

Agent Based Models: Volatility in the CPG

Status:	Available
Group Members:	TBD
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Project Description

Background Information:

Our research would overlap several disciplines; psychological research (e.g. perception, learning, memory, reasoning, decision-making, and emotional response), engineering (e.g. application of expert systems, data systems, information engineering and e-commerce), and computer science (e.g. decision support systems, artificial intelligence, information processing).

The collection and use of consumer purchasing data, through the Save-on-Foods More Rewards points program; has potential for use in “experiments”. Consumer behavior studies should be “instrumented”, through the addition of technical objectives in one of the areas mentioned above, acknowledgement of technical hurdles, metrics for success, and stipulations that all data of a technical nature be retained.

As in-store channel market share drops from 90+% to 76-90% to who knows what <Blair, A. “Top 5 Takeaways from 2011 RIS News Cross Channel Study”>, and web and mobile device channels share correspondingly increases, the question is how this change will affect shopping behavior. If a model can be developed, then alternative scenarios can be examined to determine risk and to optimize, capital, market profile, and distribution networks. Through the Save On More Card project, We have developed a large database of consumer behavior at a household level, available for longitudinal studies.

Project Main Objective(s):

Areas research are noted in Sengupta and Glavin works (2010 & 2011; see <http://www.simian.ac.uk/SimianResources/ESSA-SS2011/Presentations/ESSA%20Summer%20School%20Slides.pdf>) and we note that We are in a good position to fill in the gaps with this proposal and using their database of household purchasing gained through the Save On More project;

- Most of the analysis used a static framework, ignoring temporal element. Our data is available for longitudinal studies. This is critical for answering questions of volatility in the CPG as in-store channel market share drops. Also note that the research presented in the paper focused on one category; fresh fruit juice. Our data would be used to broaden this view.

- Sengupta and Glavin suggested one feature; agent-to-agent interactions through social networks, that could be incorporated as data is collected through web and mobile channels. Save On More, combined with promotion data could be further used to make the model more precise. The authors note that the effects of changing preferences, attitudes and social norms with regard to shopping behavior in response to changing market strategies would also be an interesting subject of study.

Project Main Deliverable(s):

Implement the agent based model described in Sengupta and Glavin and validate using Save On More data and data from MWG related to sales through web and mobile channels. Combine with explicit promotion data. Validation using real life data would be equivalent to confirming that the model accurately matched the simulated model to the real world phenomenon. Subsequently add features to allow modelling of; temporal element using Our data for longitudinal analysis, agent-to-agent or social networks interactions, and the effects of changing preferences, attitudes and social norms with regard to shopping behavior in response to changing market