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# **CAIS Annual Meeting Presentation: The (R)Evolution of Financial Aid**

January 31, 2004

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# The (R)Evolution of Financial Aid

- Evolution of Serving Families
  - Scholarships for scholarship
  - Access, Choice, Persistence
  - Ability to Pay versus Willingness to Pay
  - Budget Crisis
  - Financial Aid as an Enrollment Management Tool
- Revolution of Serving Institutions
  - Tradeoff Analysis Tool: Inside the “Black Box”
  - Case studies: Opportunities and Ethnical Choices
  - Final Thoughts

# The Evolution of Serving Families

# Scholarships for Scholarship

- 1643 – First Scholarship
  - Harvard University
  - Funds provided by a private donor, Lady Ann Radcliffe Mowlson
  - Merit-based aid has been around ever since

# Access, Choice, Persistence

## ■ 1944 – GI Bill

- Popularized idea of educating large numbers of people
- First major, federally funded program
- Directed to veterans

## ■ 1957 – Launch of Sputnik

- Education system blamed for lag behind the Soviets in space
- Federal aid directed to programs such as science and math
- Funding then expanded beyond specific academic programs

## ■ 1964 – War on Poverty

- Education seen at root of poverty solution
- Rapid expansion of federal and state need-based grant programs
- Directed to the neediest and first-generation students

# Access, Choice, Persistence

- Higher education also invested in need-based institutional aid programs
  - Reached out to neediest families
  - Tried to remove cost as a barrier to choice
  - Expanded enrollments and campus facilities
  - Increased reliance on government funds
- 1980's – Taxpayer Revolt
  - California Proposition 13
  - Reagan era - retrenchment of federal dollars
  - Many states followed
  - Scope of federal and state aid is stretched
  - Colleges and universities filling in the gaps

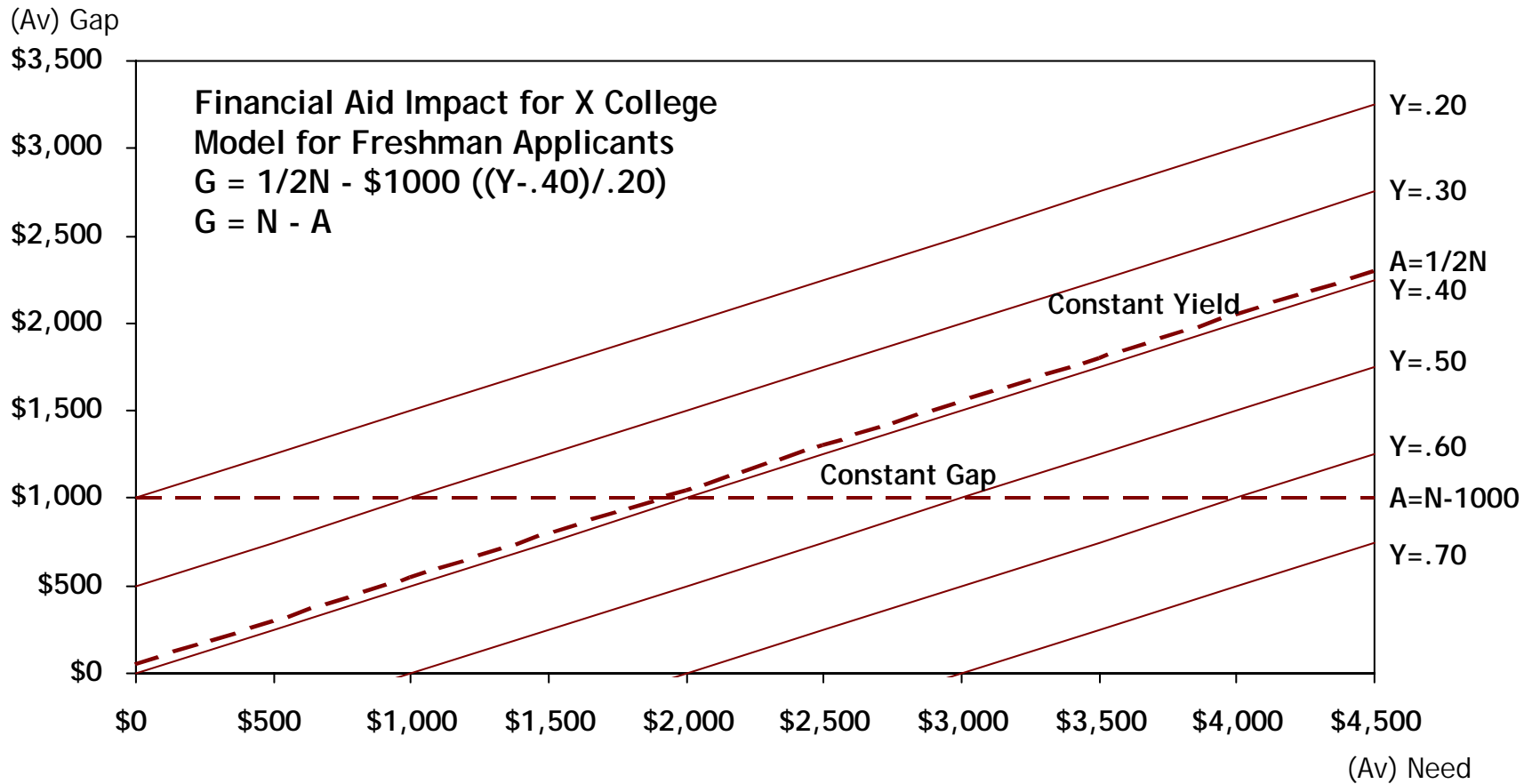
# Budget Crisis

- Colleges and universities face budget crisis
  - Runaway discount rates (10% -> 50+%)
  - Rapidly rising college costs (technology, facilities, services)
  - Aggressive tuition increases with financial aid “plow backs” losing middle class
- Rationing of financial aid
  - Gapping
  - Preferential packaging within need
  - Admit/Deny and need-aware policies
  - Financial aid budgets and enrollment patterns still strained

# Financial Aid as an Enrollment Management Tool

- Market research identified financial aid as a high predictor of enrollment and retention.
- For the first time, the impact of aid policies on yield is quantified.
  - Predictable relationship among award, need, and enrollment yield
  - Key finding: For a constant gap between need and award, the enrollment yield will increase as the need goes up.

