

**Hardwood Markets - -  
the future offers opportunities and  
challenges - “housing contraction” - “climate  
change” - “globalization” - “energy security” -  
“Asian markets”**

**Ecological Forestry in Central Appalachians**

**Elkins, WV**

**October 22 - 23, 2008**

**Al Schuler - USDA Forest Service, WV**

**Urs Buehlmann - VT**

**( [aschuler@fs.fed.us](mailto:aschuler@fs.fed.us) )**

# Trends Facing U.S. Forest Products Industry

- **Competition** – U.S. is losing market share in many commodity markets
- **Economic activity** –
  - (1) Domestic housing crises
  - (2) Center of Economic activity shifting to Asia
- **Fiber & Forestry** -
  - (1) convergence of markets for food, fuel, fiber - carbon pricing & biofuel opportunities will impact fiber supply/use/availability
  - (2) plantations are growing source of industrial roundwood
  - (3) industry forest ownership is being transferred to TIMOS/REITS & others – implications for fiber availability?
  - (4) Russia, the world's largest log trader, is increasing log export taxes to encourage domestic production & discourage illegal logging –
  - (5) Asia's wood deficit – will drive U.S. log ( and lumber) exports
  - (6) **Future wood and forest product prices will trend upward?**

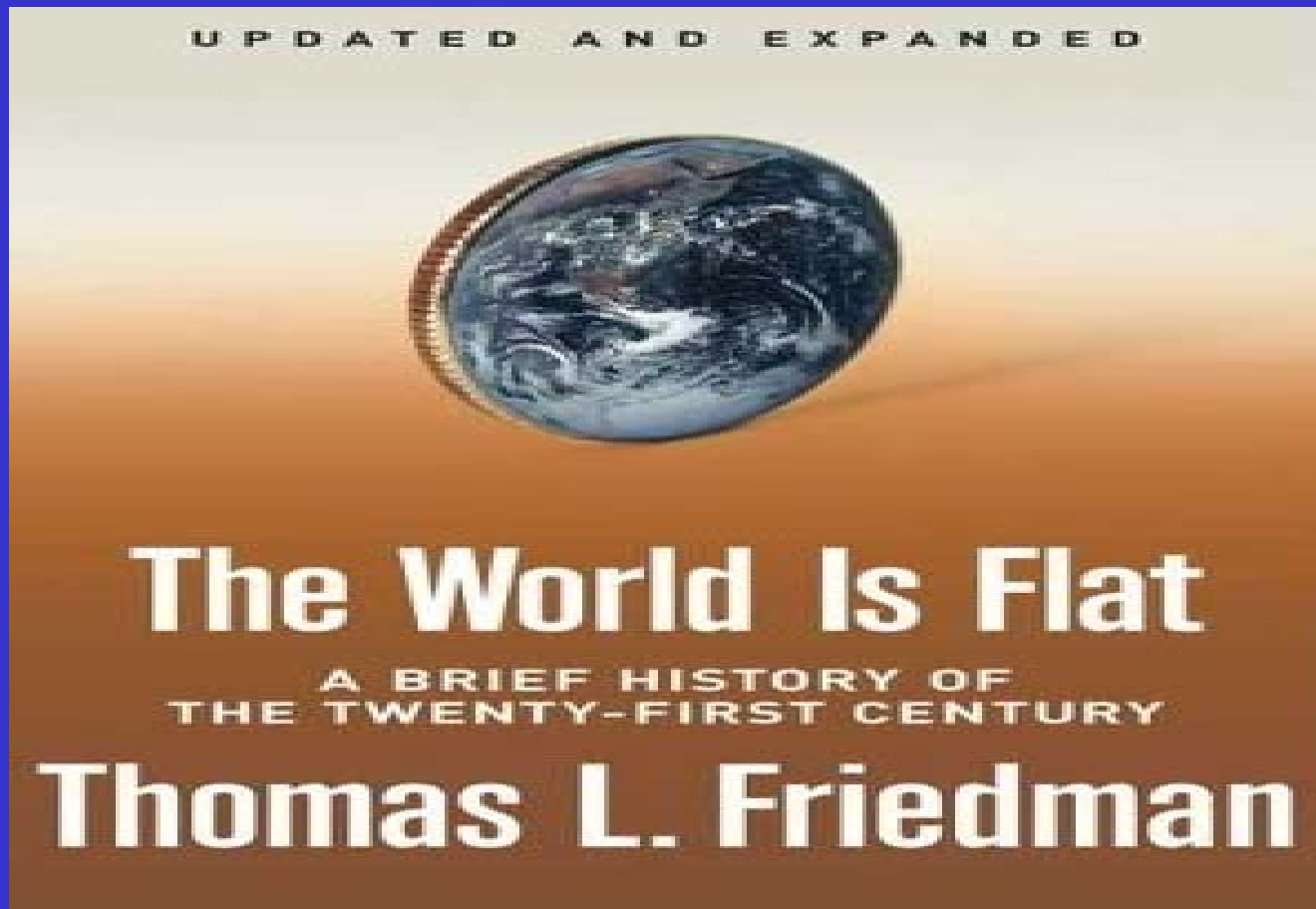
## **Globalization**

**Single world market for labor, capital, goods, and services**

**Significance - distance is less of an obstacle to competing**

**The challenge – develop a relevant competitive strategy**

**“what you do better than anyone else”**



**In 1956, it cost \$5.86/ton to load and unload a cargo ship by hand – today, using containers, it cost 16 cents/ton – today's cost < 3% of 1956**

**Railroads can move a ton of freight 423 miles  
On a single gallon of gas**



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SHIPPING INTERNATIONAL INC.  
*From your door to the world...*

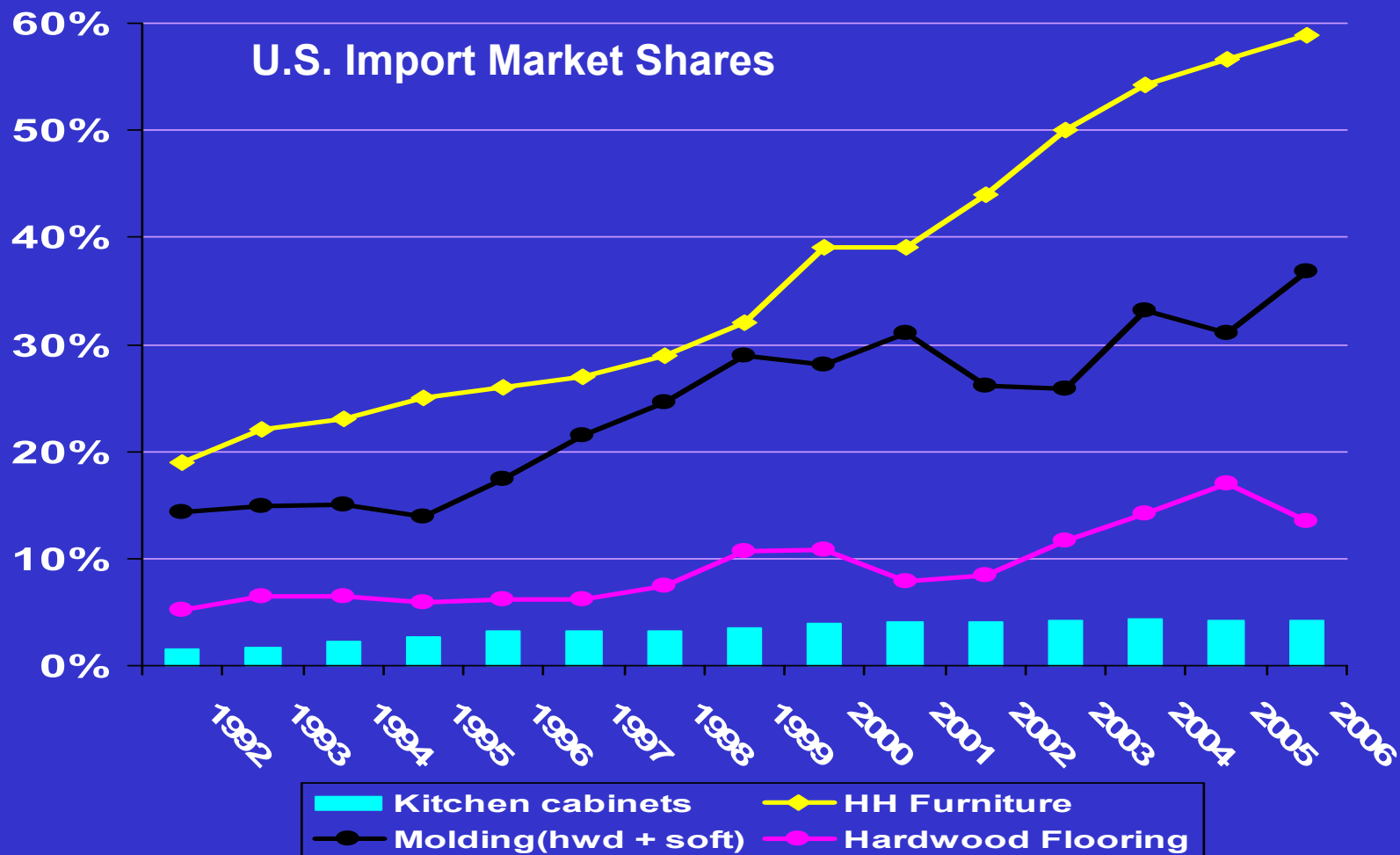
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**Competition – U.S. losing Market Share  
in  
Many Forest Product Markets**

## Secondary Industry - hardwood market trends – implications for rest of supply chain – lumber industry and landowners?



\*These market shares are conservative because some imported components is included in the domestic shipments

Consumption = shipments + imports – exports.  
 Import share = imports/consumption

Source: Census, ASM; ITA ([www.ita.doc.gov](http://www.ita.doc.gov))

# Wood Household Furniture Shipments vs Imports

Million 1982\$



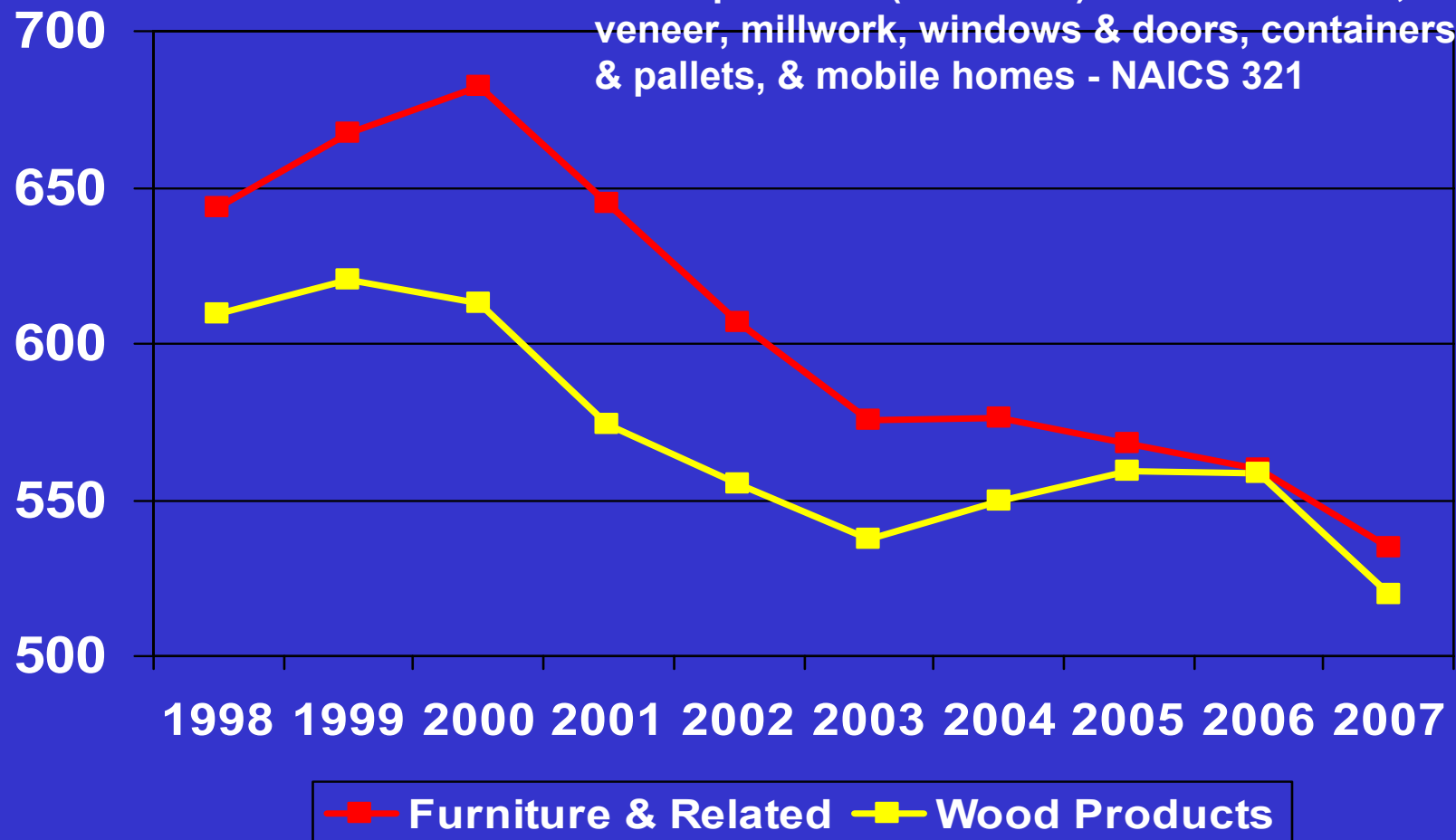
Shipments – Census ASM (<http://www.census.gov/mcd/asmhome.html> ); Imports – ITA (<http://www.ita.doc.gov/td/ocg/imptab.htm>)

# Employment Trends

Furniture includes kitchen cabinets  
and all types of furniture – NAICS 337

Thousand

Wood products (hwd & sft) includes lumber,  
veneer, millwork, windows & doors, containers  
& pallets, & mobile homes - NAICS 321



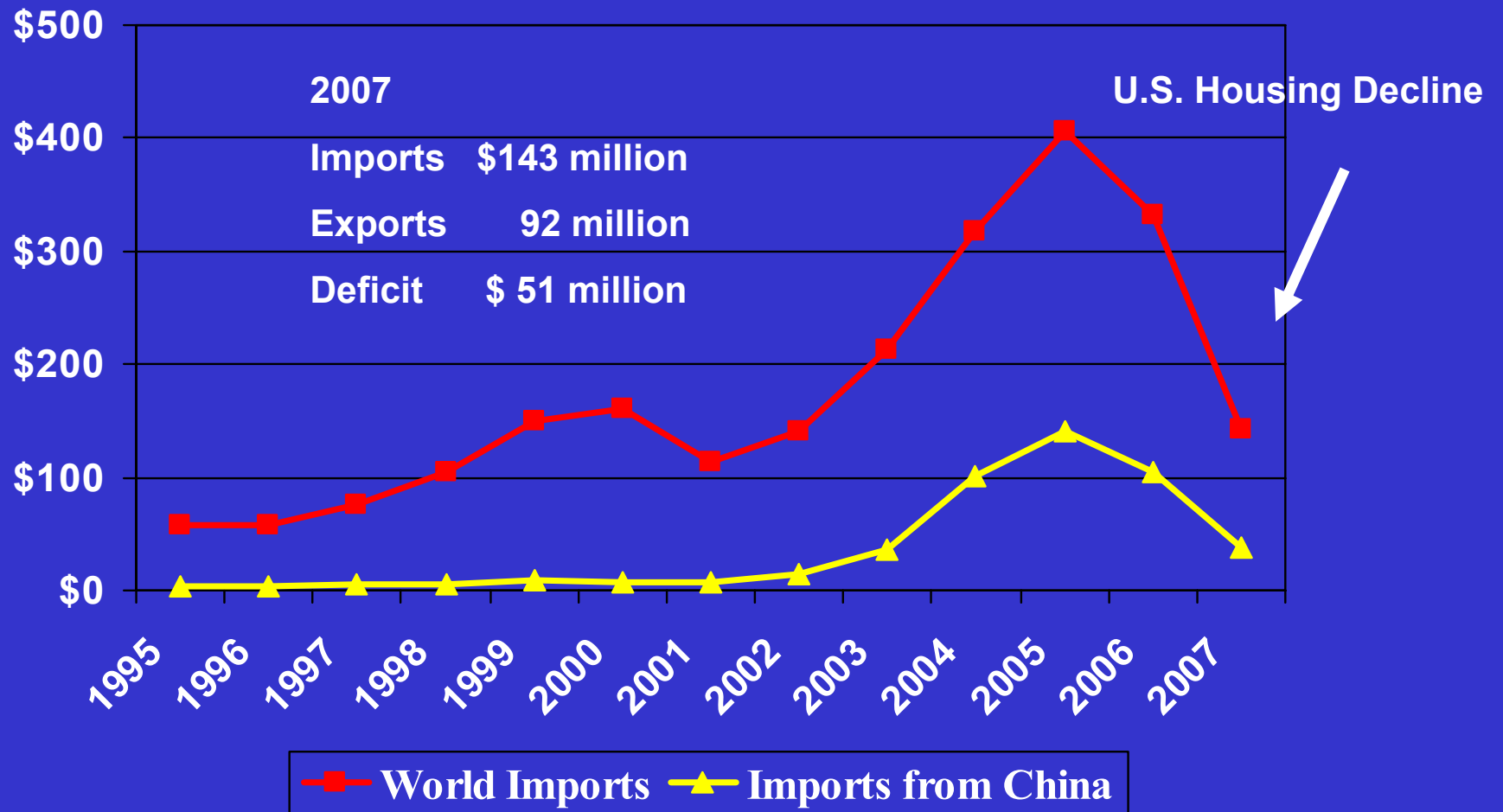
Source: BLS  
<http://data.bls.gov/cgi-bin/srgate>



