Marketing Analytics II

Chapter 3A1: Segmentation: Segmentation

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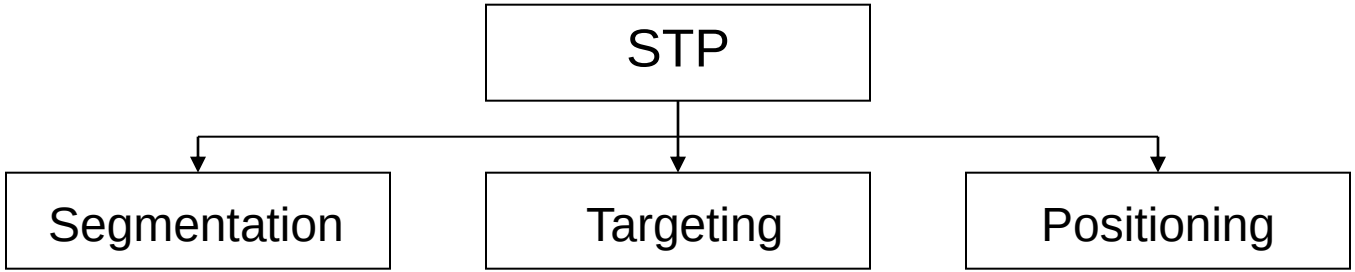
Outline/ Learning Objectives

Topic	Description
Introduction	Overview of market segmentation, targeting, and positioning
Techniques	Overview of different segmentation techniques
Examples	A Priori and Post Hoc segmentation technique examples

STP: Segmentation, Targeting, Positioning

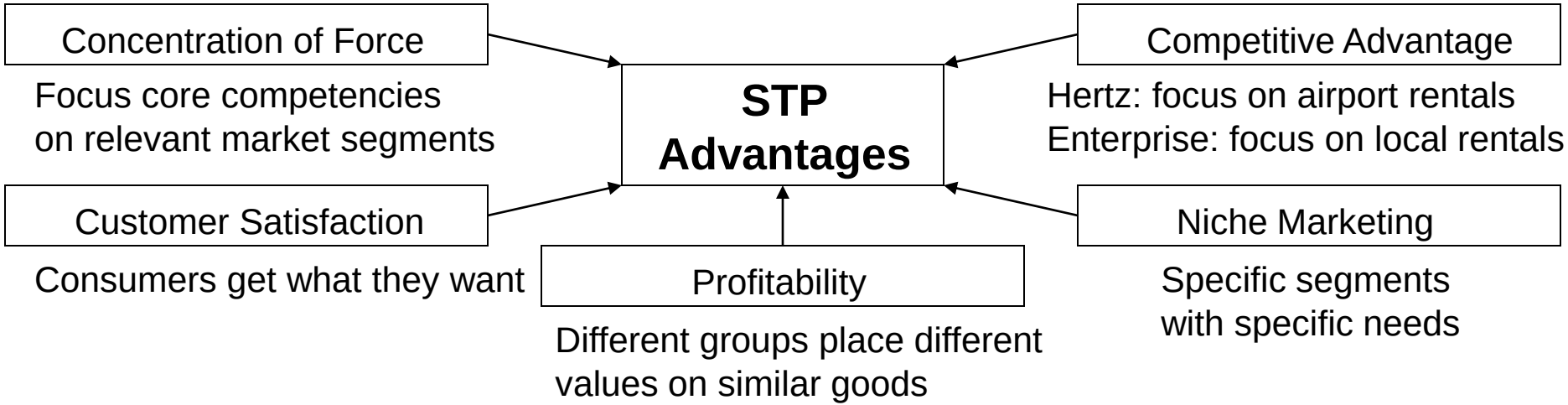


Segmentation:
Subdividing general markets into distinct segments with different needs, and which respond differently to marketing efforts.
-Increased customer satisfaction
-Increased marketing effectiveness

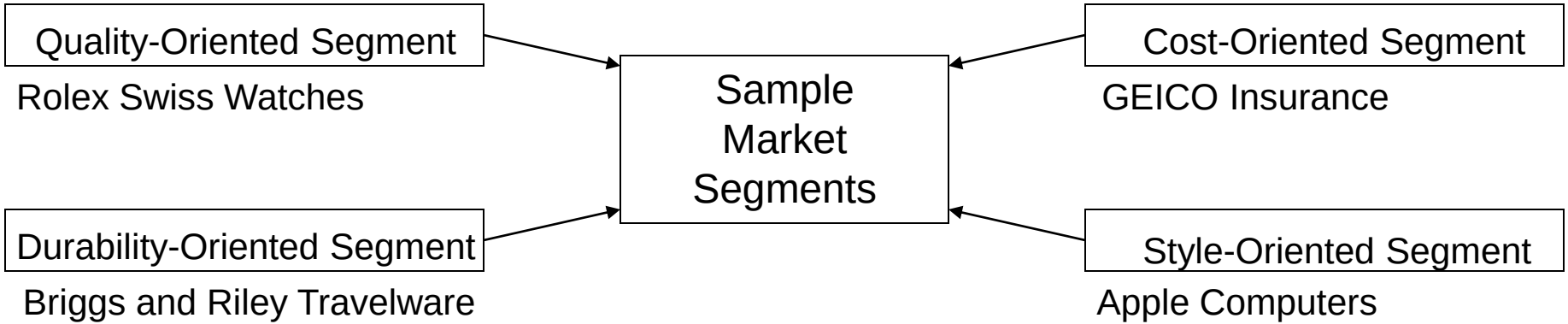
Targeting:
Selection of market segments. Cannot service every possible segment.

