Original Hypothesis – X Variable is Independent

y = -0.306x + 0.9334
R² = 0.6558

y = 0.2981x + 0.9417
R² = 0.1927
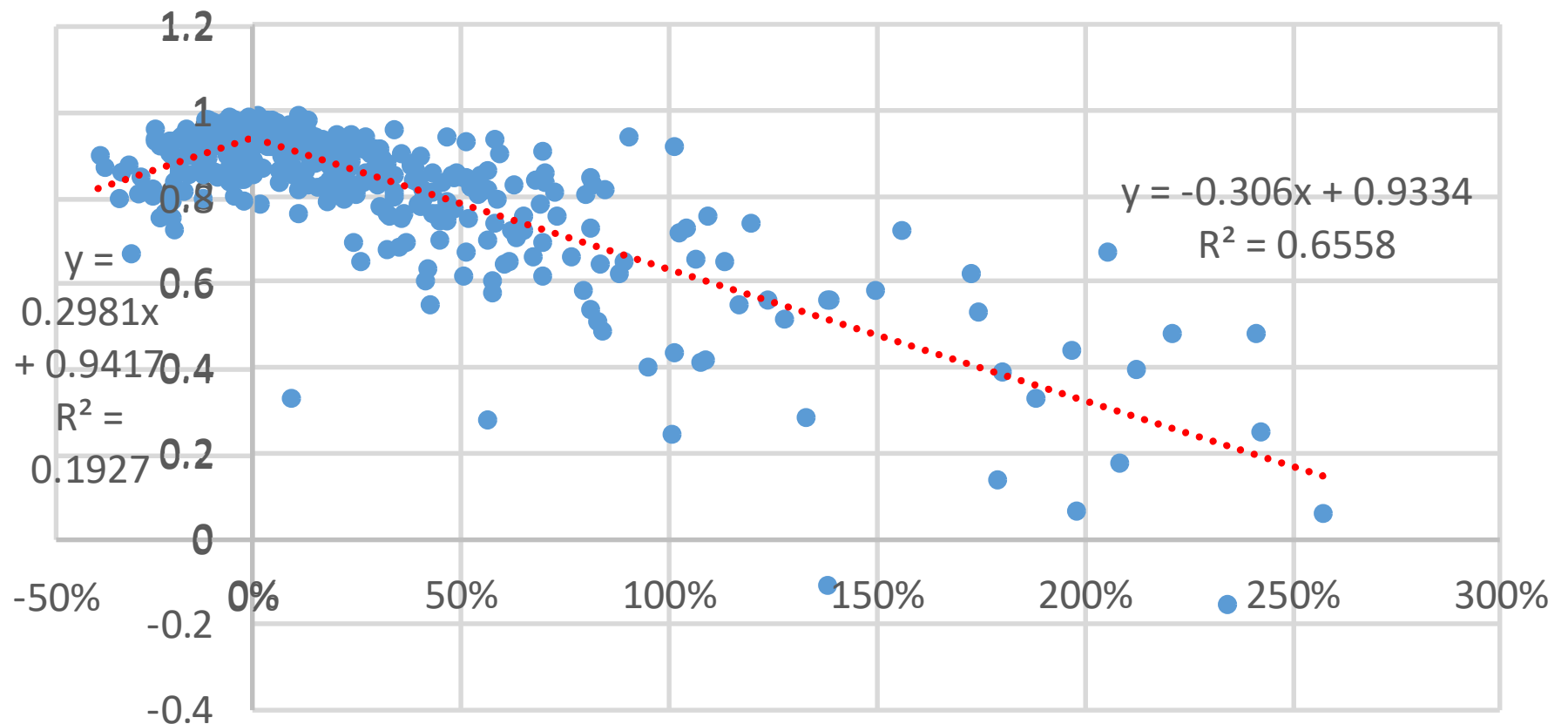