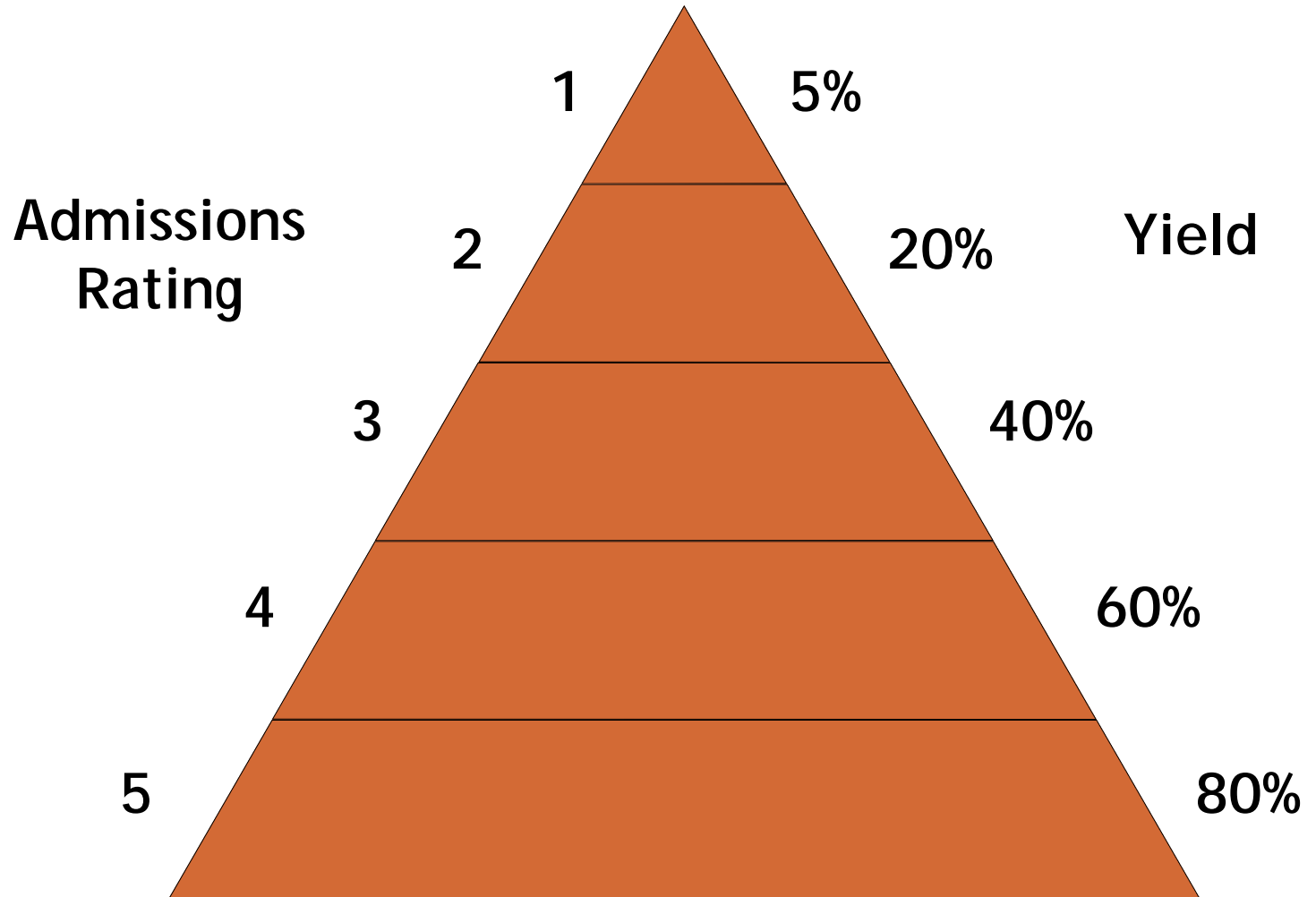
# Financial Aid Impact Formula



# Financial Aid as an Enrollment Management Tool

- More key insights
  - Quantifiable relationship between student quality and yield (“Natural Yield Pyramid”)
  - Potential use of financial aid as a revenue generating tool
  - Interdependence of price, financial aid, net total revenue, and enrollment

# Natural Yield Pyramid



# Financial Aid as an Enrollment Management Tool

- Financial Aid Leveraging
  - Use of “natural pyramid” data to inform the leveraging process
  - Redistribution of budgeted dollars or cost-efficient investment of additional dollars
  - Matrix approach to identifying of areas for increased investments to improve class profile and/or reduce financial aid costs

# Sample College Freshman Matrix

## Admissions Rating

Financial Need

	4	3	2	1
\$1 - \$5,000	Yield = 29.4% 10/34	Yield = 53.3% 16/30	Yield = 46.3% 19/41	Yield = 34.6% 18/52
\$5,001 - \$10,000	Yield = 19.5% 8/41	Yield = 22.2% 10/45	Yield = 18.9% 6/32	Yield = 35.4% 17/48
\$10,001 - \$15,000	Yield = 53.9% 21/39	Yield = 69.2% 27/39	Yield = 61.0% 25/41	Yield = 54.1% 20/37
\$15,001 - \$20,000	Yield = 79.1% 34/43	Yield = 74.3% 26/35	Yield = 85.4% 35/41	Yield = 66.7% 20/30