Positioning:
Activities to make consumers perceive that a brand occupies a distinct position relative to competing brands.

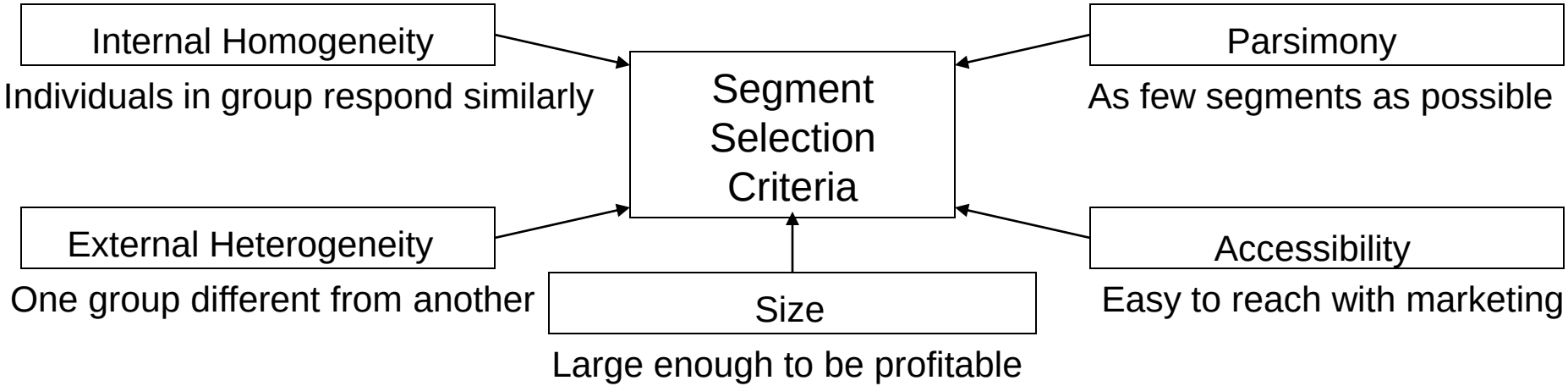
STP Advantages



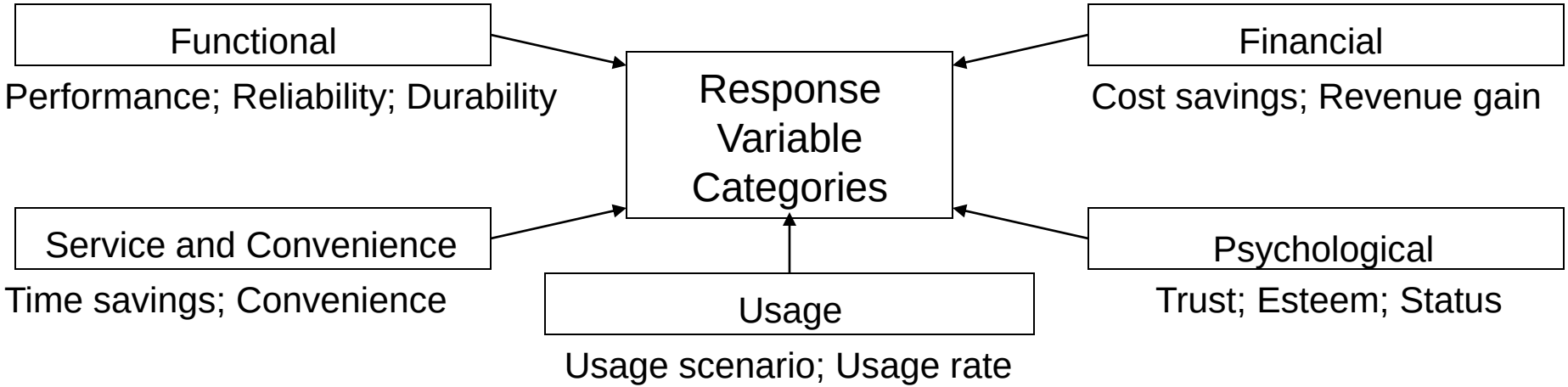
Sample Market Segments



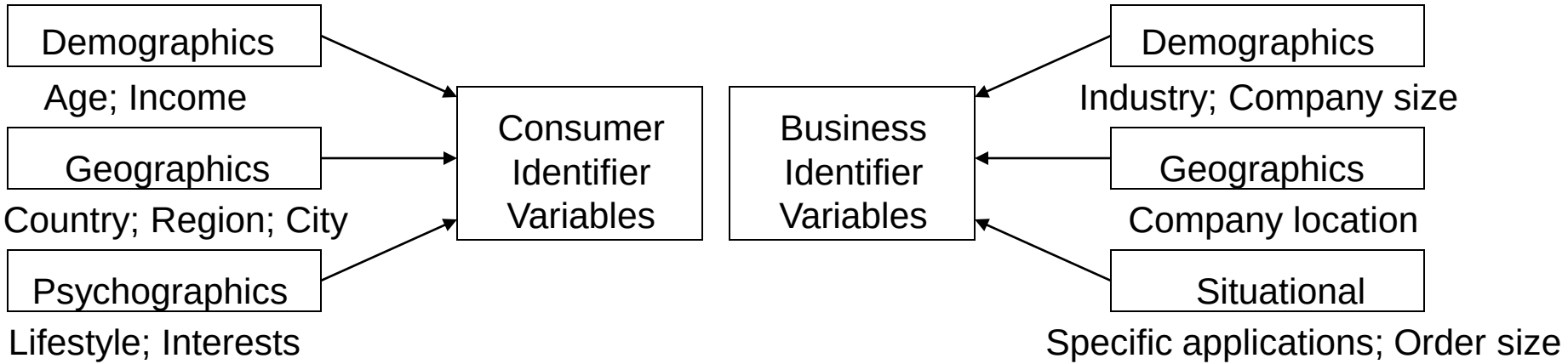
Segment Selection Criteria



