

Movement of the Japanese CPI – High Frequent Indexes Based on Daily Scanner Data*

-Very preliminary. Please don't cite without authors' permission.-

Naohito Abe[†] Akiyuki Tonogi[‡]

June 19, 2007

Abstract

Using daily scanner data, we analyze the price-setting behaviors of Japanese retail shops. Special attention was paid to identifying bargain sales and regular prices. Our findings are as follows: (1) prices change very frequently; (2) the frequency varies greatly among both products and stores; (3) even excluding price changes related to bargain sales, prices are much more flexible than previous estimates, based on monthly data; (4) the frequency of price changes is not constant over time, but is increasing; (5) a Consumer Price Index (CPI) based on scanner data is slightly more volatile than the official CPI based on monthly surveys. The results suggest that the estimates of price change frequency based on monthly data underestimate the frequency to a large extent.

1 Introduction

The degree to which prices are sticky is one of the key parameters when evaluating the effects of monetary policy. In both time-dependent models, such as those by Taylor (1980) and Calvo (1983), and state-dependent models, such as those by Caplin and Spulber (1987) and Lucas and Golosov (2007), a crucial ingredient of price dynamics is the reluctance or inability of price setters to change their prices. As such models assume that individual prices are sticky, quite naturally, an increasing number of researchers of price behavior have used micro data to investigate the frequency of price adjustment.¹

*This research is supported by the Japan Society for the Promotion of Sciences. We thank Nikkei and RDS for providing the data.

[†]Institute of Economic Research, Hitotsubashi University. E-mail: nabe@ier.hit-u.ac.jp. Phone:+81-425-80-8347. Fax: +81-425-80-8333.

[‡]Graduate School of Economics, Hitotsubashi University.

¹The number of paper of micro price dynamics is increasing. See Alvarez, Burriel et al. (2005), Alvarez, Dyhine et al. (2005), Bahard and Eden (2004), Chevakuerm et al. (2003), Dias et al, (2005) for recent progress.

So far, many empirical analyses of price dynamics have used monthly data. Bills and Klenow (2004) and Nakamura and Steinsson (2007) used monthly data in the U.S., Dhyne et al. (2005) used monthly data in the Euro area, and Saita et al. (2006) used Japanese monthly data. Although these authors' estimates of the frequency of price changes differ from each other, the estimated monthly frequencies are generally smaller than 0.33, implying that prices do not change for three months on average. Recently, Kehoe and Midrigan (2007) utilized weekly data on one food retail chain in Chicago and found that the weekly frequency of price changes was 0.33, suggesting that the average duration for which prices remain unchanged is about three weeks. Although the estimates by Kehoe and Midrigan are based on one particular chain, Dmonick's Finer Foods in Chicago, the large difference between their estimates based on weekly data and the previous results based on monthly data suggest that using data with a higher frequency is desirable.

In this paper, we use daily point-of-sales (scanner) data from many retail shops all over Japan. The data covers a period of approximately 20 years, and thus contains information from the times the Japanese economy was in a bubble, as well as the decade-long recession and deflation. Figure 1 shows the movement of the growth rate of the Japanese Consumer Price Index (CPI). As is obvious from the figure, the Japanese economy experienced inflation in the late 1980's and early 1990's. During the early 2000's, the Japanese economy went through deflation.² As our data cover the period between 1987 and 2006, we are able to capture price-setting behavior during periods when huge macroeconomic were occurring.

The data reveal that (1) prices are very flexible, and (2) price movements for the same product differ greatly between retail shops. Figure 2, 3, and 4 illustrate the movements of price and the number of units sold of Nissin's Cup Noodle in three typical stores in our datasets between September 1, 2005 and December 31, 2005. Cup Noodle is well known and has been adopted as one of the components of the Japanese CPI compiled by the Statistics Bureau. The store illustrated in Figure 2 frequently changed the price, although without following a clear pattern, whereas the store in Figure 3 did not change the price at all. The store in Figure 4 changed the price periodically. The heterogeneity in price-setting behavior among stores for the same product is very strong. Occasionally, two stores in the same chain exhibit very different pricing patterns.

Although it is difficult to "aggregate" such heterogenous movements of prices across stores and products, in this paper we attempt to draw macroeconomic implications from large, high frequency datasets. Our basic findings are as follows;

(1) Prices change very frequently. Most products change their prices within a week.

²Partly inspired by the Boskin reports (Advisory Commission to Study the Consumer Price Index, 1996) many academic and nonacademic researchers have serious doubts about the precision of the CPI. Shiratsuka (1998) and (1999) provided excellent surveys on the possible bias of the Japanese CPI. Saison Research Institute (2001) reported their own estimate of the CPI based on Point-Of-Sales (POS) data.

- (2) The frequency varies greatly between products and stores.
- (3) Even excluding price changes related to bargain sales, prices are much more flexible than indicated by previous estimates based on monthly data.
- (4) The frequency of price changes is not constant over time, but is increasing.
- (5) A CPI based on our data shows higher volatility than the official CPI based on monthly surveys.

The results suggest that the estimates of price change frequency based on monthly data underestimate the frequency to a large extent. Our results cast doubts on the standard assumption adopted by many models that the aggregate price is sticky because individual prices are sticky. Rather, our results raise the question of why the aggregate price is sticky although individual prices are not.

The paper is organized as follows. The next section provides a brief description of the data. Section 3 discusses the frequency of price changes and sales. Section 4 explores the implication of our estimates of price dynamics for the Japanese CPI. The final section concludes the paper.

2 The Data

We use two point-of-sales (POS) datasets compiled by Nikkei Digital Media (Nikkei-POS) and the Distribution Systems Research Institute (RDS-POS). Both datasets contain daily store-level data from many retail shops all over Japan on both prices and the number of units sold.

2.1 RDS-POS

The RDS is a non-profit organization in charge of managing the Universal Product Code, known in Japan as the Japanese Article Number (JAN) code, which has been used as the means to identify products and record transactions by scanner readers.

The sample period covered by RDS-POS is from January 3, 1987 to April 2, 2006. The dataset contains daily sales information on many retailers such as general merchandising store (GMS), food supermarkets, and small convenience stores all over Japan. With the dataset, we can obtain information on the daily movements of, for example, the number of 500ml Diet Cokes sold and the prices at which they were sold at a particular store. The number of products covered by RDS-POS is over three million, and the total number of observations is more than two and half billion. As RDS data contain many products without JAN codes,³ we use the product master provided by Nikkei to identify category and other product characteristics, which results in 981,188 products and 1.85 billion observations. Table 1 summarizes the basic information on RDS-POS.⁴ Tables

³Unfortunately, many perishable foods such as vegetables and fish are not assigned their own JAN codes. Usually, when a store sells a perishable food, such as cherries, the store uses its own code for the cherries. Generally, the code is not shared with other retail shops.

⁴Note that the data does not contain the observations for the fourth week of November, 1990, and the second, third, and fourth weeks of December, 2003.

2 and 3 show the distribution of the sample over the area and the types of shops.

2.2 Nikkei-POS

Nikkei is an abbreviation for Nihon Keizai Shinbun (Japan Economic Times newspaper). The company is one of the largest providers of economic datasets covering topics such as company information, stock prices, and macroeconomic data. Nikkei-POS is one of the company's commercial products.