# The Revolution of Serving Institutions

# Revolution of Serving Institutions

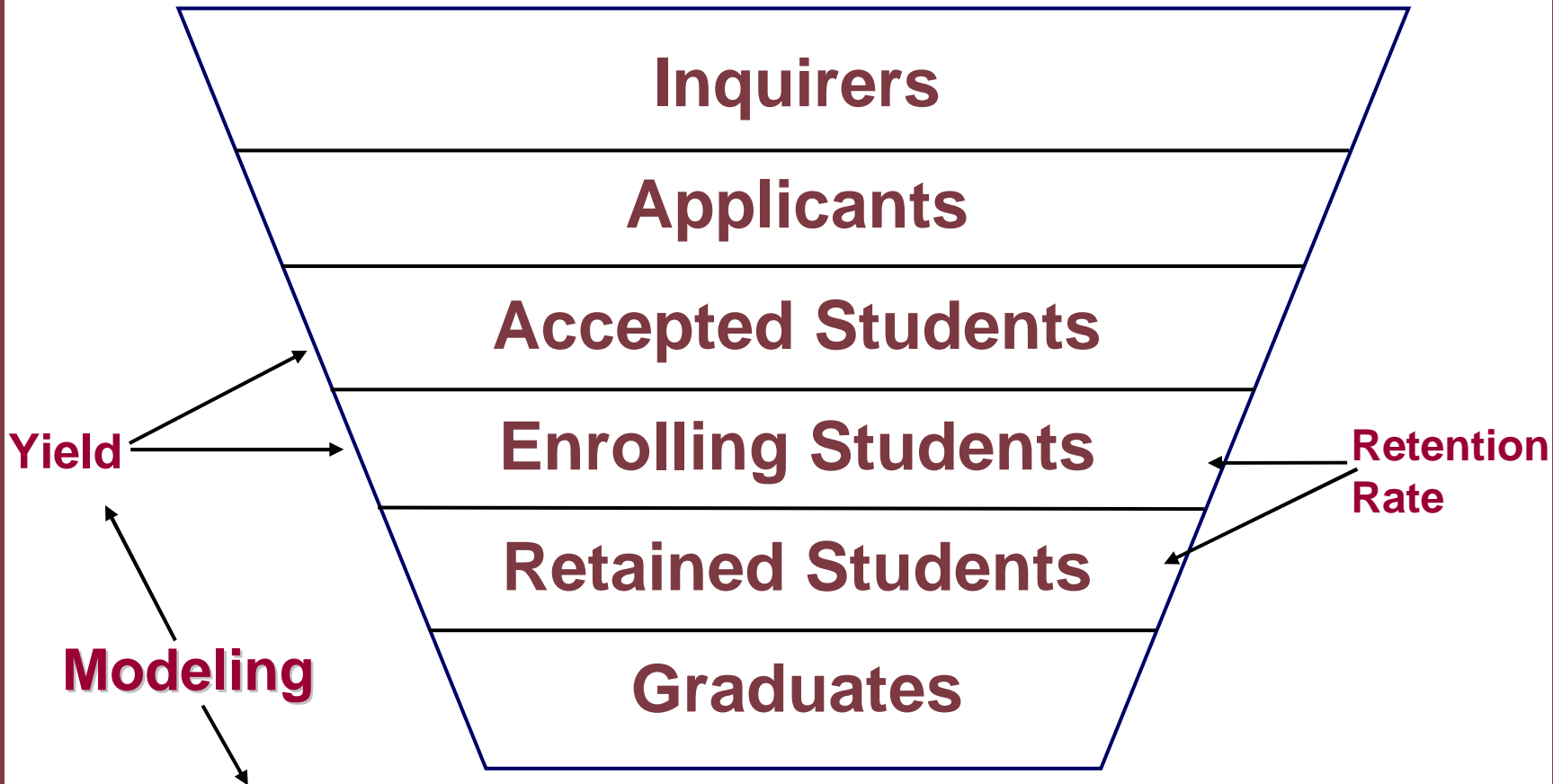
- Paradigm shift from service to families to service to the institution, because of:
  - New ability to predict the impact upon each other of price increase scenarios, financial aid investments, and a variety of enrollment goals
  - New ability to conduct tradeoff analyses of the effects of institutional grants on enrollment quality, numbers, and demographics, as well as on the financial aid budget, the discount rate, and net total revenue
  - New capability to determine an individualized award based on each student's complete composite of characteristics

# Institutional Involvement

- **Presidents and senior administrators** are developing strategic plans by weighing in advance the trade-offs among enrollment goals.
- **Enrollment management officers** are sculpting incoming classes to meet goals for enrollment numbers, quality, diversity, geography, etc.
- **Financial aid officers** are awarding price-point, cost-efficient institutional grants.
- **Chief financial officers** are tracking additional tuition revenue that can fund investments in faculty, facilities, and the fiscal health of the institution.

# Tradeoff Analysis Tool: Inside the “Black Box”

# Points of Impact



Net Tuition Revenue,  
Quality, Diversity, Gender,  
etc.

# Building a Model

- Collect prior year accepted student data from the college.
- Expand data file to include as many demographic variables as possible.
- Validate accuracy of the data.
- Brainstorm about desired enrollment and financial outcomes, such as:
  - increased diversity,
  - more NTR,
  - lower discount rate,
  - higher academic quality,
  - greater gender balance,
  - more national representation, etc.

