

IEEE Viz – ACT Network Effects

Description

ACT operates nearly 9000 testing centers annually to deliver The ACT Assessment to over 2 million high school students on six different Saturdays each year as part of our open, “National” program. Increased interest by schools and government agencies in using the assessment – and the data – for their own purposes has led to significant growth in recent years. Increased demand has been placed on our delivery network, and availability of seats for the assessment, as well as the operational costs necessary to operate them need to be carefully managed as testing patterns change.

ACT is seeking a visual presentation of how changes in availability of a product in an area, or as part of a distribution network can affect or propagate to nearby or adjacent distribution sites.

How does the introduction of a new delivery location affect existing delivery?

How does the addition or subtraction of a distribution site affect demand in neighboring sites?

How do proximity and availability affect participation in the assessment in by geography?

What is the optimal Test Center Network for each season, by geographic region?

What geographic areas are at risk of under or over utilization?

How can derived measures like Market Saturation, Percent Utilization and Cost per Unit, by aggregated and visualized at local, regional and national levels?

Data File 1 – Points File

Contains union of two lists of points

Each point type has specific variables associated with it

- All US Zip Codes
 - Point Type = 'ZIP'
 - **Population** - (# of people ages 15 to 19)
 - Proxy for Demand used as denominator for Market Saturation
- All ACT Test Centers that were active during the specified period
 - Point Type = 'TESTCENTER'
 - **Institution** – Name of the center

Field Descriptions

Column Name	Description
POINTID	Unique Identifier for each point contained in the file
ZIPCODE	Zip Code that the Point is located in
LATITUDE	Latitude (measured in degrees west from the Prime Meridian)
LONGITUDE	Longitude (measured in degrees north from the Equator)
POINTTYPE	Type of point for this Point (ZIP, TESTCENTER)
TESTCENTERID	Unique Identifier for the Test Center
TCTYPE	(Category) Type of facility that the Test Center is (e.g. High School, Community College)
INSTITUTION	Name of the Test Center
POPULATION	Number of people aged 15-19 that live in this Zip Code

Data File 2 – Events File

Contains Assignment, Capacity and Expense values for all Test Events in a historic timeline

Field Descriptions

TESTCENTERID	Unique Identifier for the Test Center where the Event took place
TESTEVENTID	Unique Identifier for the Test Event
CYCLE_DESCRIPTION	School Year when the Test Event took place
ADMIN_GROUP	Month of the Test Event
ASSIGNED_SPECIAL_FL	Flag indicating that this Test Event has Special Testing
TESTDATE	First day of the Month during which the Test Event took place <i>Note: This is not the date that the Test Event took place</i>
YEAR	Calendar Year of the Test Event
MONTH	Calendar Month of the Test Event
CAPACITY	Value indicating total available capacity for the Test Event (measure is proportional to the number of students)
ASSIGNED	Value indicating the used capacity for the Test Event (measure is proportional to the number of students)
EXPENSE	Value indicating the total cost to operate the Test Event (measure is proportional to US Dollars)

Data Obfuscation and De-identification

Note: The data contained in this file has been altered so as not to contain actionable information about the operations of ACT. However, the data has been simulated and verified as being representative.