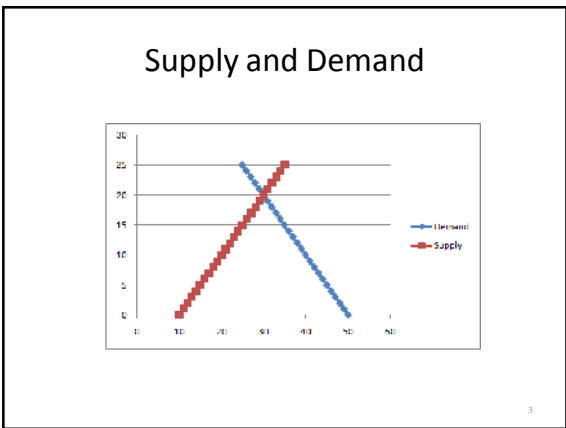
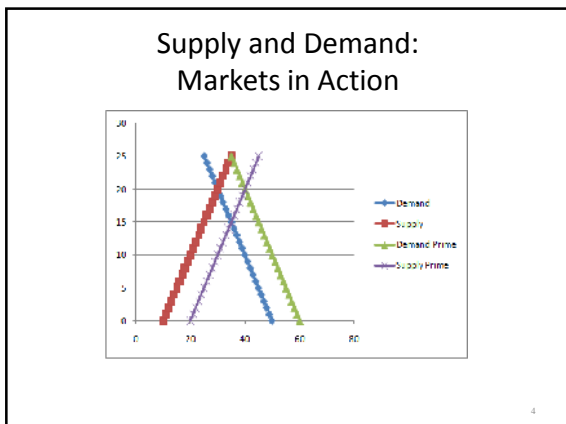


Regional Economics
Lecture March 11, 2010
J. M. Pogodzinski

Markets in Action:
Supply and Demand

- **Market Demand (definition):**
 - a relationship between a good's own price and the quantity of that good consumers desire and can afford, given income, other prices, tastes and preferences, expectations, etc.
- **Market Supply (definition):**
 - a relationship between a good's own price and the quantity of that good an industry consisting of profit-maximizing firms desires to produce and can produce, given technology, other prices, expectations, etc.





Markets and Efficiency

- An efficient allocation of resources is an allocation such that there is no other feasible allocation that would make at least one person better off and all others no worse off.
- There are many efficient allocations (and also many allocations that are inefficient).
- First Welfare Theorem: markets sometimes achieve efficient allocations of resources.

Markets and Efficiency

- Markets sometimes fail to achieve an efficient allocation of resources – this is called “market failure.”
- Causes of market failure include (but are not limited to):
 - externalities (spillover effects)
 - asymmetric information
 - market power

Regression

Economic models are abstract representations of the relationships among variables.

For example, an economic model might suggest that variable y is determined by variables x_1 , x_2 , and x_3 . This is represented generally by saying that y is a function of x_1 , x_2 , and x_3 .

$$y=f(x_1,x_2,x_3)$$

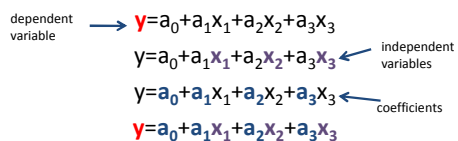
Regression continued

Starting with $y=f(x_1,x_2,x_3)$ as a general description of the relationship between y (the dependent variable) and the x 's (the independent variables), we may adopt a particular functional form, for example, a straight line:

$$y=a_0+a_1x_1+a_2x_2+a_3x_3.$$

Analyzing the Linear Equation (Equation of a Hyperplane)

Regression addresses: **estimating coefficients**



Coefficients

$$y = a_0 + a_1x_1 + a_2x_2 + a_3x_3$$

Coefficients measure the marginal impact of the corresponding independent variable upon the dependent variable.

That is a_1 measures the impact of an increase in x_1 on y holding constant x_2 and x_3 .

The idea of examining the effect of one variable on another holding constant other variables is expressed in the Latin phrase *ceteris paribus* ("other things equal" or "other things held constant").

Data for Regression Analysis

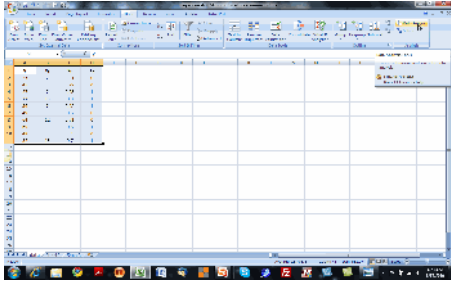
y	x_1	x_2	x_3
23	2	0.01	0
45	5	0.22	0
27	7	0.35	1
72	13	0.9	1
55	7	0.45	1
49	8	0.6	0
64	12	0.71	0
69	9	0.8	1
43	8	0.33	0
82	15	0.7	1

← dummy variable

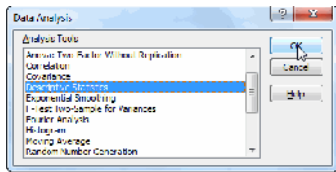
"Best Practices"

