

Over recent years, there's been a significant shift in manufacturer and retailer interest beyond brand performance to overall category performance. A lot of work has been done in this area, but little comprehensive empirical evidence has been gathered.

That's been our goal with a substantial piece of research – based on data from 19 food categories sold in 106 major supermarket chains operating in the largest retail markets in the US – into the key drivers of effective category management and how those drivers depend on the role the category plays in the overall retail portfolio.

Our findings give some solid empirical insight into how category management best practices differ across category types. They can help manufacturers better allocate their scarce marketing resources

across retailers and categories, by re-allocating more dollars to the marketing actions that have the biggest impact on a category's performance (eg, displays v advertised promotions v depth or breadth of assortment).

Our findings can also help retailers understand why competitors are doing better or worse than they are – or the market – enabling the retailer to re-allocate its resources across categories to improve its overall market position.

As a concept, category management has long played a central part in both retailers' and their suppliers' go-to-market strategies. But what are the key drivers of these category management processes?

For the purposes of our research, we divided categories into four roles according to a simple four-box matrix (see Figure 1). This matrix is created by two

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## How effective is category management?

RESEARCH

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Who says category management works? Does it work equally well for every category? What role do alternative category tactics play? At last, painstaking research is beginning to offer some answers – and some recommendations

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key criteria – frequency of purchase (high versus low number of times purchased per year), and penetration (high versus low percentage of households that purchase the category). This is a standard approach in the category management arena.

We call high-frequency high-penetration categories “staples” (eg, ready-to-eat cereals, coffee); high-frequency low-penetration categories “niches” (eg, yoghurts); low-frequency high-penetration categories “variety enhancers” (eg, pickles, or rice); and low-frequency low-penetration categories “fill-ins” (eg, pancake mixes or syrup).

In Europe, terms for category roles are different. The mapping with our roles is staples = destination, niches = preferred, variety enhancers = occasional/seasonal, and fill-ins = convenience.

A careful analysis of different retailers’ category performances, related to their application of category management variables such as price, promotion, display and assortment reveals some clear results. For example, although greater display activity generally increases overall category performance, the effects are much more pronounced in staples and niches.

Temporary price reductions (TPRS) only really pay off in high-traffic staples. In niches, especially, temporary price reductions are often a waste of resources. And increasing the breadth and depth of assortment generally has a positive effect

– except for staples, where too large an assortment can actually be detrimental.

**The research**

Teasing out results like these isn’t easy. It requires access to enormous banks of data, careful selection of criteria for “success”, and appropriate application of econometric techniques. Our approach was as follows:

First, we had to choose a measure for judging whether or not a retailer was “doing well” in a particular category. We decided to use Category Development Index (CDI) – sometimes referred to as “fair share analysis” – as the benchmark.

A retailer’s CDI for a category is calculated as the ratio of its share of the category in the market compared with its market share across all categories. CDIs, which can be measured by units or cash, have their drawbacks. While they help retailers and their suppliers identify potential opportunity gaps, for example, they don’t tell the retailer which categories might provide the best return on investment. But as the most widespread and standardised basis for comparing category performance across retailers, the CDI serves its purpose.

Second, we needed to make some predictions as to how category role would affect retailers’ strategies. After all, the whole idea of identifying different roles is to develop distinctive approaches which

This study needed huge amounts of data – and great care

Figure 1: **Category Roles**

	PER CENT OF HOUSEHOLDS BUYING	
Frequency of purchase	High penetration	Low penetration
High frequency	STAPLES	NICHES
	RTE Cereal	Yoghurt
	- Coffee	- Macaroni and cheese
Low frequency	VARIETY ENHANCERS	FILL-INS
	Pickles	Pancake mix
	- Rice	- Syrup

help the retailer avoid dissipating scarce resources. Here's how we reasoned.

### Price

Lower prices, whether regular or promotional, should have a positive impact on category performance. However, price sensitivity and promotion responsiveness are likely to be greater in categories where more consumers purchase the category more often, specifically staples and to a lesser extent, variety enhancer and niche categories. Fill-in categories should be the least influenced by price and promotion.

Although price sensitivity is likely to be high in staples, most retailers go out of their way to avoid a high-price image that might hurt store traffic. This will drive staples prices down generally, limiting retailers' ability to generate high returns by reducing everyday prices.

