Reock Test

The Reock test is an area-based measure that compares each district to a circle, which is considered to be the most compact shape possible. For each district, the Reock test computes the ratio of the area of the district to the area of the minimum enclosing circle for the district. The measure is always between 0 and 1, with 1 being the most compact. The Reock test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan.

See [Reock 1961] and [Young 1988].

Length-Width Test

The length-width test computes the absolute difference between the width (east-west) and the height (north-south) of each district. The bounding box of a district is computed in longitude-latitude space, and the height and width of the box through the center point are compared. The total is divided by the number of districts to create the average length-width compactness. A lower number indicates better length-width compactness. This measure of compactness is designed for contiguous districts, since the bounding box encloses the entire district.

See HTTP://WWW.LEGIS.STATE.IA.US/REDIST/JUNE2001REPORT.HTM.

Population Polygon Test

The population polygon test computes the ratio of the district population to the approximate population of the convex hull of the district (minimum convex polygon which completely contains the district). The population of the convex hull is approximated by overlaying it with a base layer, such as Census Blocks. The measure is always between 0 and 1, with 1 being the most compact. The Population Polygon test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan.

See [Hofeller and Grofman 1990] and [Niemi, Grofman, Carlucci, and Hofeller 1990].

Population Circle Test

The population circle test computes the ratio of the district population to the approximate population of the minimum enclosing circle of the district. The population of the circle is approximated by overlaying it with a base layer, such as Census Blocks. The measure is always between 0 and 1, with 1 being the most compact. The Population Circle test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan.

See [Hofeller and Grofman 1990] and [Niemi, Grofman, Carlucci, and Hofeller 1990].

Plan Name: New Districts - v2

Measures of Compactness

Sum	N/A	N/A	N/A	N/A
Min	0.30	0.05	0.44	0.28
Max	0.63	3.94	0.91	0.79
Mean	0.47	1.10	0.77	0.49
Std. Dev.	0.09	1.06	0.10	0.11

DISTRICT	Reock	Length-Width	Population Polygon	Population Circle
01	0.41	3.94	0.74	0.46
02	0.52	0.63	0.81	0.50
03	0.44	0.59	0.84	0.48
04	0.41	0.49	0.74	0.42
05	0.38	2.44	0.91	0.55
06	0.36	2.22	0.44	0.28
07	0.36	0.09	0.66	0.36
08	0.45	0.05	0.84	0.43
09	0.51	0.21	0.70	0.49
10	0.54	0.93	0.81	0.60
11	0.54	1.34	0.79	0.60
12	0.58	1.03	0.84	0.63
13	0.63	0.12	0.78	0.57
14	0.59	0.55	0.91	0.79
15	0.32	3.77	0.88	0.40
16	0.56	0.18	0.62	0.46
17	0.42	1.03	0.70	0.38
18	0.59	0.38	0.72	0.49
19	0.30	1.11	0.70	0.32
20	0.46	1.76	0.78	0.53
21	0.42	0.37	0.78	0.48
22	0.52	0.43	0.91	0.53
23	0.41	0.99	0.71	0.56
24	0.48	1.98	0.74	0.47
25	0.48	0.79	0.83	0.47

Plan Name: OldCCCDistricts

Measures of Compactness

Sum	N/A	N/A	N/A	N/A
Min	0.32	0.01	0.77	0.33
Max	0.66	4.20	0.97	0.83
Mean	0.52	1.48	0.87	0.55
Std. Dev.	0.09	1.24	0.06	0.12

DISTRICT	Reock	Length-Width	Population Polygon	Population Circle
01	0.54	1.39	0.86	0.44
02	0.48	1.02	0.91	0.65
03	0.45	2.57	0.82	0.45
04	0.35	4.20	0.91	0.33
05	0.33	4.00	0.85	0.52
06	0.54	1.14	0.92	0.58
07	0.56	0.38	0.85	0.56
08	0.65	0.49	0.87	0.56
09	0.32	2.96	0.77	0.33
10	0.52	1.36	0.88	0.56
11	0.52	1.45	0.96	0.60
12	0.52	0.01	0.82	0.53
13	0.55	1.05	0.91	0.83
14	0.60	0.79	0.79	0.54
15	0.51	0.68	0.77	0.54
16	0.57	0.09	0.79	0.54
17	0.57	0.44	0.93	0.54
18	0.61	1.03	0.96	0.75
19	0.50	2.65	0.92	0.42
20	0.53	1.03	0.87	0.65
21	0.46	3.24	0.82	0.39
22	0.66	0.02	0.90	0.75
23	0.41	3.20	0.89	0.45
24	0.61	1.47	0.88	0.63
25	0.57	0.46	0.97	0.63