ARTICLES:

An Economic Assessment of Marketing Fed Cattle Using Ultrasonic Images
Zach Erwin, Jamie Patton, Arley Larson, Dennis Padgitt

The Relationship Between Strategic Orientation, Growth Strategies, and Market Share Performance
Richard A. Heiens, Larry P. Pleshko

Personal Inflation Rates: A Look at Life-Cycle Expenditures and the Impact of Inflation
Randy C. Helphrey, Gary Baker

Mark Jelavich

BOOK REVIEWS:

Shoptimism
by Lee Eisnenberg
Reviewed by Lisa Bishop

Saying the Right Thing: A Business Parable
by Raymond DiZazzo
Reviewed by Cindy Kenkel

The Satisfied Customer: Winners and Losers in the Battle for Buyer Preference
by Claes Fornell
Reviewed by Jim Walker

Available online at www.nwmissouri.edu

Volume 29 May 2010
CONTENTS

Articles:
An Economic Assessment of Marketing Fed Cattle Using Ultrasonic Images ................................................. 1
Zach Erwin, Jamie Patton, Arley Larson, Dennis Padgitt

The Relationship Between Strategic Orientation,
Growth Strategies, and Market Share Performance ......................... 16
Richard A. Heiens, Larry P. Pleshko

Personal Inflation Rates: A Look at Life-Cycle
Expenditures and the Impact of Inflation ................................. 31
Randy C. Helphrey, Gary Baker

Labor Supply and Demand Curves:
2004 Cross-Sectional Estimates and Classroom Uses .................. 50
Mark Jelavich

Book Reviews:
Shoptimism
by Lee Eisnenberg ................................................................. 61
Reviewed by Lisa Bishop

Saying the Right Thing: A Business Parable
by Raymond DiZazzo ............................................................... 63
Reviewed by Cindy Kenkel

The Satisfied Customer: Winners and Losers in the Battle for Buyer Preference
by Claes Fornell ................................................................. 65
Reviewed by Jim Walker

Available online at www.nwmissouri.edu

Volume 29 May 2010
The editor gratefully acknowledges assistance from the following reviewers, from Northwest Missouri State University and other institutions:

Northwest faculty referees:
Ben Blackford  
Terry Coalter  
Ben Collier  
Mark Jelavich  
Al Kelly  
Jim Walker

Other referees:
Chris Azevedo, University of Central Missouri  
Debra Cartwright, Truman State University  
Bruce Domazlicky, Southeast Missouri State University  
David Gillette, Truman State University  
David Kunz, Southeast Missouri State University  
Marcel Minutolo, Robert Morris University  
Diane Primont, Southeast Missouri State University  
Ashley Renck, University of Central Missouri  
Michael Seipel, Truman State University  
Scott Smith, University of Central Missouri  
Rob Weigand, Washburn University
An Economic Assessment of Marketing Fed Cattle Using Ultrasonic Images

Zach Erwin
University of Missouri Extension

Jamie Patton
Arley Larson
Dennis Padgitt
Northwest Missouri State University

INTRODUCTION

The beef industry is working to increase consumer awareness of carcass quality grades in order to affect consumer preferences and increase the value of meat products. Studies have shown consumers often prefer higher grade meat (Choice versus Select), for improved tenderness and flavor (Behrends et al. 2005) and are willing to pay a premium for higher grade cuts (Boleman et al. 1997). The ability of consumers to discriminate among beef tenderness categories, combined with their willingness to pay a premium, provides an incentive for cattle feeders to produce and market high-grade cattle (Boleman et al. 1997).

Packers prefer to buy cattle using grid pricing rather than on a live-weight basis (Rhodes et al. 2007). Price relationships between selling on a grid versus live-weight were analyzed using price reports from a traditional upper-Midwestern cattle feeding state. Over a 14-year period (1991–2004) the average difference in dollars per head between selling a Choice-graded animal vs. selling on a live-weight basis was $16.70. A $36 per head price difference was noted when comparing the sales of live weight animals to animals grading Select, sold on a grid basis. Traditional grid pricing is the combination of two historical grading systems: quality and yield. The grid pricing method rewards high quality with premiums and penalizes low quality with discounts. The amount of marbling present in muscle tissue is the primary factor determining carcass grades. Since
the majority of fed cattle in the U.S. are less than 30 months old, marbling becomes the sole determinative factor in assessing quality grades. Figure 1 illustrates the relationship between marbling and carcass grades as outlined by the United States Department of Agriculture (USDA). There are seven carcass-quality grades used, with Prime as the highest, followed by Choice, Select, Standard, Commercial, Utility, and Cutter. Additionally, the yield grading system estimates the amount of boneless, closely trimmed retail cuts (BCTRC). The USDA yield grades are rated numerically, 1–5, with a grade of 1 designating an animal with the highest percentage of BCTRC. Although there is somewhat of an inverse relationship between quality and yield grades, the focus of this study is to examine price relationships of cattle with and without the potential of grading choice within an acceptable feeding period, <200 days, without receiving yield-grade discounts. Historical yield-grade premiums and discounts pale in comparison to those associated with quality grades.

**Development of Marbling**

Intramuscular fat deposits (marbling) result from excess energy in the diet. Therefore, increasing the number of days cattle are fed prior to slaughter typically increases the amount of marbling in the carcass. Progression of marbling in feedlot cattle is slow, taking approximately 114 days for an animal to advance from the bottom of the Select grade (slight marbling) to the bottom of the Choice grade (small marbling) (Brethour 2004). An additional 70 days are required on feed to move animals from Low Choice to Average Choice (modest marbling) and another 90 days to attain Low Prime (slightly abundant marbling) (Brethour 2004). The rate of marbling increase is breed-dependent, with most British and dairy breeds requiring shorter periods to increase marbling as compared to the continental and *Bos Indicus* breeds.

Premiums for high-grade carcasses have encouraged cattle feeders to seek potential indicators of future meat quality in young calves in order to improve herd management and maximize profits. One potential quality indicator—marbling scores obtained through ultrasound—has been used since the late 1980s to predict future quality grades (Brethour 1990). Basarab (1999) and Brethour (1990, 1992) created a feeder-cattle-sorting system that combines initial body weight, ultrasound backfat thickness and marbling score with economic conditions and production costs to project the number of additional days on feed to maximize profit. Basarab (1999) found that sorting animals three to six months before slaughter showed potential for improved carcass uniformity and profit of finished cattle. Additionally, Brethour (1990, 1992) found that the prediction of carcass grade at future dates (30–120 days pre-slaughter) could be used to cluster feedlot cattle into outcome groups, for more effective marketing.
Ultrasound has proven to be a viable option for predicting marbling scores, but its economic feasibility is yet to be determined. Ultrasound accuracy is key to establishing consistent and successful marketing strategies. Using speckle scores, Brethour (1990) achieved 78% accuracy between predicted grade and actual slaughter grade. During this procedure, ultrasound waves bounce off fat tissue, causing tiny specs to appear on the monitor. A speckle score is assigned by counting the number of specs on the ultrasound image.

Currently, intramuscular fat (IMF) scores (based on the relative percentage of fat to area of muscle tissue) are used to predict grade. Wall (2004) and Griffin (1999) have both noted a high correlation between IMF scores and future quality grade. The deposition of marbling appears to be linear over days of age, suggesting IMF measurements taken 100 days before slaughter may be as helpful as those taken closer to the slaughter date (Wall 2004).

**Economic Research**

The economic implications of scanning live cattle for marketing purposes have been previously explored by Basarab (1999), who concluded that sorting cattle into feeding groups based on backfat and marbling scans could be profitable. Nonetheless, no studies have been conducted on the economic implications of ultrasound-scanning feedlot cattle for marbling with the sole purpose of developing a marketing strategy. Brethour’s latest study (2000) using contemporary methods for marbling prediction will be the basis of this study. The objective of this study is to determine the economic feasibility of sorting and marketing cattle using ultrasound scanning technology.
MATERIALS AND METHODS

Quality Grade Prediction Research
This study was based on research results published by Brethour (2000), who collected ultrasound marbling estimates of two groups of cattle four times during the production cycle: days 0, 37, 76, and 123. Cattle were fed a high-energy, finishing ration. Ultrasound measurements were collected in the region of the 12th and 13th ribs and marbling was estimated using image analysis software. Steers were processed after approximately 166 days on feed. After chilling for 24 hours at 0°C, backfat was measured to the nearest millimeter with a ruler and marbling score was estimated by an experienced USDA grader to the nearest 0.1 unit. Brethour used three features to evaluate marbling predictions: the correlation between predicted marbling score and carcass marbling, average absolute error between those two variables, and the proportion of true positives and true negatives in a decision matrix that categorized carcasses as USDA Choice or not. He found that prediction accuracy generally improved as the interval from evaluation to slaughter decreased (Table 1).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Correlation of Ultrasound Estimates of Marbling and Actual Slaughter Data from Brethour (2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day 0</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.18</td>
</tr>
<tr>
<td>Accuracy (%)</td>
<td>64</td>
</tr>
<tr>
<td>Average Error</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Study Assumptions
The decision to scan cattle with the intent to market those animals alternatively is a function of the number of identified discounted animals and the realized gain from their alternate sale. In this study, cattle marketing via two routes will be explored—sold on the hoof (no evaluation of meat quality) to the packer for a live weight price or sold on the grid basis, where prices are determined after slaughter and premiums are paid for carcasses grading Choice or higher (or substantial discounts are taken for Select or lower).

Selling fed cattle on a live basis is convenient when selling a large number of animals, as large lots are often sold in a single transaction. Unfortunately, live-weight transactions typically do not reflect the true value associated with the final carcass product yield and quality, as high quality cattle are often undervalued and low quality cattle often overvalued. Producers can overcome these
price difficulties by selling cattle on the grid basis, where individual animals are evaluated for carcass quality. Premiums are paid for carcasses grading above low Choice, but significant discounts are taken for carcasses grading Select or below. Therefore, if a producer does not know the final carcass quality of his animals, selling on the grid can be risky, as the final selling price of low quality animals will likely be lower than if they were sold for the live weight price. In general, if carcass quality is high (Choice or greater), a producer would typically expect to earn greater profits selling animals on the grid basis than for a live-weight price. On the other hand, if carcass quality is low (Select or lower), the producer would expect to earn greater profits by selling animals for the live-weight price rather than on the grid. Unfortunately, producers typically are not able to determine the grade of their cattle with any degree of certainty when making marketing decisions.

The foundation of this study is several established and assumed parameters as outlined below. Since 2000, industry quality grade averages have been fairly consistent, with 3–4% of carcasses grading Prime, 55% grading Choice, and 37–38% grading Select (Mayday 2006). For this study, an industry average of 60% of carcasses grading Choice or higher and 40% grading Select or lower was used in all analyses.

Brethour’s (2000) most accurate scanning results concluded that 75% accuracy for prediction of grades of Choice or better (or Select or worse) could be achieved 36 days before harvest. Therefore, a 75% scanning accuracy was used in this study. The 25% error identified with scanning was interpreted to be applicable to both Type I and II errors. A Type I error is defined as identifying an animal as grading Select when in fact it would grade Choice. The cost of a Type I error is forfeiting the premium the animal would have earned if sold on a grid basis. A Type II error is defined as identifying an animal as a grade Choice when in fact it would grade Select. The cost of a Type II error is the discount incurred for selling an animal grading Select on a grid basis rather than on a live weight basis.

The potential gains and losses, including the cost of scanning and scan interpretation, are on a per head basis as follows:

**Gains.** Correct identification of cattle that would grade Select or lower would allow a producer to avoid the discount that would occur from selling those cattle on a grid basis. That loss is equal to the difference between the live market price of cattle and the (discounted) grid price of cattle grading Select.

**Losses/Costs.** The cost of scanning (collecting ultrasound images) and
interpreting those images, to predict likely grades of cattle at market weight is estimated to be $12.00 per head.

Loss is incurred by committing a Type I error and selling that animal in the live market rather than on the grid basis and failing to capture a premium. (The premium would be the difference between the grid-market price for Choice cattle and the live-market price of cattle.)

Loss is also incurred through Type II errors: selling an animal on the grid basis and receiving a discounted price, below what would have been received by selling the animal in the live market. (The discount would be the difference between the live-market price and the grid-market price for Select cattle.)

