

Substitutions, Sales Filters and Clearance Sales

Supplement to: “Five Facts About Prices: A Reevaluation of Menu Cost Models”

Emi Nakamura and Jón Steinsson

Harvard University

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1 Product Flexibility vs. Price Flexibility

Some sectors of the economy—particularly certain types of durable goods—exhibit a substantial amount of product turnover. Since product introduction involves a pricing decision, product introduction is an additional source of price flexibility. However, since the decision to introduce a new product is influenced by many other factors than a firm’s desire to change its price, product introduction should be treated differently than a price change for an identical item in a menu cost model. The CPI research database provides an imperfect measure of product introduction by providing an indicator of whether a product undergoes a “forced substitution”. A forced substitution occurs if the BLS is forced to stop sampling a product because it becomes permanently unavailable.

The main complication that arises in trying to relate the frequency of “forced substitutions” to the frequency of product introduction is that the CPI research database does not follow products over their entire lifetime. Following a forced substitution, BLS procedure for choosing a new product to sample tends to lead to the selection of older products rather than products that have been recently introduced.¹ If older products are more likely to become permanently unavailable than new ones (e.g., if there is an upward sloping hazard of product death) then the average frequency of forced product substitution is an upward biased measure of the average frequency of product introduction. For example, Lancaster (1990) shows that if all products have a fixed lifetime, then the average time until a product exits is only half of its expected lifetime of the product.²

Despite these caveats, the frequency of forced substitutions provides useful information on the frequency product turnover. We measure the frequency of forced substitutions as a fraction of

¹Specifically, when a product in the dataset becomes unavailable, BLS pricing agents are instructed to substitute to the most similar available product. In sectors where “fashion” is important, this is likely to be an older product.

²Only in the case of a constant hazard of product exit does the average duration until a product exits coincide with the average lifetime of the product (Lancaster, 1990).

the total product lifetime.³ Table 1 presents the frequency of substitutions based on this measure for our Major Groups. Table 2 divides the major groups into 4 groups based on price flexibility and product flexibility. We define a major group as exhibiting high price flexibility if the median frequency of regular price change is 12% or more. Similarly, we define a major group as exhibiting high product flexibility if the median frequency of forced substitutions is 3% or more. Table 3 presents the expenditure weights for the four different categories, based on applying this taxonomy to ELI-level data. The figure shows that roughly 38% of the products (expenditure weighted) fall into the low price flexibility-low product flexibility category; roughly 23% fall into the low price flexibility-high product flexibility category; roughly 30% fall into the high price flexibility-low product flexibility category; and finally roughly 10% fall into the high price flexibility-high product flexibility category. The underlying data on substitutions at the level of individual ELI's are presented in table 8.

Product flexibility and price flexibility may affect monetary non-neutrality in substantially different ways in a menu cost model. One simple model is that product introduction is motivated largely by variation in tastes (e.g. fashion) and technology (e.g. new inventions) that are exogenous to the firm's pricing problem. In this model, new product introductions provide the firm with a free, random opportunity to change its price. Nakamura and Steinsson (2006) show that in such a model, the effect of increasing the frequency of new product introductions on monetary non-neutrality is about 5 times less than the effect of increasing the frequency of price change of identical products. This difference arises from the importance of the "selection effect" in determining monetary non-neutrality in the menu cost model. Intuitively, while a monetary shock disproportionately causes price increases among products with low real prices, it does not have an analogous effect on price changes associated with product substitution.

An empirical fact that underlies the importance of distinguishing between substitutions and other types of price changes is that product substitution has striking seasonal patterns. The seasonal patterns in product substitution are different, and much larger from the seasonal patterns of price adjustment. Figure 1 presents the frequency of product substitution by month for the sectors in which product substitution is most important: Household Furnishings, Apparel, Transportation

³We define a product's lifetime as the total time the product is priced and available, where we also include periods where the product is temporarily unavailable for 5 months or less. This definition is meant to capture the idea that permanent product exits are likely to be followed by new product introductions; but a new product introduction is less likely to occur when the product is only temporarily absent. In this definition, we do not include any time periods after the last period when the product is priced and available. This measure differs from the measure presented in Bils and Klenow (2004), who define the frequency of substitutions as a fraction of the total number of prices collected. Since we are mainly interested in product substitutions as a free opportunity for the firm to adjust prices, we do not include product substitutions for which the price of the new product is observed in the months immediately after the substitution and is the same as the price of the old product. This occurs a small fraction of the time in most product categories

Goods and Recreation Goods. Both Apparel and Transportation Goods (in which cars play an important role) have extremely strong seasonal patterns in product substitution. In Apparel, the frequency of product substitution increases 4 fold at the end of the fall and spring clothing seasons. Similarly, in Transportation Goods, the frequency of product substitution rises 5 fold at the end of the car model year in October and November. Figure 1 shows that these seasonal patterns in substitution have been highly stable between the 1988-1997 and 1998-2005 periods.

2 Sale Filters and V-Shaped Sales

We have focused on a procedure to identify sales based on the BLS sale flag, a variable coded by BLS pricing agents to indicate whether a product is “on sale”. This procedure has also been used in a number of previous papers (Bils and Klenow, 2004; Klenow and Kryvtsov, 2005). An alternative (and complementary) approach to identifying sales is to look for “V-shaped” patterns in the data and identify these patterns as sales. This can be done using a “sale filter” algorithm.

There are three main empirical drawbacks of the sale filter approach as a mechanism for identifying V-shaped sales. First, since the prices of the goods are observed at a monthly frequency, a simple sale filter that excludes only V-shaped sales would not be able to identify V-shaped sales that are followed by a regular price change within the same month. For example, consider a good that goes on sale for one week, reverts to the original price following the sale, but subsequently experiences a regular price change before the BLS price collector returns to the store. The simple sale filter would not identify this price pattern as a “sale”, even though the true pattern of prices (unobserved in monthly data) exhibited a V-shaped pattern. Another type of event that would not be captured by a V-shaped filter is if the good is on sale twice in a row when the BLS price collector samples it but at a different sale price—say a 30% discount and then a 50% discount.

Second, in some categories with highly volatile prices, such as gasoline, sale filters may identify sales even when there are none. In these categories, sale filters may identify “V-shaped” price patterns simply because prices tend to change by discrete amounts—e.g., from \$2.49 to \$2.59. For this reason, sales filters will indicate that gasoline is on sale a significant fraction of the time, while the BLS sale flag indicates that there are virtually no sales in the gasoline category.

Third, sales filters do not capture “clearance sales”. Clearance sales are sales that occur before a good is discontinued. It is difficult to capture such sales using sales filters because not subsequent regular price is observed after the sale. We discuss clearance sales in section 3, below.

Nevertheless, the sale filter approach clearly provides useful information about both the nature of price adjustment as well as the definition of the “sale flag” variable. We consider two types of sale

filters. Sale filter B removes price patterns in which the price returns to the original price within a set number of months without going above the original price. Sales filter A is designed to also remove price patterns in which a sale is followed by a change in the regular price, i.e. asymmetric V's. These procedures are described in detail in Appendix A. For each type of filter we consider different windows between 1 and 5 months. For example, for the 2 month case, we require that the price return to the original regular price in the first two months after the price decline occurs. If the product remains at a low price or is not available when the price collector returns in the first two months, then the original price decline is not defined as a sale.

Table 4 presents median statistics on the frequency of price change for sale filters A and B with windows 1 and 5 for both Major Groups and the entire dataset. Table 5 presents the overall weighted median frequency of price change for sale filters A and B with all windows between 1 and 5. The extent of discrepancy of statistics obtained from the BLS sale flag and those based on the sale filter approach depends on the product category. The frequency of price change based on the sale filtered data is similar (or lower) in Unprocessed and Processed Food, than the statistics based on excluding price changes based on the BLS sale flag, but substantially higher in Household Furnishings and Apparel.

The overall weighted median frequency of price change based on the sale filter B with a window of 5 months is 12.3% for the 1998-2005 period. The overall weighted median frequency of price change based on the more complex sale filter A is 11.0% over this period. This statistic is similar to the weighted median frequency of price change that uses the sales flag to exclude all sales except for clearance sales. However, depending on how one parameterizes the sale filter, and depending on whether product substitutions are included as price changes, one can get substantially different answers for the median frequency of price change. In particular, if one assumes a window of one month and includes substitutions as price changes, the frequency of price change rises to 16.4%. For alternative choices of the window and the decision of whether to include substitutions, one can obtain a variety of intermediate values between 11.4% and 16.4%. The underlying data at the level of individual ELI's are presented in table 9.

3 Clearance Sales

We have emphasized that the empirical behavior of prices is different when products are on sale than during other periods. Broadly speaking, theories of sales may be divided into two categories: price discrimination and inventory management. Pashigian (1988) develops a theory of clearance sales based on uncertainty about consumer tastes for fashion. Such theories suggest that clearance

sales may have fundamentally different causes and consequences than other types of sales. In this section, we therefore provide additional statistics on the behavior of clearance sales and the frequency of price change excluding and including clearance sales.

Empirically, we define clearance sales as all sales for which the same item is never again observed at a non-sale price.⁴ Table 6 presents statistics on the prevalence and characteristics of clearance sales by major group. For comparison, table 6 also reports a number of statistics about the behavior of prices during other periods.

Table 6 presents data on the weighted median frequency of price change within major groups excluding all sales *except* clearance sales for both major groups and the entire economy. Overall, a measure of the frequency of price change that excludes all sales *except* for clearance sales yields a weighted median frequency of price change for the 1998-2005 period of 10.7% versus 8.7% when clearance sales are also excluded. The underlying data at the level of individual ELI's are presented in table 9.

The effect of clearance sales is by far most important in the apparel category. In Apparel, clearance sales play a crucial role, accounting for 14.7% of all price changes and 11.7% of all price observations for the weighted median product category. As a consequence, clearance sales substantially increase the frequency of price change in Apparel, raising the weighted median frequency of price change from 3.6% to 13.3%. Clearance sales play a smaller role in Household Furnishings and Recreation goods, and essentially no role in other product categories.⁵

Not surprisingly, a prominent empirical feature of clearance sales is that a very high fraction of price changes during clearance sales are price decreases. In most categories, the median fraction of price changes that are price increases during clearance sales is extremely low. For example, in Apparel, only 13% of price changes during clearance sales are price increases; whereas 57% of price changes are price increases during non-sale periods.⁶

4 Mean Durations

In a Calvo model, the mean duration of prices provides a useful summary measure of the degree of monetary non-neutrality (Carvalho, 2006). Table 7 presents a summary of the mean implied

⁴We also require that the item exits the dataset due to a “forced item substitution” rather than for BLS procedural reasons.

⁵There may also be sales associated with product introductions. These are difficult to quantify using the BLS dataset because we do not observe when products are introduced into the market. We only observe when they are introduced into the BLS dataset.

⁶There is some evidence that clearance sales are slightly longer than other types of sales. But the differences are small if we measure the average length of sales (or clearance sales) as the average number of consecutive months in which a sale (or clearance sale) is observed. This measure does not adjust for left or right censoring of spells.

durations associated with the different measures of price flexibility we consider.

A Sale Filter

We use a simple algorithm to implement the sales filters discussed above. The general algorithm consists of six steps that are carried out in sequence for each observation (i.e. step 0 has precedence over step 1, etc.). The algorithm is a function of 3 parameters. Varying these parameters changes the way sales are defined. With different parameter values the algorithm can therefore capture V-shaped sales only, V-shaped sales plus sales that are followed by a new regular price, multi-period sales, etc.

The general algorithm is as follows:

0. If $p_t = r_{t-1}$, then $r_t = r_{t-1}$.
1. If $p_t > r_{t-1}$, then $r_t = p_t$.
2. If $r_{t-1} \in \{p_{t+1}, \dots, p_{t+J}\}$ and the price never rises above r_{t-1} before returning to r_{t-1} , then $r_t = r_{t-1}$.
3. If the set $\{p_t, p_{t+1}, \dots, p_{t+L}\}$ has K or more different elements, then $r_t = p_t$.
4. Define $p_{max} = \max\{p_t, p_{t+1}, \dots, p_{t+L}\}$ and $t_{max} = \text{first-time } \max\{p_t, p_{t+1}, \dots, p_{t+L}\}$. If $p_{max} \in \{p_{t_{max}+1}, \dots, p_{t_{max}+L}\}$, then $r_t = p_{max}$.
5. $r_t = p_t$.

In the first time period, the algorithm begins at step 3 (the first step that does not refer to a previous regular price).

For sales filter B we set: $L = 1$, $K = 1$ and $J = n$ where $n \in \{1, 2, \dots, 5\}$.⁷ Sales filter B is designed to remove only price patterns in which the price returns to the same price within n months or less. For sales filter A we set: $L = 3$, $K = 3$ and $J = n$ where $n \in \{1, 2, \dots, 5\}$. Sales filter A is designed to remove the price patterns removed by sales filter B as well as price patterns where a sale is followed by a change in the regular price.

⁷Setting $K = 1$ is equivalent to skipping steps 3 and 4 and going immediately to step 5 after step 2.

