

A Stratlogic Approach to Review Positioning of Casino Games in Macau

Dr Hannah Koo

Abstract: The stratlogic approach involves a procedure combining the use of Multidimensional Scaling (MDS) and hierarchical cluster analysis. It has been used in portfolio analysis to develop dominant strategies. In this empirical study, the stratlogic approach is deployed to examine the market positioning of 14 types of casino games in Macau. The stratlogic approach is data-driven. It combines the exploratory power of methodologies with management knowledge of specific circumstances, whilst producing a vivid visual representation of the data analysis. Through MDS analysis, relative positioning is derived from the empirical data. Then hierarchical cluster analysis uses the dimensions as the input. The resulting clusters can be used as a way of confirming visually defined grouping. From the spatial mapping resulting from MDS analysis, the location of groups of attributes can be examined with respects to axes (derived dimensions), particularly those lying towards the ends. It is then used to interpret what the dimension represents. The profile of the loading of attributes against each of the derived factors gives clues to the structure of the factors concerned. The next stage in stratlogic approach is cluster analysis which groups cases or variables on the basis of derived dimensions. The coordinates of orthogonal dimension of each attribute from MDS would be used as input for the cluster analysis. The hierarchical clustering is visually displayed in the form of dendrogram. A total of 41 respondents participated in this empirical study and their views should be representative. Six gaming groups have been identified, viz.: (Cussec, Fish-prawn-crab, Fan-tan); (Pai Kao, Mahjong Pai Kao); (Baccarat, 3-card Baccarat, 3-Card Poker, Blackjack); (Roulette, Boule, Lucky Wheel); (Stud Poker) and (Slot Machine). This stratlogic approach should have wide application in market positioning researches.

Key words: Stratlogic; MDS; hierarchical cluster analysis; positioning; casino games; Macau

Measuring perception in the mind

When people are asked how they view the various casino games, they would use some subjective comparison criteria to make their judgments. These review criteria are neither objective nor independent but exist sub-consciously in their minds. A more realistic and scientific assessment scores can be determined with the use of Multi-Dimensional Scaling (MDS) techniques. This empirical study adopts the use of MDS to reveal the hidden assessment dimensions used by people to compare the various different casino games. Accordingly the positioning of various casino games can be more scientifically analyzed. Being able to better understand the thinking logics of the customers, the marketing personnel can develop more appropriate business strategies. Kotler (2003) points out that positioning is about designing a unique position of a company's products and image that occupy in the minds of their target customers with an aim to successfully create a customer focused value proposition. Positioning explains why target customers will buy that product. (特勞特, 2002; Hair et al.; 2003; Kotler, 1997) . Yu 余朝權(2003) opines that there are two different interpretations for positioning: firstly, it is referring to the relative positions of various competing brands in the minds of the consumers; and secondly, it is the deliberate act by the marketers to deploy marketing tools to match their products as

close to what the position of an ideal product occupies in the minds of the customers as possible. In order to be able to position successfully, the marketers need to have the capability to measure the positions of the products in the minds of their customers.

The sample of this empirical MDS research study came from 41 students of a Community College taking a marketing module in an Associate Degree Program. Among them 40% are working in the gaming industry and they have relatively better understanding about various casino games. The remaining respondents came from various industries and their views towards gaming would be similar to those of an average Macau citizen.

MDS Technique

The origin of this statistical techniques was from psychometric. MDS has a wide range of applications in analyzing data with proximities (or dissimilarity data) (Norusis, 1993a 及 1993b; 張文彤, 2002; Kotler, 1997; Koo, 1995). MDS can describe the structure of a group of items through the distance data among respective individual pairs of events. Every item is represented by a point in a multi-dimensional space. Two similar items are represented by two near points and two dissimilar events are represented by two distant points in the space. Generally speaking, this is the Euclidean two or three dimensional distance (林傑斌 et al., 2002) . The Euclidean distance of two points **i** and **j** can be represented by the following formula:

$$d_{ij} = [\sum (x_{ia} - x_{ja})^2]^{1/2}$$

where **x_{ia}** is the coordinate of point **i** in **a** dimension
and **x_{ja}** is the coordinate of point **j** in **a** dimension.

From a distance matrix table, MDS can easily draw a map showing the relative positions of the various points. In this respect, analogy can be made with that of the works done by a surveyor who draws up a map representing the series of points whose distances have been surveyed.