# U.S. Hardwood Flooring Imports

## Housing's Impact is Huge

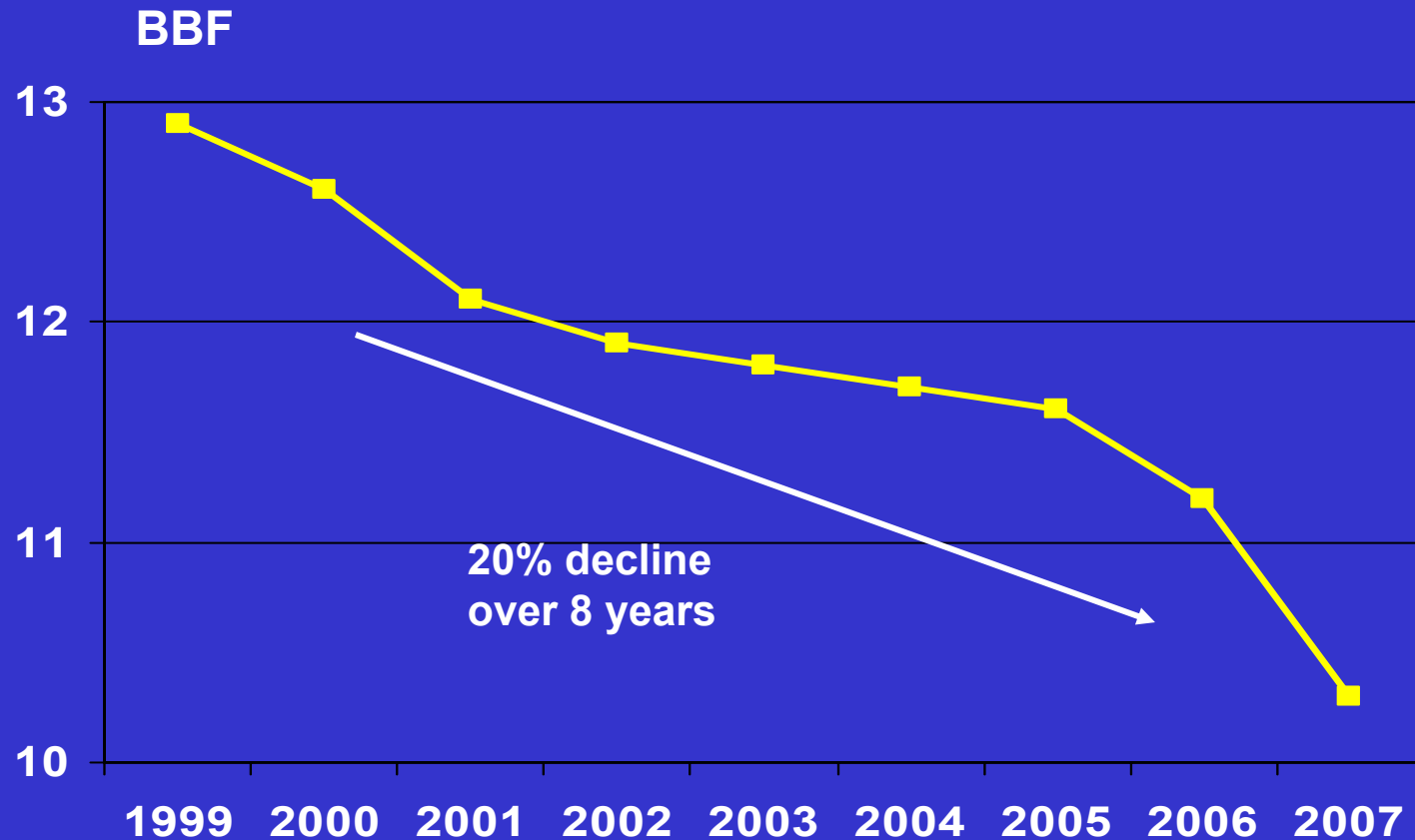
Customs value (million \$)



Source: USDA, FAS

# Hardwood Lumber Consumption

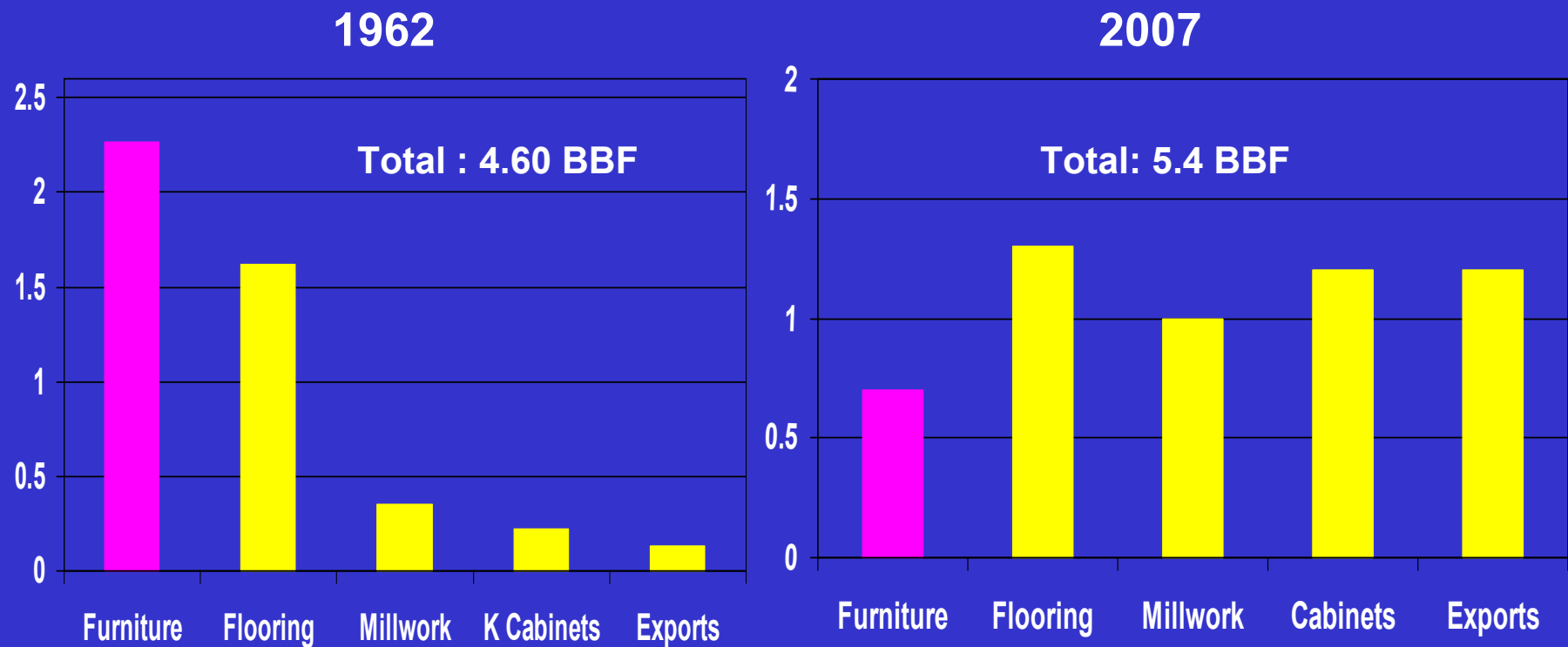
as lumber consumption falls, domestic demand for logs drops too ( as does price?)



Source: HMR – the year at a glance

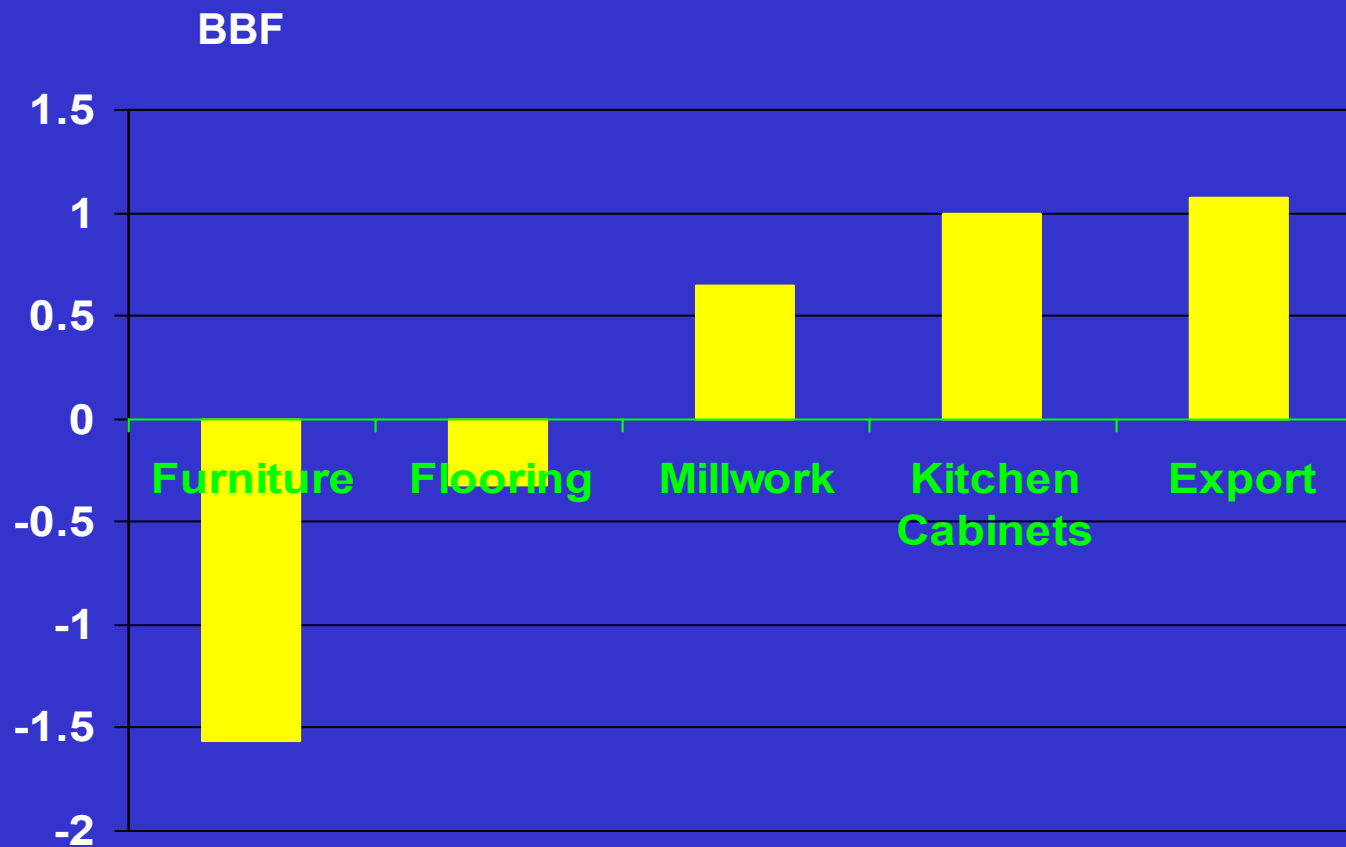
# U.S. Graded Hardwood Lumber Consumption Trends (BBF)

**Total consumption up 800 MMBF between 1962 and 2007 - - 17%  
But dramatic changes in where the lumber is consumed**

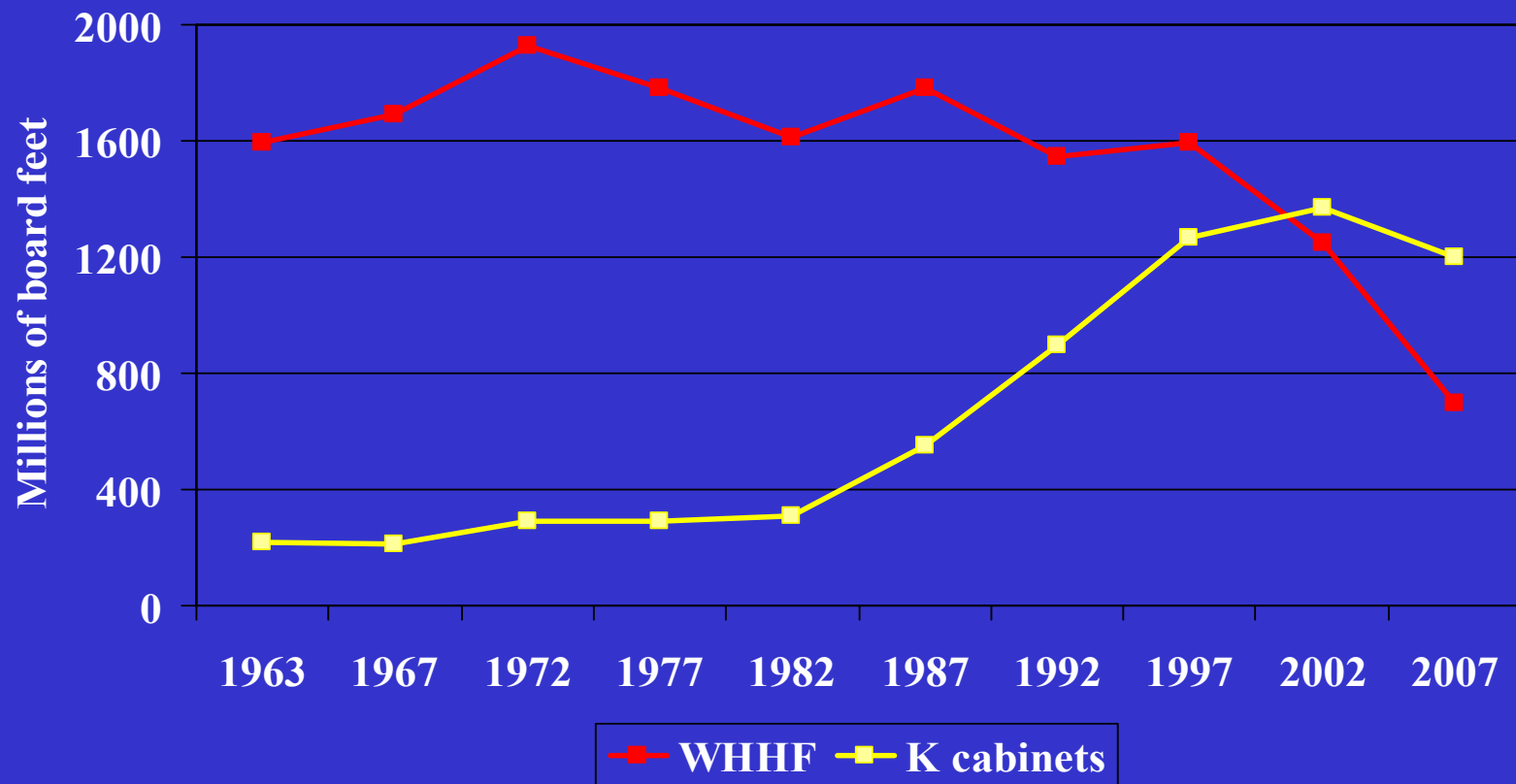


Source: Bill Luppold, USDA

## Changes in U.S. Graded Hardwood Lumber Consumption Trends over the past four decades ( 1962 – 2007 )



# Hardwood Lumber Consumption by Wood Household Furniture versus Kitchen Cabinet



Source: Bill Luppold

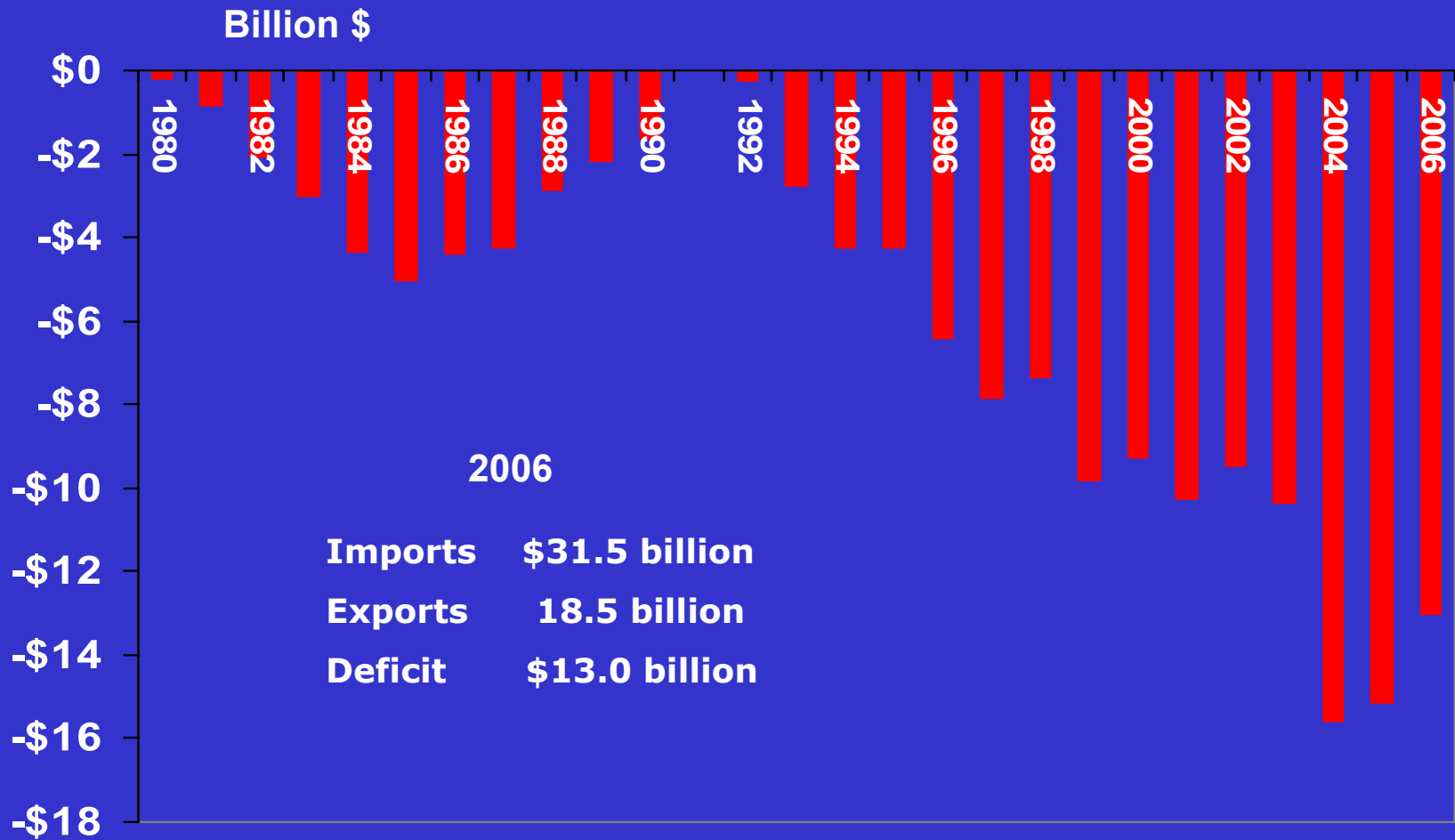
## ***Markets for HW components***

	1984	2008
<b>Furniture</b>	<b>65%</b>	<b>22%</b>
<b>Cabinetry</b>	<b>16%</b>	<b>27%</b>
<b>Building Products *</b>	<b>10%</b>	<b>42%</b>
<b>Decorative/Specialty</b>	<b>4%</b>	<b>7%</b>
<b>Industrial Products</b>	<b>5%</b>	<b>3%</b>

**\* residential and commercial, both new construction and remodeling**

Source: 2008 WCMA Market Study

# U.S. Forest Products Trade Imbalance



Source: FAO STAT

# **The U.S. Trade Dilemma...**

**We are exporting raw materials and importing finished goods...**

**The U.S. is a major exporter of hardwood lumber and logs...**

**And we are the major importer of finished hardwood products like furniture, flooring, molding & millwork ...**

**This needs to change if the U.S. secondary hardwood processing industry is to survive – think about it - what happens to the primary industry if the secondary industry keeps shrinking???? What happens to domestic log markets? Exports can't take up all of the slack because the U.S. has lots of competition in international log and lumber markets**



