

Simulated Choice Modelling for Pricing Decisions

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Pricing Research Questions

- How will the market respond to a change in shelf price
- Which other brands compete most with mine on the basis of price
- What is the most profitable promotional strategy
- What consumer behaviour is stimulated when my brand is on promotion – increased consumption, stockpiling, brand switching, ...
- How can I determine the best price for a new product



Pricing Research Techniques

- Time series modelling of scan data
- Analysis of consumer panel data (Homescan)
- Store tests
- Price sensitivity meter
- Simulated choice modelling



Time Series Modelling of Scan Data

- This is the best method for quantifying price elasticity (own and competitive prices) both for shelf and promotional prices
- But this methodology tells us little about how consumers behave in response to a promotion
- And nothing about the price response of segments (usage, demographic, ...)
- Importantly, this methodology cannot be applied when
 - we are introducing a new product
 - or when historical price variation has been small



Analysis of Consumer Panel Data

- Analysing household purchases over time tells us a lot about behaviour such as
 - Deal sensitivity
 - Repertoires (brands and stores)
 - Stockpiling
 - Buying only on special
 - Increased consumption
- This provides powerful insights into behaviour and market segments
- Time series modelling still needed to accurately quantify price impacts

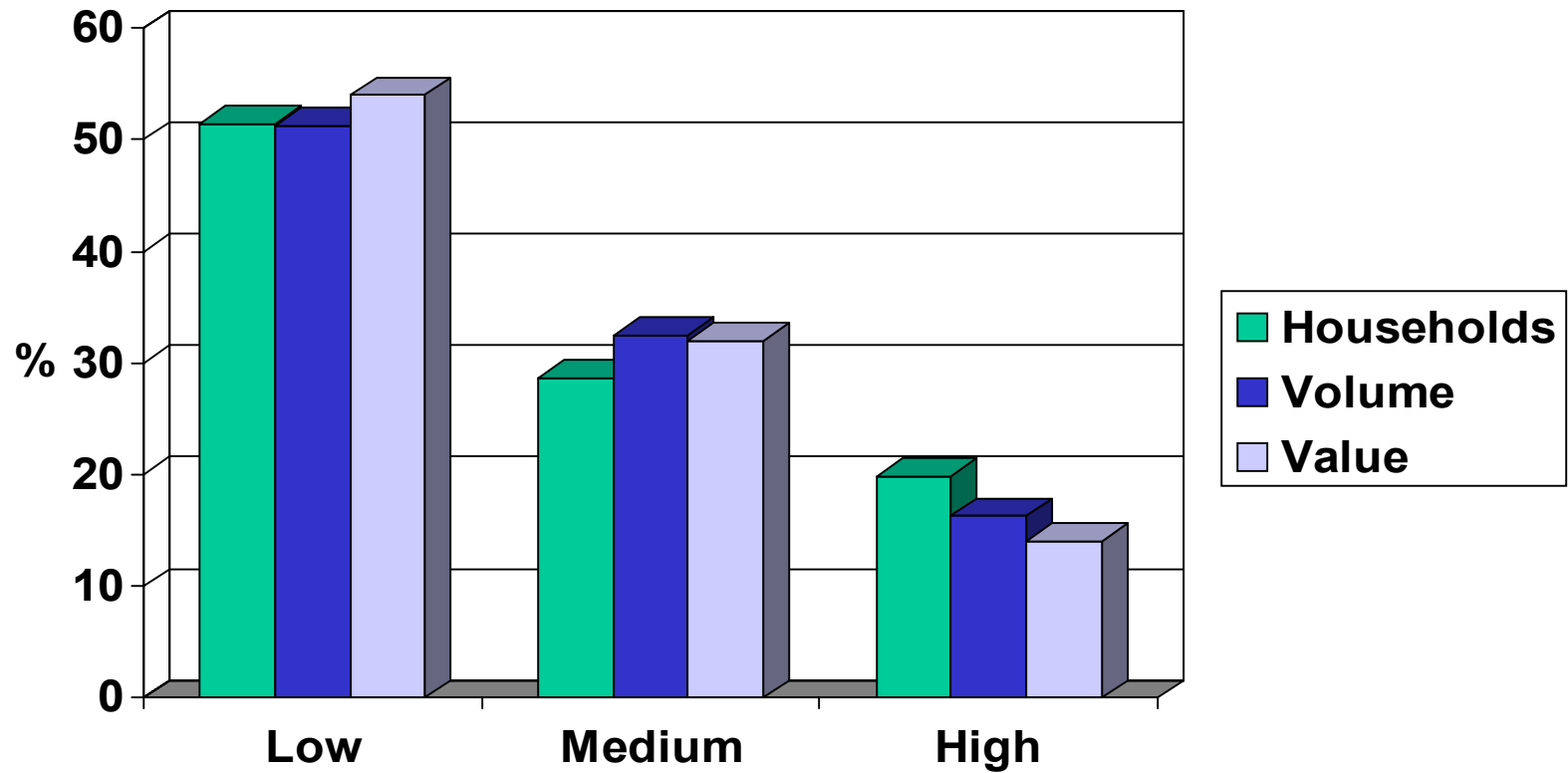