To start with a geographic map, one can easily prepare a distance matrix table. However once the order of process is reversed (i.e. to draw a map from a distance matrix table), it would almost be an impossible task. MDS is a scientific statistical tool which can help solve this particular problem. It can be used to analyze the relationships among the distance data to develop the spatial map. The geographic map drawing exercise utilizes interval data on a symmetric matrix. This model is called Classical MDS (for one single dissimilarity matrix).

In practice people view the similarity among things on a subjective basis. Thus the distance matrices would not be symmetric. The problem of personal bias-ness can be addressed with social research techniques and perspectives can be analyzed beyond individual level (巴比, 1998a). Accordingly it would not be appropriate to use interval data in measuring peoples' subjective perception of the similarities and differences among different items. A better and more acceptable alternative is to use ranking order (i.e. ordinal data) to measure and analyze the extent of similarities or differences among different items. The Non-metric model of MDS is designed to measure ordinal data. MDS can also be extended to analyze several matrices (representing perceptions of various groups of respondents) via the replicated MDS (several matrices, Euclidean

model) (Norusis M. J.,1993b). MDS can be used to develop the individuals' or groups of respondents' spatial perception maps on the products or services (榮泰生, 2005; McDaniel et al., 1996; Churchill, 2002, 顧良智,顧向恩, 2005).

The surveyed sample

This research study is based on the perceptions of the ranking order on the similarities (or dissimilarities) among the 14 casino games in Macau. The ranking approach is based on the subjective views of the respective respondents in comparing pair by pair the similarities and differences among all 14 games (see appendix 1). For a comparison matrix of 14 items, there are altogether a total of $14(14 - 1)$ or 182 pairs of comparison to be made. A briefing on MDS and how to complete the comparison matrix was provided. As an incentive to encourage more candid responses, all respondents were promised a copy of their own MDS analysis results. For each row on the matrix, the most similar pair is accorded a score of "1", the second most similar pair is accorded a score of "2" and this continue till the least similar pair and that is given a score of "13". Same comparison continues until the last row. Since the ranking comparison is subjective, and to some extent subconscious, the ranking order of A with B may not be the same as the rank order of B with A in a different row (different comparison criteria may be adopted subconsciously as in the real life), the resultant matrix may not be symmetrical. The replicate non-metric MDS model in SPSS can cater this practical situation. To make the survey exercise more meaningful, some demographic data about the respondents were also collected. These can be used to segment the group of respondents for further analyses. Below are the personal details about the 41 respondents :

- Gender : 18 males; 22 females; 1 missing
- Age: 7 below 21 years; 21 between 21 to 30 years; 4 between 31 to 40 years; 6 between 41 to 50 year; 2 over 50 years; and 1 missing
- Whether working in casinos: 16 working in casinos; 24 not working in casinos; and 1 missing
- Working experience: 5 less than 1 year; 24 between 1 to 10 years; 4 between 11 to 20 years; 6 over 20 years; and 2 missing
- Know how many types of games: 10 do not know any game; 1 knows one type; 3 know two types; 2 know three types; 1 knows four types; 2 know five types; 2 know six types; 6 know seven types; 1 knows eight types; 3 know nine types; 1 knows ten types; 5 know twelve types; 2 know thirteen types; and 2 know fourteen types.

The casino games surveyed are based on those listed in the booklet (澳博娛樂指南) distributed by Sociedade de Jogos de Macau, S. A. (SJM). The booklet contains pictures and brief descriptions of the various games. Until till now, SJM offers more types of casino games than Les Vegas Sands and Galaxy. The respondents are largely working in the casinos owned by SJM. The followings are brief introduction on each type of games:

- g1 –Baccarat 百家樂 – There are four possible bets: "Banker" "Player" "Draw" "Any Pair". Customers can bet on Banker or Player. The hand with point count closest to "9" wins. If the point counts are same for Banker and Player, then the outcome is a "Draw". If the points of the first two cards (either Banker or Player) are the same it is "Banker Pair or Player Pair" with winning odds 1 to 11.

