

WIND CHILL, CHINA AND LOG MARKETS



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MB&G

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Natural Resource Consultants Since 1921

MASON, BRUCE & GIRARD, INC.

- Natural resource consulting since 1921
- HQ in Portland, OR. Offices: CA, ID, CO
- 45 natural resource professionals
 - Foresters, economists, appraisers, planners, fishery and wildlife biologists, and geospatial experts
 - Manage 150,000 acres in WA, OR, CA
- Disclaimers: The usual....



OBJECTIVE

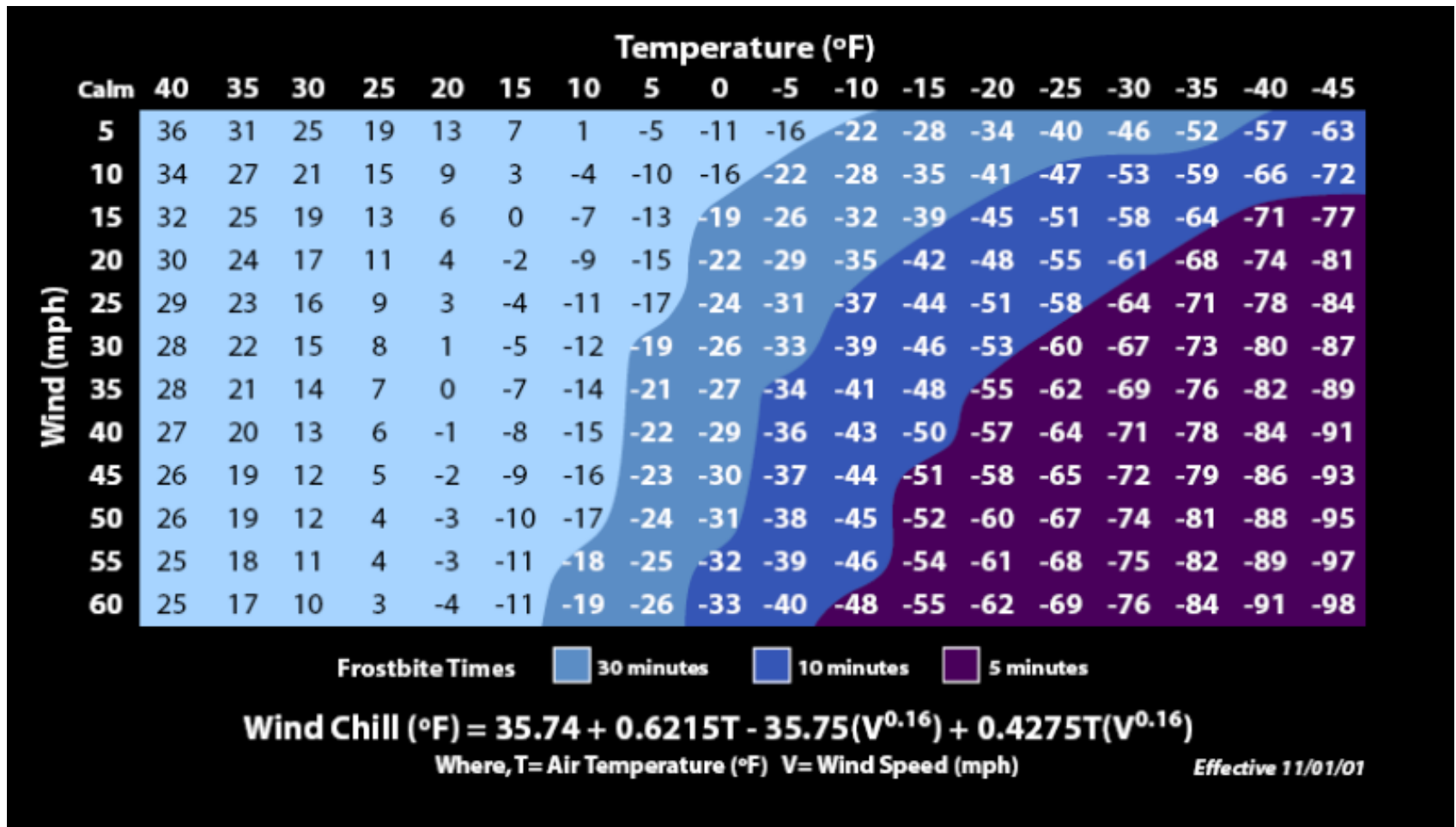
- What does the current log market “feel like” in terms of housing starts?

THE WIND CHILL INDEX

- **Wind-chill** is the perceived decrease in air temperature felt by the body on exposed skin due to the flow of air.

“In November 2001 Canada, U.S. and U.K. implemented a new wind chill index developed by scientists and medical experts on the Joint Action Group for Temperature Indices (JAG/TI). It is determined by iterating a model of skin temperature under various wind speeds and temperatures using standard engineering correlations of wind speed and heat transfer rate. Heat transfer was calculated for a bare face in wind, facing the wind, while walking into it at 1.4 meters per second (3.1 mph). The model corrects the officially measured wind speed to the wind speed at face height, assuming the person is in an open field. The results of this model may be approximated, to within one degree.” (Wikipedia)