The net gain or loss from predicting grades of cattle and selling the animals in the live market or on a grid basis as a result of that prediction may be expressed as:

$$NG = PS(LS) - \text{Scan Cost} - PI(CL) - PII(LS)$$

Where:

- $NG =$ Net gain (loss) from using ultrasound scanning as a means for predicting and using quality grade to market cattle
- $PS =$ Probability of correctly predicting that an animal would grade Select
- $LS =$ Discount avoided for marketing cattle grading Select in the live market rather than on a grid basis
- $\text{Scan Cost} =$ Cost of scanning and interpreting scanned images to predict quality grade
- $PI =$ Probability of a Type I error
- $CL =$ Premium lost by selling Choice cattle in the live market rather than on a grid basis
- $PII =$ Probability of a Type II error

The approximate probabilities for correctly predicting an animal’s grade and Type I (PI) and Type II (PII) errors may be established using the findings of Mayday (2006) and Brethour (2000), as cited earlier. According to Mayday (2006), there is a 60% probability that any given animal will be graded Choice or above, meaning that the animal also has a 40% probability of grading Select
or lower. Assuming that Bethour’s (2006) most accurate scanning results may be duplicated consistently, any given animal’s grade may be correctly predicted 75% of the time.

Consequently, the probability of correctly predicting an animal grading Select (PS) is the result of multiplying the probability the animal will grade Select (0.4) and the accuracy of prediction using ultrasound scanning technology (0.75), or 0.30. The probability of a Type I error (PI) would be 0.6 (likelihood of grading Choice) times 0.25 (error rate in grade prediction), or 0.15. The probability of a Type II error (PII) would be 0.4 (likelihood of grading Select) times 0.25 (error rate in grade prediction), or 0.10.

The formula for evaluating the potential net gains of using ultrasound technology as a tool for marketing beef cattle would be:

\[ \text{NG} = (0.30 \times \text{LS}) - 12 - (0.15 \times \text{CL}) - (0.10 \times \text{LS}) \]

This equation was used to examine the monthly price spread relationships in the cattle market from 1991 to 2004. Note that the two price variables, LS and CL, must be positive in order for scanning and alternative marketing of cattle to be profitable. The LS price spread (live-Select) should be greater than the price of Select cattle. If this were not true, then all cattle should have been sold on a grid basis, because no premium would be realized from the live sale of Select cattle. Conversely, the CL price spread (Choice-live) would be positive when the price of choice cattle was greater than the price of live cattle. If this were not true, all cattle should have been sold on a live basis, because no premium was given to selling Choice cattle. Historically, this has not always been the case (Burgener 2005). For scanning to be economically viable, LS and CL price spreads must be positive and the difference must be large enough to cover the costs of scanning and the gains and losses from Type I and Type II errors.

Each monthly price spread situation was evaluated to determine how often price difference would justify scanning and sorting cattle for marketing purposes. The results for each month were recorded in one of four categories, as shown in Table 2.

RESULTS AND DISCUSSION
Fourteen years’ (1991–2004) of monthly prices were converted to a price-per-head basis (Burgener 2005). This particular data set was chosen for analysis because of its derivation from a single Midwestern source and for its completeness and continuity. The LS spread is the driving force for deciding whether scanning is warranted from an economic viewpoint. Consequently, select de-
Table 2
Marketing Decision Categories

<table>
<thead>
<tr>
<th>Negative CL</th>
<th>If a negative CL value was recorded, the Live price was greater than both Choice and Select prices. Selling Live weight without scanning was the best marketing decision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative LS</td>
<td>If a negative LS value was recorded, the Choice and Select prices were higher than the Live weight price. The best marketing decision was to sell on the grid without scanning.</td>
</tr>
<tr>
<td>Scan</td>
<td>The price ratios were positive and conducive to scanning for profit.</td>
</tr>
<tr>
<td>No Scan</td>
<td>Both CL and LS price spreads were positive, but not conducive to scanning for profit.</td>
</tr>
</tbody>
</table>

Table 3
LS Mean, Minimum, and Maximum per Head Price Differences per Year (1991–2004)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>24.79</td>
<td>-17.51</td>
<td>49.65</td>
</tr>
<tr>
<td>1992</td>
<td>63.12</td>
<td>32.64</td>
<td>73.84</td>
</tr>
<tr>
<td>1993</td>
<td>60.39</td>
<td>47.1</td>
<td>90.60</td>
</tr>
<tr>
<td>1994</td>
<td>52.96</td>
<td>34.34</td>
<td>79.96</td>
</tr>
<tr>
<td>1995</td>
<td>53.70</td>
<td>24.45</td>
<td>90.53</td>
</tr>
<tr>
<td>1996</td>
<td>59.24</td>
<td>20.75</td>
<td>119.24</td>
</tr>
<tr>
<td>1997</td>
<td>70.21</td>
<td>39.93</td>
<td>98.24</td>
</tr>
<tr>
<td>1998</td>
<td>36.18</td>
<td>19.43</td>
<td>51.09</td>
</tr>
<tr>
<td>1999</td>
<td>21.37</td>
<td>-0.30</td>
<td>64.05</td>
</tr>
<tr>
<td>2000</td>
<td>16.52</td>
<td>-26.64</td>
<td>46.05</td>
</tr>
<tr>
<td>2001</td>
<td>10.96</td>
<td>-37.64</td>
<td>41.96</td>
</tr>
<tr>
<td>2002</td>
<td>-13.84</td>
<td>-41.49</td>
<td>10.54</td>
</tr>
<tr>
<td>2003</td>
<td>38.51</td>
<td>-35.56</td>
<td>121.62</td>
</tr>
<tr>
<td>2004</td>
<td>18.91</td>
<td>-12.27</td>
<td>64.91</td>
</tr>
</tbody>
</table>

Descriptive statistics for the dataset were calculated (Table 3). While these statistics provide some sense for the magnitude and range of prices, they are not useful in establishing a “number” that would be required to make a decision about scanning cattle for marketing purposes. As mentioned earlier, the decision revolves around a functional relationship between the Choice-live (CL) and the live-Select (LS) spreads and is, therefore, situation-dependent.
During this time period, selling all cattle on a live basis would have been the best marketing choice 40% of the time (negative CL values). Selling all cattle on a grid basis would have been the best marketing choice 13% of the time (negative LS values) (Table 4). Forty-five percent of the time, however, both CL and LS were positive, indicating the price spread was not significant enough to warrant scanning. Only four out of the 168 months evaluated resulted in LS and CL price spreads where scanning profits would cover costs. These four occurred in three different years and only one year reported an acceptable price ratio in successive months. Therefore, according to past price scenarios, scanning fed cattle for marketing purposes cannot be economically justified. For scanning to become a viable marketing tool, acceptable price ratios need to follow a recognized pattern, so producers can make informed management decisions on time periods (points in the cattle market cycle) when it may be profitable to evaluate animals via scanning.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Negative CL Occurrence</th>
<th>Total Negative LS Occurrence</th>
<th>Scan Total Occurrence</th>
<th>No Scan Total Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>1992</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1994</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1995</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1996</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1997</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1998</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2001</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2002</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2003</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2004</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>14 YR TOTAL</strong></td>
<td><strong>67</strong></td>
<td><strong>22</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Table 4
Model Sensitivity

The first scenario evaluated was the reduction in the cost of scanning from $12 per head to $10. The model was adjusted for the reduction in cost and new LS and CL values were calculated (Table 5). The reduction in scanning cost generated an additional month of profitable price spreads, suggesting the model was insensitive to changes in the cost of scanning. While it is tempting to try to calculate a cost where scanning becomes profitable, it is impossible to do so because the scanning cost figure is a function of the CL and LS spreads and the relationship between the spreads.

The next model scenario evaluated was to increase the accuracy of identification. The model’s scanning accuracy was increased from 75% to 80% accuracy (+6.25% change), and new LS and CL values were calculated (Table 6). The change in accuracy yielded two additional profitable situations, for a total of six profitable months out of 168 months evaluated.

### Table 5

<table>
<thead>
<tr>
<th>Total Negative CL Occurrence %</th>
<th>Total Negative LS Occurrence %</th>
<th>Scan Total Occurrence %</th>
<th>No Scan Total Occurrence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991 3 25</td>
<td>2 17</td>
<td>0 0</td>
<td>7 58</td>
</tr>
<tr>
<td>1992 12 100</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>1993 12 100</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>1994 10 83</td>
<td>0 0</td>
<td>0 0</td>
<td>2 17</td>
</tr>
<tr>
<td>1995 5 42</td>
<td>0 0</td>
<td>1 8</td>
<td>6 50</td>
</tr>
<tr>
<td>1996 7 58</td>
<td>0 0</td>
<td>2 17</td>
<td>3 25</td>
</tr>
<tr>
<td>1997 11 92</td>
<td>0 0</td>
<td>0 0</td>
<td>1 8</td>
</tr>
<tr>
<td>1998 6 50</td>
<td>0 0</td>
<td>0 0</td>
<td>6 50</td>
</tr>
<tr>
<td>1999 1 8</td>
<td>1 8</td>
<td>0 0</td>
<td>10 83</td>
</tr>
<tr>
<td>2000 0 0</td>
<td>2 27</td>
<td>0 0</td>
<td>10 83</td>
</tr>
<tr>
<td>2001 0 0</td>
<td>2 17</td>
<td>0 0</td>
<td>10 83</td>
</tr>
<tr>
<td>2002 0 0</td>
<td>10 83</td>
<td>0 0</td>
<td>2 17</td>
</tr>
<tr>
<td>2003 0 0</td>
<td>3 25</td>
<td>2 17</td>
<td>7 58</td>
</tr>
<tr>
<td>2004 0 0</td>
<td>2 17</td>
<td>0 0</td>
<td>10 83</td>
</tr>
<tr>
<td><strong>14 YR TOTAL</strong></td>
<td><strong>67 40</strong></td>
<td><strong>22 13</strong></td>
<td><strong>74 44</strong></td>
</tr>
</tbody>
</table>
The model was then run with a scanning accuracy of 100%. The number of acceptable price ratios increased to 34 profitable months out of 168 (Table 7). Even with this increase, though, profits from scanning would occur in only 20% of total reported months.

**CONCLUSIONS**

Profit from feeding cattle is typically calculated as the sale price minus the cost of the animal, which includes the buying price and cost of gain. Cost of gain was not evaluated in this research because of the significant variability between feeders. The results of this study indicate that price relationships have not existed in the past to take advantage of ultrasounding fed cattle to alter marketing strategies. Although outside the scope of this study, Basarab (1999) and Brethour (2000) created a sorting system that combined initial body weight, ultrasound backfat thickness and marbling score with economic conditions and production costs to project the number of additional days on feed to maximize profit.

### Table 6

<table>
<thead>
<tr>
<th></th>
<th>Total Negative CL Occurrence</th>
<th>Total Negative LS Occurrence</th>
<th>Scan Total Occurrence</th>
<th>No Scan Total Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>1992</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1994</td>
<td>10</td>
<td>8</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1995</td>
<td>5</td>
<td>42</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1996</td>
<td>7</td>
<td>58</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1997</td>
<td>11</td>
<td>92</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1998</td>
<td>6</td>
<td>50</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2001</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2002</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>2003</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>2004</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td><strong>14 YR TOTAL</strong></td>
<td><strong>67</strong></td>
<td><strong>40</strong></td>
<td><strong>22</strong></td>
<td><strong>73</strong></td>
</tr>
</tbody>
</table>

The model was then run with a scanning accuracy of 100%. The number of acceptable price ratios increased to 34 profitable months out of 168 (Table 7). Even with this increase, though, profits from scanning would occur in only 20% of total reported months.

**CONCLUSIONS**

Profit from feeding cattle is typically calculated as the sale price minus the cost of the animal, which includes the buying price and cost of gain. Cost of gain was not evaluated in this research because of the significant variability between feeders. The results of this study indicate that price relationships have not existed in the past to take advantage of ultrasounding fed cattle to alter marketing strategies. Although outside the scope of this study, Basarab (1999) and Brethour (2000) created a sorting system that combined initial body weight, ultrasound backfat thickness and marbling score with economic conditions and production costs to project the number of additional days on feed to maximize profit.
Basarab (1999) found that sorting animals three to six months prior to slaughter showed potential for improved carcass uniformity and profit of finished cattle. For producers to use ultrasound technology commercially for marketing purposes, however, the structure of the consumer demand schedule for beef would need to shift. This is to say that a more significant premium for Choice beef over cattle sold on a Live basis would need to exist, in order to provide a consistent incentive for producers to provide Choice beef to packers.