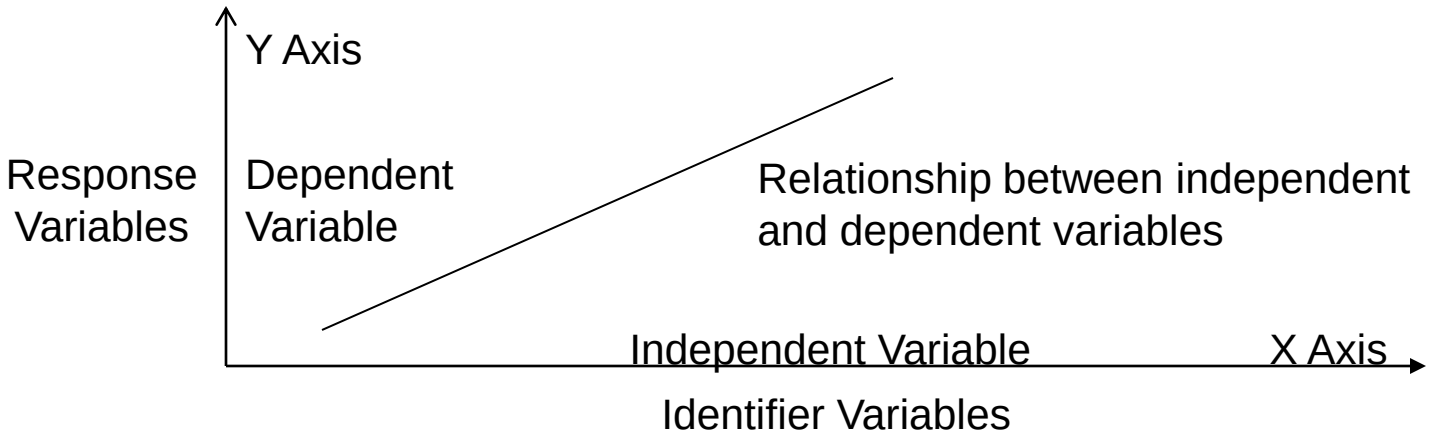
Response Variable Categories



Segmentation Identifier Variables



Segmentation Variables



Market Segmentation: A Priori vs. Post Hoc

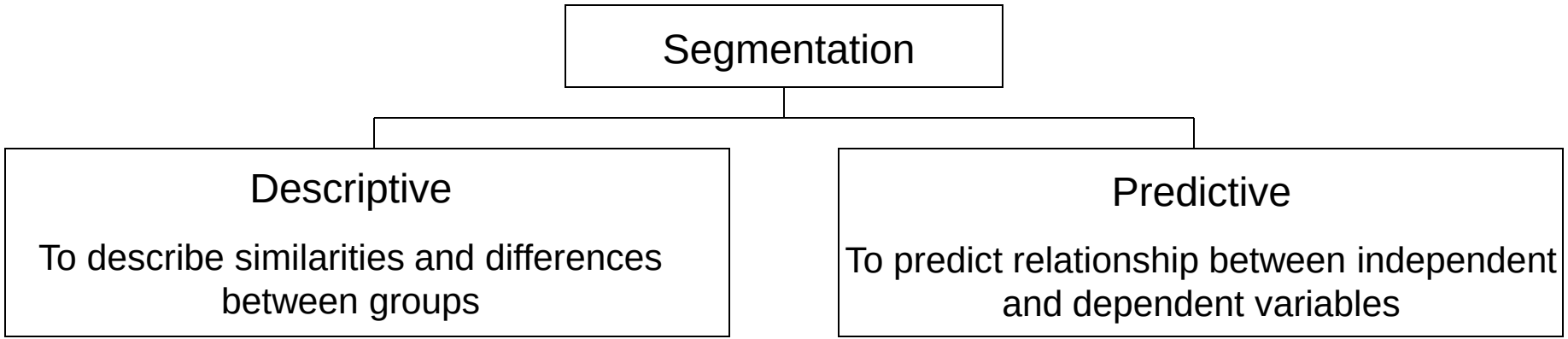
Latin: “From Before”
Segments defined before primary market research and analysis

