



Economic Geography

Gravity Model

The gravity model can be expressed using the equation

$$G_{ij} = P_i P_j / D_{ij}$$

Where

G is the observed force between place 'i' and place 'j'

P is the population of 'i' and 'j'; and

D is the distance between places 'i' and 'j'



Economic Geography

Breaking Point

$$BP = D / (1 + \sqrt{A/B})$$

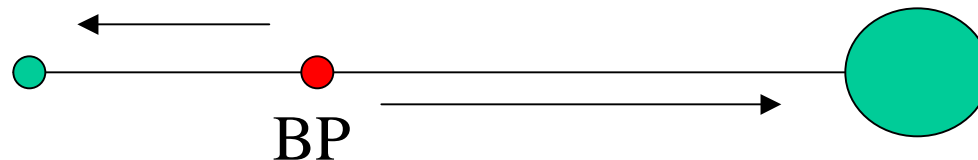
Where

BP is the Breaking Point in Miles between places A & B

D is the distance between A & B

A is the population of place A and

B is the population of place B





Economic Geography

Zone of Indifference

- *a region surrounding the breaking point the forces of gravity are relatively weak*



Economic Geography

Rank-Size Rule

- Based on the principle of Central Place

$$P_i = P_1/R_i$$

where

P_i is population of city i

R_i is rank of city i

P_1 is population of largest city in system



Economic Geography

Related Concepts

- M. Jefferson's Primate City
 - distorts rank size rule
- Rank-Size/Centrality related to innovation & innovation diffusion



Conceptual Issues

- Economic v. Satisfaction
 - motivation
- Bounded rationality
 - Decision-making is informed by relative information of individuals