- g2 - Cussec (Big-Small) 骰寶 (大小) – Bets can be made on the numbers of the three dices i.e. “Big” “Small” “Total sum of dots” “appearing of specific dots” “Triple” 『大』、『小』、『點數』、『三軍』、『圍骰』。
- g3 - Fish-Prawn-Crab Cussec 魚蝦蟹骰寶 – The game uses three dices with picture of Fish; Prawn; Crab; Coin; Gourd and Rooster printed on each face. 魚、蝦、蟹、金錢、葫蘆、公雞. Bets can be made on Big; Small; appearing of picture; colour and total sum of dots.
- g4 - Blackjack 廿一點 – The players will win if their card scores are higher than that of the banker, however the player will lose if card scores exceed 21. Blackjack is a card of ace and a picture of J, Q, or K, or a card of Ten. The player has the option to hit extra cards if their scores are less than 21. However it busts when the scores exceed 21. The banker needs to hit until the card scores over 16.
- g5 - Boule 廿五門 – Similar to the Roulette with a larger rolling ball. There are 25 pockets on the wheel. The bet can be on any combination of numbers.
- g6 - Roulette 輪盤 – It has a spinning wheel with 37 pockets and a rolling ball thrown in opposite direction. Bets can be made on odd; even; red; black; number and its combinations. The winning number is on the pocket on which the ball rests.
- g7 - Fantan 番攤 – It is played with a lump of unknown number of buttons, two steel bowls and a bamboo stick as gaming tools. The bowl cover an unknown number of white buttons and he bets are made on the remaining numbers of buttons after groups of four buttons are separated by the bamboo stick. The possible winning numbers are one, two, three, or four. Bets can be made on the numbers, and their combinations.
- g8 – Pai Kao 牌九 – It is played with 32 tiles. Players can become bankers on rotation. The dice will determine who receives the first four tiles. The banker and player will each construct two separate hands of two tiles. The player will win if both hands are higher than the banker’s hands. The player loses if both hands are lower than those of the banker. Otherwise it is a tie.
- g9 - Mahjong Pai Kao 麻雀牌九 – It is similar to Pai Kao. Players can become banker on rotation. Bets can be made on single or multiple playing areas. It has 20 plastic tiles of ten pairs of numbers from one to nine and white face. Each playing area gets two tiles and compares the ranking in descending order: a pair of white face; a pair of 9,..., to a pair of 1. If there is no pair, then sum of the number of two tiles are compared with that of the banker. The one has the bigger number will win the game.
- g10 - 3-card Baccarat 三公百家樂 – It is a game against the house rather than against each other. The players will win if their cards are higher than that of the banker. All pictures count as zero, and all other cards count on their face values. The minimum is 0 and the maximum point is 9. If the scores are equal, the 3 cards with more pictures win. Other betting options on banker’s card include: 3 picture cards (odds of 16 times); particular score on banker’s 3 cards (odds of 8 times); tie for the same score of banker’s and player’s cards (odds of 20 times).
- g11 - 3-card Poker 富貴三公 – Players can become banker in turn. All picture cards count as zero and all other cards count on their face values. The minimum point is 0 and the maximum is 9. If the scores are equal, the cards with more pictures win.
- g12 - Stud Poker 聯獎撲克 – It combines the feature of Poker and Slot Machine.

Player can place an Ante (wager) and at the same time bet for the Jackpot. Players can check out the cards before choosing to continue or fold. Dealer compares his hand to each Player's hand individually. Players win when he outranks the house, and shall be paid according to the combination of player's cards. Jackpot bets are paid for Royal Flush, Straight Flush, Four of a Kind, Full House, and Flush.