Latin: “After This”
Segments defined after primary market research and analysis

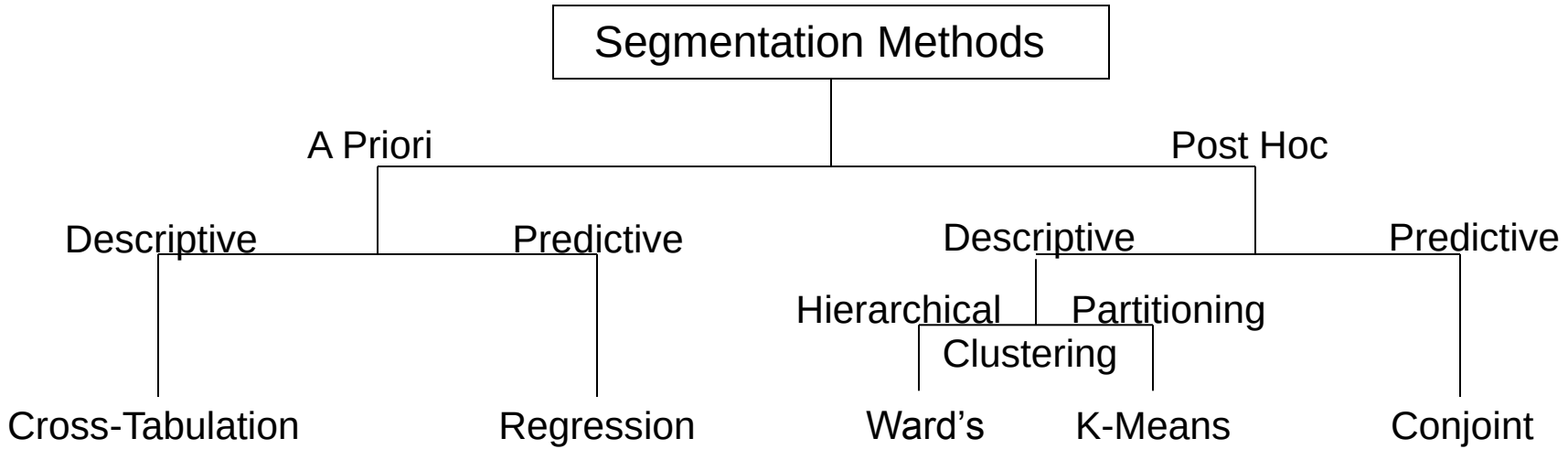
A Priori Market Segmentation Process

Step	Description
Segmentation Variables	Response Variable: Usage rate, etc. Identifier Variable: Age; Income; etc.
Sample Design	Large surveys: Often use random sample Small surveys: Often use non-random
Data Collection	Online survey tools: SurveyMonkey, etc.
Segmentation Technique	Cross-tab; Regression; etc.
Marketing Program	Leverage information known about segment

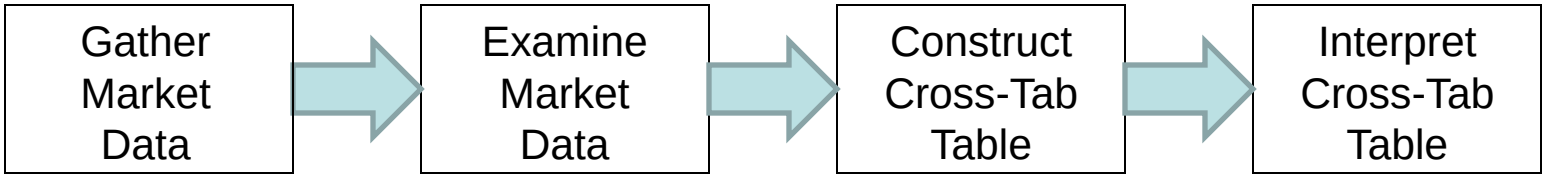
Market Segmentation:



Market Segmentation: Analytic Techniques



Cross Tabulation: Process



Step	Description
Gather Market Data	Conduct survey to gather response var. info. as well as identifier variable information
Examine Market Data	Consider relationships between response variable and identifier variables
Construct Cross-Tab Table	Use purpose-built tool, or do manually
Interpret Cross-Tab Table	Consider how to apply results

Cross Tabulation

Example: Acme Restaurants surveys local community during local town fair.
Goal is to get information for cross-tab segmentation.

