PANEL PRODUCTS: A PERSPECTIVE FROM FURNITURE AND CABINET MANUFACTURERS IN THE SOUTHERN UNITED STATES

Qinglin Wu
Associate Professor
Wood Processing & Technology

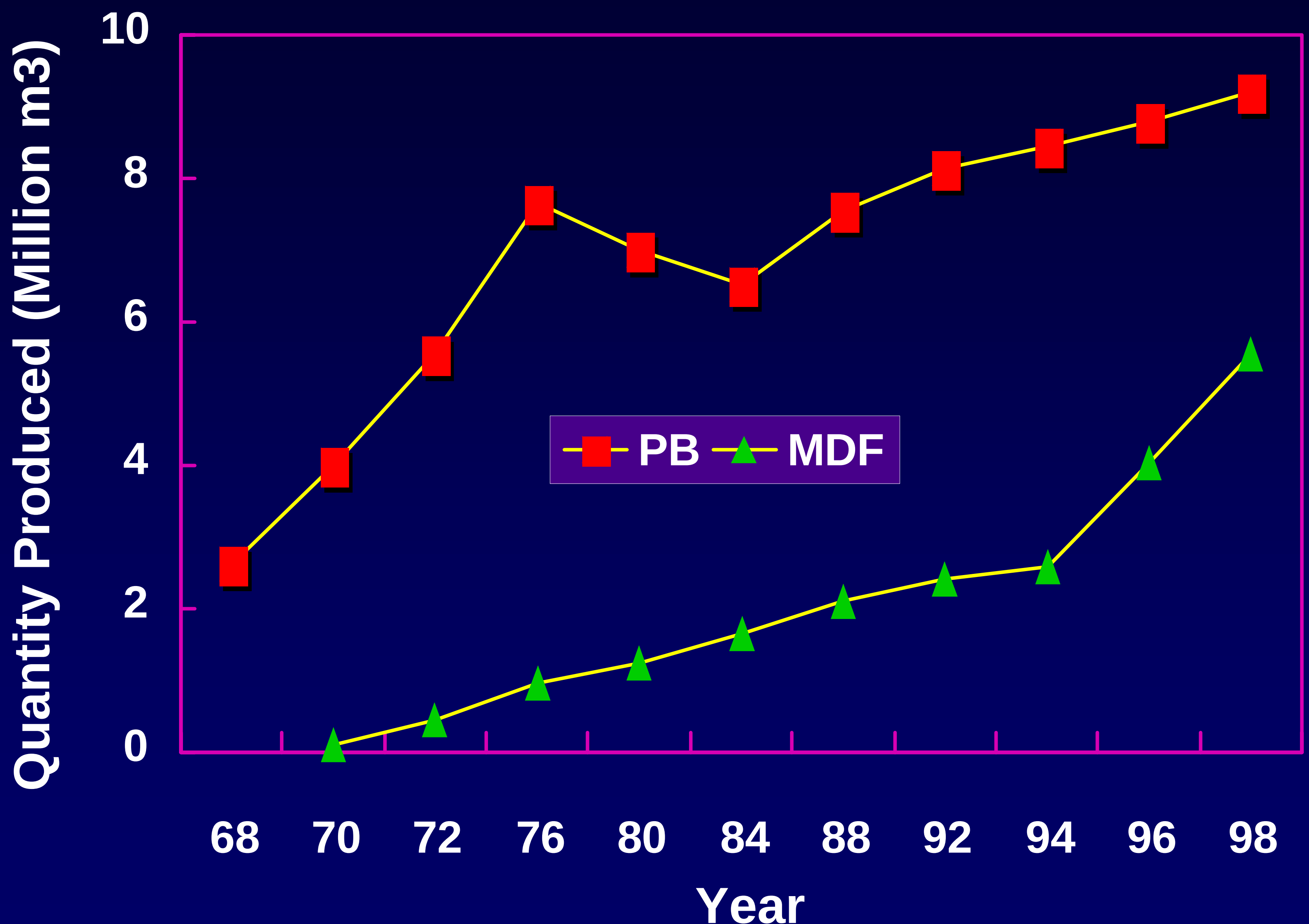
Richard Vlosky
Associate Professor
Forest Products Marketing

LSU AgCenter
Research & Extension

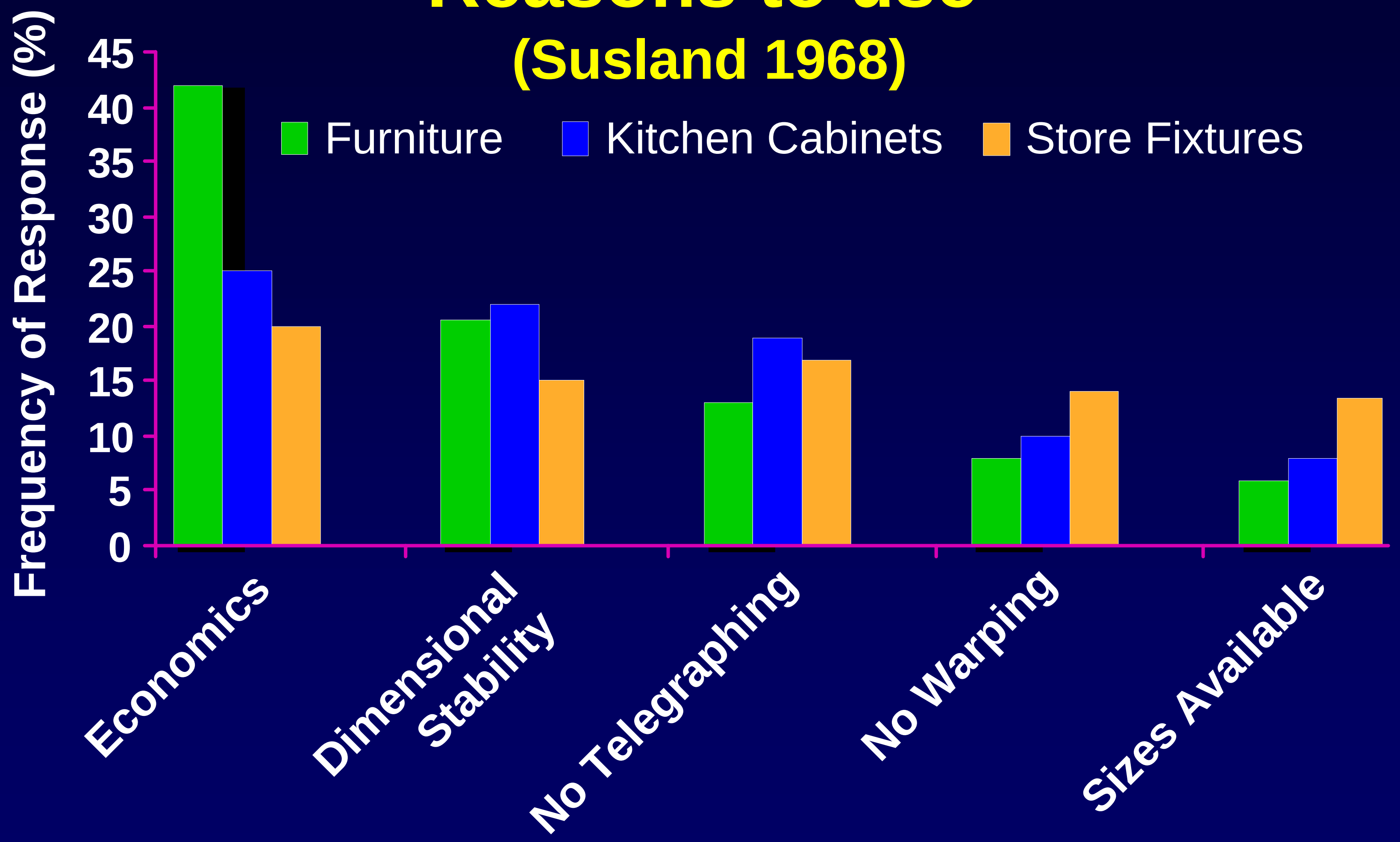
Background

- History of Products Development
- Early Work by Dr. Suchsland
- Other Recent Related Work
- Scope of This Study

Particleboard/MDF Industry Development



Particleboard
Reasons to use
(Susland 1968)