Deal Sensitivity in a Staple Category

- Low (0 to 40% of purchases at less than average price for each item bought): 51%
- Medium (40 to 70% of purchases at less than average price): 29%
- High (70% to 100% of purchases at less than average price): 20%



Deal Sensitivity



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Store Tests

- Utilizes experimental designs and store matching to accurately quantify price impacts
- Cannot quantify impact of competitive prices
- Does not cater for store switching
- Can telegraph to competitors that pricing is being researched
- Watch out for ACCC



Price Sensitivity Meter

- A good way of working out the most acceptable price point to consumers
- Particularly useful when introducing a new product as it indicates the acceptable range of pricing
- Does not estimate demand or price elasticity
- Often a precursor to simulated choice modelling



Methodology

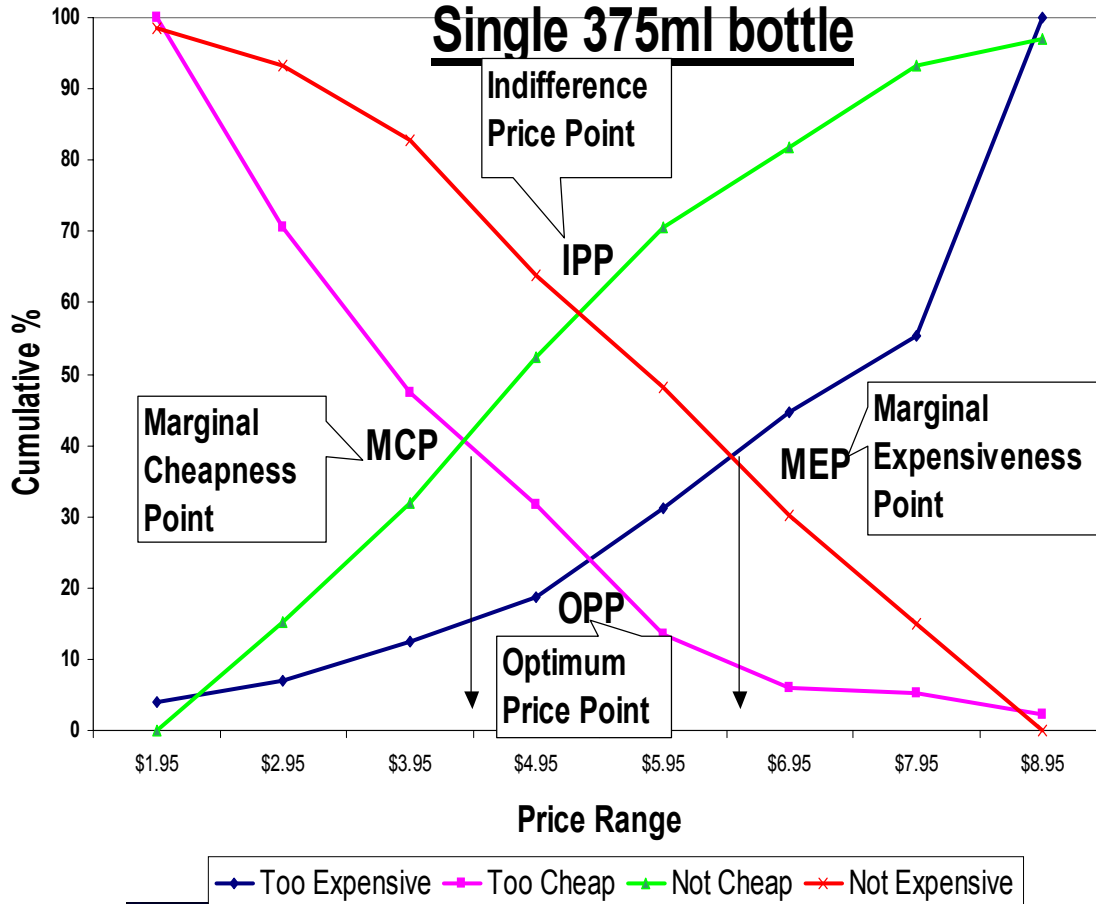
- The following five questions were asked of respondents with respect to a single 375ml bottle of AVEVOO (Australian Vintage Extra Virgin Olive Oil).
 - What price would you consider to be **so inexpensive** that you would have doubts about its quality?
 - What price would you consider to be **inexpensive**, yet have no doubts about its quality?
 - What price would you consider to be **expensive**, but still worth buying because of its quality?
 - What price would you consider to be **so expensive**, regardless of its quality it is not worth buying?
 - What is the **most acceptable** price to pay?