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Figure 1: Seasonality in Product Substitution

Table 1: Substitutions

Table 2: Substitutions1

Table 3: Substitutions2

Table 4: Sales Filters 1

Table 5: Sales Filters 2

Table 6: Clearance Sales

Table 7: Mean Durations

Table 8: ELI level data on Substitutions

Table 9: ELI level data on clearance and filters

Table 1: Frequency of Substitution and Price Change by Category

Major Group	weight	Subs. Freq.	Pr.Ch. w/ Subs		Price Change	
			Freq. Reg.	Freq.	Freq. Reg.	Freq.
Panel A: 1988-1997						
Processed Food	7.9	1.1	13.0	25.3	12.7	25.0
Unprocessed Food	7.5	0.5	28.5	43.6	28.3	43.5
Household Furnishing	6.1	3.4	10.6	26.0	6.7	24.9
Apparel	7.9	6.1	10.1	29.5	4.8	27.9
Transportation Goods	8.0	7.9	33.4	33.4	27.7	27.7
Recreation Goods	3.6	3.7	9.0	16.9	5.7	14.7
Other Goods	5.1	1.1	11.4	16.1	11.1	15.9
Utilities	5.8	1.1	46.7	46.7	46.1	46.1
Vehicle Fuel	3.2	1.2	70.3	70.4	71.9	72.1
Travel	4.6	2.4	31.8	33.3	31.1	32.7
Services (excl. Travel)	38.8	0.9	8.0	8.5	7.0	7.4
Panel B: 1998-2005						
Processed Food	8.2	1.3	10.9	26.1	10.5	25.9
Unprocessed Food	5.9	1.2	25.6	37.2	25.0	37.3
Household Furnishing	5.0	5.0	9.2	20.6	6.0	19.4
Apparel	6.5	9.9	7.9	32.2	3.6	31.0
Transportation Goods	8.3	10.2	36.6	36.6	31.3	31.3
Recreation Goods	3.6	6.3	7.3	14.3	6.0	11.9
Other Goods	5.4	1.0	15.4	16.2	15.0	15.5
Utilities	5.3	0.6	38.5	38.5	38.1	38.1
Vehicle Fuel	5.1	0.2	87.6	87.6	87.6	87.6
Travel	5.5	1.9	42.5	43.5	41.7	42.8
Services (excl. Travel)	38.5	0.9	7.2	7.4	6.1	6.6

"Subs. Freq." gives the median monthly frequency of price changes associated with forced item substitutions in the consumer price index. This frequency is calculated by dividing the number of forced product substitutions by the product's lifetime. The product's lifetime does not include periods when the product is unavailable for long periods of time, such as periods when a product is seasonally unavailable. This measure is described in greater detail in the text. "Pr.Ch w/ Subs" denotes the the median monthly frequency of price change including price changes due to product substitutions. "Price Change" indicates the median monthly frequency of price change. "Freq." denotes the frequency of price change including temporary sales. "Reg. Freq." denotes the frequency of price change excluding sales. The median statistics are calculated by first calculating the mean frequency of price change or substitutions within ELI's and then calculating the expenditure-weighted median across ELI's. "Weight" denotes the expenditure weight of the ELI.

Table 2: Price and Product Flexibility of Major Groups

		Price Flexibility	
		High	Low
Product Flexibility	High	Transportation Goods	Household Furnishings, Apparel, Recreation Goods
	Low	Unprocessed Food, Other Goods, Utilities, Vehicle Fuel, Travel	Services, Processed Food

This table divides the major groups into categories of high or low "Price Flexibility" and "Product Flexibility". A product is defined as having high price flexibility if it has a frequency of non-sale price change of 12% or more. It is defined as having high product flexibility if it has a frequency of product substitution of 3% or more. See the text for a discussion of the relationship between product substitution and product introduction.

Table 3: Price and Product Flexibility of ELIs

		Price Flexibility	
		High	Low
Product Flexibility	High	9.7%	22.6%
	Low	29.7%	37.9%

This table reports the expenditure weight associated with high vs. low "Price Flexibility" and "Product Flexibility". A product is defined as having high price flexibility if it has a frequency of non-sale price change of 12% or more. It is defined as having high product flexibility if it has a frequency of product substitution of 3% or more. See the text for a discussion of the relationship between product substitution and product introduction.

Table 4: Sales Filters by Major Group

Major Group	weight	Price Changes		Sales filters			
		Freq.	Freq.Reg.	5A	5B	1A	1B
Panel A: 1988-1997							
Processed Food	7.9	25.0	12.7	11.7	13.3	15.0	17.7
Unprocessed Food	7.5	43.5	28.3	21.2	23.7	26.6	31.0
Household Furnishing	6.1	24.9	6.7	11.0	12.6	14.1	17.4
Apparel	7.9	27.9	4.8	14.2	15.2	18.8	22.0
Transportation Goods	8.0	27.7	27.7	23.4	26.3	24.0	27.0
Recreation Goods	3.6	14.7	5.7	9.3	9.9	10.7	11.9
Other Goods	5.1	15.9	11.1	9.9	11.2	11.3	12.8
Utilities	5.8	46.1	46.1	42.5	44.3	43.6	45.4
Vehicle Fuel	3.2	72.1	71.9	54.2	56.3	63.6	66.9
Travel	4.6	32.7	31.1	24.4	26.8	27.6	30.7
Services (excl. Travel)	38.8	7.4	7.0	6.1	6.8	6.3	7.1
All Sectors	100.0	20.3	11.1	11.6	13.2	13.4	15.3
Panel B: 1998-2005							
Processed Food	8.2	25.9	10.5	11.4	12.8	15.7	18.1
Unprocessed Food	5.9	37.3	25.0	18.7	20.8	27.0	31.0
Household Furnishing	5.0	19.4	6.0	10.2	11.6	13.1	15.1
Apparel	6.5	31.0	3.6	16.5	18.1	22.1	25.0
Transportation Goods	8.3	31.3	31.3	26.7	29.2	27.5	30.3
Recreation Goods	3.6	11.9	6.0	7.4	8.1	8.2	9.7
Other Goods	5.4	15.5	15.0	12.4	14.0	12.6	14.3
Utilities	5.3	38.1	38.1	35.0	36.8	35.7	37.6
Vehicle Fuel	5.1	87.6	87.6	72.1	73.5	82.4	84.3
Travel	5.5	42.8	41.7	32.9	35.2	37.5	40.4
Services (excl. Travel)	38.5	6.6	6.1	5.7	6.2	5.8	6.6
All Sectors	100.0	19.4	8.7	11.0	12.3	13.3	15.3

"Freq" gives the frequency of all price changes in percent per month. "Freq. Reg" gives the frequency of regular price changes. Sales filters 5A and 5B give the frequency of price change when sale filters A and B respectively are applied and the window for the price to return to the original regular price (including sale and missing prices) is 5 months; Sales filters 1A and 1B give analogous statistics when the window is 1 month. (See Appendix A for a description of the sale filters and Table 5 for results for intermediate parameter values). These statistics are medians within Major Groups. Medians are calculated by first calculating an average within each ELI and then calculating an expenditure weighted median across ELIs within the Major Group.

Table 5: Frequency of Price Change for Sales Filters 1998-2005

	no Subs		w/ Subs	
	A	B	A	B
Window:				
1 month	13.3	15.3	14.7	16.4
2 months	12.5	14.2	14.7	15.5
3 months	11.9	13.4	14.1	15.1
4 months	11.4	12.5	13.6	14.7
5 months	11.4	12.5	13.3	14.6
Price Changes		19.4		20.5
Reg. Price Changes		8.7		10.9
Reg. Price Ch. + Clear		10.7		13.0

This table gives the weighted median frequency of price change for alternative procedures for filtering out "V-shaped" sales. Frequencies are reported in percent per month. The median frequency is calculated by first calculating the mean frequency of price change for each ELI and then taking an expenditure-weighted median across ELI's using CPI expenditure weights. In all cases, clearance sales are not removed. Sale Filter B removes only symmetric "V-shaped" sales while Sale Filter A also allows for regular price changes immediately preceding or following sales or asymmetric V's. We consider sale filters with a "window" for return to the original price of between 1 and 5 months. See appendix A for a detailed description of the sale filter algorithm.

Table 6: Clearance Sales by Major Group

Major Group	weight	Clearance Sales				All Sales		Price Changes			Reg+Clear
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.Spells	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up Reg	Freq.
Panel A: 1988-1997											
Processed Food	7.9	0.4	0.3	20.6	2.9	47.1	11.4	25.0	12.7	66.9	12.8
Unprocessed Food	7.5	0.1	0.2	17.8	1.2	34.8	14.3	43.5	28.3	59.0	28.4
Household Furnishing	6.1	1.9	2.5	16.7	13.8	65.8	18.9	24.9	6.7	67.0	9.8
Apparel	7.9	11.5	8.1	8.1	32.7	82.7	27.1	27.9	4.8	61.3	10.6
Transportation Goods	8.0	0.0	0.0	-	0.0	0.0	0.0	27.7	27.7	44.5	27.7
Recreation Goods	3.6	1.6	1.8	10.5	16.3	49.7	10.0	14.7	5.7	64.4	7.7
Other Goods	5.1	0.1	0.1	25.0	3.5	13.7	2.2	15.9	11.1	78.9	11.1
Utilities	5.8	0.0	0.0	-	0.0	0.0	0.0	46.1	46.1	51.6	46.1
Vehicle Fuel	3.2	0.0	0.0	-	0.0	0.1	0.1	72.1	71.9	52.7	70.3
Travel	4.6	0.3	0.5	16.4	11.8	4.9	3.1	32.7	31.1	54.6	31.2
Services (excl. Travel)	38.8	0.0	0.0	-	0.0	0.0	0.0	7.4	7.0	80.3	7.0
All Sectors	100.0	0.0	0.0	15.4	0.9	6.1	0.8	20.3	11.1	67.0	11.6
Panel B: 1998-2005											
Processed Food	8.2	0.5	0.6	36.0	2.7	57.7	16.0	25.9	10.5	65.4	10.7
Unprocessed Food	5.9	0.3	0.5	27.8	2.3	40.4	17.8	37.3	25.0	61.2	25.5
Household Furnishing	5.0	3.5	5.0	21.1	15.8	67.3	20.4	19.4	6.0	62.9	8.6
Apparel	6.5	14.7	11.7	13.0	30.6	87.9	35.4	31.0	3.6	57.1	13.3
Transportation Goods	8.3	0.0	0.0	-	0.0	0.0	0.0	31.3	31.3	45.9	31.3
Recreation Goods	3.6	2.6	2.4	12.4	21.4	50.0	8.6	11.9	6.0	62.0	6.2
Other Goods	5.4	0.4	0.6	19.0	6.5	31.0	6.7	15.5	15.0	79.0	15.0
Utilities	5.3	0.0	0.0	-	0.0	0.0	0.0	38.1	38.1	53.1	38.1
Vehicle Fuel	5.1	0.0	0.0	-	1.8	0.0	0.3	87.6	87.6	53.5	87.6
Travel	5.5	0.1	0.3	27.7	5.7	2.4	3.1	42.8	41.7	52.8	41.8
Services (excl. Travel)	38.5	0.0	0.0	-	0.0	0.0	0.0	6.6	6.1	73.7	6.1
All Sectors	100.0	0.0	0.0	22.7	1.8	2.4	0.4	19.4	8.7	64.8	10.7

The first panel presents statistics on frequencies of clearance sales in percent per month. Under "Clearance Sales", "Frac. P. Ch" denotes the fraction of all price changes associated with clearance sales, "Frac. Obs" gives the fraction of all price observations that are associated with clearance sales and "Frac. Up" gives the fraction of price changes during clearance sales that are price increases. Under "Sales", "Frac. P. Ch." denotes the fraction of all price changes associated with sales. "Frac. Obs" gives the fraction of all price observations that are associated with sales. The third panel gives the frequency of price change with and without sales. "Freq" gives the frequency of all price changes. "Freq. Reg" gives the frequency of regular price changes. "Frac. Up" gives the fraction of price changes that are price increases. "Reg+Clear Freq" gives the frequency of price change excluding all sales except for clearance sales. These statistics are medians within Major Groups. Medians are calculated by first calculating an average within each ELI and then calculating an expenditure weighted median across ELIs within the Major Group.

Table 7: Average Durations

	1988-1997	1998-2005
Panel A: Excluding Price Changes due to Substitutions		
1. Contiguous observations including sales	8.3	9.0
2. Contiguous observations excluding sales	11.6	13.0
3. Carry regular price forward during sales and stockouts	11.0	12.3
4. Estimate frequency of price change during sales	11.2	12.5
5. Estimate frequency of price change during sales and stockouts	10.8	11.7
Panel B: Including Price Changes due to Substitutions		
6. Contiguous observations including sales	7.5	7.7
7. Contiguous observations excluding sales	9.3	9.8
8. Carry regular price forward during sales and stockouts	9.6	10.4
9. Estimate frequency of price change during sales	9.2	9.8
10. Estimate frequency of price change during sales and stockouts	9.0	9.3

This table presents average implied durations in months, calculated by taking a weighted mean across ELI's. The implied duration for an ELI is $-1/\ln(1-f)$, where f is the average frequency of price change in an ELI. Row 1 gives the average implied duration for price change series where the last regular price is carried forward through sales or missing values of the price data in all cases where these spells last for 5 months or less. Row 2 is calculated by applying the implied monthly frequency of price change associated with one and two-period sales to all sale observations (see text). Row 3 is calculating by applying the implied monthly frequency of price change associated with one and two-period sales or stock-outs to both sale and stockout spells lasting 5 months or less. The statistics including substitutions are calculated in an analogous manner, where price changes associated with substitutions are also included as price changes