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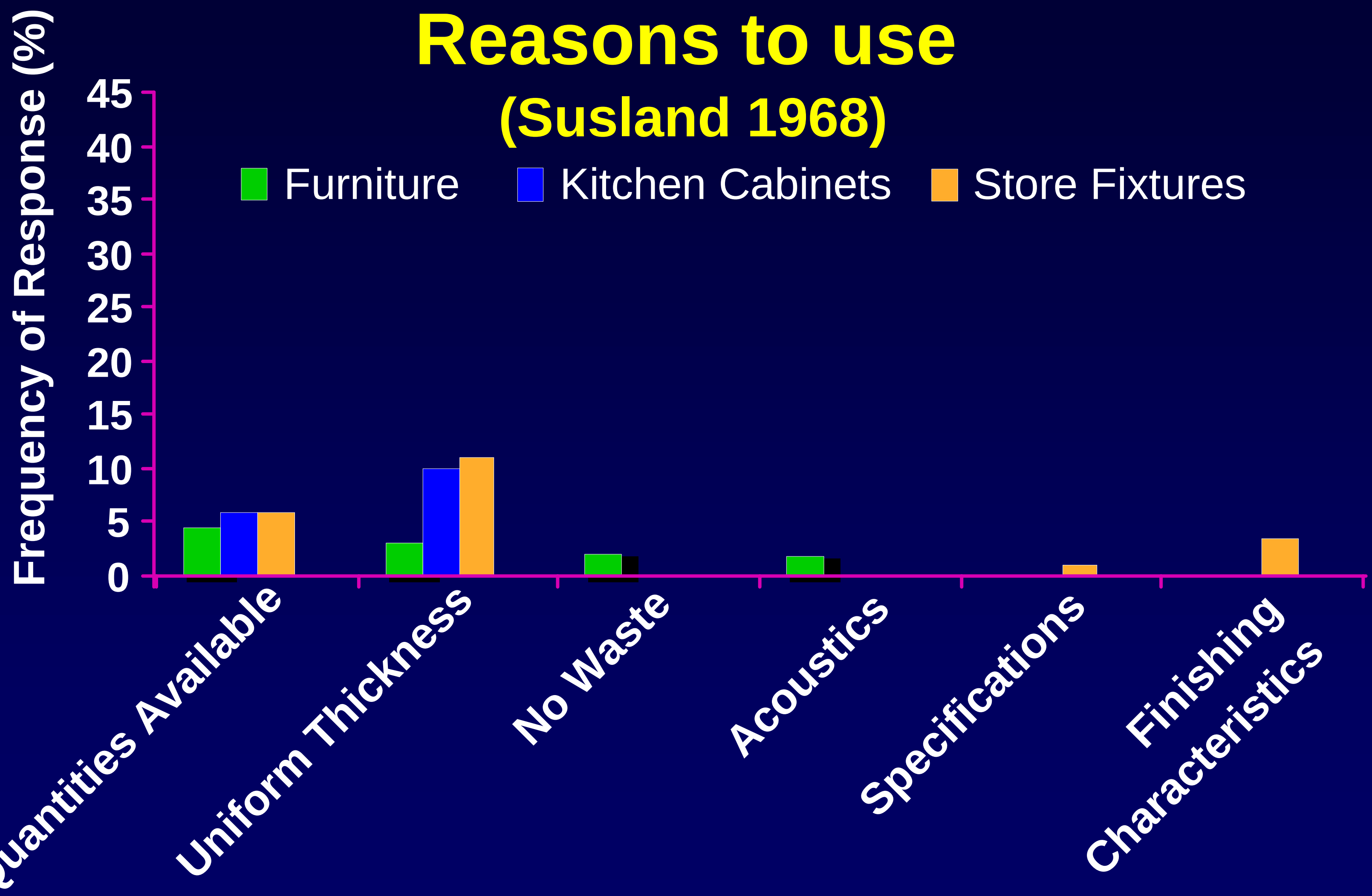
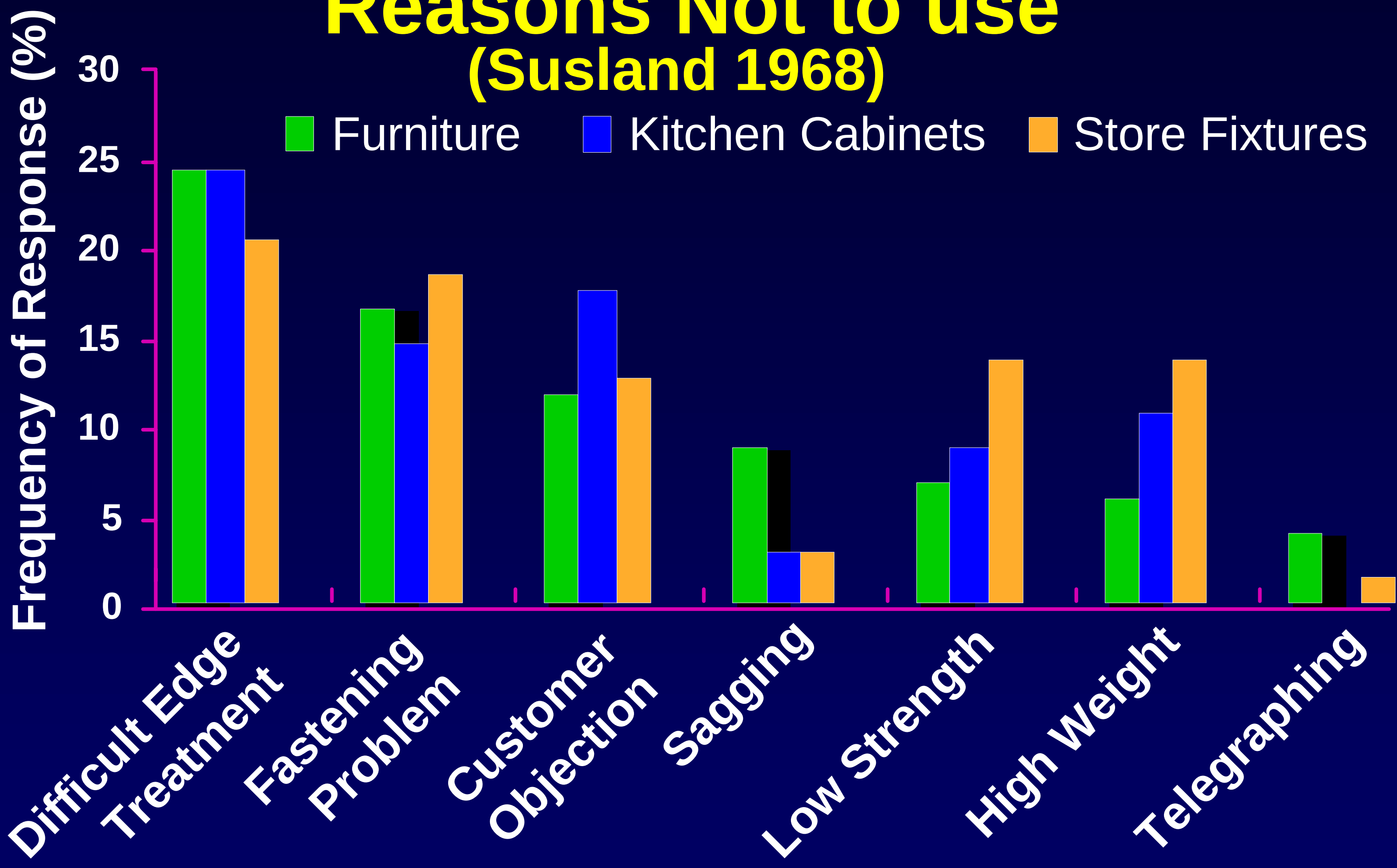


Particleboard Reasons Not to use
(Susland 1968)



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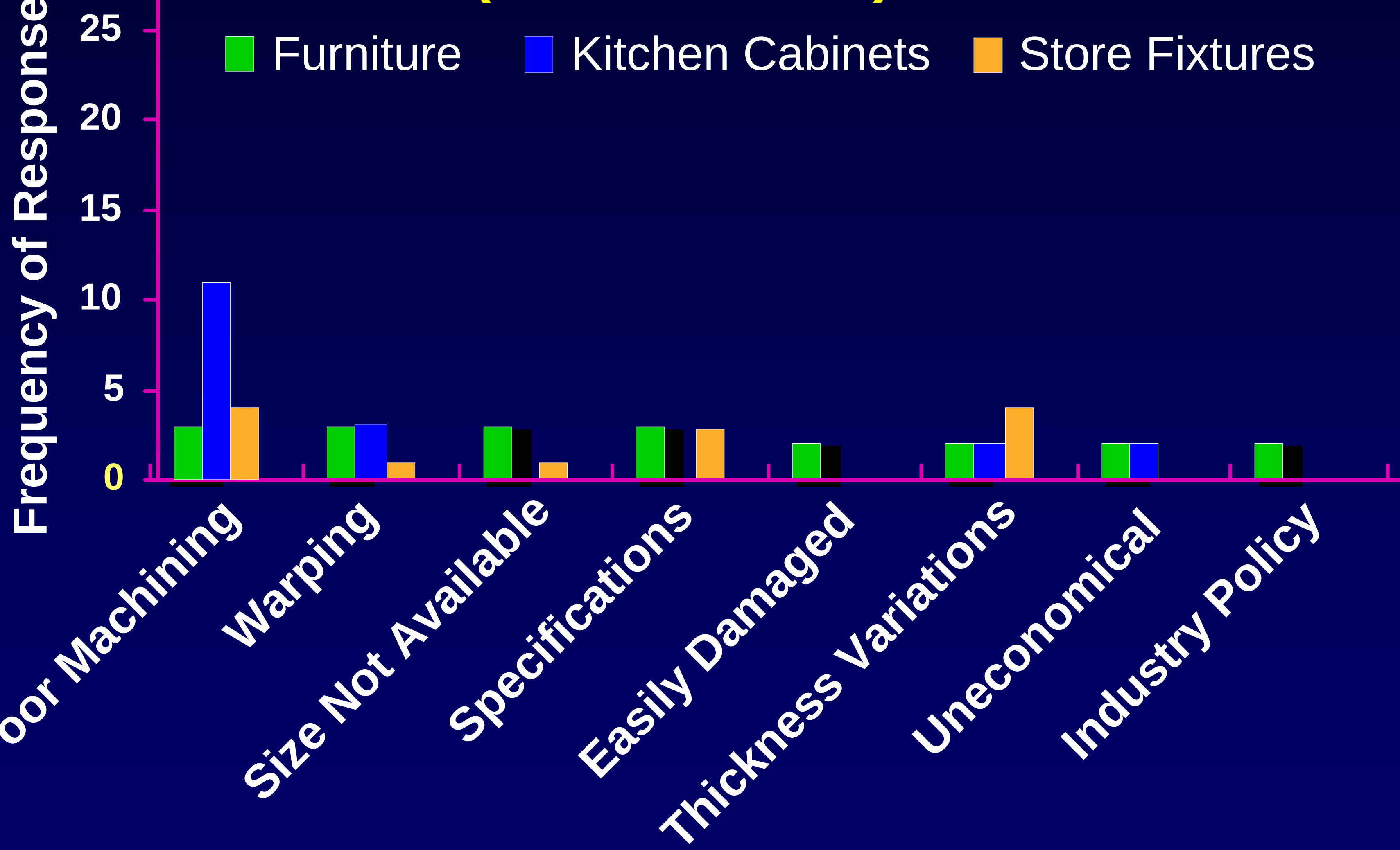


Other Related Work

Other Related Work

- Temple-Inland Panel Products Technology Center Study on PB Properties (1996)
- Ducker Research Co. Inc. study on Markets Potential for Industrial Panels (1998)

Scope of Current Work

- Value-added manufacturers in the southern United States
- Customer perspectives for panel products (particleboard, MDF and plywood) based on technical, economic, and performance characteristics

METHODOLOGY

We examined panel usage by value-added manufacturers in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Texas).

The value-added manufacturers included were in six Standard Industrial Classification (SIC) categories.

A random sample of 1,700 companies in these SIC categories was drawn from the PhoneDisk PowerFinder CD-ROM directory.

METHODOLOGY

The study was conducted using mailed surveys. Survey development and implementation followed methods and procedures recommended by Dillman and described as the Total Design Method.