Financial Need

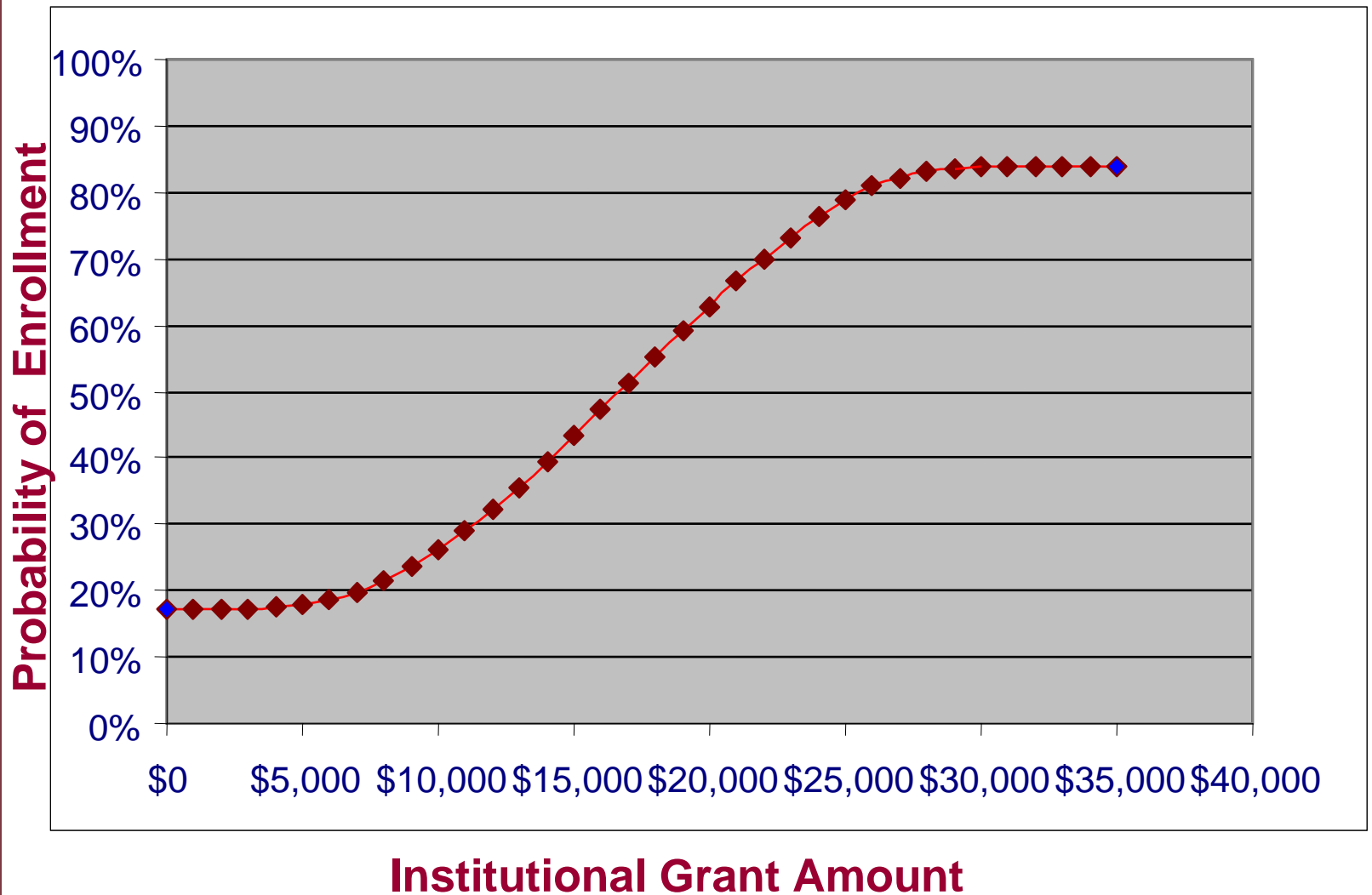
	<b>&lt;980</b>	<b>980-1059</b>	<b>1060-1159</b>	<b>1160+</b>	<b>Total</b>
	Yield=29.4% Avg. Grant: (E)=\$2,325 (N)=\$3,634 (T)=\$3,249 NTR=\$149,610 10/34	Yield=53.3% Avg. Grant: (E)=\$3,656 (N)=\$2,595 (T)=\$3,161 NTR=\$242,540 16/30	Yield=46.3% Avg. Grant: (E)=\$3,526 (N)=\$3,591 (T)=\$3,561 NTR=\$303,690 19/41	Yield=34.6% Avg. Grant: (E)=\$6,620 (N)=\$4,874 (T)=\$5,478 NTR=\$220,905 18/52	Yield=40.1% Avg. Grant: (E)=\$4,252 (N)=\$3,918 (T)=\$4,052 NTR=\$916,745 63/157
\$ 13,453	Yield=19.5% Avg. Grant: (E)=\$3,063 (N)=\$1,997 (T)=\$2,205 NTR=\$120,460 8/41	Yield=22.2% Avg. Grant: (E)=\$4,800 (N)=\$2,700 (T)=\$3,167 NTR=\$147,100 10/45	Yield=21.9% Avg. Grant: (E)=\$4,071 (N)=\$3,160 (T)=\$3,359 NTR=\$108,070 7/32	Yield=35.4% Avg. Grant: (E)=\$6,164 (N)=\$4,287 (T)=\$4,952 NTR=\$221,325 17/48	Yield=25.3% Avg. Grant: (E)=\$4,900 (N)=\$3,002 (T)=\$3,482 NTR=\$596,955 42/166
\$ 16,800	Yield=53.9% Avg. Grant: (E)=\$4,519 (N)=\$2,294 (T)=\$3,492 NTR=\$281,450 21/39	Yield=69.2% Avg. Grant: (E)=\$5,173 (N)=\$2,083 (T)=\$4,222 NTR=\$370,418 27/39	Yield=61.0% Avg. Grant: (E)=\$5,172 (N)=\$3,594 (T)=\$4,556 NTR=\$330,638 25/41	Yield=54.1% Avg. Grant: (E)=\$7,393 (N)=\$3,971 (T)=\$5,821 NTR=\$220,100 20/37	Yield=59.6% Avg. Grant: (E)=\$5,503 (N)=\$3,037 (T)=\$4,507 NTR=\$1,202,606 93/156
\$ 22,360	Yield=79.1% Avg. Grant: (E)=\$4,058 (N)=\$1,889 (T)=\$3,604 NTR=\$475,322 34/43	Yield=74.3% Avg. Grant: (E)=\$3,754 (N)=\$2,333 (T)=\$3,389 NTR=\$398,540 26/35	Yield=85.4% Avg. Grant: (E)=\$4,210 (N)=\$2,292 (T)=\$3,929 NTR=\$474,336 35/41	Yield=66.7% Avg. Grant: (E)=\$4,814 (N)=\$3,271 (T)=\$4,300 NTR=\$255,000 20/30	Yield=77.2% Avg. Grant: (E)=\$4,167 (N)=\$2,484 (T)=\$3,783 NTR=\$1,603,198 115/149
<b>Total</b>	Yield=46.5% Avg. Grant: (E)=\$3,844 (N)=\$2,517 (T)=\$3,134 NTR=\$1,026,842 73/157	Yield=53.0% Avg. Grant: (E)=\$4,352 (N)=\$2,526 (T)=\$3,494 NTR=\$1,158,598 79/149	Yield=55.5% Avg. Grant: (E)=\$4,328 (N)=\$3,322 (T)=\$3,880 NTR=\$1,216,734 86/155	Yield=44.9% Avg. Grant: (E)=\$6,241 (N)=\$4,335 (T)=\$5,191 NTR=\$917,330 75/167	Yield=49.8% Avg. Grant: (E)=\$4,679 (N)=\$3,226 (T)=\$3,951 NTR=\$4,319,504 313/628