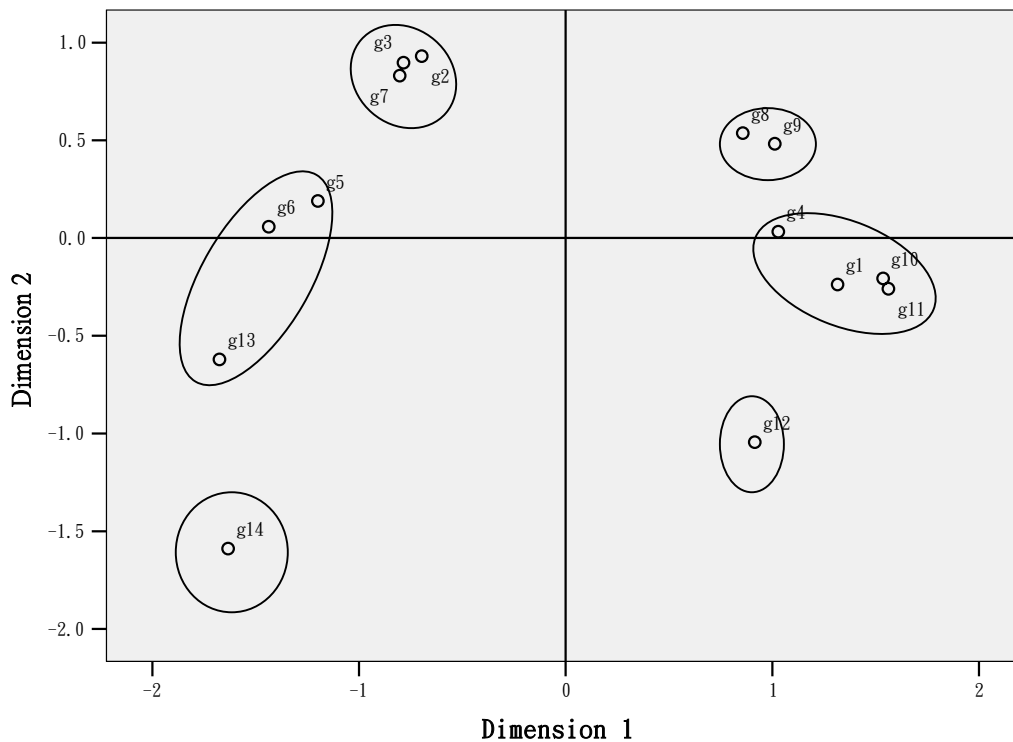
- g13 - Lucky Wheel 幸運輪 – It is a vertical wheel with 52 divisions marked with seven different color signs with different odds. The winning colour sign is the division on which the indicator rests.
- g14 - Slot Machine 角子機 – These are machine operated with a variety of bets. The Jackpot can reach several million HK dollars.

Analysis results of MDS

The followings are the two dimensional Casino games position map. Visually six distinct gaming clusters are discerned. :

- Cluster 1 : g2: Cussec; g3: Fish-prawn-crab cussec; g7: Fantan
- Cluster 2 : g8: Pai Kao; g9: Mahjong Pai Kao
- Cluster 3 : g1: Bacarrat; g10: 3-Card Baccarat; g11: 3-Card Poker; g4: Blackjack
- Cluster 4 : g6: Roulette; g5: Boule; g13: Lucky Wheel
- Cluster 5 : g12: Stud Poker
- Cluster 6 : g14: Slot Machine

Diagram 1: The positioning of 14 types of Casino Games



According to 巴比(1998b), dimension is some specific aspects of a concept which can

be made explicit. If the characteristics of the games in the respective dimensions are compared and contrasted, dimension 1 in diagram 1 can be explained as “rolling games” versus “card games” with the negative coordinates representing rolling nature and positive coordinates representing card nature. Dimension 2 is “Chinese games” versus “Western games” with positive coordinates representing Chinese nature and negative coordinates representing Western nature.