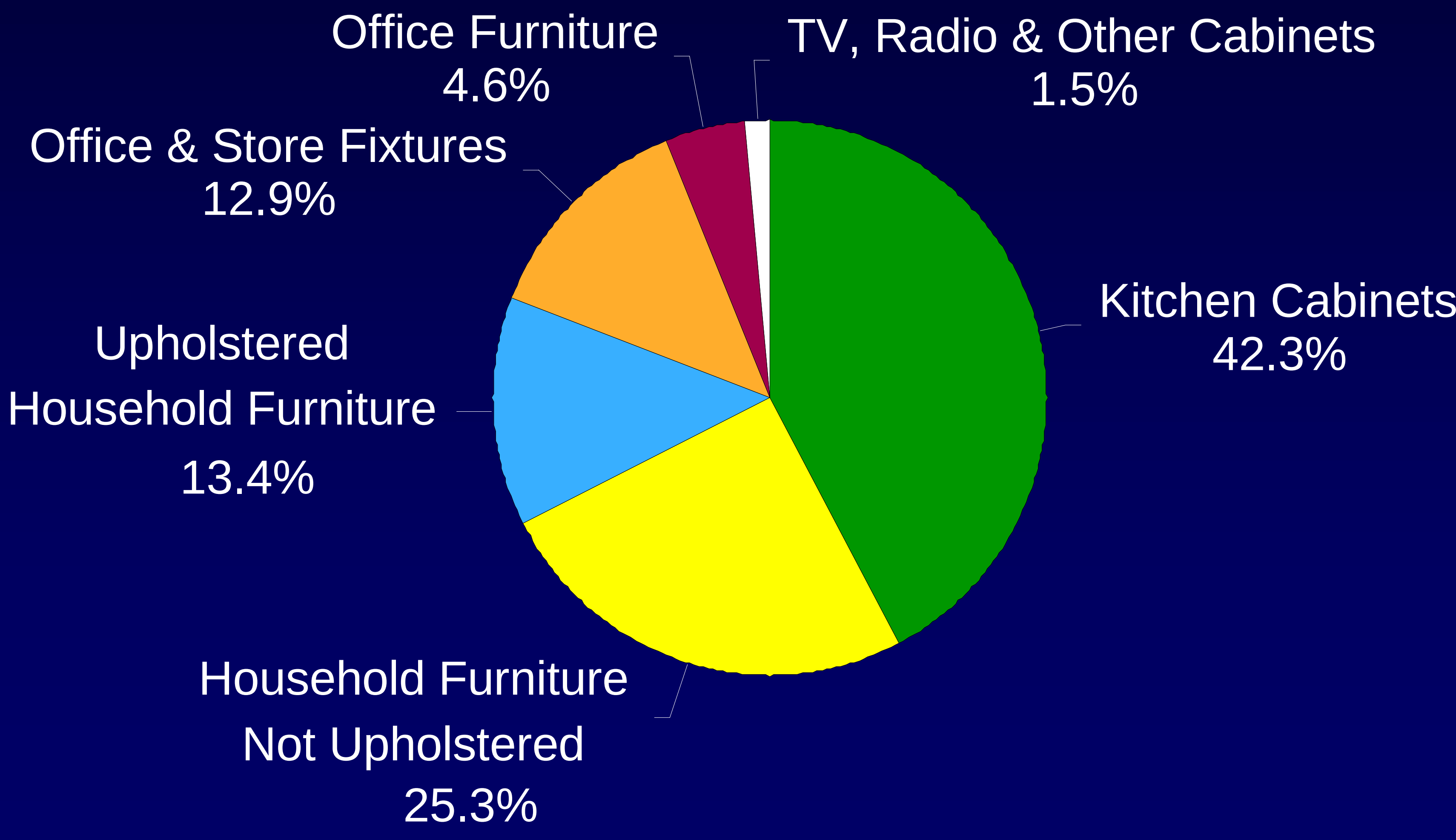
Of the 1,700 surveys mailed, 410 were undeliverable. 194 returned usable surveys resulting in an adjusted response rate of 15 percent.

Non-response bias was measured using two-tailed t-tests conducted on frequency of companies by state and by SIC category, comparing respondents and companies that fell into the non-response/undeliverable category. No difference in state distribution nor SIC category was detected at a=0.05.

Results

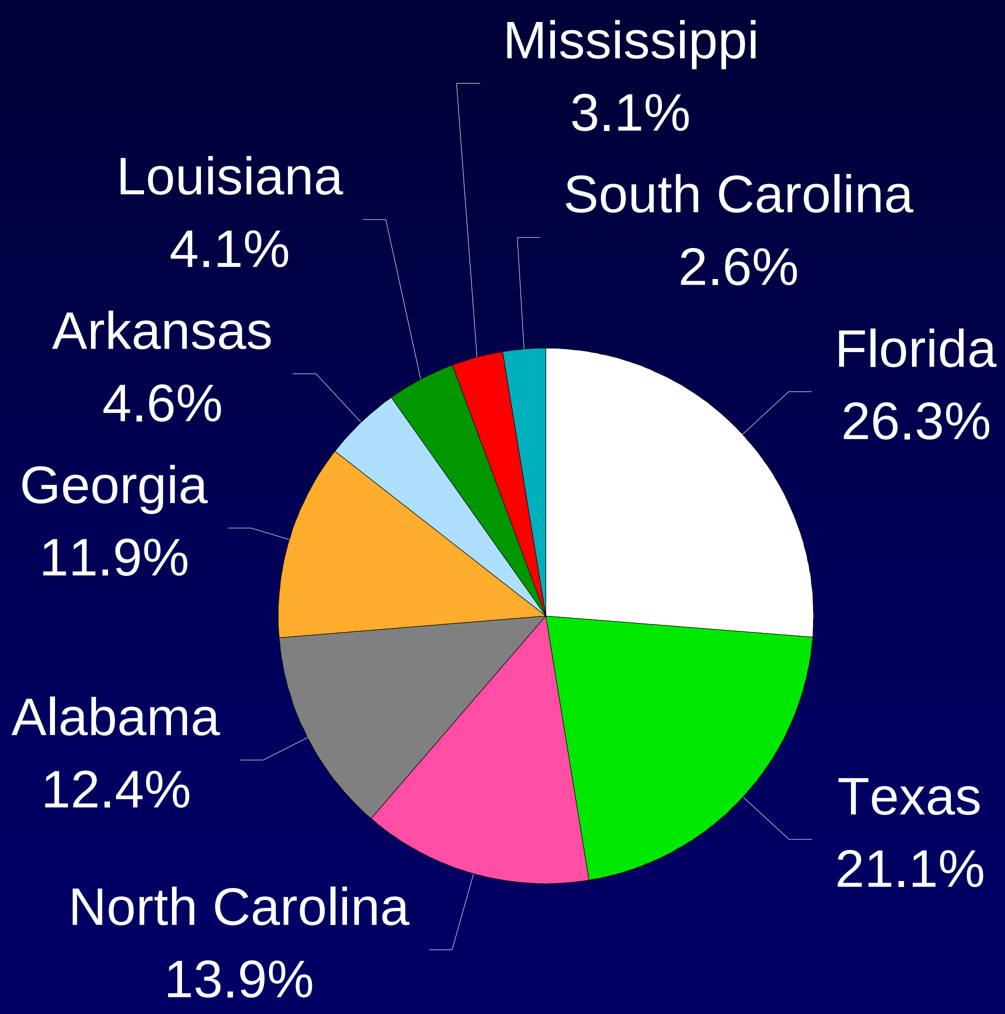
Respondent Manufacturing Category

(n=194)

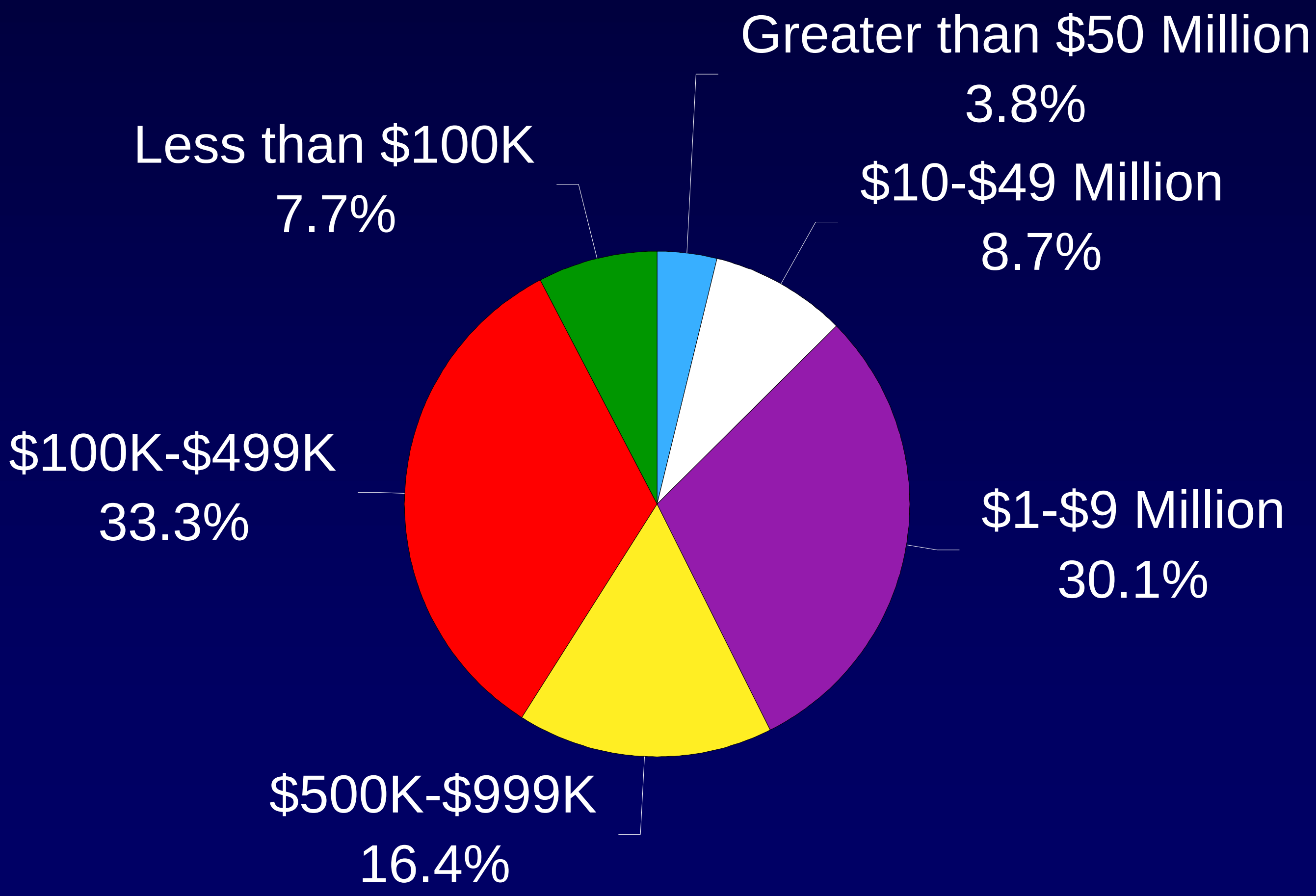


Respondents by State

(n=194)