## Sample College Freshman Matrix

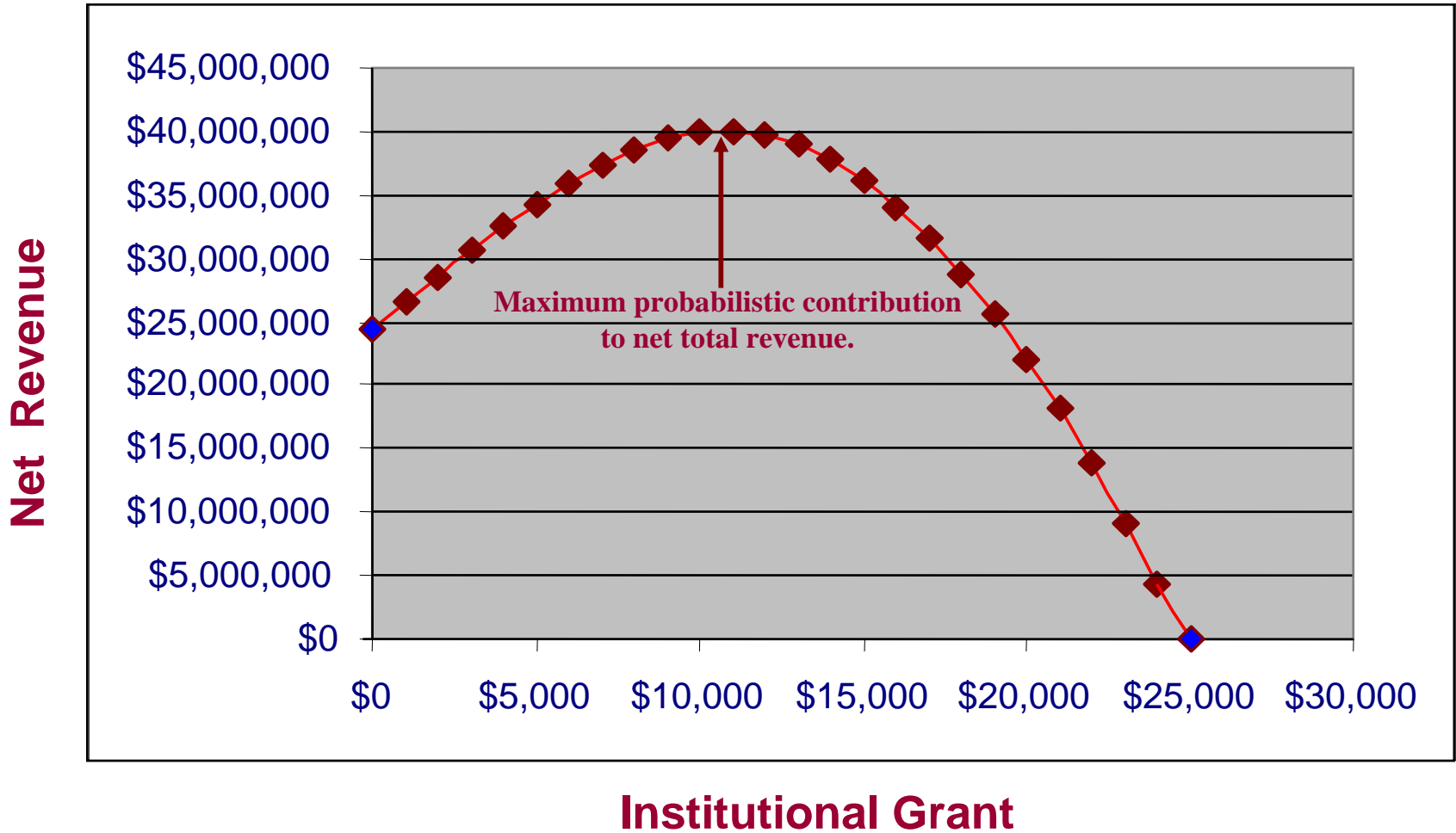
### Actual Data for Students with Need Greater than 0

E = Students who enrolled  
N = Students who didn't enroll  
T = All students  
NTR = Net Total Revenue

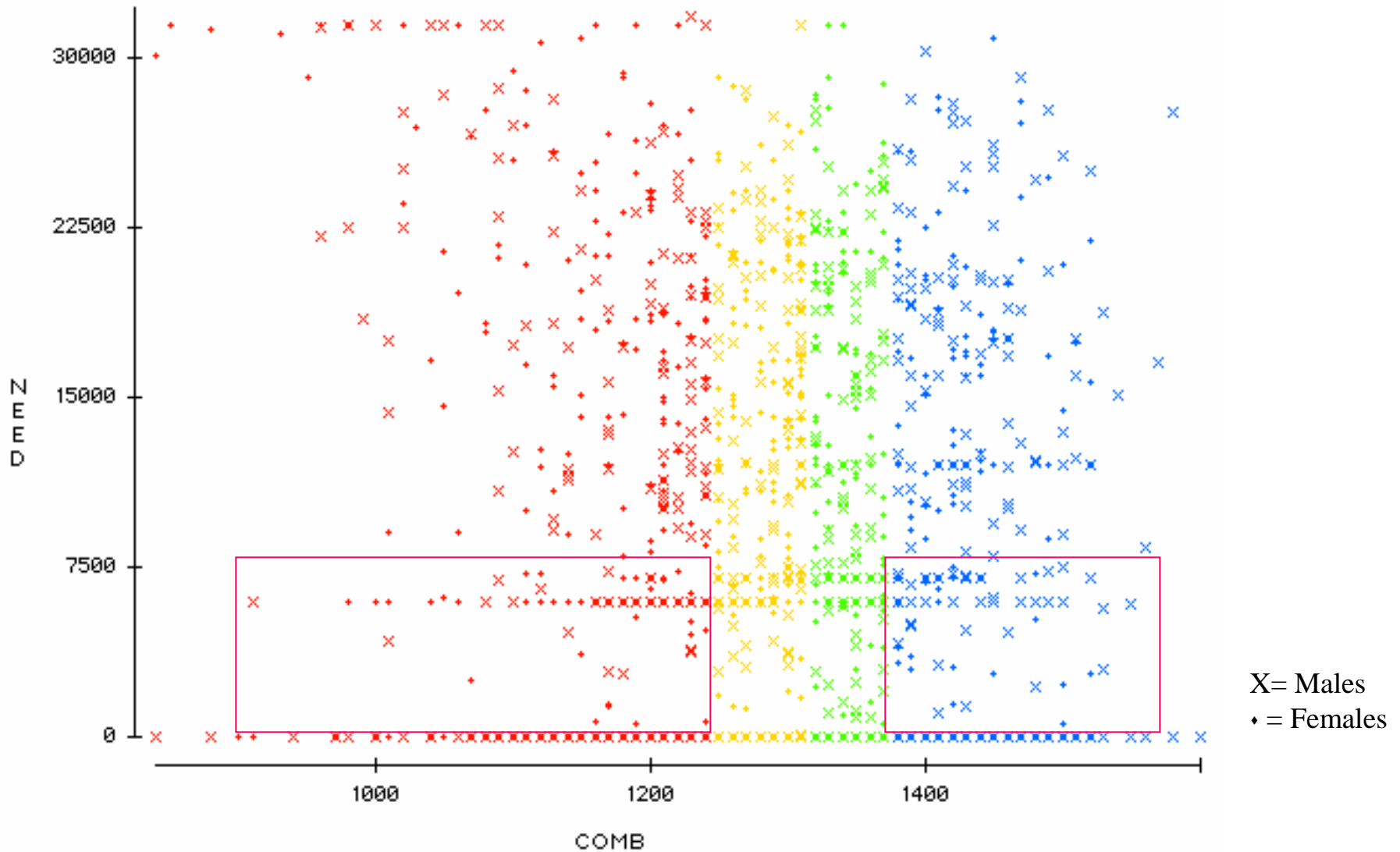
# Probability of Enrollment as a Function of Average Institutional Grant for a \$35,000 College



