What is the relationship between district-wide math test scores and district expenditures per student?

$Y_i = B_0 + B_1 X_i + u_i$ (Population Regression Model)

Y = math score

X = exp per student

$\hat{Y}_i = \hat{B}_0 + \hat{B}_1 X_i$ (OLS line w/o estimates)

$\hat{Y}_i = 629 + 5(X_i)$ (OLS w/ estimates)

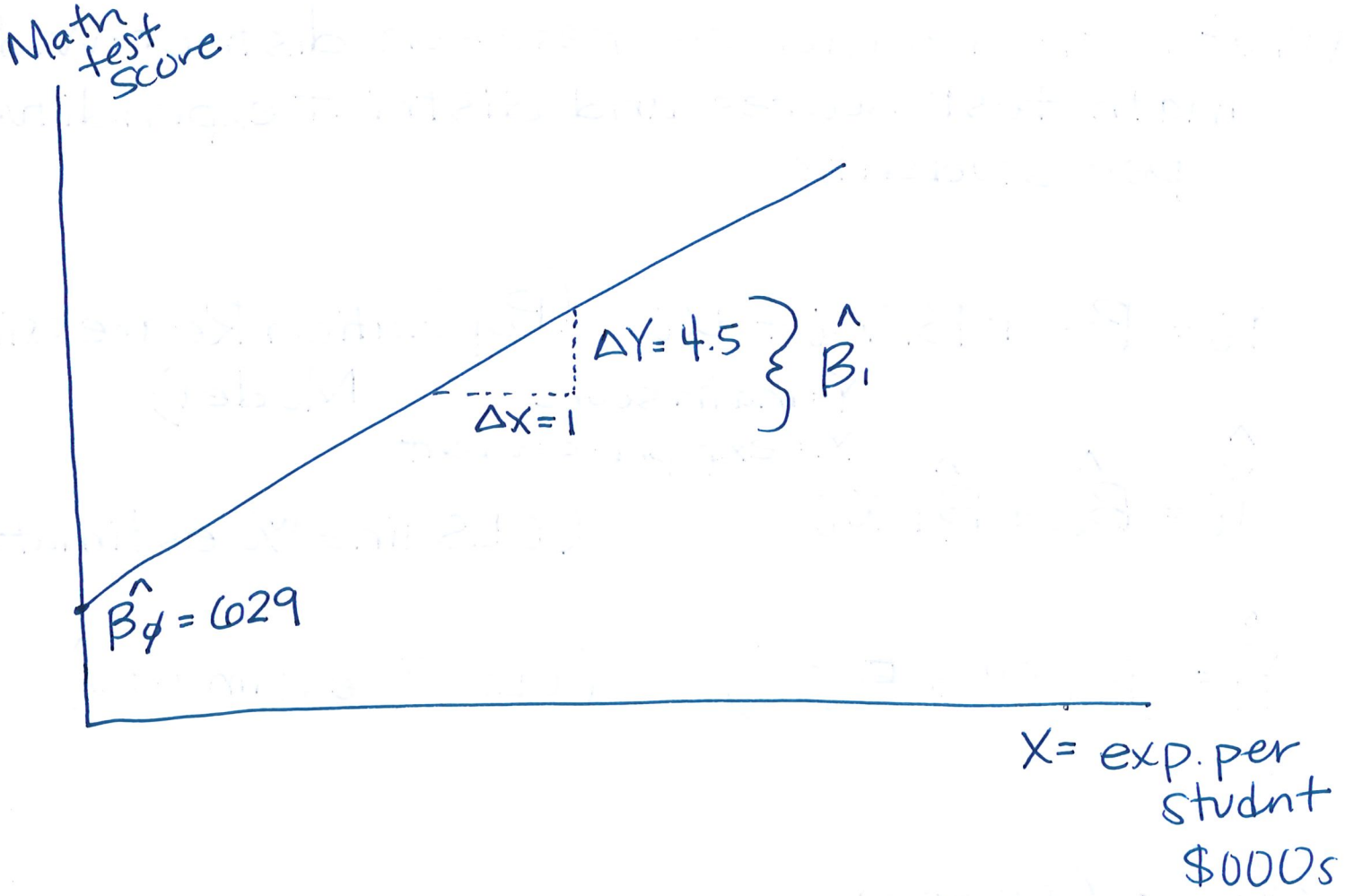
$X_i = 5$ ($5,000)