Temporary shelf price reductions, which are only communicated in the store and therefore do not influence store traffic should be most effective in categories like staples and variety enhancers where lots of consumers are likely to see them and possibly make an opportunistic purchase. TPRs should have little impact in low traffic categories that shoppers do not normally visit. Indeed, frequent discounting in these categories, may simply give away margin without getting much in return.

### Promotion

Advertised discounts on well-known brands and products are the most popular method used by retailers to influence out-of-store purchase decisions and to drive store and hence category traffic. The extent of such activity in a category is therefore likely to increase category volume. The effects will be greatest in staples and, to some extent in variety enhancers and niches, because these categories are either important to most customers and/or are purchased by them every week. Advertised promotions are less likely to affect category volume in fill-in categories which have neither the broad appeal nor the purchase frequency of the other category groups.

In-store displays draw consumer attention to the category and positively influence in-store purchase decisions. This effect is most likely to be observed in fill-in categories with low penetration and frequency and, to a lesser extent, in variety enhancers and niches, since retailers tend to allocate less shelf space to these categories on a day-to-day basis. Staple categories typically already have a significant shelf-presence, and so display activity is less likely to affect CDI.

### Assortment

The breadth (number of brands) and depth of assortment (number of stock-keeping units) offered in a category helps

Promotional effects differ greatly by category

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The point of identifying different roles is to help retailers focus resources by developing distinctive approaches. But which approaches work best?

a retailer to cater to the heterogeneous tastes of its customers. Offering more variety should help a retailer to attract more consumers to the store and induce them to purchase more.

Therefore, in general, we expect that retailers which offer a larger number of brands and deeper assortments within each brand should achieve better category performance. Moreover, if the retailer's category sales are more evenly distributed across brands (ie, less concentration in brand market shares), the effective number of brands that a consumer perceives will be greater, suggesting to the shopper base that the retailer is more effective at meeting all of their needs.

However, in staple categories, the high level of product proliferation in the last three decades means both breadth and depth of assortment arguably have reached saturation levels. Further investment in this area may therefore provide smaller returns, as suggested by moves by some major consumer packaged goods manufacturers to cut back both on the number of brands as well as the number of SKUs offered per brand. If the deleted brands are not favourites, such reductions in assortment do not affect consumer intentions to purchase at a store.

#### Private label

Finally, an important part of any retailer's assortment is its private label

programme. Some retailers are successful in using their store brands as a means of differentiation. Moreover, store brands allow the retailer to better meet the needs of value-conscious customers.

Therefore, we expect a strong private label presence to contribute to better category performance. This effect is likely to be stronger in staple categories which are purchased frequently by a large cross-section of consumers, as compared with fill-ins, niches or variety enhancers.

#### Summary

Table 1 summarises our predictions. The second column in Table 1 shows the predicted impact of each variable on CDI and the third column summarises how the effect might vary across staples, variety enhancers, niches and fill-ins.

For example, in the first row of Table 1, we hypothesise a negative relationship between regular price and CDI and note that this negative impact will be the less in fill-ins than the other three category types. Other rows may be similarly interpreted. The question, of course, is whether these predictions would be borne out by the data.

#### The study

We utilised a variety of different data sources. A large packaged goods firm provided us with the main database – syndicated sales data from AC Nielsen for 19 major product categories in its key retail

Wide  
assortment  
is good – up to  
a point

Table 1 Predicted impact of key determinants of CDI

INFLUENCE	CATEGORY-SPECIFIC	
	on CDI	Differences
<b>Key determinants</b>		
Price and promotion		
Regular price	-	fill-ins<others
TPR	+	staples, variety enhancers>others
Feature advertising	+	fill-ins<others
Display activity	+	fill-ins>others
<b>Assortment</b>		
Depth of assortment	+	staples<others
Breadth of assortment	+	staples<others
Brand share variance	-	staples<others
Private label programme	+	staples>others

Study covers  
106 retailers,  
19 categories  
over 3 years

accounts. The category definition is the same as that used by the packaged goods manufacturer.

Since the effectiveness of the marketing decision variables might differ, based on whether the categories were staples, variety enhancers, niches or fill-ins, we used a random, coefficient approach to pool categories into these more homogenous types.