Diagram 2: Three Dimensional Position Map of Casino Games

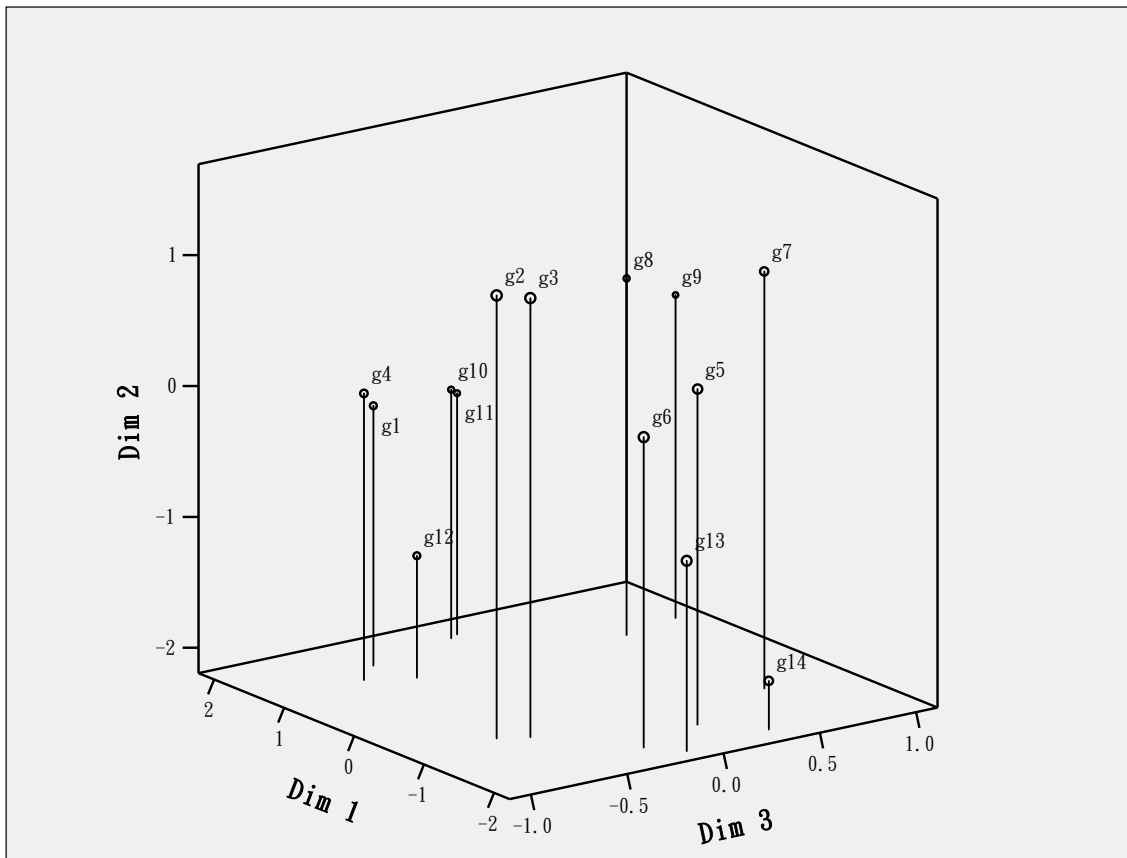


Diagram 2 depicts the 3-dimensional spatial positioning map of the 14 types of casino games in Macau. The following three tables list the coordinates in descending order of each of the three dimensions revealed from the MDS analysis. From the characteristics of these casino games, the following descriptions of the three dimensions (at the extreme ends of each dimension) are made:

- Dimension 1 : Rolling games versus Card games
- Dimension 2 : Western games versus Chinese games
- Dimension 3: Simple Easy versus Complex

Table 1 : Ranking of coordinates of Dimension 1 in ascending order

Game	Dim 1	Dim 2	Dim 3
g13- Lucky Wheel	-1.99	-0.74	-0.11
g14- Slot Machine	-1.89	-1.82	0.36
g6- Roulette	-1.69	0.18	-0.22
g5- Boule	-1.43	0.37	0.15
g7- Fantan	-0.92	0.99	0.8
g3- Fish-prawn-crab Cussec	-0.89	1.16	-0.52
g2- Cussec (Big-Small)	-0.76	1.19	-0.65
g8- Pai Kao	0.99	0.53	0.66
g12- Stud Poker	1.04	-1.26	-0.41
g9- Mahjong Pai Kao	1.14	0.27	0.97
g4- Blackjack	1.25	-0.01	-0.6
g1- Baccarat	1.53	-0.21	-0.45
g10-3-Card Baccarat	1.78	-0.29	0.04
g11-3-Card Poker	1.84	-0.35	0.09

Table 2 : Ranking of coordinates of Dimension 2 in ascending order

Game	Dim 1	Dim 2	Dim 3
g14- Slot Machine	-1.89	-1.82	0.36
g12- Stud Poker	1.04	-1.26	-0.41
g13- Lucky Wheel	-1.99	-0.74	-0.11
g11- 3-Card Poker	1.84	-0.35	0.09
g10- 3-Card Baccarat	1.78	-0.29	0.04
g1- Baccarat	1.53	-0.21	-0.45
g4- Blackjack	1.25	-0.01	-0.6
g6- Roulette	-1.69	0.18	-0.22
g9- Mahjong Pai Kao	1.14	0.27	0.97
g5- Boule	-1.43	0.37	0.15
g8- Pai Kao	0.99	0.53	0.66
g7- Fantan	-0.92	0.99	0.8
g3- Fish-prawn-crab Cussec	-0.89	1.16	-0.52
g2- Cussec (Big-Small)	-0.76	1.19	-0.65