Currently, the industry is deriving benefits from ultrasound that do not pertain to the scanning of fat cattle. Many studies have been conducted that prove the value of ultrasound in improving herd genetics. By scanning yearling bulls and heifers, carcass expected progeny differences (EPDs) can be calculated and used to make breeding selections. Improved breeding is the quickest way to improve genetics within a herd. Hassen et al. (2003) reported that as the beef industry begins to depend more on value-based marketing system, accurate selection of
parent animals and evaluation of genetic responses to selection become more crucial to producers. Future research should emphasize the importance of ultrasound as a genetic selection tool, until a price shift occurs in the beef industry necessitating a premium for Choice beef.
REFERENCES


The Relationship Between Strategic Orientation, Growth Strategies, and Market Share Performance

Richard A. Heiens
University of South Carolina-Aiken

Larry P. Pleshko
Kuwait University

INTRODUCTION
Business strategy has been analyzed from many differing perspectives, and one of the best known conceptualizations was developed by Miles and Snow (1978). Focusing on a firm’s strategic adaptation or aggressiveness towards the market, Miles and Snow suggested that firms may be classified into four distinct strategic groups, each enacting consistent decisions and activities across a variety of organizational areas. A great deal of research over the years has served to confirm differences among the four strategic types regarding a variety of internal factors, including innovation, management characteristics, and organizational design (Aragon-Sanchez and Sanchez-Marin 2005; Slater and Narver 1993; Doty, Glick, and Huber 1993; Conant, Mokwa, and Varadarajan 1990). Moreover, recent studies have found that the strategic groups differ from each other on a variety of additional factors, including implementation and use of market research, organizational performance, and environmental perceptions (Auh and Menjuc 2005; Bednall and Valos 2005; Freel 2005; Moore 2005).

One particularly interesting proposal of Miles and Snow (1978) is that the four strategic types vary according to their efforts at innovation. “Prospector firms” are expected to place the most emphasis on growth from innovation, with leadership or first-mover characteristics common in these firms. Alternatively, “reactor firms” are late followers, only acting or innovating when the competition or market demands it. “Defender firms” are suggested to focus more on efficiently serving a focused
part of the market, rather than on innovation. They are more likely than reactors to innovate, but these efforts will be highly focused. Finally, “analyzer firms”, while not being first-movers, are oftentimes aggressive in following the lead of prospectors with new products or into new markets.

Although early research by McDaniel and Kolari (1987), further verified by Slater and Narver (1993), indicates that innovativeness is generally greatest among prospectors, followed by analyzers, defenders, and then reactors, no previous study has focused on the specific product-growth or market-growth strategies employed by the four types of firms in the financial services sector. Consequently, the purpose of this study is to determine whether the four strategic types emphasize similar or different product- and market-growth strategies during innovation efforts, and to take an exploratory look at whether these strategies, taken separately or together, affect market share performance.

PRODUCT-MARKET GROWTH STRATEGIES

When considering possible growth strategies, research has long been dependent on H. Igor Ansoff’s (1957) conceptualization of the product-market growth matrix. According to Ansoff’s theory, a firm may choose one of four product-market growth strategies: market penetration, market development, product development, and diversification. Ansoff suggests the safest growth option is to adopt a market penetration strategy, whereby a firm gains more usage from existing customers and also seeks to attract new customers in their existing market. A slightly riskier option may be to adopt the market development strategy of attracting new types of customers for the current products of the firm from either new channels of distribution or new geographic areas. Alternately, a firm may engage in product development, by producing entirely new products, different versions of existing products, or different quality levels of existing products to be sold in its current markets. The riskiest strategy overall is suggested to be a diversified approach, developing new products for new markets.

With the exception of Pleshko and Souiden (2003), whose research indicates that the chosen product-market growth strategy does have a slight influence on some aspects of firm profit performance, few studies in recent years have addressed the issue of product-market growth strategies. On the other hand, a great deal of research in recent years has addressed the relationship between a firm’s Miles and Snow strategic classification and firm performance (Brunk 2003; Desarbo, Di Benedetto, Song, and Sinha 2005; Garrigos-Simon, Marques, and Narangajavana 2005; Shoham, Evangelista, and Albaum 2002). Focusing on the product-market growth strategies of the various Miles and Snow strategic groups in the financial services sector, the authors present the following hypotheses.
HYPOTHESES

The Miles and Snow typology of strategy types depicts a firm’s orientation towards its market environment. The four strategic orientations, again, are defenders, prospectors, analyzers, and reactors. In general, all four strategy types can be viable in a given situation (Garrigos-Simon et al. 2005). Previous studies suggest, however, that prospectors exhibit the highest levels of innovativeness, followed by analyzers, then defenders, and lastly by reactor firms (Slater and Narver 1993; McDaniel and Kolari 1987). Extending these expectations to the specific product-market growth strategies of credit unions, we present the following sets of hypotheses.

According to Miles and Snow, prospectors are leaders in product-market development, wanting to be first-movers whenever possible. They compete by taking advantage of new market and product opportunities. Consequently, as indicated in the first set of hypotheses, we expect prospectors to implement the most aggressive product and market growth efforts, focusing not only on current products and markets, but also on new products and market areas.

H1a: Prospector firms are most likely to search for growth opportunities by seeking out new market segments.

H1b: Prospector firms are most likely to search for growth opportunities by developing new services.

Although, as compared to prospectors, analyzers are followers in product-market development, they are not laggards. They may change their tactics slowly and less often than prospectors, but they can be aggressive towards innovation once they see opportunities. Thus, analyzers are expected to be the second-most-aggressive strategic type with respect to product-market growth. Analyzers are expected to use current products and markets for growth, but to also develop new products and enter new markets when a good opportunity arises, leading to the second set of hypotheses.

H2a: Analyzer firms are likely occasionally to search for growth opportunities by seeking out new market segments.

H2b: Analyzer firms are likely occasionally to search for growth opportunities by developing new services.

Defenders are firms engaging in few or no product or market development efforts. They tend to control secure niches within their industry. Thus, as indicated in the third set of hypotheses, defenders are expected to be conservative in
product-market growth efforts, focusing on current products and current markets for growth.

H3a: Defender firms are likely to search for growth opportunities by primarily focusing on current market segments.

H3b: Defender firms are likely to search for growth opportunities by primarily focusing on current services.

Finally, reactors change tactics only when forced to by the market environment. Their strategic stance is one of passiveness and caution, rarely taking the lead in producing change in an industry. Therefore, reactors are expected to be the most conservative firms toward growth, focusing almost entirely on current products and markets, only after most others have already made the move into those areas.

H4a: Reactor firms are likely to search for growth opportunities by focusing only on current market segments.

H4b: Reactor firms are likely to search for growth opportunities by focusing only on current services.

In terms of performance, the theoretical ordering suggests prospectors, analyzers, and defenders will generally outperform reactor firms. Shoham et. al. (2002) suggest that performance of the strategic groups follows the theoretical order, but that each of the groups can be successful if strategy fits with a firm’s strengths.

In the banking industry, McKee, Varadarajan, and Pride (1989) found, for moderate and low market volatility, that the four strategy types differed on objective financial performance measures. Analyzers and prospectors (respectively) outperformed defenders and reactors on financial measures. On market share measures, however, reactors were the best performers: an uncommon result, as most often reactors are laggards on profits and share. Other studies have also found contradictory performance orders among the strategic groups or found the typology to be limited, especially when investigating financial performance such as ROI or ROA (Aragon-Sanchez and Sanchez-Marin 2005; Brunk 2003; Desarbo et al. 2005).

From the PIMS data base, Hambrick (1983) found that prospectors outperformed defenders using financial performance measures. Other studies have shown that the theoretical ordering of the groups on performance holds, but
the relationship with performance is oftentimes weak (Woodside, Sullivan, and Trappey 1999). Due to the uncertainty surrounding the relationship between strategic type and firm performance, no specific hypotheses regarding performance are proposed in the current study. Nevertheless, in an effort to lend additional insight, the current study also includes an exploratory examination of the link between the various strategic types and relative market share performance.

SAMPLE
The authors obtained information from a sample of chief executives in the financial services industry, with an emphasis on credit unions. Credit unions are owned and operated as nonprofits by their members, making them a unique subcategory within the broader financial services sector. Therefore, if the Miles and Snow classification scheme yields expected results in an industry with such an atypical business model, the robustness of the method will be convincingly verified.

Data for the study were gathered from a statewide survey in Florida of all the credit unions belonging to the Florida Credit Union League (FCUL). Membership in the FCUL represents nearly 90% of all Florida credit unions and includes 325 firms. A single mailing was directed to the president of each credit union, all of whom were asked by mail in advance to participate. A four-page questionnaire and a cover letter using a summary report as inducement were included in each mailing. Of those responding, 92% were presidents or chief executive officers and 8% were marketing directors. This approach yielded 125 usable surveys, a 38.5% response rate. A Chi-squared test of the respondents versus the sampling frame indicates that the responding credit unions are significantly different from the membership firms based on asset size, and indicates that the smaller asset groups are under-represented in our sample (Chi-sq = 20.73, d.f. = 7, p < .01).

MEASURES
Six constructs are used in the current study. Four are categorical items: asset size, product growth, market growth, and Miles and Snow strategy types. Perceived environmental dynamism and market share performance are considered interval-level indicators. The constructs are described in the following paragraphs.

Product growth strategy (PGROW) is actually service growth in this study and, as derived from Ansoff (1957), focuses on either [1] existing services, [2] new services, or [3] both existing and new services. Firms are self-classified in relation to their attempts at fostering growth by checking the box next to the
appropriate descriptor (Pleshko and Souiden 2003). Respondents could check either [1] we emphasize services presently offered by the firm, or [2] we emphasize services new to the firm. They could also check both of the boxes, indicating they use both new and current services for growth. Those firms that did not respond to the question were counted as missing and deleted from the analysis. One hundred seventeen respondents answered the question with 54% (64/117) classified as focusing on existing services, 14% (17/117) classified as emphasizing new services, and 30% (36/117) classified as using both new and existing services in their efforts at product growth.

Market growth strategy (MGROW), also derived from Ansoff (1957), focuses on [1] existing market segments, [2] new market segments, or [3] both existing and new market segments. Firms are again self-classified by marking the box next to the appropriate descriptor (Pleshko and Souiden 2003). Respondents could check either [1] we target market segments presently served by the firm, or [2] we target market segments new to the firm. They could also check both of the boxes, indicating they use both new and current markets for growth. Those firms that did not respond to the question were counted as missing and deleted from the analysis. One hundred thirteen respondents answered the question with 65% (74/113) classified as focusing on current segments, 11% (13/113) classified as emphasizing new segments, and 23% (26/113) classified as targeting both new and existing market segments in their efforts at growth.

The Miles and Snow strategy types (M&S) are also measured using self-classification. The respondents are asked to check the box that best describes their firm’s strategy. They could choose from four descriptions. One hundred and nineteen respondents answered the question with 38% being defenders (45/119), 5% being prospectors (6/119), 44% being analyzers (53/119), and 13% being reactors (15/119).

Here are the descriptions from the survey:

[1] **Defenders**: We attempt to locate and maintain a secure niche in a relatively stable market environment. We try to protect our markets by offering high-quality, well-targeted services. We are not at the forefront of industry developments.

[2] **Prospectors**: We typically concentrate on many diverse markets, which we periodically help to redefine. We value being first-in with new services and in new markets, even when these efforts are not highly profitable initially. We respond rapidly to most new opportunities.
[3] **Analyzers**: We attempt to maintain a stable and secure position in the market while at the same time moving quickly to follow new developments in our industry. We are seldom first-in with new services or in new markets, but are often second-in with better offerings.

[4] **Reactors**: We appear to have an inconsistent approach to our markets and services and are often indecisive. We are not aggressive in attacking new opportunities, nor do we act aggressively to defend our current markets. Rather, we take action when we are forced to by outside forces such as the economy, competitors, or market pressures.

Perceptual measures are used to evaluate relative market share (SHARE) performance. Perceptual measures avoid errors associated with variations in accounting methods and also have been shown to strongly correlate with objective measures within the same firm (Venkatraman and Ramanujam, 1986; Miller 1988; Pearce, Robbins, and Robinson 1987). In particular, respondents are asked about their market-share performance on a scale from (1) poor to (5) excellent regarding five market share baselines: [1] versus competitors, [2] versus goals/expectations, [3] versus previous years, [4] versus firm potential, and [5] growth of share. A principal axis factor analysis indicates that the five items load highly on a single dimension explaining 66.4% of the original variance. An overall indicator, SHARE, is constructed by summing the five items pertinent to share. A reliability of .872 is found using coefficient alpha. SHARE ranges from five to twenty-five with a mean of 14.64 and a standard deviation of 3.56.