### Data analysis and results

We used account data for 106 major US grocery retail chains in the 50 Nielsen SCANTRACK markets. This includes all retailers with average annual store sales of at least \$2 million. The retail chains account for 60 per cent of total supermarket sales in the markets they serve. For each retail account, the data set includes monthly brand level sales, price, and consumer and retail promotion information for 19 categories over three calendar years.

The categories represent a wide range of both edible grocery and dairy products, including major categories such as yoghurt, coffee and cheese, and more minor ones including rice and syrup.

The sponsoring firm also provided us with account level information about product facings for each of the categories. This information is collected annually as part of the store audit process. We obtained detailed trading area information

from Spectra, Inc, Retailer ACV share data for each SCANTRACK market was obtained from Market Scope, a well-known source published annually by Trade Dimensions, a unit of the Progressive Grocer Data Center.

This data was then brought together via a multiple regression analysis to identify those factors with the greatest influence. Box 1 (see next page) sums up the variables used.

### Results

Table 2 displays the statistically significant results for both equivalent unit (V for volume) and dollar revenue (\$) CDI. Positive numbers indicate that an increase in the variable increases CDI and negative numbers indicate a decrease. Multiple +/- signs indicate stronger positive or negative relationships.

The headline results are as expected. The coefficients are directionally consistent with our predictions – lower prices, more aggressive promotion, more varied assortments, and stronger store brand programmes improve category performance. More interestingly, the key drivers of performance differ depending on the role the category plays in the portfolio of both the consumer and retailer.

For example, greater display activity increases overall category performance, but its influence is much more pronounced in staples and niches. Also, with a couple of key exceptions (price and

Key drivers  
differ by  
category

Table 2: **Pooled analysis across categories**

VARIABLE	STAPLES	VARIETY ENHANCERS	NICHES	FILL-INS
<b>Price and promotion</b>				
REGPRICE	-V	-V +\$	-V	-V-\$
TPR	+V +\$		- \$	
FEATURE	+V +\$	+V	+V +\$	
DISPLAY	+V +\$	+V		++V ++\$
<b>Assortment</b>				
BREADTH	+\$	++V ++\$	++V ++\$	+V +\$
DEPTH	-V	++V ++\$	++V ++\$	+V +\$
BRNDVAR	-\$	++V +\$	-\$	-V -\$
PLSHARE	++V +\$	++V ++\$	+V	+V +\$

V = statistically significant effect on volume

\$ = statistically significant effect on sales (\$ revenue)

- = negative correlation and effect

+ = positive correlation and effect

display), the coefficients for the equivalent unit CDI analysis are qualitatively similar to those found for the analysis of dollar revenue CDI.

Looking at our predictions, the results show that lower regular prices lead to higher unit sales performance (a negative coefficient) in all category types. But the effects are significantly greater in variety enhancers and niches compared with staples and fill-ins.

An examination of the results using the dollar CDI measure, however, shows the variety enhancer and niche categories may still not be price elastic enough to justify charging lower regular prices, as the regular price (REGPRICE) coefficients flip from negative to positive.

As expected, temporary price reductions increase CDI only in high-traffic staples. This may be due to the fact that price discounts which are communicated in-store cannot drive traffic to a category and only staples experience enough passive traffic to benefit from the opportunistic purchases that small discounts might prompt.

In fact, the significant negative TPR coefficient on dollar revenue for niches suggests that TPRs are potentially a waste of promotional resources for niches.

The differences in the coefficients for the feature and display variables are also quite interesting. The pattern of coefficients for advertised promotions by the retailer show they can influence store

or category traffic, and that they have their biggest impact in staples which have both high penetration and high frequency.

Niches and variety enhancers, which have either high penetration or high frequency, also benefit from the store and category traffic-building effect of advertised promotions, though both of these coefficients are significantly less than when compared to staples. However, in low penetration – low frequency fill-ins, advertised promotions do not have the ability to attract interest and therefore have no significant influence on CDI.

Display has its biggest impact in fill-in categories. We attribute this difference to the fact that ancillary, off-shelf display in fill-ins leads to a dramatic increase in space and exposure relative to the regular shelf set, which in turn can prompt consumers to make opportunistic purchases that ordinarily would not occur.