Table 8: Frequency of Substitution and Price Change by ELI for 1998-2005

Category Name	ELI	Subs.			Price Change			weight	CDF
		Freq.	Pr.Ch. w/ Freq.	Subs Freq.	Freq.	Reg. Freq.	Freq.		
FIRST CLASS MAIL	EC011	0.0	3.5	3.5	3.5	3.5	0.28	0.28	
SHOE REPAIR AND OTHER SHOE SERVICES	GD041	0.0	3.8	3.8	3.8	3.8	0.03	0.30	
GARDENING OR LAWN CARE SERVICES	HP021	0.1	7.9	7.9	7.8	7.8	0.38	0.68	
AUTOMOTIVE DIESEL FUEL	TB021	0.2	67.1	67.1	67.1	67.1	0.02	0.70	
MIDGRADE UNLEADED GASOLINE	TB012	0.2	87.6	87.6	87.6	87.6	1.69	2.39	
COIN-OPERATED APPAREL LAUNDRY AND DRY CLEANING	GD031	0.2	3.1	3.4	3.0	3.3	0.30	2.69	
REGULAR UNLEADED GASOLINE	TB011	0.2	88.6	88.6	88.6	88.6	1.69	4.37	
PREMIUM UNLEADED GASOLINE	TB013	0.2	86.9	87.0	86.9	87.0	1.69	6.06	
AUTOMOBILE SERVICE CLUBS	TF032	0.2	4.5	7.7	4.3	7.6	0.05	6.11	
WOMEN'S AND GIRLS' CLOTHING ALTERATIONS AND REPAIRS	GD042	0.2	4.0	4.2	3.8	4.0	0.04	6.15	
REPLACEMENT OF SETTING FOR WOMEN'S RINGS	GD043	0.3	5.5	5.5	5.4	5.4	0.02	6.17	
PERIODIC CHK ACT FEES, TRANS FEES, PERS CHKS	GD051	0.4	3.6	3.6	3.5	3.5	0.20	6.37	
BANANAS	FK021	0.4	13.7	29.0	13.5	29.0	0.15	6.51	
POTATOES	FL011	0.4	29.7	40.8	29.6	40.7	0.14	6.65	
RENTAL OF VIDEO TAPES AND DISCS	RA042	0.4	10.2	10.2	10.0	10.0	0.13	6.78	
TAXI FARE	TG032	0.5	4.9	4.9	4.4	4.4	0.10	6.88	
BEAUTY PARLOR SERVICES FOR FEMALES	GC011	0.5	3.4	3.4	3.1	3.1	1.36	8.24	
DOMESTIC SERVICES	HP011	0.5	4.7	4.7	4.3	4.3	0.45	8.69	
CIGARETTES	GA011	0.5	23.3	33.6	23.2	33.6	1.71	10.41	
INSIDE HOME MAINTENANCE AND REPAIR SERVICES	HP043	0.5	9.4	11.8	9.2	11.5	0.07	10.47	
LIMITED SERVICE MEALS AND SNACKS	FV021	0.5	6.5	7.4	6.1	7.0	2.30	12.78	
INTRACITY MASS TRANSIT	TG031	0.5	2.8	2.8	2.3	2.3	0.33	13.11	
AIRLINE FARE	TG011	0.5	60.0	60.0	59.8	59.8	1.33	14.44	
PORK CHOPS	FD031	0.5	30.7	50.4	30.4	50.3	0.17	14.61	
UTILITY NATURAL GAS SERVICE	HF021	0.5	72.6	72.6	72.4	72.4	1.45	16.05	
PARKING FEES	TF031	0.6	3.4	3.4	2.9	2.9	0.23	16.28	
ELECTRICITY	HF011	0.6	38.5	38.5	38.1	38.1	3.41	19.69	
CLUB MEMBERSHIP DUES	RF011	0.6	9.1	13.0	8.6	12.6	0.92	20.61	
NEWSPAPER AND MAGAZINE SUBSCRIPTIONS	RG012	0.6	4.9	6.3	4.4	5.8	0.40	21.01	
CARE OF INVALIDS, ELDERLY AND CONVALESCENTS IN THE HOME	GD061	0.6	3.1	3.1	2.8	2.8	0.15	21.16	
EGGS IN SHELL	FH011	0.6	47.7	52.0	47.6	51.9	0.14	21.30	
TAX RETURN PREPARATION AND OTHER ACCOUNTING FEES	GD052	0.6	5.5	5.5	5.5	5.5	0.25	21.55	
PEANUT BUTTER	FS031	0.7	10.3	26.1	10.1	26.0	0.05	21.61	
BEER, ALE, AND OTHER MALT BEVERAGES AT HOME	FW011	0.7	10.9	22.7	10.6	22.6	0.47	22.07	
WATER AND SEWERAGE SERVICE	HG011	0.7	11.3	11.3	10.7	10.7	0.94	23.01	
OTHER FRESH VEGETABLES	FL041	0.7	33.0	43.5	32.8	43.5	0.37	23.38	
WHISKEY AT HOME	FW021	0.7	10.9	19.4	10.8	19.3	0.15	23.54	
LEGAL SERVICES	GD011	0.7	1.8	1.8	1.6	1.6	0.48	24.02	
STATE VEHICLE REGISTRATION	TF011	0.7	3.3	3.3	2.6	2.6	0.29	24.31	
INTERSTATE TELEPHONE SERVICES	ED021	0.7	42.3	42.3	41.9	41.9	1.50	25.81	
SUGAR AND ARTIFICIAL SWEETENERS	FR011	0.8	10.2	22.7	9.9	22.5	0.10	25.91	
BUTTER	FS011	0.8	24.7	38.5	24.3	38.3	0.13	26.04	

Table 8: Frequency of Substitution and Price Change by ELI for 1998-2005

Category Name	ELI	Subs.			Pr.Ch. w/ Subs		Price Change		weight	CDF
		Freq.	Freq.	Reg. Freq.	Freq.	Freq.	Reg. Freq.	Freq.		
APPLES	FK011	0.8	25.9	38.7	25.6	38.6	0.14	26.18		
LOCAL AUTOMOBILE REGISTRATION	TF012	0.8	2.7	2.7	1.9	1.9	0.29	26.47		
GARBAGE/TRASH COLLECTION	HG021	0.8	10.0	10.0	9.4	9.4	0.35	26.82		
SALT AND OTHER SEASONINGS AND SPICES	FT041	0.8	7.8	16.4	7.4	16.1	0.09	26.91		
APPLIANCE REPAIR	HP041	0.8	11.5	11.5	11.1	11.1	0.03	26.94		
PROSTHODONTICS AND IMPLANTS	MC021	0.8	4.9	4.9	4.5	4.5	1.19	28.14		
DAY CARE AND NURSERY SCHOOL	EB031	0.8	7.5	7.5	6.9	6.9	1.28	29.41		
MAIN STATION CHARGES	ED011	0.9	28.9	28.9	28.4	28.4	1.50	30.92		
FULL SERVICE MEALS AND SNACKS	FV011	0.9	5.6	5.7	5.0	5.1	4.15	35.06		
LARD AND SHORTENING	FS032	0.9	12.2	24.3	11.9	24.1	0.11	35.17		
FUNERAL EXPENSES	GD021	0.9	9.6	9.6	8.9	8.9	0.49	35.66		
FUEL OIL	HE011	0.9	67.8	67.9	68.0	68.0	0.34	36.00		
MOTOR OIL	TC022	0.9	12.1	15.7	11.7	15.4	0.20	36.20		
OTHER INFORMATION SERVICES	EE031	0.9	2.4	2.6	2.1	2.2	0.03	36.22		
CHUCK ROAST	FC021	0.9	26.4	48.4	25.9	48.3	0.19	36.41		
LETTUCE	FL021	0.9	40.9	49.6	40.8	49.6	0.08	36.49		
OTHER CONDIMENTS (EXCLUDING OLIVES, PICKLES, RELISHES)	FT044	0.9	9.5	19.0	9.1	18.7	0.07	36.56		
ORANGES, MANDARINS (TANGERINES) AND TANGELOS	FK031	0.9	33.4	39.9	33.3	39.9	0.19	36.75		
COLA DRINKS	FN011	1.0	13.6	38.9	13.1	38.7	0.58	37.33		
TENANTS' INSURANCE	HD011	1.0	8.6	8.6	7.9	7.9	0.51	37.84		
PRESCRIPTION DRUGS	MA011	1.0	15.4	15.5	15.0	15.1	1.20	39.04		
ROUND STEAK	FC031	1.0	28.5	47.1	28.0	47.0	0.39	39.43		
VETERINARIAN SERVICES	RB022	1.0	9.4	9.4	8.7	8.7	0.18	39.61		
OLIVES, PICKLES, RELISHES	FT042	1.0	9.0	25.0	8.4	24.6	0.05	39.66		
PHYSICAL MEDICINE	MC041	1.1	3.2	3.2	2.4	2.4	0.37	40.04		
BOTTLED OR TANK GAS	HE021	1.1	38.1	38.2	37.9	38.0	0.12	40.16		
CANNED FRUIT	FM011	1.1	10.9	26.4	10.5	26.2	0.24	40.40		
BUTTER	FR031	1.1	9.8	23.3	9.3	23.1	0.11	40.51		
INTERCITY BUS FARE	TG021	1.1	28.6	28.7	27.8	27.9	0.05	40.56		
UNCOOKED GROUND BEEF	FC011	1.1	25.6	41.7	25.0	41.6	0.39	40.96		
POWDERS, CRYSTALS, TABLETS, MIXES, AND SYRUPS	FP022	1.2	7.2	14.0	6.8	13.8	0.11	41.07		
NURSING AND CONVALESCENT HOME CARE	MD021	1.2	6.5	6.5	5.7	5.7	0.07	41.14		
SOUP	FT011	1.2	10.9	23.6	10.5	23.4	0.15	41.29		
OTHER FRESH FRUITS	FK041	1.2	50.1	62.2	49.9	62.2	0.31	41.59		
CHEESE AND CHEESE PRODUCTS	FJ021	1.2	17.7	32.2	17.1	31.9	0.44	42.03		
FRESH WHOLE MILK (UNFLAVORED)	FJ011	1.2	32.6	37.2	32.6	37.3	0.56	42.60		
TOMATOES	FL031	1.2	50.6	59.9	50.3	59.8	0.12	42.72		
BEER, ALE, AND OTHER MALT BEVERAGES										
AWAY FROM HOME	FX011	1.2	5.8	6.0	5.0	5.2	0.50	43.21		
WHITE BREAD	FB011	1.3	10.2	24.0	9.8	23.7	0.40	43.61		
SPANISH/MEXICAN FOODS	FT062	1.3	9.5	25.3	8.9	25.0	0.38	43.99		
SALAD DRESSING	FS021	1.3	10.6	28.1	10.1	27.9	0.11	44.11		
GENERAL MEDICAL PRACTICE	MC011	1.3	4.0	4.0	3.4	3.4	2.06	46.17		

Table 8: Frequency of Substitution and Price Change by ELI for 1998-2005

Category Name	ELI	Subs.			Price Change		weight	CDF
		Freq.	Pr.Ch. w/ Freq.	Subs Freq.	Freq.	Reg. Freq.		
POWDERED/EVAPORATED/CONDENSED MILK	FJ041	1.3	12.3	26.2	11.6	25.9	0.22	46.39
SINGLE COPY NEWSPAPERS AND MAGAZINES	RG011	1.3	5.8	6.0	5.4	5.6	0.15	46.54
SAUCES AND GRAVIES	FT043	1.3	10.6	23.6	9.9	23.3	0.19	46.73
CANDY AND CHEWING GUM	FR021	1.3	6.1	15.1	5.7	14.9	0.31	47.04
FRESH WHOLE CHICKEN	FF011	1.3	17.2	35.4	16.6	35.1	0.51	47.55
BACON AND RELATED PRODUCTS	FD011	1.3	18.9	34.4	18.4	34.1	0.27	47.82
FROZEN NONCARBONATED JUICES AND DRINKS	FN021	1.3	10.8	27.5	10.3	27.2	0.08	47.90
FILM PROCESSING	RD022	1.4	10.6	11.6	9.7	10.7	0.12	48.02
PAINT	HM011	1.4	7.4	16.7	6.5	16.1	0.06	48.08
CIGARS	GA021	1.4	11.8	13.5	11.5	13.2	0.09	48.17
DELIVERY SERVICES	EC021	1.4	30.0	30.1	29.3	29.4	0.01	48.18
INTERCITY TRAIN FARE	TG022	1.4	25.1	25.1	24.1	24.1	0.10	48.28
BOARD	FV051	1.4	6.3	6.4	5.4	5.5	0.24	48.52
OTHER BEEF	FC041	1.4	21.4	33.3	21.0	33.1	0.07	48.59
FRANKFURTERS	FE011	1.4	14.3	32.4	13.8	32.1	0.16	48.75
PORK ROASTS	FD041	1.4	27.9	46.9	27.3	46.6	0.16	48.91
DRIED AND PROCESSED FRUIT	FM031	1.4	10.0	18.9	9.6	18.6	0.06	48.98
RICE	FA031	1.4	10.5	23.4	9.9	23.1	0.21	49.19
ICE CREAM AND RELATED PRODUCTS	FJ031	1.4	13.4	33.2	12.7	32.9	0.25	49.44
FLOUR	FA011	1.4	12.1	26.1	11.5	25.8	0.10	49.54
FROZEN FRUITS	FM021	1.4	10.9	28.9	10.4	28.7	0.14	49.68
FOOD AT EMPLOYEE SITES AND SCHOOLS	FV031	1.5	3.5	3.6	2.9	2.9	0.91	50.59
TEA	FP021	1.5	9.3	20.9	8.9	20.7	0.07	50.66
ALTERNATIVE AUTOMOTIVE FUELS	TB022	1.5	23.6	23.6	23.4	23.4	0.02	50.68
BABY FOOD	FT051	1.5	12.9	19.2	12.3	18.9	0.14	50.82
FRESH FISH	FG011	1.5	20.9	36.5	20.4	36.3	0.27	51.10
REUPHOLSTERY OF FURNITURE	HP042	1.5	9.6	9.6	8.4	8.4	0.05	51.14
POTATO CHIPS AND OTHER SNACKS	FT031	1.6	8.3	26.3	7.6	26.0	0.38	51.52
PET SERVICES	RB021	1.6	6.8	6.8	5.8	5.8	0.16	51.68
CEREAL	FA021	1.6	12.4	26.3	11.8	26.1	0.43	52.12
PREPARED SALADS	FT061	1.7	7.7	17.3	7.0	16.8	0.06	52.17
ROASTED COFFEE	FP011	1.7	14.2	26.8	13.5	26.4	0.20	52.38
CRACKERS	FB041	1.7	13.0	36.0	12.0	35.8	0.12	52.49
MOVING, STORAGE, FREIGHT EXPRESS	HP031	1.7	11.4	11.6	10.5	10.7	0.15	52.64
DEODORANT, ANTIPERSPIRANT	GB013	1.7	6.0	16.5	5.6	16.3	0.12	52.76
HOSPITAL SERVICES	MD011	1.7	7.2	7.2	6.3	6.3	1.87	54.63
FROZEN BAKERY PROD & FROZEN/REFRIG DOUGHS/BATTERS	FB043	1.8	13.0	28.5	12.3	28.2	0.11	54.73
AR ITEMS	FV041	1.8	2.1	2.1	1.7	1.7	0.30	55.03
FRESH ROLLS, BISCUITS, AND MUFFINS	FB021	1.9	8.0	16.0	7.2	15.6	0.20	55.23
DOG FOOD	RB011	1.9	7.3	21.8	6.8	21.5	0.36	55.59
COLORING	GB011	1.9	7.4	20.0	6.9	19.7	0.14	55.73
RENTAL OF LODGING AWAY FROM HOME	HB021	1.9	42.5	43.5	41.7	42.8	3.38	59.10
AND FIXED FEES	EB041	1.9	10.4	10.4	9.2	9.2	0.07	59.18

