UNIVERSITI PUTRA MALAYSIA

ALTERNATIVE PROCEDURE OF SALES COMPARISON METHOD IN VALUING PROPERTY

ROHANA ABDUL RAHMAN

FK 2013 27

**ALTERNATIVE PROCEDURE OF SALES COMPARISON METHOD
IN VALUING PROPERTY**

By

ROHANA ABDUL RAHMAN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**

December 2013

COPYRIGHT

ALTERNATIVE PROCEDURE OF SALES COMPARISON METHOD IN VALUING PROPERTY

By

ROHANA ABDUL RAHMAN

December 2013

Chairman: **Assoc. Prof. Ahmad Rodzi Mahmud, PhD**

Faculty: **Engineering**

The Sales Comparison Method (SCM) is the most widely used method of property valuation; particularly for residential properties. With transaction data becoming more and more accessible, the trend of using Comparison Method will continue; the valuation of commercial properties is expected to also use this method. However, SCM is criticised for its subjectivity with inconsistent prediction; SCM procedure relies too much on the expert judgment of the valuer such that the value of property varies between valuers. This paper puts forward a proposal for an alternative technique using SCM that will minimise subjectivity in property value prediction with reduced complexity.

The aim of this research is to develop a formal automated procedure of the Sale Comparison Method for double storey terrace house. The conceptual procedure was developed by examining peer research, Malaysian Valuation Standard, a standard in use throughout the Valuation and Property Services Department in Malaysia. The research uses this conceptualisation to examine the extent to which a formal procedure can be developed for double storey terrace. Taman Daya and Bandar Mahkota Cheras were chosen due to substantive data in that locality. The conceptualisation translated into an alternative technique follows three steps of property valuation. For the comparable selection, Minkowski metric is used for selecting the best comparable, then Ordinary Least Square (OLS) regression model is used for adjustment of the comparable and lastly weighting strategies for comparable reconciliation.

Seven years data of double storey terrace houses is empirically tested using the alternative procedure and it is found that for 10% estimation range the accuracy of valuation is between 51% and 93% while for 20% estimation range the accuracy of valuation is between 76% and 97%. The finding satisfied the 10% acceptable range

specified by the technical circular of the Valuation Department therefore the result obtained proved that the proposed procedure can be accepted for single valuation purposes. The proposed technique closely resembles the existing procedure to gain the confidence of valuers; however, tasks that require judgments from valuers are substituted with statistical methods. This technique avoids the often criticised complexities of the new SCM variants. Integration of this formal implementation with Geographic Information System (GIS) resulted of an automated valuation model (AVM). AVM is more accurate and less human bias also can reduce cost of operation and can realized quick valuation compared to valuation exercised manually.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PROSEDUR ALTERNATIF UNTUK KAEDAH PERBANDINGAN DALAM PENILAIAN HARTA TANAH

Oleh

ROHANA ABDUL RAHMAN

Disember 2013

Pengerusi: **Prof. Madya Ahmad Rodzi Mahmud, PhD**

Fakulti: **Kejuruteraan**

Kaedah Perbandingan (KP) adalah cara menjalankan penilaian harta tanah yang digunakan secara meluas terutamanya untuk harta tanah kediaman. Transaksi harta tanah semakin mudah diperoleh menjadikan harta tanah lain seperti hartanah komersil juga cenderung menggunakan kaedah perbandingan. Walau bagaimanapun, Kaedah Perbandingan sering dikritik kerana anggaran harga yang tidak konsisten dan mempunyai unsur-unsur subjektif kerana Kaedah Perbandingan banyak bergantung kepada pendapat dan anggaran pakar harta tanah dan ini menyebabkan nilaian seorang penilai dengan penilai yang lain adalah berbeza-beza. Kajian ini mencadangkan teknik alternatif bagi kaedah perbandingan yang dapat mengurangkan subjektiviti serta lebih mudah untuk menentukan nilai hartanah. Tujuan kajian ini untuk membina prosedur formal untuk kaedah penilaian bagi rumah teres dua tingkat. Konsep ini dibuat berasaskan kajian sebelumnya dan standard amalan penilaian yang digunakan di Malaysia. Hartanah di Taman Daya dan Bandar Mahkota Cheras dianalisa kerana kesesuaian data di kawasan ini. Kaedah penilaian diterjemahkan kepada kaedah automasi terhadap tiga tahap penilaian hartanah. Pemilihan perbandingan akan menggunakan Minkowski metrik bagi memilih perbandingan terbaik. Model regresi Ordinary Least Square (OLS) pula digunakan untuk menentukan koefisyen perbandingan dan yang terakhir strategi pemberat digunakan untuk penentuan penilaian terbaik.