Nikkei-POS includes 18 years of data covering the period from March 1, 1988 to December 31, 2005.⁵ The data provides similar information to RDS-POS, that is, daily transactions of many products by many retail shops, such as GMS and supermarkets, all over Japan.⁶ The number of products recorded exceeds one million. and the total number of observations is about three billion. Table 4 reports the locational distribution of the sample. Table 5 shows the basic characteristics of the data. Compared to RDS-POS, Nikkei-POS covers relatively large retailers.

Nikkei-POS contains the JAN code as one of the identifiers of each product. In principle, the JAN code should be a unique product identifier, that is, different products should have different JAN codes. In reality, some companies use the same JAN code for similar but different products. To deal with this problem, Nikkei creates an additional identifier, the generation code, for each JAN code. We use a combined product code that is a mixture of the JAN code and the generation code.⁷

2.3 Selection of Commodities

Both RDS-POS and Nikkei-POS contain many kinds of products, such as coffee beans, CD-Rs, rice, etc. We restrict our sample to six product categories—tofu (bean curd), natto (fermented beans), butter, milk, instant noodles, and beverage— for two reasons. The first reason relates to the frequency of transactions. Many items are not sold every day. For example, CD-R transactions are not frequent in supermarkets. Our dataset shows that the six product types we chose are sold in all retailers almost every day. The second reason is the size of the datasets. Both POS datasets are large in size and contain over 100 gigabytes each. Because of the limitations of computer memory size, we need to reduce the sample.

⁵Unfortunately, the data does not contain observations for November and December 2003.

⁶No stores appear in both RDS-POS and Nikkei-POS.

⁷Unfortunately, RDS-POS does not contain the generation code, which implies that if we use only the JAN code to identify products, we might treat different products as the same product. To avoid this problem, we first identify products that the Nikkei product master indicates may use a JAN code that is also used for similar but different products. Second, we drop all such products from RDS-POS. Third, we use JAN code to identify products in RDS-POS.

3 The Frequency of Price Changes

Figures 5 and 6 show the frequencies of price changes in Nikkei-POS and RDS-POS, respectively. The graphs show the movements of the means of dummy variables that take a value of unity when the price of a day is different from the price for the day before. That is, a number of 0.25 implies that about a quarter of the products experienced a change in prices in a day. Tables 6 and 7 show the average spells of prices during which prices remain unchanged, while Figures 7 and 8 show the standard deviations of the frequencies across stores for Nikkei-POS and RDS-POS, respectively. RDS-POS exhibits relatively larger standard deviations because the data covers more heterogeneous shops than does Nikkei-POS. We can observe several characteristics of Japanese price-setting behavior from the figures, as follows.

1. Prices change very frequently. Many products experience a price change within a week. Although RDS-POS shows generally longer spells between price changes, most products change their prices within a month.
2. There are upward trends in the frequency of price changes.
3. The frequencies of price changes vary greatly between commodities. Tofu, natto, and milk exhibit relatively higher frequencies, whereas prices of tea and butter are more sticky.
4. The standard deviations of price changes among stores are large, implying very heterogeneous price-setting behavior among stores.

Those observations differ significantly from the previous estimations. For example, Bils and Klenow (2007) and Nakamura and Steinsson (2007) estimated the average spells during which prices remain unchanged to be about four to five months. Using Japanese data, Saita et al. (2006) showed that the average frequency of monthly price changes of goods is about 33.5%, that is, the average spell during which prices remain unchanged is about three months. Our estimates are substantially shorter than the previous results based on monthly data.

3.1 Bargain Sales

In this subsection, we investigate the price changes resulting from bargain sales. Recent papers by Nakamura and Steinsson (2007) and Kehoe and Midrigan (2007) emphasized the importance of bargain sales in the estimation of price change frequencies. For example, Nakamura and Steinsson (2007) pointed out that when they excluded bargain sales from their data, the average spell during which prices remain unchanged became twice as long as the estimates with bargain sales included. Unfortunately, neither the Nikkei and the RDS datasets indicate when bargain sales occurred explicitly. To identify sales, we use the weekly mode price for each commodity and store. Because the Japanese CPI

excludes bargain prices that do not last more than seven days, we adopt a one-week criteria for our identification of bargain sales. That is, the product is defined to be on sale when the price is below the weekly mode.⁸

Figures 9 and 10 show the frequencies of sales in Nikkei-POS and RDS-POS, respectively. The graphs show the movements of the means of the dummy variables that take a value of unity if the product is on sale. Again, we can observe upward trends in the sales frequencies. In addition, it is apparent that there is heterogeneity in sales frequencies among products. The sales frequencies of some commodities, such as tofu and milk, exceed 10% in both Nikkei-POS and RDS-POS, implying that the products are on sale once in a 10 days. In contrast, teas, coffees, and instant noodles are less likely to be on sale. For example, the sales frequencies of coffee mix in RDS-POS is 1% and constant over the sample period, implying that the product is on sale once in 100 days. Figures 11 and 12 report the average percentage price decline caused by sales for Nikkei and RDS, respectively. Both Nikkei-POS and RDS-POS show very similar patterns for most products. The average price decline is about 10–15% and constant over the sample period.

3.2 Regular Prices

Figures 13 and 14 reports the frequencies of the changes in the regular price, that is, weekly mode prices in our definition. Unlike the frequencies of price changes or sales, the heterogeneity among products is not as apparent in the weekly mode. Tables 8 and 9 show the average spells of weekly mode prices during which prices remain unchanged.⁹ Except for a few commodities, the average spell are between 20-60 days. Although the weekly mode prices are much more sticky than the prices with sales, compared to previous research, the weekly mode prices are very flexible. Similarly to the frequencies of price changes, there is strong heterogeneity among stores in the frequencies of changes in the regular prices. Figures 15 and 16 show the standard deviations of the regular price changes for Nikkei and RDS data, respectively. We can observe that the standard deviations are as large as the means of the frequencies.

3.3 The Importance of Sales

Figures 17 and 18 report the relative importance of sales for Nikkei and RDS data, respectively. The figures show the ratio of the amount of selling during bargain sales to the amount of total selling. Except for tea and some instant coffee, about 30% of selling come from bargain sales. Note that the official CPI excludes information on sales, which implies that the CPI misses information on 30% of total expenditures on the products.

⁸Sometimes, we encounter prices that are not integers, such as 112.54 yen. This might be caused by typing errors, price variations within a day, buy one-get-one free sales, etc. Because we cannot be sure of the reasons, we round all prices so that each price becomes an integer. We define sales as occurring if the price is smaller than the weekly mode by more than two yen to avoid identifying sales caused by rounding errors.

⁹By construction, the average spells are longer than seven days.

4 Implications for the CPI

In this section, we explore the implications of our estimation for the Japanese CPI. The CPI survey in Japan is conducted every month on the Wednesday, Thursday, or Friday of the week that includes the 12th day of the month. In the survey, in principle, bargain prices are excluded. As the CPI is a Laspeyres Index, the weight is altered only every five years. In other words, the CPI does not reflect how many products are sold at surveyed prices.

Because our data contain daily price movements as well as the number of units sold, we can construct daily Paasche indexes based on many items for each category. In other words, we can estimate the impact of bargain sales on the general price index.