Respondent	Frequency	Annual Income	Age	Occupation
Respondent 1	4 times/ month	$150,000/year	35	Physician
Respondent 2	1 time/ month	$60,000/year	32	Auto repair
Respondent 3	Under 1/month	$25,000/year	34	Security guard

Step 1.Gather Market Data
Gather response variable information (Frequency)
as well as identifier variable information: Annual income; Age; Occupation

Cross Tabulation

Respondent	Frequency	Annual Income	Age	Occupation
Respondent 1	4 times/ month	$150,000/year	35	Physician
Respondent 2	1 time/ month	$60,000/year	32	Auto repair
Respondent 3	Under 1/month	$25,000/year	34	Security guard

Step 2.Examine Market Data

Examine relationship between response variable (frequency) and identifier variables

-Frequency definitely varies by income

-Frequency does not appear to vary by age

-Frequency varies by occupation, but information is redundant with income

Cross Tabulation

Respondent	Frequency	Annual Income	Age	Occupation
Respondent 1	4 times/ month	$150,000/year	35	Physician
Respondent 2	1 time/ month	$60,000/year	32	Auto repair
Respondent 3	Under 1/month	$25,000/year	34	Security guard

+ many other respondents…

Frequency	$10,000 - $49,999 Annual Income	$50,000 - $99,999 Annual Income	$100,000 – over Annual Income	Total
4 times/month	10%	30%	60%	100%
1 time/ month	20%	60%	20%	100%
Under 1/ mo.	60%	30%	10%	100%

Step 3. Construct Cross-Tab Table

-Use commercial statistics software package such as SPSS and MarketSight (or do it manually)

-A Priori Segmentation: Use pre-known bands of independent variable (in this case, Income)

-Count the number of respondents dining out 4 times per month that make $10K-$49K/yr, etc.

-Divide by total to get percentages

Cross Tabulation

Frequency	$10,000 - $49,999 Annual Income	$50,000 - $99,999 Annual Income	$100,000 – over Annual Income	Total
4 times/month	10%	30%	60%	100%
1 time/ month	20%	60%	20%	100%
Under 1/ mo.	60%	30%	10%	100%

Frequency	$10,000 - $49,999 Annual Income	$50,000 - $99,999 Annual Income	$100,000 – over Annual Income	Total
4 times/ month	10%	30%	60% ←Mavens	100%
1 time/ month	20%	60% ←Medians	20%	100%
Under 1/ mo.	60% ←Misers	30%	10%	100%

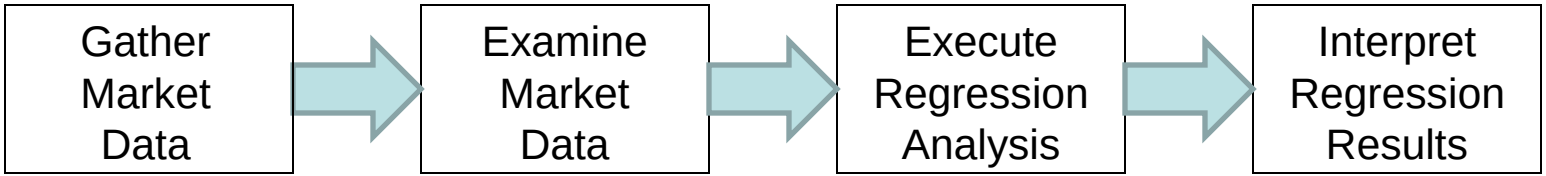
Step 4. Interpret Cross-Tab Table

-Segment 1: Dining Misers: Low income individuals who dine out rarely

-Segment 2: Dining Medians: Mid-income individuals who dine out occasionally

-Segment 3: Dining Mavens: High-Income individuals who dine out frequently (our target)

Regression-based Segmentation: Process



Step	Description
Gather Market Data	Conduct survey to gather response var. info. as well as identifier variable information
Examine Market Data	Consider relationships between response variable and identifier variables
Execute Regression Analysis	Use Excel Analysis ToolPak
Interpret Regression Results	Plug in Part-Worths as regression coefficients

Regression-based Segmentation

Example: Acme Automobiles wishes to identify segments purchasing used automobiles

A: Respondent	B: Spending	C: Income
Respondent 1	$70,000	$190,000
Respondent 2	$6,000	$20,000
Respondent 3	$23,000	$50,000
Respondent 4	$60,000	$150,000
Respondent 5	$9,000	$30,000
Respondent 6	$25,000	$54,000
Respondent 7	$8,000	$25,000
Respondent 8	$25,000	$55,000
Respondent 9	$70,000	$200,000
Respondent 10	$7,000	$22,000
Respondent 11	$62,000	$170,000
Respondent 12	$22,000	$45,000

Step 1.Gather Market Data
Gather response variable information (Spending)
as well as identifier variable information: Income