WIND CHILL INDEX



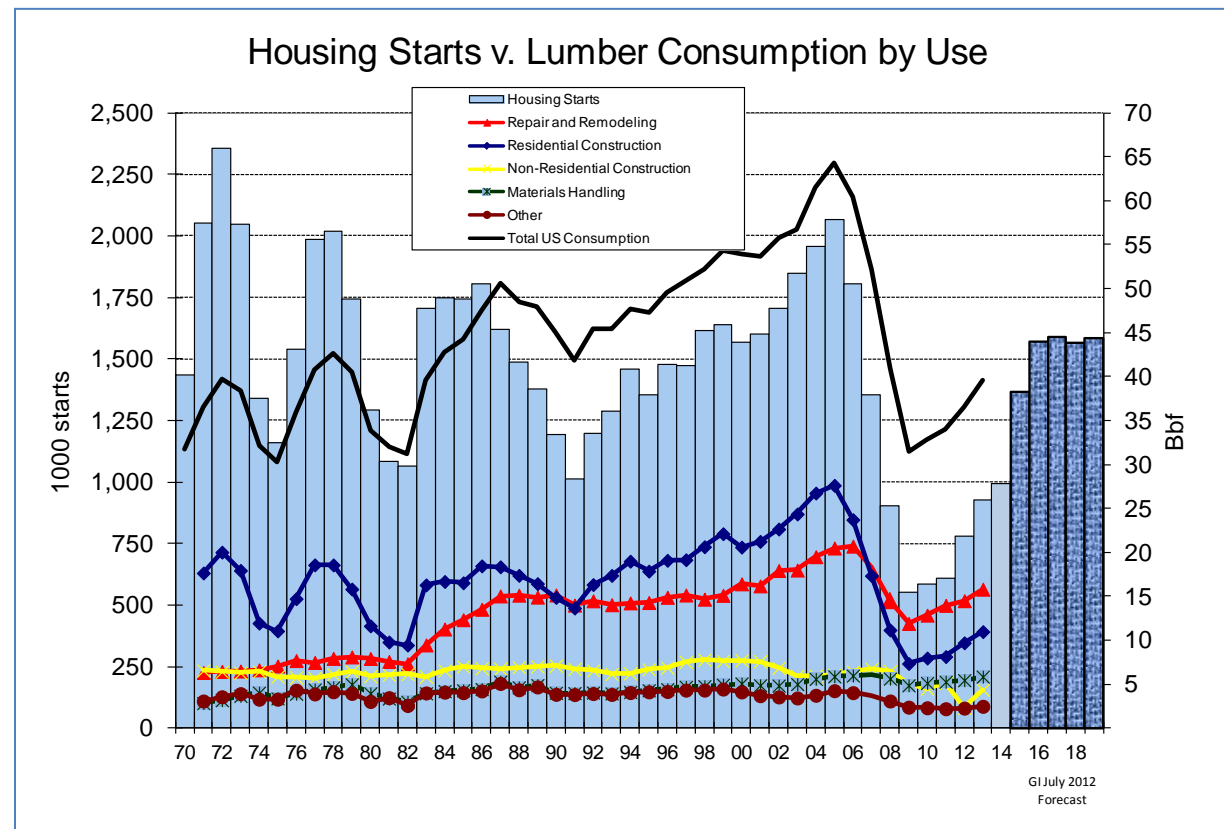
LOG EXPORT CHILL INDEX – LECI?

- Definition:

Perceived impact of “additional “ log exports on PNW log markets, expressed in US housing start equivalents.

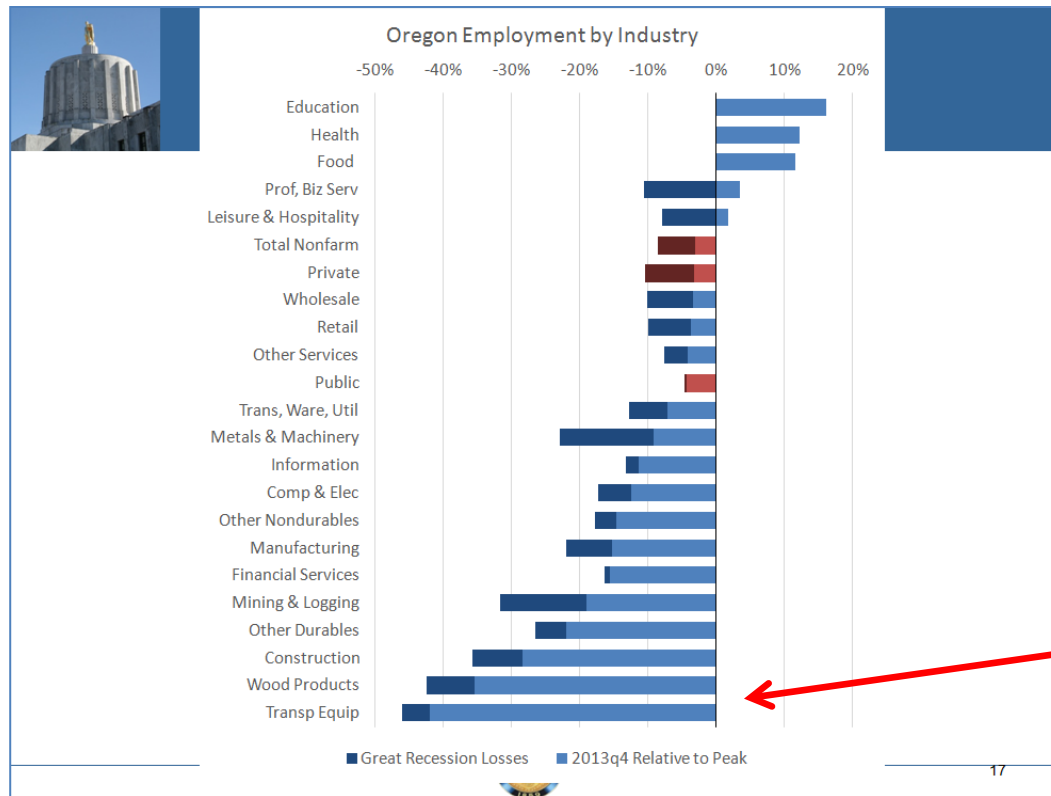
WHY IN THE WORLD DOES ANYONE NEED A “LOG EXPORT CHILL INDEX?”

- Product side of the mill: Demand is still low.



WHY IN THE WORLD DOES ANYONE NEED A LECI?

