

# Identifying Extremely Frequent Casino Gamblers

~A FSQCA Approach~

Mann Zhang, University of Rhode Island

Ting-Hsiang Tseng, Feng Chia University

Arch Woodside, Boston College

# Background

- The economic and social costs associated with casino gambling have become national concern
- Extremely frequent casino gamblers are more likely to relate to problem gambling diagnoses (Perfetto and Woodside 2009)
- Extremely frequent casino gamblers vary in demographics, lifestyles, and general beliefs and opinions (GBOs) (Perfetto and Woodside 2009)

# Gap addressed

- Prior research (Perfetto and Woodside 2009) on identifying extremely frequent casino gamblers has two limitations regarding
  - measurement: can not capture imprecise human reality
  - net effect thinking: symmetric (correlation and multiple regression) rather than asymmetric perspective

# Research Purpose

- Using qualitative comparative analysis (QCA) to describe the configurations of demographic, life style, and GBOs that lead to identifying wealthy extremely frequent casino gamblers (whales) and very low income extremely frequent casino gamblers (jumbo shrimps)



# Literature Review

- Dik Twedt (1964)'s heavy-half proposition suggests that 80% of the volume of a product is consumed by 20% of its consumers
- Extremely frequent consumer behavior theory (Perfetto and Woodside 2009) includes a segment of users (extremely frequent consumers) that represent less than 2% of consumers in many product and service categories constitute more than 25% of the frequency of product or service use
- Fuzzy logic (QCA, Ragin 2008)
  - Calibration: define membership scores from 0 (fully out) to 1 (fully in) of fuzzy sets

Casino $\geq$ 25times	FS=1.0	fully in
25 > Casino $\geq$ 10 times	FS=0.75	more in than out
..		
  - Truth table analysis: sieve out the combinations of causally relevant conditions (configuration/causal recipes)

# Data

- Data retrieved from the annual DDB Needham Life Style Survey dataset (1993 to 1998)
- Cases of no-gambler and cases with missing value dropped
- 3,166 Cases included

# Procedures

- Calibration:
  - Outcome: membership of whales and jumbo shrimps
  - 10 causal conditions: 4 demographic, 3 life style, and 3 belief & opinion)
- Truth table analysis: the software – fsQCA (<http://www.fsqca.com>)
  - Establish a frequency threshold: the number of cases with strong membership ( $>0.5$ ) in each configuration; determines the relevance or viability of a configuration
    - 9 for whales / 10 for jumbo shrimps
  - Establish a consistency threshold: gauges the degree to which the cases sharing a given combination of conditions agree in displaying the outcome in question.
    - 0.9 for whales analysis / 0.8 for jumbo shrimps

# Outcome of Interest: Membership in the Set of Whales

- Fuzzy set of whales

Casino  $\geq$  25times, and income  $\geq$  \$80,000  $\rightarrow$  FS=1.0

Casino  $\geq$  25times, and \$80,000  $>$  income  $\geq$  \$20,000  $\rightarrow$  FS=0.8

24  $\geq$  Casino  $\geq$  5times, and income  $\geq$  \$80,000  $\rightarrow$  FS=0.7

24  $\geq$  Casino  $\geq$  5times, and \$80,000  $>$  income  $\geq$  \$20,000  $\rightarrow$  FS=0.5

Casino  $\geq$  25times, and income  $<$  \$20,000  $\rightarrow$  FS=0.3

Casino  $<$  5times, and income  $\geq$  \$80,000  $\rightarrow$  FS=0.2

Casino  $<$  5times, and income  $<$  \$20,000  $\rightarrow$  FS=0.0

# Outcome of Interest: Membership in the Set of Jumbo Shrimps

- Fuzzy set of Jumbo Shrimps

Casino  $\geq$  25times, and income  $<$  \$80,000  $\rightarrow$  FS=1.0

24  $\geq$  Casino  $\geq$  5times, and income  $<$  \$20,000  $\rightarrow$  FS=0.8