The first control variable, environmental dynamism (DYNA), is included as a proxy for external influences on the firm and its performance. The environment has been conceptualized in a variety of ways throughout the literature. The two most common perspectives use either (a) competitive rivalry as a function of influences like threat of entry (Dwyer and Welsh 1985) or (b) descriptors of uncertainty, such as dynamism and complexity (Miller 1988; Achrol, Torger, and Stern 1983). This paper uses the second approach, measuring the perceived levels of environmental dynamism, described as the amount of change occurring in an industry environment. The respondents are asked to evaluate their perceptions of the environment on a bipolar scale from (1) to (5) across three items: [1] stable/unstable, [2] variable/not variable, and [3] volatile/not volatile. The factor analysis indicates that the three items load highly on a single factor explaining 57% of the original variance in the three items. An overall indicator of dynamism (DYNA) is constructed by summing the three items. A reliability of .639 is found using coefficient alpha. DYNA ranges from three to fifteen with a mean of 7.35 and a standard deviation of 2.43.
The remaining control variable in the study, asset size (SIZE), was included as a proxy for organizational characteristics. Its inclusion is relevant, as size is an important factor in relation to firm characteristics (Hall, Hass, and Johnson 1967), as well as to market share performance: larger firms generally have larger shares (Wilson and William 2000). The credit unions were self-classified by marking the box next to the appropriate asset-size category and then classified into large versus small firms by median split. Firms with asset holdings up to $10 million are considered small credit unions, while those with holdings greater than $10 million are considered to be large in size. This produced 59 small credit unions and 65 large credit unions.

**ANALYSIS AND RESULTS**

Two general tests were used. The first analysis involved a pair of cross tabulations to determine whether firms with different strategies, as classified by Miles and Snow, emphasize different areas of product or market growth. Second, an analysis of variance was performed to determine whether the Miles and Snow strategy types, or the product-market strategies, or any interactions of these factors, provide evidence of a significant relationship to market share performance.

Regarding market growth strategies, a cross tabulation analysis was performed to determine whether firms with different strategies, as classified by Miles and Snow, emphasize different types of market growth. One hundred and ten responding firms were included in this analysis, because they answered both required questions. The cross tabulation is shown in Table 1 for strategy type versus market growth. As shown in the table, prospector firms in the sample appear to be the most aggressive in relation to market growth, with all six of the firms using both current and new markets in growth efforts. On the other hand, reactor firms appear to be the least aggressive, with 12 out of 14 firms using only current markets for growth. Defender firms are also conservative, as expected, with 31 out of 43 firms using only current markets for growth. For analyzers, 29 out of 47 firms used current markets exclusively for growth, while the remaining 18 firms included new markets in growth efforts, either alone or with current markets.

The Chi-square statistic supports a significant relationship (p<.001) between market growth and strategic type. Nevertheless, Hypothesis 1a suggested that prospectors would be likely to search for growth opportunities by seeking out new market segments. A look at Table 1 reveals that although prospector firms were aggressive, in the sense that prospectors were the only type of firm never to search for growth opportunities in current markets, none of our prospector firms searched for growth in new markets. Consequently, Hypothesis 1a was not supported by the data.
Similarly, Hypothesis 2a proposed that analyzer firms would also be likely to search for growth opportunities by seeking out new market segments. Instead, the results indicate that analyzer firms in our sample are actually more likely to focus on current market segments for growth opportunities. Consequently, Hypothesis 2a was also not supported by the data.

Hypothesis 3a suggested that defender firms would be likely to search for growth opportunities by focusing on current market segments, and the evidence does in fact support this assumption (p<.001). Similarly, reactor firms were more likely than expected by chance alone to focus on current markets when searching for growth opportunities (p<.001), lending support to Hypothesis 4a.

Regarding product growth strategies, a second cross tabulation analysis was performed to determine whether firms with different strategies, as classified by Miles and Snow, emphasize different types of product growth activities. One hundred and fourteen responding firms were included in this analysis, as they provided answers for both of the required questions. The cross tabulation is shown in Table 2.
The Chi-square statistic supports a significant relationship (p<.001) between product growth and strategic type. Hypothesis 1b suggested that prospector firms would be likely to search for growth opportunities by developing new services. A look at Table 2 reveals that although prospector firms were aggressive, in the sense that prospectors were the only type of firm never to search for growth opportunities with current products alone, none of our prospector firms searched for growth solely through new products. Instead, they tended to use a combination of both current and new products. Consequently, Hypothesis 1b was not supported by the data.

Similarly, Hypothesis 2b proposed that analyzer firms would also be likely to search for growth opportunities by emphasizing new services. Instead, the results indicate that analyzer firms in our sample are actually more likely to focus on either current products or a combination of new and current products for growth opportunities. Consequently, Hypothesis 2b was also not supported by the data.

Hypothesis 3b suggested that defender firms would be likely to search for growth opportunities by focusing on current products, and the evidence does in fact support this assumption (p<.001). Similarly, reactor firms were more likely than expected by chance alone to focus on current products when searching for growth opportunities (p<.001), lending support to Hypothesis 4b.

To determine the influence of each of the strategies on relative market share, an analysis of variance was performed, using the general linear model procedure in SPSS, which included all of the variables described previously. Each of the three categorical variables is classified as fixed factors while dynamism and size are interval-level covariates in the analysis. The general model is as follows, with the results shown in Table 3:

\[ \text{SHARE} = \text{SIZE} + \text{DYNA} + \text{M&S} + \text{PGROW} + \text{MGROW} + (\text{M&S*PGROW}) + (\text{M&S*MGROW}) + (\text{M&S*PGROW*MGROW}) + \text{ERROR}. \]

As noted in Table 3, the model exhibits statistical significance (p<.001), and explains an adjusted 31% of the variance in perceived market share. Neither product growth or market growth, nor any interactions of the factors under study, exhibit a significant effect on relative market share. The Miles and Snow strategic type is revealed, however, to be a significant predictor of relative market share (p=.030). Post-hoc tests using least-significant differences finds no market share distinctions among prospectors, analyzers, or defenders. The tests do find, however, that reactor firms have lower perceived relative market shares than each of the other three types of firms. Also, the two covariates are significant predictors.
of relative market share. Environmental dynamism (DYNA) shows a significant negative relationship to share (p=.017), while asset size (SIZE) has a positive relationship to relative market share (p=.026).

**DISCUSSION**

The paper presents an empirical investigation in the financial services industry to determine whether firms using different strategies (prospector, analyzer, defender, and reactor) actually focus on different types of growth, as related to products and services. Additionally, the study investigates whether these strategies affect perceptions of relative market share. The statistics reveal that most firms in the study are conservative about growth strategies, as more than half of the firms emphasize only current services for their growth, while nearly two-thirds focus on current markets in growth efforts. Additionally, few firms were classified as either prospectors or reactors. Instead, the majority of firms are either classified as defenders or analyzers, as might be expected in the case of a relatively stable and conservative industry.

The study indicates that the more aggressive firms, prospectors, are likely to implement growth strategies using both new and current services while focusing on both new and current market areas. Analyzers, while using current services or

| TABLE 3  
Analysis of Variance for Share |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S squares</td>
<td>d.f.</td>
<td>M square</td>
<td>F</td>
<td>“p”</td>
</tr>
<tr>
<td>Model</td>
<td>553.85</td>
<td>21</td>
<td>26.37</td>
<td>3.21</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>1297.82</td>
<td>1</td>
<td>1297.82</td>
<td>157.98</td>
<td>.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>42.35</td>
<td>1</td>
<td>42.35</td>
<td>5.16</td>
<td>.026 positive</td>
</tr>
<tr>
<td>DYNA</td>
<td>48.90</td>
<td>1</td>
<td>48.90</td>
<td>5.95</td>
<td>.017 negative</td>
</tr>
<tr>
<td>MGROW</td>
<td>22.28</td>
<td>2</td>
<td>11.14</td>
<td>1.36</td>
<td>.263</td>
</tr>
<tr>
<td>PGROW</td>
<td>4.39</td>
<td>2</td>
<td>2.19</td>
<td>0.27</td>
<td>.766</td>
</tr>
<tr>
<td>M&amp;S</td>
<td>77.18</td>
<td>3</td>
<td>25.73</td>
<td>3.13</td>
<td>.030 R&lt;P,A,D</td>
</tr>
<tr>
<td>M&amp;S*MGROW</td>
<td>21.09</td>
<td>3</td>
<td>7.03</td>
<td>0.86</td>
<td>.467</td>
</tr>
<tr>
<td>M&amp;S*PGROW</td>
<td>18.34</td>
<td>3</td>
<td>6.11</td>
<td>0.74</td>
<td>.529</td>
</tr>
<tr>
<td>PGROW*MGROW</td>
<td>39.06</td>
<td>4</td>
<td>9.77</td>
<td>1.19</td>
<td>.322</td>
</tr>
<tr>
<td>M&amp;S<em>PGROW</em>MGROW</td>
<td>10.98</td>
<td>2</td>
<td>5.49</td>
<td>0.67</td>
<td>.515</td>
</tr>
<tr>
<td>Error</td>
<td>673.63</td>
<td>82</td>
<td>8.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23898.25</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr. Total</td>
<td>1227.48</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. R-square</td>
<td>.311</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
both current and new services for growth in equal amounts, are also more likely than expected to implement growth strategies emphasizing both current and new services. Analyzers are a bit more conservative, with most firms emphasizing current markets for growth. Nevertheless, they are more likely than expected to include new markets in growth efforts as well. The least aggressive firms, reactors, act in an opposite manner to prospectors, focusing their growth efforts mostly on current services and at current market groups. The defender firms, while using all three growth options, also mostly emphasize current services and current markets for growth. These findings are consistent with what might be predicted regarding the four strategic types of firms in the Miles and Snow typology.

Regarding the impact of strategies on relative market share performance, we find that the variables in the study significantly predict relative market share. The analysis also reveals that the strategies do not interact in their effect on market share. Thus, the decisions regarding product growth, market growth, and strategic orientation may be considered as separate. The study also reveals that the control variables are significantly related to market share. Firm size, as measured by assets, is positively related to share. It is not surprising that firms with larger resources, in this case asset-holdings, would leverage these resources to achieve larger market shares.

Also, environmental dynamism is found to be negatively related to relative market share. Uncertainty in the market, either from competitive rivalry, alterations in customer demand, or even changes in the macro-environment, are likely to lead to lower-than-expected performance. Therefore, in more difficult environments, firms may have an unfavorable impression regarding relative market share.

In addition, the findings indicate that product and market growth strategies do not influence perceptions of relative market share in the case of credit unions, when considered alongside the other strategic variables. This suggests that any of the growth strategies might be equally productive in improving share performance. This result is, of course, a bit surprising. It would seem logical that firms that develop new and appealing services for their markets might attract newer customers, therefore building relative market share. Similarly, firms that reach out to new market segments should be expected to achieve an overall improvement in relative market share. It is likely, however, that consumers in this particular industry tend to select and stay with a single financial service provider. Therefore, emphasizing new products or targeting new markets fails to lead to major increases in overall relative market share. Also, the effect of growth strategies on market share may be masked by the effects of the Miles and Snow strategic groups, as these strategic groups are theoretically related somewhat to growth efforts.
The strategic group to which a firm belongs does, however, appear to affect market share performance significantly. Specifically, reactor firms have lower market shares than the other three strategic groups. The fact that reactor firms underperform other firms on market share is not that surprising, given that reactors are defined as followers that rarely take advantage of new opportunities.

In summary, product growth and market growth strategies appear to be equally effective regarding their effect on market share, as no differences are found. Combinations of these strategies also show no differences in their effects on relative market share. These findings are consistent with recent investigations that suggest that long-term performance differences among firms in the financial services industry are more related to the implementation and control of strategies than to the type of strategy selected (Hatten, James, and Meyer 2004). Nevertheless, the current study does suggest that reactor type firms are likely to have the lowest market share performance, while analyzers, defenders, and prospectors are all likely to perform better in this regard. Also, firms with large resources are shown to have higher market shares, while dynamic environments lead to lower market shares.

Because credit unions exist in an environment that is more protected than other financial institutions, any generalizations beyond the scope of this study might be suspect. Therefore, the study should not be generalized to other firms in the financial services industry. It is instead suggested that future studies investigate this relationship in banks, savings and loans, and other financial services segments. In addition, the results may not truly apply to smaller credit unions, which were underrepresented in this study.

Future studies might also apply this framework to firms operating in the business-to-business or consumer products areas to further test the findings. Any future studies might also look at additional control variables, such as a firm’s organizational structure or the level of competition in the industry. Finally, different measures of performance could perhaps yield different results.
REFERENCES


INTRODUCTION
When planning for retirement there are many things to be considered: life expectancy, health issues, desired life style, level of income, consumption patterns, and anticipated inflation rates. A study by Fernandez-Villaverde & Krueger (2007) examined the changes in consumer expenditures over time. They demonstrated people have different consumption patterns as they age. If a consumer’s expenditures pattern change over time, therefore, and different segments of the economy have different rates of inflation (Bureau of Labor Statistics [BLS] 2008, December), using a static inflationary rate may not be the most appropriate way to calculate the amount of money a person will need to fund their retirement. This paper examines the conventional techniques of calculating inflation, changes in life-cycle expenditures, and the effect these can have on retirement planning.