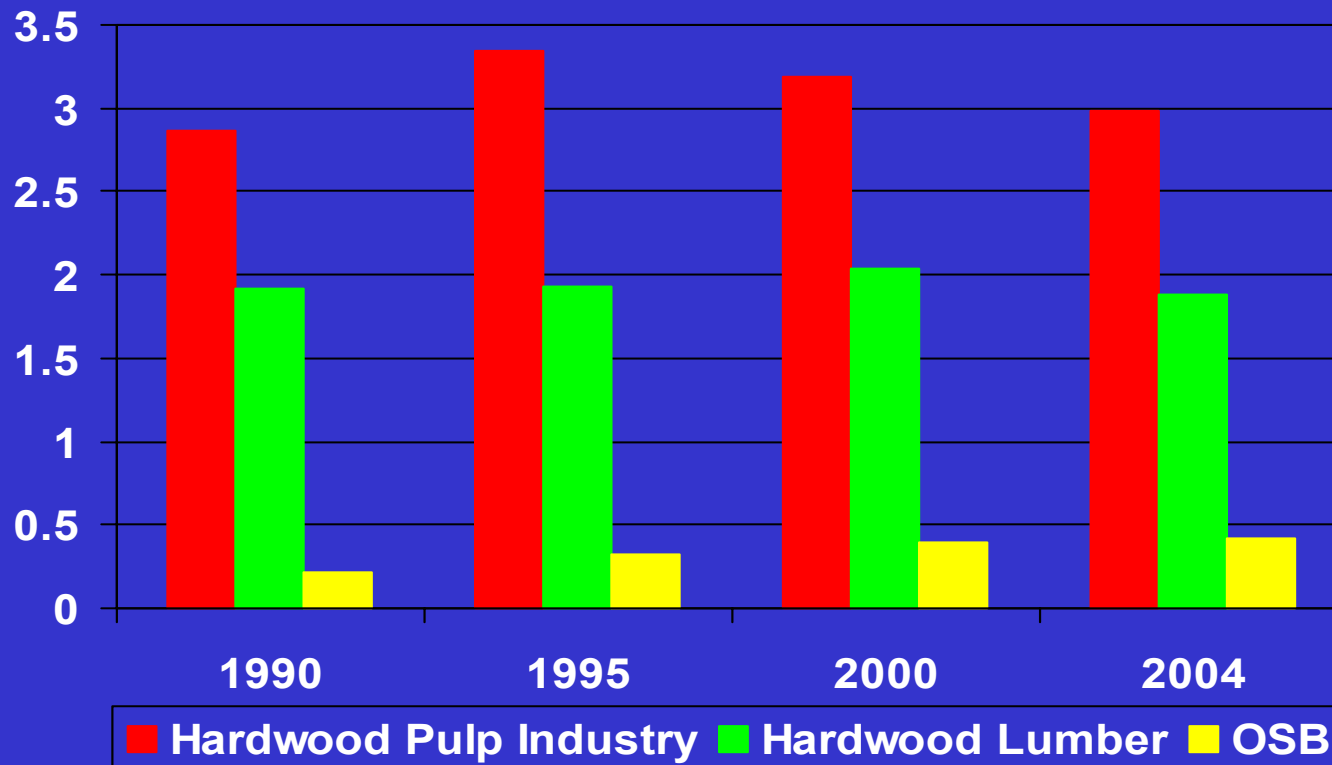
# **Fiber & Forestry Issues will impact future wood prices & availability**

- Timberland ownership changes – impact on future log supply and sustainable forestry??
- Russian log export tax to increase dramatically by 2009 – impacts 40% (softwoods) and 30% (hardwoods) global log trade
- Convergence of markets for food, fuel, and fiber; and pricing of carbon – bioenergy – carbon trading markets – future fiber shortages?
- Certification and green building trends

# U.S. Industrial Hardwood Roundwood\* Usage will change

**biofuels? – green building?  
ecosystem markets?**

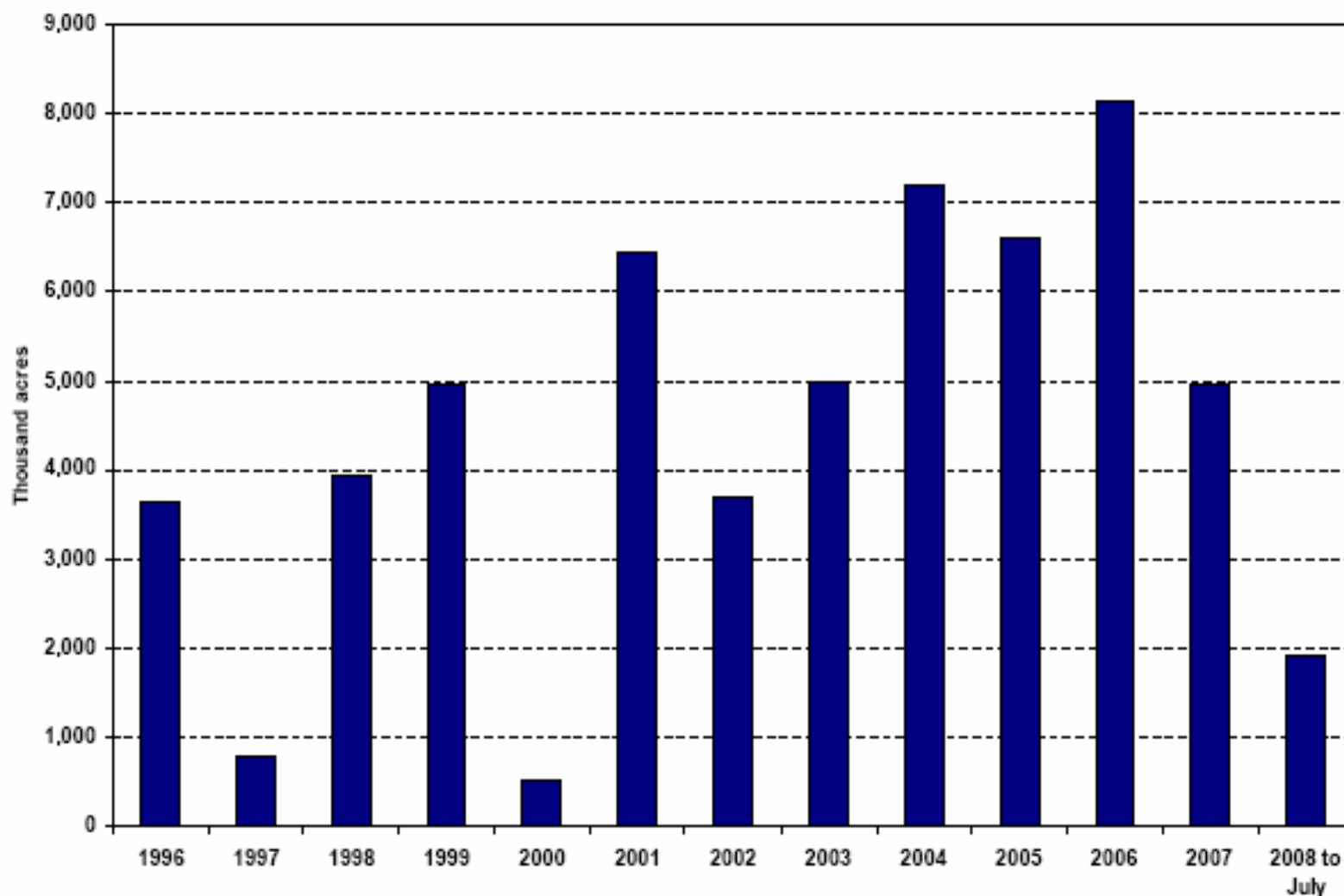
Billion cubic feet



Sources: Forest Resources Assoc., APA, USDA Forest Service

\* Pulp industry totals exclude residue chips, but include whole tree chips

## Annual area of U.S. Timberland Transactions - Impact on future fiber availability?



Source: Timber trends, The Campbell Group

## U.S. Timberland Ownership by Integrated\* Companies (000 acres)

Company	2000	2002	2004	2006	2007
LP	945	945			
Boise Cascade	2,340	2,340	2,240		
Bowater	1,800	490	370	250	
MeadWestvaco	3,400	3,140	2,150	1,118	<1000??
Temple-Inland	2,200	2,200	2,050	1,990	0
IP	12,025	9,185	6,800	600	200
Potlatch	1,545	1,150	1,455	1,460	1,500
Rayonier	2,100	2,050	2,030	2,180	2,400
Weyerhaeuser	5,700	7,300	6,400	5,640	5,640
GP's Timber Co.*	4,000				
<b>Total</b>	<b>36,055</b>	<b>28,800</b>	<b>23,495</b>	<b>13,238</b>	<b>~10,000</b>
* I included GP's Timber Co. as an integrated Co. ( A. Schuler – USDA)					Source: RISI

## **Structural change in international log markets**

- (1) Russia is world's largest exporter ( volume basis) of both hardwood and softwood logs**
  - Softwoods - about 40%**
  - Hardwoods – about 30%**
- (2) Softwood tax increases from 6.5% (2007) to 80% by Jan 2009**
- (3) Hardwood sawlogs (Oak, Beech, Ash) tax increases from 20% (2007) to 40% by Jan 2009**

### **News Release**

**Russia's Scheduled 80% Log Export Tax will reduce log exports, disrupt global forest products trade flows and create a supply shortage in China.**

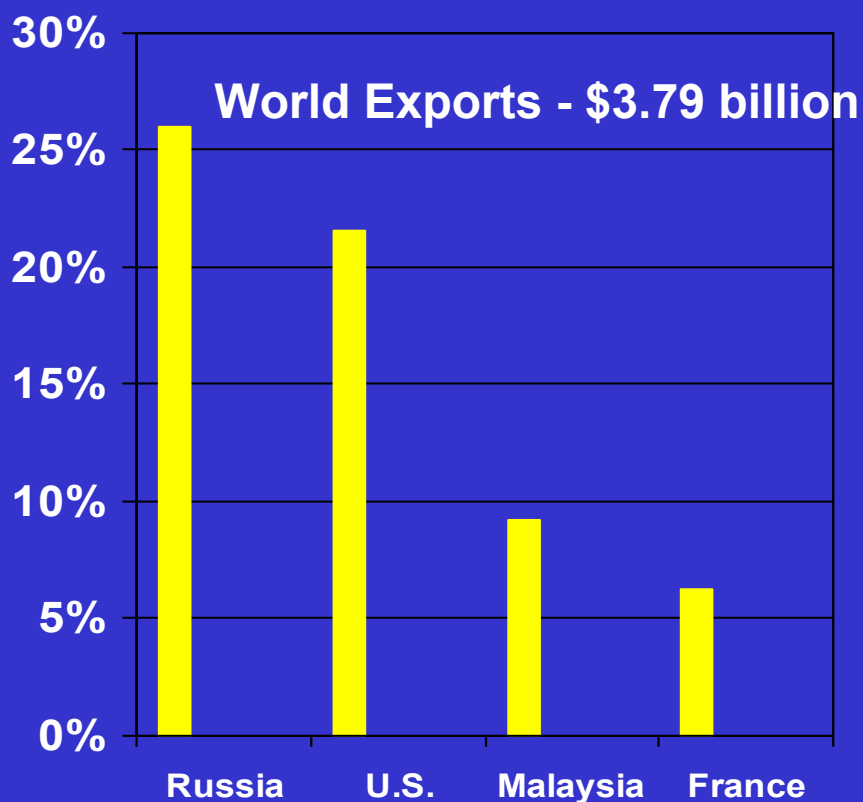
**Higher prices and increased demand will create substantial opportunities in logs, lumber, pulp and other products for a variety of exporting countries to China and other Asian countries.**

**For Immediate Release October 16, 2008  
Vancouver, B.C.**

# World Temperate Hardwood Log Trade - 2007

Through June, 2008, Russian log exports are up 42% ( \$ basis)  
And flat (volume basis) – so far, the duty is not slowing exports!!

## Top 4 Exporters

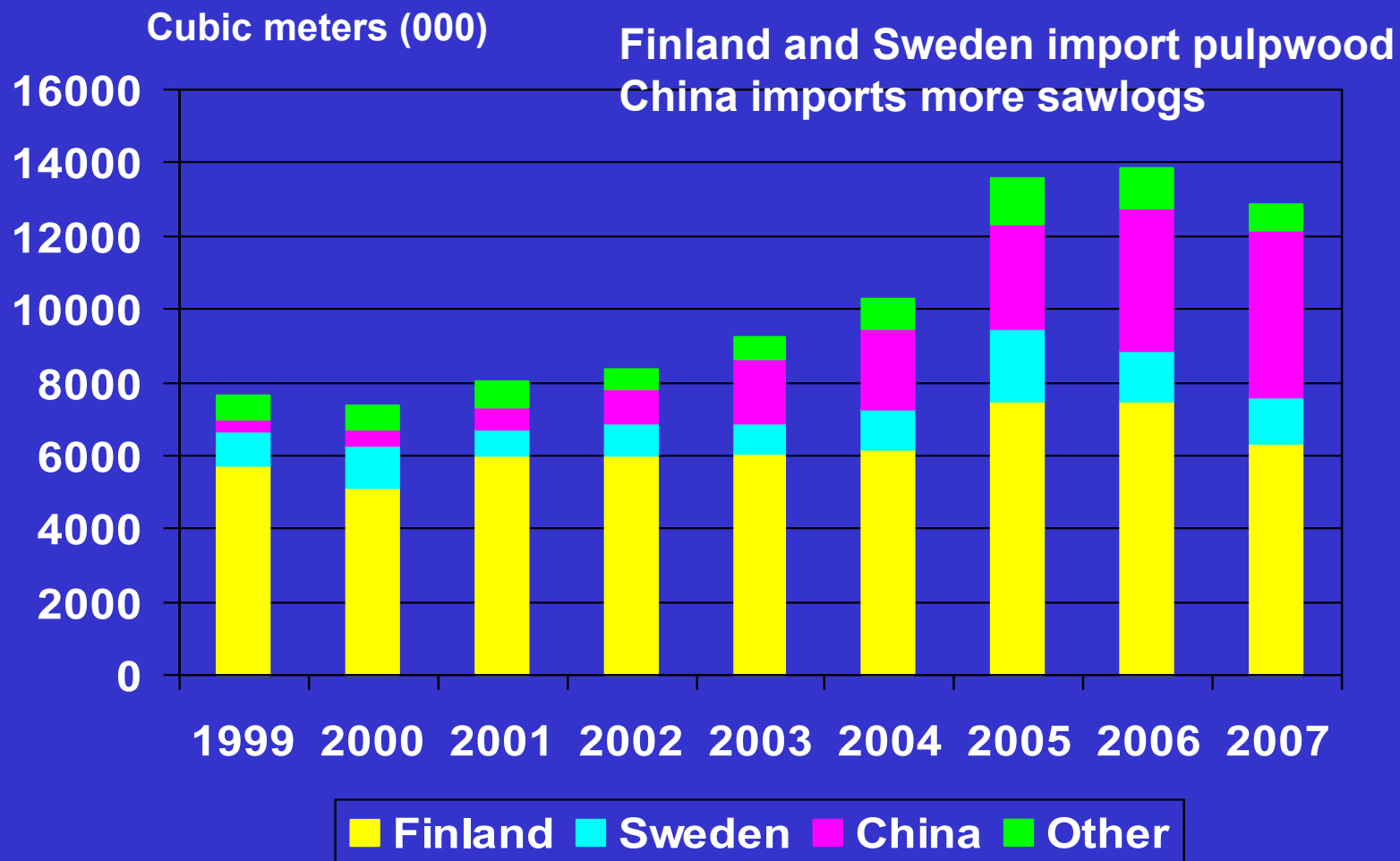


## Top 4 Importers



Source: Global Trade Atlas

## Russian Export Trends - Temperate Hardwood Logs



Source: GTA

# Hardwood and Softwood Logs



Source: Russ Taylor, International Wood Markets, ( [www.woodmarkets.com](http://www.woodmarkets.com) )

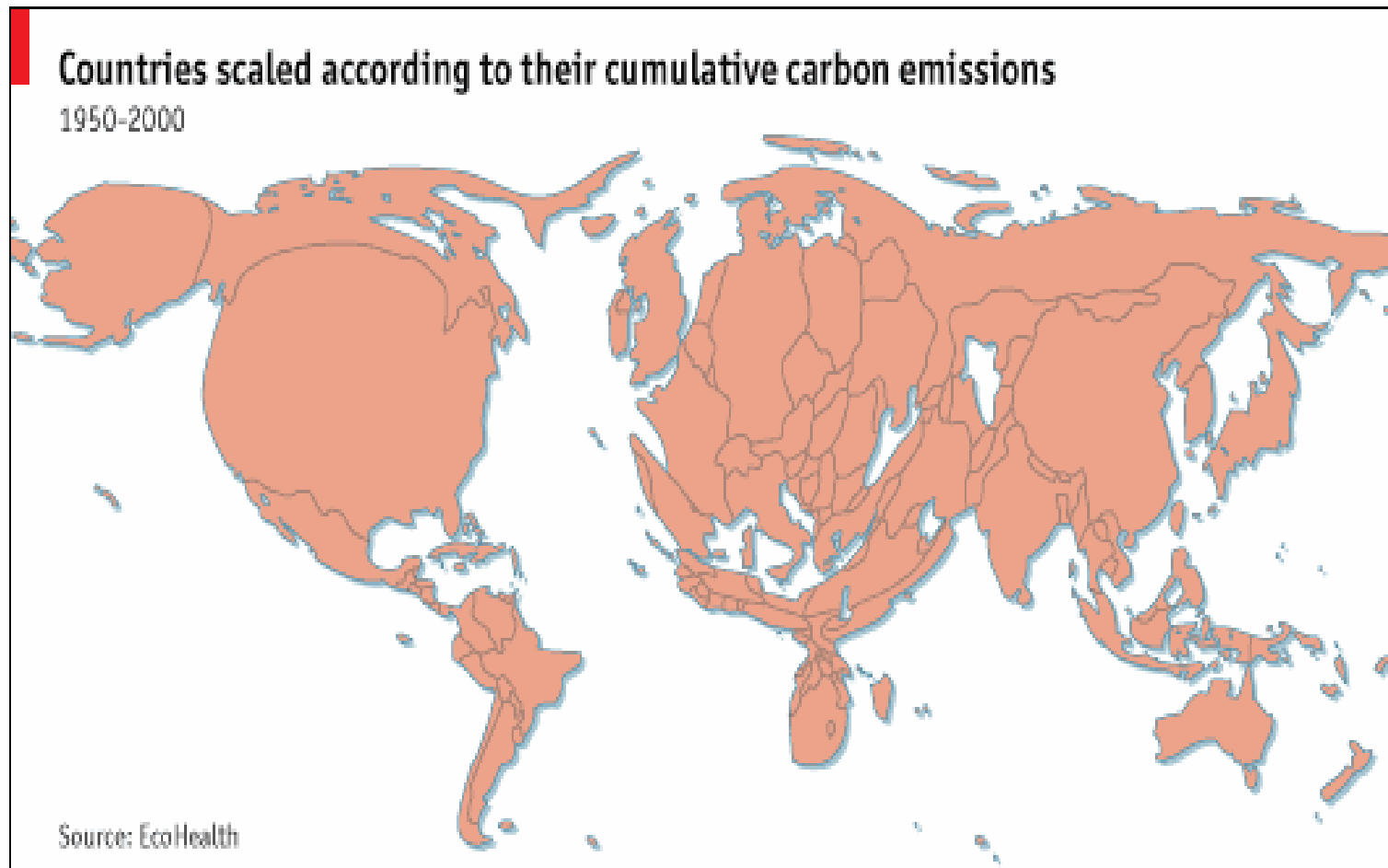


## **New opportunities or more competition for fiber ?? - - “climate change” ; energy security; and an expanding population**

- **Climate change** - - - brings new regulations & shifts in consumer behavior
  - Bio fuels markets
  - Carbon trading –
  - Green building programs
  - Substituting wood products for non wood products
  - Ecosystems market approach for non market values – biodiversity; conservation; nutrient cycling; climate regulation; outdoor recreation; ....

