

Mapping: EC228 Slide Shows v. Notes and Handouts Text

Unit	Slide #	PgText	Slide Title
Getting Started I - Introduction to Econometrics			
1	1	3	What's the objective?
1	2	3	Estimating economic/statistical relationships
1	3	3	Causality v. correlation
1	4	4	Doing empirical economics
1	5	6	Be a complete skeptic!
1	6	6	Art v. science
Getting Started II - Sample Statistics & Optimization			
1	1	7	Sample Statistics: data characteristics
1	2	New	Example: Anscombe's Quartet
1	3	12	Optimization: OLS = min SSRs
1	4	13	FOCs: First Order Conditions - identify solution candidates
1	5	13	SOCs: Second Order Conditions - evaluate candidates
1	6	14	Example: min SSRs (Sum Squared Residuals)
OLS/SLR Analytics: Estimating Parameters			
2	1	New	What is OLS/SLR?
2	2	19	The OLS/SLR (Simple Linear Regression) model setup
2	3	22	OLS (Ordinary Least Squares) estimation: FOCs and SOC
2	4	25	OLS and sample statistics: Interpreting the OLS coefficients
2	5	27	... Slope coefficient: A Weighted average of slopes
2	6	29	OLS predictions, residuals and SRFs
2	7	30	... Properties of OLS/SLR SRFs and residuals
2	8	32	Units of measurement and estimated coefficients
2	9	33	Economic significance (meaningfulness): Beta regressions and elasticities
2	10	38	Examples in Excel and Stata
OLS/SLR Assessment I: Goodness-of-fit			
3	1	46	How close? Goodness-of-Fit (GOF) v. Precision/Inference
3	2	48	Bring on the ANOVA Table! (SST, SSE and SSR)
3	3	New	Goodness-of-Fit (GOF) metrics
3	4	50	GOF I: Mean Squared Error (MSE)... and Root MSE (RMSE)
3	5	51	GOF II: R-squared
3	6	New	Thinking about R-squared
3	7	53	Applications
3	8	56	Comparing SLR models using Goodness-of-Fit (GOF) metrics

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OLS/MLR Analytics: What's New? Not Much!			
4	1	77	Introduction: MLR v. SLR
4	2	80	Comparing MLR and SLR Results: Forecasting Box Office Revenues
4	3	81	OLS: A Quick Comparison of SLR and MLR Analytics
4	4	82	Interpreting MLR Coefficients I:
4	5	82	... SRFs & Marginal Predicted Effects
4	6	New	... Partial Correlations
4	7	84	Endogeneity (Omitted Variable Bias/Impact) I: An Overview
OLS/SLR Assessment I: Goodness-of-fit			
5	1	87	Review of SLR Assessment (predicted v. actuals)
5	2	88	R-sq shortcoming in MLR models: Just showing up!
5	3	91	A Quick Comparison of SLR and MLR Assessment – Not much that's new!
5	4	92	MLR Goodness-of-Fit: Adjusted R-squared
5	5	93	... and adding and subtracting RHS variables
5	6	94	Comparing MLR Models I: Goodness-of-Fit metrics in action
OLS/MLR Analytics II: Collinearity & Co.			
6	1	96	Introduction: (Multi)Collinearity
6	2	97	The Collinearity Regressions
6	3	98	Multicollinearity with Two RHS Variables: Correlation and R^2
6	4	99	... with Three or more RHS Variables: R_j^2
6	5	100	Variance Inflation Factors (VIFs): Easily generate R_j^2
6	6	102	Endogeneity (Omitted Variable Bias/Impact)
6	7	102	... Case I: $k = 2$ to $k = 1$
6	8	106	... Case II: k to $k-1$: $k > 2$ (What's the difference?)
6	9	New	... computing OVB; signing OVB
6	10	New	Simple v. Partial Correlations
OLS Estimation Review and Inference Preview			
7		New	All New
Review of Stats Estimation v4.pptx			
7	1	151	Estimation I: Estimating the mean of the distribution
7	2	151	Random Sampling, Estimators and Estimates
7	3	152	Here's an Estimator: The Sample Mean
7	4	152	Linear and Unbiased Estimators (LUEs)
7	5	153	LUEs for the unknown mean
7	6	153	Variance of the LUEs
7	7	153	Best Linear Unbiased Estimators (BLUE)
7	8	154	LUEs are not Alone!
7	9	154	More Candidate LUEs
7	10	155	BLUE II: The optimization problem
7	11	156	BLUE III: Wrapup/Review

