INTERAKSI *HYPERMARKET* DAN PASARAN: APLIKASI MODEL GRAVITI DAN SISTEM MAKLUMAT GEOGRAFI (GIS)

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ABSTRAK

Model graviti yang juga dikenali sebagai model interaksi reruang ialah model yang digunakan secara meluas dalam bidang perancangan pengangkutan, perniagaan, dan penyediaan kemudahan awam. Bertitik-tolak daripada Hukum Graviti Newton, model graviti telah mengalami evolusi dan diubah suai bagi pelbagai tujuan kegunaan dan aplikasi. Antara model graviti yang paling menonjol ialah Model Graviti Peruncitan Reilly, Model Huff dan juga *Multiplicative Competitive Model* (MCI). Penggunaan pelbagai jenis pemboleh ubah terutamanya pemboleh ubah jarak, menimbulkan persoalan mengenai kemampuan model graviti asas dalam menerangkan fenomena di dunia sebenar dan meramal senario masa hadapan dengan jitu, tanpa mengambil kira faktor sosia-ekonomi, dan psikologi dalam sesuatu fenomena interaksi. Justeru itu, kajian in membandingkan tahap kejituan ramalan empat viarasi model graviti asas yang menggunakan pemboleh ubah jarak euclidean dan jarak sebenar yang berbeza parameter, dengan hasil survei yang menunjukkan pecahan pasaran tiga buah *hypermarket* Giant di Johor Bahru. Hasil analisis mendapati penggunaan pemboleh ubah jarak euclidean tanpa parameter menghasilkan ramalan paling jitu dalam meramal pecahan asalan pengunjung *hypermarket.* Analisis kajian menunjukkan bahawa aplikasi Model Huff menggunakan kemampuan analisis reruang dalam sistem maklumat geografi (GIS) juga didapati berjaya menerang keadaan permukaan graviti sesebuah *hypermarket* dengan jelas, dan mampu meramalkan tahap interaksi antara sesebuah *hypermarket* dengan pasaran serta saingannya dengan baik. Berikutan itu, kajian ini merumuskan bahawa model graviti yang menggunakan pemboleh ubah jarak euclidean tanpa parameter, mampu menghasilkan ramalan mengenai interaksi antara *hypermarket* dengan pasarannya serta interaksi antara *hypermarket* dengan saingannya dengan jitu. Sekaligus menolak dakwaan mengenai ketidakmampuan model graviti bagi menerangkan fenomena semasa mahupun meramal senario pembangunan gunatanah masa hadapan bandar.

ABSTRACT

Gravity Model which also known as Spatial Interaction Model is widely use in the field of transportation planning, trade and allocation of public facilities. Emerging from the Newton Gravitation Law, gravity model had been modified and adapted for various purposes and application in many fields. Among of the most outstanding variants are the Reilly Retail Gravitation Model, the Huff Model and the Multiplicative Competitive Model (MCI). Usage of diversify variables especially the distance variable had spark concern regarding the ability of the gravity model to explain an existing phenomena or even forecasting future scenarios, without taken into account social economic and psychology factors in determining any interaction phenomena. Thus, this research concentrates on prediction precision of four model gravity variants in forecasting or explaining existing interaction between three hypermarkets and theirs market. Each variant used different types of distance variables, noticeably, Euclidean distance and actual distance with different parameters. For the purpose, each prediction of those four variants was compared with a survey result that shows market allocation and origin of customer of each observed hypermarkets. Result show that usages of Euclidean distance variable without parameter produce the most precise prediction compared to other three variant. Application of Huff Model using geographic information system (GIS) spatial analysis capability, successfully help to visualize gravitation surface of each hypermarket. Furthermore, through integration of Huff Model and GIS, this research result does prove the prudence capability of gravity model in forecasting and explaining interaction of each hypermarket either with its market catchment and business rivals. Thus reject the idea of certain party, that gravity model is not useable. However, it is still believe and need to be study, that different type of interaction may require different variant of gravity model to produce better explanation and prediction.