**Energy security, climate change, globalization, and expanding population all have the potential for increasing the value of our hardwood forests – will mean more competition for wood fiber and some fiber prices will increase.**

# U.S., Europe, and China are the biggest “polluters” of carbon emissions



Source: the Economist Sept 11, 2008

# **Carbon Trading Markets Opportunity for U.S. Landowners - maybe**

**Carbon trading is a market based mechanism for bringing buyers and sellers of carbon credits together**

## **How Forest landowners Benefit – the theory**

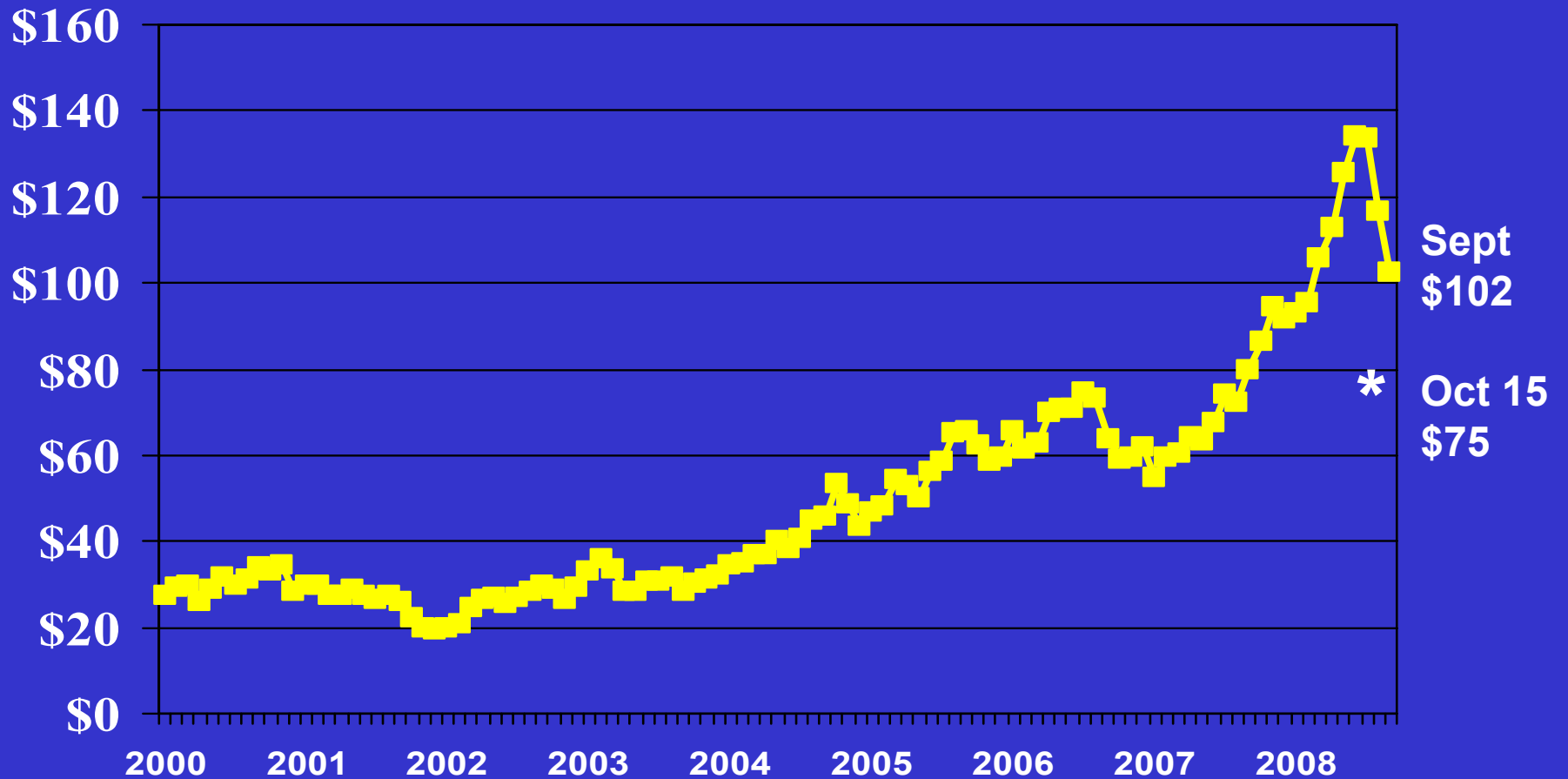
Landowner accumulate carbon credits by growing trees because trees store carbon

These credits can, potentially be sold, presumably to polluting industries – steel, aluminum manufacturing, power generating facilities,....

**Status of carbon trading – well along in Europe, but just talking here in North America & not talking in China**

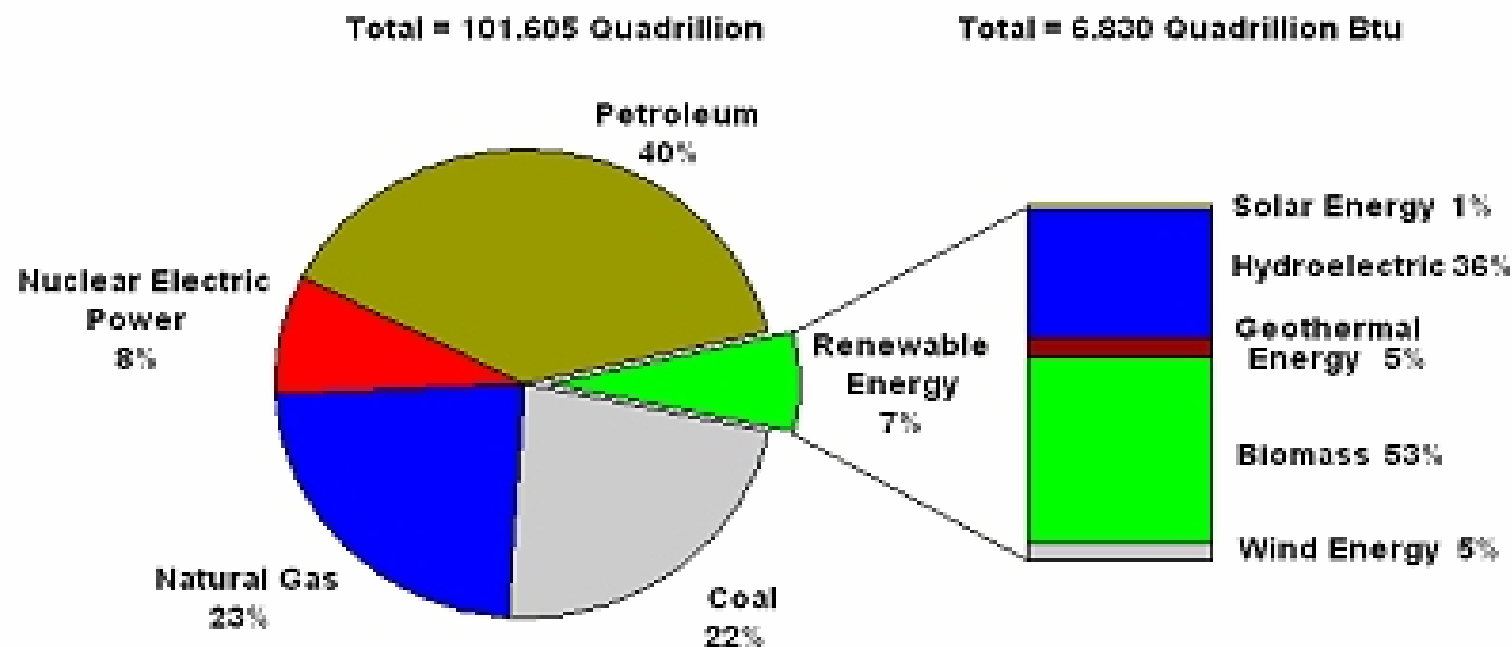
# Oil Prices

Monthly, \$/barrel – West Texas Intermediate



Source: ( [www.economagic.com](http://www.economagic.com) )

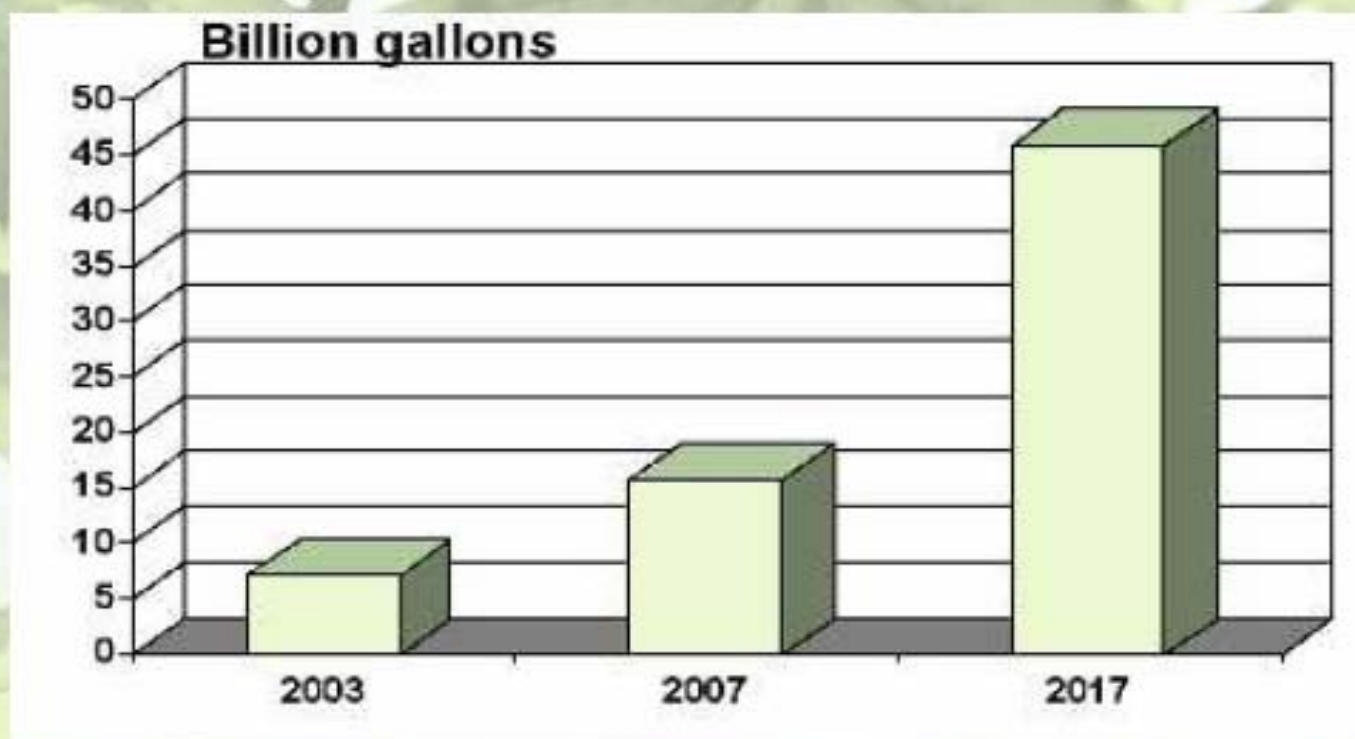
# The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2007



Source: EIA (<http://www.eia.doe.gov/neic/aboutEIA/aboutus.html>)

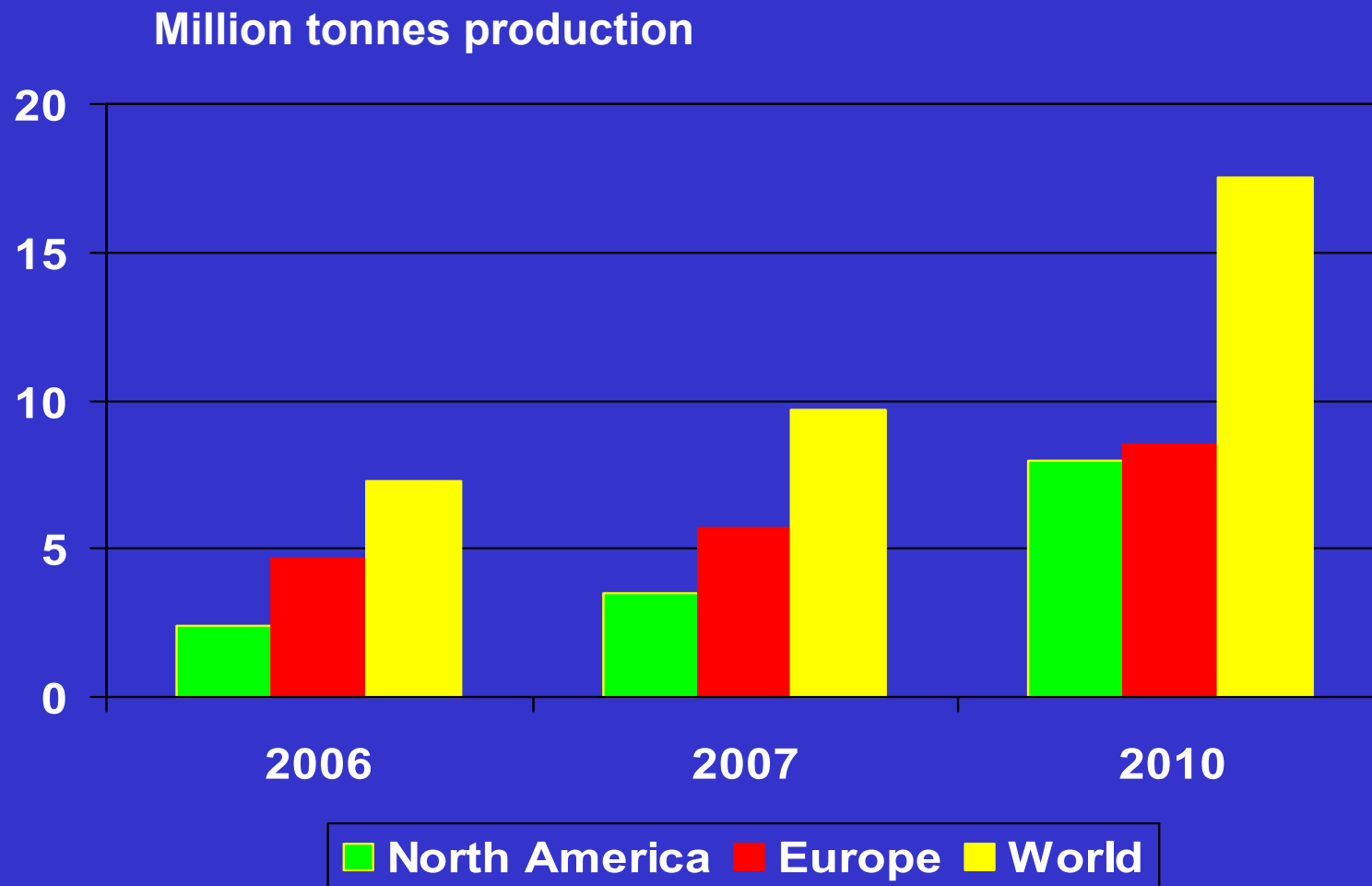
## Biofuels markets

*Figure 1. — Past and projected global production of biofuels, 2003-2017.*



*Source: Clean Edge, Inc. (2008)*

# Wood Pellet Market Growth



Source: Wood Markets, Sept 2008  
([www.woodmarkets.com](http://www.woodmarkets.com))

**Relative value of one cubic meter of wood  
as lumber, paper, pellets, and ethanol – these  
values will change as markets change!!!**

	Yield	Value (m <sup>3</sup> )
Framing Lumber	80	\$81
Paper	45	\$100-150
Pellets	90+	\$70
Ethanol	25	\$75

*Table 1. — Comparison of relative value of one cubic meter of wood as lumber, paper or energy products when nom. 2- by 4-inch (38- by 89-mm) by 2.4-m is valued at \$250/1000 bf, paper at \$650-\$975/ton, wood pellets at \$240/ton and ethanol at \$3.00 per gallon as of April 2008.*



# Green Building Trends

**Interest in Green building increases with standard of living – with globalization, incomes in India, China, .... will increase**

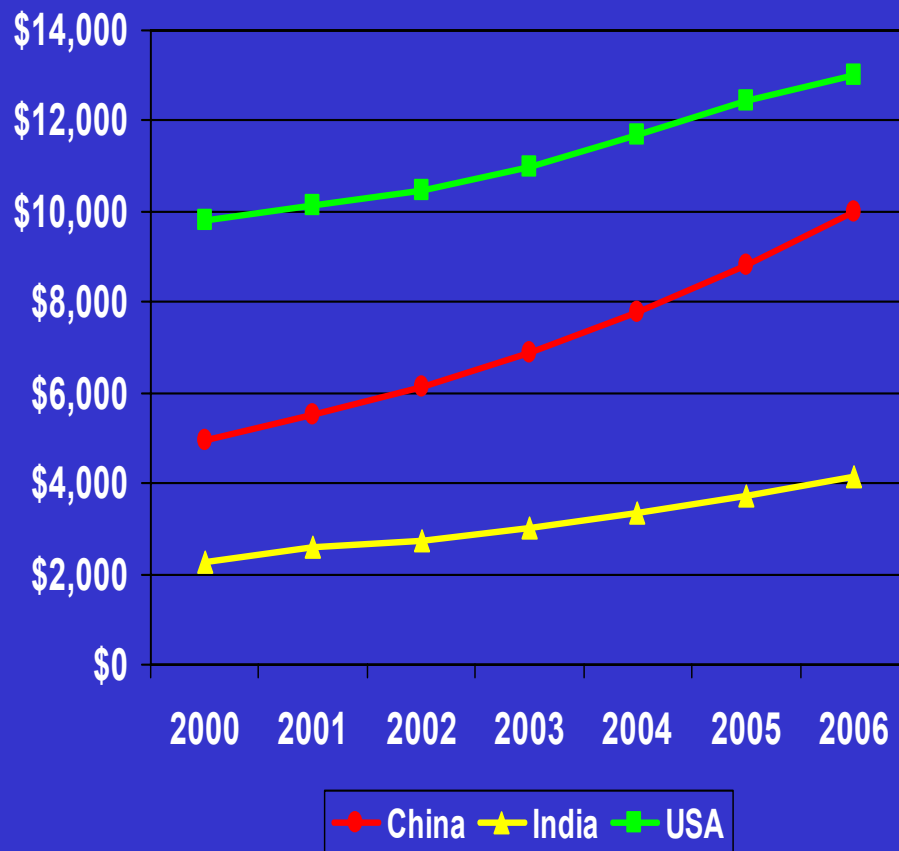
- Energy efficiency - Indoor air quality - Water efficiency - Resource efficiency
- Market for “green homes” is expected to increase from \$2 billion To \$20 billion over the next five years in the USA
- **Implications- World Market for green products will grow as world living standards improve – drives demand for wood products**

**IV. Globalization - - Economic Activity  
Shifting to Asia – creates export  
opportunities  
for U.S. Hardwood industry  
(if we're competitive)**

**Asia's growing wood  
deficit  
Globalization and  
hardwood log/lumber  
trade flows**

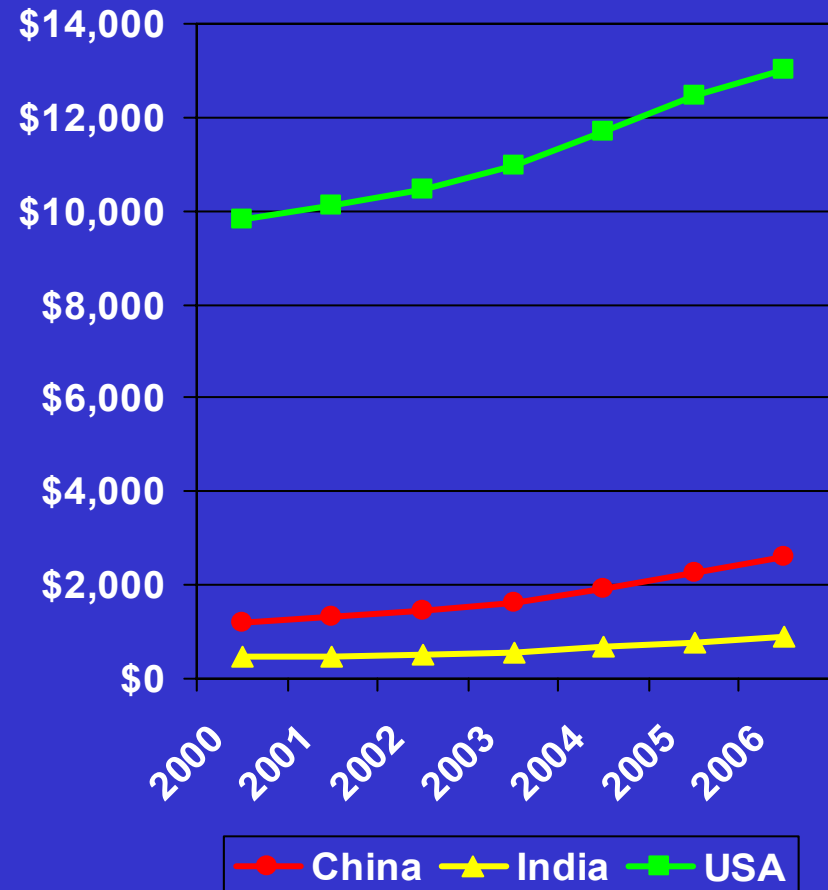
# GDP at Market Exchange Rates and PPP Billion US\$ - Impact on Wood Products?