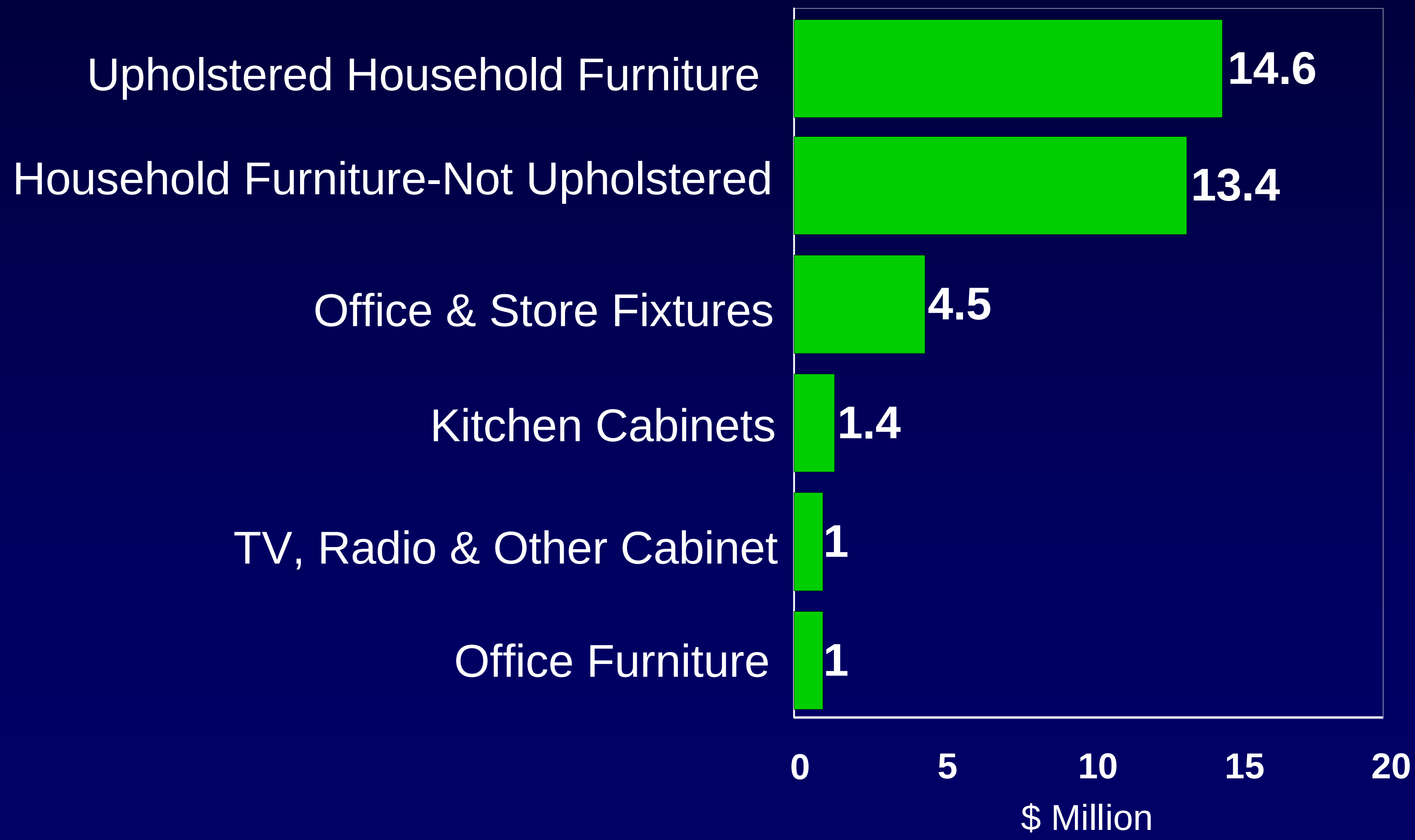


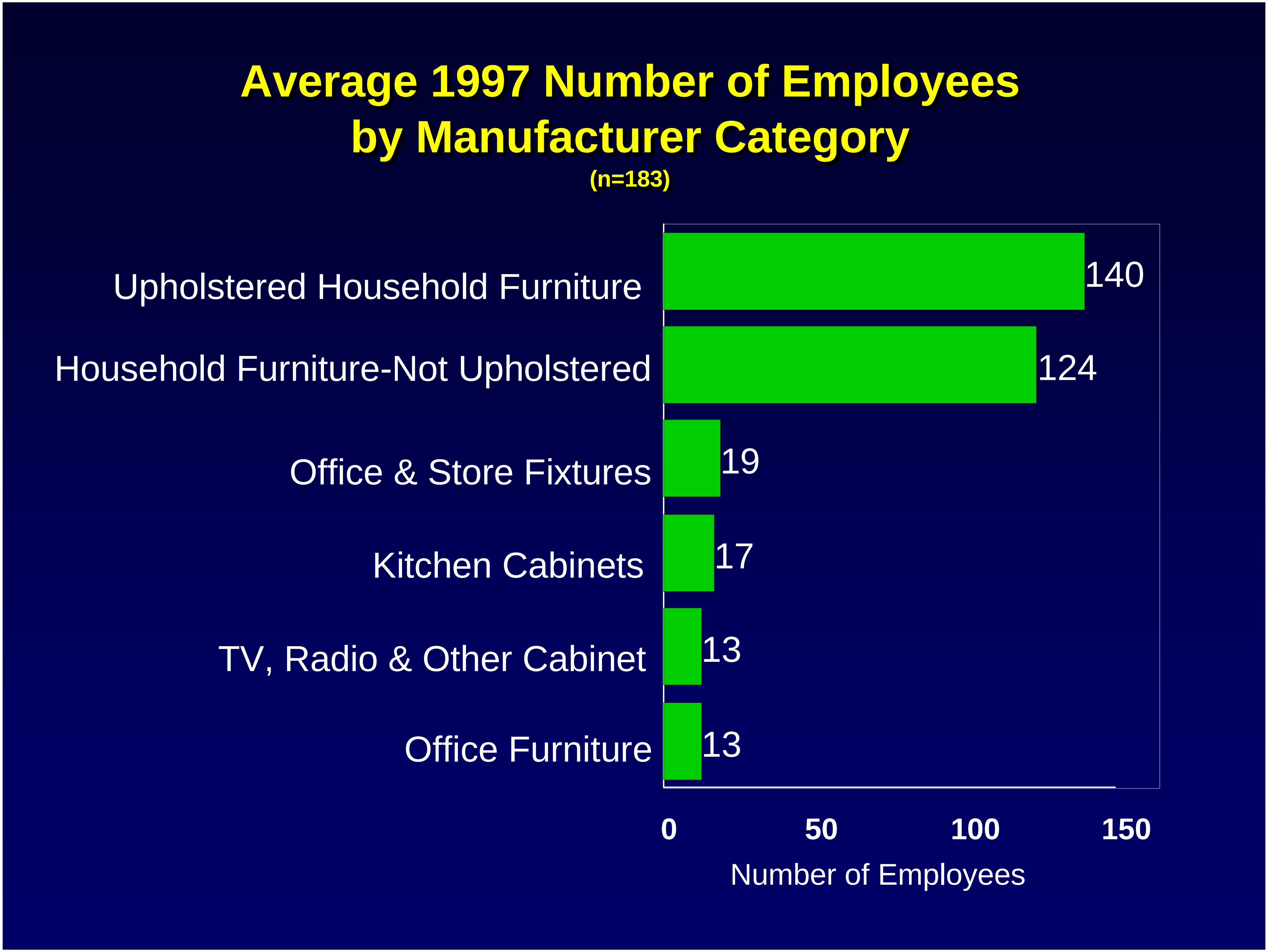
Sales Category
1997 Total Company Revenue
(n=183)



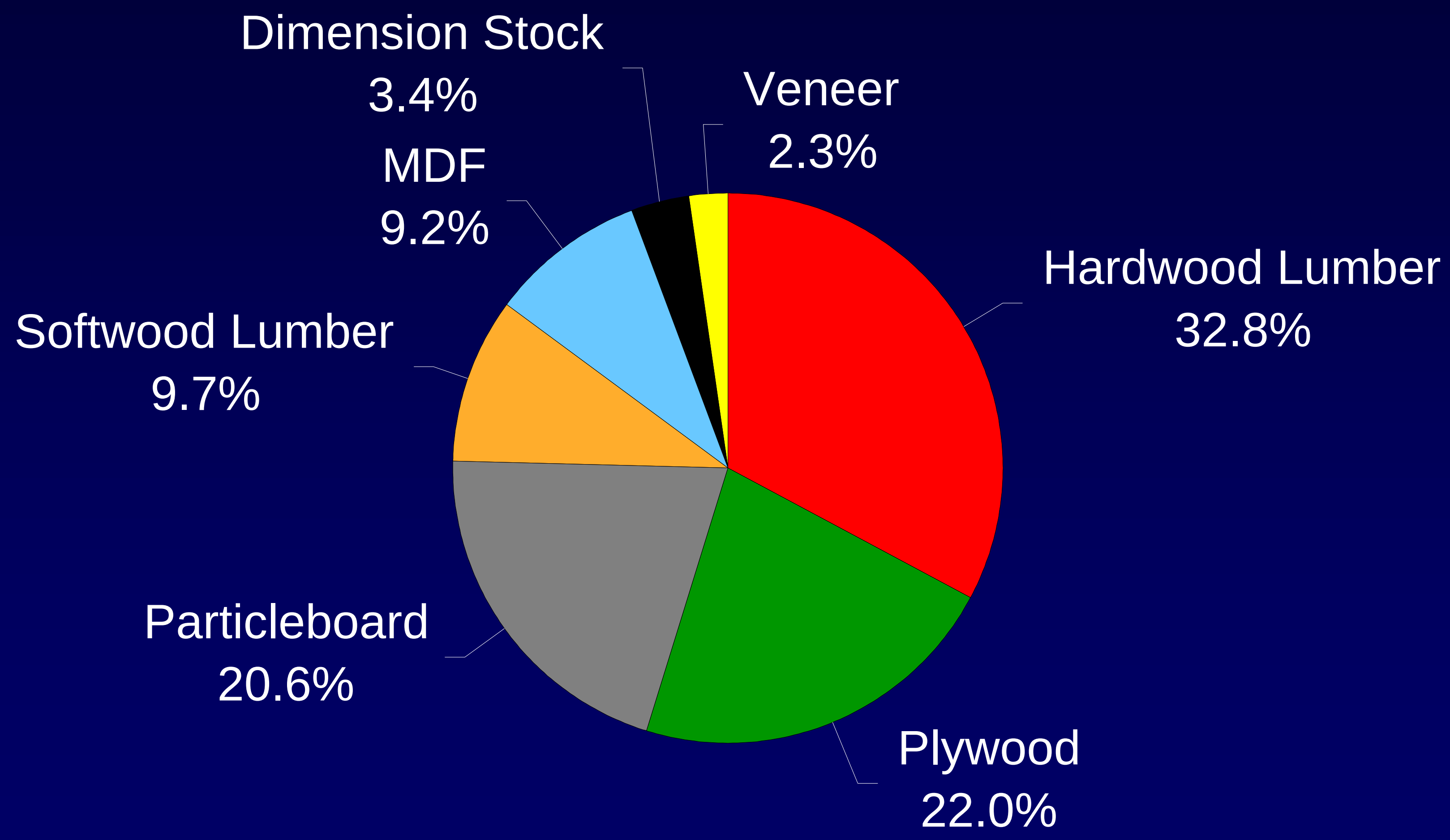
Average 1997 Sales by Manufacturer Category $ Million

(n=183)




Average 1997 Number of Employees
by Manufacturer Category
(n=183)
Upholstered Household Furniture
Household Furniture-Not Upholstered
Office & Store Fixtures
Kitchen Cabinets
TV, Radio & Other Cabinet
Office Furniture
140
124
19
17
13
13
0
50
100
150
Number of Employees

Raw Materials Used
Percent of 1997 Total Raw Material Usage by Value
(n=183)