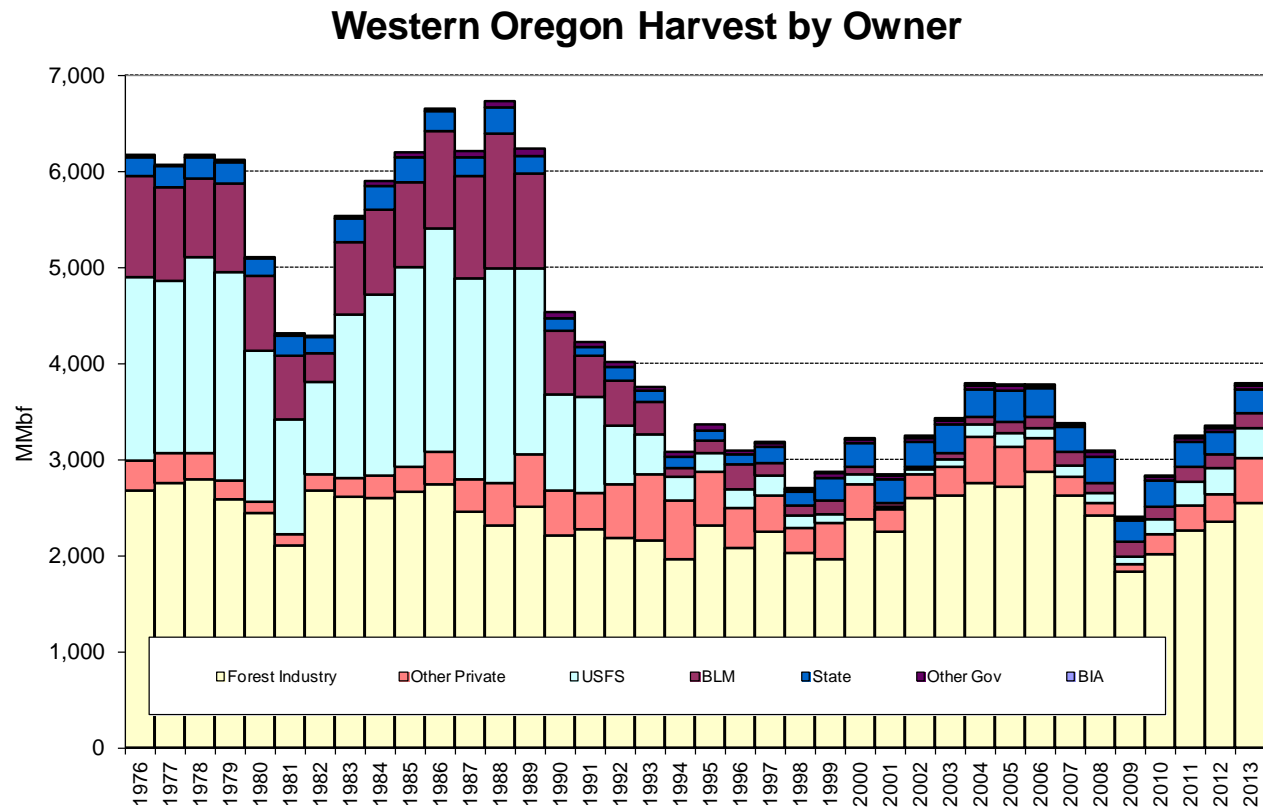
- Wood products employment is still far below historic levels



Lost 42%,
still down 35%

WHY IN THE WORLD DOES ANYONE NEED A LECI?