## PPP\*



PPP – exchange rates adjusted to equalize cost of goods in different countries

## Market Exchange Rate



Source: IMF

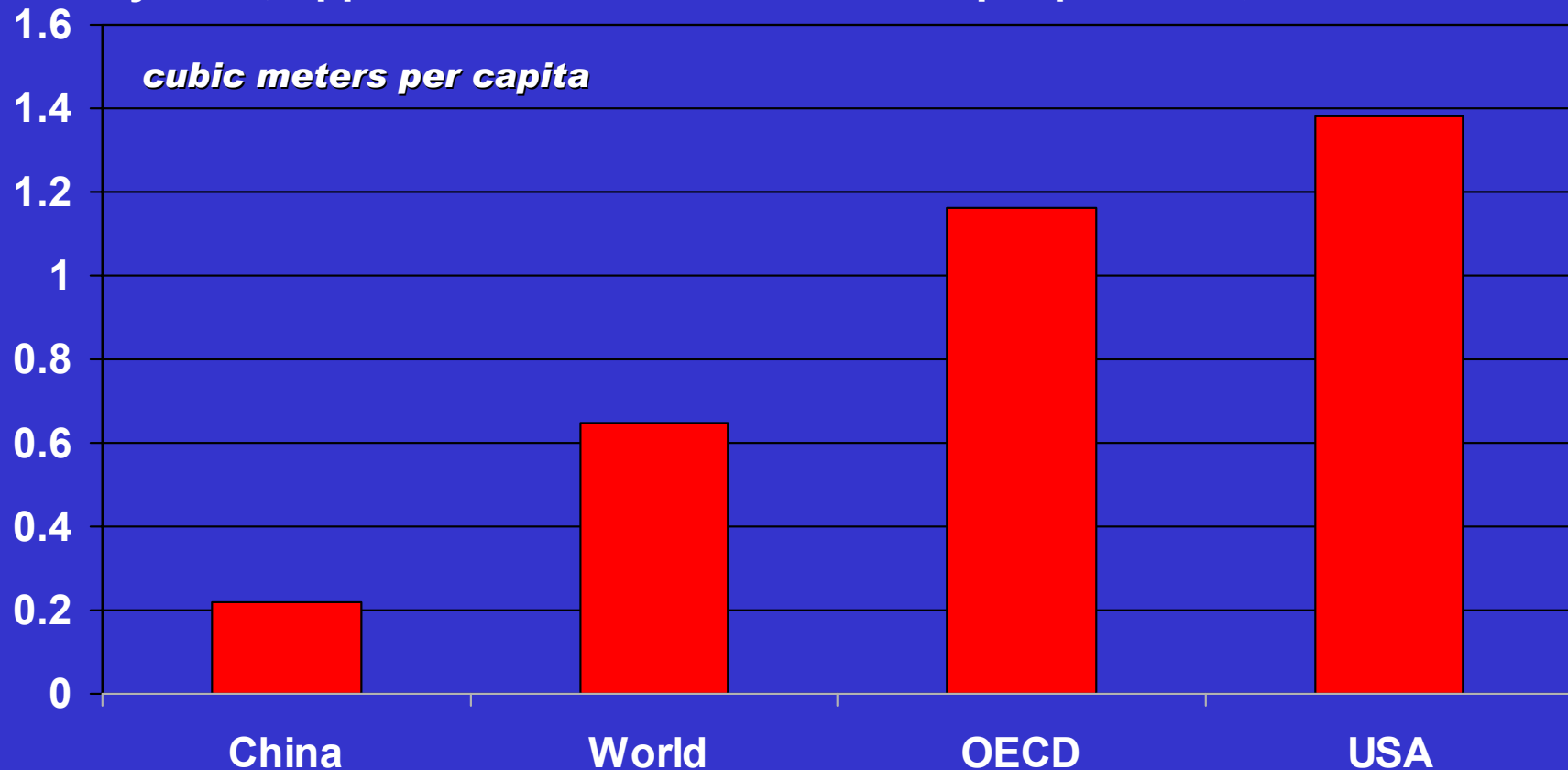
## Per Capita Wood Consumption

Lots of potential to export more wood products to China

Affluent population today ~13 million ~\$40,000 income (PPP)

By 2011, lower middle class ~ 290 million people with income ~ \$16,000

By 2025, upper middle class ~ 520 million people ~ \$25,000



Source: China Timber Import Export Co/Hardwoodmarkets.com 2003

## **China's rank in wood products global trade:**

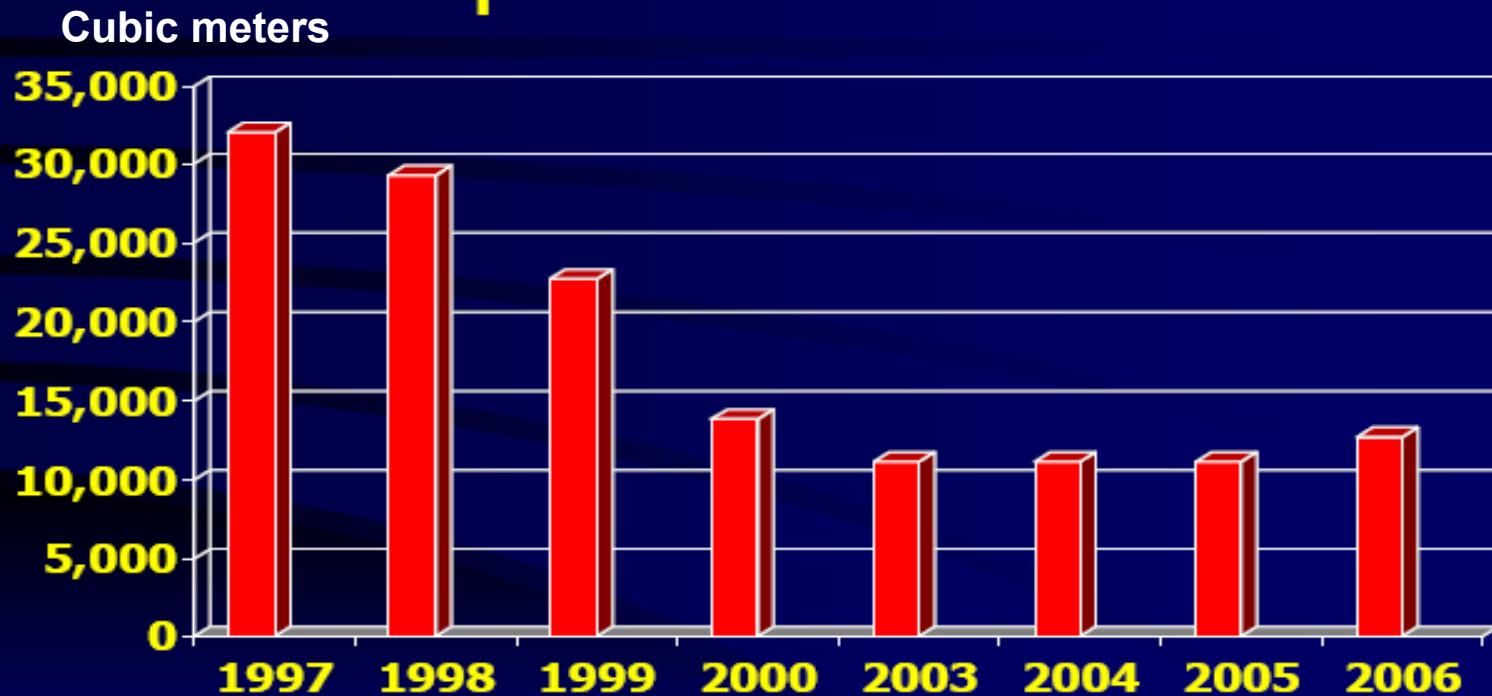
<b><u>Production:</u></b>	<b><u>Global Rank</u></b>
• Plywood	#1
• MDF	#1
• Blockboard	#1
• Furniture	#2
• Hardwood lumber	#2
• Particleboard	#3
• Softwood lumber	#4 (higher than Sweden)
• Finished Products	Soaring
• Imports	#2 (after the USA)
• Exports	#1

Source: Mike Snow, AHEC

## But, China Needs Fiber

NFCP – national forest conservation plan implemented in 1999  
following the Yangtze river flooding (damage intensified by deforestation)

### China Domestic Timber Output Under NFCP



Source: China Timber Import Export Co./FSA Consulting

**Plantations contribution to global industrial\* wood  
Production Is approaching 50% according to FAO  
What are implications for U.S. hardwood forests?**

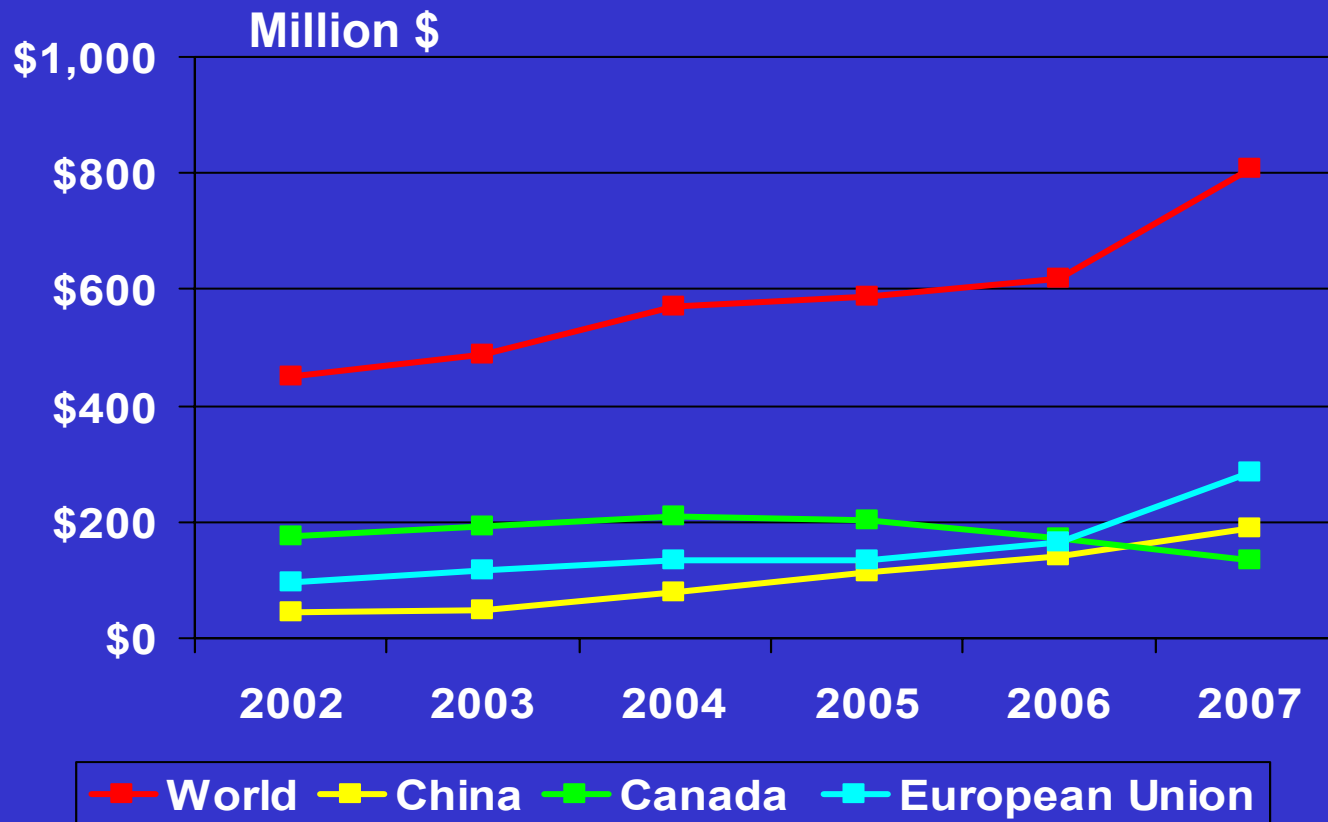
**Ten countries with largest area of planted forests,  
2005 (1 000 ha)**

<b>Country</b>	<b>Total</b>	<b>Productive</b>	<b>Protective</b>
China	71 326	54 102	17 224
India	30 028	17 134	12 894
United States of America	17 061	17 061	0
Russian Federation	16 963	11 888	5 075
Japan	10 321	0	10 321
Sweden	9 964	9 964	0
Poland	8 757	5 616	3 141
Sudan	6 619	5 677	943
Brazil	5 384	5 384	0
Finland	5 270	5 270	0
<b>Total</b>	<b>181 693</b>	<b>132 095</b>	<b>49 597</b>

