Direct Product Profit:

A View from the Supermarket Industry

by

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Abstract

Direct Product Profit (DPP) is a decision making tool that helps the food merchandiser by providing a better indication of the profitability of products on the supermarket shelves. Direct Product Profit allocates Direct Product Costs (DPC) to individual products. These DPCs are subtracted from gross margin to derive DPP. This paper reports on the use of DPP in the syrup product section of a chain of supermarkets. Implications for managerial action are also discussed.

Introduction

The supermarket industry has received a boost in efficiency and effectiveness with the introduction of Direct Product Profit (DPP) analysis. Direct Product Profit analysis promotes efficiency by investigating the revenues and costs associated with every individual stock keeping unit. Effectiveness is addressed by the acceptance of DPP as a new strategic tool used in the manufacture and merchandising of products in the supermarket industry. The purpose of this paper is to outline the basics of DPP and provide an example of its use.

Direct Product Profit is a decision making tool that defines the profitability of individual products at a finer level than gross margin. The concept of DPP has been in existence for about twenty years. However, it was not available in a usable form until recently. The Food Market-ing Institute (FMI) coordinated the development of the Unified DPP Method (1986), a Lotus 1-2-3 based program. A simple representation of the concept of DPP is presented in Figure 1.

Figure 1

Direct Product Profit

Sales
- Cost of Goods Sold

Gross Margin
+ Adjustments

Adjusted Gross Margin
- Direct Product Costs

Direct Product Profit

The two components added by the DPP analysis are Adjustments and Direct Product Costs (DPC). The adjustments include revenue items that are added to the gross margin of an individual product. These adjustments may represent manufacturer deals, promotions, allowances, payment discounts, and backhaul revenues. The Direct Product Costs represent three distinct areas of cost allocation. These include warehouse costs, transportation costs, and store costs. These costs are also calculated per individual unit. The warehouse costs include receiving the

product, putting the product in the picking slot, selecting the order, loading the truck, warehouse occupancy costs and warehouse inventory costs. There are also provisions for products shipped direct store delivery (DSD). The transportation costs include the costs of movement of the product from warehouse to store. The store costs include placing an order, receiving the product, moving the product to the aisle, positioning and opening cases, pricing if necessary, placing the product on the shelf, cleanup, checkout and bagging, proportional cost of the bag, store occupancy and inventory costs. These three main categories of cost represent the total DPC.

The allocation of costs is a function of several factors. These factors include the cubic volume of the unit and case, the case weight, the delivery schedule, the cost of the product and the inventory turn.

Several authors (Callison [1987], Fletcher [1987], McLaughlin and Hawkes [1987], Friedman [1986], and Montgomery [1986]) have mentioned DPP. Several of these studies discuss the use of scanner information and Direct Product Profit. DPP has gained wide acceptance by not only grocery retailers, but also by the manufacturers of products that are supplied to the supermarket industry. There have been numerous articles in the trade literature (*Discount Store News, Supermarket News, Convenience Store News, Progressive Grocer*, and *Supermarket Business*). Some of the products studied include cheese, baby food, hosiery, frozen foods and audio cassettes.

Data

The product category used for this study was the maple flavored syrup products. A regional chain of supermarkets located in a large Midwestern SMSA participated in the study. The results were an average based on the 70 stores used for data collection. The brand names of the products have been eliminated to maintain confidentiality.

Results

The basic results of the DPP analysis are presented in Table 1. The standard measure of profitability, gross margin, is determined for each of the syrup products. The Direct Product Costs (DPC) and resulting DPP for each of the products are also reported.

A breakdown of DPC by category is presented in Table 2. The three categories of warehouse, transportation, and store costs that total

DPC are given for each product. The costs will be different for each product based upon the factors discussed earlier. Heavier or bulkier products may require greater costs in shipping or allocations of space costs due to their volume. An example of these products would be Items I, O, and P which are larger sizes and heavier packages. Low turn items may incur higher store costs because they occupy the shelf space longer or may have an amount of inventory backstock that cannot be shelved (Items L and N).