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		Freq.	Pr.Ch. w/ Freq.	Subs Freq.	Freq.	Reg. Freq.		
MEN'S UNDERWEAR	AA021	2.0	5.7	26.0	5.1	25.8	0.13	59.31
COOKIES	FB032	2.0	10.6	32.5	9.6	32.1	0.21	59.52
TOPICALS AND DRESSINGS	MB021	2.0	7.4	12.4	6.7	11.9	0.07	59.58
LUNCHMEATS (EXC BLGNA/LVWRST/SALMI)	FE012	2.0	10.9	25.5	10.1	25.0	0.17	59.75
MULTIPLE COURSES FROZEN/FREEZE DRIED FOODS	FT021	2.0	12.7	32.0	11.8	31.6	0.30	60.05
NONFROZEN NONCARBONATED JUICES AND DRINKS	FN031	2.1	12.5	29.7	11.7	29.4	0.44	60.48
LAMB AND MUTTON	FE013	2.1	13.7	21.9	13.0	21.4	0.13	60.61
ROPE	HM013	2.2	6.9	9.8	6.3	9.3	0.07	60.68
PHOTOGRAPHER'S FEES	RD021	2.2	9.6	10.8	8.2	9.5	0.09	60.77
CANNED FISH AND SEAFOOD	FG021	2.2	12.2	26.6	11.2	26.2	0.20	60.96
OPTOMETRISTS/OPTICIANS	MC031	2.2	7.4	12.7	5.5	11.2	0.39	61.35
INTERNAL AND RESPIRATORY OVER-THE-COUNTER DRUGS	MB011	2.2	8.7	16.2	7.9	15.5	0.36	61.71
CAKES AND CUPCAKES (EXCLUDING FROZEN)	FB031	2.2	7.0	13.6	6.3	13.1	0.16	61.87
SWEETROLLS, COFFEE CAKE AND DOUGHNUTS (EXCLUDING FROZEN)	FB042	2.3	7.1	15.1	6.1	14.4	0.11	61.98
LIPSTICK, GLOSS, ROUGE	GB021	2.4	4.8	10.6	3.9	9.9	0.51	62.49
FEES FOR LESSONS OR INSTRUCTIONS	RF031	2.4	4.9	5.2	3.3	3.6	0.31	62.81
CURTAINS AND DRAPES	HH021	2.4	4.3	22.5	2.7	21.8	0.08	62.88
ADMIS. TO MOVIES, THEATERS, CONCERTS AND OTHER RECURRING EVENTS	RF021	2.4	10.0	10.1	9.0	9.1	0.78	63.67
SOAPS AND DETERGENTS	HN011	2.4	10.4	22.2	9.4	21.7	0.32	63.98
DENTAL PREPARATIONS	GB012	2.5	7.1	16.2	6.1	15.5	0.12	64.10
AUTOMOBILE BATTERIES	TC021	2.5	10.4	12.5	8.7	11.0	0.19	64.29
COMMUNITY ANTENNA OR CABLE TV	RA021	2.6	14.4	14.8	12.4	12.8	1.26	65.55
SUPPORTIVE MEDICAL EQUIPMENT	MB023	2.6	7.1	9.6	6.1	8.7	0.06	65.61
TIRES	TC011	2.7	24.2	30.9	22.3	29.7	0.35	65.96
PRODUCTS	HN031	2.8	8.4	19.9	7.4	19.4	0.36	66.32
FILM	RD011	2.8	9.2	18.2	7.9	17.4	0.08	66.40
SHOCK ABSORBERS AND MACPHERSON STRUTS	TD021	2.8	12.1	12.6	10.7	11.3	0.71	67.10
TOWELS, WASH CLOTHS, BATH MATS	HH031	2.8	5.5	37.3	3.6	36.9	0.06	67.17
MEDICAL EQUIPMENT FOR GENERAL USE	MB022	2.9	7.5	16.0	6.3	15.3	0.05	67.22
MATERIALS FOR MAKING SLIPCOVERS, UPHOLSTERY, CURTAINS & DRAPERIES	RE021	2.9	3.8	13.8	2.4	12.8	0.09	67.31
REFERENCE BOOKS	EA013	2.9	5.3	9.9	2.4	7.4	0.06	67.37
WINE AT HOME	FW031	2.9	7.9	20.5	5.8	19.3	0.25	67.62
ELEMENTARY AND HIGH SCHOOL TUITION AND FIXED FEES	EB021	3.0	7.6	7.6	6.2	6.2	0.48	68.11
DOGS	RB012	3.1	5.2	8.0	4.1	7.1	0.22	68.33
FULL COLLEGE TUITION AND FIXED FEES	EB011	3.1	7.5	7.5	5.8	5.8	1.58	69.91
GENERAL PURPOSE AND AUTO	HM014	3.2	3.3	5.6	2.1	4.6	0.04	69.96
INDOOR PLANTS	HL021	3.2	9.2	13.5	8.5	12.9	0.21	70.17

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		Freq.	Pr.Ch. w/ Freq. Reg.	Subs Freq.	Freq. Reg.	Freq.		
HOUSEHOLD PAPER PRODUCTS	HN021	3.3	11.9	25.9	10.1	24.9	0.30	70.47
CELLULAR TELEPHONES	ED031	3.4	15.4	15.4	13.0	13.0	0.07	70.54
HAM (EXCLUDING CANNED)	FD021	3.4	20.3	36.3	19.0	35.7	0.18	70.71
PORTABLE SANDING/POLISHING TOOLS	HM012	3.4	5.5	16.8	4.3	16.1	0.04	70.76
ADMISSION TO SPORTING EVENTS	RF022	3.4	6.4	7.2	5.8	6.6	0.31	71.07
STRING INSTRUMENTS	RE031	3.5	7.4	10.5	5.8	9.2	0.08	71.14
VENETIAN BLINDS	HH022	3.7	8.4	23.3	6.0	21.9	0.07	71.22
TURKEY (EXCLUDING CANNED)	FF021	3.8	15.2	26.6	14.1	25.9	0.16	71.37
PIES, TARTS, TURNOVERS (EXCLUDING FROZEN)	FB044	3.8	10.2	21.6	8.2	20.5	0.06	71.43
AUTOMOBILE RENTAL	TA041	3.8	57.0	57.3	56.1	56.4	0.19	71.63
BEDSPREADS	HH032	4.1	8.5	35.7	5.0	34.7	0.08	71.70
CRIB AND MATTRESS	HJ031	4.1	5.4	11.6	3.2	9.8	0.06	71.77
BOYS' UNDERWEAR	AB013	4.2	6.7	20.5	5.0	19.6	0.04	71.81
HOUSING AT SCHOOL, EXCLUDING BOARD	HB011	4.2	6.2	6.2	4.7	4.7	0.33	72.14
FERTILIZER, WEED/PEST KILLERS, LAWN/GARDEN INSECTICIDES	HM022	4.3	5.9	9.8	5.0	9.0	0.22	72.36
MEN'S PLASTIC RAINCOATS AND RAIN SETS	AA022	4.4	4.3	20.8	1.7	19.4	0.13	72.49
BLENDERS	HK022	4.5	5.8	22.1	3.6	21.0	0.06	72.55
BEDROOM CASE GOODS	HJ012	4.5	9.3	20.5	6.8	18.9	0.24	72.79
BOYS' SUITS AND VESTS	AB014	4.6	6.1	27.8	3.8	26.9	0.15	72.95
WATCHES	AG011	4.7	5.0	20.8	3.1	19.8	0.09	73.04
LIVING ROOM TABLES	HJ023	4.7	8.6	24.6	3.9	22.6	0.20	73.24
DIAPERS AND DIAPER LINERS	AF012	4.7	10.2	21.9	7.6	20.4	0.22	73.46
WASHERS	HK012	5.0	21.7	39.5	15.5	37.7	0.07	73.53
ROOM SIZE RUGS	HH011	5.0	13.9	19.6	11.1	17.5	0.12	73.64
STOVES AND OVENS EXCLUDING MICROWAVES	HK013	5.1	23.2	44.2	19.2	43.0	0.08	73.72
STATIONERY	GE011	5.1	5.5	8.5	4.0	7.2	0.17	73.89
COMPUTER SOFTWARE	EE021	5.1	10.2	12.8	7.9	10.8	0.04	73.93
MEN'S PANTS AND SHORTS	AA041	5.2	7.7	35.3	3.3	34.4	0.31	74.24
CLUTCH REPAIR	TD031	5.3	19.4	19.5	16.8	16.9	1.35	75.59
MEN'S SUITS AND FORMAL WEAR	AA011	5.4	8.1	33.9	4.5	33.1	0.16	75.76
RECLINERS	HJ022	5.4	9.3	28.3	4.6	26.3	0.21	75.97
HAIR DRYER	GB014	5.4	5.2	16.8	4.0	16.1	0.13	76.10
PAINTING ENTIRE MOTOR VEHICLE	TD011	5.5	17.4	17.4	14.4	14.4	0.16	76.26
CALCULATORS AND ADDING MACHINES	EE042	5.5	7.7	9.7	5.9	8.0	0.01	76.28
MEN'S DRESS AND CASUAL SHOES AND BOOTS	AE011	5.5	7.2	28.0	3.2	26.4	0.36	76.64
KITCHENWARE	HL042	5.5	4.9	13.9	3.0	12.6	0.07	76.70
SLEEPING BAGS, COTS, AND OTHER SLEEPING EQUIPMENT	RC023	5.5	5.9	14.2	4.1	12.9	0.12	76.83
STROLLER	GE013	5.6	8.5	18.3	7.0	17.5	0.05	76.88
MATTRESSES AND SPRINGS	HJ011	5.6	9.2	25.0	5.2	23.0	0.18	77.06
RECORD CABINET, CURIO CABINET, BOOKCASE AND TAPES	HJ033	5.6	8.1	19.7	5.4	18.1	0.11	77.17
	RA061	5.6	8.0	13.5	6.0	11.9	0.20	77.37
FLATWARE	HL032	5.7	6.8	24.7	3.0	23.3	0.03	77.40