4.1 The Price Gap

The gap between the regular price and the bargain price weighted by the actual sales amount is reported in Figures 19 and 20.¹⁰ If the gap is 100, there is no price difference between sales prices and regular prices. Except for tofu, natto, and tea, the two datasets exhibit similar patterns. The gaps fluctuate over time. For example, the gap for cup noodles became wider until the mid-1990s and shrank during the 2000s'. The gaps for natto and instant coffee has been constantly widening. As the CPI does not reflect price changes due to bargain sales, the information conveyed by the gap is not included in the official CPI. If the gap is not constant, it is possible that the CPI is unable to capture the changes in the price level created by the changes in sales behavior.

4.2 A CPI Based on Daily POS Data

Figure 21 shows the official CPI and our Paasche indexes based on Nikkei-POS. In the figure, we plot: (1) the official CPI (CPI); (2) our CPI based on the mode price, that is, the CPI without sales (Mode Price); and (3) our CPI based on POS with sales information (Actual Selling Price).¹¹ The CPI and mode prices are normalized to 100 in 1988. Note that the "actual selling price" reflects the price gap described in the previous subsection. In most categories and the aggregate price index, the three lines are parallel until 1991, suggesting that the official CPI and our indexes based on POS data do not differ between 1988 and 1991. However, a significant departure occurred in 1992. For example, the official CPI for instant noodles was stable between 1991 and 2001, whereas our indexes exhibit a persistent decline during that period. Because of the increase in the price gap between the mode price and the sales price, the departure between the mode price and the actual selling price increased until the early 2000s'.

¹⁰See the Appendix for the formal definition.

¹¹See the Appendix for the details.

Figure 22 reports the growth rate of several price indexes. We can observe several differences between the CPI and our Paasche indexes based on Nikkei-POS data.

1. The CPI based on POS data exhibits a slightly larger volatility than the official CPI.
2. Until 2001, the official CPI generally grew faster than our indexes.
3. Significant departures between the official CPI and our indexes occurred in 1992. For example, the official CPI for instant noodles show zero inflation during 1992–1997, whereas our indexes exhibit deflation during the same period. A similar pattern can be observed in many categories, except in the case of butter.
4. By including sales information, price indexes became more volatile. In Figure 22, the green lines matching the direction of the blue line implies that bargain sales strengthens the changes in our price index. For example, the deflation of milk prices during 1993–1994 was amplified by bargain sales.
5. After 2002, the discrepancies between the official CPI and our indexes became smaller. Our CPI tends to show a higher growth rate.

The above findings suggest that the Japanese CPI growth was overestimated in the early 1990's.

5 Concluding Remarks

In this paper, we have investigated Japanese price dynamics using a large daily datasets. We have found that: (1) prices are very flexible; (2) the frequency of price changes is increasing; (3) there is large heterogeneity in the frequency among both products and stores; (4) a CPI based on daily data exhibits higher volatility than the official CPI based on monthly data; (5) there is a possibility that the official Japanese CPI overestimated the increase in prices during the early 1990's. Our results cast doubts on the standard assumption adopted by many models that the aggregate price is sticky because individual prices are sticky. Rather, our research raises the question of why the aggregate price is sticky although individual prices are not.

This paper represents an initial step in a large, going project that will explore the large point-of-sales datasets. There are a number of remaining tasks, such as: (1) expansions of the number of product categories; (2) construction of a model consistent with our findings; and (3) estimation of hazard functions of price changes and elasticities, etc. In particular, to build a model that shows sticky aggregate prices with flexible individual prices is a primary task. We think that clarifying the process of determining the optimal price at the store level is the key to understanding this phenomenon of sticky aggregate prices with flexible individual prices.

A APPENDIX: Definitions and Procedures

A.1 The Quantity Weighted Average Price for an item $i \in I$ in a day td

The definition of the price of weighted average by sales quantity for an item $i \in I$ in a day td is

$$P_{i,td}^{Weight} = \sum_{s \in S} \frac{Q_{i,td}^s}{\sum_{s \in S} Q_{i,td}^s} P_{i,td}^s,$$

where $P_{i,td}^s$ is the price for the item $i \in I$ sold at the store $s \in S$ in the day td . $Q_{i,td}^s$ is the quantity for the item $i \in I$ sold at the stores $s \in S$ in the day td .

A.2 The Mode Price for an item $i \in I$ sold at a store $s \in S$ in a day td

The definition of the mode price for an item $i \in I$ sold at a store $s \in S$ in a day td is

$$P_{i,td}^{s,Mode} = \text{mode}_{td \in tw} (P_{i,td}^{s,R}), \forall td \in tw,$$

where tw is the week that involves the day td and $P_{i,td}^{s,R}$ is the value of $P_{i,td}^s$ which is rounded off to become an integer. If multiple modes exist, we select the highest value as the mode price.

A.3 The Bargain Sales

If $P_{i,td}^{s,Mode} - P_{i,td}^{s,R} > 2$, then we regard the commodity is on sale. Note that we use two yen criteria to avoid identifying sales caused by rounding errors.

A.4 The Mode Price for an item $i \in I$ in a day td

The definition of the mode price for an item $i \in I$ in a day td is

$$P_{i,td}^{Mode} = \text{mean}_{s \in S} (P_{i,td}^{s,Mode}).$$

A.5 The Quantity Weighted Average Price for an item $i \in I$ in a month tm

The definition of the price of weighted average by sales quantity for an item $i \in I$ in a month tm is

$$P_{i,tm}^{Weight} = \sum_{td \in tm} \frac{\sum_{s \in S} Q_{i,td}^s}{\sum_{td \in tm} \sum_{s \in S} Q_{i,td}^s} P_{i,td}^{Weight}.$$

That is, it is the value of weighted average of $P_{i,td}^{Weight}$ by sales quantity per day in the month.

A.6 The Mode Price for item $i \in I$ in a month tm

The definition of the mode price for item $i \in I$ in a month tm is

$$P_{i,tm}^{Mode} = \text{mean}_{td \in tm}(P_{i,td}^{Mode}).$$

That is, it is the value of arithmetic mean of $P_{i,td}^{Mode}$ in the month.

A.7 The Price Gap for an item $i \in I$ in a month tm

The definition of the price gap for an item $i \in I$ in a month tm is

$$G_{i,tm} = \frac{P_{i,tm}^{Weight}}{P_{i,tm}^{Mode}}.$$

A.8 The Price Indexes of Mode Prices and Paasche Aggregation

The procedure of the mode price index for a class C_j is as following:¹²

1. The Definitions of Prices

- $P_{i,tm}^{Mode}$ is the mode price for item $i \in I$ in the month tm .
- $P_{i,first}^{Mode}$ is the mode price for item $i \in I$ in the first time.
- $P_{i,last}^{Mode}$ is the mode price for item $i \in I$ in the last time.
- $P_{i,break}^{Mode}$ is the mode price for item $i \in I$ in the break.
- $P_{i,resume}^{Mode}$ is the mode price for item $i \in I$ in the resumption.
- $S_{i,tm}^s$ is the amount of sales for the item $i \in I$ sold at the store $s \in S$ in the month tm .
- C_j is the j th class of items.

2. Complementing no observation periods

- Complementing the mode prices for the period before the birth of the item,

$$P_{i,tm}^{Mode} = P_{i,first}^{Mode}.$$

- Complementing the mode prices for the period after the end of the item,

$$P_{i,tm}^{Mode} = P_{i,last}^{Mode}.$$

¹²See CPI Manual by International Labor Organization (2007) for details of constructing Paasche Indexes.