Price Sensitivity Meter

AVEVOO

Single 375ml bottle

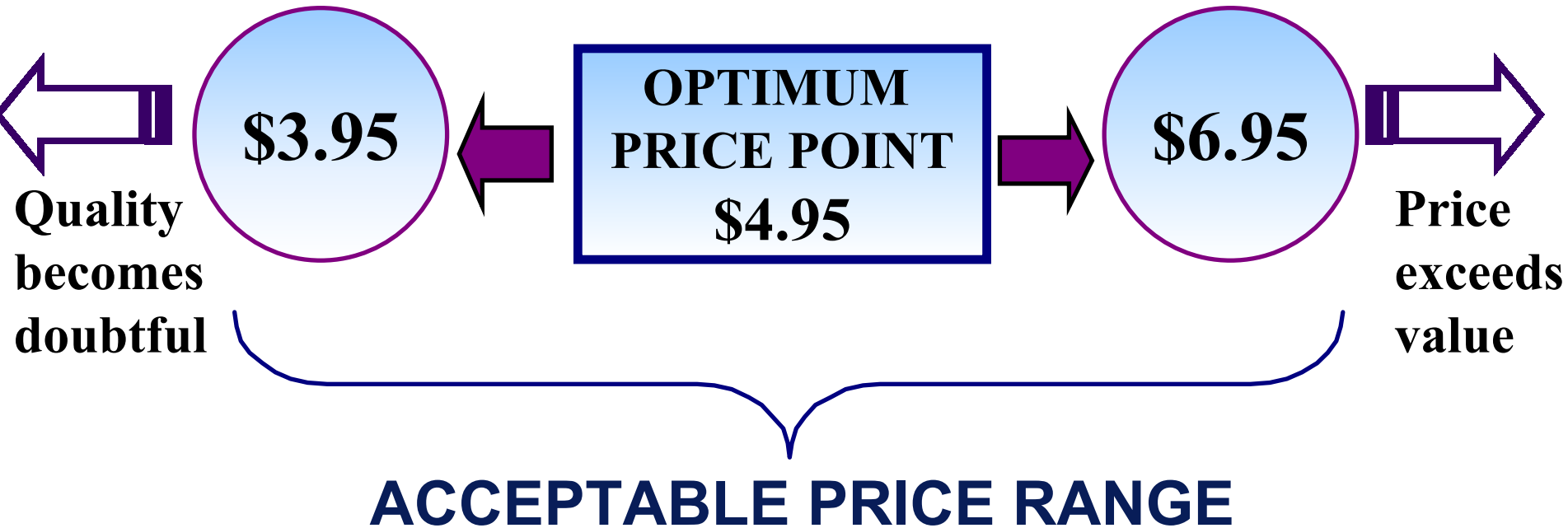


- IPP - equal proportion of people see the price as 'cheap' as see it as 'expensive'
- OPP - equal proportion see price as 'too cheap' as see it as 'too expensive'
- MCP - equal proportion see price as 'not cheap' as see it as 'too cheap'
- MEP - equal proportion see price as 'not expensive' as see it as 'too expensive'



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Single 375ml bottle AVEVOO



Simulated Choice Modelling

- Survey respondents evaluate several “choice sets” across which prices vary, indicating their likely purchases in each case
- The prices of several brands are varied based on an experimental design, so own price and cross price effects can be accurately quantified
- Despite being based on stated preferences rather than actual purchases, experience has shown that predictions are accurate
- Can model market segments and switching of individuals studied to identify repertoire segments
- Hard to capture impact of promotion/display activity



Developing Simulated Choice Models

1. Set price range for each brand
 - ✓ range should be wider than that considered likely
2. Experimental design to set price points
 - ✓ typically five price points per brand, about 30 choice sets
3. Construct choice sets
4. Administer survey
 - ✓ typically, each respondent evaluates a random selection of six
5. Model choice frequency data
6. Embed model in simulation tool