RETIREMENT PLANNING
Conventional techniques for retirement planning estimate the amount of annual income needed to maintain a desired lifestyle during retirement. The basic concept of retirement planning is rather simple. First, decide how much money per year is required to maintain the desired standard of living; second, determine the number of years the annuity needs to be paid (longevity risk); third, project the annual change in the cost of living, and finally find a suitable investment that will provide a return until the money is needed. If all calculations are correct, at the end of the estimated longevity there will be exactly zero dollars left in the fund.
The rate of inflation used to calculate the future expenses and the resulting retirement annuity typically is the stated annual Consumer Price Index prepared by the Bureau of Labor Statistics. If one considers how expenditures change with age, however, there is a more appropriate inflation index to employ.

Inflation rates are measured by indices, which measure the changes in costs of a basket of goods and services between two points in time (BLS, 2007). The Bureau of Labor Statistics (BLS) keeps track of the price changes of a variety of goods and services—from toothbrushes to beef. Every month the BLS releases a statistical report announcing the monthly and yearly change in the prices for the market basket. One of these indices is the Consumer Price Index for All Urban Consumers (CPI-U). The CPI-U reflects the increased cost that the average urban consumer faces when purchasing the same basket of goods and services at two different points in time (BLS, 2007). For example, the CPI-U reported that in December, 2008 the annual rate of inflation was 0.1% for all items (BLS, 2008, December). Using this information, a person can forecast the cost of purchasing the same amount of goods and services over time.

CONSUMPTION PATTERNS
Consumption patterns are not static, they change throughout our lives (Wilkes 1995). Besides aging, changes can be caused by marriage, children, buying homes, starting businesses, one’s own education or the education of family members.

Having a child, for example, changes a person’s expenditure pattern, requiring purchases of children’s apparel, diapers, formula, educational expenses, and additional expenditures in food, clothing, housing, and transportation. Owning a home involves expenditures for roof replacement, plumbing leaks, general home maintenance and improvement. Where one chooses to live matters; city and rural areas come with different expenditure patterns. Using a static number from the “all item inflationary rate” to calculate the future costs of living and the funds needed for the retirement annuity does not allow for changes in consumption patterns as people age.

Every item in the basket of goods has a different rate of inflation. For example, during 2008 food and beverages had an annual inflation rate of 5.8% and transportation was 13.3% (BLS, 2008, December). Since people are not static in their life’s spending patterns, spending more money on housing during one period of life than another, and with housing having a different rate of inflation than food, a catch-all rate of inflation for projecting the future value of a dollar would seem to be an inaccurate method of calculating the future value of a dollar and a retirement annuity.
PROPOSAL
The Bureau of Labor Statistics classifies goods and services into a hierarchy of categories. The highest level of this hierarchy has eight major groups (2007): housing, medical care, transportation, food and beverages, recreation, other goods and services, apparel and services, and education and communication. The hierarchy descends into other groups labeled: expenditure classes, item strata, and entry-level items. The Bureau then weights the rates of inflation (or deflation) with data collected from the Consumer Expenditure Report, and calculates the CPI. By analyzing the Consumer Expenditure Report, expenditures can be disaggregated into the eight major groups by age demographic.

Because the CPI and the Consumer Expenditure Report are related (BLS, 2007), information from both can be used to create our retirement model. In creating the retirement model, the CPI-U and the Consumer Expenditure Reports are disaggregated into the eight major groups.¹

Housing
Housing is one of the largest expenditures (BLS, 2003, 2008). The housing group consists of different expenditure classes, such as shelter, fuels, utilities, household furnishings and operations. Examples of the expenditure classes include: rent of primary residence, lodging away from home, owner’s equivalent rent of primary residence, fuel oil and other fuels, gas (piped) electricity, water, sewer, trash collection services, furniture, bedding and appliances. Examples of some of the entry-level items are electricity, floor coverings, curtains, bathroom linens, living room tables, infant’s furniture, microwave ovens, indoor plants, tableware, power tools, non-powered hand tools, paint, household paper products, and services such as domestic services, gardening and lawn care services, re-upholstery of furniture, inside home maintenance and repair services.

Data from the Consumer Expenditure Report on expenditures in the housing group is represented in figure one. The figure illustrates the average annual expenditures in the housing group, for various age groups for the years of 2001 and 2006 (BLS, 2003, 2008).

Examining Figure 1, a noticeable trend appears. An upward slope begins in the under-25 age group, peaks during the 35–44 age group, and then slopes back down at a fairly consistent rate for the remaining age groups. Possible explanations for this trend are when a person buys their first home, they do not have items that they need but only need to buy once in a while, such as cleaning supplies or a garden hose. A person in a higher age demographic may already own...
these things and does not have the need to purchase them. On the other side, it’s possible that the size of a home changes as a person gets older. One may need a larger home when children are at home, or desire to maintain a smaller home when those children are grown and living on their own.

**Medical Care**
The medical care group consists of two expenditure classes: medical care commodities and medical care services. The medical commodities include prescription drugs, nonprescription drugs, and medical supplies. Entry-level items consist of prescription drugs, nonprescription drugs, topicals and dressings, supportive and convalescent medical equipment, and medical equipment for general use.

Medical care services refers to the services provided in the medical care group, hospital services, and health insurance. These consist of physicians’ services, dental services, eyeglasses and eye care, services by other medical professionals, nursing homes and adult day care, and hospital services. The health insurance expenditure class includes commercial health insurance, Blue Cross/Blue Shield, Medicare and other health insurance, and health maintenance plans.

Figure 2 illustrates annual consumer expenditures for the medical care group for the sample years of 2001 and 2006 (BLS, 2003, 2008).
Regional Business Review 35

The medical care group contains the largest shift of expenditures throughout a person’s lifetime, as shown in Figure 2. The upward slope of the trend starts low at the under-25 age group and steadily inclines until it levels off at the 65–74 year age demographic. We can assume that as a person ages, they have an increased demand for medical care and services, thus consuming more from this group.

**Transportation**

The transportation major group consists of two expenditure classes: private transportation and public transportation. Item strata include new and used motor vehicles, motor fuel, motor vehicle parts and equipment, motor vehicle maintenance and repair, motor vehicle fees, and public transportation. Some of the entry-level items in the private transportation class are new and used vehicles, rental vehicles, all types of gasoline, tires, vehicle accessories, maintenance and repair, motor vehicle fees such as state vehicle registration, driver’s license fees, motor vehicle property tax, automobile service clubs, and parking fees and tolls. The public transportation expenditure class includes airline fares, intercity bus fares, taxi fares, and intercity train fares. Figure 3 illustrates the expenditure rates for the 2001 and 2006 sample years as reported in the Consumer Expenditure Reports (BLS, 2003, 2008).

The transportation pool is among the top three expenditure shifts a person has while moving along the age demographics that the Consumer Expenditure Reports showed for the sample periods of 2001 and 2008 (BLS, 2003, 2008). It could be hypothesized that as a person marries and has children, there is a
higher demand for vehicles and their related costs. As a person ages, their need for more vehicles could decrease and, in some cases, it is possible that a person’s capacity to travel may be diminished or removed altogether.

**Food and Beverages**
The food and beverage major group is the largest group of expenditure classes, item strata, and entry-level items. The expenditure classes are cereals and cereal products, meats, poultry, fish, and eggs, dairy and related products, fruits and vegetables, nonalcoholic beverages and beverage materials, other food at home, alcoholic beverages, and food away from home. Some of the entry-level items include breakfast cereal, rice, pasta, and cornmeal cakes and cupcakes, beef such as ground beef, steaks, and roasts, pork such as ham, pork chops, and bacon, chicken, fresh and processed fish and seafood, milk, cheese, and ice cream, fruits such as apples, bananas, and citrus fruits, fresh and processed vegetables such as potatoes, lettuce, and tomatoes, beverages such as carbonated drinks, coffee, and tea, sugar and artificial sweeteners, butter and margarine, soups, snacks, and baby food. The food away from home expenditure class consists of full service meals and snacks, food at employee sites and schools, and food from vending machines and mobile vendors. Alcoholic beverages, both at home and away from home, such as beer, ale, wine, and distilled spirits are also sampled.

Figure 4 illustrates the changes in expenditures from the 2001 and 2006 sample years for the food and beverage major group, as reported in the Consumer Expenditure Report (BLS, 2003, 2008).
The trend lines for the food and beverage expenditures start at a gentle upward slope, peak during the 45–54 age demographic, then slope downwards through the 75-and-older years. This may suggest that there are more people living in the household during the 35–44 age group and the 45–54 age group. Afterwards, people possibly move out of the household, and thus lower expenditures in this major group. The decreased amount at the 75 years and older demographic could suggest the death of a spouse, less eating out, or living on a tighter budget and thus being more conservative with their expenditures (Danzinger et. al. 1982).

Recreation
The recreation major group mostly embodies the areas of entertainment, hobbies, and recreation. Expenditure classes for this group include video and audio, pets, pet products, and services, photography, sporting goods, other recreational goods, recreation services, and recreational reading materials. Entry-level items include a wide variety of goods including televisions, cable and satellite television and radio service, audio equipment, rental of video tapes and discs, pet food, purchase of pets, pet supplies, and accessories, general sports equipment, water sports equipment, outboard motors and powered sports vehicles, film and photographic supplies, photographer fees, toys and games, musical instruments, club membership dues and fees for participant sports, admissions to movies, theaters, concerts, and other reoccurring events, newspaper and magazine subscriptions, and books. Figure 5 depicts the average consumer expenditures for the
recreation major group for the sample years of 2001 and 2006, as reported in the Consumer Expenditure Reports (BLS, 2003, 2008).

The trend lines of expenditures for recreation are similar to those for transportation. They are not as smooth, however, suggesting some variance to expenditures throughout different age demographics. The general trend of starting low in the under-25 age demographic, peaking around the 35–44 or 45–54 age demographic, and sloping downward thereafter is consistent with the transportation major group. Because recreation expenditures correlate to expendable dollars, this may have some suggestion as to the variances between the age demographics (Du and Kamakura 2008). The age demographic with the least expenditures is the 75-and-older one, suggesting that there may be budget constraints or a lower demand for items in the recreation major group.

Other Goods and Services
The major group of other goods and services appears to be an area where a lot of hard-to-classify goods are placed. Expenditure classes for this major group include tobacco and smoking products, personal care products, personal care services, miscellaneous personal goods, and miscellaneous personal services. Examining the entry-level items in this group may help lend an idea of what it consists of: cigarettes, dental and shaving products, deodorant, suntan preparations, sanitary and foot-care products, cosmetics, perfume, bath, nail preparation, and implements, haircuts and other personal-care services, legal services, funeral expenses, laundry and dry-cleaning services, watch and jewelry repair, shoe repair and other shoe services, tax return preparation and other accounting fees,
stationery, stationery supplies, and gift wrap, luggage, and infants’ equipment. Figure 6 reveals the trend lines for the 2001 and 2006 sample years of consumer expenditures in this major group (BLS, 2003, 2008).

The trends of consumer expenditures for other goods and services follow a similar pattern to those of recreation and transportation, starting lower, peaking around the 45–54 age group, and sloping downward toward the 75-and-older group. Note that the range in this demographic is not very large, being about $1,000 or so. The peak area would suggest more people are living in the household as indicated by the Consumer Expenditure Reports (BLS, 2003, 2008).

**Apparel**

The major group of apparel is fairly self-explanatory. Expenditure classes are men’s and boys’ apparel and women’s and girls’ apparel. Examples of the entry-level items include men’s suits, men’s outerwear, men’s shirts, men’s underwear, boy’s outerwear, boys’ shirts and sweaters, women’s outerwear, women’s dresses, women’s suits and suit components, women’s skirts, pants, and shorts, girls’ outerwear, girls’ dresses, girls’ skirts and pants, footwear for men, women, boys’, and girls’, infants’ and toddlers’ outerwear, play and dresswear, and sleepwear, infants’ and toddlers’ underwear and diapers, watches, and jewelry. Figure 7 illustrates the consumer expenditures for the major group of apparel as reported in the sample years of 2001 and 2006 of the Consumer Expenditure Report (BLS, 2003, 2008).
The trend lines for the 2001 and 2006 sample years of the apparel expenditures across age demographics are slightly different than the other figures. They still peak in the 35–44 or 45–54 age demographic, but slope downward considerably thereafter. Reasons for this could be based on the number of people living in the household, as indicated by the Consumer Expenditure Report, or the fact that the 65–74 and the 75-and-older age groups spend considerably less as a whole (Danziger et al, 1982).