Casino  $\geq$  25times, and \$80,000  $>$  income  $\geq$  \$20,000  $\rightarrow$  FS=0.7

24  $\geq$  Casino  $\geq$  5times, and \$80,000  $>$  income  $\geq$  \$20,000  $\rightarrow$  FS=0.5

24  $\geq$  Casino  $\geq$  5times, and income  $\geq$  \$80,000  $\rightarrow$  FS=0.3

Casino  $<$  5times, and income  $<$  \$20,000  $\rightarrow$  FS=0.2

Casino  $<$  5times, and income  $\geq$  \$80,000  $\rightarrow$  FS=0.0

# Causal condition- Demographic

- *Gender*

Male →	FS=1.0
Female →	FS=0.0

- *Household*

3+→	FS=1.0
2 →	FS=0.5
1 →	FS=0.0

- *Age*

65+ →	FS=1.0
55-64 →	FS=0.7
45-54 →	FS=0.5
35-44 →	FS=0.3
less than 34 →	FS=0.0

- *Education*

Grad college and up (5, 6)→	FS=1.0
Att college (4)→	FS=0.7
Grad highschool (3)→	FS=0.5
Att highschool (2)→	FS=0.3
Less than highschool (1)→	FS=0.0



# Causal condition-Lifestyle

- *Go to church*

52+times (60)→	FS=1.0
25-51times (38)→	FS=0.8
12-24times (18)→	FS=0.7
9-11times (10)→	FS=0.5
5-8times (6.5)→	FS=0.3
1-4 times (2.5)→	FS=0.2
0time (0)→	FS=0.0

- *Go to bar*

52+times (60)→	FS=1.0
25-51times (38)→	FS=0.8
12-24times (18)→	FS=0.7
9-11times (10)→	FS=0.5
5-8times (6.5)→	FS=0.3
1-4 times (2.5)→	FS=0.2
0time (0)→	FS=0.0

- *Breakfast at restaurant*

52+times (60)→	FS=1.0
25-51times (38)→	FS=0.8
12-24times (18)→	FS=0.7
9-11times (10)→	FS=0.5
5-8times (6.5)→	FS=0.3
1-4 times (2.5)→	FS=0.2
0time (0)→	FS=0.0



# Causal condition-Belief & Opinion

- *Att toward abortion*

+3 → FS=1.0  
+2 → FS=0.8  
+1 → FS=0.6  
-1 → FS=0.4  
-2 → FS=0.2  
-3 → FS=0.0

- *Att toward drinking*

+3 → FS=1.0  
+2 → FS=0.8  
+1 → FS=0.6  
-1 → FS=0.4  
-2 → FS=0.2  
-3 → FS=0.0

- *Att toward fun*

+3 → FS=1.0  
+2 → FS=0.8  
+1 → FS=0.6  
-1 → FS=0.4  
-2 → FS=0.2  
-3 → FS=0.0

# Findings: Causal Recipes

- Whales:

- male\*big household size\*high education\*old\*enjoy beer in bars\*positive attitude toward alcohol drinking\*prefer anything for fun\*pro-abortion
- male\*big household size\*high education\*old\*enjoy beer in bars\*go out for breakfast\*positive attitude toward drinking\*pro-abortion
- male\*big household size, high education\*old\*enjoy beer in bars\*go out for breakfast\*prefer anything for fun\*pro-abortion

# Findings: Causal Recipes

- Jumbo Shrimps:

- female\*small household size\*low education\*old\*go out for breakfast\*prefer anything for fun
- female\*small household size\*low education\*old\*positive attitude toward drinking\*prefer anything for fun\*not pro-abortion
- female\*small household size\*low education\*old\*go to church\*prefer anything for fun\*positive attitude toward drinking

# Conclusion

- QCA approach yields some distinct profiles of whales and jumbo shrimps that are not documented in the previous literature.
- QCA demonstrated in this study can be applicable to general marketing segmentation research.