# Net Revenue as a Function of Institutional Grants for a \$25,000 University

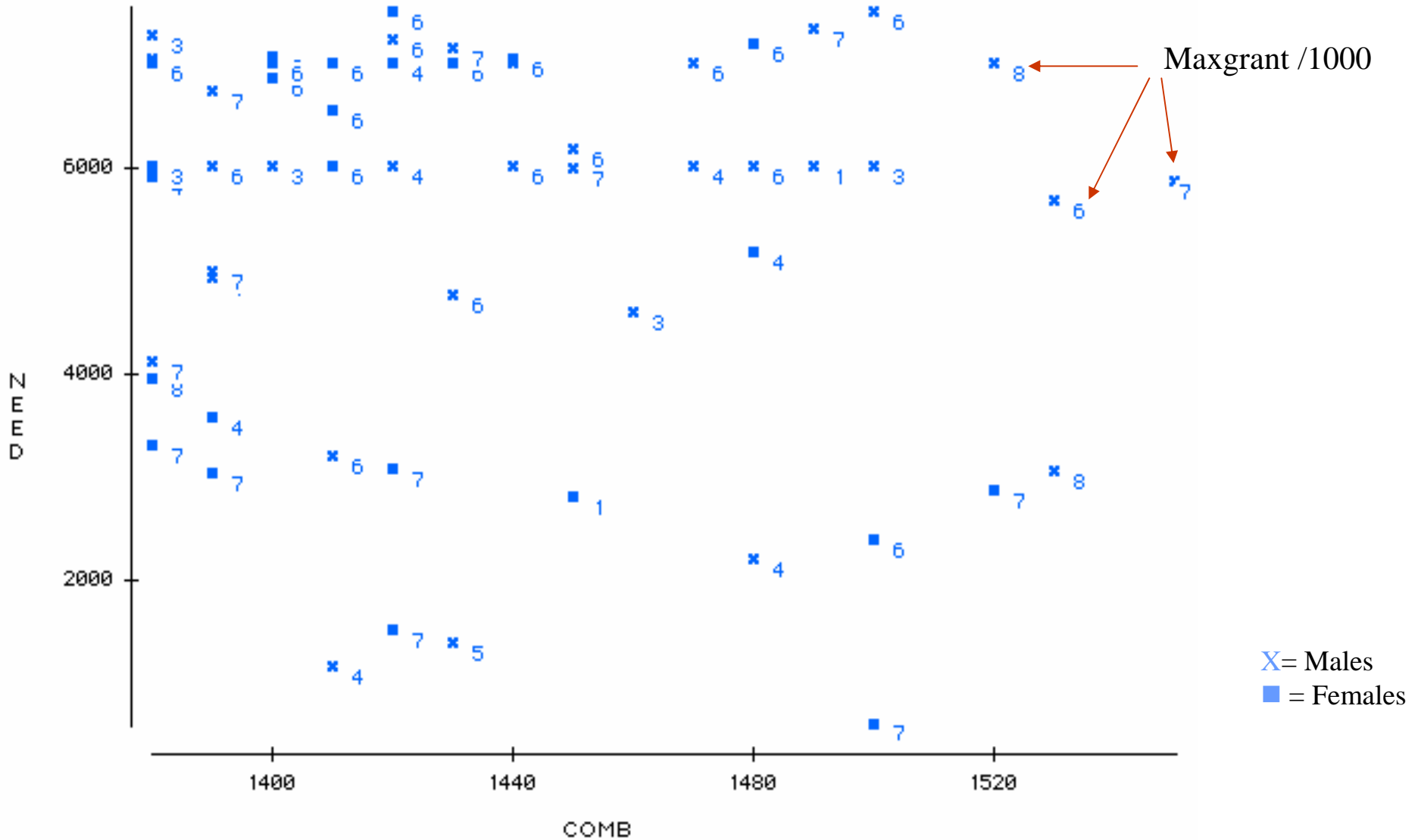


# Need vs. Quality Scatterplot for Sample College



\* Colors represent SAT Quartiles

# Low Need / High Quality Students for Sample College



# Robust Data Analysis Potential

<b>Application Status</b>	<b>SAT or ACT Combined Score</b>	<b>GPA Score</b>	<b>Early Decision Application</b>
<b>Gender</b>	<b>Cost of Attendance</b>	<b>Financial aid Applicant?</b>	<b>Financial Need</b>
<b>Visit to Campus?</b>	<b>Admissions Rating</b>	<b>Home State</b>	<b>Ethnicity</b>
<b>Legacy Status</b>	<b>Commuter/ Resident Status</b>	<b>Intended Major</b>	<b>Date of Application</b>
<b>Alumni Interview</b>	<b>Citizenship Status</b>	<b>Interest in Varsity Sports</b>	<b>Other</b>

# Freshman Class Enrollment Characteristics

	Current	Increase	Decrease	Maintain
Size of Class				
Net Total Revenue				
Yield Rate				
Discount Rate				
Avg. SAT Scores				
Avg. GPA Scores				
% Male				
Ethnic Diversity				
% Out-of-State				
Academic Major Distribution				
Other				

# Case Studies: Opportunities and Ethical Choices

# Midwestern University

## Strategic Goals:

- Increase revenue
- Improve quality of students
- Increase minority enrollment
- Maintain gender balance

# Midwestern University

## Initial Equation Contributing Variables

<u>Coefficient</u>	<u>Variable</u>
.0001954	Scholarship Amount
-.0559	ACT
-.9844	High School GPA
.3566	Date Student Applied
-.4415	On-Campus Resident
.7941	Appealed Financial Aid
.4580	Filed a FAFSA
.2734	Legacy
.2840	In-State Resident
.3706	Tele-counselor contact
.4166	Business Major
1.9498	Accepted into Honors Program
-.4220	Invited to Apply to Honors Program
.3503	Attended "Fall Open House"
.6508	Attended "Red Carpet Weekend"
2.8847	Constant