Table 8: Frequency of Substitution and Price Change by ELI for 1998-2005

Category Name	ELI	Subs.			Pr.Ch. w/ Subs		Price Change		weight	CDF
		Freq.	Freq.	Reg. Freq.	Freq.	Freq.	Reg. Freq.	Freq.		
GIRLS' UNDERWEAR	AD016	5.9	3.0	19.0	1.8	18.4	0.05	77.45		
JEWELRY	AG021	6.0	7.8	22.9	4.1	21.0	0.44	77.89		
MEN'S SPORT COATS AND TAILORED JACKETS	AA012	6.0	7.0	36.1	3.7	35.4	0.05	77.94		
REFRIGERATOR	HK011	6.1	21.7	38.2	17.2	36.4	0.07	78.01		
SCUBA GEAR AND EQUIPMENT	RC022	6.2	3.7	18.2	1.9	16.9	0.01	78.02		
SOFAS OTHER THAN SOFA BEDS	HJ021	6.2	11.9	32.4	6.5	30.3	0.22	78.25		
CEILING AND WALL LIGHTS	HL011	6.2	7.3	18.6	5.1	17.2	0.04	78.29		
PLASTIC DINNERWARE	HL031	6.3	5.8	25.1	3.0	23.9	0.07	78.36		
EXERCISE EQUIPMENT	RC021	6.3	6.0	16.3	3.4	14.5	0.19	78.55		
MEN'S SHIRTS	AA031	6.4	7.2	35.4	4.0	34.5	0.29	78.84		
SHIP FARES	TG023	6.4	33.5	32.7	30.2	29.8	0.09	78.93		
WOMEN'S PANTYHOSE AND STOCKINGS	AC042	6.5	6.3	17.4	2.5	14.8	0.20	79.13		
KITCHEN TABLE, CHAIR AND SETS	HJ024	6.6	13.3	29.1	7.5	26.4	0.22	79.35		
STILL CAMERA	RD012	6.6	13.9	21.4	10.5	19.1	0.06	79.41		
UTILITY PAIL	HN012	6.6	5.2	10.4	3.7	9.1	0.24	79.65		
BOOKS NOT PURCHASED THROUGH BOOK CLUBS	RG022	6.8	6.8	8.1	3.9	5.4	0.15	79.80		
NONELECTRIC COOKINGWARE	HL041	6.9	5.5	19.5	2.8	18.0	0.04	79.84		
DISHCLOTHS AND DISHTOWELS	HH033	7.3	7.3	19.0	2.1	15.9	0.06	79.90		
PRERECORDED - VIDEO TAPES AND DISCS	RA041	7.4	11.0	14.5	7.8	11.8	0.10	80.00		
NEW MOTORCYCLES	TA012	7.6	10.9	11.7	6.4	7.5	3.30	83.30		
MICROWAVE OVENS	HK014	7.7	14.6	31.2	10.5	29.4	0.07	83.37		
LARGE EQUIPMENT, POWERED	HM021	7.7	9.4	20.6	5.6	18.4	0.21	83.58		
FLOOR CLEANING EQUIPMENT	HK021	7.9	14.5	29.0	7.6	25.6	0.05	83.63		
PAINTINGS AND PICTURES	HL012	8.0	5.2	17.3	1.9	15.4	0.24	83.87		
WOMEN'S BRAS, BRA SETS, GIRDLES AND CORSELETS	AC041	8.2	7.3	27.9	2.7	26.0	0.21	84.08		
MOTOR VEHICLE INSURANCE	TE011	8.4	15.6	15.6	8.2	8.2	3.37	87.45		
ELEMENTARY AND HIGH SCHOOL BOOKS AND SUPPLIES	EA012	8.4	6.8	6.8	5.5	5.5	0.08	87.53		
BICYCLES AND ACCESSORIES	RC013	8.5	10.0	16.3	6.5	13.8	0.08	87.61		
UNPOWERED BOATS	RC012	8.8	15.1	19.8	11.1	16.6	0.09	87.69		
FAN	HK023	8.9	4.9	15.2	3.1	13.9	0.07	87.77		
DOLLS AND DOLL CLOTHING	RE011	9.0	5.3	10.6	2.9	8.7	0.36	88.13		
RADIO, PHONOGRAPHS AND TAPE RECORDERS/PLAYERS	RA051	9.2	11.8	25.4	6.9	22.6	0.19	88.32		
OUTBOARD MOTORS GASOLINE POWERED	RC011	9.2	12.2	14.3	8.2	10.8	0.13	88.45		
LUGGAGE	GE012	9.4	11.6	28.7	3.1	25.7	0.12	88.57		
TELEPHONES	EE041	9.5	14.6	20.7	10.3	17.5	0.05	88.61		
TELEVISIONS	RA011	9.6	19.7	34.6	12.8	31.2	0.24	88.86		
GIRLS' DRESS AND CASUAL SHOES AND BOOTS	AE022	9.9	8.7	27.0	3.1	24.4	0.14	88.99		
WOMEN'S DRESS AND CASUAL SHOES AND BOOTS	AE031	9.9	7.9	27.7	3.5	25.9	0.51	89.50		
SUBCOMPACT CARS	TA011	10.2	36.6	36.6	31.3	31.3	3.33	92.83		
OTHER VIDEO EQUIPMENT	RA031	10.3	17.0	30.7	9.9	27.0	0.08	92.91		
VIDEO GAME HARDWARE	RE012	10.5	8.5	14.5	6.8	13.2	0.15	93.06		
CHAISE LOUNGE	HJ032	11.0	4.6	20.4	2.7	19.2	0.07	93.13		

Table 8: Frequency of Substitution and Price Change by ELI for 1998-2005

Category Name	ELI	Subs.			Price Change		weight	CDF
		Freq.	Pr.Ch. w/ Freq.	Subs Freq.	Freq.	Reg. Freq.		
BOYS' DRESS AND CASUAL SHOES AND BOOTS	AE021	11.1	12.5	28.9	4.6	24.8	0.14	93.27
MEN'S SWIMSUITS	AA023	11.7	9.2	32.9	2.5	30.5	0.12	93.38
MEN'S OUTERWEAR	AA013	11.7	7.1	29.0	4.0	28.1	0.11	93.50
GIRLS' PANTS AND SHORTS	AD014	12.0	8.8	37.0	4.4	35.5	0.10	93.60
BOYS' SHIRTS	AB012	12.1	9.3	33.4	3.9	31.3	0.09	93.69
WOMEN'S SKIRTS	AC032	12.4	7.9	32.2	3.8	31.0	0.53	94.22
BOOKS PURCHASED THROUGH BOOK CLUBS	RG021	13.0	18.1	19.4	8.3	10.3	0.12	94.34
VEHICLE LEASING	TA031	13.3	47.5	47.5	42.4	42.4	0.94	95.27
COLLEGE TEXTBOOKS	EA011	14.7	14.6	14.7	12.6	12.8	0.14	95.41
MEN'S SWEATERS AND VESTS	AA032	14.8	8.0	42.0	1.8	40.4	0.13	95.54
INFANTS' AND TODDLERS' OUTERWEAR	AF011	15.1	8.8	39.6	3.5	38.0	0.16	95.70
BOYS' OUTERWEAR	AB011	16.5	8.3	35.4	4.3	34.0	0.04	95.74
WOMEN'S SWIMSUITS	AC043	16.7	8.2	38.4	2.4	36.8	0.19	95.93
BOYS' SWIMSUITS	AB015	18.1	11.1	57.3	6.0	56.8	0.03	95.96
WOMEN'S SWEATERS, AND SWEATER VESTS	AC031	19.0	9.8	37.8	3.6	36.0	0.57	96.54
WOMEN'S OUTERWEAR	AC011	19.2	10.8	32.7	2.8	30.6	0.15	96.69
GIRLS' SWIMSUITS	AD015	21.8	12.8	58.9	2.9	58.2	0.03	96.72
WOMEN'S SUITS AND SUIT COMPONENTS	AC033	22.3	18.7	45.6	5.4	42.7	0.11	96.83
GIRLS' SWEATERS	AD013	22.9	11.8	39.0	5.0	36.9	0.09	96.92
PERSONAL COMPUTERS AND PERIPHERAL EQUIPMENT	EE011	24.0	43.6	46.8	25.8	34.7	0.14	97.06
GIRLS' OUTERWEAR	AD011	24.8	11.7	56.2	0.0	55.0	0.03	97.09
WOMEN'S DRESSES	AC021	25.8	11.5	40.0	2.4	37.4	0.28	97.37
USED CARS	TA021	26.4	100.0	100.0	100.0	100.0	2.56	99.93
GIRLS' DRESSES	AD012	29.0	16.5	47.2	3.0	44.2	0.07	100.00

This table presents statistics for the monthly frequency of substitutions, as well as the monthly frequency of price change (including and excluding substitutions) at the ELI level. The frequency of substitutions is calculated by dividing the number of forced product substitutions by the product's lifetime. The product's lifetime does not include periods when the product is unavailable for long periods of time, such as periods when a product is seasonally unavailable. This measure is described in greater detail in the text. The frequency of price change including substitutions is calculated as the frequency of both price changes and forced item substitutions within an ELI for all periods when two consecutive prices are observed. The frequency of price change (not including substitutions) is the frequency of price changes for identical items only within an ELI for all periods when two consecutive prices are observed. Column 7 gives the expenditure weight of the ELI. Column 8 gives the CDF when the ELI's are sorted by frequency of substitutions.

Table 9: Sales Filters and Clearance Sales by ELI for 1998-2005

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear Sales filter		weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
ENCYCLOPEDIAS AND OTHER SETS OF REFERENCE BOOKS	EA013	42.0	4.9	7.1	67.5	7.0	7.4	2.4	30.0	5.7	6.6	0.06	0.06
WOMEN'S DRESSES	AC021	35.4	24.0	6.1	93.6	41.5	37.4	2.4	16.8	27.6	33.9	0.28	0.34
GIRLS' DRESSES	AD012	31.6	29.9	6.5	93.2	49.9	44.2	3.0	17.5	34.4	40.1	0.07	0.41
WOMEN'S SUITS AND SUIT COMPONENTS	AC033	29.6	32.5	10.3	87.3	54.6	42.7	5.4	20.4	34.2	38.4	0.11	0.51
WOMEN'S SWIMSUITS	AC043	29.5	19.1	2.7	93.6	40.1	36.8	2.4	15.5	24.3	32.3	0.19	0.70
WOMEN'S OUTERWEAR	AC011	28.2	24.0	9.0	90.8	49.0	30.6	2.8	22.8	21.6	27.1	0.15	0.86
GIRLS' SWEATERS	AD013	24.0	16.0	7.7	86.5	35.1	36.9	5.0	28.6	22.7	29.0	0.09	0.95
WOMEN'S SWEATERS, AND SWEATER VESTS	AC031	23.3	18.2	5.4	90.0	40.7	36.0	3.6	20.4	22.6	30.7	0.57	1.52
BOYS' OUTERWEAR	AB011	23.1	14.0	11.1	87.3	42.4	34.0	4.3	21.6	21.8	27.7	0.04	1.56
GIRLS' OUTERWEAR	AD011	22.8	28.6	5.7	100.0	59.9	55.0	0.0	18.0	45.1	50.5	0.03	1.59
WOMEN'S PANTYHOSE AND STOCKINGS	AC042	20.2	6.1	11.1	83.1	14.2	14.8	2.5	43.6	6.4	7.3	0.20	1.79
MEN'S SWEATERS AND VESTS	AA032	18.7	16.6	4.1	95.5	43.5	40.4	1.8	16.2	22.1	35.1	0.13	1.92
GIRLS' SWIMSUITS	AD015	16.8	26.9	6.3	94.9	60.1	58.2	2.9	17.1	46.3	51.8	0.03	1.95
CHAISE LOUNGE	HJ032	16.5	5.8	6.7	86.2	24.1	19.2	2.7	31.7	7.9	16.1	0.07	2.02
LARGE EQUIPMENT, POWERED	HM021	16.2	13.2	11.8	69.6	25.8	18.4	5.6	43.9	10.8	13.6	0.21	2.23
WOMEN'S SKIRTS	AC032	16.2	11.7	5.7	87.9	35.4	31.0	3.8	29.3	15.0	21.0	0.53	2.76
MEN'S OUTERWEAR	AA013	16.0	13.4	9.6	85.7	40.9	28.1	4.0	32.5	15.1	19.1	0.11	2.88
OTHER VIDEO EQUIPMENT	RA031	15.6	9.6	6.8	63.1	20.9	27.0	9.9	33.0	16.7	18.3	0.08	2.95
BOYS' DRESS AND CASUAL SHOES AND BOOTS	AE021	15.5	10.0	12.0	81.3	26.6	24.8	4.6	38.1	11.7	15.4	0.14	3.09
INFANTS' AND TODDLERS' OUTERWEAR	AF011	15.2	12.8	9.6	90.7	37.1	38.0	3.5	31.5	18.2	25.5	0.16	3.25
BOYS' SHIRTS	AB012	15.1	10.7	7.8	87.6	29.8	31.3	3.9	30.8	13.7	22.1	0.09	3.34
WOMEN'S DRESS AND CASUAL SHOES AND BOOTS	AE031	14.7	11.8	6.9	86.3	30.2	25.9	3.5	36.1	11.7	14.9	0.51	3.86
BOYS' SWIMSUITS	AB015	14.5	22.8	7.3	89.5	57.8	56.8	6.0	19.1	40.2	49.1	0.03	3.89
GIRLS' DRESS AND CASUAL SHOES AND BOOTS	AE022	14.5	10.5	9.5	87.4	28.3	24.4	3.1	40.7	10.3	14.3	0.14	4.02
GIRLS' PANTS AND SHORTS	AD014	13.2	12.7	9.5	87.6	38.1	35.5	4.4	34.3	16.8	22.8	0.10	4.12
DISHCLOTHS AND DISHTOWELS	HH033	13.0	8.3	6.8	86.8	21.6	15.9	2.1	43.1	6.1	8.7	0.06	4.18
PAINTINGS AND PICTURES	HL012	12.8	7.9	6.3	87.6	20.4	15.4	1.9	42.4	5.4	8.0	0.24	4.42
LIVING ROOM TABLES	HJ023	12.4	13.6	14.8	82.6	40.6	22.6	3.9	48.8	11.4	12.4	0.20	4.62
LUGGAGE	GE012	12.3	14.6	7.6	88.1	44.4	25.7	3.1	41.3	12.5	16.3	0.12	4.73
EXERCISE EQUIPMENT	RC021	12.2	6.0	5.5	76.8	18.5	14.5	3.4	42.0	6.2	8.1	0.19	4.92
MEN'S SWIMSUITS	AA023	12.1	13.6	5.2	91.7	39.8	30.5	2.5	25.9	13.6	20.4	0.12	5.04
TELEVISIONS	RA011	11.7	12.2	8.3	59.1	27.3	31.2	12.8	34.9	19.9	21.3	0.24	5.28