**Education and Communication**

The final major group of the eight is education and communication. The expenditure classes for this major group are educational books and supplies, tuition, other school fees, and childcare, postage and delivery services, telephone services, information technology, hardware, and services. Entry-level items for this major group includes college textbooks, elementary and high school books and supplies, encyclopedias and other sets of reference books, college tuition and fixed fees, elementary and high school tuition and fixed fees, day care and nursery school, postage, land and wireless phone services, personal computers and peripheral equipment, computer software and accessories, Internet service and electronic information providers, and calculators, typewriters, and other information processing equipment. Figure 8 shows the trend lines for the 2001 and 2006 sample years of consumer expenditures, as reported in the Consumer Expenditure Reports (BLS, 2003, 2008).
The education and communication major group trend lines appear to have two troughs. The trend line starts out fairly high in the under-25 age group and troughs in the 25–34 age group. The line then slopes upward again, peaking in the 45–54 age group and slopes dramatically through the 75-and-older demographic. Perhaps the costs of education are the culprit for this variance. Education expenditures would be higher for the under-25 age group, especially for college-bound people. The second peak, in the 45–54 demographic, suggests that parents are spending money in this major group for their children to go to school. The 75-and-older demographic is spending around $350 dollars a year, unadjusted for inflation. This probably represents the other expenditure classes in this major group such as postage, delivery services, telephone services, and informational technology.

In a paper titled “The Life-Cycle Hypothesis and the Consumption Behavior of the Elderly” (Danziger et. al. 1982), the authors point out that for any given income level the elderly (65 and older) spend less overall than their younger counterparts. Our focus is on how the expenditure groups shift.

Figures 9 and 10 are stacked line graphs, in order of expenditures from lowest to highest, illustrating the total annual expenditures of a household. The highest points on the graph correspond with the average annual expenditures in the Consumer Expenditure Reports for the sample years of 2001 and 2006, after they are reconciled with the data that are not included in the CPI, such as life insurance expenditures and cash gifts (BLS, 2003, 2008). While it appears that none of the
shifts are as dramatic in these graphs, the shifts in expenditures from different major groups will have an overall impact on the retirement model and resulting retirement annuity requirement.

![Figure 9](image)

Figure 9  
Total Consumer Expenditures by Age Demographic, 2001

Note. Dollar amounts are not adjusted for inflation.

![Figure 10](image)

Figure 10  
Total Consumer Expenditures by Age Demographic, 2006

Note. Dollar amounts are not adjusted for inflation.

After disaggregating of the Consumer Expenditure Reports of 2001 and 2006 (BLS, 2003, 2008) into the eight major groups, an examination of the related inflation rates is in order. The inflation rates for each major group are made up of the same items appearing in the Consumer Expenditure Reports.²
Using statistical information obtained from the Bureau of Labor Statistics (BLS, 2009), inflation rates for each of the eight major groups can be calculated. Because the BLS website allows for a selection of various variables to customize data from a CPI, the variables for the statistical calculations of each of the major groups have been held at a constant to maintain consistency. All index variables were U.S. city average without seasonal adjustments for the CPI-U. The years chosen to determine the mean inflation rate were 1994–2008, because the BLS did not start to disaggregate the data for the two major groups of recreation and education and communication until 1994. Table 1 lists the major group, its mean and median inflation rate, standard deviation, and the upper and lower confidence levels at a 95% confidence as defined by using the t-test method.

ANALYSIS
Because inflation is impossible to predict, the mean inflation rate for the sample years listed in Table 1 will be used to weight the retirement model and retirement annuity. The mean and the median rates have a relatively small degree of variance, with apparel; food and beverage; and housing having the largest variances (0.35%, 0.34%, and 0.27%, respectively). The inflation rate of all items has a mean of 2.696% with a difference of its median of 0.138%. Notice that the three highest rates of inflation for the major groups are in the areas of medical care, other goods and services, and housing. The standard deviations for the rates of inflations are quite large in certain groupings, such as transportation, suggesting fairly high price volatility during the test period.

The Consumer Expenditure Report from 2001 and 2006 (BLS, 2003, 2008) has been disaggregated into the eight separate pools and the mean rates of inflation have been calculated during our test period for the related major groups. The weighted rates of inflation reflecting the changes of consumption patterns over a person’s life cycle can be calculated. By taking the mean expenditure per pool and multiplying it by the mean rate of inflation for that pool, a weighted average inflation weight was calculated. Tables 2 and 3 show the results of these calculations, for 2001 and 2006 respectively, separated by their corresponding age demographics.

With the weighted inflation rates, an upward trend appears throughout the age groups. For 2001, the weighted rates start at 2.6102% at the under-25 group and end at 2.9185% for the 75-and-older age group. This produces a range of 0.3083%. For 2006, the weighted rate starts at 2.6110% and ends at 2.9325%, producing a range of 0.3215%. Figure 11 illustrates the upward trend in weighted inflation rates for the sample years of 2001 and 2006. A third trend line (the mean for all items for the sample years) has been added for comparison.
<table>
<thead>
<tr>
<th>Year Range</th>
<th>Mean</th>
<th>Median</th>
<th>Variance of Mean and Standard Deviation</th>
<th>Lower 95% Confidence Interval</th>
<th>Upper 95% Confidence Interval</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Items</td>
<td>0.030023</td>
<td>0.03835</td>
<td>0.009198</td>
<td>0.025665</td>
<td>0.026960</td>
<td>0.00642</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>0.008023</td>
<td>0.004600</td>
<td>0.001818</td>
<td>0.003750</td>
<td>0.002802</td>
<td>0.009037</td>
</tr>
<tr>
<td>Housing</td>
<td>0.004844</td>
<td>0.001261</td>
<td>0.006344</td>
<td>0.003750</td>
<td>0.002802</td>
<td>0.009037</td>
</tr>
<tr>
<td>Apparel</td>
<td>0.001464</td>
<td>0.004382</td>
<td>0.037065</td>
<td>0.03794</td>
<td>0.040274</td>
<td>0.004164</td>
</tr>
<tr>
<td>Transportation</td>
<td>0.030023</td>
<td>0.013818</td>
<td>0.009198</td>
<td>0.026965</td>
<td>0.03835</td>
<td>0.00642</td>
</tr>
<tr>
<td>Medical Care</td>
<td>0.008023</td>
<td>0.004600</td>
<td>0.001818</td>
<td>0.003750</td>
<td>0.002802</td>
<td>0.009037</td>
</tr>
<tr>
<td>Recreation</td>
<td>0.004844</td>
<td>0.001261</td>
<td>0.006344</td>
<td>0.003750</td>
<td>0.002802</td>
<td>0.009037</td>
</tr>
<tr>
<td>Education &amp; Communication</td>
<td>0.030023</td>
<td>0.013818</td>
<td>0.009198</td>
<td>0.026965</td>
<td>0.03835</td>
<td>0.00642</td>
</tr>
</tbody>
</table>

Table 1: Inflation Rates for the Eight Major Groups
### Table 2

<table>
<thead>
<tr>
<th>Years</th>
<th>Food &amp; Beverage</th>
<th>Housing</th>
<th>Apparel</th>
<th>Transportation</th>
<th>Education &amp; Communication</th>
<th>Other Goods &amp; Services</th>
<th>Recreation</th>
<th>Medical Care</th>
<th>Housing</th>
<th>Food &amp; Beverages</th>
<th>Under 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>75+</td>
<td>2.9186</td>
<td>2.8413</td>
<td>2.712</td>
<td>2.6594</td>
<td>2.6350</td>
<td>2.610</td>
<td>2.6350</td>
<td>2.9185</td>
<td>2.712</td>
<td>2.6350</td>
<td>2.610</td>
</tr>
<tr>
<td>65-74</td>
<td>0.0173</td>
<td>0.0307</td>
<td>0.0628</td>
<td>0.1861</td>
<td>0.3059</td>
<td>0.4978</td>
<td>0.6618</td>
<td>0.0976</td>
<td>0.1491</td>
<td>0.0750</td>
<td>0.0686</td>
</tr>
<tr>
<td>55-64</td>
<td>0.0331</td>
<td>0.1186</td>
<td>0.0873</td>
<td>0.1861</td>
<td>0.3059</td>
<td>0.4978</td>
<td>0.6618</td>
<td>0.0976</td>
<td>0.1491</td>
<td>0.0750</td>
<td>0.0686</td>
</tr>
<tr>
<td>45-54</td>
<td>0.0560</td>
<td>0.1058</td>
<td>0.0498</td>
<td>0.1971</td>
<td>0.3176</td>
<td>0.5129</td>
<td>0.7048</td>
<td>0.0976</td>
<td>0.1491</td>
<td>0.0750</td>
<td>0.0686</td>
</tr>
<tr>
<td>35-44</td>
<td>0.0778</td>
<td>0.0971</td>
<td>0.0971</td>
<td>0.1971</td>
<td>0.3176</td>
<td>0.5129</td>
<td>0.7048</td>
<td>0.0976</td>
<td>0.1491</td>
<td>0.0750</td>
<td>0.0686</td>
</tr>
<tr>
<td>Under 25</td>
<td>0.1145</td>
<td>0.1058</td>
<td>0.0498</td>
<td>0.1971</td>
<td>0.3176</td>
<td>0.5129</td>
<td>0.7048</td>
<td>0.0976</td>
<td>0.1491</td>
<td>0.0750</td>
<td>0.0686</td>
</tr>
<tr>
<td>Category</td>
<td>Under 25 (%)</td>
<td>25-34 (%)</td>
<td>35-44 (%)</td>
<td>45-54 (%)</td>
<td>55-64 (%)</td>
<td>65-74 (%)</td>
<td>75 years and older (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>0.4873</td>
<td>0.4591</td>
<td>0.4506</td>
<td>0.4626</td>
<td>0.4327</td>
<td>0.4283</td>
<td>0.4061</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>1.0683</td>
<td>1.1982</td>
<td>1.2030</td>
<td>1.1020</td>
<td>1.1140</td>
<td>1.0618</td>
<td>1.1817</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apparel</td>
<td>-0.0449</td>
<td>-0.0404</td>
<td>-0.0377</td>
<td>-0.0350</td>
<td>-0.0342</td>
<td>-0.0260</td>
<td>-0.0198</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>0.6204</td>
<td>0.6064</td>
<td>0.5667</td>
<td>0.5813</td>
<td>0.5605</td>
<td>0.5738</td>
<td>0.4151</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Care</td>
<td>0.1126</td>
<td>0.1613</td>
<td>0.1890</td>
<td>0.2308</td>
<td>0.3346</td>
<td>0.4891</td>
<td>0.6902</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td>0.8624</td>
<td>0.9664</td>
<td>0.9560</td>
<td>0.9613</td>
<td>0.9506</td>
<td>0.9427</td>
<td>0.9432</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Goods &amp; Services</td>
<td>2.6110</td>
<td>2.6539</td>
<td>2.6719</td>
<td>2.6952</td>
<td>2.7357</td>
<td>2.8277</td>
<td>2.9325</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education &amp; Communication</td>
<td>0.1243</td>
<td>0.0429</td>
<td>0.0439</td>
<td>0.0900</td>
<td>0.0386</td>
<td>0.0189</td>
<td>0.0162</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apparel</td>
<td>0.4494</td>
<td>0.4049</td>
<td>0.4037</td>
<td>0.4024</td>
<td>0.4037</td>
<td>0.4024</td>
<td>0.4037</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>0.0824</td>
<td>0.0839</td>
<td>0.0944</td>
<td>0.0901</td>
<td>0.0982</td>
<td>0.0908</td>
<td>0.0734</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Care</td>
<td>0.0483</td>
<td>0.0483</td>
<td>0.0483</td>
<td>0.0483</td>
<td>0.0483</td>
<td>0.0483</td>
<td>0.0483</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>0.1187</td>
<td>0.1187</td>
<td>0.1187</td>
<td>0.1187</td>
<td>0.1187</td>
<td>0.1187</td>
<td>0.1187</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25 (%)</td>
<td>2.6110</td>
<td>2.6539</td>
<td>2.6719</td>
<td>2.6952</td>
<td>2.7357</td>
<td>2.8277</td>
<td>2.9325</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Weighted Inflation Rates for 2006 Consumer Expenditures
CONCLUSIONS

These calculations reveal an increasing trend of inflation rate across the different age demographics, because of consumer expenditures being shifted from one major group to another as they age. One of the largest shifts is in the area of medical care. In Figure 2, we saw that expenditures in medical care gradually increased across the age demographics. Table 1 reveals that the mean rate of inflation for the medical care group during the sample period (1994–2008) yielded an inflation rate of 4.0274%, the highest mean rate of inflation of all the eight major groups. By moving consumption patterns from major groups that have low rates of inflation, such as recreation and apparel, and placing the expenditures into a major group with the highest rate of inflation, we find an upward trend that even surpasses the weighted all items CPI mean for the same sample period.