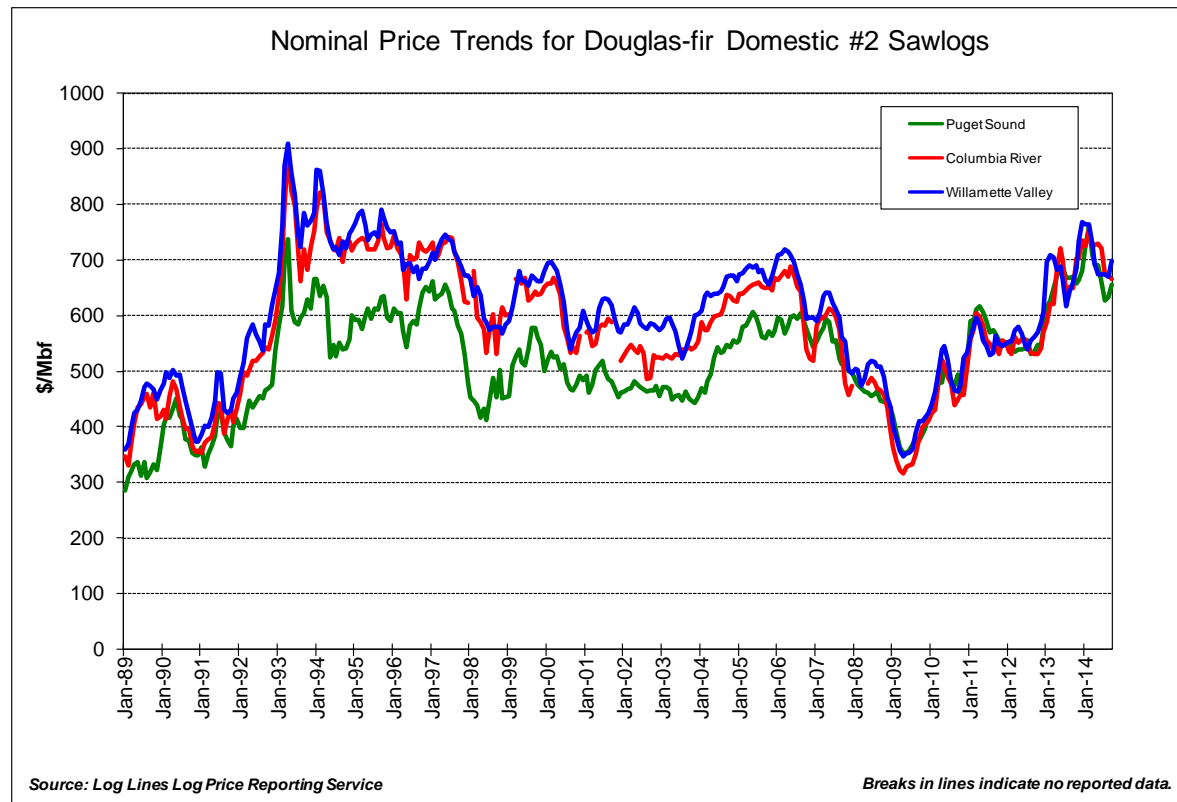
- But harvest is back to 2004-2006



Source: Oregon Dept. of Forestry Annual Reports

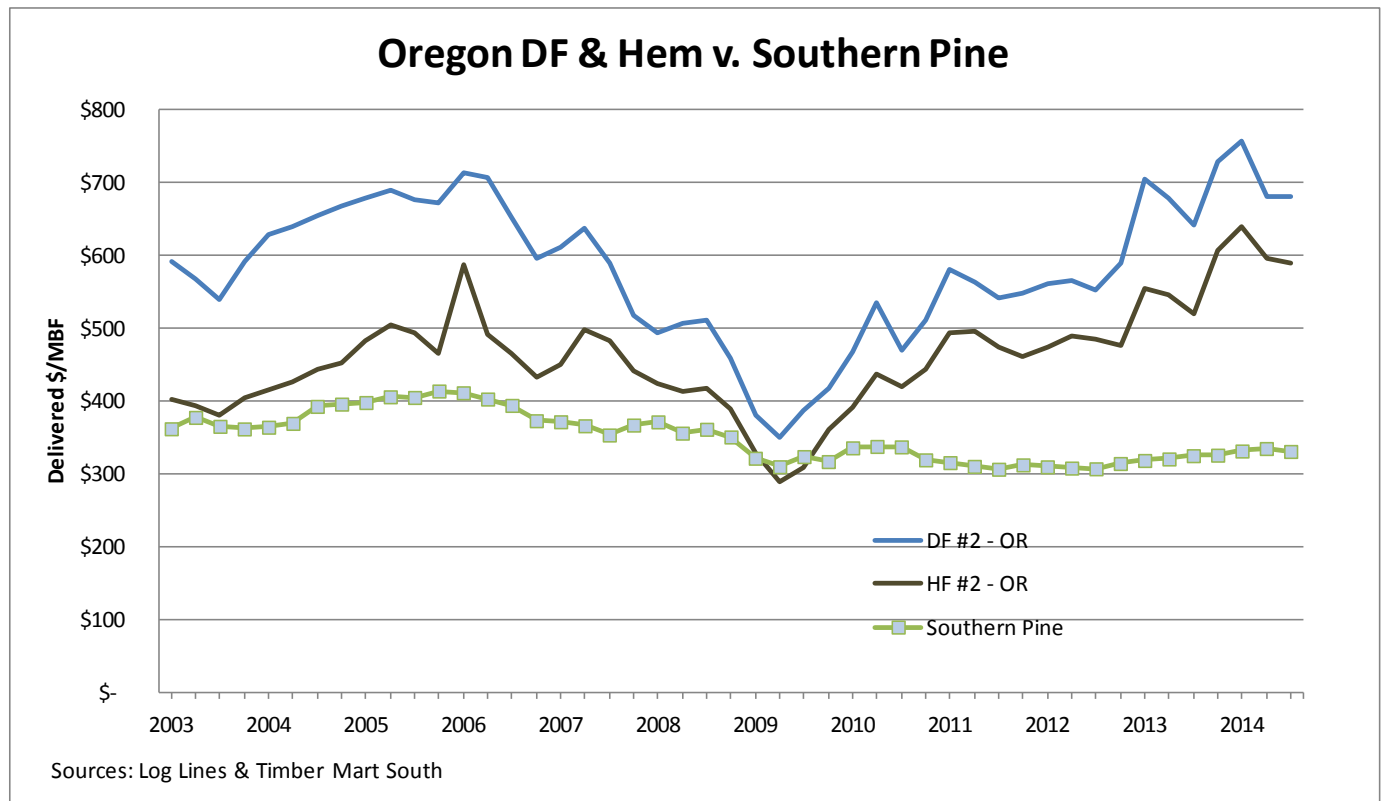
WHY IN THE WORLD DOES ANYONE NEED A LECI?

- And log prices are exceptionally strong!