# Midwestern University

## Initial Equation

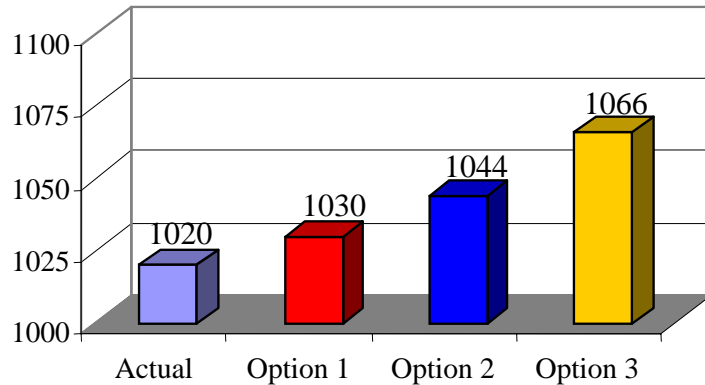
### Non-Contributing Variables

- Gender
- Athlete
- Minority Status
- Private High School
- Religion

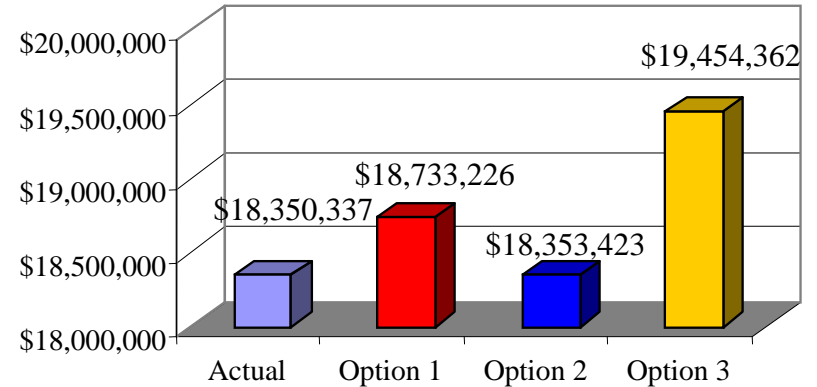
# Midwestern University

## EMFASYS Trade-Off Options

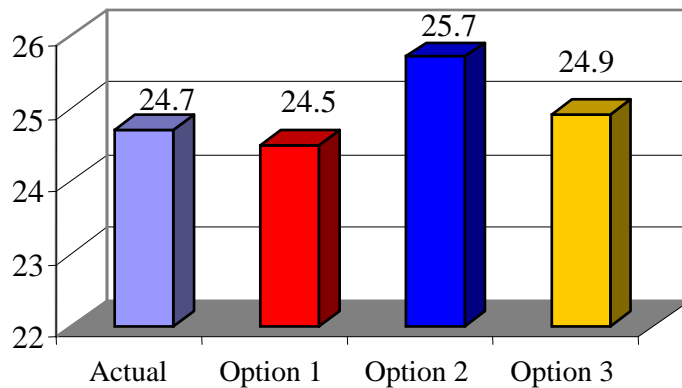
### Enrolled Students



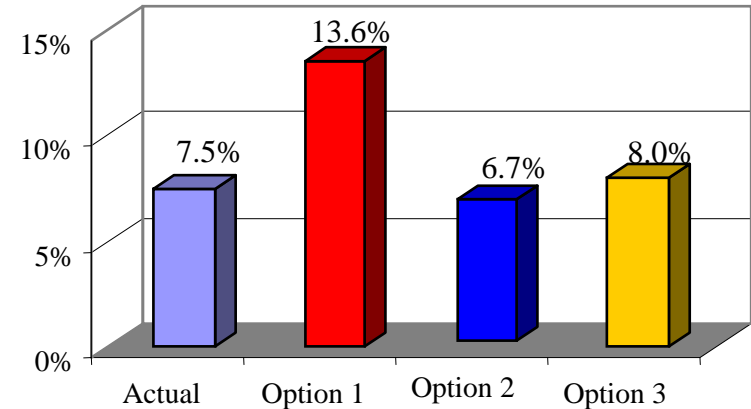
### Net Total Revenue



### ACT Score



### Percentage Minority Representation



**% Male:** Actual (43.5%), Option 1 (43.5%), Option 2 (44.6%), Option 3 (43.8%).

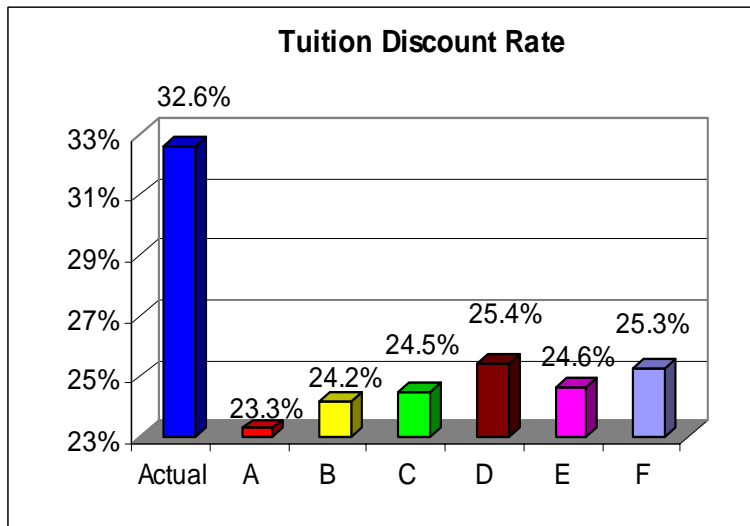
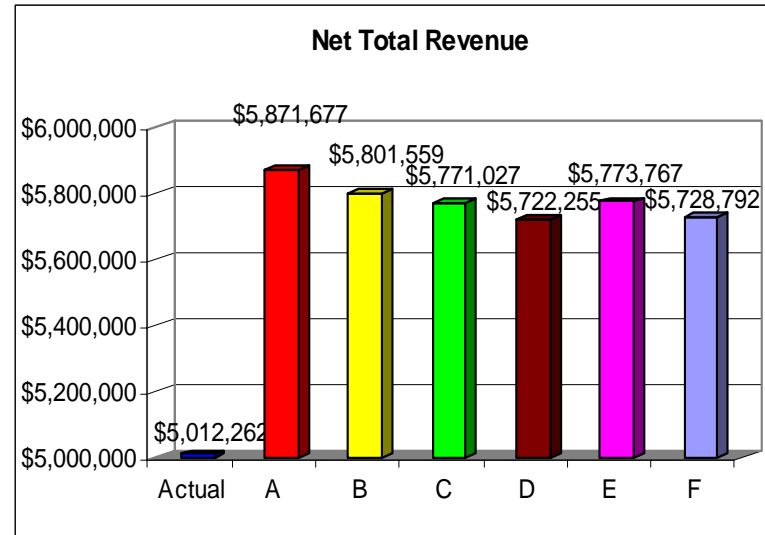
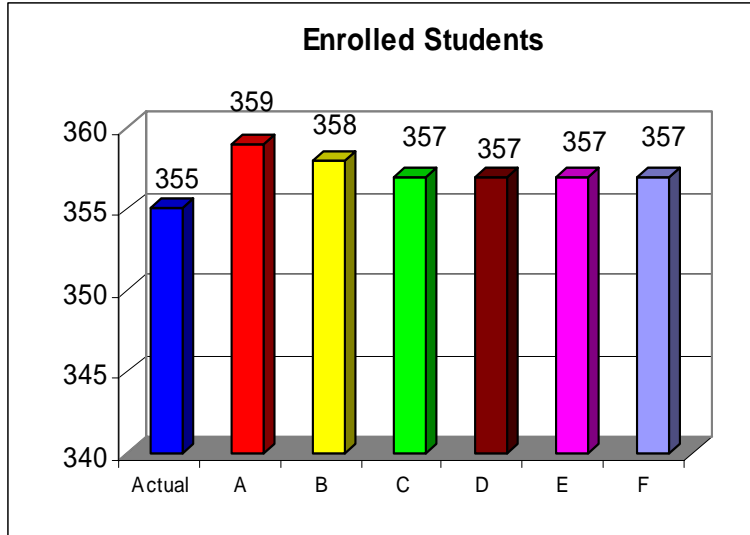
# Midwestern University

