Digit length ratio predicts attitudes towards product categories in women

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Research Question

• Can a testosterone indicator predict product preferences?

Theoretical Foundation

• Coates and Herbert (2008) have shown that higher levels of testosterone are correlated to male traders' profitability.
• Saad and Vongas (2009) showed that men's testosterone levels increased while driving a luxurious sports car, suggesting a relationship between hormones and conspicuous consumption.
• Finger length ratio, a sexually dimorphic trait, is a purportedmarker of prenatal testosterone (Manning, Wilson & Lewis-Jones, 1998).
• The second-to-fourth finger length ratio (2D:4D) has been consistently correlated to a wide range of sexually differentiated phenomena, such as:
  • Athletic ability (Manning & Taylor, 2001)
  • Spatial ability (Loehlin, Medland & Martin, 2009)
  • Risk-taking behavior (Apicella et al., 2008)
  • Sexual orientation (Brown et al., 2002)
  • Aggression (McIntyre et al., 2007)

• Despite the increasing number of studies that consider finger length ratio, none has investigated its potential applications in consumer behavior.

Propositions

• Finger length ratio will be negatively correlated with attitudes towards product categories that have a strong male penchant and positively correlated with attitudes towards categories that have a strong female penchant.
• In addition, given that 2rel, the length of the index finger relative to the sum of the lengths of all four fingers, has recently been shown to be more accurate than 2D:4D (Loehlin, Medland & Martin, 2009), we propose that 2rel will be more strongly correlated to individuals' product attitudes than will 2D:4D.

Variables Studied

• Finger length ratio
• Attitude towards several product categories, namely:
  • Cosmetics
  • Electronics
  • Pornography
  • Clothing
  • Movies genres (drama, action, science fiction, romance, animation, and war)
  • Sports (hockey, boxing, synchronized swimming, and gymnastics),
  • Video-games genres (First-person Shooter, Real-time Strategy, Party-game, Platformer, and Life Simulator).
• Each product category possessed a valenced sex-specificity, namely male or female.

Method

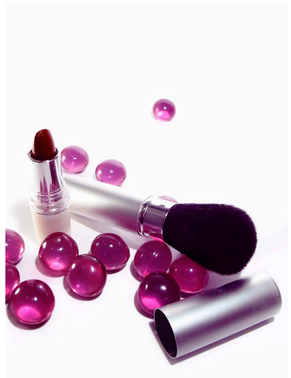
• Trained experimenters measured the lengths of right-hand fingers using digital callipers.
• Participants responded to items that assessed their attitudes towards the product categories listed above.
• Movie and Game titles were selected based on user evaluations on popular websites.
• Scales were randomly assigned to control for order effect.
• 555 undergraduate students participated in the study.
•They received candies for their participation.
• The sample was very heterogeneous in terms of ethnicity:
  • 57.4% Caucasian
  • 22% Asian
  • 8.9% Middle-Eastern
  • 11.7% Black, Latin, Mixed and others
• 52.7% of the participants were men.
• The average age was 21.52 years old (sd=3.69).

Preliminary Analyses

• Reliability
  • Digital Callipers
    • Between experimenters: .98
    • Within experimenters: .99
  • AttitudinalScales
    • Between 3 to 5 items per product
    • Exploratory Factor Analysis showed single factor solutions.
    • Cronbach's alpha ranged from .84 to .96.

• One-way ANOVAs revealed that nine product categories were significantly preferred by males, whereas ten categories were preferred by females.

Preferred by Males	Preferred by Females
War Movies (F=176.2, p<.001)	Romance Movies (F=409.1, p<.001)
Action Movies (F = 84.39, p<.001)	Drama Movies (F=19.93, p<.001)
Science Fiction Movies (F=68.48, p<.001)	Animation Movies (F=12.07, p<.001)
Boxing (F=141.2, p<.001)	**Gymnastics (F=100.4, p<.001)**
Hockey (F=42.09, p<.001)	**Synchronized Swimming (F=96.78, p<.001)**
Pornography (F=161.3, p<.001)	**Cosmetics (F=713.3, p<.001)**
Electronics (F=42.09, p<.001)	**Clothing (F=125.7, p<.001)**
FPS Games (F=287.1, p<.001)	Party Games (F=27.01, p<.001)
RTS Games (178.5, p<.001)	**Life Simulator Games (F=21.25, p<.001)**
	Platformer Games (F=4.39, p<.05)



Analyses

• Previous research on finger length ratio has stressed the importance of controlling for ethnicity (Manning, Churchill & Peters, 2007).
• Finger length ratio was influenced by sex such that men had lower ratios than women (Manning et al., 2004; Manning et al., 2000).
• To control for these two confounds, we divided the sample into homogeneous groups.
• Given that the subjects pooled were highly ethnically heterogeneous, the sample size was adequate only for the Caucasian group.
• Therefore, regression analyses were conducted on two sub-samples: male Caucasians (n=172) and female Caucasians (n=141).

Results

• **Three major findings were obtained.**

• First, **2rel** was generally a **better predictor** of product attitudes than 2D:4D.
  • Supports Loehlin, Medland and Martin (2009).

• Second, we found **no** significant **correlations** between 2rel and attitudes **in male Caucasians** for any of the product categories.

• Third, in the **Caucasian female** sample, **2rel was negatively correlated** with attitude towards **five of the ten** products **preferred by females.** Hence, women with low 2rel (i.e., higher exposure to testosterone in utero) had significantly more positive attitudes towards the following categories:
  • Synchronized Swimming (p<.001, Adjusted R^2= .125)
  • Gymnastics (p<.001, Adjusted R^2= .051)
  • Cosmetics (p<.001, Adjusted R^2= .10)
  • Clothing (p=.01, Adjusted R^2= .032)
  • Life Simulator (p=.02, Adjusted R^2= .024)

Discussion and Conclusions

• Our results suggest that finger length ratio is predictive of attitudes towards certain product categories in women.
• The products correlated to finger length ratio are related to competition that are preferred by women.
  • Sports Competition (Gymnastics and Sync. Swimming)
  • Mating Market (Cosmetics, Clothing, and Life Simulator)
• This suggest that women exposed to higher levels of testosterone in utero have a greater inclination towards intrasexual competition.

Research Limitations

• Long survey
• Use of digital callipers rather than scanners

Implications

• Results are in accordance with previous finger length ratio studies on ethnically heterogeneous samples (Manning, Churchill & Peters, 2007), and reinforce the importance of controlling for ethnicity in future research.
• The use of 2rel as an alternative to 2D:4D seems very promising.
• This is the first study to relate finger length ratios to consumer behavior.