Example Choice Set (simplified)

Choice set 101



A
Gillette Blue II 8
\$5.29



B
Easyrider 10
\$4.99



C
Bic Twin Select 10
\$4.29



D
Wilkinson Super Blue
Twin 10
\$5.89



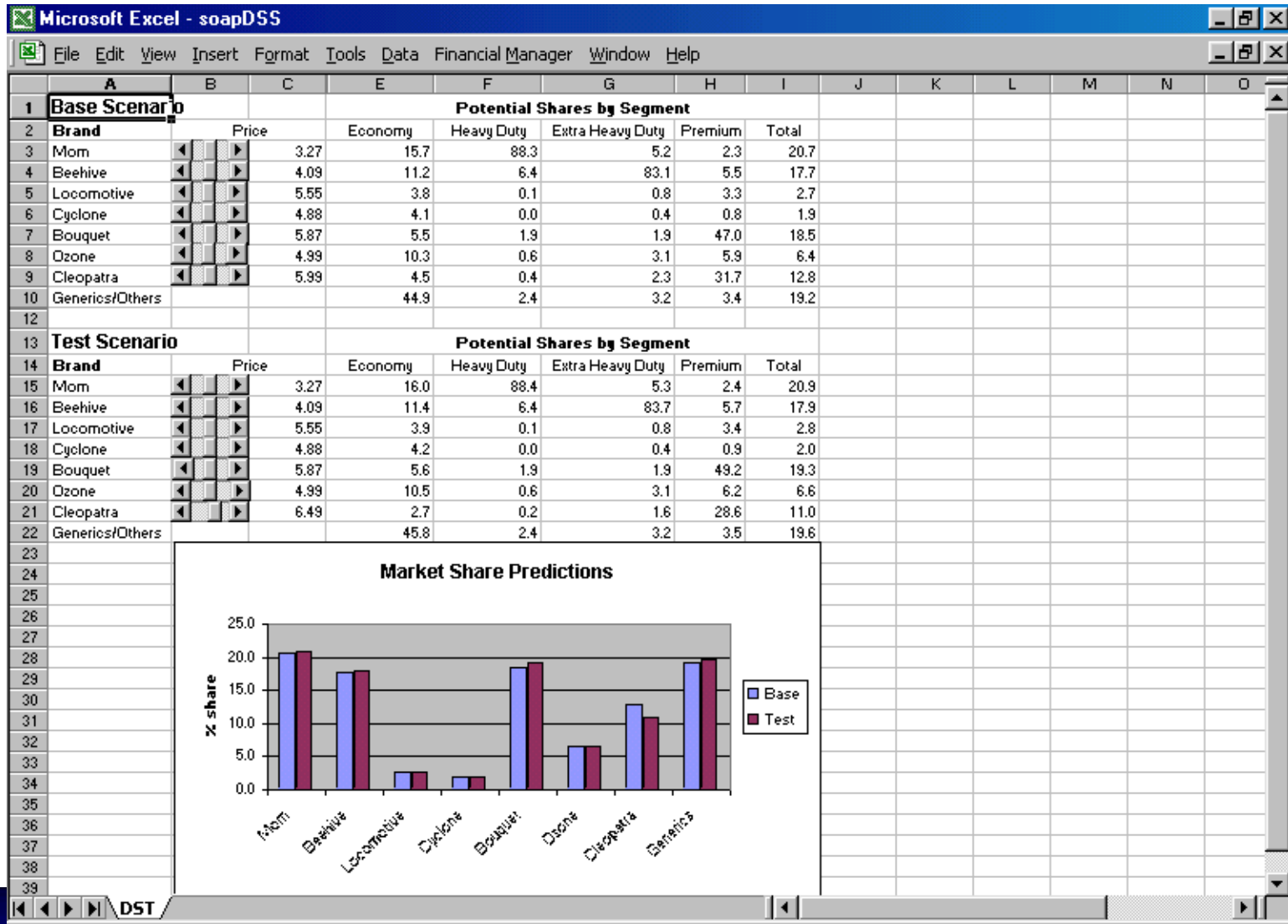
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Response Scales Used

- Select one
 - Mostly applicable to services such as home loans or durables such as motor vehicles
- Allocate your next ten purchases across the brands
 - Suitable when variety purchasing occurs
- How many of each would you buy over the next month
 - Allows for volume to vary as well as for variety