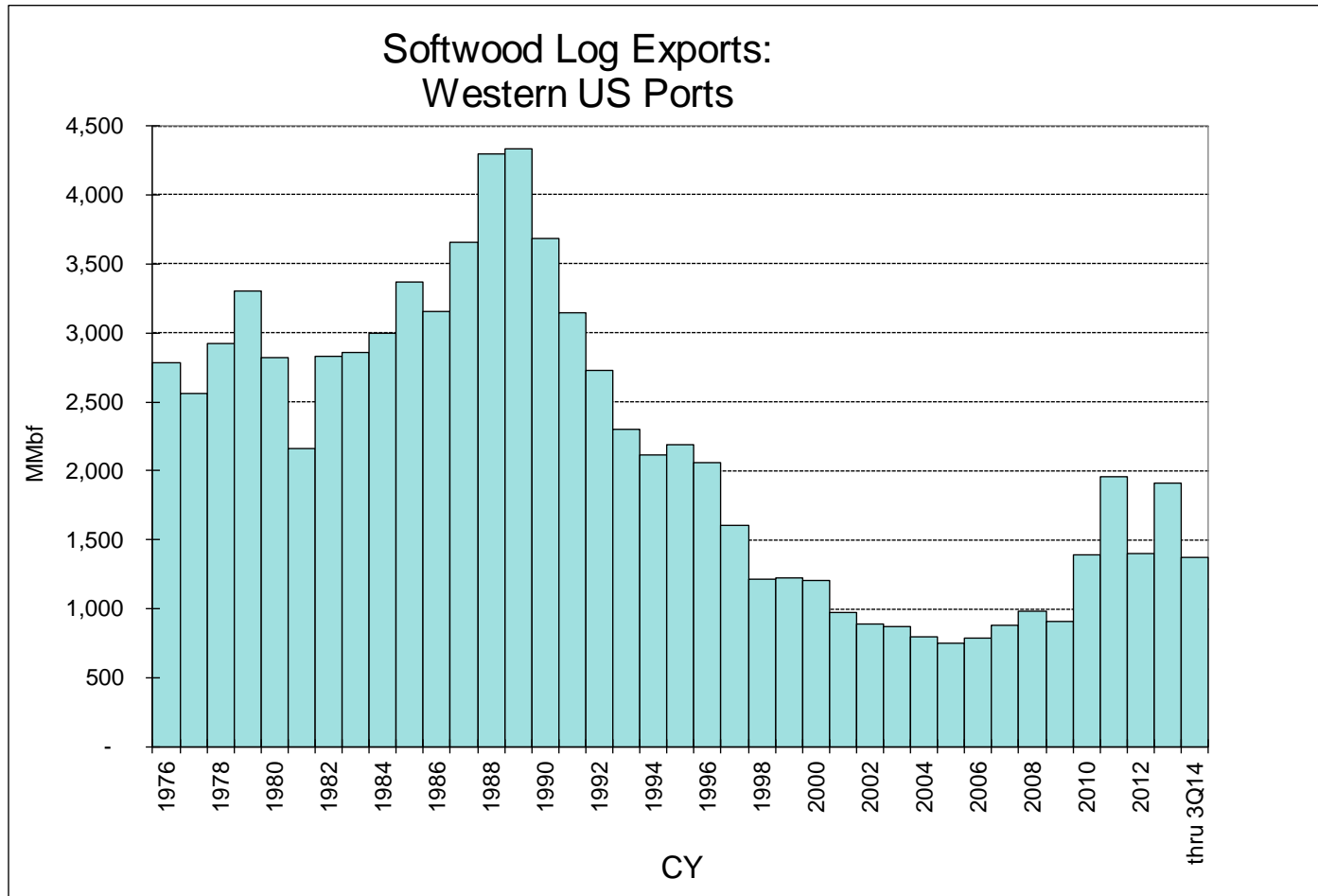


WHY IN THE WORLD DOES ANYONE NEED A LECI?

- More evidence of a disconnect -- Western log prices rebound, while the South is still flat.



LOG EXPORTS ARE NOT NEW...

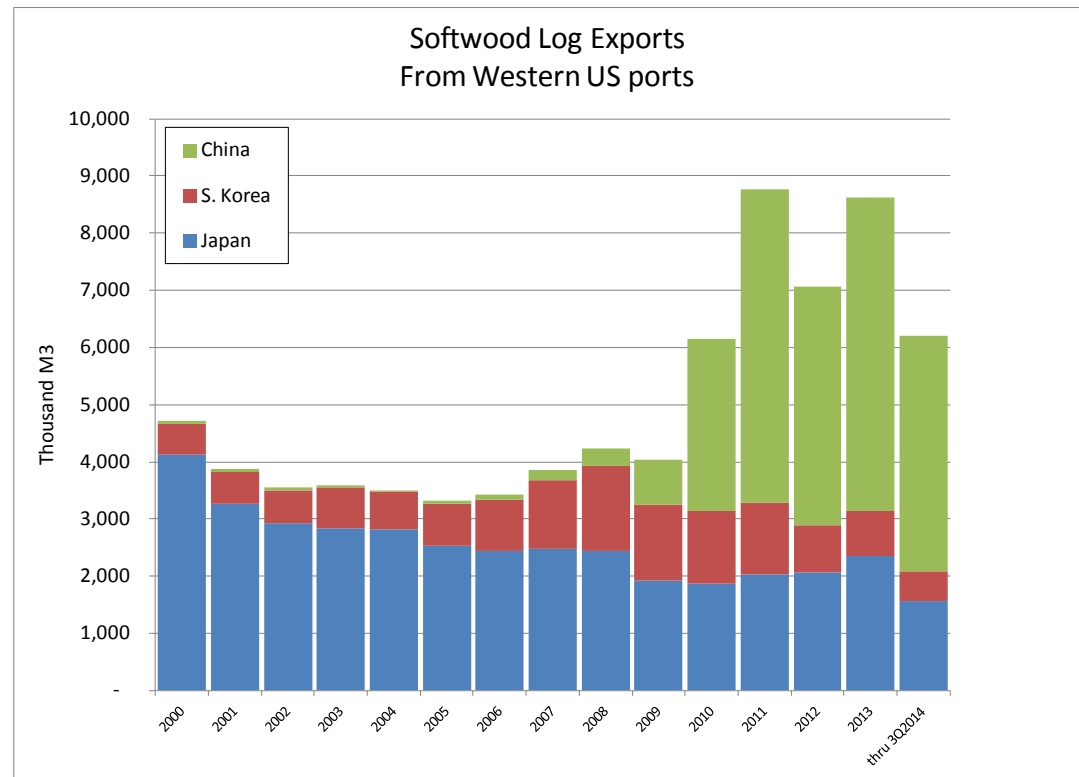


LOG EXPORT CHILL INDEX: APPROACH

- **Log Export Chill Index:** What is the impact of this “new” demand, expressed in terms of housing starts?
- **Components**
 - Log export increment
 - Wood usage for housing starts
 - Single family v. multi-family
 - PNW share of housing market
- **Not considered:**
 - R&R v. new construction
 - Lumber exports
 - OSB v. plywood
 - Export details: Species, size, taper, etc.
 - Declining Canadian share of US housing market