Regression-based Segmentation

A: Respondent	B: Spending	C: Income
Respondent 2	$6,000	$20,000
Respondent 10	$7,000	$22,000
Respondent 7	$8,000	$25,000
Respondent 5	$9,000	$30,000
Respondent 12	$22,000	$45,000
Respondent 3	$23,000	$50,000
Respondent 6	$25,000	$54,000
Respondent 8	$25,000	$55,000
Respondent 4	$60,000	$150,000
Respondent 11	$62,000	$170,000
Respondent 1	$70,000	$190,000
Respondent 9	$70,000	$200,000

Step 2. Examine Market Data

Seek relationships between response variable and identifier variables

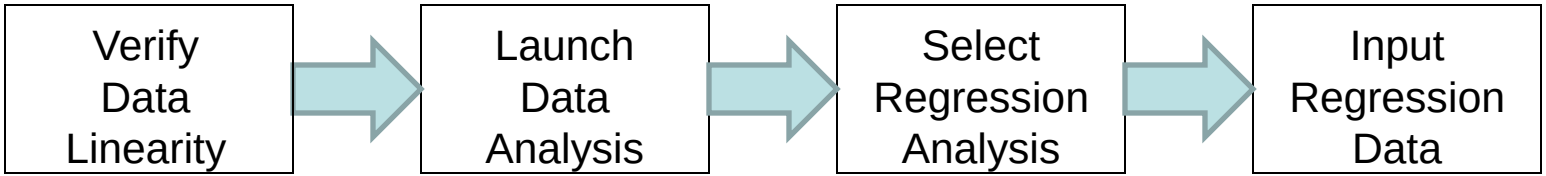
A Priori Segmentation: Use pre-known bands of independent variable (in this case, Income)

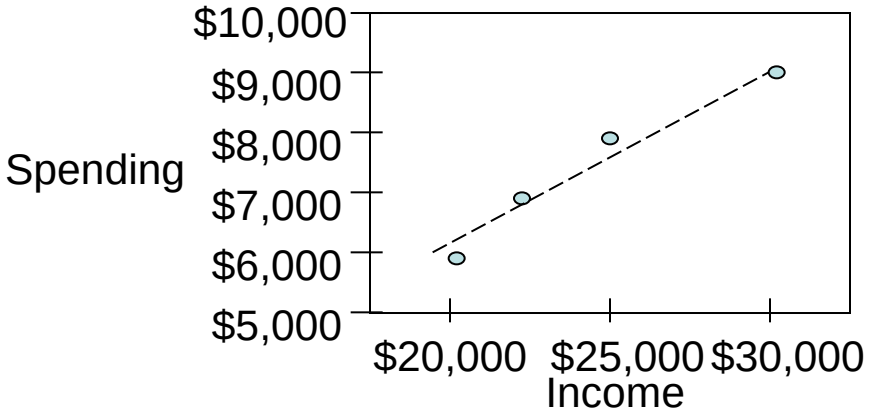
Alternative: Sort by response variable (dependent variable); Notice gaps in spending

Can use techniques such as K-Means to automate this process

Next step: Find out relationship between income & spending for each segment

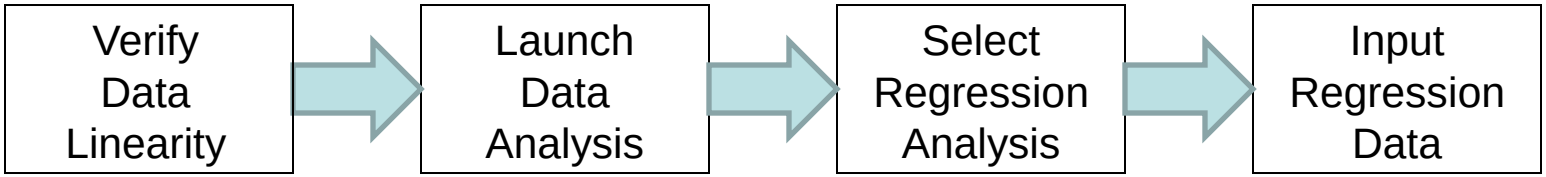
Regression-based Segmentation: Excel Process

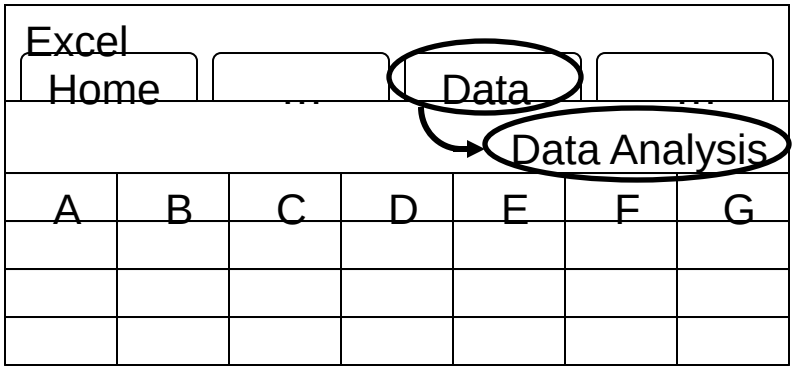




3A. Verify Data Linearity
Microsoft Excel: Least Squares Algorithm
Good to plot out data to check if linear