- Complementing the mode prices for the period between the break and the resumption of the item,

$$P_{i,tm}^{Mode} = (P_{i,break}^{Mode} + P_{i,resume}^{Mode})/2.$$

3. Indexation of $P_{i,tm}^{Mode}$

$$PI_{i,tm}^{Mode} = \frac{P_{i,tm}^{Mode}}{\text{mean}_{tm \in ty=1988}(P_{i,tm}^{Mode})} \times 100.$$

4. Trimming outliers

- eliminating price data and sales data if $PI_{i,tm}^{Mode} > 500$.
- eliminating price data and sales data if $PI_{i,tm}^{Mode} < 10$.

5. The weight of amount of sales for an item $i \in I$ in a month tm

$$W_{i,tm} = \frac{\sum_{s \in S} S_{i,tm}^s}{\sum_{i \in C_j} \sum_{s \in S} S_{i,tm}^s}.$$

6. Aggregating $PI_{i,tm}^{Mode}$ for all $i \in C_j$ in a month tm ,

$$PI_{C_j,tm}^{Mode} = \left[\sum_{i \in C_j} W_{i,tm} \times (PI_{i,tm}^{Mode})^{-1} \right]^{-1}.$$

A.9 The Price Indexes of Actual Selling Prices and Paasche Aggregation

The procedure of the actual selling price index for a class C_j is as following:

1. The Definition of Price Indexes of Actual Selling Prices for an item $i \in I$ in a month tm .

$$PI_{i,tm}^{As} = G_{i,tm} \times PI_{i,tm}^{Mode}.$$

2. Trimming outliers

- eliminating price data and sales data if $PI_{i,tm}^{Mode} > 500$.
- eliminating price data and sales data if $PI_{i,tm}^{Mode} < 10$.

3. Aggregating $PI_{i,tm}^{As}$ for all $i \in C_j$ in a month tm ,

$$PI_{C_j,tm}^{As} = \left[\sum_{i \in C_j} W_{i,tm} \times (PI_{i,tm}^{As})^{-1} \right]^{-1}.$$

A.10 The Implied Price Gap for a class C_j in a month tm

The implied price gaps shown in Figure 22 is calculated as following:

$$\text{Implied Price Gap} = \frac{PI_{C_j,tm}^{As}}{PI_{C_j,tm}^{Mode}}$$

References

Advisory Commission to Study the Consumer Price Index, (1996): "Toward a More Accurate Measure of the Cost of Living: Final Report"

Alvarez, L. J., P. Burriel, and I. Hernando (2005): "Do Decreasing Hazard Functions for Price Changes Make Sense?," Working Paper No. 461, European Central Bank.

Alvarez, L. J., E. Dhyne, M. M. Hoeberichts, C. Kwapil, H. L. Bihan, P. Lunnemann, F. Martins, R. Sabbatini, H. Stahl, P. Vermeulen, and J. Vilmunen (2005): "Sticky Prices in the Euro Area: A summary of New Micro Evidence," Working Paper No. 563, European Central Bank.

Baharad, E., and B. Eden (2004): "Price Rigidity and Price Dispersion: Evidence from Micro Data," Review of Economic Dynamics, 7(3), 613-641.

Baumgartner, J., E. Glatzer, F. Rumler, and A. Stiglbauer (2005): "How Frequently do Consumer Prices Change in Austria?," Working Paper No. 523, European Central Bank.

Bils, M., and P. J. Klenow (2002): "Some Evidence on the Importance of Sticky Prices," NBER Working Paper No. 9069.

Bils, M., and P. J. Klenow (2004): "Some Evidence on the Importance of Sticky Prices," Journal of Political Economy, 112(5), 947-985.

Blinder, A. S., E. R. D. Canetti, D. E. Lebow, and J. B. Rudd (1998): Asking About Prices. Russell Sage Foundation, New York, New York.

Boskin, Michael J., Ellen R. Dulberger, Robert J. Gordon, Zvi Griliches, and Dale W. Jorgenson, (1988): "Consumer Prices, the Consumer Price Index, and the Cost of Living," Journal of Economic Perspectives, 12 (1), 3-26.

Bureau of Labor Statistics, (1997): "The Experimental CPI Using Geometric Mean (CPI-U-XG),"

Calvo, G. A. (1983): "Staggered Prices in a Utility-Maximizing Framework," Journal of Monetary Economics, 12, 383-398.

Campbell, J. R., and B. Eden (2004): "Rigid Prices: Evidence from U.S. Scanner Data," Working Paper, Vanderbilt University.

Caplin, A., and D. Spulber (1987): "Menu Costs and the Neutrality of Money," Quarterly Journal of Economics, 102(4), 703-725.

Carvalho, C. (2006): "Heterogeneity in Price Stickiness and the New Keynesian Phillips Curve," Working Paper, Princeton University.

Cecchetti, S. G. (1986): "The Frequency of Price Adjustment: A Study of the Newsstand Prices of Magazines," Journal of Econometrics, 31, 255-274.

Chevalier J. A., A. K. Kashyap, and P. E. Rossi (2003): "Why Don't Prices Rise during Periods of Peak Demand? Evidence from Scanner Data" *The American Economic Review* Vol. 93, No.1, 15-37

Dhyne, E., L. J. Alvarez, H. L. Bihan, G. Veronese, D. Dias, J. Hoffmann, N. Jonker, P. Lunnemann, F. Ruml, and J. Vilmunen (2005): "Price Setting in the Euro Area : Some Stylized Facts From Individual Consumer Price Data," Working Paper Series No. 524

Dhyne, E., L. J. Alvarez, H. L. Bihan, G. Veronese, D. Dias, J. Hoffmann, N. Jonker, P. Lunnemann, F. Ruml, and J. Vilmunen (2006): "Price Setting in the Euro Area and the United States: Some Facts From Individual Consumer Price Data," *Journal of Economic Perspectives*, 20(2), 171-192.

Dias, D. A., C. Robalo Marques, and J. M. Santo Silva (2005): "Time or State Dependent Price Setting Rules? Evidence from Portuguese Micro Data," Working Paper No. 511, European Central Bank.

Dotsey, M., R. King, and A. Wolman (1999): "State-Dependent Pricing and the General Equilibrium Dynamics of Money and Output," *Quarterly Journal of Economics*, 114(2), 655-690.

Fougeron, D., H. L. Bihan, and P. Sevestre (2005): "Heterogeneity in Consumer Price Stickiness: A Microeconomic Investigation," Working Paper No. 536, European Central Bank.

Golosov, M., and R. E. Lucas (2007): "Menu Costs and Phillips Curves" *Journal of Political Economy*, Vol.115, 171-199

International Labor Organization (2005): *Consumer Price Index Manual: Theory And Practice*.

Kackmeister, A. (2005): "Yesterday's Bad Times are Today's Good Old Times: Retail Price Changes in the 1890's were Smaller, Less Frequent, and More Permanent," *Finance and Economics Discussion Series*, Federal Reserve Board.

Kasuya, Munehisa, (1999): "Downward Price Rigidity of the Japanese CPI – Analysis by Probability Density Functions and Spatial Density Functions," Bank of Japan Working Paper Series 99-3

Kashyap, A. K. (1995): "Sticky Prices: New Evidence from Retail Catalogs," *Quarterly Journal of Economics*, 110, 245-274.