Market Simulation Tool



Additional Capabilities

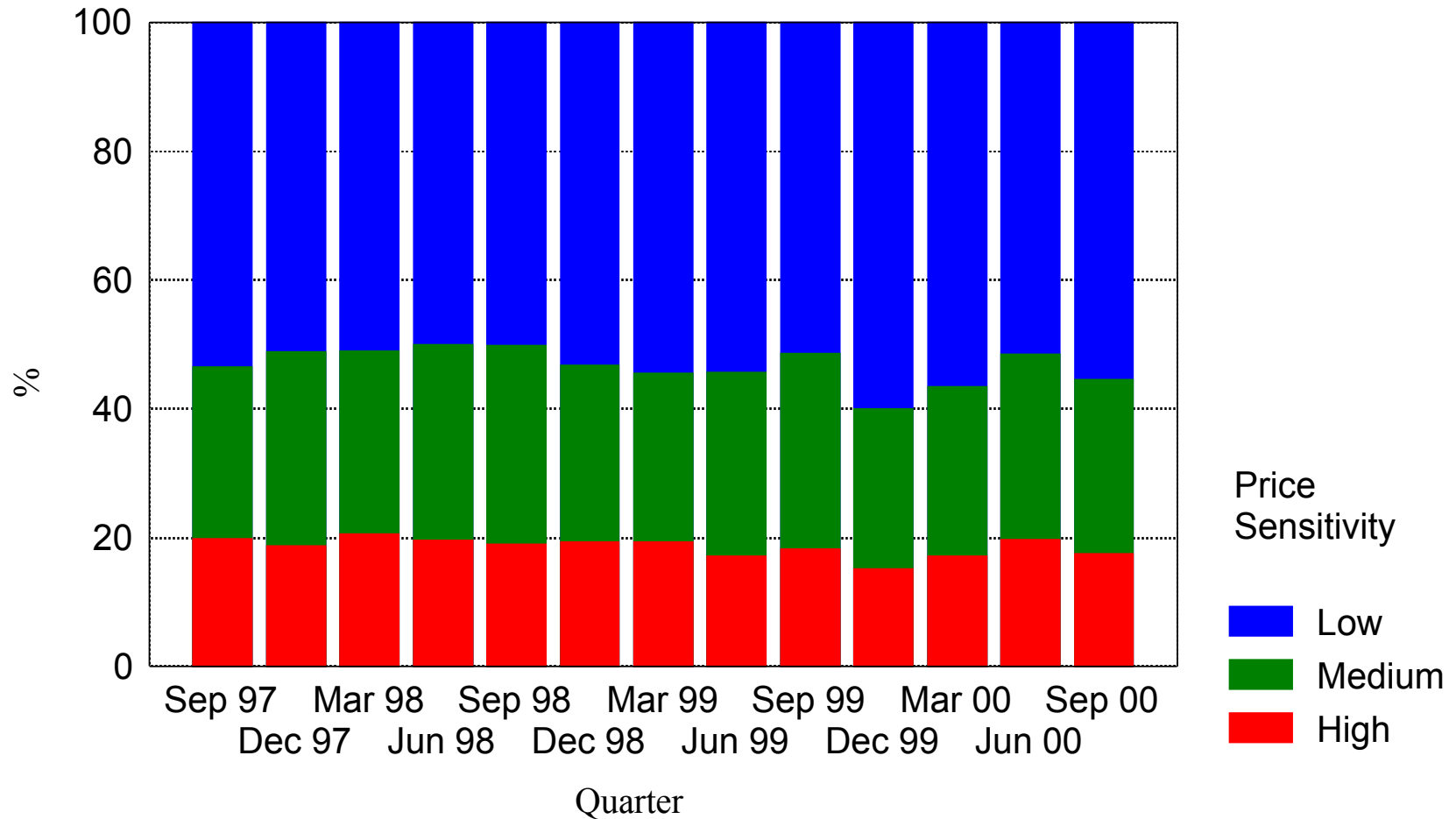
- Modelling market size as well as market shares, through a two-stage model
- Incorporating features other than price, such as pack size and flavours
- Dealing with awareness buildup for new products and distribution
- Building cost formulas into the simulation tool to predict profit outcomes as well as share/sales outcomes



Price Sensitivity Does Change

Price Sensitivity Segments

Source: ACNielsen



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Conclusion

- Simulated choice modelling is a powerful research tool for pricing and feature design decisions
- It is particularly applicable when
 - A new product is being developed
 - Historical price variation is limited
 - Consumer behaviour and segment specific price sensitivity is required
- The track record for predicting shares and price responsiveness is good