Table 3 : Ranking of coordinates of Dimension 3 in ascending order

Game	Dim 1	Dim 2	Dim 3
g2- Cussec (Big-Small)	-0.76	1.19	-0.65
g4- Blackjack	1.25	-0.01	-0.6
g3- Fish-prawn-crab Cussec	-0.89	1.16	-0.52
g1- Baccarat	1.53	-0.21	-0.45
g12- Stud Poker	1.04	-1.26	-0.41
g6- Roulette	-1.69	0.18	-0.22
g13- Lucky Wheel	-1.99	-0.74	-0.11
g10- 3-Card Baccarat	1.78	-0.29	0.04
g11- 3-Card Pokr	1.84	-0.35	0.09
g5- Boule	-1.43	0.37	0.15
g14- Slot Machine	-1.89	-1.82	0.36
g8- Pai Kao	0.99	0.53	0.66
g7- Fantan	-0.92	0.99	0.8
g9- Mahjong Pai Kao	1.14	0.27	0.97

The Stratlogic Approach to Market Segmentation / Positioning

The MDS Positioning technique can be applied in market segmentation. This powerful analytic tool can be used in conjunction with yet another very useful statistical tool – Hierarchical Cluster Analysis (i.e. the Stratlogic approach) Moutinho et al., (1994) suggest the use of stratlogic approach to analyze competitors' positions in the portfolio. The approach is designed to be data driven. It combines the exploratory power of methodologies with management knowledge specific circumstances, while also producing a vivid visual representation of the data analysis. Through MDS analysis, the relative positioning can be derived from the empirical data. Then the hierarchical cluster analysis use the dimensions as the input. The resulting cluster can be used to confirm visually defined groupings. Cluster analysis can group cases or variables on the basis of derived dimensions. The coordinates of orthogonal dimension of each attribute from MDS are used as input for the cluster analysis. The grouping (segmentation) can take the form of dendrogram. Dendrogram is a way of visually representing the steps in a hierarchical clustering solution with the actual distances rescaled to numbers between 0 and 25. (Koo, 1997). The term “stratlogic” is described by Moutinho et al. (1995) as “dominant strategies or specific strategic recommendations or relevant advices or a rich assortment of strategic options ”, and hence the term “stratlogic approach” has been translated in Chinese as “特戰模型法”.

Moutinho et al. (1994) describe the stratlogic approach as:

“ ... a data-driven methodology which combines multidimensional scaling and cluster analysis in a procedure that will help to explore the underlying structure of data on the competitive domain. The stratlogic approach reduces and transforms data without imposing a pre-ordained prescriptive step”

Koo (1997) claims that the use of stratlogic approach has much potential in

exploratory study of new concept.

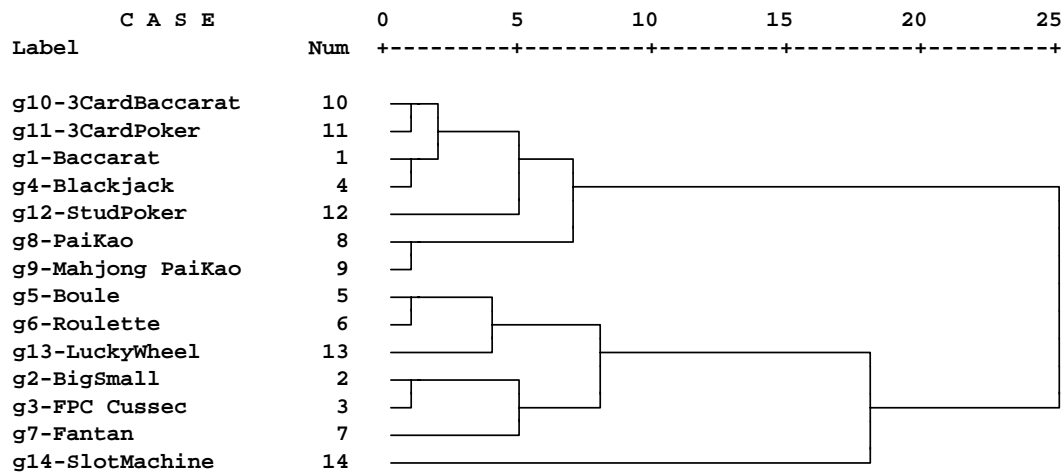
The dendrogram (Diagram 3 below) reveals the same six clusters of casino games. The closer towards the number “0” are the two games linked up, the more similar they are. The farther they are linked up, the more different they become. The most similar pairs of games are:

- 3-Card Baccarat with 3-Card Poker;
- Baccarat with Blackjack
- Pai Kao with Mahjong Pai Kao
- Boule with Roulette
- Big-Small with Fish-Prawn-Crab Cussec

The dendrogram also reveals that there are two distinct groups of casino games, viz.:

- Group 1: 3-Card Baccarat, 3-Card poker, Baccarat, Blackjack, Stud Poker, Pai Kao, and Mahjong Pai Kao
- Group 2: Boule, Roulette, Lucky Wheel, Big Small, Fish-Prawn-Crab Cussec, Fantan, and Slot Machine

Diagram 3: Dendrogram of 14 types of Casino Games in Macau



Conclusion

This positioning survey study by MDS and Cluster Analysis have some limitations:

- The sample size is a convenience sample which may not be representative of the population of Macau Casino patrons;
- The size of the sample is only 41;
- No casino customers were included in the sample;
- Not all respondents are familiar with the various casino games.

Apart from analyzing the various games, the same research approach can be applied to analyze the positioning of casinos, hotels, or any tourism products/ services or service providers. The positioning analyses help marketing decision makers have a better appreciation of the thinking logics of their customers. More appropriate positioning strategies can be developed. The stratlogic approach is powerful in combining two multivariate research tools with synergetic outcomes. The findings can then be substantiated and enriched through the use of some qualitative research tools such as focus groups, interviews and observations.

In future when new casino games will be introduced, it would surely be useful to repeat this study to determine the position of the new game. The information about the positioning of potential new products will be valuable for devising appropriate marketing strategies. It may be possible that customers with different cultural background may perceive things differently. A large scope of the strategic approach study may be needed to provide information on various major customer segments.

In order to facilitate future market positioning studies, the various casino games may be grouped into different categories such as:

- Cussec Games (Big Small; Fish-Prawn-Crab Cussec)
- Pai Kao Games (Pai Kao; Mahjong Pai Kao)
- Card Games (Baccarat; 3-Card Baccarat; 3-Card Poker; Blackjack)
- Roulette Games (Roulette; Boule)

With this simplified approach to future MDS studies, more efficient positioning studies can be conducted.

Last but not the least, the use of MDS and hierarchical cluster analysis can be used separately in positioning and segmentation as well as jointly in a strategic context.

There are vast applications opportunities for strategic.

參考文獻

(中文文獻的排序用第一位作者的漢語拼音順序排列)

- (1999) *SPSS Base 9.0 User's Guide* SPSS Inc., Chicago, IL, ISBN 0-13-020390-4
- (2004) 《澳博娛樂指南》澳門博彩股份有限公司
- (ba) 巴比·艾爾 (1998a) 《社會研究方法》第 8 版 (上) 北京 華夏出版社 ISBN 7-5080-2126-6
- (ba) 巴比·艾爾 (1998b) 《社會研究方法》第 8 版 (下) 北京 華夏出版社 ISBN 7-5080-2127-4
- (gu) 顧良智, 顧向恩 (2005) “以 MDS 分析博彩遊戲的定位” 《澳門理工學報》第 8 卷第 3 期 pp 1-11
- (ke) 科特勒·菲利普 Kotler P (2003) 梅清豪譯 《營銷管理》第 11 版 上海 上海人民出版社 ISBN 7-208-04675-1
- (lin) 林傑斌, 陳湘, 劉明德 (2002) 《SPSS 11 統計分析實務設計寶典》北京 中國鐵道出版社 ISBN 7-113-04789-0
- (rong) 榮泰生 (2005) 《企業研究方法》北京 中國稅務出版社 ISBN 7-80117-730-4
- (te) 特勞特·里斯 Trout Jack 王恩冕、于少蔚譯 (2002) 《定位》北京 中國財政經濟出版社 ISBN 7-5005-5437-0
- (yu) 余朝權 (2003) 《現代行銷管理》北京 中國紡織出版社 ISBN 7-5064-2472-X
- (zhang) 張文彤 (2002) 《SPSS 應用系列叢書(2)》北京 希望電子出版社 ISBN 7-900101-23-3
- Churchill, G. A., Iacobucci, D. (2002) (8th ed.) *Marketing Research: Methodological Foundations* Thomas Learning
- Hair, J. F., Bush, R. P., and Ortinau D. J. (2003) *Marketing Research: Within a Changing Information Environment* McGraw-Hill Companies Inc.
- Koo, Hannah H. Y. (1997) *A Stratlogic Approach to Examine Employee Behavioral Inclinations – Revisiting the Exit-Voice-Loyalty-Neglect Model* An unpublished Master of Management Studies thesis with Asia International Open University (Macau)
- Koo, L. C. (1995) “Perceptual Mapping of Various TQM Techniques” *Proceedings of The 9th Asia Quality Management Symposium* Seoul
- Kotler, Philip (1997) (9th ed.) *Marketing Management Analysis, Planning, Implementation, and Control* Prentice Hall ISBN 0-13-261363-8
- Kruskal J. B. and Wish M (1978) *Multidimensional Scaling* Sage University Papers series on Quantitative Applications in the Social Sciences, 07-011, Beverly Hills and London: Sage Pubns.
- McDaniel, C., Gates, R. (1996) (3rd Ed.) *Contemporary Marketing Research* West Publishing Company
- Moutinho L. and Brownlie, D. (1994) “The Stratlogic Approach to Analysis of Competitive Position” *Market Intelligence & Planning* Vol 12 issue 4, pp. 15-21
- Moutinho L. and Brownlie, D. (1995) “Stratlogics: towards an expert systems approach to the analysis of competitive positioning” *Journal of Strategic Marketing* vol. 3 pp. 245-256
- Norusis M. J. (1993a) *SPSS for Windows Base System User's Guide Release 6.0* SPSS Inc. Chicago, Illinois, ISBN 0-13-178856-6
- Norusis M. J. (1993b) *SPSS for Windows Professional Statistics Release 6.0*