Kehoe, P., and V. Midrigan (2007): "Sales, Clustering of Price Changes, and the Real Effects of Monetary Policy," Working Paper, University of Minnesota.

Klenow, P. J., and J. L. Willis (2006): "Real Rigidities and Nominal Price Changes," Federal Reserve Bank of Kansas City Working Paper.

Klenow, P. J., and O. Kryvtsov (2005): "State-Dependent or Time-Dependent Pricing: Does It Matter for Recent U.S. Inflation," Working Paper, Stanford University.

Lach, S., and D. Tsiddon (1992): "The Behavior of Prices and Inflation: An Empirical Analysis of Disaggregated Price Data," *Journal of Political Economy*, 100(2), 349-389.

Mankiw, N. G., and R. Reis (2002): "Sticky Information Versus Sticky Prices: A Proposal to Replace the New Keynesian Phillips Curve," *Quarterly Journal of Economics*, 117(4), 1295-1328.

- Midrigan, V. (2005): "Menu Costs, Multi-Product Firms, and Aggregate Fluctuations," Working Paper, Ohio State University.
- Nakamura, E., and J. Steinsson (2006): "Monetary-Non-Neutrality in a Multi-Sector Menu Cost Model," Working Paper, Harvard University.
- Nakamura, E., and J. Steinsson (2007): "Five Facts about Prices: A Reevaluation of Menu Cost Model," Working Paper, Harvard University.
- Saison Research Institute, (2001): "Ooteryouhanten no POS Data wo riyousita bukkasisuu ni kakawaru kenkyuu" (An empirical research on price index based on point of sales data of from a large grocery chain.)
- Saita, Y., I. Takagawa, K. Nisizaki, and M. Higo, (2006): "Kouribukkatoukeichousa wo mochiita kakakunenchakusei no keisoku," (Price Setting in Japan: Evidence from Individual Retail Price Data), Bank of Japan Working Paper Series, No. 06-J-02. (in Japanese)
- Shiratsuka, S., (1995): "Shouhisha Bukka Shisuu to Keisoku Gosa (Consumer Price Index and Measurement Errors: Their Causes and Improvement Measures)," *Kin'yu Kenkyu (Monetary and Economic Studies)*, 14 (2), Institute for Monetary and Economic Studies, Bank of Japan, 1-45 (in Japanese).
- Shiratsuka, S., (1998): *Bukka no Keizai Bunseki (Economic Analysis of Inflation Measures)*, University of Tokyo Press. (in Japanese).
- Shiratsuka, S., (1999): "Measurement Errors in the Japanese: Consumer Price Index", *Monetary and Economic Studies*.
- Taylor, J. B. (1980): "Aggregate Dynamics and Staggered Contracts," *Journal of Political Economy*, 88, 1-23.

Table 1
 Summary of Basic Information on RDS-POS

Sample Period: January 3,1987 - April 2, 2006.

Number of items: 981,188

Number of stores: 499

CY	Stores	Items	Sales(mil.:yen)	Sales/store(mil.:yen)	Observations
1987	95	45,367	24,252	255	59,979,663
1988	94	59,333	30,425	324	69,600,772
1989	91	72,470	32,433	356	68,719,756
1990	82	81,162	35,904	438	71,752,046
1991	104	86,829	43,942	423	75,798,851
1992	103	89,830	58,995	573	84,616,450
1993	100	91,641	61,465	615	79,500,456
1994	117	96,783	58,193	497	74,991,599
1995	108	104,782	64,632	598	83,192,866
1996	107	111,790	68,000	636	88,010,441
1997	122	120,334	65,918	540	87,118,230
1998	146	133,565	76,799	526	103,760,388
1999	183	142,709	88,458	483	118,462,200
2000	197	148,964	88,739	450	118,784,964
2001	199	156,371	93,605	470	127,143,791
2002	207	161,455	86,483	418	121,290,115
2003	228	168,665	87,188	382	127,478,310
2004	244	191,010	117,657	482	162,342,727
2005	288	194,565	130,900	455	185,400,826
2006	289	152,327	33,323	115	48,958,194
Sum			1,289,736	9,037	1,847,964,788

Note: The data does not contain the first week of November, 1990 and the second-forth weeks of December, 2003.

Table 2
 Summary for Store Types in RDS-POS (CY2005)

Types	Stores	Items	Sales(mil.:yen)	Sales/store(mil.:yen)	Observations
GMS	41	137,296	41,371	1,009	47,771,111
Food Super	192	147,464	82,276	429	127,432,417
Mini Super	5	14,597	291	58	714,178
Others	50	52,588	6,962	139	9,483,120

Table 3
 Locational Distribution of RDS-POS

Area	Retail Shops
Hokkaido	48
Tohoku	55
Kanto	82
Chubu	72
Kinki	75
Chugoku-Shikok	56
Kyushu	44
Drug Store	62
Total	494

Table 4
 Locational Distribution of Nikkei POS

Area	Retail Shops
Hokkaido	11
Tohoku	19
Kanto	90
Chubu	43
Kinki	57
Chugoku-Shikok	24
Kyushu	36
Total	280

Table 5
 Summary of Basic Information on Nikkei-POS
 Sample Period: March 1,1988 - December 31, 2005.
 Number of items: 1,271,340
 Number of stores: 273

CY	Stores	Items	Sales(mil.:yen)	Sales/store(mil.:yen)	Observations
1988	29	88,248	24,969	861	25,399,307
1989	45	118,608	38,858	864	39,974,930
1990	50	131,412	47,951	959	46,470,061
1991	53	133,445	56,613	1,068	50,793,216
1992	62	136,179	67,407	1,087	56,118,695
1993	65	140,278	75,491	1,161	61,427,116
1994	103	157,457	115,864	1,125	91,735,608
1995	124	169,621	149,349	1,204	119,979,624
1996	132	177,344	180,689	1,369	150,404,905
1997	150	194,804	206,076	1,374	172,085,435
1998	172	219,063	262,931	1,529	218,527,524
1999	172	226,004	265,886	1,546	226,289,860
2000	189	251,052	276,477	1,463	242,357,354
2001	187	265,622	301,497	1,612	274,319,088
2002	198	276,496	314,059	1,586	283,433,270
2003	188	259,692	264,398	1,406	242,425,088
2004	202	279,751	306,384	1,517	282,074,725
2005	187	288,634	329,361	1,761	309,888,227
Sum			3,284,261	23,493	2,893,704,033

Note: The data does not cover November and December, 2003.