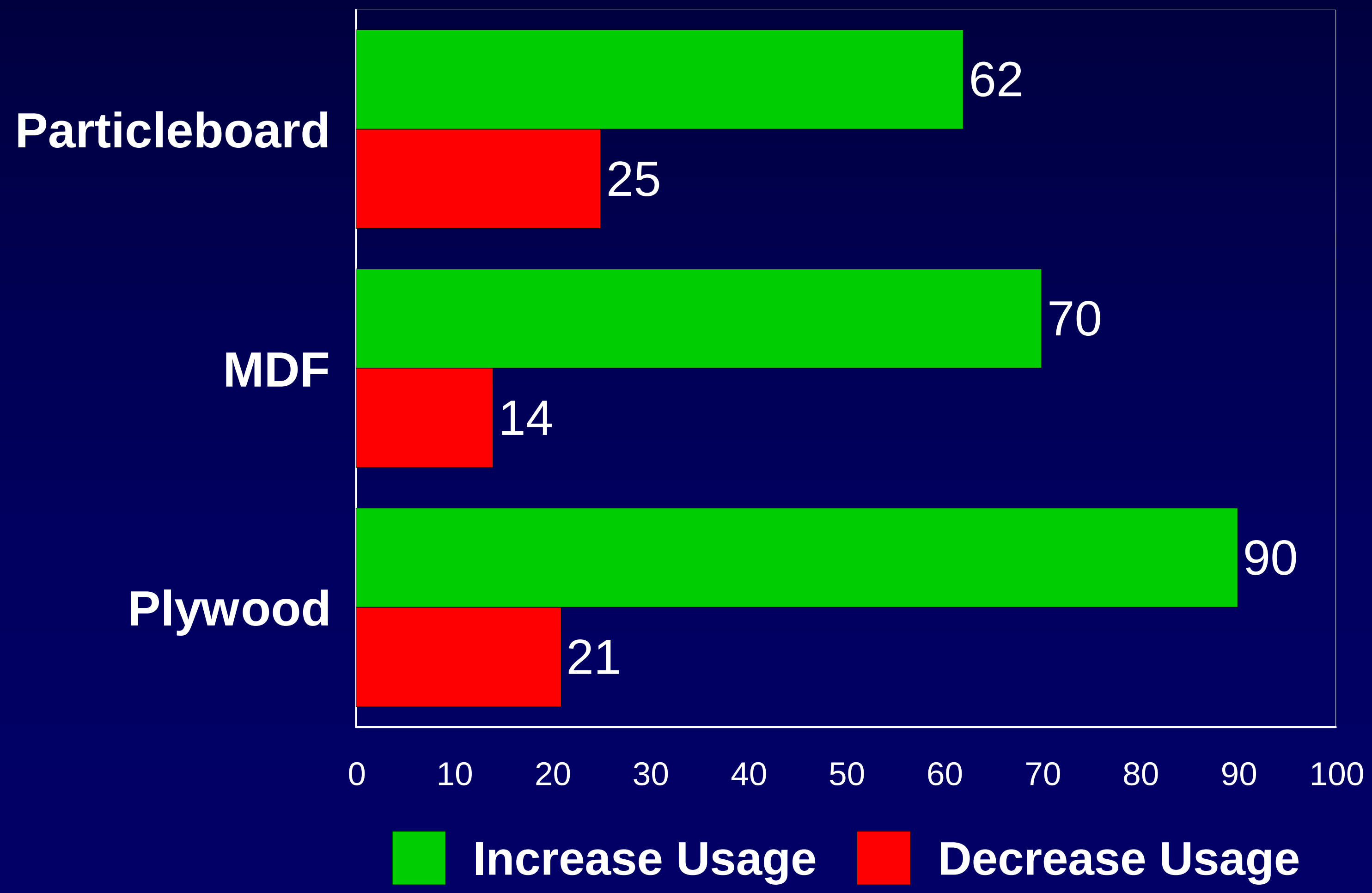
Percent of Raw Materials Used (by Value) by Manufacturing Sector in 1997

(n=183)

	Kitchen Cabinets	Household Furniture	Upholstered Furniture	TV,Radio, Etc. Cabinets	Office Furniture	Office & Store Fixtures
Hardwood Lumber	25	**35**	**78**	0	**26**	7
Plywood	**28**	17	11	**65**	13	17
Particleboard	23	9	1	0	19	**54**
Softwood Lumber	8	19	4	0	7	2
MDF	11	5	0	2	**26**	11
Dimension Stock	1	8	4	0	4	1
Other Products	2	4	1	33	4	4
Veneer	2	3	1	0	1	4
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Number of Companies that Plan to Increase or Decrease Usage of Particleboard, MDF and Plywood

(n=194)

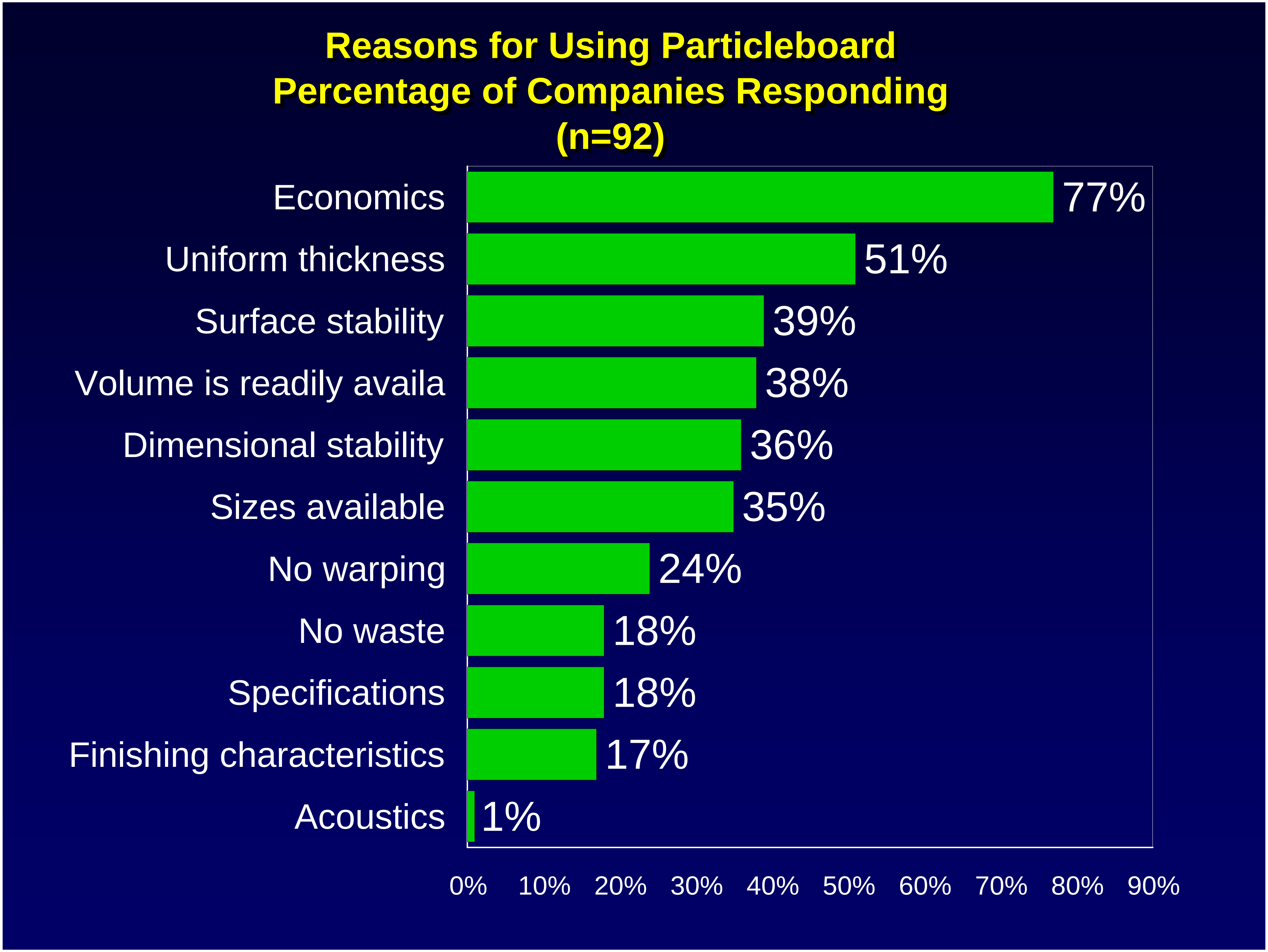


Percent of Companies that Plan to Increase or Decrease Usage of Particleboard, MDF and Plywood by Manufacturing Sector

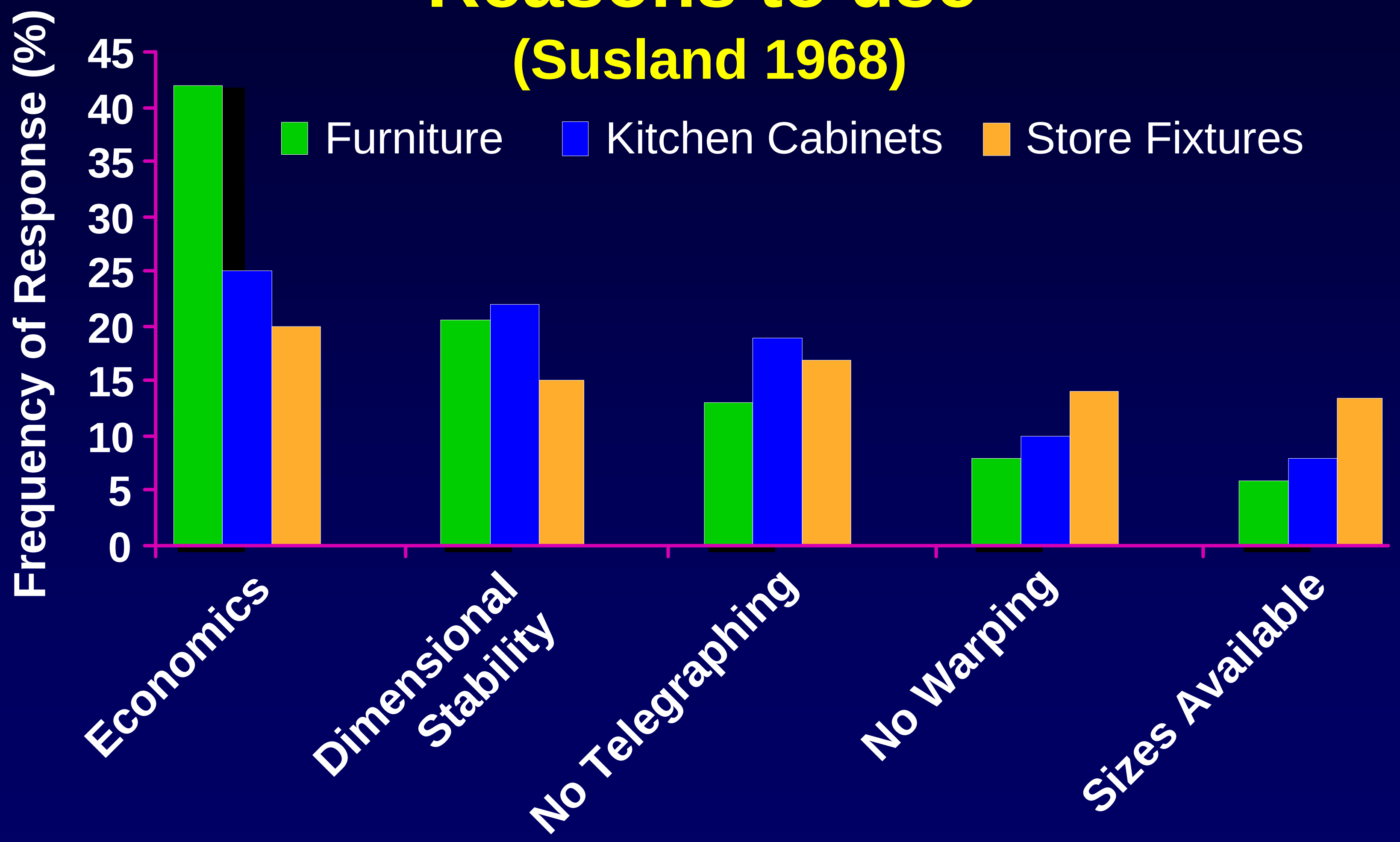
	Kitchen Cabinets (n=82)	Household Furniture (n=49)	Upholstered Furniture (n=26)	TV,Radio, Etc. Cabinets (n=3)	Office Furniture (n=9)	Office & Store Fixtures (n=25)
Particleboard						
Increase	46	18	8	33	33	52
Decrease	17	6	8	0	22	16
MDF						
Increase	52	10	4	100	44	56
Decrease	9	6	0	0	11	8
Plywood						
Increase	57	35	50	66	22	36
Decrease	9	8	4	0	44	20