A comparison of ranking by profitability measures is reported in Table 3. The gross margin, DPP per unit, and DPP per week (DPP per unit times units sold per week) were calculated for each product and then ranked in descending order. The major implication is that different measures of profitability result in different rank ordering for the products. The efficient merchandising of grocery shelves is imperative to maximize profitability. The industry is moving toward DPP as the new measure of profit. DPP serves as a decision tool to aid in the shelf allocation decision of supermarket merchandisers.

The DPP Merchandising Matrix was developed to aid in the decision making process. The matrix related two factors, DPP/unit and Unit sales, in a grid framework. The DPP matrix and individual product summary are presented in Figure 2 and Table 4, respectively.

There are many strategies that are recommended for the different products in each quadrant. *FMI DPP Primer* (1987, p. 10) and *Convenience Store News* (1986, p. 181) report that the following actions are available to effectively merchandise the products in different quadrants.

Table 5
Merchandising Strategies

Sleepers	*Winners*
Stimulate Movement	Heavily Advertise and Promote
Selectively Display	Aggressively Display
Advertise	Maintain Shelf Stock
Add Shelf Facings	Protect Position in Traffic Flow
Upgrade Shelf Position	
Reconsider Price	

Losers	*Traffic Builders*
Reduce Shelf Allocation	Reconsider Price
Shift to Outside Supplier	Downgrade Shelf Position
Possibly Discontinue	Review Handling Methods and Cost
	Less Promotion

Table 1

Retail, Cost, and Profit

Product	Oz.	Unit Retail Price ($)	Adj. Unit Cost ($)	Adj. Gross Margin ($)	Total DPC/Unit ($)	DPP Per Unit ($)
Item A	24	2.59	1.728	0.862	0.099	0.76
Item B	24	2.59	1.826	0.764	0.100	0.66
Item C	24	2.59	1.826	0.764	0.104	0.66
Item D	24	2.47	1.785	0.685	0.119	0.57
Item E	24	2.37	1.785	0.585	0.134	0.45
Item F	24	2.29	1.372	0.918	0.141	0.78
Item G	24	2.59	1.156	1.434	0.174	1.26
Item H	24	2.18	1.826	0.354	0.110	0.24
Item I	36	2.79	2.375	0.415	0.143	0.27
Item J	12	1.47	1.154	0.316	0.101	0.22
Item K	12	1.47	1.154	0.316	0.119	0.20
Item L	36	3.47	1.781	1.689	0.484	1.20
Item M	12	1.47	1.154	0.316	0.125	0.19
Item N	36	2.99	1.781	1.209	0.444	0.76
Item O	36	3.39	2.461	0.929	0.423	0.51
Item P	36	3.37	2.461	0.909	0.423	0.49
Item Q	12	1.48	1.154	0.326	0.155	0.17
Item R	12	1.49	0.902	0.588	0.273	0.32
Item S	12	1.57	1.134	0.436	0.261	0.18

Table 2

Direct Product Costs by Category

Product	Oz.	Wholesale DPC/Unit ($)	Transportation DPC/Unit ($)	Store DPC/Unit ($)	Total DPC/Unit ($)
Item A	24	0.024	0.015	0.060	0.099
Item B	24	0.024	0.015	0.061	0.100
Item C	24	0.026	0.016	0.062	0.104
Item D	24	0.031	0.019	0.069	0.119
Item E	24	0.033	0.019	0.083	0.134
Item F	24	0.029	0.016	0.096	0.141
Item G	24	0.031	0.015	0.128	0.174
Item H	24	0.026	0.016	0.067	0.110
Item I	36	0.034	0.021	0.087	0.143
Item J	12	0.021	0.009	0.071	0.101
Item K	12	0.018	0.009	0.092	0.119
Item L	36	0.053	0.016	0.415	0.484
Item M	12	0.019	0.009	0.098	0.125
Item N	36	0.050	0.016	0.378	0.444
Item O	36	0.068	0.026	0.330	0.423
Item P	36	0.068	0.026	0.330	0.423
Item Q	12	0.025	0.010	0.120	0.155
Item R	12	0.030	0.008	0.234	0.273
Item S	12	0.033	0.010	0.219	0.261