Staples also benefit from display, but because these categories already start with larger everyday shelf sets, the retailer is more likely to eventually experience diminishing returns with extra display space. Display does not improve performance much in variety enhancers and niches. In fact the negative (though not statistically significant) coefficients for dollar CDI may indicate the display effect on unit sales is not great enough to compensate for the price discounts that typically accompany in-store display.

Extra shelf space boosts 'small' categories most

**The effects of lower regular prices are significantly greater in variety enhancer and niches – but they may not be price elastic enough to justify the cost**

Private label is a big plus in all types of category

An examination of the assortment variables indicates that, even after controlling for the number of facings allocated to a category, increasing the breadth and depth of assortment has a positive effect on unit and dollar CDI for variety enhancers, niches and fill-ins. This probably is because larger assortments better meet the heterogeneous needs of the retailer's customer base.

Staples do not benefit from increases in assortment. This may be a ceiling effect because most retailers already have large assortments in these key categories. The significant negative coefficient for staples suggests that too large an assortment can actually be detrimental. When we look at the variance in market shares across brands within categories, we see significant negative coefficients for both niches and fill-ins and to a lesser degree for staples.

What this may indicate is that lower variance in market shares between brands increases the perceived number of brands or breadth of assortment offered by the retailer. In contrast, retailers achieve higher CDIs in variety enhancers when brands sales are more concentrated within fewer brands. We have no ready explanation for this finding, although it holds up for both unit and dollar CDI.

Finally, a strong private label programme exerts a significant, positive influence on CDI in all four sets of

categories, not just in staples as we had anticipated. This is a particularly interesting finding given the competitive edge that a successful store brand programme naturally adds to the more standard buyer-supplier relationship which exists between manufacturers and retailers.

What this suggests is that a strong store brand programme is a key ingredient to effective category management for retailers, and manufacturers who desire to influence category management practice must accept this as a cost of participating in the process. Manufacturers must take full account of retailers' private label strategies when developing their own category plans and category management suggestions.

### Conclusion

This study helps to understand why retailers sell more or less than their fair share in a category. Although lower prices, more promotion, and larger assortments generally improve performance in all categories, the critical drivers of performance systematically vary depending on the role the category plays in the portfolio of the retailer and the consumer. Four key insights can be drawn from these results:

We find that merchandising variables as a group play a significant role in affecting CDI. Given recent efforts by major national

Critical drivers vary by category role

#### Box 1: Key variables in category role analysis

**CDI** We calculate the CDI dependent variable in two ways: (1) on an equivalent unit basis; and (2) on a dollar basis, where dollar sales are substituted for unit sales in the same equation.

**Price** Two variables capture different aspects of the retailer's pricing policy. REGPRICE is the share-weighted average non-promoted price of all items in the category. TPR (temporary price promotion) measures the percentage of category volume sold with only a temporary in-store price discount (of at least five per cent) and no accompanying feature advertising or display. TPR discounts typically are of small magnitude (five to 15 per cent deals).

**Promotion** The extent of retailer-initiated sales promotion is described by two variables – the percentage of volume sold with retailer advertising (RETADV), and percentage of volume sold with any form of display (DISPLAY).

**Assortment** BREADTH is the average number of distinct brand names carried by the retailer. DEPTH captures the extent of category specific item proliferation and is measured by the average number of SKUs per brand carried in that category by a particular retail chain. A third variable, BRNDVAR measures the variance in market shares across brands.

brand manufacturers such as P&G in reducing assortment, our results suggest that reductions in the breadth (number of brands) and depth (number of SKUs in terms of size, type of package, flavour) of assortment may meet with resistance in many product categories due to their positive impact on category performance.

Our analysis suggests that retailers should be more accepting of reductions in assortment in staples categories where assortment has reached saturation levels – where reductions are unlikely to be noticed as much as in niches, variety enhancers and fill-ins. It also appears that retailers should be willing to reduce fringe brands (which lead to higher brand share variance) that are not doing a good job in catering to heterogeneous tastes.

This becomes even more important in the context of our finding that (in the US, at least) a strong store brand programme not only leads to higher unit CDIs but also higher dollar CDIs for a retailer. Conventional wisdom suggests that retailers rely on national brand assortment to build store traffic (and hence category volume). Our results suggest, however, that retailer's store brand can play a key role in increasing primary demand for the category, even to the extent of overcoming the lower revenues that may arise from intra-category switching of consumers from higher priced national brands to lower-

priced store brands. This is further highlighted by the retailer's interest in stressing store brands in their product portfolios through multi-tiered offerings, eg, premium v value private labels.