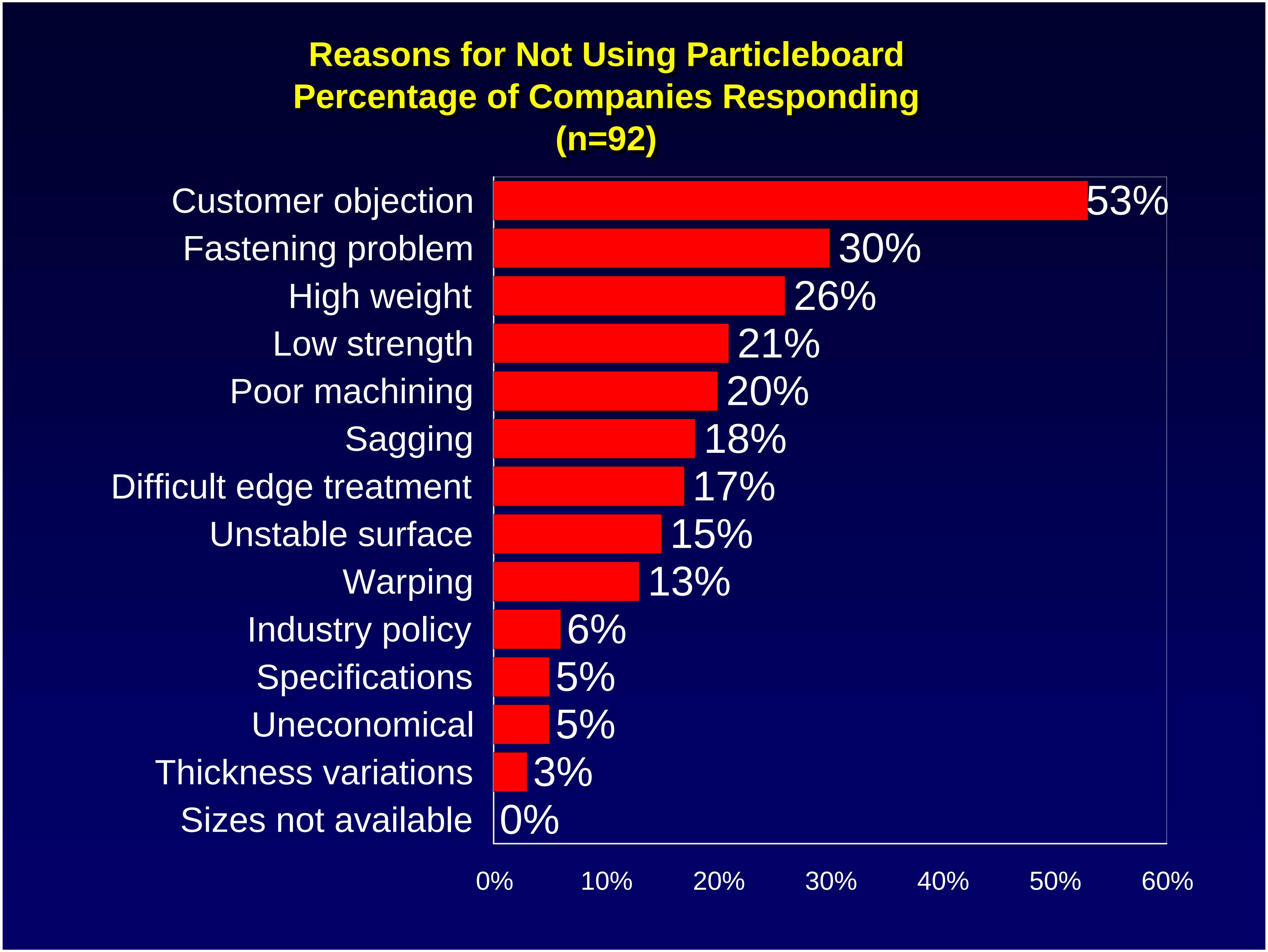
Volumes of Raw Materials Used for Panel Cores, Overlays and Pre-Lam. Panels in 1997

Panel Core	
Particleboard (sq. ft. 3/4")	1,141,470
MDF (sq. ft. 3/4")	335,220
Hardboard (sq. ft)	212,671
Hardwood Lumber (MBF)	592,580
Softwood Lumber (MBF)	353,260
Hardwood Plywood (sq. ft. 3/8")	83,398
Softwood Plywood (sq. ft. 3/8")	74,736
Overlays	
Wood Veneer (sq. ft.)	146,228
High Pressure Laminates (sq. ft.)	302,272
Vinyl (sq. ft.)	121,264
Crossband Material (sq. ft.)	125,000
Pre-Laminated Panels	
Solid Wood Panels (sq. ft.)	59,762
Overlaid Particleboard (sq. ft.)	43,724
Overlaid MDF (sq. ft.)	39,050

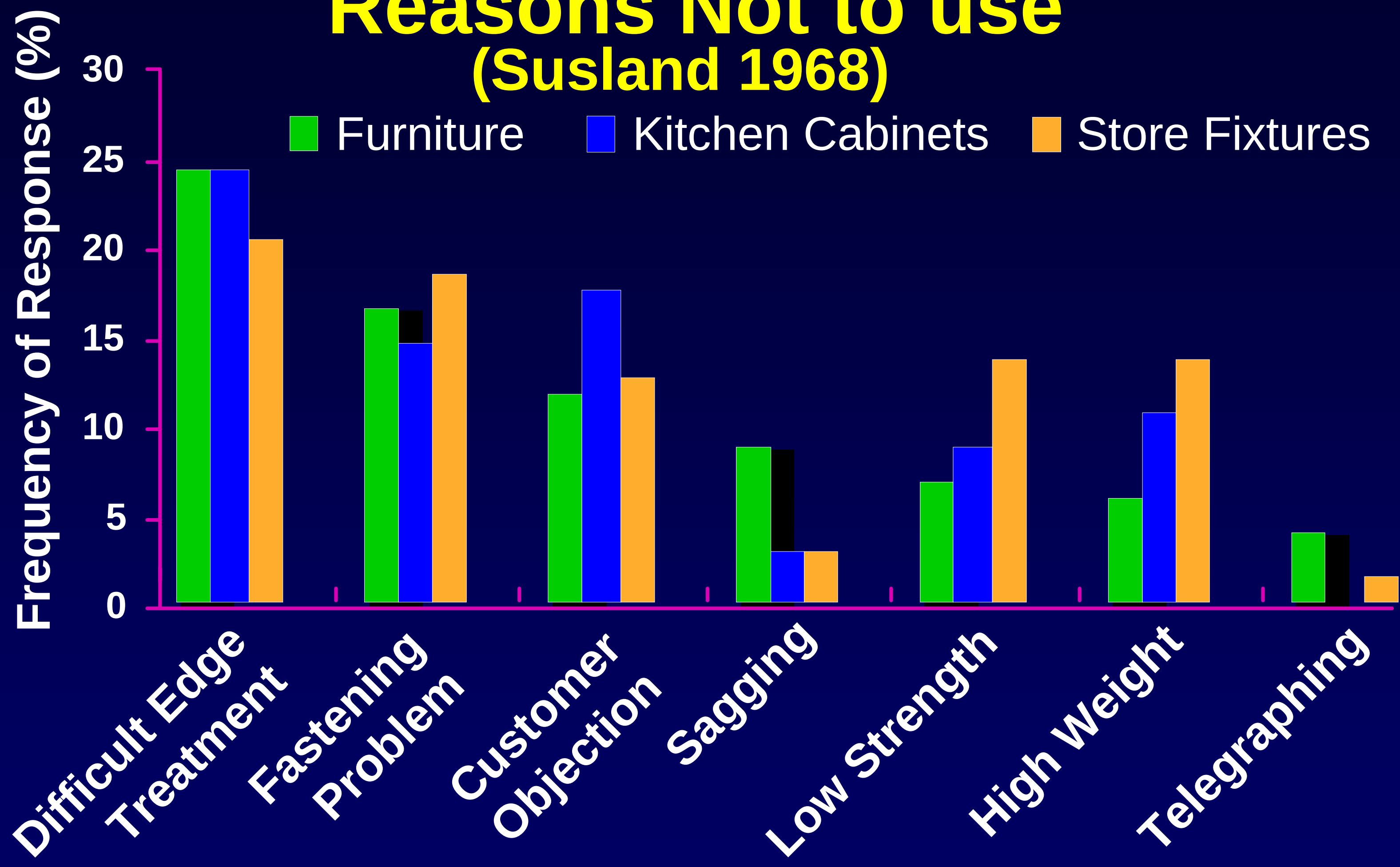

Reasons for Using Particleboard
Percentage of Companies Responding
(n=92)
Economics
77%
Uniform thickness
51%
Surface stability
39%
Volume is readily availa
38%
Dimensional stability
36%
Sizes available
35%
No warping
24%
No waste
18%
Specifications
18%
Finishing characteristics
17%
Acoustics
1%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%