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
GIRLS' UNDERWEAR	AD016	11.5	3.5	9.6	90.0	16.5	18.4	1.8	38.6	5.1	7.0	0.05	5.33
DOLLS AND DOLL CLOTHING	RE011	11.2	2.5	2.2	66.2	8.6	8.7	2.9	38.5	4.1	6.0	0.36	5.69
FAN	HK023	11.0	3.6	3.6	77.7	13.6	13.9	3.1	36.7	5.3	9.6	0.07	5.77
WOMEN'S BRAS, BRA SETS, GIRDLES AND CORSELETS	AC041	10.9	8.9	9.2	89.6	27.3	26.0	2.7	43.4	8.9	13.5	0.21	5.98
PERSONAL COMPUTERS AND PERIPHERAL EQUIPMENT	EE011	10.8	10.6	8.5	25.6	20.1	34.7	25.8	28.3	31.0	31.6	0.14	6.12
BICYCLES AND ACCESSORIES	RC013	10.4	4.8	3.7	52.5	14.6	13.8	6.5	43.3	8.5	10.0	0.08	6.19
MEN'S SUITS AND FORMAL WEAR	AA011	10.1	10.9	20.7	86.5	40.5	33.1	4.5	46.7	14.1	18.3	0.16	6.36
RADIO, PHONOGRAPHS AND TAPE RECORDERS/PLAYERS	RA051	10.0	6.5	5.8	69.6	17.8	22.6	6.9	39.8	10.7	12.8	0.19	6.55
CALCULATORS AND ADDING MACHINES	EE042	9.4	1.9	0.0	26.3	3.5	8.0	5.9	35.3	6.7	6.7	0.01	6.56
OUTBOARD MOTORS GASOLINE POWERED	RC011	9.4	4.4	13.1	24.5	11.0	10.8	8.2	57.2	9.4	10.0	0.13	6.69
VENETIAN BLINDS	HH022	9.2	4.5	24.7	72.6	23.0	21.9	6.0	51.2	9.4	12.9	0.07	6.76
STILL CAMERA	RD012	9.1	8.6	4.5	45.0	18.1	19.1	10.5	30.8	13.3	15.1	0.06	6.83
CEILING AND WALL LIGHTS	HL011	8.7	6.4	5.7	70.6	23.1	17.2	5.1	40.8	7.9	10.4	0.04	6.87
MEN'S SPORT COATS AND TAILORED JACKETS	AA012	8.6	11.0	16.1	89.5	47.5	35.4	3.7	40.0	14.4	18.8	0.05	6.92
MATTRESSES AND SPRINGS	HJ011	8.6	11.9	14.5	77.4	33.7	23.0	5.2	52.0	10.3	14.9	0.18	7.11
SLEEPING BAGS, COTS, AND OTHER SLEEPING EQUIPMENT	RC023	8.4	2.4	10.0	67.9	9.4	12.9	4.1	45.4	5.6	7.0	0.12	7.23
FLOOR CLEANING EQUIPMENT	HK021	8.3	11.1	6.8	70.2	28.8	25.6	7.6	39.6	12.9	14.9	0.05	7.28
NONELECTRIC COOKINGWARE	HL041	8.1	5.9	8.4	84.4	21.9	18.0	2.8	47.1	5.8	8.8	0.04	7.32
MEN'S PANTS AND SHORTS	AA041	7.9	11.0	15.0	90.3	42.9	34.4	3.3	42.5	13.3	15.8	0.31	7.63
MICROWAVE OVENS	HK014	7.6	10.8	6.0	64.3	28.5	29.4	10.5	42.4	15.8	17.3	0.07	7.70
MEN'S DRESS AND CASUAL SHOES AND BOOTS	AE011	7.5	8.8	6.2	88.1	31.3	26.4	3.2	43.5	8.8	11.7	0.36	8.06
GENERAL PURPOSE AND AUTO	HM014	7.2	0.3	0.0	53.6	1.9	4.6	2.1	55.0	2.5	3.1	0.04	8.10
BOYS' SUITS AND VESTS	AB014	6.9	4.8	10.4	86.0	26.5	26.9	3.8	44.1	8.0	11.5	0.15	8.26
MEN'S PLASTIC RAINCOATS AND RAIN SETS	AA022	6.9	2.8	8.5	91.0	20.2	19.4	1.7	44.1	4.1	7.8	0.13	8.39
BOYS' UNDERWEAR	AB013	6.7	2.6	16.0	74.6	15.6	19.6	5.0	49.8	7.0	7.5	0.04	8.43
MEN'S SHIRTS	AA031	6.7	7.7	12.6	88.4	36.9	34.5	4.0	40.3	11.0	18.1	0.29	8.72
TABLEWARE AND NONELECTRIC KITCHENWARE	HL042	6.4	2.3	5.0	76.4	15.8	12.6	3.0	48.3	4.2	6.0	0.07	8.79
KITCHEN TABLE, CHAIR AND SETS	HJ024	6.3	12.1	10.6	71.5	34.8	26.4	7.5	49.7	12.9	15.9	0.22	9.01
PLASTIC DINNERWARE	HL031	6.3	5.9	5.4	87.3	31.1	23.9	3.0	45.6	7.1	10.9	0.07	9.08

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
HAIR DRYER	GB014	5.8	1.0	0.0	75.1	10.6	16.1	4.0	45.8	5.3	5.1	0.13	9.22
TELEPHONES	EE041	5.5	3.2	1.1	40.9	10.7	17.5	10.3	33.3	11.6	12.9	0.05	9.26
STRING INSTRUMENTS	RE031	5.3	2.9	2.2	36.8	10.5	9.2	5.8	51.3	6.5	7.0	0.08	9.34
SOFAS OTHER THAN SOFA BEDS	HJ021	4.8	12.9	11.3	78.6	39.2	30.3	6.5	48.8	13.3	20.3	0.22	9.56
SCUBA GEAR AND EQUIPMENT	RC022	4.7	4.8	0.0	88.7	11.6	16.9	1.9	45.5	3.6	3.1	0.01	9.57
BEDROOM CASE GOODS	HJ012	4.6	5.4	10.2	64.0	22.5	18.9	6.8	55.5	8.7	12.7	0.24	9.82
VIDEO GAME HARDWARE	RE012	4.6	1.9	0.0	48.6	7.8	13.2	6.8	21.8	7.6	10.5	0.15	9.96
WATCHES	AG011	4.5	4.4	8.7	84.6	22.9	19.8	3.1	48.4	5.2	8.3	0.09	10.06
PORTABLE SANDING/POLISHING TOOLS	HM012	4.5	3.2	3.6	73.5	13.6	16.1	4.3	45.7	5.5	6.1	0.04	10.10
WINE AT HOME	FW031	4.4	2.9	17.1	70.2	20.8	19.3	5.8	51.6	7.4	9.6	0.25	10.36
JEWELRY	AG021	4.4	4.6	8.6	80.4	28.5	21.0	4.1	46.1	6.4	10.5	0.44	10.79
BEDSPREADS	HH032	4.2	6.9	15.4	85.6	42.3	34.7	5.0	47.8	11.5	15.3	0.08	10.87
REFRIGERATOR	HK011	4.0	11.6	8.9	52.7	35.5	36.4	17.2	46.4	22.5	26.1	0.07	10.94
STROLLER	GE013	4.0	11.6	5.9	59.8	28.8	17.5	7.0	52.0	9.2	10.8	0.05	10.99
WASHERS	HK012	3.9	15.2	11.7	58.9	51.1	37.7	15.5	46.9	24.0	26.1	0.07	11.06
OPTOMETRISTS/OPTICIANS	MC031	3.9	1.3	10.7	50.9	7.8	11.2	5.5	60.0	6.0	8.5	0.39	11.44
STOVES AND OVENS EXCLUDING MICROWAVES	HK013	3.7	12.0	14.3	55.4	41.6	43.0	19.2	45.9	26.4	25.0	0.08	11.52
CRIB AND MATTRESS	HJ031	3.5	3.1	8.7	67.3	10.7	9.8	3.2	48.4	3.8	4.7	0.06	11.58
STATIONERY	GE011	3.4	0.7	0.0	44.4	3.5	7.2	4.0	54.3	4.3	5.1	0.17	11.75
MATERIALS FOR MAKING SLIPCOVERS,UPHOLSTERY,CURTAINS & DRAPERIES	RE021	3.4	4.1	0.9	81.5	16.6	12.8	2.4	47.9	3.4	5.4	0.09	11.84
COMPUTER SOFTWARE	EE021	3.3	1.1	3.6	26.8	4.6	10.8	7.9	43.6	8.3	8.2	0.04	11.88
BLENDERS	HK022	3.2	4.1	5.7	82.7	25.5	21.0	3.6	47.2	5.6	8.9	0.06	11.94
ROOM SIZE RUGS	HH011	3.2	2.5	6.6	36.3	10.4	17.5	11.1	60.2	11.9	13.5	0.12	12.06
RECORD CABINET, CURIO CABINET, BOOKCASE	HJ033	3.1	5.0	4.7	70.4	19.0	18.1	5.4	47.9	6.8	11.1	0.11	12.17
DIAPERS AND DIAPER LINERS	AF012	3.0	1.6	3.0	62.7	12.5	20.4	7.6	47.6	8.6	10.4	0.22	12.39
MEDICAL EQUIPMENT FOR GENERAL USE	MB022	2.7	0.9	0.0	58.6	6.2	15.3	6.3	53.1	6.9	7.3	0.05	12.45
TOWELS, WASH CLOTHS, BATH MATS	HH031	2.6	3.9	17.6	90.2	38.0	36.9	3.6	48.6	7.7	11.6	0.06	12.51
PIES, TARTS, TURNOVERS (EXCLUDING FROZEN)	FB044	2.6	1.5	18.7	60.2	12.1	20.5	8.2	55.5	9.0	11.2	0.06	12.57
BOOKS PURCHASED THROUGH BOOK CLUBS	RG021	2.6	2.6	0.0	19.4	6.4	10.3	8.3	67.9	8.6	9.3	0.12	12.68
BOOKS NOT PURCHASED THROUGH BOOK CLUBS	RG022	2.6	1.0	1.4	27.5	3.2	5.4	3.9	53.7	4.1	3.9	0.15	12.83

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
NEW MOTORCYCLES	TA012	2.5	1.5	0.0	14.9	4.4	7.5	6.4	44.0	6.6	6.9	3.30	16.14
PRERECORDED - VIDEO TAPES AND DISCS	RA041	2.5	0.8	0.0	33.6	7.0	11.8	7.8	44.3	8.2	8.3	0.10	16.24
FLATWARE	HL032	2.5	8.6	8.0	87.1	39.0	23.3	3.0	49.2	6.8	11.7	0.03	16.27
LIPSTICK, GLOSS, ROUGE	GB021	2.4	0.4	11.1	60.5	4.5	9.9	3.9	58.2	4.2	5.1	0.51	16.78
FILM	RD011	2.2	1.5	2.1	54.5	12.2	17.4	7.9	49.6	8.6	9.7	0.08	16.86
PAINT	HM011	2.1	0.8	0.0	59.6	12.1	16.1	6.5	60.8	7.0	9.3	0.06	16.92
FERTILIZER, WEED/PEST KILLERS, LAWN/GARDEN INSECTICIDES	HM022	2.1	0.5	0.0	44.3	5.5	9.0	5.0	48.5	5.2	5.7	0.22	17.14
HOUSEHOLD PAPER PRODUCTS	HN021	2.0	1.1	30.6	59.3	13.3	24.9	10.1	53.8	11.0	14.3	0.30	17.44
MEN'S UNDERWEAR	AA021	2.0	1.0	5.0	80.1	16.8	25.8	5.1	49.7	6.1	6.7	0.13	17.56
SHOCK ABSORBERS AND MACPHERSON STRUTS	TD021	1.9	1.1	10.3	5.0	2.1	11.3	10.7	66.3	10.9	10.7	0.71	18.27
FRESH ROLLS, BISCUITS, AND MUFFINS	FB021	1.8	0.9	13.6	54.0	8.3	15.6	7.2	59.7	7.6	8.6	0.20	18.48
COLORING	GB011	1.8	0.5	30.8	65.1	10.1	19.7	6.9	53.2	7.4	10.2	0.14	18.61
UNPOWERED BOATS	RC012	1.7	6.4	4.2	33.4	14.8	16.6	11.1	54.7	11.8	9.4	0.09	18.70
PRERECORDED - RECORDS, COMPACT DISCS, AND TAPES	RA061	1.6	0.9	3.4	50.0	7.3	11.9	6.0	56.0	6.2	6.1	0.20	18.90
AUTOMOBILE BATTERIES	TC021	1.3	0.4	8.7	20.7	3.1	11.0	8.7	60.4	8.9	8.5	0.19	19.09
CAKES AND CUPCAKES (EXCLUDING FROZEN)	FB031	1.3	0.3	24.1	52.0	6.3	13.1	6.3	59.7	6.5	7.4	0.16	19.24
INTERNAL AND RESPIRATORY OVER-THE- COUNTER DRUGS	MB011	1.2	0.4	12.1	49.4	6.7	15.5	7.9	56.5	8.1	9.0	0.36	19.60
MISCELLANEOUS PAPER, PLASTIC, FOIL PRODUCTS	HN031	1.2	0.9	10.5	61.8	11.5	19.4	7.4	55.5	7.8	10.2	0.36	19.96
TURKEY (EXCLUDING CANNED)	FF021	1.2	1.1	7.9	45.6	13.1	25.9	14.1	53.0	14.6	12.2	0.16	20.12
TOPICALS AND DRESSINGS	MB021	1.2	0.3	14.3	43.3	3.8	11.9	6.7	57.7	6.9	7.3	0.07	20.18
DENTAL PREPARATIONS	GB012	1.1	1.0	8.3	60.7	9.4	15.5	6.1	55.8	6.4	9.2	0.12	20.30
NONFROZEN NONCARBONATED JUICES AND DRINKS	FN031	1.1	1.1	24.1	60.4	19.8	29.4	11.7	53.3	12.4	15.5	0.44	20.74
TIRES	TC011	1.0	2.3	11.9	24.8	14.0	29.7	22.3	60.3	22.9	24.1	0.35	21.09
POWDERS, CRYSTALS, TABLETS, MIXES, AND SYRUPS	FP022	1.0	0.4	14.1	50.6	10.3	13.8	6.8	57.1	7.0	8.4	0.11	21.20
SOAPS AND DETERGENTS	HN011	0.8	1.0	5.6	56.4	11.8	21.7	9.4	54.1	9.8	11.3	0.32	21.52
PREPARED SALADS	FT061	0.8	0.3	9.1	58.2	7.7	16.8	7.0	59.0	7.2	7.9	0.06	21.57
DOGS	RB012	0.8	2.1	7.1	41.5	5.5	7.1	4.1	63.4	4.3	4.8	0.22	21.80
DOG FOOD	RB011	0.8	0.3	10.0	68.3	11.5	21.5	6.8	53.8	7.1	10.2	0.36	22.15