Table 3

Profitability Results of Syrup Study

Product	Oz.	Adj. Gross Margin	DPP Per Unit	DPP Per Week	Gross Margin Rank	DPP Per Unit Rank	DPP Per Week Rank
Item A	24	0.862	0.76	39.79	7	5	1
Item B	24	0.764	0.66	33.23	8	6	2
Item C	24	0.764	0.66	29.25	9	7	3
Item D	24	0.685	0.57	20.60	10	8	4
Item E	24	0.585	0.45	7.09	12	11	5
Item F	24	0.918	0.78	6.63	5	3	6
Item G	24	1.434	1.26	6.26	2	1	7
Item H	24	0.354	0.24	4.81	15	14	8
Item I	36	0.415	0.27	4.38	14	13	9
Item J	12	0.316	0.22	2.41	17	15	10
Item K	12	0.316	0.20	2.21	19	16	11
Item L	36	1.689	1.20	2.17	1	2	12
Item M	12	0.316	0.19	1.95	18	17	13
Item N	36	1.209	0.76	1.53	3	4	14
Item O	36	0.929	0.51	1.01	4	9	15
Item P	36	0.909	0.49	0.97	6	10	16
Item Q	12	0.326	0.17	0.89	16	19	17
Item R	12	0.588	0.32	0.57	11	12	18
Item S	12	0.436	0.18	0.40	13	18	19

Table 4

DPP Matrix Strategy

Product	Oz.	DPP Matrix	Units/ Store/ Week	DPP Per Unit ($)	DPP Per Week ($)
Item A	24	Winner	52.2	0.76	39.79
Item B	24	Winner	50.1	0.66	33.23
Item C	24	Winner	44.3	0.66	29.25
Item D	24	Winner	36.4	0.57	20.60
Item E	24	Traffic	15.8	0.45	7.09
Item F	24	Sleeper	8.5	0.78	6.63
Item G	24	Sleeper	5.0	1.26	6.26
Item H	24	Traffic	19.7	0.24	4.81
Item I	36	Traffic	16.1	0.27	4.38
Item J	12	Loser	11.2	0.22	2.41
Item K	12	Loser	11.2	0.20	2.21
Item L	36	Sleeper	1.8	1.20	2.17
Item M	12	Loser	10.2	0.19	1.95
Item N	36	Sleeper	2.0	0.76	1.53
Item O	36	Loser	2.0	0.51	1.01
Item P	36	Loser	2.0	0.49	0.97
Item Q	12	Loser	5.2	0.17	0.89
Item R	12	Loser	1.8	0.32	0.57
Item S	12	Loser	2.3	0.18	0.40

```
                          Figure 2

                   DPP Merchandising Matrix

                        High DPP/Unit
                            |
  Sleepers                  |   Winners
                            |
  Number of Items :    4    |   Number of Items:     4
  DPP per week :      $17   |   DPP per week :     $123
  Unit movement :     17    |   Unit Movement :     183
                            |
     Low Sales -------------+--------------------- High Sales
                            |
  Losers                    |   Traffic Builders
                            |
  Number of Items :    8    |   Number of Items:     3
  DPP per week :      $10   |   DPP per week :      $16
  Unit movement :     46    |   Unit Movement :     52
                            |
                        Low DPP/Unit
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This paper has presented a new method of profitability analysis that is being implemented in the supermarket industry. DPP analysis is not a panacea. It is a merchandising tool that helps in the maximization of profit in supermarkets. There are limitations to the use of DPP. Since DPP is a cost oriented approach to merchandising decision making, it does not take into account the consumer's changing tastes or attitudes. This requires the merchandiser's input.

The analysis also does not report how much shelf space should be changed. This problem is being addressed by the shelf space allocation systems such as Accuspace which use different measures to optimize shelf space. One of these measures is the DPP of individual products. The integration of DPP and shelf allocation systems opens many possibilities for the effective management of grocery merchandising.

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