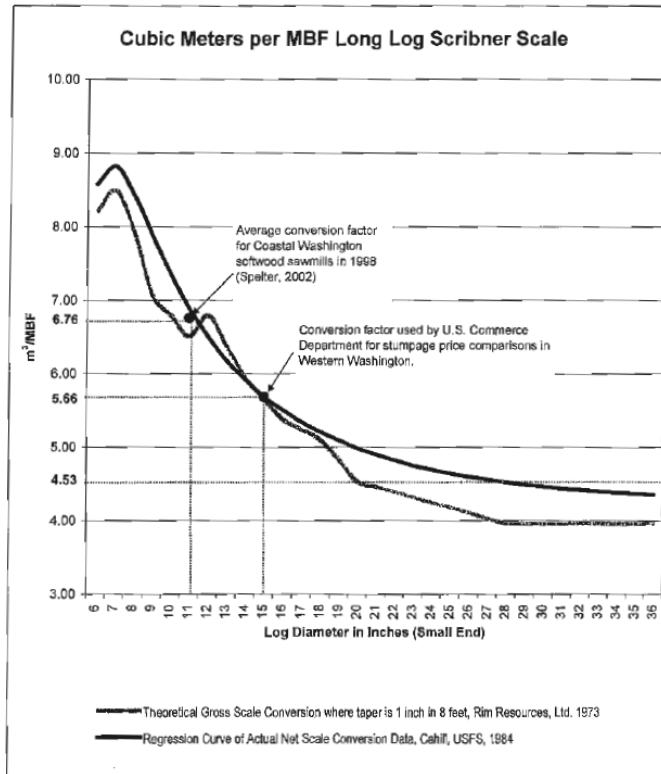
1. DETERMINE ADDITIONAL EXPORT VOLUME

- Use total volume to China
 - For this example: **4.5 million m3**



2. CONVERT M3 TO MBF

- Convert log exports in m3 to Mbf Scribner
 $4.5 \text{ million m}^3 \times 1.0 \text{ Mbf}/6.0 \text{ m}^3 = 750 \text{ MMbf LS}$



Source: 2003, Jendro & Hart LLC

3. CONVERT LS TO LT

- Convert Scribner volume to lumber

$$750 \text{ MMbf LS} \times 2.4 \text{ Mbf LT/Mbf LS} = 1,800 \text{ MMbf LT}$$

USFS: 2008 Oregon mill study

Beck:- Western US mills study:

Stud mills 2.55
Dimension 2.25

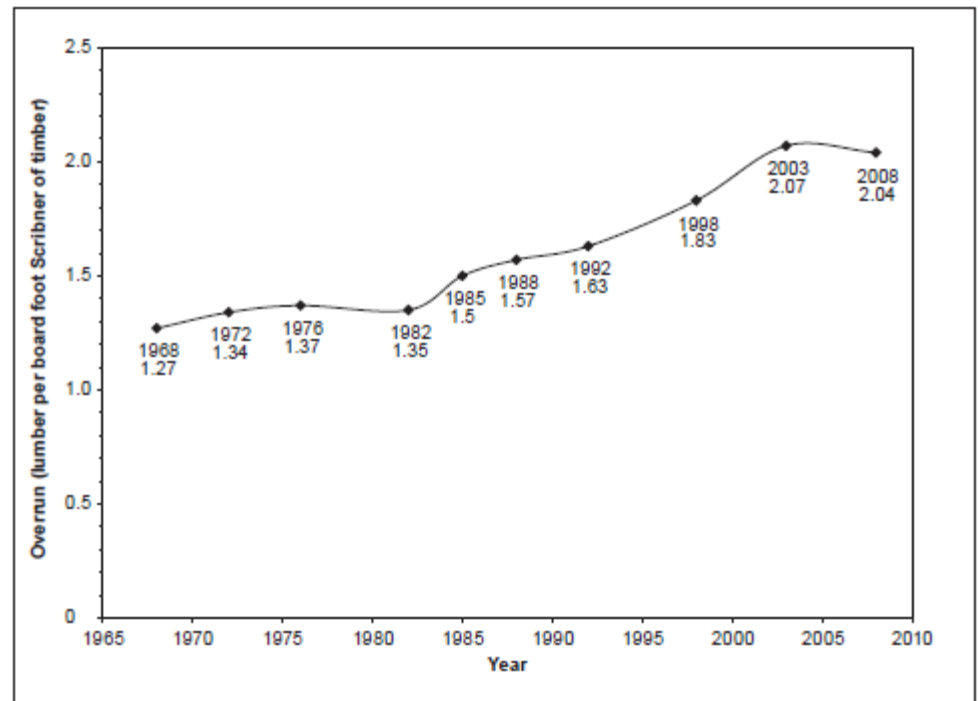
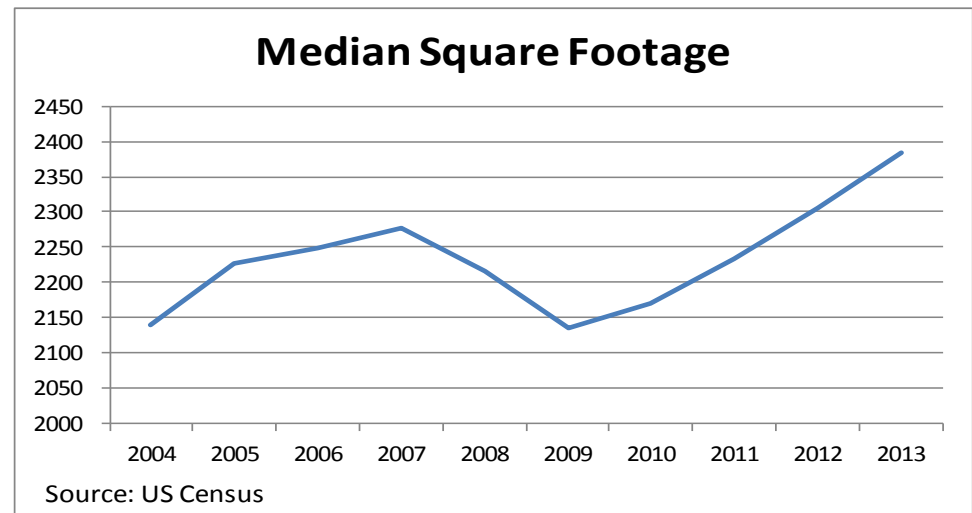


Figure 11—Lumber overrun in Oregon in various years. Source: Brandt et al. 2006; Howard 1984; Howard and Hiserote 1978; Howard and Ward 1991; Manock et al. 1970; Schuldt and Howard 1974; Ward 1995, 2000.