Null Hypothesis – Y Variable is Interdependent with X
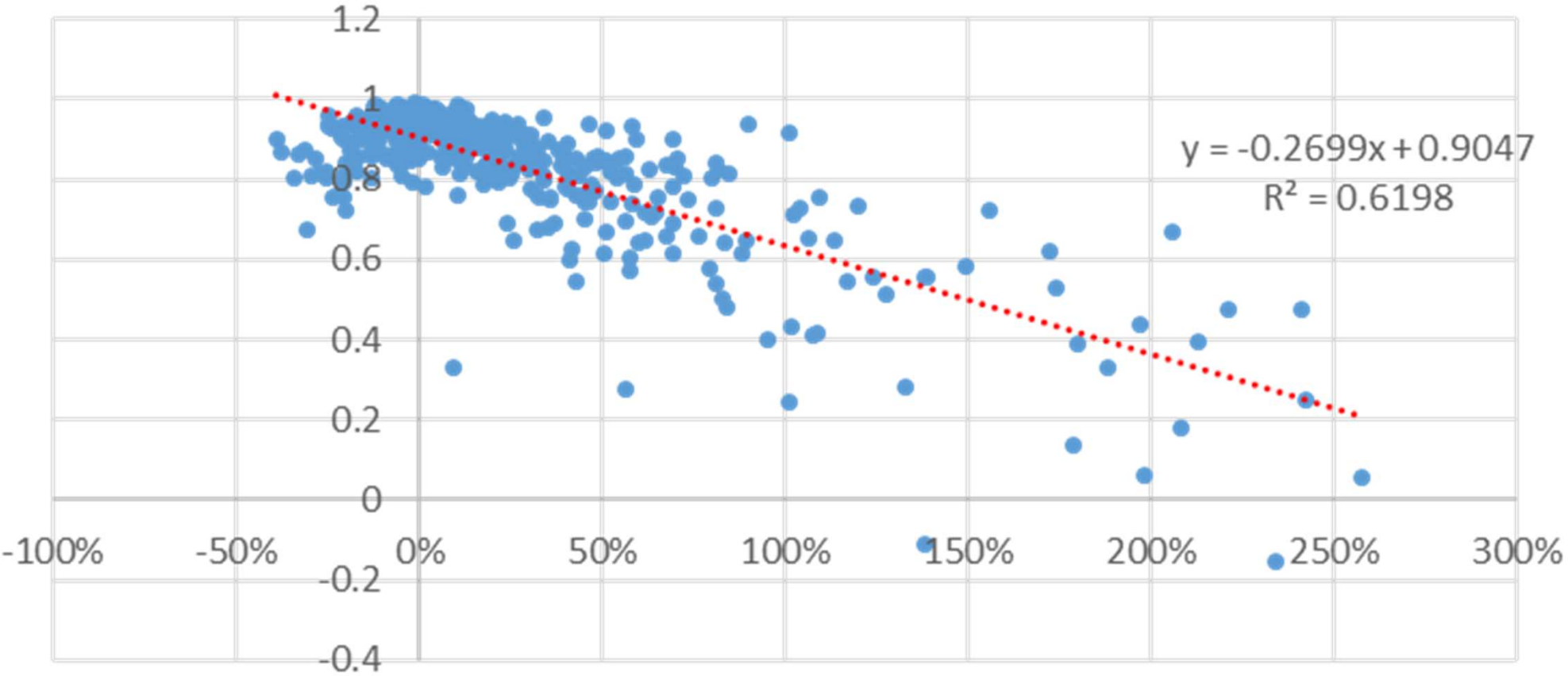
True Relationship? – X Variable Mostly Independent (But Y has small amount of interdependency with X)