After disaggregating the consumer expenditures from the 2001 and 2006 Consumer Expenditure Reports (BLS, 2003, 2008) and the calculation of the mean inflation rates for the corresponding major groups, we find an upward trend of inflation across age demographics. Although the range of these upward trends was relatively small on their own (0.3083% and 0.3215%, respectively, for the sample periods of 2001 and 2006), periods of major inflation activity in the economy could have a profound effect on the retiree.

Although these numbers appear to be insignificant in the long run, the shift of expenditures to different major groups with higher inflation rates could make for some serious issues. Because inflation affects prices exponentially, the cost of medical care at its given rate could be a huge issue, coupled with the higher
expenditures in that group as a person ages. The standard deviation for the mean inflation rates used to calculate the weighted mean inflation rate indicates a large amount of volatility. According to the same dataset sampled to calculate the inflation rates of the major groups, in the mid 1970s to the early 1980s there was high inflation, with rates up to 13.5% in the all-items group. If a person planned their retirement using a 4% inflation rate, and a similar turbulent economic period took place, they could run out of money quite early.

The importance of taking inflation into account when planning for retirement cannot be stressed enough. With the volatile standard deviations of the mean rates used for the major groups in this retirement model, a simple shift in the economy could devastate poorly planned retirement savings. Bringing investment vehicles back into the equation, and including the idea that people spend less money as they age (Danzinger et. al. 1982), inflation risk may be leveled out.

By looking at inflation rates from a different point of view, through the weights of major groups and consumer expenditures, new ways of modeling retirement planning could be devised. Referring back to Figure 11, it appears that when the extra variable of consumer expenditures is added into the equation, inflation goes from being an exponential rate and is turned into what appears to be a rate with a positive linear relationship.

---

ENDNOTES

1 These major groups, expenditure classes, item strata, and entry-level items are defined in the *BLS Handbook of Methods*, chapter 16, appendix 6 (2007).

2 The inflation indices for these groups are located on the Bureau of Labor Statistics website (BLS, 2009).
REFERENCES


Mark Jelavich
Northwest Missouri State University

INTRODUCTION
Graphs of labor supply and demand curves are staples of labor economics text-books. Econometric estimations of labor demand curves and labor supply curves are found throughout the labor economics literature. On the demand curve side, Hamermesh (1993), surveying around seventy studies, concluded that the wage elasticity of demand averaged around -0.39, and almost all the estimates below -0.75, implying wage-inelastic labor demand in most labor markets (76–92). Borjas (2005) reports, however, that the consensus long-run wage elasticity of labor demand is around -1 (p. 124). On the supply side, a recent study by Blau and Kahn concluded that the wage elasticity of supply for female labor in the U.S. was in the 0.36 to 0.41 range in the 1999–2001 period (2007, 407). Blau and Kahn also report other economists’ estimates of male wage elasticities of supply, which average close to zero (2007, 396–7).

Another aspect to labor markets is the migration of workers between the U.S. states. Using 2000 census data, Ashby concluded that migration increased to states with relatively low unionization rates, low marginal tax rates, larger populations, and larger median incomes (2007, 691). In particular, Ashby’s estimates suggest that migration is income-elastic (the regression coefficient of the logarithm of destination state income to origin state income exceeds one; p. 691).

Blau and Kahn note that labor supply equations are often estimated using cross-sectional data on individuals (“microdata”), with hours worked as the dependent variable. Independent variables include wages, spousal wages, nonearned income, and other (often social and demographic) variables (2007, 399).
The following study abstracts from gender, racial/ethnic, education/skill and age differences within the labor force, and from differences between industries and occupations, and instead estimates two simple labor supply and demand equations, using state-level data from 2004. From these structural equations’ coefficients, the reduced form equations are calculated. Both sets of equations can be used in classroom settings to illustrate “real world” supply and demand scenarios.

**THEORY AND SPECIFICATION**

Following neoclassical microeconomic theory that concludes that an employer will hire labor up to the point where the wage rate equals the marginal revenue product of labor, the demand for labor is specified as:

\[
\text{TEMP} = a + b(SGDP) + c(WWAGE) \quad \ldots(1)
\]

Where:

- TEMP = total state employment, in thousands of workers;
- WWAGE = average weekly wage in the state; and
- SGDP = state Gross Domestic Product, in billions of dollars.

The supply of labor function is specified as:

\[
\text{TEMP} = d + e(POP) + f(WWAGE) \quad \ldots(2)
\]

Where POP is total state population (in millions of persons); the other variables are defined as in Equation (1). Table 1 provides descriptive statistics and the data section at the end of the paper identifies data sources. TEMP is measured following the Bureau of Labor Statistics’ definition, and specifically includes both full- and part-time workers.

Ceteris paribus, it is assumed for the labor demand equation (1) that as SGDP (that is, production) grows, so will the demand for labor; if the wage rate (WWAGE) rises, the quantity demanded of labor will decrease. In the case of the labor supply equation (2), a rise in population (POP) should increase the labor force and thus the supply of labor; a rise in the wage rate should increase the quantity supplied of labor, assuming (following the neoclassical model) that the substitution effect dominates the income effect. (The substitution effect, in the neoclassical income-leisure model, postulates that as the wage increases, ceteris paribus, hours of work increase; the income effect postulates that as the wage
increases, hours of work decrease, ceteris paribus; see Kaufman and Hotchkiss
2006, Chapter 2.)

Equation (2) may not be a “true” labor supply curve, as the dependent variable is
total employment, not the labor force (i.e., employed plus unemployed workers
seeking work). If most unemployed workers are frictionally unemployed (and
thus have marketable job skills), however, this may not be a serious deficiency.
Another issue is that the dependent variable in Equations (1) and (2) is measured
as employees, not hours of work. Some previous studies have used employees as
the dependent variable (e.g., Card and Krueger (1995), Chapters 7–8).

ESTIMATION
Equations (1) and (2) are structural, not reduced-form equations. Each equation
was estimated by ordinary least squares (OLS), using eViews; the White het-
eroskedasticity correction method was used in all the reported equations. Table
2 provides estimates of the labor demand equation, in both linear and log-linear
specifications.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Variable} & \text{Mean} & \text{Standard} & \text{Maximum} & \text{Minimum} \\
\hline
\text{TEMP (1000 workers)} & 2606.734 & 2736.638 & 145620.60 & 255.8000 \\
\text{WWAGE ($)} & 697.4400 & 110.0130 & 981.0000 & 535.0000 \\
\text{POP (in millions)} & 5.862080 & 6.524769 & 35.89400 & 0.50700 \\
\text{SGDP ($ bill.)} & 231.0600 & 274.5648 & 1515.500 & 22.00000 \\
\hline
\end{array}
\]

All of the coefficients are statistically significant, with the coefficients of deter-
mination \((R^2)\) both close to one. The coefficients of SGDP and WWAGE have
their expected signs. Looking at the log-linear estimates, the wage elasticity
of demand is close of -1, much higher than averages reported by Hamermesh
(1993), but similar to the consensus estimate in Borjas (2005) noted above.
This may reflect, in turn, interstate mobility of labor as investigated by Ashby,
and employers’ competition for workers among states, in contrast to national
estimates.

Table 3 provides estimates of Equation 2 (the labor supply equation):
Again, all coefficients are statistically significant, and of the expected signs; the $R^2$s are again close to one. In particular, the positive WWAGE coefficients suggest that, overall, the substitution effect dominates the income effect. Looking at the log-linear estimate, labor supply and population appear to be almost proportional across the states. The estimated wage elasticity of supply from the log-linear regression (0.21) falls in between the male and female elasticity estimates discussed above. The POP coefficient from the same regression (0.96) implies that labor force and population vary more or less proportionately across the states.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1109.404</td>
<td>Constant</td>
<td>8288006</td>
</tr>
<tr>
<td></td>
<td>(3.537665)**</td>
<td></td>
<td>(10.95948)**</td>
</tr>
<tr>
<td>SGDP</td>
<td>10.14400</td>
<td>Ln(SGDP)</td>
<td>1.029454</td>
</tr>
<tr>
<td></td>
<td>(23.12427)**</td>
<td></td>
<td>(46.62550)**</td>
</tr>
<tr>
<td>WWAGE</td>
<td>−1.213784</td>
<td>Ln(WWAGE)</td>
<td>−0.909750</td>
</tr>
<tr>
<td></td>
<td>(−2.430303)**</td>
<td></td>
<td>(−7.004130)**</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.984794</td>
<td>R-squared</td>
<td>0.993539</td>
</tr>
<tr>
<td>F</td>
<td>1521.987**</td>
<td>F</td>
<td>3613.620</td>
</tr>
</tbody>
</table>

**Significant at 5 percent

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>−416.7003</td>
<td>Constant</td>
<td>479244</td>
</tr>
<tr>
<td></td>
<td>(−2.688130)**</td>
<td></td>
<td>(11.19798)**</td>
</tr>
<tr>
<td>POP</td>
<td>411.3055</td>
<td>Ln(Pop)</td>
<td>0.958563</td>
</tr>
<tr>
<td></td>
<td>(41.04950)**</td>
<td></td>
<td>(110.6576)**</td>
</tr>
<tr>
<td>WWAGE</td>
<td>0.877966</td>
<td>Ln(WWAGE)</td>
<td>0.211513</td>
</tr>
<tr>
<td></td>
<td>(3.300115)**</td>
<td></td>
<td>(3.225963)**</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.995588</td>
<td></td>
<td>0.995895</td>
</tr>
<tr>
<td>F</td>
<td>5303.446**</td>
<td></td>
<td>5700.988**</td>
</tr>
</tbody>
</table>

**Significant at 5 percent
In both equations’ estimations, multicollinearity does not appear to be a problem. The correlation between WWAGE and SGDP is 0.537, while the correlation between WWAGE and POP is 0.472.

**REDUCED FORM CALCULATIONS**

Equations (1) and (2), as structural equations, can be set equal to each other and solved for WWAGE, to obtain the reduced form equation for WWAGE:

\[ WWAGE = \frac{(d-a)}{(c-f)} + \frac{[e/(c-f)]POP - [b/(c-f)]SGDP}{(c-f)} \quad (3) \]

Substituting equation (3) into equation (1) gives the reduced form equation for TEMP:

\[ TEMP = \{a+[(cd-ca)/(c-f)]\} + \{ce/(c+f)\}POP + \{b-[cb/(c+f)]\}SGDP \quad (4) \]

Using the linear regression estimates from Tables (2) and (3), the calculated reduced form equations become:

\[ WWAGE = 729.486 - 196.632(POP) + 4.850(SGDP) \quad (5) \]
\[ TEMP = 223.848 + 238.669(POP) + 4.258(SGDP) \quad (6) \]

The reduced-form coefficients’ signs are theoretically plausible: an increase in population (reflecting an increase in labor supply) will reduce the equilibrium wage but raise equilibrium employment; an increase in state GDP (and thus production and labor demand) will raise both equilibrium values. (Any assumed change in POP would assume an increase in the adult population, not in minor children.) Using the mean values of POP and SGDP from Table 1 (6 and 231 respectively) gives forecasts for WWAGE and TEMP of 670 and 2639, both close to their means reported in Table 1. It should be noted that the correlation between POP and SGDP is 0.993, making any OLS estimates of the reduced form equations subject to multicollinearity.

Equations (5) and (6) can be used to simulate in a classroom what will happen to a state’s labor market given changes in state production (SGDP) or population (POP). Thus, a state with a population of 10 million and 400 (billion dollars) of GDP will have average weekly wages of $703 and employment of 4314 (thousand) workers.

The reduced form model’s employment (TEMP) equation can be used to estimate state labor employment in 2004. In particular, Table 4 provides estimates (based on actual 2004 values for POP and SGDP) for several Midwestern states, the actual TEMP value, and the percentage error. Except for Missouri’s figure,
the estimates are not much different from the actual values. (Missouri is not a right-to-work state, whereas the other three states are; see Kaufman and Hotchkiss, p. 607).