\* Excludes firewood

Source: FAO – State of World's Forests - 2007

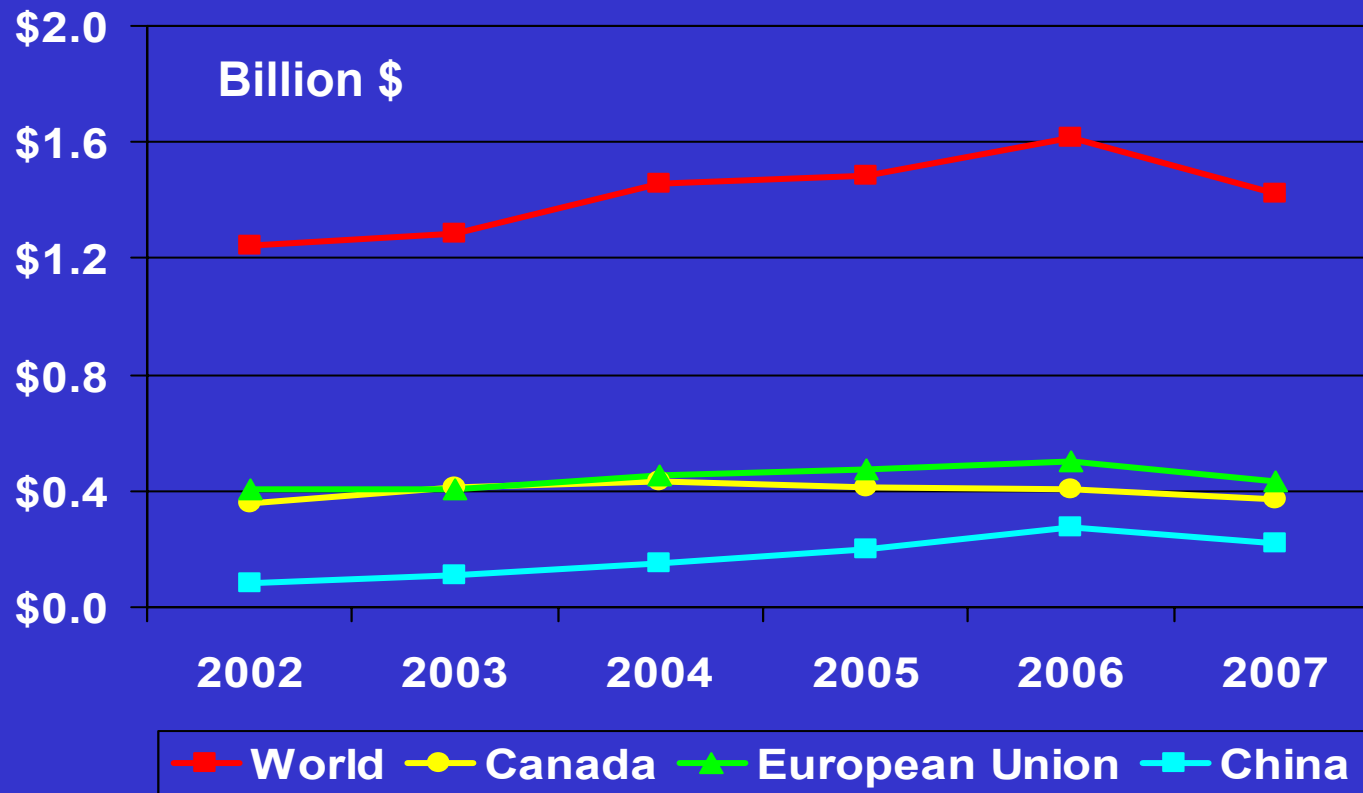
# U.S. Hardwood Log Exports



Source: FAS

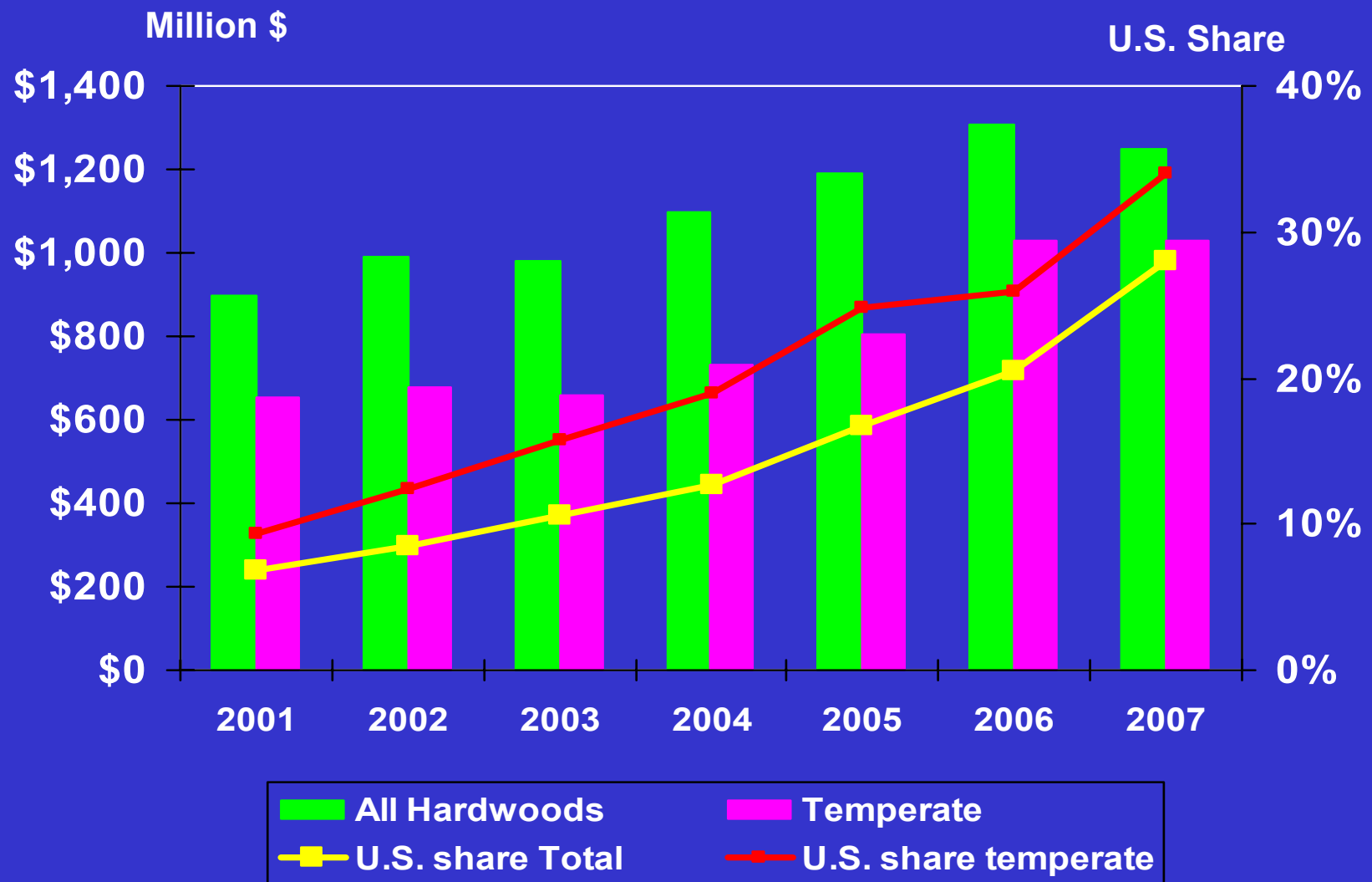


# U.S. Hardwood Lumber Exports



Source: FAS

# China's Hardwood Lumber Imports



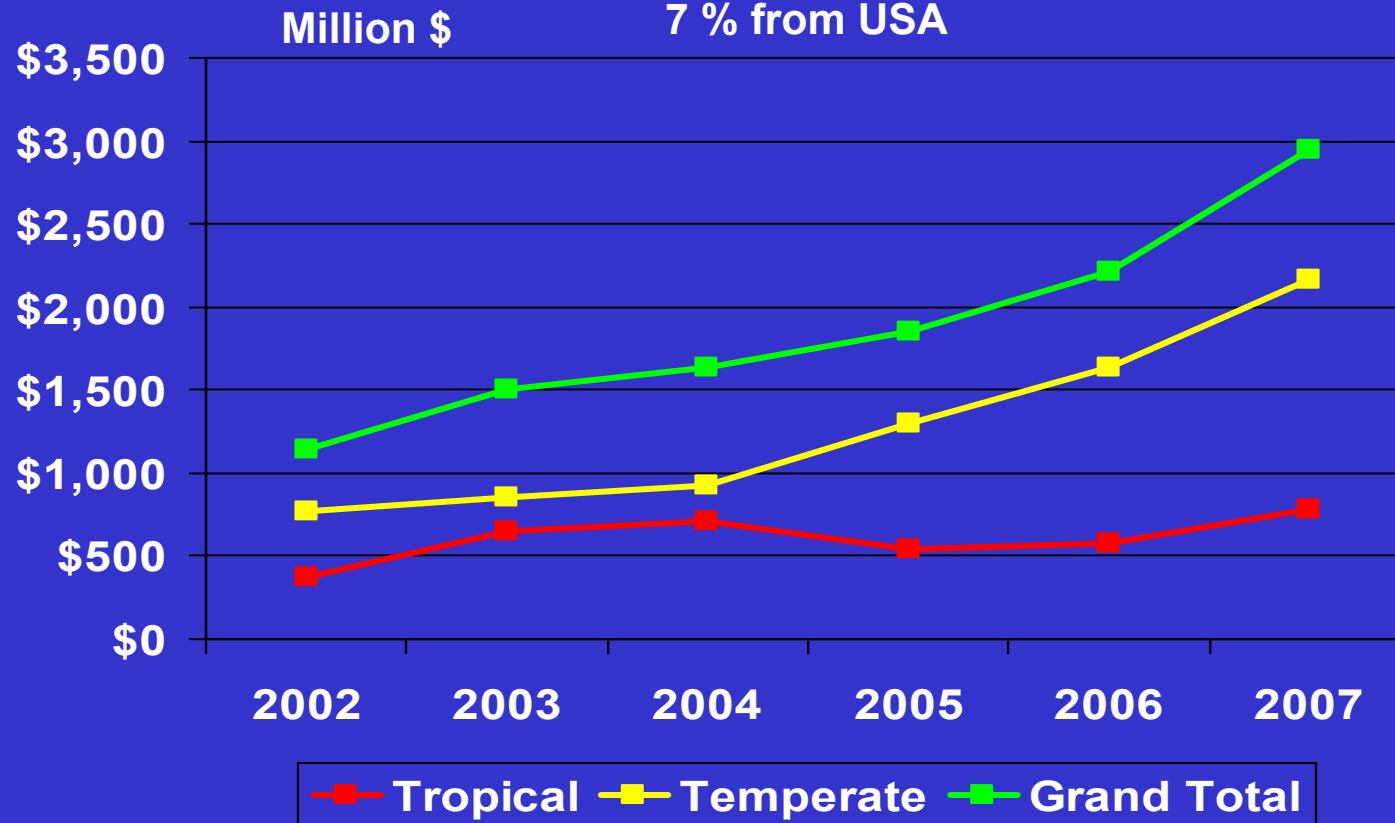
Source: Global Trade Atlas

# China's Hardwood Log Imports

In 2007 - -

25 % of temperate logs sourced from Russia

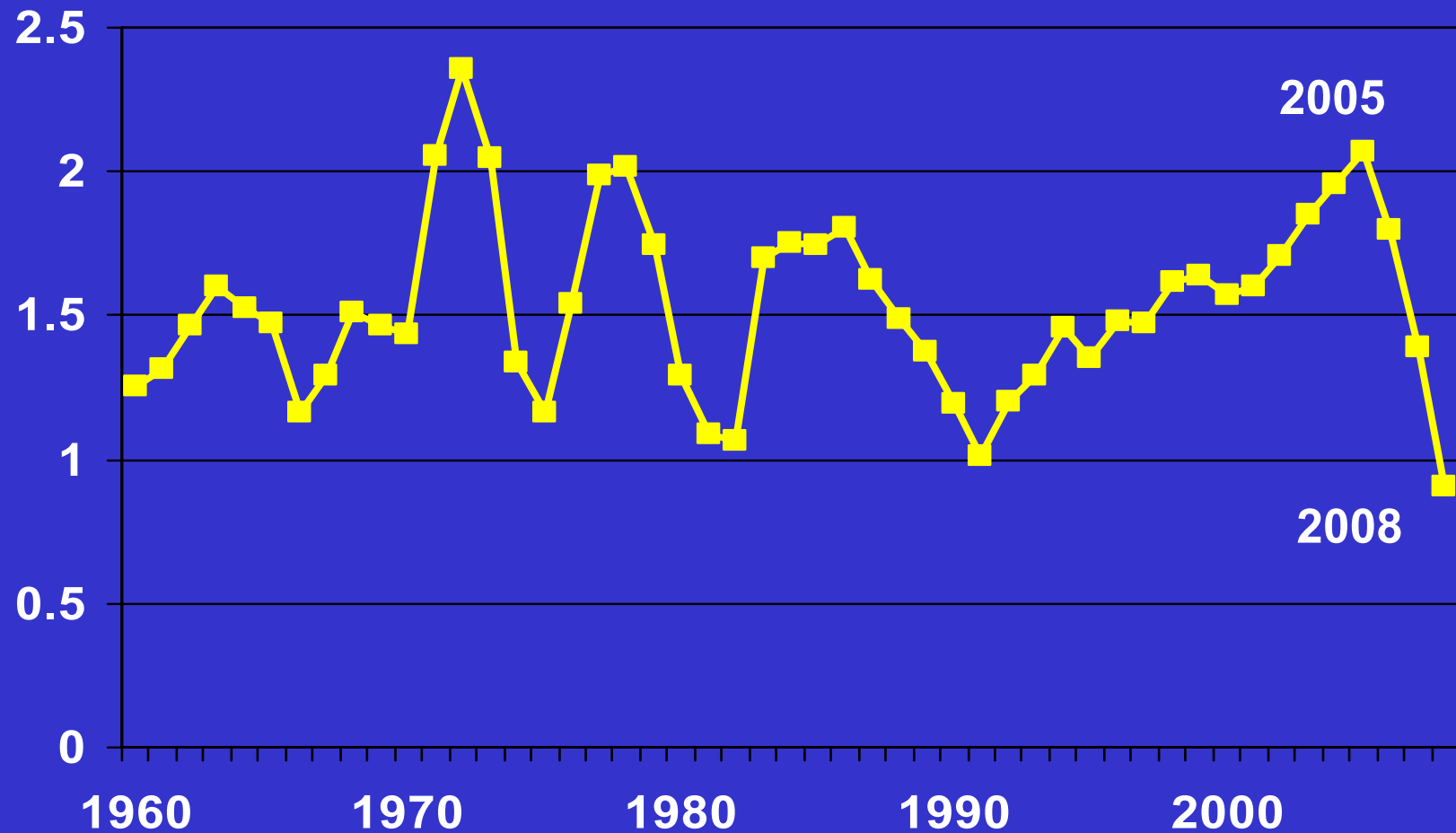
7 % from USA



Source: GTA

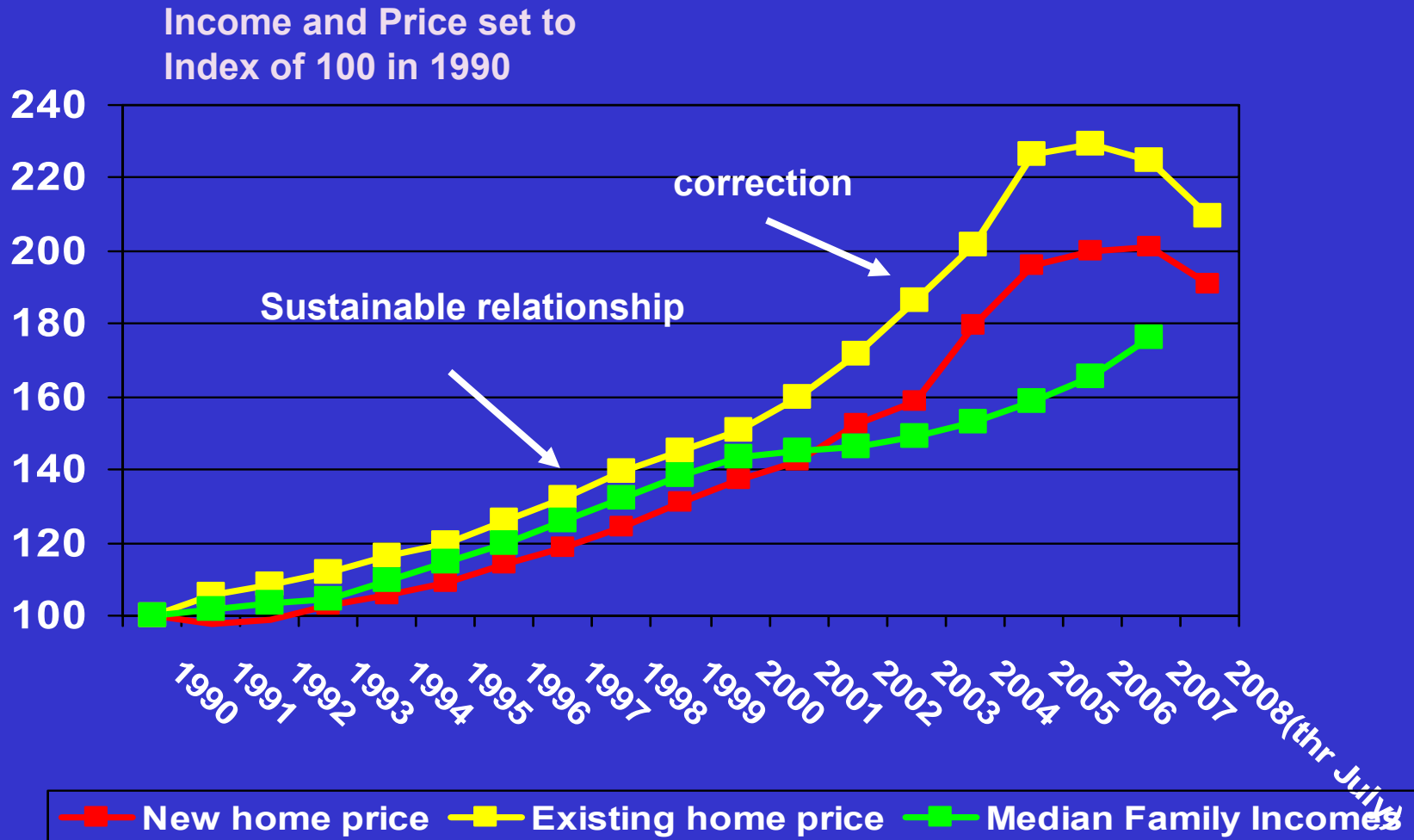
# **Housing markets and hardwoods**

# Housing Cycles – they have been with us for decades



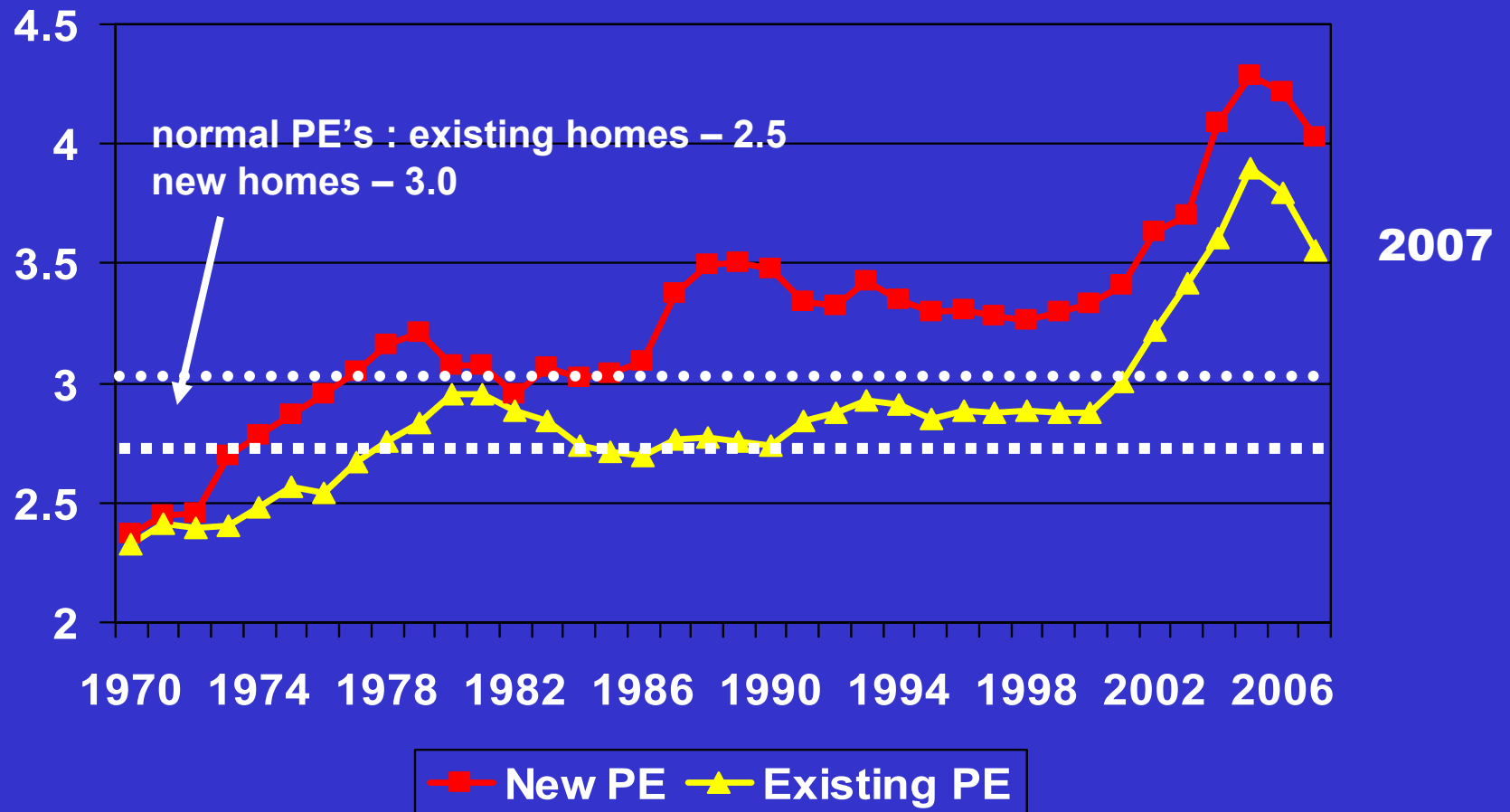
Source: NAHB

# **Prices and incomes must trend together** **- when price exceeds ability to pay ( incomes)** **prices must come down**



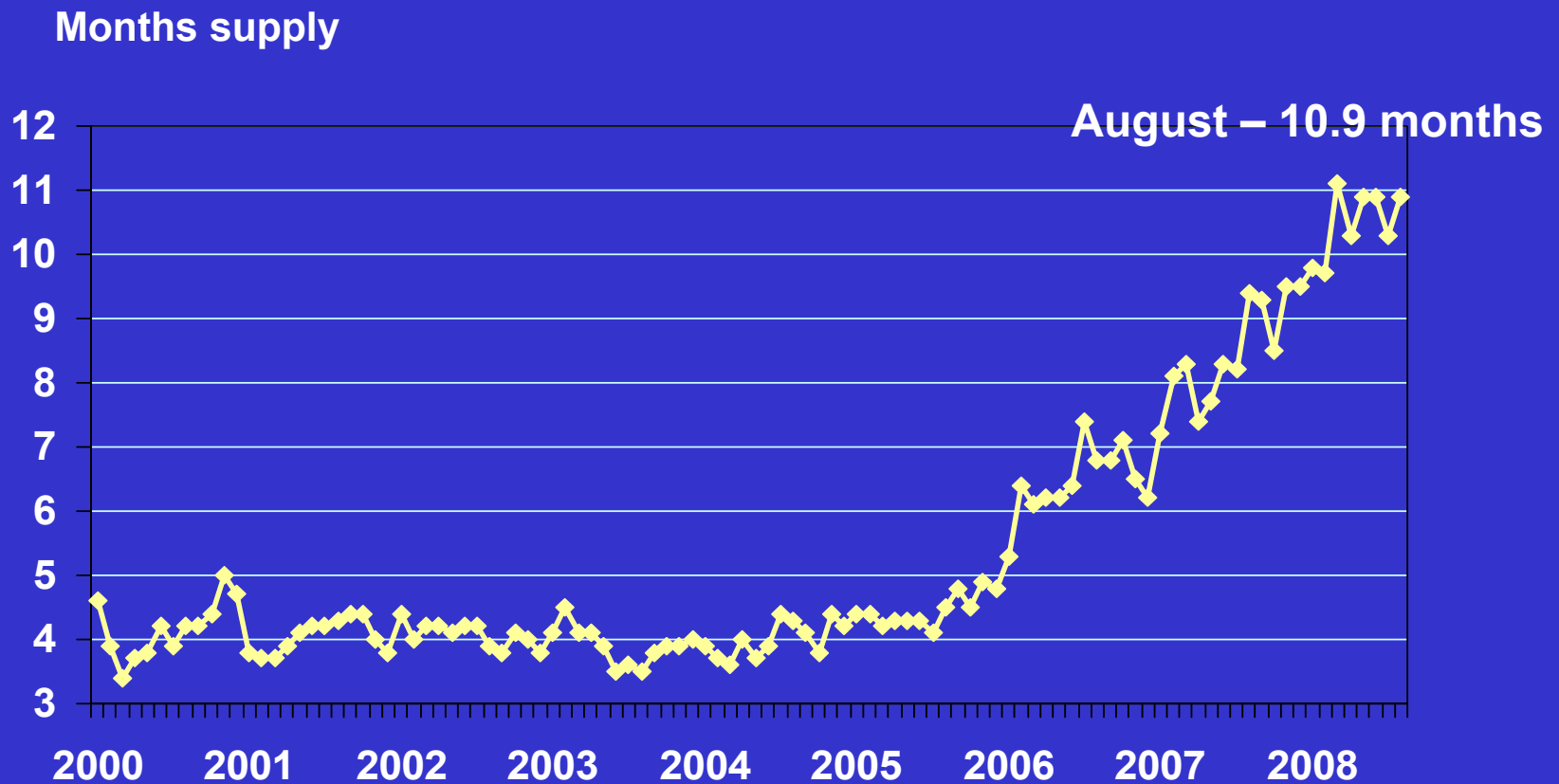
Sources: NAHB & NAR – Home prices; U.S. Census – family income