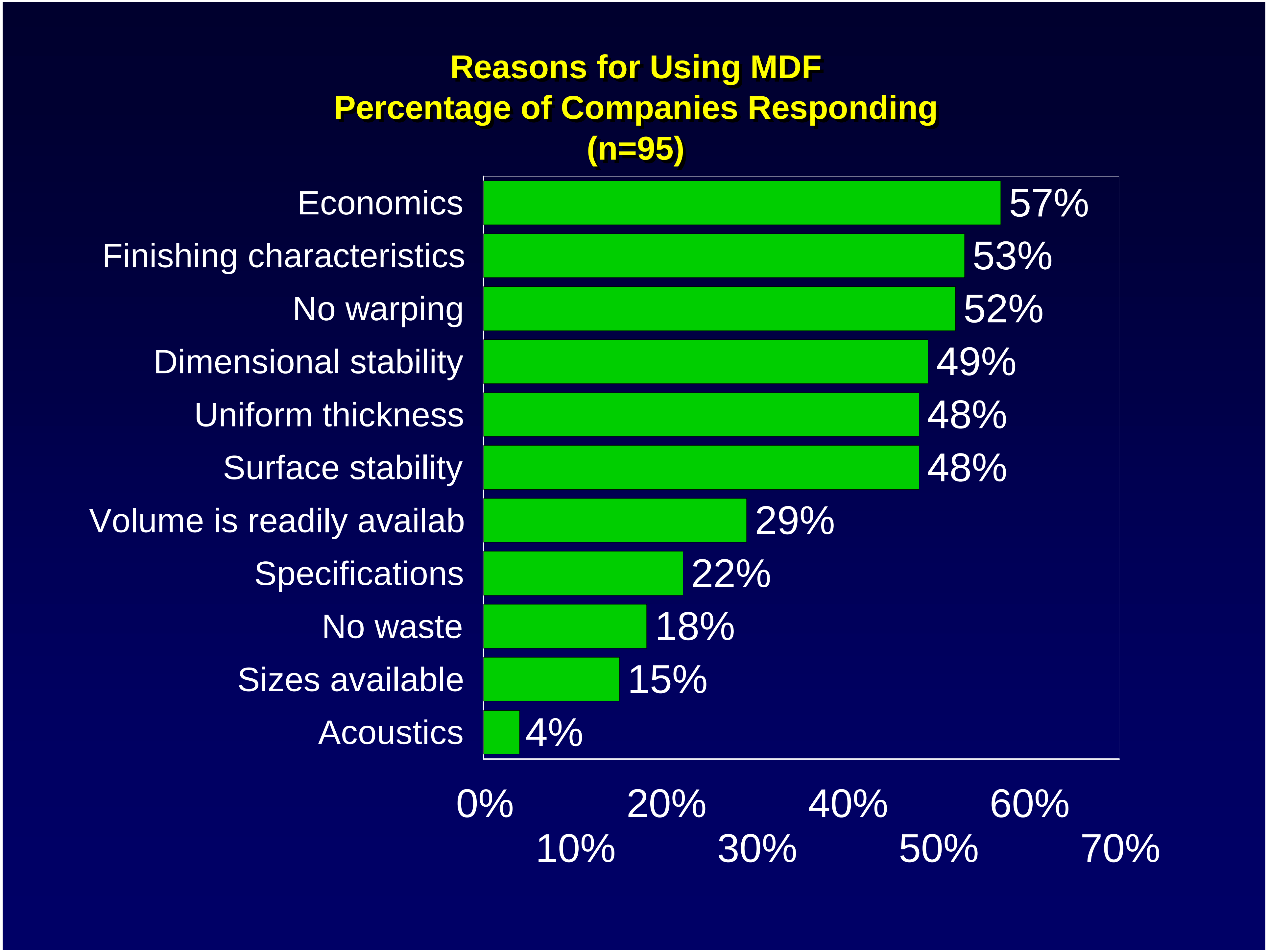
Particleboard
Reasons to use
(Susland 1968)

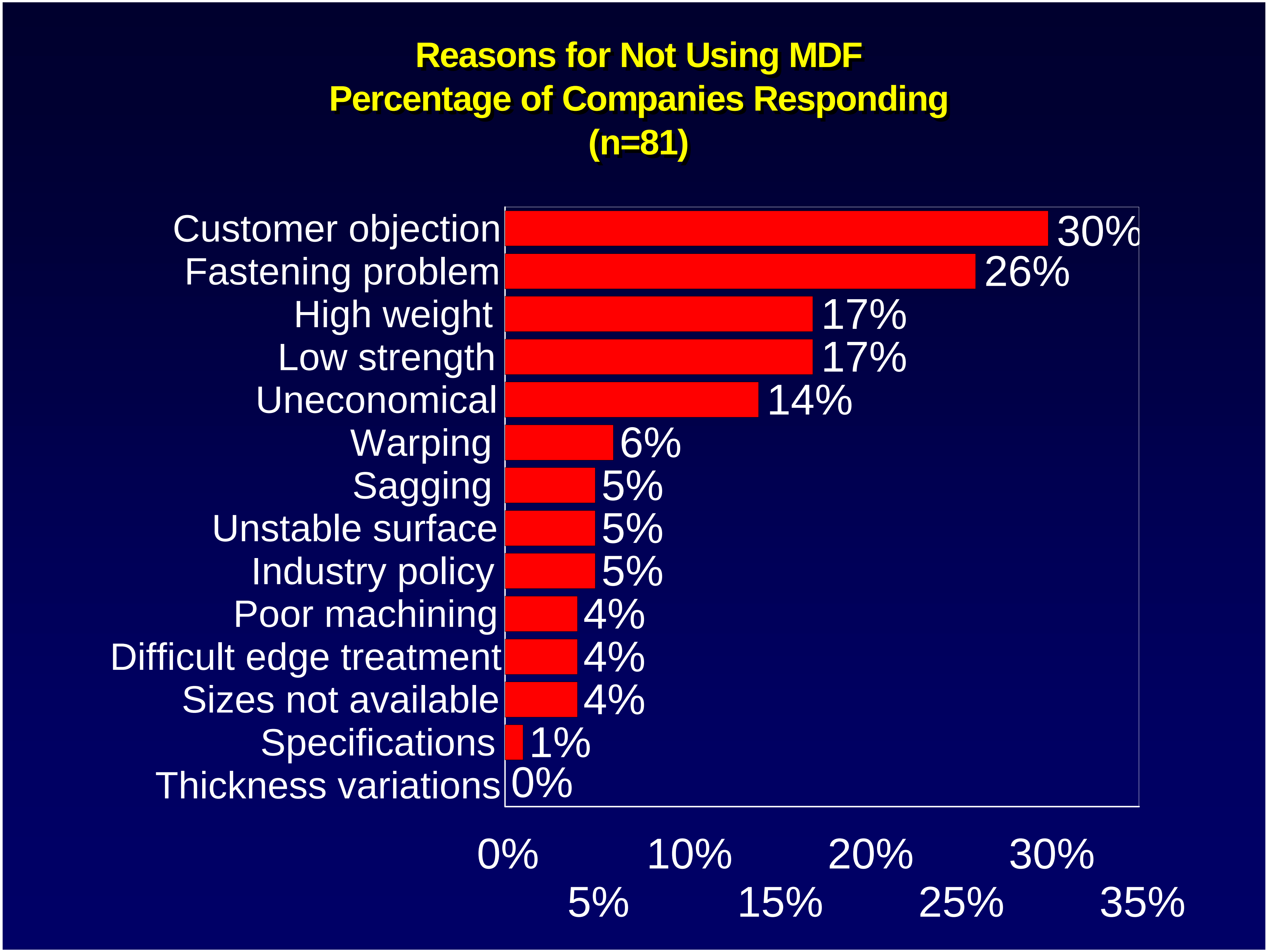


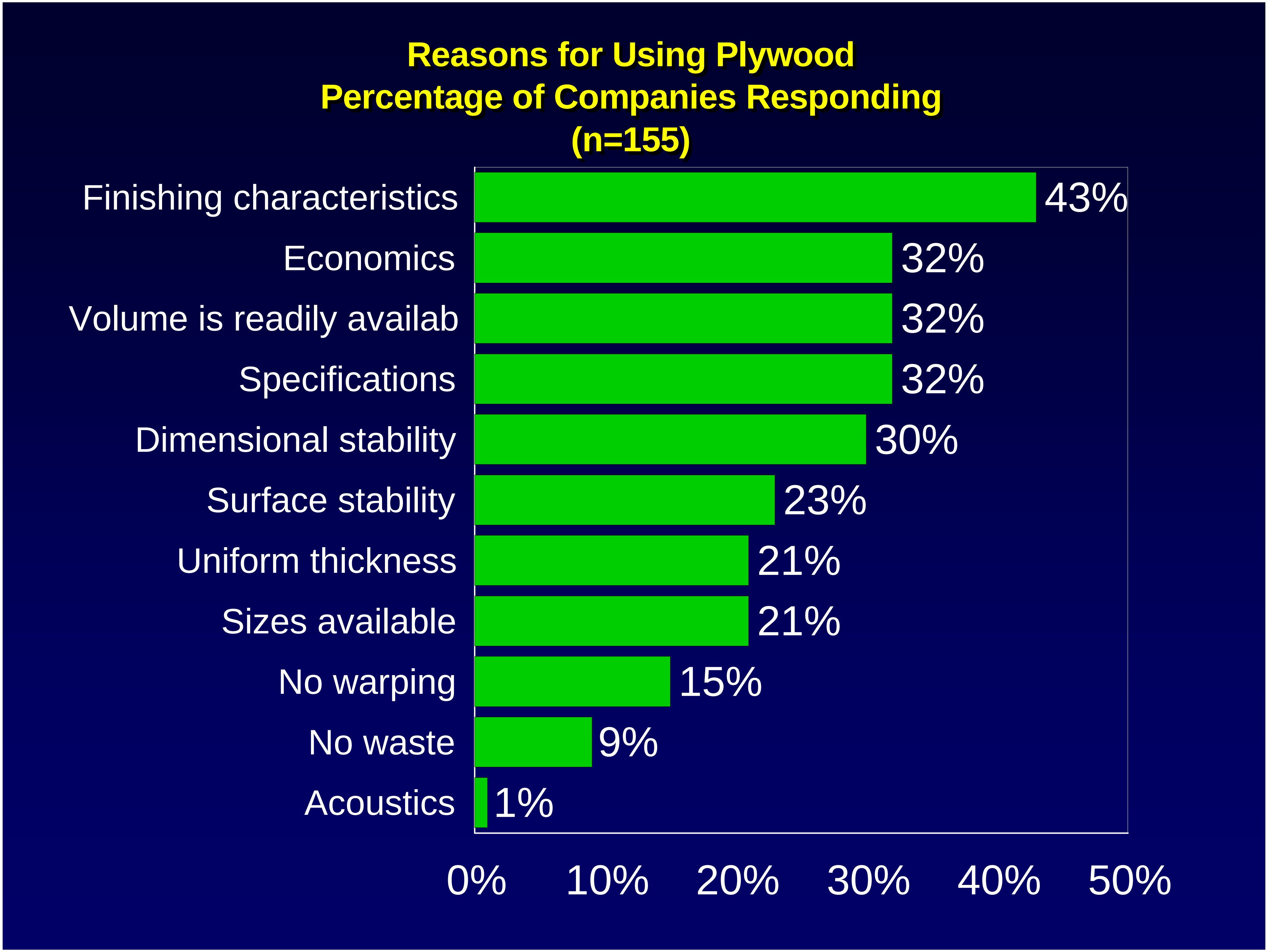

Reasons for Not Using Particleboard
Percentage of Companies Responding
(n=92)
Customer objection
53%
Fastening problem
30%
High weight
26%
Low strength
21%
Poor machining
20%
Sagging
18%
Difficult edge treatment
17%
Unstable surface
15%
Warping
13%
Industry policy
6%
Specifications
5%
Uneconomical
5%
Thickness variations
3%
Sizes not available
0%
0%
10%
20%
30%
40%
50%
60%