Equations (5) and (6) can also be used to simulate, in a classroom, what will happen to a state’s labor market given changes in state production (SGDP) or population (POP). Thus, a state with a population of 10 million and 400 (billion dollars) of SGDP will have average weekly wages of $703 and employment of 4314 (thousand) workers. If production increased to 500 (billion dollars), the WWAGE will increase to $752, and TEMP will rise to 4357 (thousand) workers. The above equations should be regarded as providing short-run, not long-run, forecasts of WWAGE and TEMP. As such, they are best regarded as partial, not full equilibrium predictions, especially since migration flows among states are not modeled. Based on Ashby’s work discussed above, states with rising wages should attract migrants from other states, eventually “putting the brakes” on wage increases. On the other hand, Equation (5) indicates that wages might fall, especially with dropping production. This might be explained by laid-off workers being reemployed in lower paying industries, or finding part-time rather than full-time work (points discussed in Power and Barnett, 2001, pp. 32–33). It might also illustrate the flexibility of American labor markets, say compared to those of European economies (see, e.g., Nickell, 2008). Finally, these equations could be augmented by additional variables that reflect characteristics of individual states (e.g., right-to-work status and industrial mix).

**DATA SOURCES**

All data are state-level numbers for 2004. Data for TEMP (July estimates) come from the U.S. Department of Labor, Bureau of Labor Statistics (BLS), News, USDL 04–1808, Sept. 17, 2004, Table 5. WWAGE data are from the BLS, at www.bls.gov/cew/ew04table5.pdf. SGDP data are from the Bureau of Economic

<table>
<thead>
<tr>
<th>STATE</th>
<th>ESTIMATE OF TEMP (THOUSANDS)</th>
<th>ACTUAL 2004 TEMP VALUE (THOUSANDS)</th>
<th>PERCENTAGE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missouri</td>
<td>2469.0</td>
<td>2714.5</td>
<td>−9.1</td>
</tr>
<tr>
<td>Iowa</td>
<td>1404.1</td>
<td>1446.4</td>
<td>−2.9</td>
</tr>
<tr>
<td>Kansas</td>
<td>1298.8</td>
<td>1322.1</td>
<td>−2.5</td>
</tr>
<tr>
<td>Nebraska</td>
<td>930.3</td>
<td>907.1</td>
<td>+2.6</td>
</tr>
</tbody>
</table>

Table 4

Employment Estimates for Selected Midwest States

Regional Business Review
Analysis (www.bea.gov), while POP is from the 2006 *Statistical Abstract of the United States*, Table 23 (available at www.census.gov).

**ACKNOWLEDGMENTS**

An earlier version of this paper was presented at the 2009 Eastern Economic Association meetings, and benefited from discussant and others’ comments. The author also benefited from comments from two anonymous referees. Any errors are those of the author.
REFERENCES


Book Reviews
Shoptimism

By Lee Eisenberg

Reviewed by Lisa Bishop

Somewhere along the way to the American consumer’s pursuit of happiness, marketers started trying to discover our so-called “buy button.” It has become evident to marketers that this pursuit includes buying stuff we want and don’t necessarily need, in addition to the things we do need. The search for this buy button doesn’t seem to be getting any clearer. In fact, the only thing that is somewhat clear is that we like to buy.

Lee Eisenberg’s book, Shoptimism, takes the reader on a historical journey through the research on consumer behavior. Along the way, he dismisses those theories that are either flawed or useless in the current environment. He freely shares his own opinions on the subject; these are grounded in his own research, which is mostly qualitative and secondary but impressive nonetheless. Basically, Eisenberg has read everything published on the subject and interviewed a number of authors in person, including the consumer behavior research “guru,” Paco Underhill.

Shoptimism is structured in two parts: the Sell Side and the Buy Side. Eisenberg first looks at how marketers have tried to win us over and then delivers the many reasons we buy. Included throughout are discussions of every notable consumer behavior theory. So, a reader should not expect to find any new revelations here and he even admits (spoiler alert) that he doesn’t have the answer to what makes us buy. The book is comprehensive, though, and therefore educational in a much more enjoyable manner than most textbooks on the subject.

One principle from Marketing 101 that he covers in detail is segmentation. Not only have the media become fragmented but so have consumers, and that makes segmentation more difficult. One of the most interesting observations he makes
here is the demographic and psychographic breakdowns of the five New York City boroughs. It creatively demonstrates the art of segmentation, why it’s critical in marketing and how it affects consumption patterns. It’s a reminder too; that while the act of profiling people based on demographic and socially relevant factors may be illegal in some situations, it is alive and well in marketing.

Although no one has found an algorithm to push a consumer’s buy button, the author notes that the relationship between the seller and the buyer is becoming indivisible. In many ways, today, the consumer defines the brand; in fact, they are the real advertisers. That would lead one to think, the more control the consumer has over the brand, the less control a marketer has on the act of buying.

The only true examples in Shoptimism that illustrate the marketer’s influence on buying relate to impulse purchases and types of buyers. On the latter, Eisenberg classifies buyers into two categories: Classics and Romantics. Classics are rational and less affected by marketing tactics while the Romantic buys more emotionally and is, therefore, more affected by marketing. Both, however, are subject to an impulse buy. That’s not enough to say that marketers should put their entire marketing budgets on point-of-purchase displays.

The internet, social networking, and buzz marketing (not the same as word of mouth, according to the author) are just a few examples of why marketing has run amuck. With each of these, you can find the consumer behind the wheel with the marketer in the backseat attempting to give driving directions. No one likes a backseat driver, right? So, what’s a marketer to do? Give up? Quit marketing? Hardly, but according to Eisenberg and all those he’s interviewed, marketers more than ever before need to understand their target market and what the target market thinks of the brand. He shares from one of his interviews with a college professor. The professor asks students to name brands and he puts those in a search with a “+ sucks” following the brand name and almost always finds a blog attacking the brand. There’s some free market research for you.

It appears also that traditional marketing really is dead—not in the sense that it’s not still being done, but it’s just not working as it used to. This isn’t anything new, but his ideas on why are interesting. He is convinced, as many are, that the brand war is over, with generics and private label brands gaining ground. In addition, who hasn’t heard of Blackberry, Red Bull or Google and when is the last time you saw a traditional advertisement for any of those? If there is one thing that hasn’t changed, it is that the customer is central to marketing effectively, which is why it’s surprising that one author’s work not mentioned in the book is Theodore Levitt. That being the only criticism, it’s well worth reading.

Ms. Bishop teaches marketing classes at Northwest.
Saying the Right Thing: A Business Parable

By Raymond DiZazzo

Reviewed by Cindy Kenkel

The message is simple yet profound. You were likely exposed to the concepts in your basic oral communication class, but the message rarely resonates as it should. Raymond DiZazzo provides four “focal points” to speak and listen with maximum clarity in the book Saying the Right Thing: A Business Parable. The author refers to his principles as a recipe in search of the perfect mix of ingredients: “we speak and we are understood; we listen and we understand. When the mix is wrong, we certainly continue speaking and listening, but a good deal of the ‘flavor’ of our communication is lost in the exchange” (p. IX). Communication skills are among some of the most valuable tools individuals possess in both their business and personal lives. Marriage, parenting, and work relationships all succeed or fail largely due to one’s ability to send and receive a coherent message. Experts agree that being understood is perhaps the most basic of all human needs and this parable provides a powerful, easy-to-read story of how to best accomplish true understanding.

Saying the Right Thing weaves the story of Gloria Donovan, an Accounting Administrator, wife, and mother, together in a sequence of dreams chronicling a series of interactions examining her communication effectiveness through a clarity lens. She quickly realizes her employee sees her as overly direct, lazy, and arrogant instead of how she views herself—confident. Her impression of the employee as lazy and arrogant has leaked through her interactions with him to complicate the relationship. Here she is introduced to Focal Point 1 “Focus Your Message” (22). The key to this common-sense tip is to think before you speak and convey your thoughts in clear, concrete language, limiting any negative emotions that may bias your message. Applying this simple suggestion immediately enhanced her relationship with her employee, Martin.
Focal Point 2—“Magnify the Listener’s Attention”—is introduced during an exchange with Gloria’s husband, Bill. Overcoming the common communication barrier of the receiver not listening or allowing an incoming message to register is easily possible if the sender ensures the topic is both important and interesting. Asking the receiver to listen is a simple, yet critical, component of this principle. When combined, the first two focal points epitomize what we refer to as the “you-viewpoint” in business communication.

DiZazzo struggles to make his case for Focal Point 3: “Penetrate Personal Barriers.” He instead focuses again on concrete, visually rich language, but the principle is integral to effective communication. In reality, overcoming personal barriers is a complicated issue that takes into account a myriad of factors. The real key is to confirm that the message you convey is being received as close to what you intend as possible, by asking questions. Gloria is first introduced to this lesson during an emotional exchange with her 17-year-old teenage son. The complexity of communicating with maximum clarity is, however, evident and to avoid spoiling the ending I will leave out a discussion of Focal Point 4.

Many books and seminars focus on communication styles based on gender, personality type, or personal values, but all too often they miss the powerful secret at the root of fulfilling communication. This book clearly displays these principles in this entertaining, easy-to-digest parable.

Ms. Kenkel teaches management classes at Northwest.
The Satisfied Customer: Winners and Losers in the Battle for Buyer Preference

By Claes Fornell

Reviewed by Jim Walker

In 1995 a University of Michigan professor, Dr. Claes Fornell, started the American Customer Satisfaction Index (ACSI). Measuring aggregate customer satisfaction for over 200 companies across 44 industries, ASCI puts a finger on the pulse of customer satisfaction in America. Published in 2007, The Satisfied Customer is Dr. Fornell’s effort to forward insights stemming, in part, from that work. And although this book will not make any best-seller list, it does contain noteworthy customer-focused insights, some of which will be shared below.

More than a decade of ACSI results reveals the following truth: firms are most responsive (measured via customer satisfaction ratings) in industries where consumers are powerful, and least responsive when consumers wield less power. And, as Dr. Fornell correctly points out, because today’s consumers are more powerful than at any time in our economic history, this situation can spell doom for less-than-customer-focused firms. Today’s consumers have access to information about whatever they want whenever they want. The Internet also allows businesses from across the world to compete in local markets, providing significantly more consumer choice than in the past. This growing consumer power will increasingly be felt as customers reward firms that satisfy them with things that lead to earnings growth (e.g. repeat purchases, lower price elasticity, increased cross-selling opportunities, greater marketing efficiencies) while punishing firms not focused on satisfying them by taking their business elsewhere. Additionally, in a services economy chock-full of increasingly powerful consumers, firms that solely implement “old school” notions of cost cutting to increase efficiency will experience trouble. “As sellers’ power weakens, they will also bear more of the cost of poor service. In a role reversal, it will be the buyer who does the ‘cost’ cutting by not going back to the same supplier. This
is different than the situation we have become used to, where the cost of poor service is largely paid for by buyers (time, effort, frustration and irritation, risk of product failure as warranty coverage shrinks, etc.)” (page 13). Service firms that increase efficiency at the expense of satisfying customers will find today’s more powerful consumers opting to take their business elsewhere.

Dr. Fornell also points out that while we’ve shifted from a manufacturing to a services and information exchange economy, corporate accounting systems cling to an asset measurement system that has lost relevance. Economic assets have changed; they are not what they used to be nor what accountants keep track of. “Unlike plants, equipment, real estate, and inventory, customer assets are not included in the balance sheet. Customer acquisition is considered a cost, not an investment” (p 44; italics added). Yet satisfied customers are assets of demand and as such represent a real economic asset that generates future income streams. Accounting systems providing managers and investors traditional decision-making tools such as ROA or ROI are built solely upon tangible assets and do not consider the strength of a firm’s relationships with its customers – those relationships that are the ultimate source of future cash flows. “What really matters is the health of a firm’s customer relationships. Much economic value creation today doesn’t get recorded on the balance sheet” (p. 15).

Perhaps the most intriguing insight – and powerful, given corporate America’s love affair with a profit-focus – is the relationship between customer satisfaction and stock market performance. Professional stock brokers rarely beat the market consistently over time, yet Dr. Fornell claims to. Using ASCI information to select the top 20% of customer satisfying firms, between 1997 and 2003 Dr. Fornell’s “high customer satisfaction portfolio” generated cumulative returns of 40%, outperforming the Dow Jones Industrials by 93%, the S&P 500 by 201%, and the NASDAQ by 335%. In a separate test between 2001 and 2006 his ACSI fund generated returns of 145% compared to 39% for the S&P 500. Dr. Fornell claims that he has yet to lose to the market in any year, because he understands and measures the major force that drives future net cash flows: the strength of a firm’s customer relationships. Customer satisfaction matters.

In the end, Dr. Fornell does a good job driving home the point that firms need to be customer focused and today’s marketplace realities make this paramount. While The Satisfied Customer tends to get repetitive, perhaps that’s by design because so many firms still seem to forget that customers are the ultimate source of marketplace success or failure.

Dr. Walker teaches marketing classes at Northwest.