Table 6
Average Spells of Prices for Change (Nikkei-POS)

(days)

Class	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Momen Tofu	4.0	4.8	4.7	4.5	3.8	3.0	2.9	2.9	3.0	2.7	2.4	2.4	2.4	2.4	2.3	2.3	2.1	2.1
Kinu Tofu	4.4	5.1	4.7	4.6	3.9	3.2	3.3	3.5	3.5	3.3	3.0	3.2	3.0	2.7	2.5	2.4	2.3	2.2
Baked Tofu	4.2	5.4	5.8	4.8	3.7	2.9	2.7	2.5	2.5	2.4	2.2	2.3	2.1	2.1	2.1	2.0	2.0	2.0
Flavored Tofu	8.5	8.1	10.5	8.9	5.6	4.7	5.6	5.1	5.1	4.4	3.8	3.8	3.7	3.4	3.4	3.1	2.7	2.4
Other tofus	9.5	8.9	9.9	6.3	4.1	4.0	5.5	5.3	5.3	3.5	4.0	3.5	2.6	2.3	2.3	2.7	2.5	2.5
Grain Natto	8.0	7.1	7.5	7.1	5.5	5.2	5.0	5.1	5.5	4.6	3.7	3.4	3.3	3.1	3.1	3.0	2.5	2.3
Crushed Grain Natto	10.7	10.6	9.9	11.6	9.2	8.5	6.5	6.6	6.6	5.9	4.2	3.3	3.2	3.3	3.1	2.7	2.2	2.1
Other Nattos	12.7	14.4	10.6	13.2	9.4	8.9	5.6	8.1	14.6	10.1	6.5	6.9	6.2	7.1	6.7	5.2	3.6	3.0
Butter	18.4	20.8	16.3	16.2	15.4	14.6	13.7	14.5	14.4	13.7	14.0	12.4	9.8	7.4	6.5	6.0	4.8	4.4
Mixed Butter	12.0	19.8	28.5	19.3	16.6	13.7	17.8	18.6	18.7	17.7	16.3	16.1	13.4	9.8	7.5	6.3	4.6	4.3
Other Butters		19.5	26.6	20.2												7.7	5.2	3.8
General Milk	2.9	3.5	3.4	3.2	3.2	2.8	2.7	2.6	3.0	2.8	2.4	2.3	2.2	2.2	2.3	2.3	2.2	2.1
Processed Milk	3.2	4.1	4.1	4.0	3.5	2.9	3.1	2.9	3.4	3.0	2.5	2.4	2.3	2.4	2.6	2.7	2.5	2.4
LL General Milk	13.1	15.2	14.3	13.5	13.6	11.4	12.7	12.6	13.1	12.3	12.7	11.8	11.1	6.9	6.2	6.2	4.4	3.9
LL Processed Milk	17.6	23.5	18.3	24.4	20.8	19.6	19.7	24.7	25.2	24.0	21.0	19.2	14.4	5.2	4.9	4.4	3.2	3.1
Low Fat Milk						4.1	4.8	2.4	3.0	2.8	2.5	2.1	2.0	2.0	2.1	2.0	2.0	2.0
Constituent Adjustment Milk			4.0	4.0	2.8	2.4	2.8	2.9	2.7	2.4	2.2	2.1	2.4	2.7	2.6	2.3	2.1	2.2
Other Milks	3.5										1.9	6.5			42.3	4.0	2.7	2.1
Instant Chinese Noodle (Packed)	15.6	15.8	13.8	13.8	12.0	12.5	12.0	14.0	13.9	12.8	11.9	10.4	8.5	7.0	6.1	5.8	4.6	4.1
Instant Fried Noodle (Packed)	17.7	16.7	15.3	15.6	14.4	14.2	13.4	17.0	15.2	14.2	15.2	12.1	9.1	6.9	5.9	5.6	4.6	3.9
Instant Buckwheat Noodle (Packed)	87.4	58.1	24.4	37.5	26.2	20.4	18.0	23.3	22.8	15.3	14.4	11.2	8.8	9.1	6.5	9.4	9.1	5.7
Instant Udon (Packed)	29.6	25.0	11.6	18.5	18.2	17.3	15.4	20.9	18.5	16.5	16.1	14.5	10.1	8.5	7.6	8.0	5.2	4.6
Instant Cold Noodle (Packed)	19.3	15.5	11.7	13.3	11.0	12.2	12.9	13.6	10.8	11.4	11.9	9.2	8.0	5.8	6.0	5.2	4.1	4.4
Other Packed Noodle	34.6	40.5	23.7	25.7	21.8	21.3	18.6	19.7	19.2	18.3	17.5	15.0	11.4	8.7	6.7	5.8	4.7	4.6
Instant Chinese Noodle (Cup)	18.9	16.6	14.5	15.9	13.3	13.4	12.3	13.5	11.8	10.5	9.8	9.4	8.2	6.8	6.3	6.1	4.6	4.1
Instant Fried Noodle (Cup)	14.5	14.9	12.0	12.0	11.2	12.4	10.7	11.5	10.5	9.7	9.4	8.5	7.4	6.3	5.6	5.4	4.4	3.8
Instant Buckwheat Noodle (Cup)	23.7	19.8	16.7	18.5	14.2	13.9	11.7	12.2	10.9	9.8	8.3	7.5	6.4	5.5	5.5	5.3	4.3	3.9
Instant Udon (Cup)	17.8	18.7	15.0	16.3	13.7	14.0	11.6	12.8	11.3	10.0	9.0	8.3	6.9	5.8	5.6	5.5	4.5	4.0
Other Cup Noodle		50.1	21.5	28.2	31.2	30.5	20.1	23.4	23.1	19.9	18.4	19.4	15.1	9.4	7.8	6.7	4.9	3.9
Instant Chinese Noodle (Packed & Fresh)			18.4	14.3	5.0	9.6	11.0	14.0	16.6	15.4	26.3	17.8	13.8	6.6	5.7	5.8	3.7	3.9
Instant Fried Noodle (Packed & Fresh)					26.2	15.5	16.3	36.0	7.2	6.1	13.4	15.9	15.4	5.4	8.1	8.7	8.7	3.8
Instant Buckwheat Noodle (Packed & Fresh)	122.0	31.4	23.2	19.5	12.7	10.9	16.6	11.8	11.6	9.7	11.3	9.6	8.4	7.5	8.3	7.3	5.9	4.7
Instant Udon (Packed & Fresh)	19.7	21.3	16.9	16.9	12.5	12.9	11.6	13.1	14.1	10.9	11.9	10.4	9.2	7.4	7.5	6.9	5.0	4.2
Instant Spaghetti (Packed & Fresh)	16.9	15.1	13.6	13.9	14.5	13.9	14.3	15.1	13.5	10.1	10.3	8.5	7.5	6.3	5.8	5.3	4.3	3.7
Other Packed and Fresh Noodle	22.2	11.6	9.1	12.7	9.1	8.5	7.0	7.4	7.2	6.4	5.5	6.5	6.0	5.4	4.7	4.6	3.8	3.1
Instant Chinese Noodle (Cup & Fresh)	21.3	23.8	24.7	21.8	17.5	15.4	13.5	14.6	15.1	15.0	12.1	10.0	8.7	7.2	6.3	6.1	4.7	5.0