SPSS Inc. Chicago, Illinois, ISBN 0-13-178831-0

使用特戰模型法分析澳門娛樂場博彩

顧向恩

摘要：特戰模型法(stratlogic)的程式結合了多元尺度方法(MDS)和階層集群分析法(cluster analysis)。它已經被應用在戰略組合分析。這次實証研究採用特戰模型法來調查澳門娛樂場的十四種遊戲的定位。特戰模型法是數據驅動的，它把研究方法的探索能力與對特殊情況的管理知識結合起來，透過數據分析產生生動的視覺結果。把實証數據用多元尺度方法確定相對的位置。然後把有關座標的度數作為階層集群分析法的輸入。結果可確認用視覺方法確定的定位歸類。由多元尺度方法分析出來的空間繪圖座標的軸，可以用來描述有關的維度。相近似屬性分數的組合可對有關因子結構提供線索。特戰模型法的下一步驟用階層集群分析法把MDS計算出來的座標分數按個案或變數來分組別。MDS中每個屬性的正交維度會被用作階層集群分析法的輸入。階層的集群可以用樹狀圖(dendrogram)的形式作視覺展示。一共有41位被調查者參加這項實証研究，研究結果應該有代表性。有六組博彩遊戲被鑑定出來：(骰寶，魚蝦蟹骰寶，番攤)；(牌九，麻將牌九)；(百家樂，三公百家樂，富貴三公，廿一點)；(輪盤，廿五門，幸運輪)；(聯獎撲克)和(角子機)。這特戰模型法應該在市場定位研究中有更廣泛應用空間。

關鍵字：特戰模型法；多元尺度方法；階層集群分析法；定位；娛樂場博彩遊戲；澳門

MDS 調查表格

附件一

請把以下各種博彩娛樂方法逐對比較，最相似的評分爲“1”，第二相似的爲“2”，如此類推，……，最不相似的爲“13”

	百家樂	骰寶 (大小)	魚蝦蟹 骰寶	廿一點	廿五門	輪盤	番攤	牌九	麻雀 牌九	三公 百家樂	富貴 三公	聯獎 撲克	幸運 輪	角子 機
百家樂	0													
骰寶(大小)		0												
魚蝦蟹骰寶			0											
廿一點				0										
廿五門					0									
輪盤						0								
番攤							0							
牌九								0						
麻雀牌九									0					
三公百家樂										0				
富貴三公											0			
聯獎撲克												0		
幸運輪													0	
角子機														0

(甲) 性別: 男, 女; (乙) 年齡: 21歲以下, 21-30歲, 31-40歲, 41-50歲, 50歲以上; (丙) 是否在娛樂場工作:是, 否; (丁) 工作經驗: 一年以下, 1-10年, 11-20年, 20年以上; (戊) 你懂得以上 [] 種博彩娛樂方法