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
SAUCES AND GRAVIES	FT043	0.7	0.6	12.5	57.7	14.2	23.3	9.9	54.1	10.2	12.1	0.19	22.35
HAM (EXCLUDING CANNED)	FD021	0.7	0.9	11.5	46.6	18.6	35.7	19.0	51.5	19.6	17.3	0.18	22.52
CANNED FISH AND SEAFOOD	FG021	0.7	0.7	12.9	57.1	16.6	26.2	11.2	52.9	11.6	13.4	0.20	22.72
MULTIPLE COURSES FROZEN/FREEZE DRIED FOODS	FT021	0.7	0.8	22.8	62.6	21.1	31.6	11.8	52.7	12.4	15.6	0.30	23.02
BABY FOOD	FT051	0.7	0.6	16.0	34.7	8.9	18.9	12.3	59.4	12.5	12.8	0.14	23.16
SWEETROLLS, COFFEE CAKE AND DOUGHNUTS (EXCLUDING FROZEN)	FB042	0.7	0.5	14.3	57.5	8.2	14.4	6.1	58.9	6.3	8.1	0.11	23.27
NEWSPAPER AND MAGAZINE SUBSCRIPTIONS	RG012	0.7	0.3	2.3	24.1	2.7	5.8	4.4	65.6	4.5	4.4	0.40	23.67
FLOUR	FA011	0.7	0.4	12.9	55.6	13.9	25.8	11.5	55.1	11.8	12.8	0.10	23.77
RICE	FA031	0.6	0.5	17.5	57.1	13.7	23.1	9.9	54.0	10.1	11.8	0.21	23.98
LUNCHMEATS (EXC BLGNA/LVWRST/SALMI)	FE012	0.6	0.6	15.6	59.5	14.3	25.0	10.1	54.7	10.5	12.3	0.17	24.14
FROZEN BAKERY PROD & FROZEN/REFRIG DOUGHS/BATTERS	FB043	0.6	1.1	12.7	56.2	16.0	28.2	12.3	54.8	12.8	15.6	0.11	24.25
WHISKEY AT HOME	FW021	0.6	0.7	7.7	44.1	15.6	19.3	10.8	58.7	11.0	10.2	0.15	24.40
RECLINERS	HJ022	0.6	10.1	8.0	82.5	37.9	26.3	4.6	49.3	8.2	14.1	0.21	24.61
CRACKERS	FB041	0.6	0.8	27.2	66.3	23.3	35.8	12.0	53.0	12.7	15.7	0.12	24.73
SPANISH/MEXICAN FOODS	FT062	0.6	0.6	18.0	64.3	15.6	25.0	8.9	54.0	9.2	12.4	0.38	25.11
CEREAL	FA021	0.6	0.6	22.8	54.7	13.6	26.1	11.8	56.8	12.1	15.6	0.43	25.55
CANDY AND CHEWING GUM	FR021	0.6	0.3	15.3	61.4	8.6	14.9	5.7	55.5	5.9	7.6	0.31	25.86
POWDERED/EVAPORATED/CONDENSED MILK	FJ041	0.6	1.4	15.2	55.4	16.2	25.9	11.6	55.5	12.0	14.6	0.22	26.08
ROASTED COFFEE	FP011	0.6	0.6	7.9	48.9	13.6	26.4	13.5	48.8	13.8	15.5	0.20	26.28
TEA	FP021	0.6	0.7	8.7	57.0	13.0	20.7	8.9	54.5	9.1	11.1	0.07	26.35
FROZEN NONCARBONATED JUICES AND DRINKS	FN021	0.6	0.7	13.4	62.1	19.9	27.2	10.3	54.1	10.7	13.7	0.08	26.43
INDOOR PLANTS	HL021	0.6	0.4	0.0	34.3	6.1	12.9	8.5	53.2	8.6	8.2	0.21	26.64
ROPE	HM013	0.5	0.2	0.0	31.7	2.5	9.3	6.3	59.8	6.4	5.7	0.07	26.71
COOKIES	FB032	0.5	0.9	19.7	70.2	20.4	32.1	9.6	53.2	10.1	13.1	0.21	26.92
FRANKFURTERS	FE011	0.5	0.5	26.8	57.0	17.6	32.1	13.8	55.2	14.2	16.8	0.16	27.08
PHOTOGRAPHER'S FEES	RD021	0.5	2.6	5.7	13.8	6.5	9.5	8.2	72.4	8.2	9.1	0.09	27.17
ICE CREAM AND RELATED PRODUCTS	FJ031	0.5	0.8	22.0	61.6	20.9	32.9	12.7	54.3	13.1	17.4	0.25	27.41
SALAD DRESSING	FS021	0.5	0.4	24.8	63.8	17.1	27.9	10.1	53.9	10.4	13.7	0.11	27.53
OTHER BEEF	FC041	0.5	0.5	14.4	36.8	14.1	33.1	21.0	54.4	21.2	17.3	0.07	27.60
COLLEGE TEXTBOOKS	EA011	0.5	0.6	10.3	1.5	1.2	12.8	12.6	78.1	12.6	11.4	0.14	27.74

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
POTATO CHIPS AND OTHER SNACKS	FT031	0.5	0.9	18.2	70.6	20.2	26.0	7.6	53.2	8.0	11.5	0.38	28.12
CURTAINS AND DRAPES	HH021	0.5	4.5	4.3	87.4	32.9	21.8	2.7	49.0	4.1	9.9	0.08	28.19
WHITE BREAD	FB011	0.5	0.4	15.4	58.8	13.9	23.7	9.8	57.9	10.0	11.6	0.40	28.59
DEODORANT, ANTIPERSPIRANT	GB013	0.5	0.2	0.0	65.6	7.8	16.3	5.6	53.7	5.7	7.8	0.12	28.71
UNCOOKED GROUND BEEF	FC011	0.5	1.0	15.2	39.8	19.1	41.6	25.0	56.1	25.5	20.8	0.39	29.11
OTHER INFORMATION SERVICES	EE031	0.4	0.7	0.0	7.1	1.9	2.2	2.1	65.5	2.1	2.0	0.03	29.13
DRIED AND PROCESSED FRUIT	FM031	0.4	0.4	14.2	48.1	8.6	18.6	9.6	56.6	9.8	10.8	0.06	29.20
FROZEN FRUITS	FM021	0.4	0.5	15.0	63.7	18.0	28.7	10.4	54.7	10.7	13.7	0.14	29.34
JELLY, JAM, PRESERVES, MARMALADE, FRUIT BUTTER	FR031	0.4	0.4	10.9	59.6	13.5	23.1	9.3	54.7	9.5	11.3	0.11	29.45
CIGARETTES	GA011	0.4	0.7	12.4	31.0	36.1	33.6	23.2	61.3	23.5	26.5	1.71	31.16
AUTOMOBILE SERVICE CLUBS	TF032	0.4	0.0	0.0	42.9	4.6	7.6	4.3	68.3	4.3	5.4	0.05	31.21
APPLES	FK011	0.4	0.5	13.9	33.7	15.2	38.6	25.6	53.9	25.9	19.5	0.14	31.35
FRESH WHOLE CHICKEN	FF011	0.4	0.5	14.2	52.7	17.8	35.1	16.6	53.2	16.9	14.2	0.51	31.86
ROUND STEAK	FC031	0.3	0.5	17.6	40.4	20.9	47.0	28.0	54.0	28.4	23.0	0.39	32.25
FOOD AT EMPLOYEE SITES AND SCHOOLS	FV031	0.3	0.0	0.0	3.1	0.1	2.9	2.9	78.7	2.9	2.6	0.91	33.16
CHUCK ROAST	FC021	0.3	0.6	22.7	46.3	24.3	48.3	25.9	53.8	26.4	22.6	0.19	33.35
BANANAS	FK021	0.3	0.3	24.8	53.4	15.8	29.0	13.5	51.1	13.7	12.8	0.15	33.49
SOUP	FT011	0.3	0.5	17.7	55.1	14.2	23.4	10.5	55.0	10.7	13.6	0.15	33.64
LARD AND SHORTENING	FS032	0.3	0.3	17.7	50.7	14.0	24.1	11.9	56.0	12.0	13.1	0.11	33.75
FRESH WHOLE MILK (UNFLAVORED)	FJ011	0.3	0.9	17.9	12.7	8.0	37.3	32.6	58.4	32.7	28.5	0.56	34.31
BACON AND RELATED PRODUCTS	FD011	0.3	0.4	19.2	46.1	16.0	34.1	18.4	55.3	18.6	19.8	0.27	34.58
FRESH FISH	FG011	0.3	0.6	13.1	43.8	20.4	36.3	20.4	52.5	20.7	16.1	0.27	34.85
COMMUNITY ANTENNA OR CABLE TV	RA021	0.3	0.1	0.0	3.7	1.0	12.8	12.4	72.1	12.4	12.5	1.26	36.11
OTHER CONDIMENTS (EXCLUDING OLIVES, PICKLES, RELISHES)	FT044	0.3	0.4	8.3	51.3	9.9	18.7	9.1	58.2	9.2	10.6	0.07	36.18
CIGARS	GA021	0.3	0.2	7.3	13.2	5.5	13.2	11.5	73.4	11.5	11.1	0.09	36.27
CANNED FRUIT	FM011	0.3	0.4	12.4	60.0	16.2	26.2	10.5	54.5	10.7	13.7	0.24	36.52
TOMATOES	FL031	0.3	0.6	17.7	15.9	18.7	59.8	50.3	52.2	50.6	36.3	0.12	36.63
MOTOR OIL	TC022	0.3	0.1	12.0	24.0	3.5	15.4	11.7	66.1	11.8	10.7	0.20	36.83
PORK ROASTS	FD041	0.2	0.6	16.3	41.5	23.3	46.6	27.3	51.7	27.6	22.0	0.16	36.99
COLA DRINKS	FN011	0.2	0.9	22.1	66.3	35.5	38.7	13.1	52.6	13.6	19.0	0.58	37.57
BEER, ALE, AND OTHER MALT BEVERAGES AT HOME	FW011	0.2	0.6	16.7	52.8	16.6	22.6	10.6	58.5	10.8	12.4	0.47	38.04

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
ORANGES, MANDARINS (TANGERINES) AND TANGELOS	FK031	0.2	0.9	19.6	16.6	15.9	39.9	33.3	53.9	33.5	26.3	0.19	38.23
LAMB AND MUTTON	FE013	0.2	0.3	0.0	39.2	9.1	21.4	13.0	55.6	13.1	11.1	0.13	38.36
SALT AND OTHER SEASONINGS AND SPICES	FT041	0.2	0.1	16.7	53.7	9.0	16.1	7.4	54.5	7.5	8.4	0.09	38.45
CLUB MEMBERSHIP DUES	RF011	0.2	0.1	20.0	31.8	6.6	12.6	8.6	69.2	8.6	10.0	0.92	39.37
SUGAR AND ARTIFICIAL SWEETENERS	FR011	0.2	0.2	11.1	55.9	12.9	22.5	9.9	54.5	10.0	10.5	0.10	39.47
OTHER FRESH VEGETABLES	FL041	0.2	0.4	24.6	24.6	15.0	43.5	32.8	51.8	32.9	23.8	0.37	39.84
PEANUT BUTTER	FS031	0.2	0.2	18.5	60.9	16.2	26.0	10.1	52.5	10.3	12.3	0.05	39.89
LETTUCE	FL021	0.2	0.4	19.4	17.9	13.1	49.6	40.8	50.9	40.9	28.6	0.08	39.98
CHEESE AND CHEESE PRODUCTS	FJ021	0.2	0.3	12.4	46.4	17.6	31.9	17.1	54.8	17.2	18.5	0.44	40.42
LIMITED SERVICE MEALS AND SNACKS	FV021	0.2	0.1	0.0	12.5	1.2	7.0	6.1	74.2	6.1	6.0	2.30	42.72
ADMIS. TO MOVIES, THEATERS, CONCERTS AND OTHER RECURRING EVENTS	RF021	0.1	0.1	0.0	1.2	0.3	9.1	9.0	80.0	9.0	8.7	0.78	43.51
BUTTER	FS011	0.1	0.4	14.3	36.5	16.5	38.3	24.3	55.1	24.5	24.6	0.13	43.63
OTHER FRESH FRUITS	FK041	0.1	0.5	24.2	19.9	24.8	62.2	49.9	52.3	50.1	37.7	0.31	43.94
RENTAL OF LODGING AWAY FROM HOME	HB021	0.1	0.3	16.1	2.4	3.1	42.8	41.7	52.2	41.8	35.2	3.38	47.31
CLUTCH REPAIR	TD031	0.1	0.0	0.0	0.3	0.1	16.9	16.8	70.9	16.8	16.3	1.35	48.67
OLIVES, PICKLES, RELISHES	FT042	0.1	0.0	0.0	65.7	15.3	24.6	8.4	54.5	8.5	11.2	0.05	48.72
PORK CHOPS	FD031	0.1	0.3	16.7	39.5	23.6	50.3	30.4	52.2	30.5	22.8	0.17	48.89
EGGS IN SHELL	FH011	0.1	0.2	24.7	8.3	8.8	51.9	47.6	53.4	47.6	36.7	0.14	49.03
POTATOES	FL011	0.0	0.1	13.3	27.3	14.7	40.7	29.6	53.3	29.6	23.0	0.14	49.17
BOTTLED OR TANK GAS	HE021	0.0	0.0	10.0	0.3	0.7	38.0	37.9	62.7	37.9	33.7	0.12	49.29
PRESCRIPTION DRUGS	MA011	0.0	0.0	0.0	0.3	0.1	15.1	15.0	76.5	15.0	14.0	1.20	50.49
MIDGRADE UNLEADED GASOLINE	TB012	0.0	0.0	40.0	0.0	0.3	87.6	87.6	53.5	87.6	73.5	1.69	52.18
REGULAR UNLEADED GASOLINE	TB011	0.0	0.0	40.0	0.0	0.2	88.6	88.6	53.0	88.6	74.4	1.69	53.87
PREMIUM UNLEADED GASOLINE	TB013	0.0	0.0	44.4	0.1	0.5	87.0	86.9	53.4	86.9	72.6	1.69	55.56
UTILITY PAIL	HN012	0.0	0.1	0.0	59.2	3.9	9.1	3.7	47.8	3.7	5.1	0.24	55.80
ELEMENTARY AND HIGH SCHOOL BOOKS AND SUPPLIES	EA012	0.0	0.0	0.0	0.0	0.1	5.5	5.5	65.5	5.5	4.2	0.08	55.87
FULL COLLEGE TUITION AND FIXED FEES	EB011	0.0	0.0	0.0	0.0	0.0	5.8	5.8	85.9	5.8	5.8	1.58	57.46
ELEMENTARY AND HIGH SCHOOL TUITION AND FIXED FEES	EB021	0.0	0.0	0.0	0.0	0.0	6.2	6.2	85.5	6.2	6.2	0.48	57.94
DAY CARE AND NURSERY SCHOOL	EB031	0.0	0.0	0.0	0.0	0.0	6.9	6.9	86.4	6.9	6.7	1.28	59.22