4. WOOD USAGE PER HOUSING START

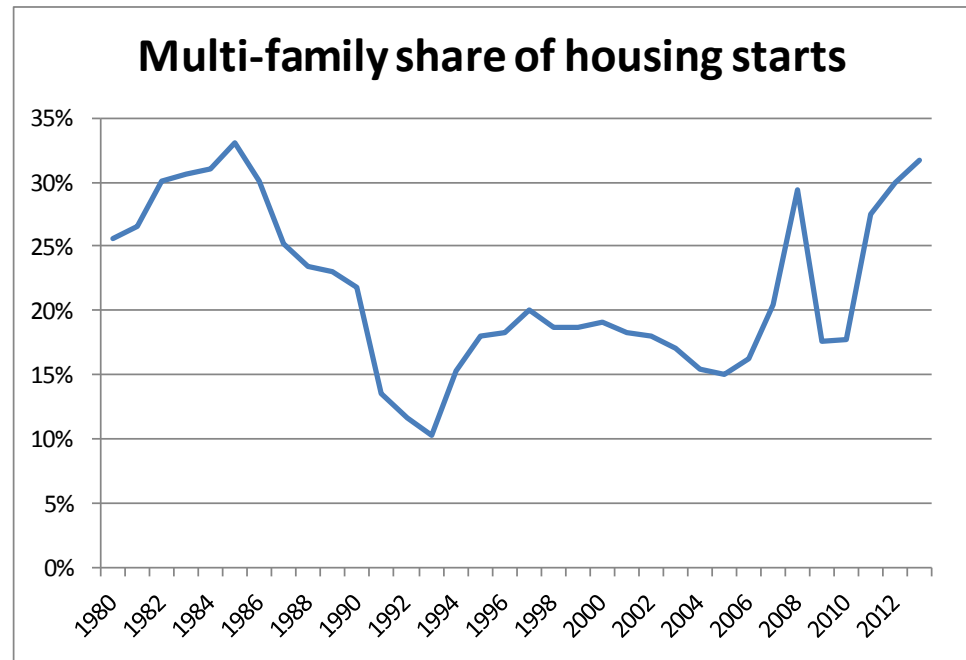
- NAHB:
 - Median home is 2,400 ft²
 - 14,400 bf lumber + 12,400 ft² panels = **19** Mbf/SF start
 - MF start about 1/3 less than SF = **13** Mbf/start



5. ADJUSTMENT FOR MF STARTS

- MF is an increasing share of housing starts

Assume MF = **25%** of total



5. CALCULATE TOTAL STARTS PER MMBF LUMBER

- Calculate SF and MF starts from an extra 1MMbf of lumber

$$19\text{Mbf/SF} + 13 \text{ Mbf/MF} = 1,000 \text{ Mbf}$$

$$3 \text{ SF} : 1 \text{ MF}$$

Algebra!!!!