Private labels are more likely to build store-traffic and hence category volume in staple categories which have both a broad-based appeal and constitute an important part of a consumer's shopping budget. I note that these US-centric results may not generalise to retail markets, such as the UK market where own-label penetration levels are actually declining as retailers turn to other means of differentiation.

A lower category price plays an important role in increasing retailer unit category sales and to some extent, dollar revenues in variety enhancer and niche categories. While we expected price to also matter in staple categories, our data suggests that regular price elasticities are low in staples, as competing retailers offer similar prices in these important traffic-building categories.

In contrast, small in-store discounts in the form of temporary price reductions (TPRS) improve performance only in staples. In niches (and to some degree in variety enhancers and fill-ins) TPRS have no impact on unit sales and significant negative impact on dollar revenue (and likely on profits too). This suggests retailers are just giving away margin.

Our analysis supports the contention

Beware 'too much' choice in staples

#### Box 1: Key variables in category role analysis

**Private label** We created a PLSHARE variable to measure the strength and penetration level of the retailer's own store brand in each category. Market share is calculated on a unit basis as the ratio of total pound sales for the private label compared with total ounce sales for the whole category.

We included four control variables in our analysis. First, what we called "potential". This uses IRI panel data to estimate consumption rates for 54 segments of consumers formed from a multi-way classification based on urban/suburban, geographic region, age, and the presence of children. The composition of each trading area is then used to calculate the percentage of the population falling into each segment, thereby computing a weighted average of the segment

consumption rates, and standardised by the national averages. Second, we calculated the average total linear feet per store allocated to each category, as estimated from store audit data by the sponsoring firm's sales force. Third, we estimated the level of local competition the retailer faces. And finally, using print and magazine advertising and consumer promotion information which is available for all 50 markets, we calculated the sum of the number of all newsprint and magazine impressions and consumer promotions averaged across all national brands, and then normalised by the number of households in the market.

**Advertising and display have different functions**

that advertised promotions help build store and hence category traffic, while display influences category volume by leading to opportunistic in-store purchasing. Advertised promotions are more effective in increasing CDI in traffic-building staple categories and to some extent in niches and variety enhancers, while display promotions enhance category volume more effectively in low-visibility fill-in categories.

Price promotions, without any display or feature support, are mainly effective in high-traffic staples and variety enhancers where they can increase volume by causing opportunistic in-store purchasing.

Despite providing a number of interesting insights, our study has several limitations that provide an opportunity for future research. While we focus on the CDI measure due to its popularity in the consumer packaged goods area, for certain decisions like determining a retailer's return on investment for a category, other candidate measures of category performance might become more relevant, eg, sales per square or linear foot.

Also, the CDI measure does not allow us to determine the impact of retailer decisions whose impact does not vary by category, eg, store price image.

Our analysis suggests examining the role of store brands in driving store traffic (and hence category volume) may be a worthwhile direction for future research

in this area. We also need a better understanding of how retailers make the trade-offs between demand generation and cost containment when practising category management.

Examining potential benefits to national brand manufacturers, via an analysis of brand development index to complement CDI, is another fruitful avenue to explore. It could provide further insights for brand manufacturers.

**References**

1. Blattberg, Robert C, Edward J Fox, and Mary E Purk (1995), *Category management: a series of implementation guides*, Food Marketing Institute, Vols I-IV.
2. Dhar, Sanjay K and Stephen J Hoch (1997), Why store brand penetration varies by retailer, *Marketing Science*, 16, 3, 208-227.
3. Dhar, Sanjay K, Stephen J Hoch, and Nanda Kumar (2001), Effective category management depends on the role of the category, *Journal of Retailing*, 77, 165-184.
4. Drèze, Xavier, Stephen J Hoch, and Mary E Purk (1994), Shelf management and space elasticity, *Journal of Retailing*, 70, 4, 301-26.
5. Johnson, Maureen (1999), From understanding consumer behavior to testing category strategies, *Journal of Marketing Research Society*, 41, 3, 259-288.

**Our results suggest that, in the US at least, the retailer's store brand can play a key role in increasing primary demand for the category**