## RESULTS

CATEGORY	GOAL	Prior Year ACTUAL	PROJECTED	RESULTS
Net Total Revenue	Increase	\$ 18.35 million	\$ 19.84 million	\$ 19.72 million
Enrollment	Maintain or Increase Slightly	1020	1031	1033
Quality (ACT)	Maintain or Improve	24.7	24.9	24.9
% Male	Maintain	43.5%	45.7%	46.4%
% Minority	Increase	7.5%	8.9%	9.2%

# Southern College

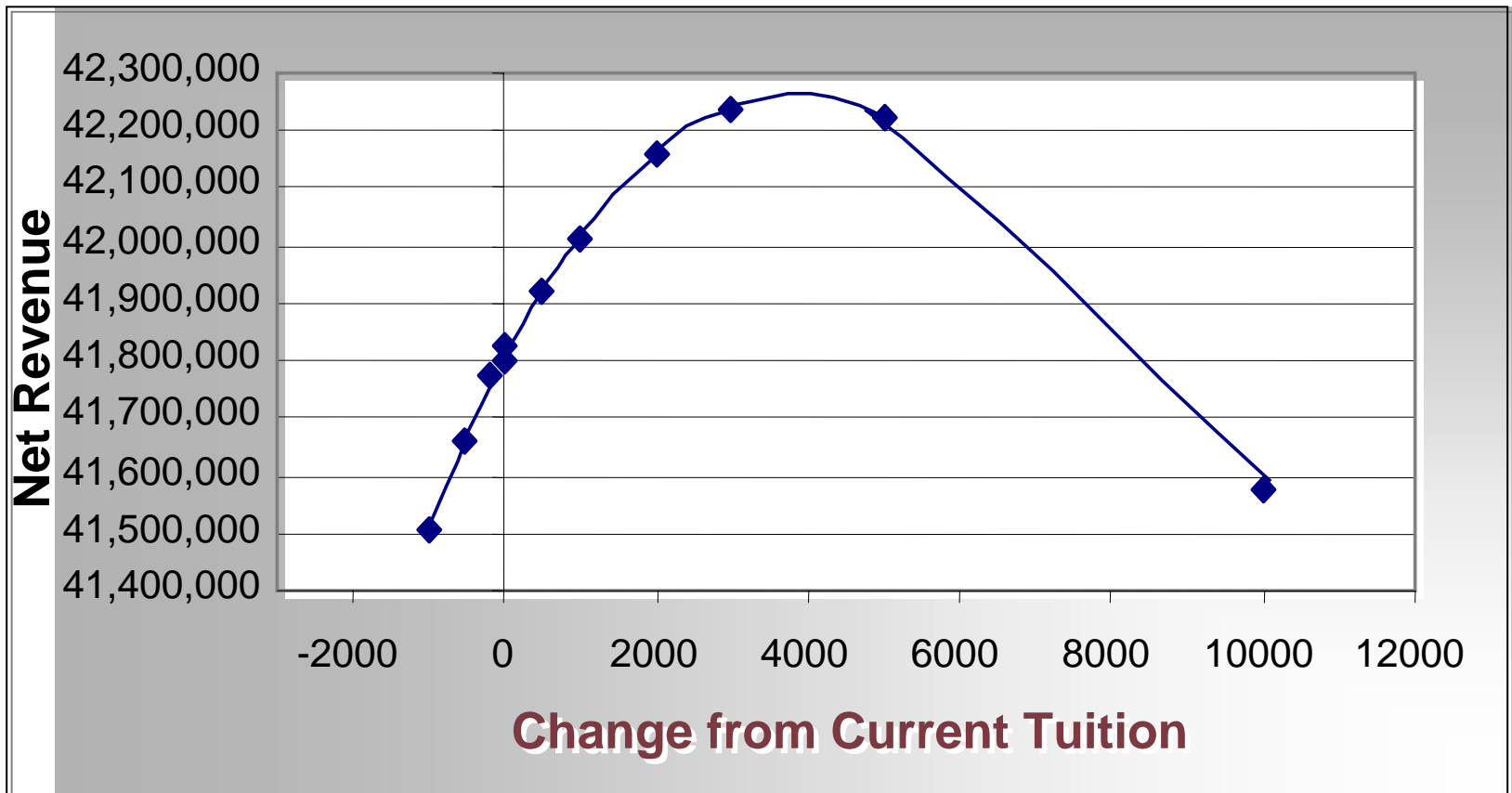
## Tradeoff Options for Increasing Net Revenue



	Revenue	Male	SAT	Minority
A	Increase			
B	Increase	Increase to 42%		
C	Increase	Increase to 42%	Maintain	
D	Increase	Increase to 42%	Increase	
E	Increase	Increase to 42%	Maintain	Maintain
F	Increase	Increase to 42%	Increase	Maintain

# Eastern University

## Net Revenue at Varying Tuition Levels



# Final Thoughts

- Connect decisions for price increases, financial aid budgeting, and enrollments.
- Think carefully about holding the line on financial aid and discount rate. This can negatively impact the bottom line.
- Preserve a commitment to families from all socio-economic backgrounds.
- Keep the values of the school in front of whatever tools are employed.



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***“Men have become the tools  
of their tools.”***

**Henry David Thoreau**

January 31, 2004

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