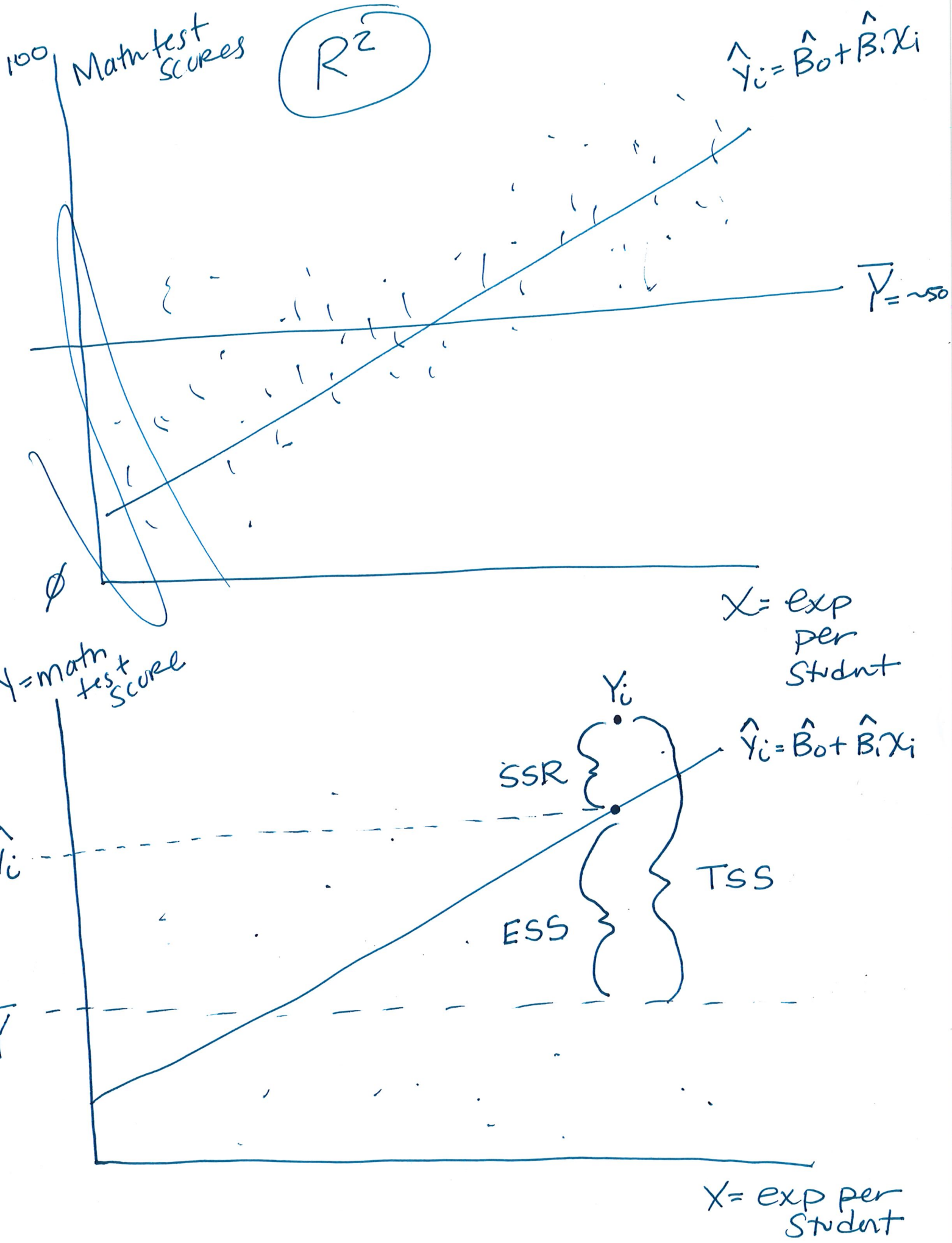
$629 + 5(5) = 654$ math test score

When expenditures per student = $5,000

$\hat{B}_0 = 629$ district-wide math average test score When expenditures per studen = $0

$\hat{B}_1 = \sim 4.5$ = a $1000 increase in expenditures per student is associated with a 4.5 point increase in district-wide math test sure


Math test score
ΔY = 4.5
ΔX = 1
$\hat{\beta}_1$
$\hat{\beta}_0 = 629$
X = exp. per studnt $000s


R^2
100
Math test scores
$\hat{Y}_i = \hat{B}_0 + \hat{B}_1 X_i$
$\bar{Y} = \sim 50$
$\emptyset$
X = exp per student
Y = math test score
Y_i
$\hat{Y}_i = \hat{B}_0 + \hat{B}_1 X_i$
SSR
$\hat{Y}_i$
TSS
ESS
$\bar{Y}$
X = exp per student