OPENmate's Business Index

Introduction

Increasing number of small local business, due to economic recession in Korea, intensify the competition among small business owners. According to the research from Seoul metropolitan government, only 54% of the local businesses have been survived after three years of their establishment; almost half of a new business is failed.

Without through knowledge of background information of new business location, 54 % of failing rate might be obvious result. OPENmate’s business indices help them to understand the location where they want to start a new business. The use of these indices will reduce the risk of starting a business and, further, lead to success: activity index, growth Index and sustainability index.

Each index is composed with following categories: food, retail and service.

Food is composed with 16 sub-categories: Korean food, Chinese food, seafood restaurant, bakery and etc.
Retail is composed with 23 sub-categories: men’s or women’s apparel, underwear, Cosmetics, convenient stores and etc.
Service is composed with 7 sub-categories: karaoke, hair salon, fitness, golf center and etc.

Source

- XGA (eXtensible Geo-coding & Address cleansing), OPENmate
- Block data (360,000 blocks), OPENmate
- Card Transaction Data 2013, BC Card
Activity Index

Activity index represents activeness of commerce in each area. Maximum index number, 100, indicates that the commercial activeness in that area is very high; lots of transaction occurs.

Formula

1. \( \text{ATB (Annual Transaction of a Block)} = \sum_{i=1}^{n} a_i \)
   
   \( a = \) Annual transaction of a business if the business is within a 400m radius from the center of the block.

   \( n = \) number of businesses within 400m radius

   ※ Businesses with no transaction record in last 6 month is discarded.

2. \( \text{Activity Index} = \left( \frac{\text{ATB}}{\text{MAX(ATB)}} \right) \times 100 \)
Growth Index

Growth index represents the growth rate of commerce in each area. Maximum index number, 100, indicates that the increment ratio of transactions is the highest in that block; market potential is high.

Formula

1. **MPR (Monthly Percent Rate)** = \( \sum_{i=1}^{n} \left( \frac{V_{\text{pres}} - V_{\text{past}}}{V_{\text{past}}} \right) \)

   \( V_{\text{pres}} \) = Present month transaction of a business if the business is within a 400m radius from the center of the block.

   \( V_{\text{past}} \) = Past year’s month (Past year’s same month as present month) transaction of a business if the business is within a 400m radius from the center of the block.

   \( n \) = number of businesses within 400m radius

2. **AVGMPR (Average Monthly Percent Rate)** = \( \left( \prod_{i=1}^{12} |MPR_i| \right)^{\frac{1}{12}} \)

3. **Growth Index** = \( \frac{\text{AVGMPR}}{\text{MAX(AVGMPR)}} \) *100
**Sustainability Index**

Sustainability index represents the average operational period of business in each area. Maximum index number, 100, indicates that the area is stable to start a new business.

**Formula**

1. **AOP (Average Operational Periods)**
   \[
   \text{AOP} = \frac{\sum_{i=1}^{n} OP_i}{n}
   \]
   
   OP = Operational periods (Number of years a store has been in business) of a business if the business is within a 400m radius from the center of the block.

   n = number of businesses within 400m radius

   ※ Businesses with no transaction record in last 6 month is discarded.

2. **Sustainability Index**
   \[
   \text{Sustainability Index} = \left(\frac{\text{AOP}}{\text{MAX}(\text{AOP})}\right) \times 100
   \]