$$\text{SF} = 52 \text{ starts}$$

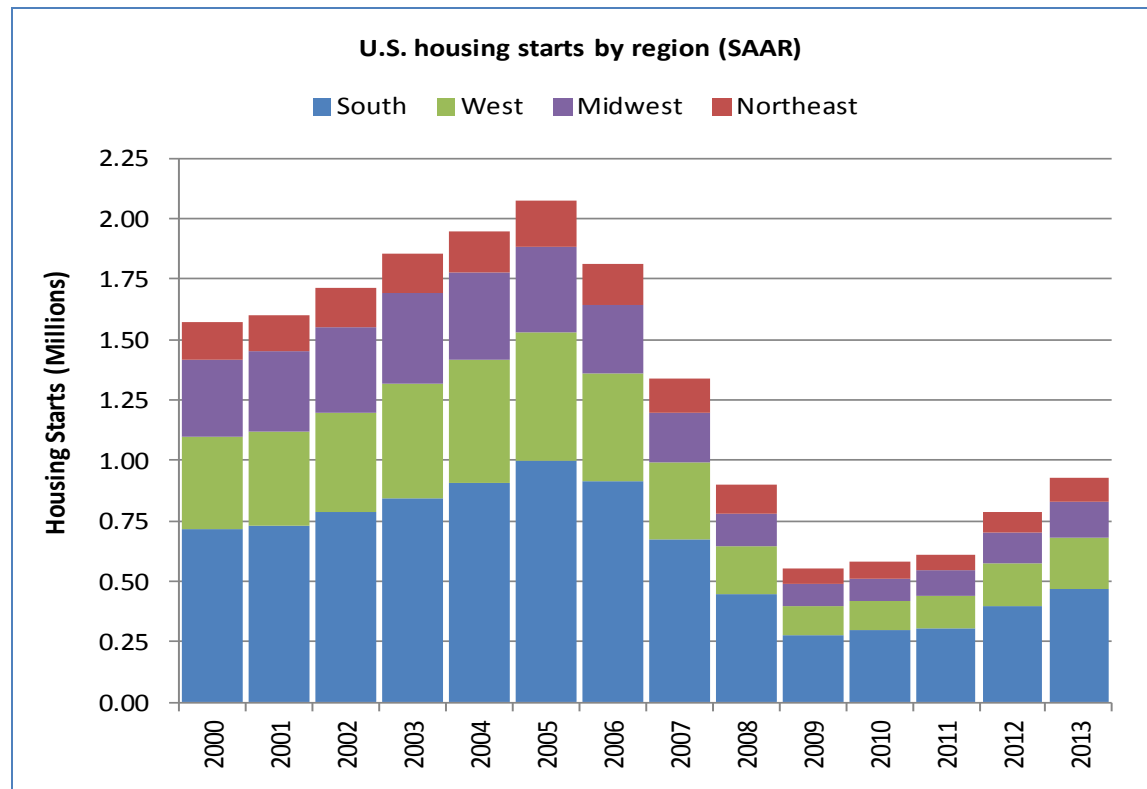
$$\text{MF} = 17 \text{ starts}$$

$$\text{Total} = 69 \text{ starts/MMbf Lumber}$$

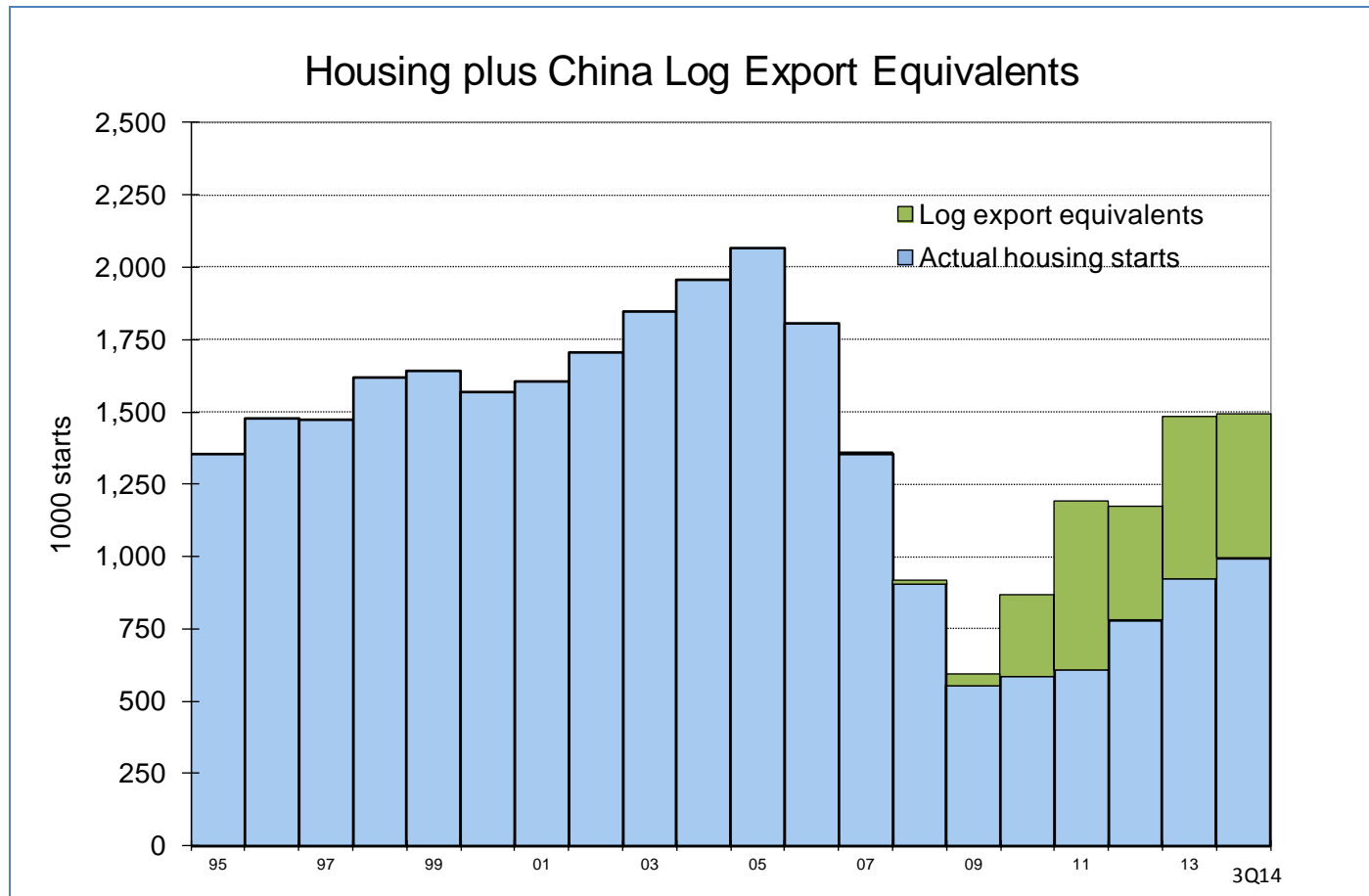
$$69 \text{ starts/MMbf} \times 1,800 \text{ MMBf lumber} = 124,000 \text{ total starts}$$

6. ADJUST FOR WESTERN SHARE OF HOUSING

- About 22% of US housing starts are in the West
124,000 starts / **22%** West share = 564,000 total US starts



7. APPLY LECI



Log Export Chill Index factor: 1 million m3 of PNW log export has an impact on PNW log supply equivalent to 564,000 US housing starts

IMPROVEMENTS?

- R&R v. new construction
- Lumber exports
- OSB v. plywood
- Export details: Species, size, taper, etc.
- Declining Canadian share of US housing market

Other equivalencies

- “...the world’s wild catch (fish) measures 170 billion pounds – equivalent in weight to the entire population of China...” (Greenburg, *Four Fish*)
- The drought killed 12 million trees in California last year. That’s equivalent to about 60,000 acres of timberland, about \$150-250 million of value.
- Send me more! mrasmasonbruce.com

QUESTIONS?