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# Modeling the relationship between non durable consumer expenditures and stock market prices: An empirical analysis for the period 2004-2014

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# Modeling The Relationship Between Consumer Discretionary and Staples Sector Prices and Non Durable Consumer Expenditures

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## Study Objective

1. Determine the consumption function for non durable expenditures
2. Determine the functional relationship between non durable expenditures and consumer discretionary and staples sector prices

## Research Approach

- Univariate regression analysis
- Time Period 2004-2013
- Data frequency: Quarterly
- Data sets:
  1. Personal income(PI)
  2. Non durable expenditures(ND)
  3. Consumer discretionary sector ETF (XLY)
  4. Consumer staples sector ETF (XLP)

## Model Specification

- $ND=A+B(PI)$
- $XLY=A+B(ND)$
- $XLP=A+B(ND)$

## Hypothesis

- For ND f(PI),  $B>0$ ,  $TSTAT>2$
- For XLY f(ND),  $B>0$ ,  $TSTAT>2$
- For XLP f(ND),  $B>0$ ,  $TSTAT>2$

## Findings

- ND Covaries with PI, B coefficient stable overtime
- ND predicts XLY price movements. B coefficient is significant and positive
- Elasticity coefficient for 09-13 is highly elastic
- ND predicts XLP. B coefficient increases overtime.
- Elasticity coefficient for 09-13 is highly elastic

## Conclusion

- Consumption function positive and significant
- ND predicts sector price movement for XLY and XLP

### ND(PI)

| Time Period<br>(years) | Linear Model |          |                |
|------------------------|--------------|----------|----------------|
|                        | b            | T Stat   | R <sup>2</sup> |
| 2004-2008              | 0.185853     | 34.04121 | 0.986381       |
| 2009-2013              | 0.186883     | 19.11851 | 0.940801       |
| 2004-2013              | 0.187418     | 47.10967 | 0.981861       |

### XLY(ND)

| Time Period<br>(years) | Linear Model |          |                | Log Linear Model |          |                |
|------------------------|--------------|----------|----------------|------------------|----------|----------------|
|                        | b            | T Stat   | R <sup>2</sup> | b                | T Stat   | R <sup>2</sup> |
| 2004-2008              | 0.030528     | 6.270105 | 0.489505       | 0.420726         | 1.998584 | 0.199774       |
| 2009-2013              | 0.034755     | 11.50512 | 0.851964       | 4.494874         | 14.59581 | 0.902558       |
| 2004-2013              | 0.030528     | 6.270105 | 0.489505       | 1.530397         | 5.365067 | 0.412472       |

### XLP(ND)

| Time Period<br>(years) | Linear Model |          |                | Log Linear Model |          |                |
|------------------------|--------------|----------|----------------|------------------|----------|----------------|
|                        | b            | T Stat   | R <sup>2</sup> | b                | T Stat   | R <sup>2</sup> |
| 2004-2008              | 0.012599     | 8.469907 | 0.817642       | 1.012246         | 8.206051 | 0.808014       |
| 2009-2013              | 0.068793     | 6.78819  | 0.66705        | 2.623086         | 12.53315 | 0.872279       |
| 2004-2013              | 0.021952     | 12.46941 | 0.791334       | 1.593292         | 12.92049 | 0.802827       |