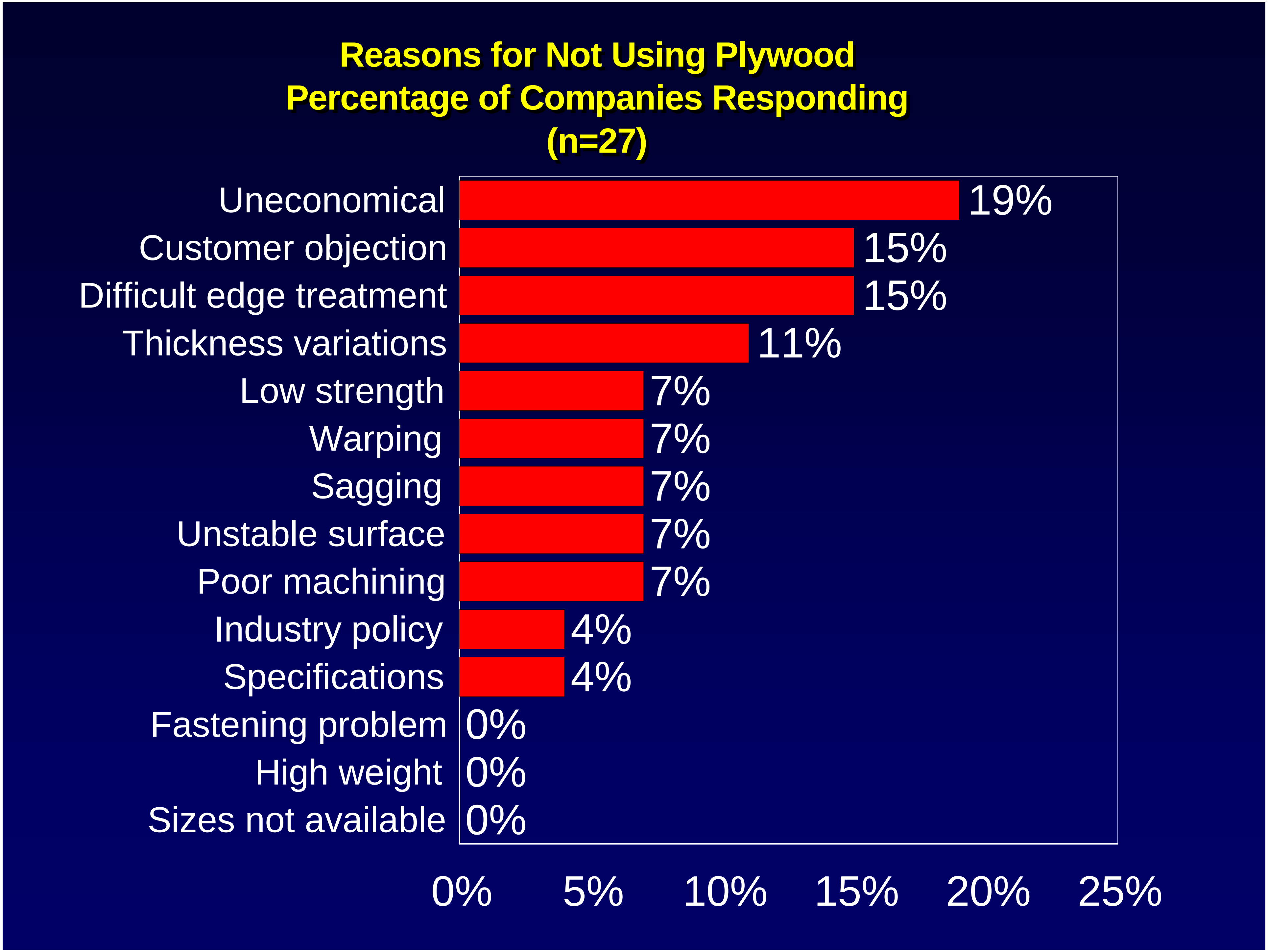
Particleboard
Reasons Not to use
(Susland 1968)




Reasons for Using MDF
Percentage of Companies Responding
(n=95)
Economics
Finishing characteristics
No warping
Dimensional stability
Uniform thickness
Surface stability
Volume is readily availab
Specifications
No waste
Sizes available
Acoustics
57%
53%
52%
49%
48%
48%
29%
22%
18%
15%
4%
0%
10%
20%
30%
40%
50%
60%
70%

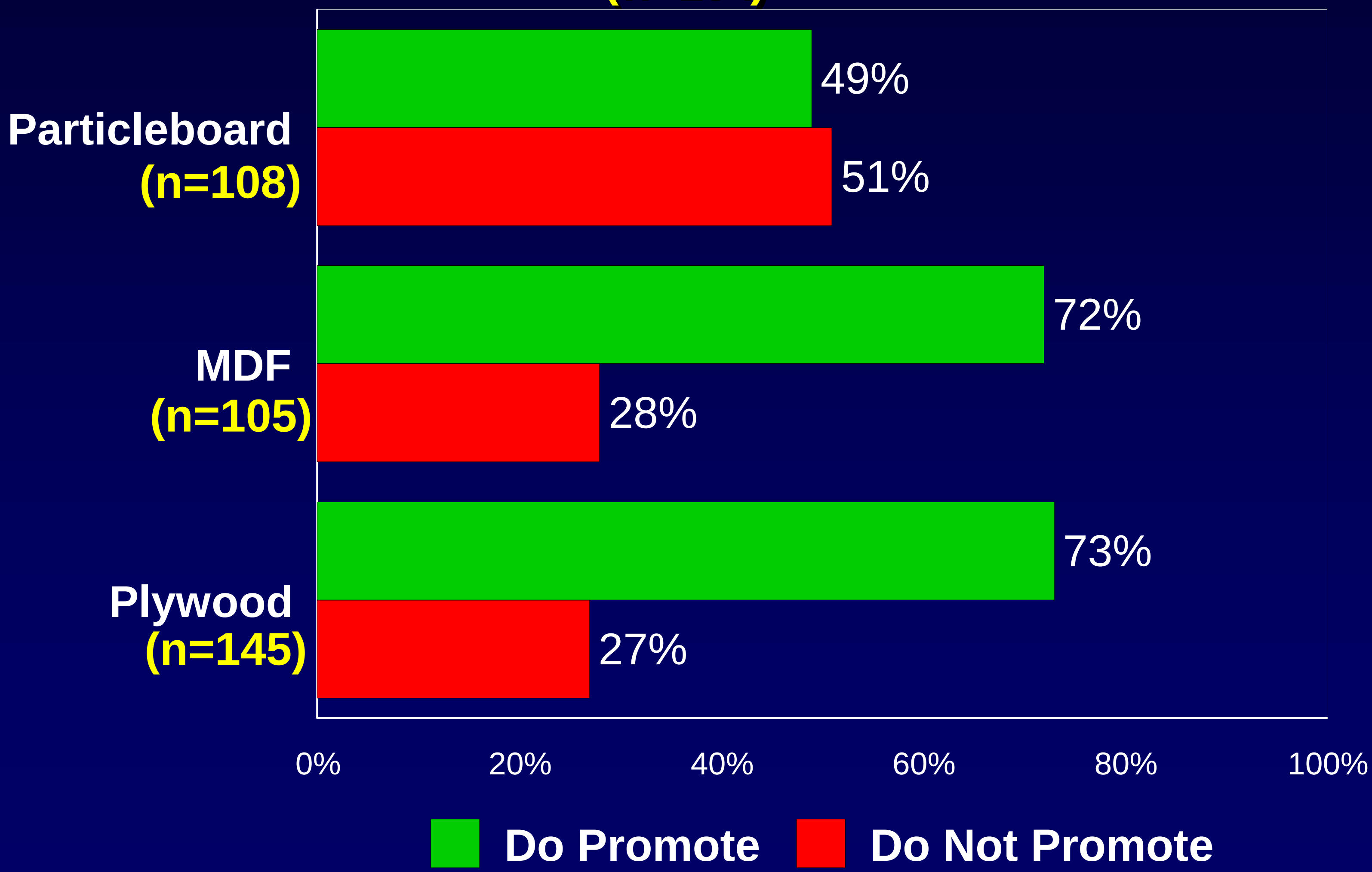

Reasons for Not Using MDF
Percentage of Companies Responding
(n=81)
Customer objection
Fastening problem
High weight
Low strength
Uneconomical
Warping
Sagging
Unstable surface
Industry policy
Poor machining
Difficult edge treatment
Sizes not available
Specifications
Thickness variations
30%
26%
17%
17%
14%
6%
5%
5%
5%
4%
4%
4%
1%
0%
0%
5%
10%
15%
20%
25%
30%
35%


Reasons for Using Plywood
Percentage of Companies Responding
(n=155)
Finishing characteristics 43%
Economics 32%
Volume is readily availab 32%
Specifications 32%
Dimensional stability 30%
Surface stability 23%
Uniform thickness 21%
Sizes available 21%
No warping 15%
No waste 9%
Acoustics 1%
0%
10%
20%
30%
40%
50%


Reasons for Not Using Plywood
Percentage of Companies Responding
(n=27)
Uneconomical 19%
Customer objection 15%
Difficult edge treatment 15%
Thickness variations 11%
Low strength 7%
Warping 7%
Sagging 7%
Unstable surface 7%
Poor machining 7%
Industry policy 4%
Specifications 4%
Fastening problem 0%
High weight 0%
Sizes not available 0%
0% 5% 10% 15% 20% 25%

Percent of Companies that Actively Promote Particleboard, MDF and Plywood to Customers

(n=194)



SUMMARY

Panel products such as particleboard, medium density fiberboard and plywood are important raw material inputs for the furniture, cabinet and allied industries. Often these products compete for market share in the same application.

This paper identifies the relative importance of panel inputs for six value-added secondary wood manufacturing industries. Respondents indicated the characteristics that encourage or discourage them from using these products.

This information is useful to companies in the secondary industries discussed in the paper because it helps them understand their industry structure. In addition, the information is important to panel suppliers to value-added customers. By better understanding their customer concerns, needs and manufacturing issues, panel suppliers can better serve their customers and compete in the marketplace.

Questions