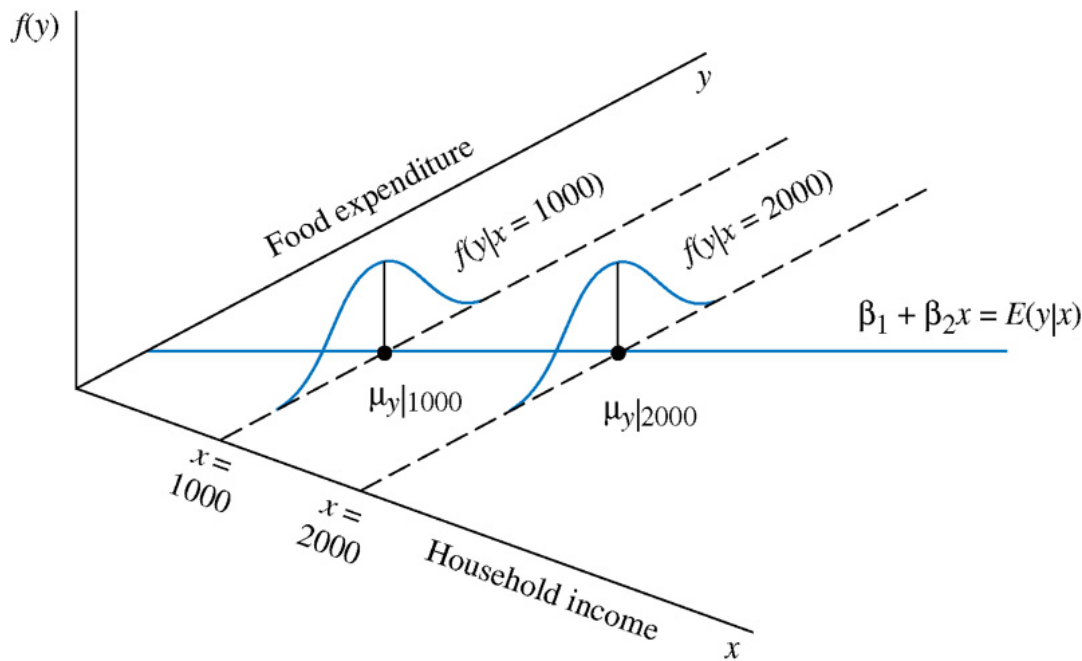


Introduction to Econometrics

Econ 425

TR 10:30am - 11:45am  
 Professor James Moncur



**ECONOMETRICS APPLIES STATISTICS TO MEASURE RELATIONSHIPS FROM ECONOMIC THEORY, E.G.:**

- WHAT IS THE ELASTICITY OF DEMAND FOR HIGHER EDUCATION?
- WHAT FACTORS ACCOUNT FOR THE WAGES OF WORKING WOMEN?
- WHAT ARE THE EFFECTS OF RACE ON BASEBALL PLAYER SALARIES?

**THE BASIC TOOL IS REGRESSION ANALYSIS, TWEAKED IN MANY DIFFERENT WAYS TO ACCOMMODATE DIFFERENT KINDS OF DATA.**

**AMAZE YOUR FRIENDS!**

**ESTIMATE REGRESSIONS!**

**CORRECT FOR HETEROSKEDASTICITY!**

**CORRECT FOR AUTOCORRELATION!**

**EXPRESS THOSE PESKY DEMAND-SUPPLY DIAGRAMS IN ACTUAL NUMBERS!**



$$Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_k X_{ki} + \varepsilon_i$$

$$E(\varepsilon_i) = 0$$

$$E(\varepsilon_i^2) = \sigma^2$$

$$E(\varepsilon_i \varepsilon_j) = 0, i \neq j$$

$X_{2i}, X_{3i}, \dots, X_{ki}$  **non-random**

**(optional)**  $\varepsilon_i \sim N(0, \sigma^2)$

Dependent Variable: *ln(ceo salary)*

Method: Least Squares  
 Date: 10/27/08 Time: 14:16  
 Sample: 1 208  
 Included observations: 208

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	4.331273	0.325809	13.29392	0.0000
Log(sales)	0.274835	0.033564	8.188447	0.0000
Log(Rate of Return)	0.021480	0.012957	1.657779	0.0989
Log(Rate of Return <sup>2</sup> )	-7.65E-05	0.000258	-0.296378	0.7672

R-squared	0.279963	Mean dependent var	6.952843
Adjusted R-squared	0.269374	S.D. dependent var	0.566623
S.E. of regression	0.484330	Akaike info criterion	1.406944
Sum squared resid	47.85348	Schwarz criterion	1.471128
Log likelihood	-142.3222	Hannan-Quinn criter.	1.432897
F-statistic	26.43960	Durbin-Watson stat	2.036940
Prob(F-statistic)	0.000000		