Determine the Descriptive Statistics of the Data
Do preliminary reconnaissance of the data

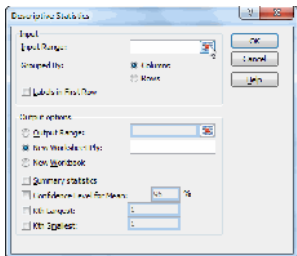
Descriptive Statistics



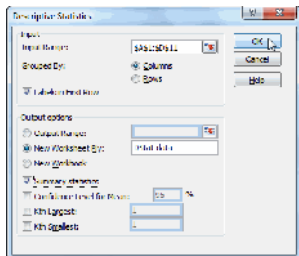
Descriptive Statistics



Descriptive Statistics



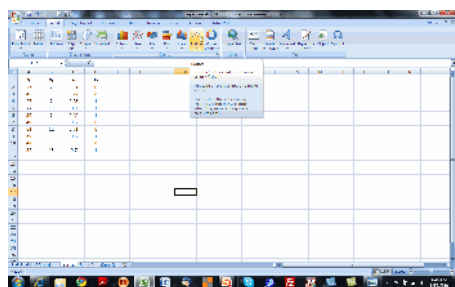
Descriptive Statistics



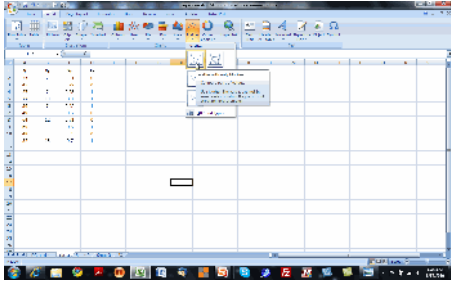
Descriptive Statistics Results

	F	A1	A2	A3	A4
Mean	23.3	Mean	23.3	Mean	23.3
Standard Error	0.00000	Standard Error	0.00000	Standard Error	0.00000
Median	23.5	Median	23.5	Median	23.5
Mode	N/A	Mode	N/A	Mode	N/A
Standard Deviation	0.00000	Standard Deviation	0.00000	Standard Deviation	0.00000
Sample Variance	0.00000	Sample Variance	0.00000	Sample Variance	0.00000
Kurtosis	-0.00000	Kurtosis	-0.00000	Kurtosis	-0.00000
Skewness	0.00000	Skewness	0.00000	Skewness	0.00000
Range	0	Range	0	Range	0
Minimum	0	Minimum	0	Minimum	0
Maximum	0	Maximum	0	Maximum	0
Sum	0	Sum	0	Sum	0
Count	0	Count	0	Count	0

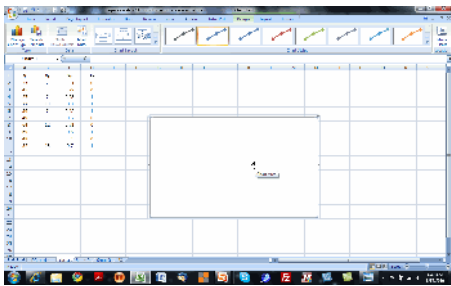
Preliminary Reconnaissance of the Data (Scatter Diagrams)



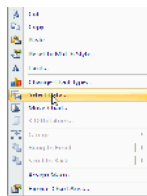
Scatter Diagrams



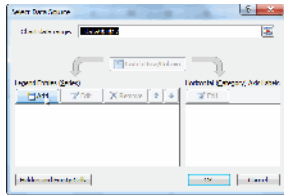
Scatter Diagrams



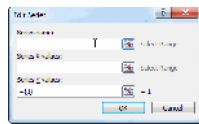
Scatter Diagrams



Scatter Diagrams



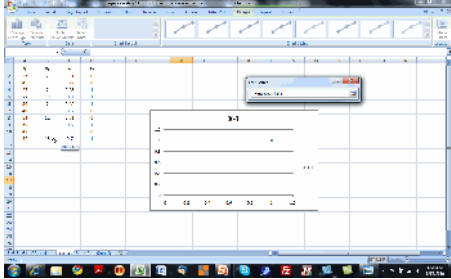
Scatter Diagrams



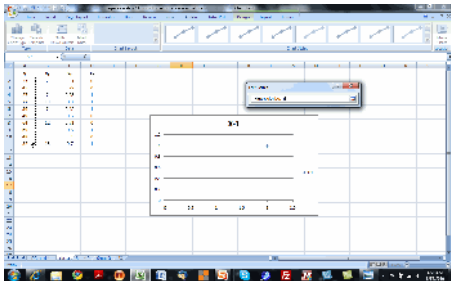
Scatter Diagrams



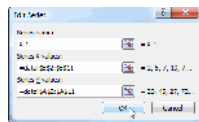
Scatter Diagrams



Scatter Diagrams



Scatter Diagrams



Scatter Diagrams Results

