& conometrics 18/3/24 (22) shoe factory that was web - based retain 1 platform for marketing & selling their products online. Inputs enjoyed include internet connecitivy (byth, of denter) and electricists in a matter that the number & pairs sold daily can be depresented as BED

Sd = n Tar Ede Id = total data bytes used on dayd Ed = total Rilowatt hos of electricity Consumed on day of Ed ~ (N) (016) 1& n, L, B are model parametry:

(a) We know that Sa=n I\_1 E Bead Required: hisd 2 ln 9 + x ln 2d + B lnEd 2 Ed 23 & N(0,42) fine! - lusd = 50 b; lesse = Id, leste = Ed d must have (4,72,20) > (0,038) modi = Sa = m + x Ez + BEd + Ed ) needin formid= S = X Y + E Nox1 New 20 Px 3 3x1 0x1 Nd = [1 Id Ed] & X = [1 Dx1 Dx1 Px1] 8  $Y = \begin{bmatrix} n \\ a \end{bmatrix}$  $\gamma_{\text{OLS}} = \begin{bmatrix} \hat{\gamma}_{\text{OLS}} \\ \hat{\gamma}_{\text{OLS}} \end{bmatrix} = \begin{bmatrix} \hat{\gamma}_{\text{OLS}} \\ \hat{\gamma}_{\text{OLS}} \end{bmatrix} = \begin{bmatrix} \hat{\gamma}_{\text{OLS}} \\ \hat{\gamma}_{\text{OLS}} \end{bmatrix} = \begin{bmatrix} \hat{\gamma}_{\text{OLS}} \\ \hat{\gamma}_{\text{OLS}} \end{bmatrix}$ 

en mors

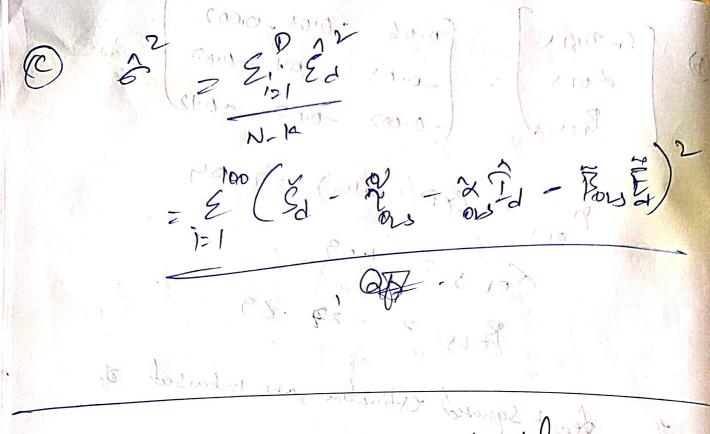
dors

-0.005 -0.002

-0.007 -0.007

-0.007 -0.12 Pous = 1.09

Rous = -29.69 The seast squered estimation are imbarised of The least squared estivates men and one wormedly distributa de hours 120 d'astic, which is aske > unbaised le efficient least Squares estimates are in the state of the second Consis fut 210 00 10 20 10 10 10 10 10



(Ta) Random Sample of Size N denoted as Francisco Size N denoted as Francisco Size N denoted as Non 100 Where IX I y are R. V.

1. A regression of Yon Y i.e., Yi= Boyf Bry Mithi 2. 11 10 Un X on Y i.e., Xi= Boxt Byry: tell

3. A correlation Loefficient f.e., 8

S.T. = I Ryols, Byous

Segression Dies we Yony 3x-27 25

We know Bonn = } (ni, - m) (yi- J) 2 (n; - 7)2 Bay x Byn = (yi - 9) (ni - ne) & (yi - 9)(ni - ne) & (yi - 9)(ni - ne) & (yi - 9)(ni - ne) & (yi - y)2 Bay y Byn, (lov(n,v)) vary Vary  $\left[\frac{n_i - n_i}{2} \left(\frac{y - 5}{(y - 5)^2}\right) \right] = lendry$   $\left(\frac{y - 5}{(y - 5)^2}\right) = vany$ 

3x = 5 + 2y x = 5 + 2 = 3bry = 2/3 (10) n-uy = 7 ( ( ) ) y = 2 - 14 byn = /y Coefficient of Correlations - Jony x byx 2/23/4 56

Covariance measure desired from the donter of a assistance p.v L, m. (ov (1, m), 2 \( \frac{2}{2} \left( 1 - \tau \right) \left( m; - \tau \right) \) (1) Eny OLD = Rougt lov (n, 5) Bow, OLS = Olz 20 [Bias in ols] D lov ( n1y) fz1 Bory, 025 2 72 =1 (3)  $Cov(n,1)_{r-1}$  =  $tolov(n,5)_{r=5}$  = -2 2 0 400 - 1 - 2450 Cov (n, s);=1

lox (n,y) 50.0 (ov (n,18) 1-20) 2-2 (or (n,y) 1275 2 2 1 N 100 0 x00 7 (2 x 25) t. 12 x 25 1 N 1 N - 2 (m (n, x) = oury o b = 10/2 = 0