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7	12	157	Blessed estimators generate, by definition, blessed estimates
7	13	158	Confidence intervals as interval estimators
7	14	158	Sample statistics as estimators
7	15	158	More Estimators: Sample variance and standard deviation
7	16	159	Even More Estimators: Sample covariance & correlation
Review of Stats Inference I.pptx			
7	1	162	What are your best estimates? Are you close?
7	2	162	The Tools of Inference
7	3	163	Distributional Assumptions: Generally required to do Inference
7	4	164	Estimating the Mean of the Distribution, cont'd
7	5	164	Distributional Assumption: Assume a Normal distribution
7	6	165	Confidence Intervals I: Known variance
7	7	166	Confidence Intervals I: Known variance, cont'd
7	8	166	Confidence Intervals II: The variance of Y is now unknown
7	9	166	The Standard Error
7	10	167	t Distributions and Standard Errors
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7	13	169	Critical Values (with unknown variance)
7	14	169	The Cornerstone of Inference: The t statistic, cont'd
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7	2	170	Focus on Type I Error: False Rejection
7	3	170	Estimating the Mean of the Distribution: Reprise
7	4	171	Run the Hypothesis Test: I
7	5	171	Run the Hypothesis Test: II
7	6	171	The Probability of a Type I Error
7	7	172	Selecting the Critical Values
7	8	173	The Test & Statistical Significance
7	9	173	Probability Values (p values): The Easy Test
7	10	174	Rejection Rule II: p values and significance levels
7	11	174	Equivalence of Rejection Rules: An Example
7	12		A Peek Ahead: p values & Statistical Significance
SLR Estimation v3.pptx			
8	1	177	SLR Models: Estimation
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8	3	178	ex Post estimates v. ex Ante estimators
8	4	178	SLR Models Estimation: Let's review notation!
8	5	179	Those SLR Conditions: SLR.1-SLR.4
8	6	180	PRFs and Linear Estimators
8	7	181	OLS Estimators are Unbiased! Who saw this coming?
8	8	183	But B1 is not Alone!
8	9	183	So many LUEs! Test your understanding!
8	10	184	OLS Estimators (B0 and B1) have Variances I

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8	11	183	The BLUE Challenge: Which LUE has the smallest variance?
8	12	185	SLR.5: Homoskedasticity
8	13	185	Heteroskedasticity Example: Real Estate valuation
8	14	186	OLS Estimators (B0 and B1) have Variances II
8	15	187	MSE/RMSE and the Standard Error of the Regression
8	16	187	MSE is an Unbiased Estimator of $\text{var}(U x)$
8	17	187	Standard Errors of B1: Estimates of $\text{sd}(B1)$
8	18		Onwards to Gauss, Markov, BLUE... and Inference!
The Gauss-Markov Theorem v2.pptx			
8	1	202	The Gauss-Markov Theorem: OLS is BLUE
8	2	202	The Sample Mean is BLUE
8	3	202	What about OLS? Start with those SLR conditions
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8	5	203	We've Seen This Before!: ... Getting to BLUE
8	6	205	The Gauss-Markov Theorem: OLS is BLUE
8	7	206	OLS is BLUE: Some Intuition
8	8		Onwards to Inference!
SLR Inference v2.pptx			
9	1	189	SLR Models: Inference
9	2	189	SLR Assessment II: Precision/Inference
9	3	190	Samples Means and Inference: Review
9	4	190	Recall those SLR Assumptions/Conditions
9	5	190	Under those Assumptions/Conditions...
9	6	191	SLR.6: U has a Normal Distribution
9	7	192	Distribution of the OLS Estimators (given SLR.1-SLR.6)
9	8	New	Some Intuition? Why variance in the x's matters for std errs
9	9	194	The t Statistic, t Distribution and Confidence Intervals
9	10	195	SLR Inference: Hypothesis Testing
9	11	195	p values: Hypothesis tests the easy way
9	12	197	Convergence: SLR Assessment I & II Who saw this coming?
9	13	198	An Example: Bodyfat
9	14		Onwards to MLR Estimation and Inference
Sample Mean v OLS v2.pptx			
9	1	200	Sample Mean v. OLS: Estimation I
9	2	200	Sample Mean v. OLS: Estimation II
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MLR Estimation and Inference v3.pptx			
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10	8	216	MLR Standard Errors: An Example
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10	4	219	Convergence II – Another example: bodyfat II
10	5	220	Convergence II: ... and WhatsNewx
10	6	221	Comparing MLR Models II: t stats and adjusted R2
10	7	221	... More about t stats and adjusted R2
10	8		onwards to Heteroskedasticity
Heteroskedasticity & Robust Standard Errors v3.pptx			
8a	1	224, 227	Recap I: Those SLR's, MLR's, LUEs and BLUE
8a	2	231	... II: MSE's, RMSE's, and Standard Errors
8a	3	185	... III: Homoskedasticity v. Heteroskedasticity
8a	4	224, 229	Heteroskedasticity: Learning from the Sample Mean Estimator
8a	5	225, 230	Bogus Standard Errors & Weighted Least Squares
8a	6	226, 236	Robust standard errors to the rescue!
8a	7	234	... , robust in action! An example
Dummy Variables Introduction v3.pptx			
11	1	239	Dummy Variables: <i>Introduction</i>
11	2	239	What's a dummy? ... (binary) indicator variables
11	3	239	Dummies revisited... we've been here before!
11	4	new	... and on the LHS <i>Linear Probability Models (LPMs)</i>
11	5	240	Useful Dummies I: Estimating Impact/Bias
11	6	241	Useful Dummies II: Quieting the endogeneity critics
11	7	242	Dummies in Action: ... Bring on the Fixed Effects!
11	8	242	Dummies in Action: <i>NFL ticket prices and New Stadiums</i>
11	9		Dummy Variables: You want more examples?
Dummies in Action: <i>Examples</i>			
11	1	245	The Wage Gap
11	2	262	Sovereign Debt Ratings and Fixed Effects
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	4	new	NFL Ticket Prices

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F Stats and F Tests v3.pptx			
12	1	275	More Testing: F Statistics and F Tests
12	2	new	<i>Why bother?</i> Testing a joint Null Hypothesis
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12	15	283	Reported F Stats in OLS Output
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12	17	288	Adding and Dropping RHS Variables
12	18	new	<i>It's a Wrap!</i>
F Tests continued v1.pdf			
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12	2	295	F Tests the <i>Easy Way</i>
12	3	300	More about <i>Babies and Bathwater</i>
12	4	301	F Stats, Adj R^2 and MSE