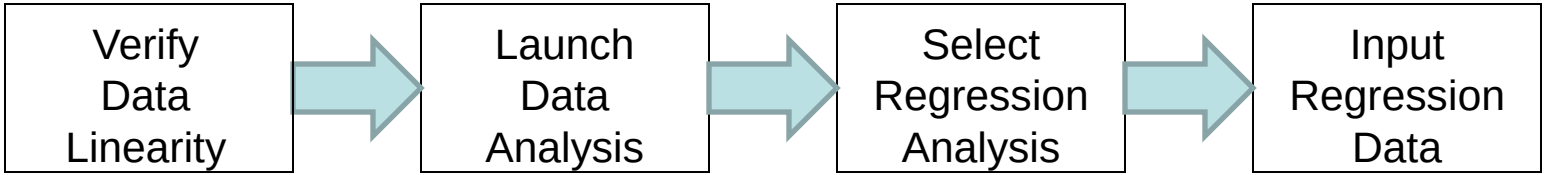
Regression-based Segmentation: Excel Process

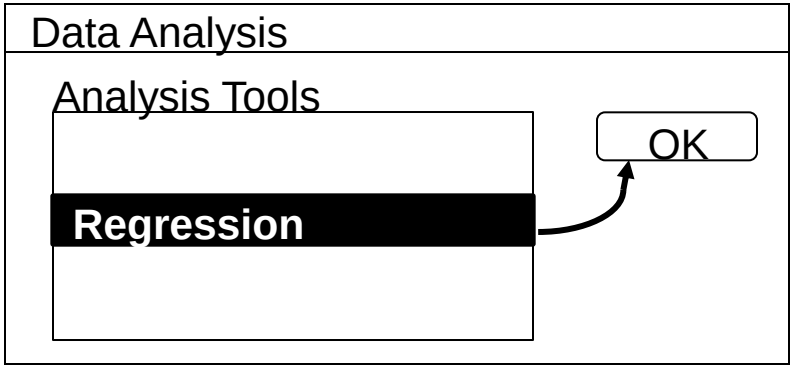




3B. Launch Data Analysis

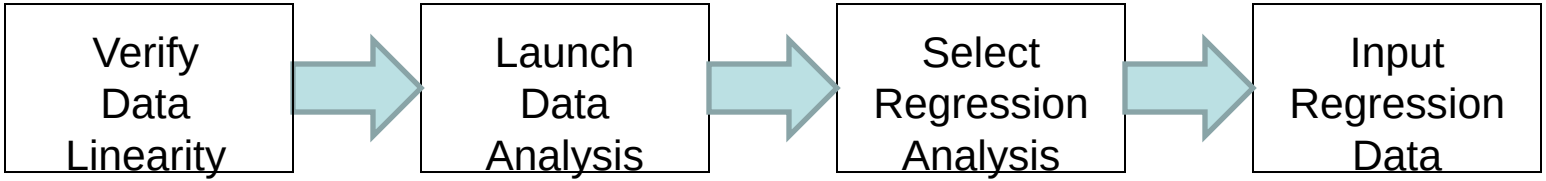
Regression-based Segmentation: Excel Process

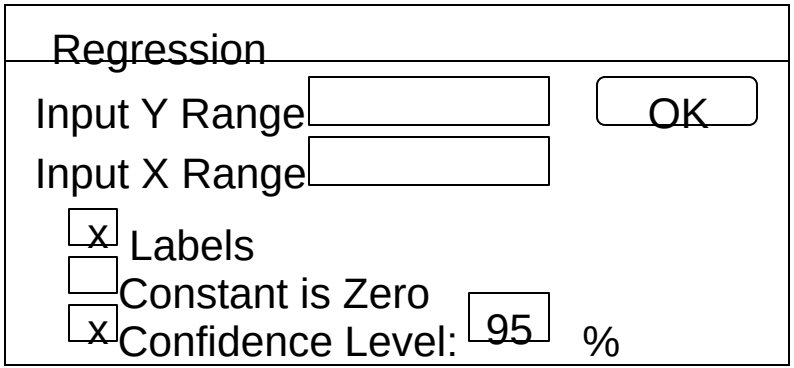




3C. Select “Regression” from Analysis Tools

Regression-based Segmentation: Excel Process





3D. Input Regression Data
Y Range: Dependent Variable (Response Variable)
X Range: Independent Variables (could have multiple X variables)

Regression-based Segmentation: Excel Results

Scenario	R-Squared
No Relationship	0.0
Social Science Studies	0.3
Marketing Research	0.6
Scientific Applications	0.9
Perfect Relationship	1.0

R-Squared, the Coefficient of Determination
Also known as “Goodness of Fit”, from 0 (no fit) to 1 (perfect fit)