# Ratio median home prices to median family income



Source: Price – NAHB; family income - Census

# New Home Inventory

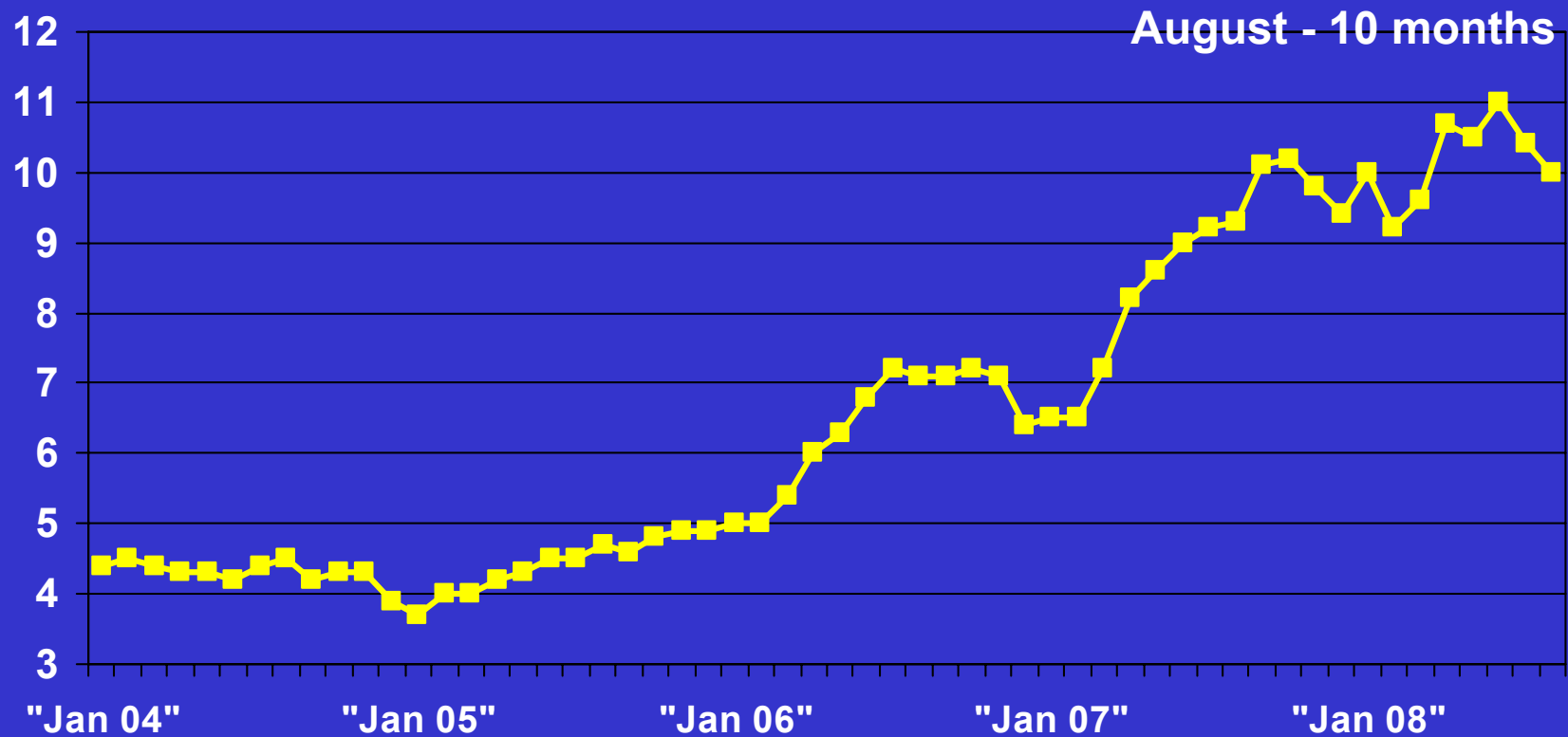


Source: U.S. Census Bureau, New Residential Sales, CB06, Table 1.



# Existing home inventory

Months Supply, Single Family



Source: NAR, NAHB

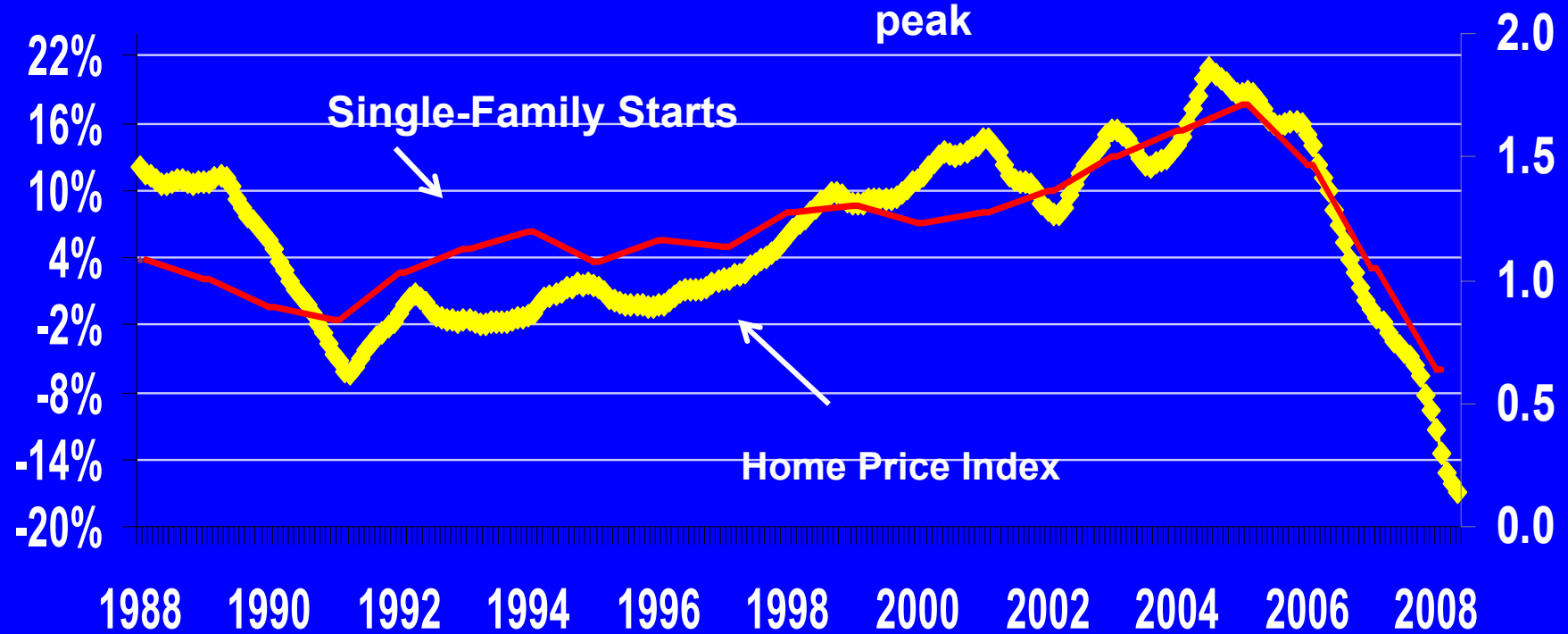
# Housing Starts & Prices

Price Index :  
% Change  
One year ago.

Starts off 62% from peak

Single-family  
Starts-MM

Prices off 21% from  
peak



Source: Prices-S&P Case-Shiller – 10 city index. Starts-U.S. Department of Commerce.

## **Housing Forecasts – Single family plus multi family - - most analysts believe 2010 is the beginning of a recovery –**

	<u>2008</u>	<u>2009</u>	<u>2010</u>
Natl. Assn. Realtors (Oct. '08)	.97	.84	.99
NAHB (Sept. '08)	.95	.81	1.01
APA (Aug. '08)	.91	.88	1.14
Economy.com (Oct. '08)	1.00	.90	?
Freddie Mac (Aug. '08)	.97	1.07	1.17
RISI (July '08)	1.00	1.16	1.55

**Average for 2008: .970 million**

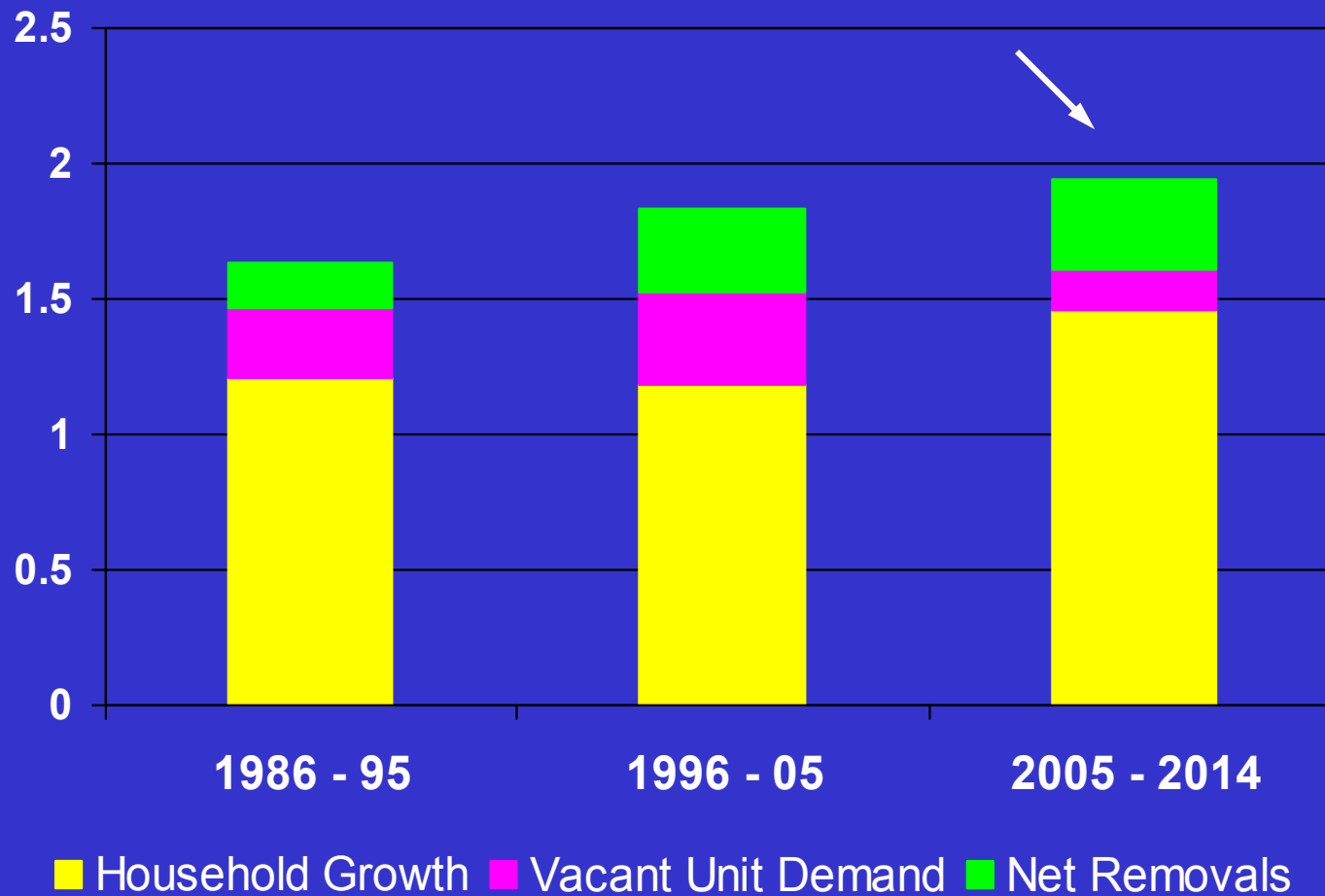
**Average for 2009: .940 million**

**Average for 2010: 1.17 million**

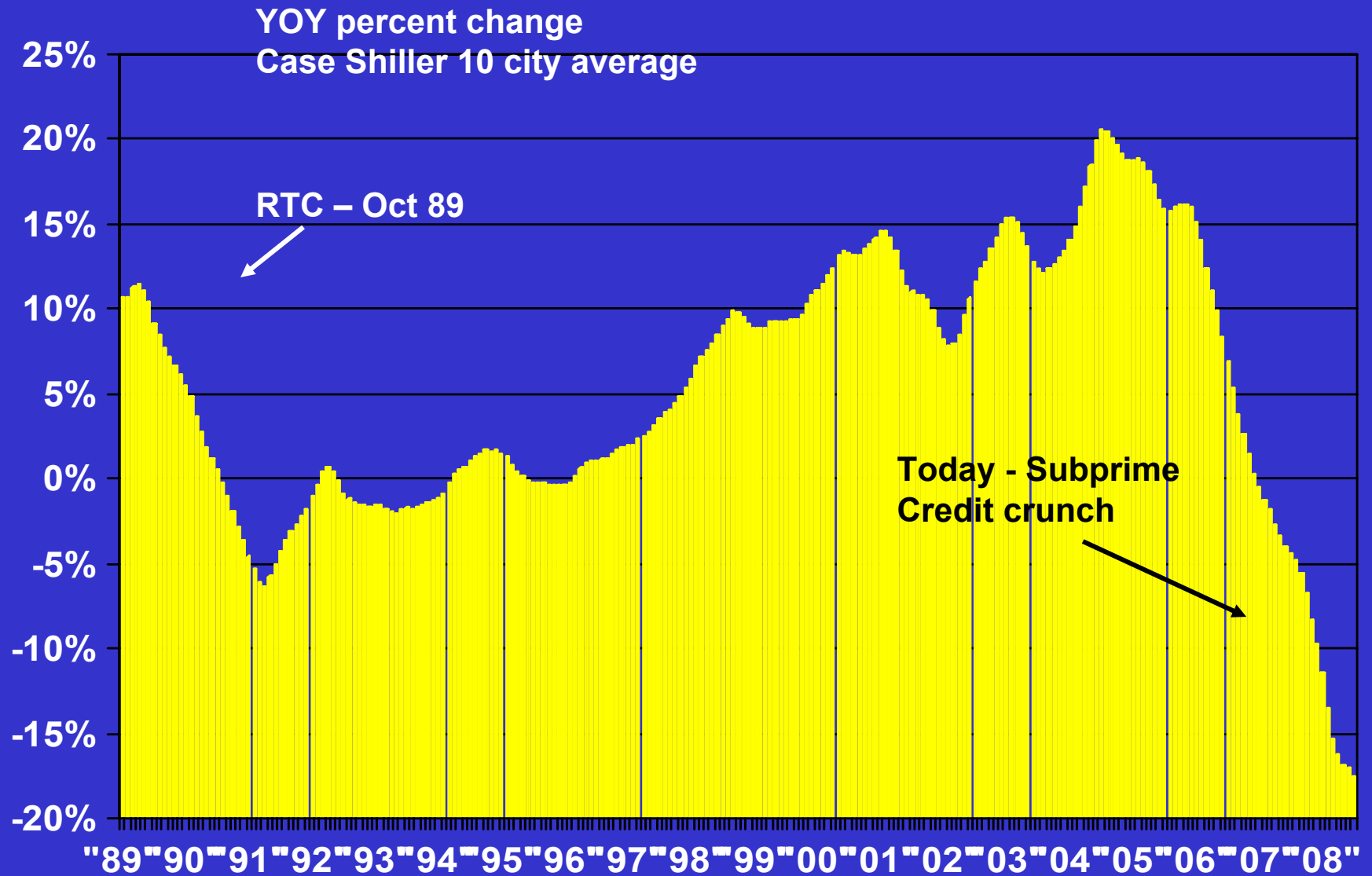
# Housing Demand Drivers - this decade could be better than the last

Million per year

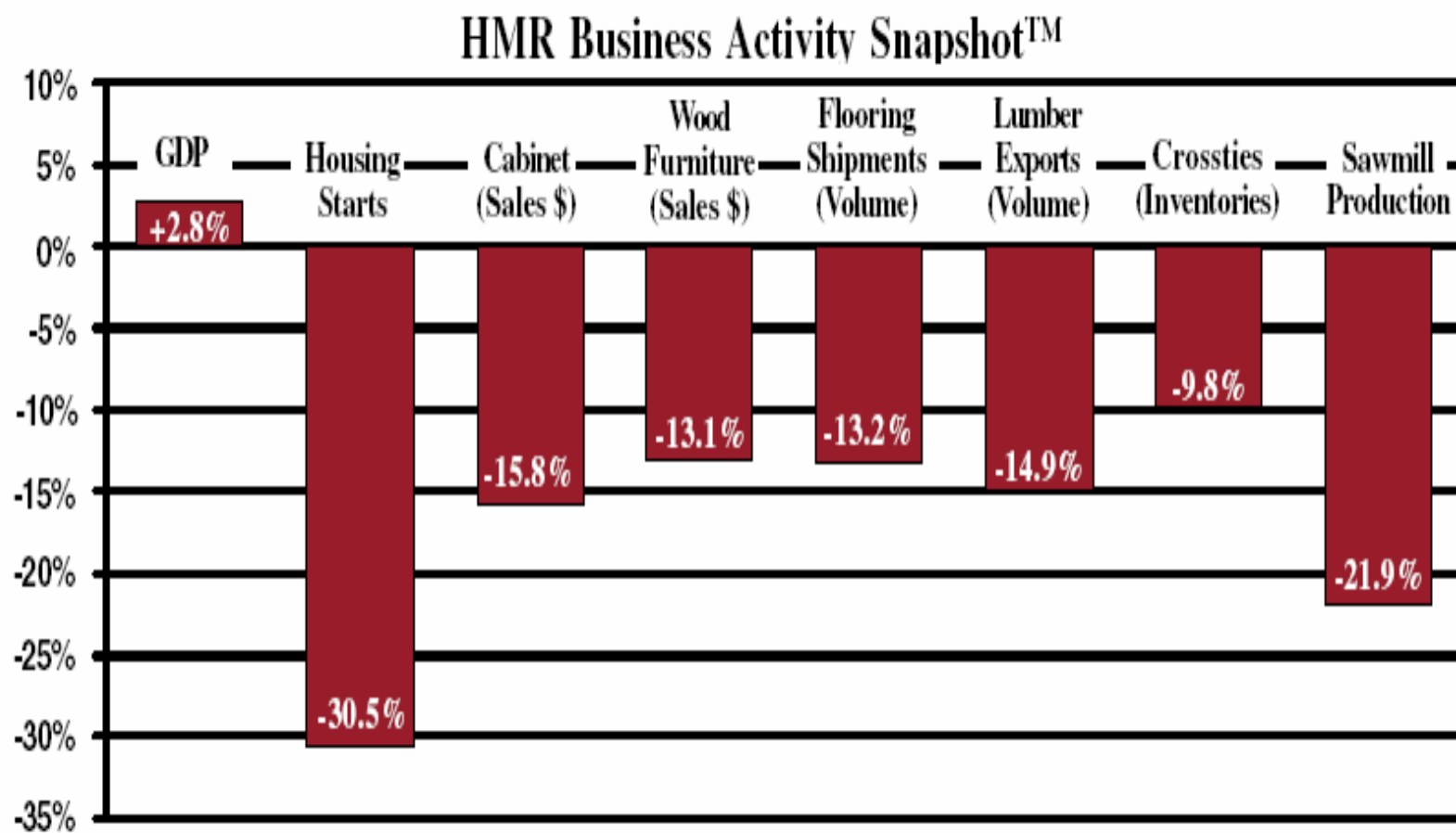
Harvard JCHR outlook ( Nov 2007)



# House Prices – RTC vs Today's Subprime Problems



# Housing and Wood Product Markets – strong linkages



Source: HMR Executive, October 2008

## 65 fewer sawmills operating in WV today versus 2 years ago – weak housing & fewer exports are culprits – Sept 2008

# Charleston Daily Mail


Thursday October 16, 2008 12:11 pm DAILYMAIL.COM

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**TODAY'S CELEBRITY PHOTO SLIDESHOW**



### State News

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*Monday September 15, 2008*

## State's timber industry taking a beating from housing, import declines

by [Justin D. Anderson](#)  
Daily Mail Capitol Reporter

CHARLESTON, W.Va. -- Sawmill operators are telling state Forester Randy Dye these are some of the worst times in recent memory for the state's \$4 billion timber business.