Instant Udon and Buckwheat Noodle (Cup & Fresh)		58.2	13.3	14.2	17.8	17.0	17.4	17.6	18.3	16.8	14.9	13.6	12.5	9.6	7.9	7.2	4.2	3.8
Instant Spaghetti (Cup & Fresh)								13.1	15.2	14.4	12.7	11.2	10.8	7.7	6.9	6.3	4.2	4.2
Instant Thin Buckwheat Noodle (Cup & Fresh)					7.4	11.2	14.1	15.7	20.8	19.7	22.1	20.1	17.7	11.3	9.2	7.1	3.5	4.8
Other Cup and Fresh Noodle	41.9	126.8		28.0	20.5	16.5	28.1	12.3	14.8	15.2	16.9	23.4	19.4	10.3	6.5	4.3	5.5	3.2
Regular Coffee (Beans)	13.0	21.7	14.3	13.7	12.9	11.0	12.4	15.4	16.4	14.2	14.3	10.6	9.1	6.7	5.8	6.0	4.0	3.3
Regular Coffee (milled)	9.1	8.1	6.5	6.8	8.1	7.6	9.3	11.4	11.3	10.5	10.2	8.9	7.8	5.8	5.1	5.2	3.8	3.5
Easy Type Drip Coffee	46.7	42.3	27.8	25.9	19.7	19.0	20.2	26.8	24.3	20.3	20.1	16.4	12.3	8.0	6.2	6.3	4.6	4.3
Other Regular Coffee																		5.3
Instant Coffee	13.0	12.7	13.2	13.2	12.5	11.8	11.8	12.7	11.7	11.1	11.1	10.4	8.7	6.8	5.6	5.4	4.1	3.6
Coffee Mix	39.1	44.4	31.5	31.5	22.9	16.2	15.2	17.4	20.5	19.6	19.1	17.5	14.1	8.6	7.2	7.1	4.8	4.3
Concentrated Coffee	23.2	18.9	12.4	17.2	14.6	12.2	13.5	18.6	43.1	23.5	18.6	10.7	8.5	6.8	5.9	5.0	4.2	4.1
Other Instant Coffee	15.0	9.4												26.9	5.6	11.6		1.8
Powder Cocoa	25.8	23.1	21.2	20.5	17.5	15.8	17.0	20.3	20.9	16.0	16.1	13.5	10.5	7.7	6.7	6.0	4.5	4.0
Malt Mix	12.5	12.5	12.7	14.7	14.4	13.7	14.6	16.7	17.9	12.9	13.1	12.4	10.6	7.5	5.7	5.1	3.9	3.8
Drink Mix for Milk	13.7	21.5	20.0	19.7	13.7	14.5	13.3	17.0	17.7	13.9	13.0	12.4	9.9	7.1	5.4	5.2	4.3	3.9
Other Cocoa				22.3	14.5			16.3	25.2	13.5	13.0	11.0	10.1	6.6	5.7	7.1	6.3	7.3
Tea	26.9	31.7	16.6	16.5	14.4	12.5	13.6	17.7	15.1	13.2	11.6	10.0	8.1	6.4	5.5	5.4	4.3	4.0
Tea Bag	29.0	25.7	21.1	20.8	17.6	16.0	16.9	19.8	20.0	16.0	14.7	11.8	10.0	7.6	6.8	6.4	4.6	4.0
Instant Tea	19.2	19.4	18.6	18.9	15.2	17.0	15.6	20.1	19.1	16.9	14.9	13.5	11.1	7.8	6.3	6.3	4.7	4.0
Concentrated Tea	13.5	8.9	9.4	15.0	14.2	14.3	54.0				37.3	32.7	8.2	6.3	5.6	5.6	4.7	4.8
Herb Tea									21.4	18.2	9.2	12.6	19.1	11.6	12.1	7.0	4.6	5.6
Harb Tea Bag	4.9	39.4	67.3	112.3	137.7	151.7	32.1	38.5	24.6	20.4	18.6	14.5	10.2	7.8	7.2	6.3	5.2	4.7
Other Tea															1.3	1.8	2.0	1.5
Green Tea	24.6	21.7	18.9	18.7	18.2	16.4	16.4	20.4	19.4	16.1	14.5	12.7	9.9	7.3	6.1	5.9	4.2	3.6
Gyokuro Tea	18.3	26.0	31.3	24.5	28.9	30.3	26.4	22.0	21.1	16.5	12.3	10.8	10.3	7.3	6.0	5.9	5.0	3.7
Coarse Tea	26.3	42.5	34.2	27.2	22.4	18.6	16.8	22.0	26.1	22.9	16.5	14.5	12.4	8.4	6.6	6.3	4.3	3.6
Toasted Tea	25.0	21.3	22.8	21.7	22.8	20.7	19.8	23.8	23.0	20.4	17.5	14.5	11.1	7.7	6.7	6.2	4.7	4.4
Brown Rice Tea	16.9	18.8	18.0	20.3	20.1	18.2	16.3	18.5	18.8	17.2	15.5	13.5	11.1	7.9	6.3	6.2	4.6	4.0
Powdered Green Tea	54.2	23.4	18.9	18.5	14.8	14.7	16.1	18.5	24.8	27.0	23.9	17.1	13.3	8.4	7.3	6.8	4.6	4.2
Twig Tea	25.6	28.3	25.2	19.4	19.5	18.7	15.8	19.9	24.1	18.4	14.2	13.3	11.6	8.5	7.7	8.3	5.0	4.1
Green Tea Bag	27.8	32.1	29.8	26.4	25.6	23.3	20.8	24.5	23.3	19.8	16.7	13.6	11.2	7.8	6.6	6.3	4.8	4.2
Instant Green Tea	13.0	18.2	13.4	13.8	11.5	11.7	9.2	12.6	15.9	14.8	15.5	12.6	10.5	7.1	6.1	5.5	4.2	3.7
Other Green Tea	28.0	44.9	22.5	19.3	12.7	11.3	7.3	9.2	10.5	8.9	7.3	6.6	6.3	5.6	4.9	5.4	3.9	3.7
Barley Tea	29.1	30.6	26.6	22.0	26.9	22.5	17.9	28.8	25.9	22.8	17.4	16.2	14.2	9.4	8.0	7.3	5.0	4.9
Barley Tea Bag	21.6	17.9	16.5	15.7	16.3	15.6	15.6	19.0	19.9	16.5	16.1	14.3	10.2	7.5	6.4	5.8	4.7	4.2
Other Barley Tea			5.5	76.0			21.1	24.0	22.4	17.4	16.6	11.6	37.2	6.6	7.6	8.5	3.6	
Oolong Tea	24.1	26.8	20.6	22.1	20.1	15.7	18.4	23.3	20.2	16.6	18.6	14.9	8.1	6.2	5.8	5.4	4.4	3.9
Oolong Tea Bag	34.4	30.8	23.0	21.4	19.2	18.7	21.0	24.9	25.8	21.0	19.8	17.5	10.5	7.4	6.2	5.4	4.0	3.5
Puerh Tea	33.9	37.7	25.3	20.1	17.3	17.6	17.3	17.9	17.8	15.1								