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
TECHNICAL AND BUSINESS SCHOOL TUITION AND FIXED FEES	EB041	0.0	0.0	0.0	0.0	0.0	9.2	9.2	82.5	9.2	8.8	0.07	59.29
FIRST CLASS MAIL	EC011	0.0	0.0	0.0	0.0	0.0	3.5	3.5	93.3	3.5	3.5	0.28	59.57
DELIVERY SERVICES	EC021	0.0	0.0	0.0	0.1	0.0	29.4	29.3	76.7	29.3	26.6	0.01	59.57
MAIN STATION CHARGES	ED011	0.0	0.0	0.0	0.0	0.0	28.4	28.4	63.9	28.4	27.6	1.50	61.07
INTERSTATE TELEPHONE SERVICES	ED021	0.0	0.0	0.0	0.0	0.0	41.9	41.9	38.1	41.9	34.8	1.50	62.58
CELLULAR TELEPHONES	ED031	0.0	0.0	0.0	0.0	0.0	13.0	13.0	44.6	13.0	11.7	0.07	62.65
FULL SERVICE MEALS AND SNACKS	FV011	0.0	0.0	0.0	1.7	0.1	5.1	5.0	81.4	5.0	4.8	4.15	66.79
CANDY/GUM/CRACKERS/PASTRIES/CHIPS/SIMILAR ITEMS	FV041	0.0	0.0	0.0	0.0	0.0	1.7	1.7	82.2	1.7	1.7	0.30	67.09
BOARD	FV051	0.0	0.0	0.0	2.0	0.4	5.5	5.4	78.8	5.4	5.5	0.24	67.34
BEER, ALE, AND OTHER MALT BEVERAGES AWAY FROM HOME	FX011	0.0	0.0	0.0	4.1	0.2	5.2	5.0	74.5	5.0	4.5	0.50	67.83
BEAUTY PARLOR SERVICES FOR FEMALES	GC011	0.0	0.0	0.0	2.4	0.1	3.1	3.1	80.5	3.1	2.9	1.36	69.20
LEGAL SERVICES	GD011	0.0	0.0	0.0	0.0	0.0	1.6	1.6	96.2	1.6	1.6	0.48	69.68
FUNERAL EXPENSES	GD021	0.0	0.0	0.0	0.0	0.0	8.9	8.9	82.8	8.9	8.9	0.49	70.17
COIN-OPERATED APPAREL LAUNDRY AND DRY CLEANING	GD031	0.0	0.0	0.0	9.8	0.7	3.3	3.0	75.1	3.0	2.9	0.30	70.47
SHOE REPAIR AND OTHER SHOE SERVICES	GD041	0.0	0.0	0.0	0.0	0.0	3.8	3.8	80.0	3.8	3.8	0.03	70.50
WOMEN'S AND GIRLS' CLOTHING ALTERATIONS AND REPAIRS	GD042	0.0	0.0	0.0	4.9	0.8	4.0	3.8	61.6	3.8	3.3	0.04	70.54
REPLACEMENT OF SETTING FOR WOMEN'S RINGS	GD043	0.0	0.0	0.0	0.0	0.0	5.4	5.4	58.2	5.4	4.7	0.02	70.56
PERIODIC CHK ACT FEES, TRANS FEES, PERS CHKS	GD051	0.0	0.0	0.0	0.0	0.0	3.5	3.5	75.8	3.5	3.0	0.20	70.75
TAX RETURN PREPARATION AND OTHER ACCOUNTING FEES	GD052	0.0	0.0	0.0	0.0	0.0	5.5	5.5	88.6	5.5	5.5	0.25	71.00
CARE OF INVALIDS, ELDERLY AND CONVALESCENTS IN THE HOME	GD061	0.0	0.0	0.0	0.0	0.0	2.8	2.8	88.6	2.8	2.8	0.15	71.15
HOUSING AT SCHOOL, EXCLUDING BOARD	HB011	0.0	0.0	0.0	0.0	0.0	4.7	4.7	91.7	4.7	4.7	0.33	71.48
TENANTS' INSURANCE	HD011	0.0	0.0	0.0	0.0	0.0	7.9	7.9	76.8	7.9	7.8	0.51	71.99
FUEL OIL	HE011	0.0	0.0	0.0	0.0	0.2	68.0	68.0	59.3	68.0	60.4	0.34	72.33
ELECTRICITY	HF011	0.0	0.0	0.0	0.0	0.0	38.1	38.1	53.1	38.1	36.8	3.41	75.75
UTILITY NATURAL GAS SERVICE	HF021	0.0	0.0	0.0	0.0	0.0	72.4	72.4	57.0	72.4	70.6	1.45	77.19
WATER AND SEWERAGE SERVICE	HG011	0.0	0.0	0.0	0.0	0.0	10.7	10.7	72.4	10.7	10.4	0.94	78.13

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
GARBAGE/TRASH COLLECTION	HG021	0.0	0.0	0.0	0.0	0.0	9.4	9.4	75.2	9.4	9.0	0.35	78.48
DOMESTIC SERVICES	HP011	0.0	0.0	0.0	0.0	0.0	4.3	4.3	78.3	4.3	4.1	0.45	78.93
GARDENING OR LAWN CARE SERVICES	HP021	0.0	0.0	0.0	0.0	0.0	7.8	7.8	76.6	7.8	7.8	0.38	79.31
MOVING, STORAGE, FREIGHT EXPRESS	HP031	0.0	0.0	0.0	1.9	0.3	10.7	10.5	70.3	10.5	10.0	0.15	79.46
APPLIANCE REPAIR	HP041	0.0	0.0	0.0	0.0	0.0	11.1	11.1	80.4	11.1	11.1	0.03	79.49
REUPHOLSTERY OF FURNITURE	HP042	0.0	0.0	0.0	0.0	0.0	8.4	8.4	78.5	8.4	7.5	0.05	79.54
INSIDE HOME MAINTENANCE AND REPAIR SERVICES	HP043	0.0	0.0	0.0	20.3	2.3	11.5	9.2	65.6	9.2	10.6	0.07	79.60
SUPPORTIVE MEDICAL EQUIPMENT	MB023	0.0	0.0	0.0	29.8	2.7	8.7	6.1	66.2	6.1	6.0	0.06	79.67
GENERAL MEDICAL PRACTICE	MC011	0.0	0.0	0.0	0.0	0.0	3.4	3.4	67.7	3.4	3.0	2.06	81.73
PHYSICAL MEDICINE	MC041	0.0	0.0	0.0	0.0	0.0	2.4	2.4	85.7	2.4	2.3	0.37	82.10
HOSPITAL SERVICES	MD011	0.0	0.0	0.0	0.0	0.0	6.3	6.3	85.5	6.3	6.2	1.87	83.97
NURSING AND CONVALESCENT HOME CARE	MD021	0.0	0.0	0.0	0.0	0.0	5.7	5.7	89.4	5.7	5.6	0.07	84.04
RENTAL OF VIDEO TAPES AND DISCS	RA042	0.0	0.0	0.0	0.0	0.6	10.0	10.0	58.6	10.0	7.8	0.13	84.17
PET SERVICES	RB021	0.0	0.0	0.0	0.0	0.0	5.8	5.8	74.1	5.8	5.8	0.16	84.33
VETERINARIAN SERVICES	RB022	0.0	0.0	0.0	0.0	0.0	8.7	8.7	89.1	8.7	8.5	0.18	84.51
FILM PROCESSING	RD022	0.0	0.0	0.0	9.0	1.4	10.7	9.7	53.3	9.7	8.3	0.12	84.63
ADMISSION TO SPORTING EVENTS	RF022	0.0	0.0	0.0	12.6	1.5	6.6	5.8	78.1	5.8	6.4	0.31	84.94
SINGLE COPY NEWSPAPERS AND MAGAZINES	RG011	0.0	0.0	0.0	4.2	0.3	5.6	5.4	65.5	5.4	4.1	0.15	85.09
SUBCOMPACT CARS	TA011	0.0	0.0	0.0	0.0	0.0	31.3	31.3	36.0	31.3	29.2	3.33	88.42
USED CARS	TA021	0.0	0.0	0.0	0.0	0.0	100.0	100.0	66.3	100.0	100.0	2.56	90.98
VEHICLE LEASING	TA031	0.0	0.0	0.0	0.0	0.0	42.4	42.4	49.4	42.4	41.8	0.94	91.92
AUTOMOTIVE DIESEL FUEL	TB021	0.0	0.0	0.0	0.0	0.1	67.1	67.1	59.1	67.1	57.1	0.02	91.94
ALTERNATIVE AUTOMOTIVE FUELS	TB022	0.0	0.0	0.0	0.0	0.0	23.4	23.4	64.8	23.4	23.4	0.02	91.95
PAINTING ENTIRE MOTOR VEHICLE	TD011	0.0	0.0	0.0	0.0	0.0	14.4	14.4	67.0	14.4	14.0	0.16	92.12
MOTOR VEHICLE INSURANCE	TE011	0.0	0.0	0.0	0.0	0.0	8.2	8.2	63.6	8.2	8.1	3.37	95.49
STATE VEHICLE REGISTRATION	TF011	0.0	0.0	0.0	0.0	0.0	2.6	2.6	77.7	2.6	2.4	0.29	95.78
LOCAL AUTOMOBILE REGISTRATION	TF012	0.0	0.0	0.0	0.0	0.0	1.9	1.9	92.3	1.9	1.9	0.29	96.07
PARKING FEES	TF031	0.0	0.0	0.0	0.0	0.0	2.9	2.9	78.5	2.9	2.6	0.23	96.30
AIRLINE FARE	TG011	0.0	0.0	0.0	0.0	0.0	59.8	59.8	58.7	59.8	53.7	1.33	97.62
INTERCITY BUS FARE	TG021	0.0	0.0	0.0	0.4	0.4	27.9	27.8	63.0	27.8	23.7	0.05	97.68
INTERCITY TRAIN FARE	TG022	0.0	0.0	0.0	0.0	0.0	24.1	24.1	66.7	24.1	19.6	0.10	97.77
INTRACITY MASS TRANSIT	TG031	0.0	0.0	0.0	0.0	0.0	2.3	2.3	82.8	2.3	2.3	0.33	98.11

Table: Frequency of Clearance Sales by Category for 1998-2005 (continued)

Category Name	ELI	Clearance Sales			Sales		Price Changes			Reg+Clear	Sales filter	weight	CDF
		Frac.P.Ch	Frac.Obs	Frac.Up	Frac.P.Ch	Frac.Obs.	Freq.	Freq.Reg.	Frac.Up	Freq.	5B		
TAXI FARE	TG032	0.0	0.0	0.0	0.0	0.0	4.4	4.4	86.1	4.4	4.4	0.10	98.21
AUTOMOBILE RENTAL	TA041	0.0	0.1	11.1	0.6	0.9	56.4	56.1	51.3	56.1	50.3	0.19	98.40
PROSTHODONTICS AND IMPLANTS	MC021	0.0	0.0	0.0	0.0	0.0	4.5	4.5	92.0	4.5	4.4	1.19	99.60
FEES FOR LESSONS OR INSTRUCTIONS	RF031	0.0	0.5	0.0	8.8	1.2	3.6	3.3	92.1	3.3	3.3	0.31	99.91
SHIP FARES	TG023	0.0	3.9	3.8	0.0	11.3	29.8	30.2	49.4	29.5	28.2	0.09	100.00

The first panel presents statistics on frequencies of clearance sales in percent per month. In this panel, "Frac. P. Ch" denotes the fraction of all price changes associated with clearance sales, "Frac. Obs" gives the fraction of all price observations that are associated with clearance sales and "Frac. Up" gives the fraction of price changes during clearance sales that are price increases. The second panel presents statistics on the frequency of all sales. "Frac. P. Ch." denotes the fraction of all price changes associated with sales. "Frac. Obs" gives the fraction of all price observations that are associated with sales. The third panel gives the frequency of price change with and without sales. "Freq" gives the frequency of all price changes. "Freq. Reg" gives the frequency of regular price changes. "Frac. Up" gives the fraction of price changes that are price increases. "Reg+Clear Freq" gives the frequency of price change excluding all sales except for clearance sales. "Sales filter 5B" gives the frequency of price change when sale filter B (excluding only V-shaped price paths) is applied with a window of five months. "Weight" denotes the expenditure weight of the ELI. "CDF" denotes the cumulative distribution function of the weights.