Data rumah teres dua tingkat bagi tempoh tujuh tahun digunakan bagi menguji prosedur alternatif ini dan didapati bagi anggaran 10% variasi, ketepatan penilaian adalah antara 51% hingga 93% manakala bagi anggaran 20% variasi, ketepatan penilaian adalah antara 76% hingga 97%. Hasil analisis yang diperoleh menepati 10% varian yang ditentukan oleh pekeliling teknikal Jabatan Penilaian. Jadi, analisis yang diperoleh membuktikan prosedur yang disarankan boleh diterima untuk maksud penilaian hartanah. Teknik yang disarankan ini menyamai prosedur sedia ada yang dapat memberi keyakinan kepada para penilai hartanah kerana andaian dari penilai digantikan

dengan kaedah berstatistik. Kaedah ini juga dapat mengelakkan kritik terhadap variasi kaedah perbandingan sedia ada.

Integrasi implementasi ini menghasilkan model automasi penilaian (AVM) apabila integrasi bersama *Geographic Information System* (GIS) dijalankan. Model automasi penilaian ini adalah tepat, kurang bias dari kesilapan manusia, dapat mengurangkan kos operasi dan penilaian dihasilkan lebih cepat berbanding dengan kaedah manual sedia ada.

ACKNOWLEDGEMENTS

Alhamdulillah thank you to Allah to give me strength to finish my studies successfully at University Putra Malaysia.

I wish to express my foremost appreciation to my supervisors Assoc. Prof. Dr Ahmad Rodzi Mahmud, Assoc. Prof. Dr. Abdul Rashid b. Mohamed Shariff and Dr.Taher Buyong for their invaluable guidance, encouragement, help and patience through the course of this thesis by enlightening me scientifically and resolving many technical problems till the completion of this project.

Sincere appreciation and gratitude is expressed to Mr.Huzaili Sharani (Valuation Department), Ms. Normalina Jamaluddin, Mrs. Siti Nooradzah Adam, Mrs. Roslina Warno and Mr. Hermi Othman, from administration of GISRC for their excellent co-operation, support and assistance. Thanks to all my friends for their moral support and encouragement especially to Mr. Ruzinor, Mr. Abdul Halim, Mr. Ebrahim Jahanshiri, Mr. Muhammad Najib razali and Mrs. Nik Norasma. It is an honour to have met all of you and hope our lovely friendship will never end.

Finally, I am forever in depth to my parents and my family for their 'doa', support, understanding, endless encouragement, patience and love in moulding me into who I am today.

This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Ahmad Rodzi Mahmud, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Chairman)

Abdul Rashid Mohammed Shariff, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Member)

Taher Buyong, PhD
Associate Researcher
Faculty of Engineering
Universiti Putra Malaysia
(Member)

BUJANG BIN KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

viii

Declaration by graduate student

I hereby confirm that:
- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any other institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and Innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- there is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software.

Signature: _____ Date: 15 August 2013

Name and Matric No.: Rohana binti Abdul Rahman   GS 21761

Declaration by Members of Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (revision 2012-2013) are adhered to.

Signature:

Chairman of
Supervisory   Ahmad Rodzi Mahmud, PhD
Committee:

Signature:

Member of
Supervisory   Abdul Rashid Mohammed Shariff, PhD
Committee:

Signature:

Member of   Taher Buyong, PhD
Supervisory
Committee:

TABLE OF CONTENTS