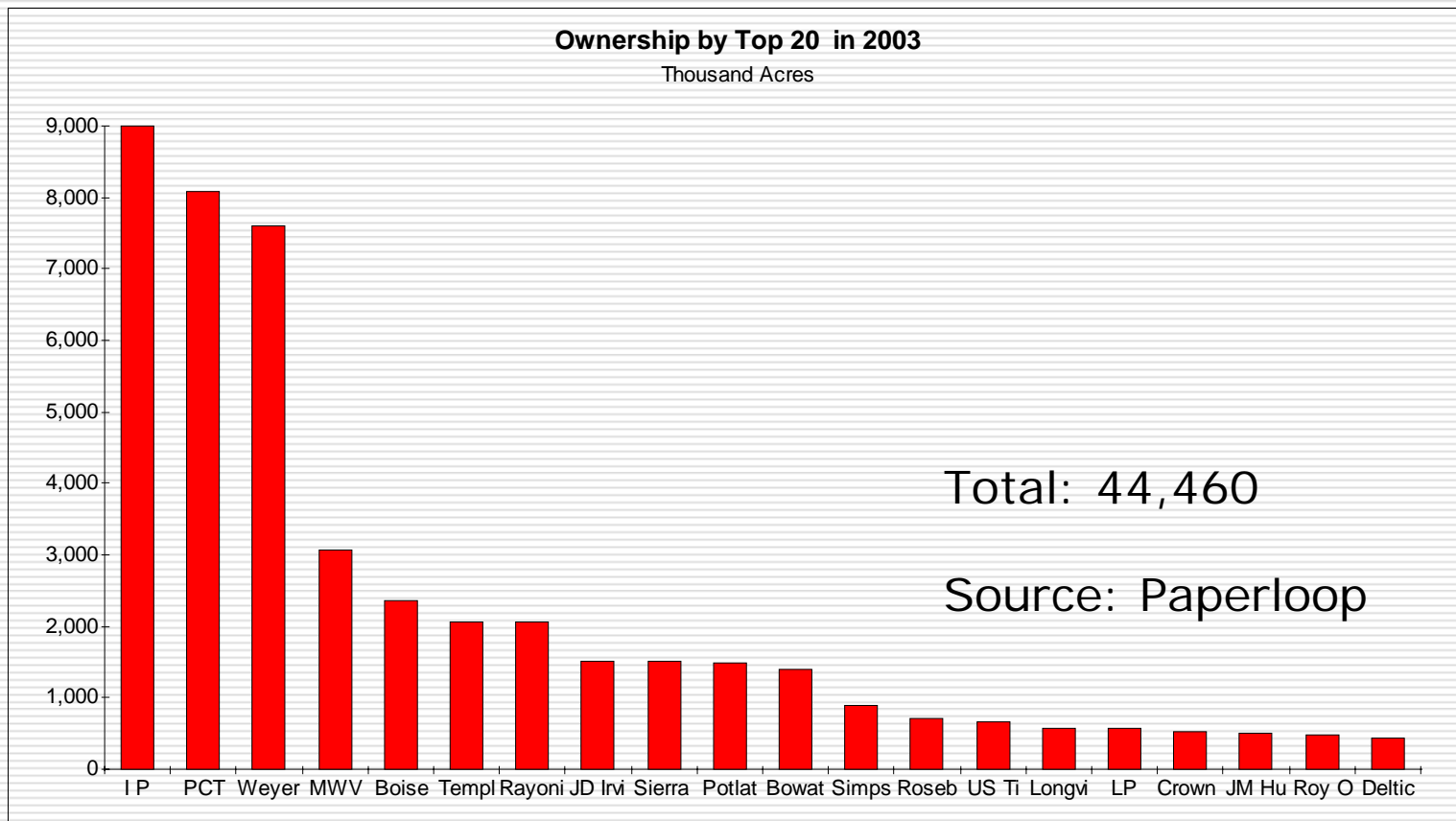
What's Driving What?

- Each market level reacting to own dynamics?
 - I think largely so
- Or, is consolidation At one level driving consol. At others?
 - If so, which way is the causation?
 - Room for further debate...
 - May be clearer at (more concentrated) regional levels

Vertical Integration: Land Industry Ownership peaked in 80's



Lands owned by Top 20 2003



Top 3 Industrials MM A owned

	<u>1981</u>	<u>2003</u>
IP	6.9	9.0
WeyCo	5.9	7.6 (now# 3)
GP	4.6	000
PCT	1.5	8.1 (now #2)

Sources: Clephane & Carroll, 1982; Tim-Mart South 2004.

Industrial Owners by Size

	<u>1981</u>	<u>2003</u>
More than 2 MM	9	7
1-2 MM	11	4
500M to 1 MM	8	7
Cutoff top 20	1,040	430
	(P&G)	(Deltic)

Summary

- “Economic structure” a useful lens for viewing changes in Lumber industry
 - Only partly developed in this presentation
 - Only meaningful on North American basis
- Context: Stresses in Mature/Overmature markets
- Lumber industry structure being dictated by paper side of integrated companies

Concl cont.

- ❑ ...& Only marginally by traditional factors
- ❑ SW Lumber concentration similar to major competing products
- ❑ SWL NOT concentrated enough to Give market leaders pricing power
- ❑ Structure a work in progress
- ❑ Will be watching: how critical will timberland ownership be in future?