$y = 0.0792x^3 - 0.258x^2 - 0.1045x + 0.9049$

$R^2 = 0.6483$
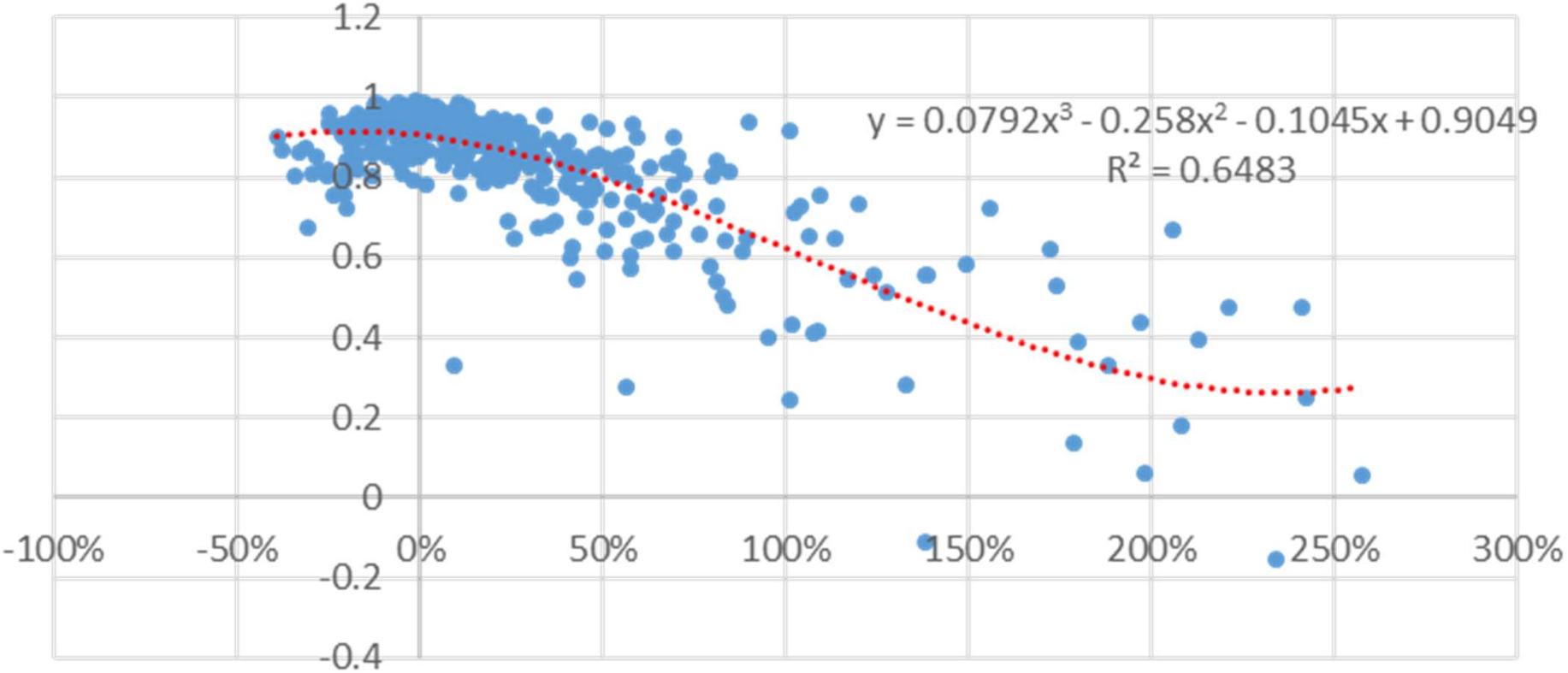
Question – How can this data be used to quantifiably measure the nature of interdependence between Y and X?

Potential Answer? – The amount of interdependency can be measured by the level the polynomial trend line is pulled away from the original hypothesis.

Polynomial Trend is pulled 40% toward the null hypothesis trend, therefore, the Y variable has ~40% of the influence on the X, and the Y has ~60% influence on the X.

$y = 0.0792x^3 - 0.258x^2 - 0.1045x + 0.9049$

$y = -0.2699x + 0.9047$
$R^2 = 0.6483$
$R^2 = 0.6198$
$R^2 = 0.6558$

$y = 0.2981x + 0.9417$
$R^2 = 0.1927$

60%
40%