

# Statistical and Economic Significance

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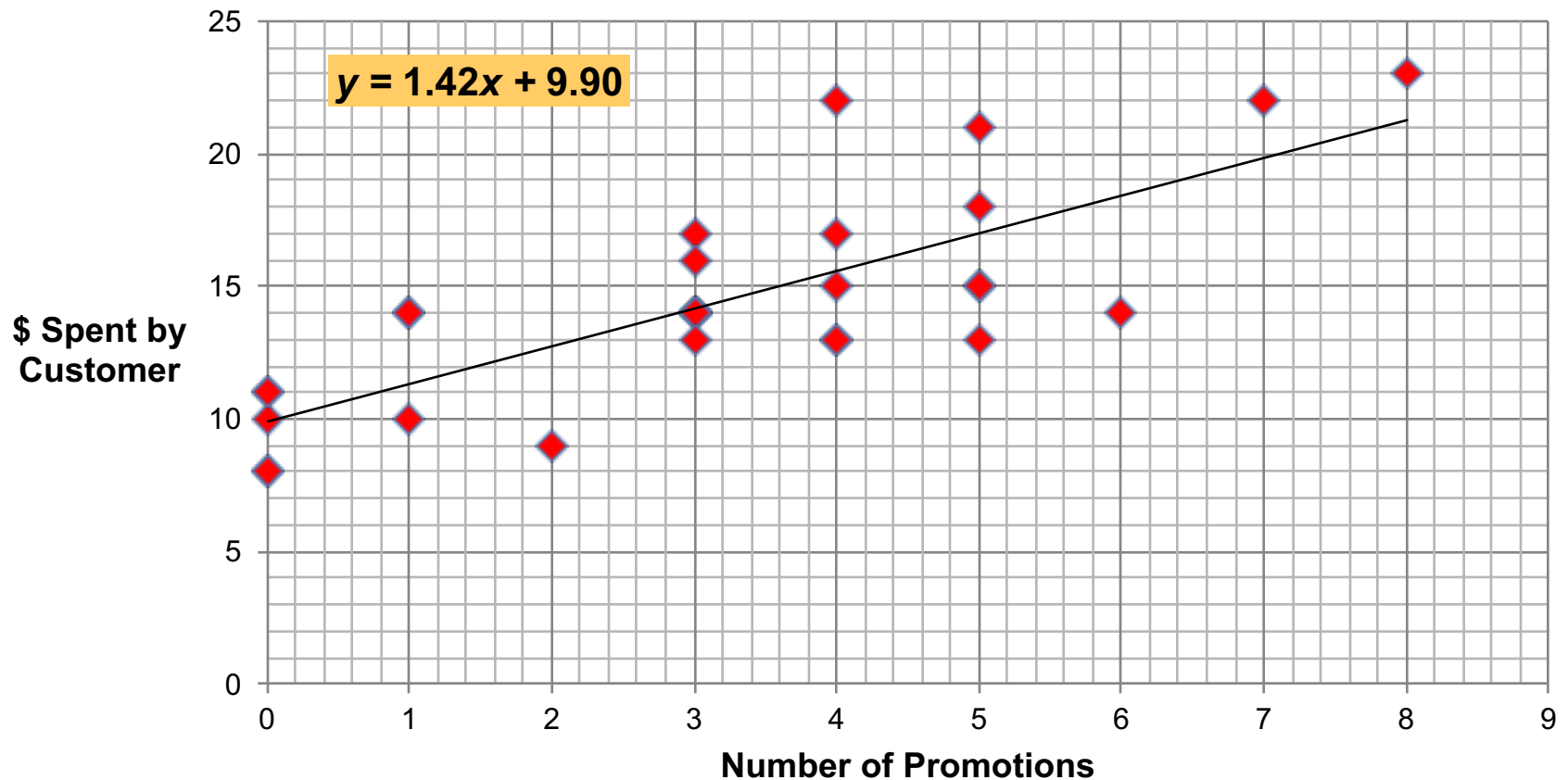
# Statistical and Economic Significance

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- Statistical significance
  - Is the relationship observed in the sample likely to be observed in the population as well?
  - Look for  $p\text{-value} < .10$  for the coefficient of interest.
- Economic significance
  - Does the benefit from a marketing intervention (i.e., the size of the coefficient) justify the expense?

# Diagnosing Market Response: Regression Analysis

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Regression Statistics	
Multiple R	0.775
R-Squared	0.601
Adjusted R-Squared	0.586
Standard Error	2.566
Observations	29

ANOVA

	df	SS	MS	F	Sig F
Regression	1	267.28	267.28	40.60	0.00
Residual	27	177.75	6.58		
Total	28	445.03			

	Coefficients	Standard Error	t Stat	P-value
Intercept	9.90	0.85	11.60	0.00
Number of Promotions	1.42	0.22	6.37	0.00

# Economic Significance

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- A unit increase in number of promotions increases units purchased by 1.42
- Assume gross profit per unit is \$5
- Cost of promotion is \$0.50
- Profit = (units purchased \* gross profit) – (cost of promotion \* number of promotions)
- Profit =  $(1.42 * 5 - 0.50 * 1) = (7.1 - 0.5) = \mathbf{6.6}$

# Conclusion

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- Regressions are about what you include and also what you DON'T include in the model.
- Logarithm is a useful transformation for calculating elasticity from regression.
- Connecting regression to business decisions would require understanding economic significance.