"When the market turned, it turned very quickly downward," Dye said. "It kind of caught people by surprise."

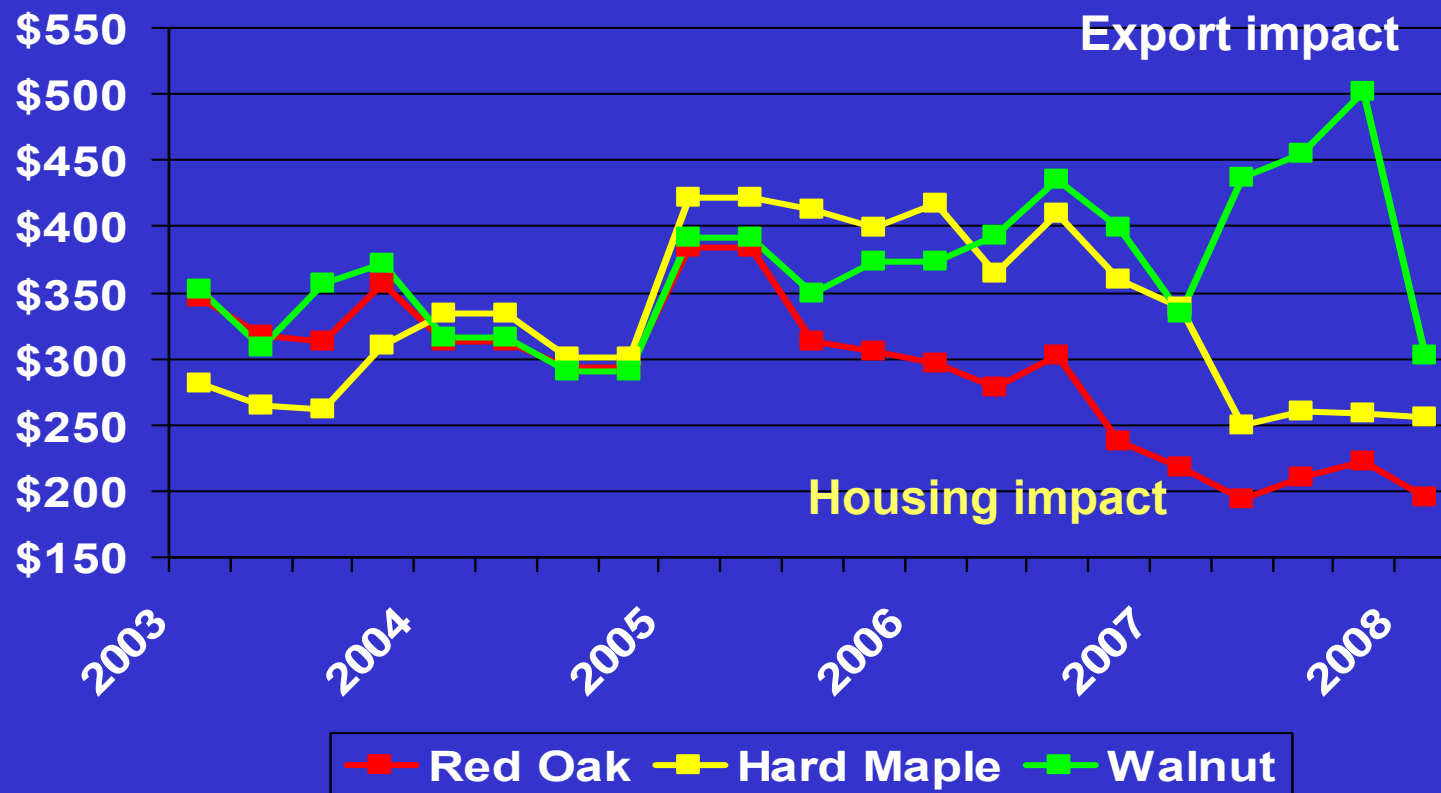
There are about 65 fewer sawmills running in West Virginia today than there were only two years ago, according to the state Division of Forestry. The most recent count was about 127.

And those mills still operating are finding it hard to find skilled loggers - who are shifting to the more lucrative coal, gas and oil jobs, Dye said.

Certified loggers in the state declined from 1,141 in 2004 to 932 this year. That's a five-year low.

# WV Hardwood Stumpage Prices

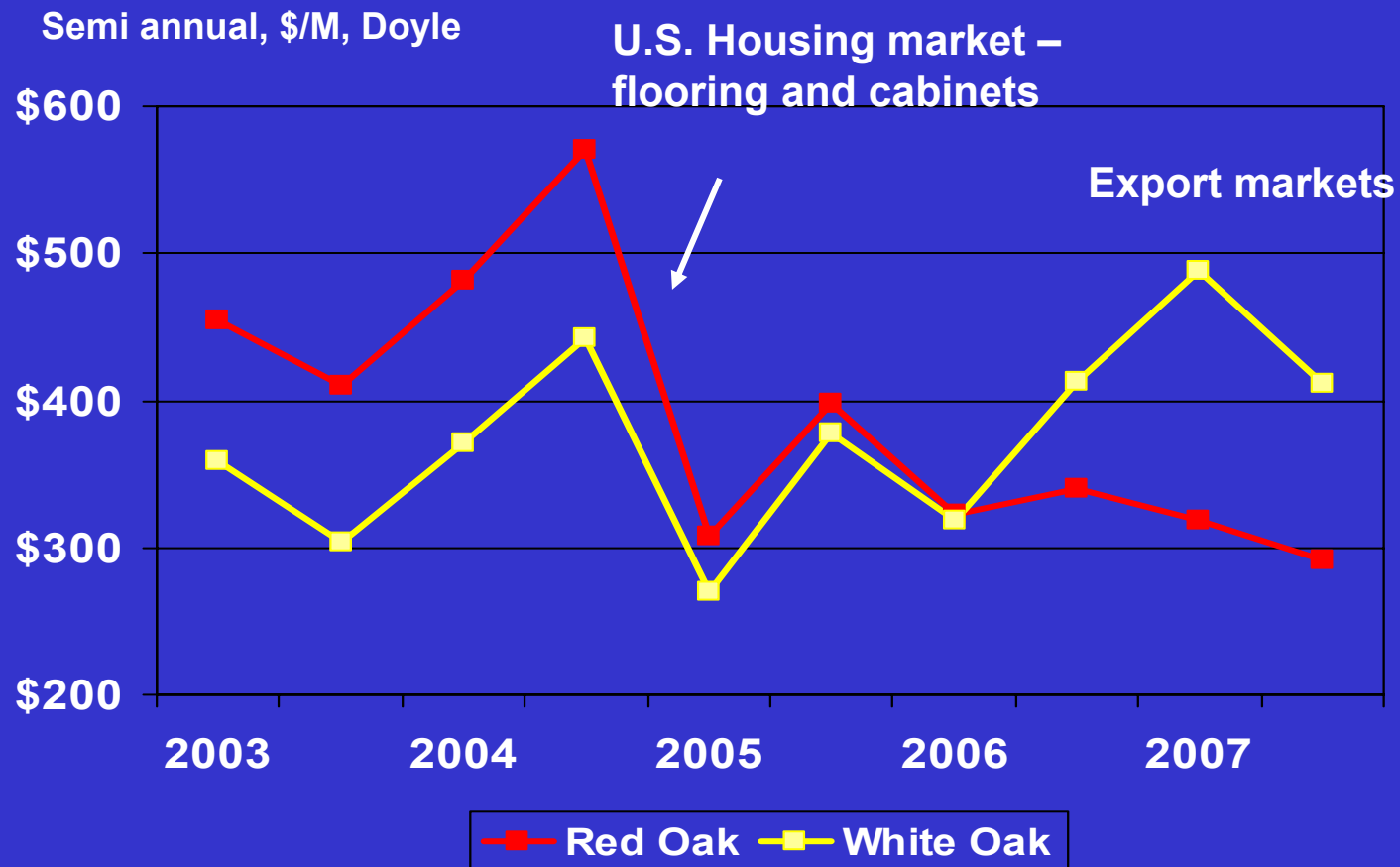
Qtr, \$/M, International



Source: WVU AHC



# Ohio Stumpage Prices



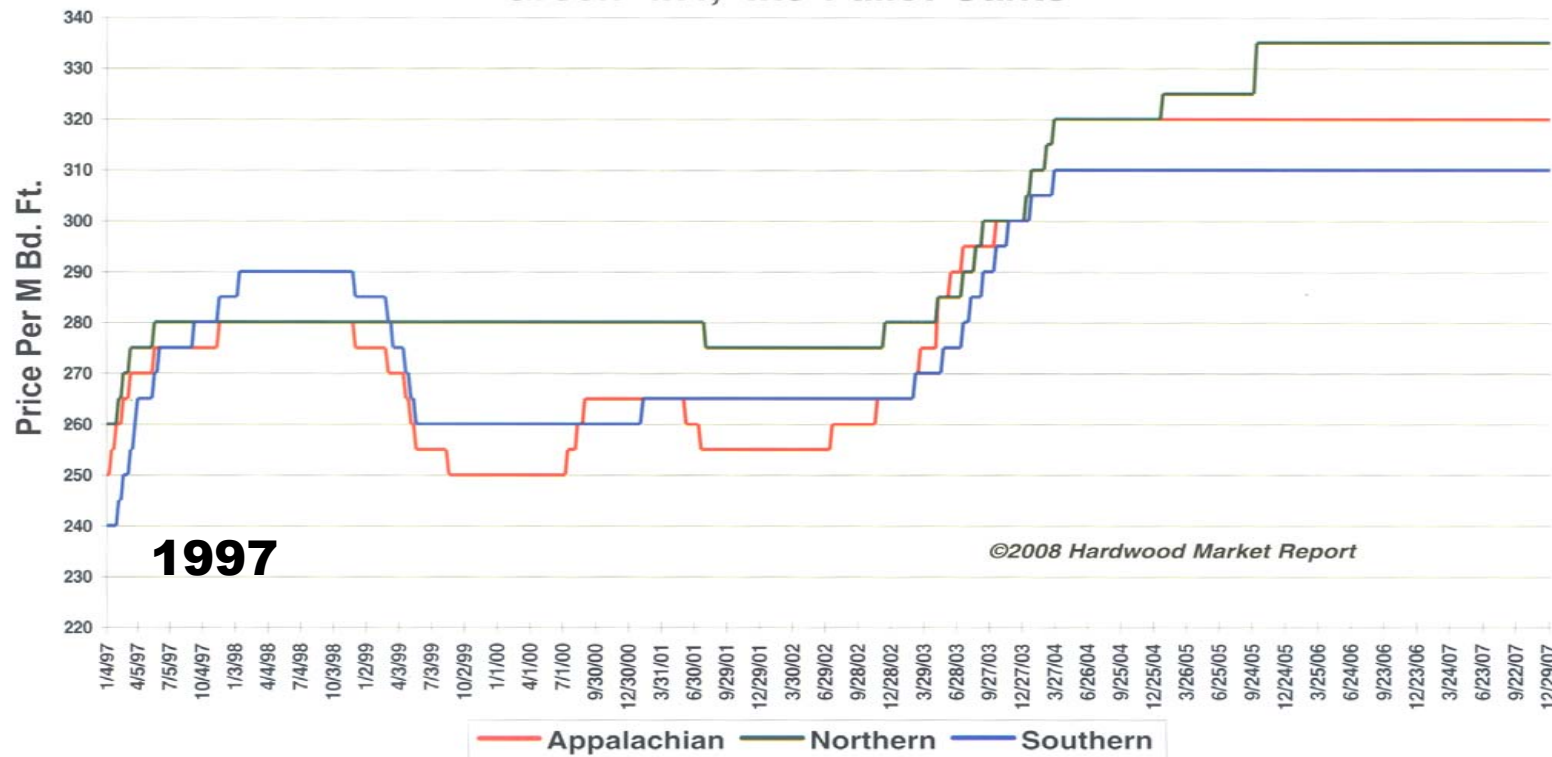
Source; Ohio Dept Natural Resources

# Strong export markets drive pallet cant demand

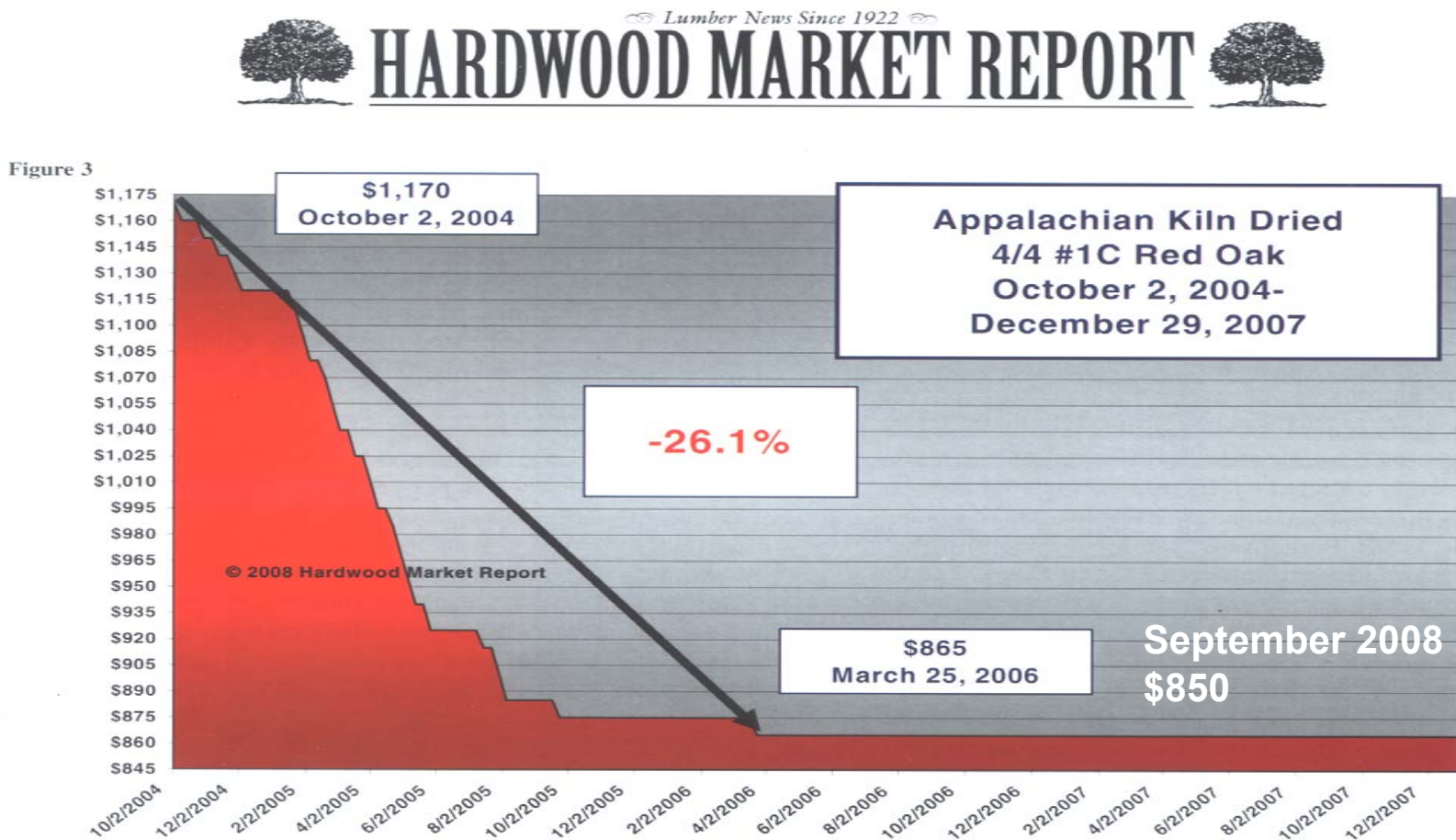


**2007**

Northern, Appalachian and Southern  
Green 4x4, 4x6 Pallet Cants



# Weak Housing = weaker cabinet & flooring demand Which Drive KD red oak prices lower



Source; Hardwood Market Report

# **The Importance of Sound Strategic Planning**

Toyota Prius sales pass Ford Explorer in US in 2007

Toyota saw higher gasoline prices – Ford & GM had access  
To the same information, but drew the wrong conclusions

*What trend, already out there, will impact wood use*

*Over the next decade??? – Green Building - - Certification –*

*Russian log export tax?*

*Climate change? – Wood based Biofuels? –*

*How can your business benefit?? How can you mitigate  
problems*

## Concluding thoughts

- Globalization factors forcing U.S. to “rethink competitive strategies” as U.S. secondary industry loses market share
- Future fiber prices to increase
  - convergence of markets for fuel, fiber, and other forest products
  - structural changes in world log markets as Russia hikes export tariffs
  - forest ownership transfers
  - Asia’s growing wood deficit
- Center of Economic activity moving to Asia
- Housing crisis impacts hardwood industry

**Best strategy for future - Do what you can do better than anyone else!!!!**