Regression-based Segmentation: Excel Results

Parameter	Coefficient	Standard Error	t-Stat	P-value
Intercept	449.339	1036.95	0.433329	0.707034
Income Coefficient	0.290749	0.042254	6.880976	0.020474

Results, Segment 1 Spending = 449.339 + (0.290749) * Income

Statistic	Description
Standard Error	Estimate of standard deviation of the coefficient
t-Stat	Coefficient divided by the Standard Error
P-value	Probability of encountering equal t value in random data (P-value should be 5% or lower)

Parameter	Segment 1	Segment 2	Segment 3
Intercept	449.339	7,298.387	25,186.44
Income Coefficient	0.290749	0.322581	0.227119

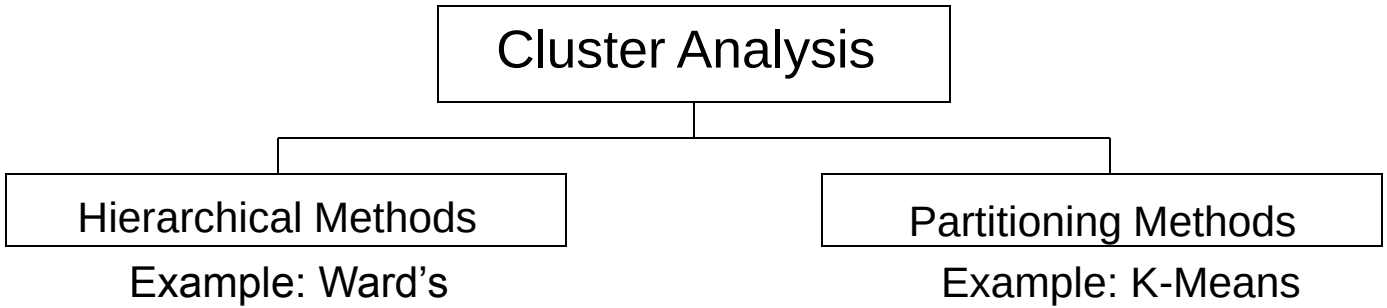
Spending = (Intercept) + (Income Coefficient) * (Income)

Spending (Buyer 1) = (449.339) + (0.290749) * ($24,000) = $7,427

Spending (Buyer 2) = (7,298.387) + (0.322581) * ($52,000) = $24,073

Spending (Buyer 3) = (25,186.44) + (0.227119) * ($180,000) = $66,068

Segmentation: Cluster Analysis



Example: Ward's

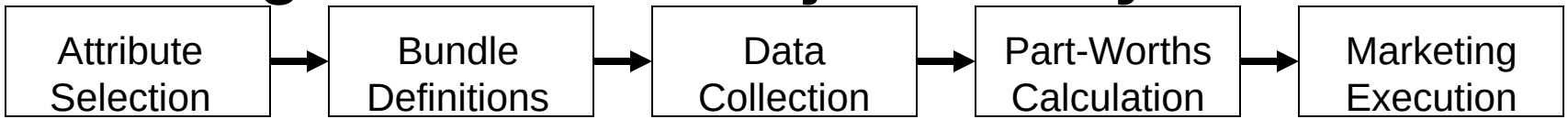
Example: K-Means

Ward's Method:
Agglomerative hierarchical clustering
Groups clusters in hierarchy, from bottom up
Result is a tree-like diagram (dendogram)

K-Means:
Specify K, the number of final clusters to expect
Execute K-Means algorithm
Forms groups based on "distance" from "centroid"

Mathematics and algorithms of Cluster Analysis are complex;
Use cluster analysis built into SAS, SPSS, and other packages

Market Segmentation: Conjoint Analysis



Step	Description
Attribute Selection	Select characteristics of product/service customers find relevant Example: Attributes of Screen Size, Processor Speed, Battery Life
Bundle Definitions	Define candidate “products” by varying characteristics into “bundles” Example: Bundles include Laptop A, Laptop B, Laptop C
Data Collection	Survey customers on their preferences for different bundles
Part-Worths	Calculate desire for each attribute, based on bundle evaluation data
Execution	Different segments desire different characteristics

Laptop Bundles	Screen Size	Processor Speed	Battery Life
Laptop A	13 inch	2.0GHz	6 hours
Laptop B	14 inch	2.0GHz	4 hours
Laptop C	15 inch	2.5GHz	3 hours

Market Segmentation: Other Techniques

Segmentation Technique	Description
AID	Automatic Interaction Detection Post hoc, predictive segmentation technique producing dendograms
CHAID	Chi Square Automatic Interaction Detection Extension of AID technique, using Chi-Square statistical technique
CART	Classification and Regression Tree Extension of AID and CHAID using regression analysis
Logit/ MNL	Multinomial Logit Segments markets based on individuals' choices
Overlapping Segments	Fuzzy Segmentation or Probabilistic Segmentation Uses weights to spread individuals over several segments

Check Your Understanding

Topic	Description
Introduction	Overview of market segmentation, targeting, and positioning
Techniques	Overview of different segmentation techniques
Examples	A Priori and Post Hoc segmentation technique examples