Table 7
Average Spells of Prices for Change (RDS-POS)

Class	(days)																		
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Momen Tofu	8.7	10.2	9.2	8.2	6.2	6.1	5.0	3.6	3.5	3.4	3.2	3.4	2.9	3.1	3.3	3.0	2.9	3.0	2.9
Kinu Tofu	9.9	13.5	11.4	11.6	10.3	8.3	7.8	6.2	5.6	5.1	4.8	4.8	4.2	4.1	3.8	3.3	3.2	3.4	3.2
Baked Tofu	15.7	17.3	13.6	8.7	10.2	7.1	4.6	3.8	3.8	3.7	3.5	3.4	3.0	3.1	3.0	3.0	2.7	2.7	2.8
Flavored Tofu	16.9	33.0	22.9	22.4	23.1	17.9	11.4	9.9	7.8	7.0	6.2	5.4	4.9	4.3	5.2	5.4	4.9	4.3	4.0
Other tofus		11.4	12.4	11.5	11.3	8.0	6.4	6.9	4.0	3.0	3.0	3.3	3.7	2.1	1.9	1.9	1.9	1.9	1.8
Grain Natto	12.1	13.4	12.2	10.6	10.1	7.4	6.4	5.4	5.3	4.9	5.0	4.6	4.1	4.2	4.2	3.8	3.4	3.4	3.0
Crushed Grain Natto	14.2	16.0	13.6	16.8	13.2	10.2	9.0	6.8	6.2	5.9	6.6	5.7	4.6	4.3	4.9	4.0	3.2	3.2	2.8
Other Nattos	249.6	80.8	133.0	70.7	64.5	25.1	37.6	21.5	22.9	18.7	12.2	12.2	8.9	11.9	13.0	14.8	9.6	6.0	4.7
Butter	18.8	29.7	37.6	25.8	26.6	24.1	25.0	20.9	21.9	18.6	21.4	23.0	21.4	22.6	19.6	15.5	15.3	9.9	8.9
Mixed Butter	40.4	24.8	42.0	59.3	54.7	56.9	52.0	32.4	29.6	32.2	28.6	27.5	31.6	30.2	25.0	18.2	20.7	13.3	12.8
Other Butters			27.4	35.3	38.9														
General Milk	5.7	5.9	5.6	5.9	6.2	4.1	3.6	3.6	3.5	3.9	3.8	3.5	3.0	3.0	3.1	3.2	3.1	3.4	3.4
Processed Milk	7.3	7.1	7.1	7.4	6.5	4.6	4.2	4.3	4.1	4.3	4.1	3.9	3.4	3.1	3.1	3.1	3.6	3.7	3.3
LL General Milk	19.5	27.2	26.1	23.2	24.2	17.8	17.8	14.2	14.1	13.5	13.8	16.1	18.8	19.6	20.8	41.1	28.2	12.9	11.2
LL Processed Milk	40.5	52.4	75.6	58.2	73.8	77.0	71.7	88.6	47.2	63.4	54.8	61.6	57.3	32.0	18.3	21.7	27.0	9.6	7.5
Low Fat Milk							2.7	3.3	2.6	3.7	4.3	3.6	3.1	2.9	3.0	3.6	3.0	3.7	4.1
Constituent Adjustment Milk				8.1	3.9	3.0	2.4	3.2	3.2	2.8	3.0	2.4	2.3	2.6	3.0	3.1	2.8	2.8	3.6
Other Milks										14.9	6.6	1.9	1.8	1.9	1.5	44.7	6.9	4.1	2.6
Instant Chinese Noodle (Packed)	18.2	20.3	21.3	20.6	17.9	15.4	16.3	14.4	15.7	15.8	14.1	14.4	14.5	13.7	12.3	11.4	11.1	8.1	7.4
Instant Fried Noodle (Packed)	23.0	26.7	24.0	24.7	26.2	21.5	24.2	21.8	22.3	17.2	16.9	20.3	18.1	16.0	12.7	13.2	12.0	7.9	7.0
Instant Buckwheat Noodle (Packed)	87.3	122.0	161.0	51.1	78.5	57.1	45.6	42.4	33.2	26.0	29.5	18.4	17.3	13.7	11.3	9.7	14.4	13.4	14.1
Instant Udon (Packed)	111.5	148.3	60.6	43.3	64.1	30.1	36.7	31.5	39.1	20.3	17.4	19.4	25.3	22.3	19.4	17.0	18.9	12.6	10.8
Instant Cold Noodle (Packed)	16.5	14.7	12.3	12.1	13.8	15.7	16.0	15.6	14.3	13.9	13.1	11.8	11.7	14.6	11.1	13.4	11.4	6.9	7.3
Other Packed Noodle	47.0	56.1	61.1	50.2	56.8	53.8	47.5	52.7	46.4	39.6	34.9	34.4	30.6	32.0	35.7	18.4	16.1	12.1	9.8
Instant Chinese Noodle (Cup)	22.3	23.5	23.3	21.0	22.0	18.0	16.9	15.5	17.1	14.2	15.1	14.5	14.4	15.6	15.6	14.2	13.8	9.0	8.1
Instant Fried Noodle (Cup)	14.9	17.2	17.7	16.5	16.0	14.7	19.7	16.7	16.9	14.6	13.6	12.5	12.4	13.0	13.8	12.4	11.6	8.0	6.8
Instant Buckwheat Noodle (Cup)	27.2	28.3	29.9	25.1	23.1	18.1	15.7	14.7	15.7	14.3	14.4	12.1	11.2	11.7	11.6	10.7	10.6	7.3	6.4
Instant Udon (Cup)	24.2	30.5	34.9	29.4	29.3	20.4	16.7	15.7	18.8	15.5	17.8	15.1	14.4	15.1	13.6	11.9	12.6	7.7	6.6
Other Cup Noodle	159.0	103.3	64.1	48.0	59.5	28.9	15.3	13.7	22.4	22.0	33.2	27.1	27.6	23.6	15.6	11.5	12.7	11.9	9.8
Instant Chinese Noodle (Packed & Fresh)							9.5	13.6	19.3	24.0	29.3	37.2	32.6	23.6	16.7	8.3	16.1	13.4	6.8
Instant Fried Noodle (Packed & Fresh)							41.8	15.3	20.6	2.0		21.9	17.9	31.6	13.9	19.5	78.4	18.0	7.1
Instant Buckwheat Noodle (Packed & Fresh)		28.8	32.4	19.0	26.4	16.9	23.0	32.2	15.7	13.9	12.0	16.9	14.0	13.5	14.8	13.0	7.6	9.0	6.1
Instant Udon (Packed & Fresh)	10.9	12.9	24.2	20.5	18.3	17.9	18.7	12.7	13.5	13.0	11.5	8.7	11.6	12.3	11.6	13.9	17.5	9.2	7.0
Instant Spaghetti (Packed & Fresh)	19.9	22.9	22.4	20.1	17.2	21.3	22.4	18.7	21.9	19.9	14.8	19.0	18.4	16.3	15.9	15.9	15.1	8.4	6.4
Other Packed and Fresh Noodle	22.4	30.6	20.4	26.3	26.8	12.1	11.5	8.9	9.7	8.7	7.6	8.0	9.2	9.3	9.8	9.8	11.2	6.9	5.3
Instant Chinese Noodle (Cup & Fresh)	5.9	52.9	99.2	55.0	42.7	24.1	17.5	14.9	15.4	14.6	20.4	16.7	14.7	16.3	15.2	12.4	12.5	9.5	11.2
Instant Udon and Buckwheat Noodle (Cup & Fr	42.9	31.3	41.4	29.4	24.2	22.1	24.6	19.0	22.0	20.8	25.9	24.0	21.0	31.1	23.6	14.6	14.0	8.2	7.3
Instant Spaghetti (Cup & Fresh)								18.0	16.1	19.6	19.1	17.0	33.1	18.5	13.8	19.8	9.7	8.7	
Instant Thin Buckwheat Noodle (Cup & Fresh)						137.5	80.5	29.4	13.4	10.2	14.1	20.5	23.0	29.0	21.0	13.1	6.0	5.5	9.4
Other Cup and Fresh Noodle	32.3	115.3				49.6	165.5	262.0	7.2	11.6	11.5	17.8	13.1	33.9	29.3	203.3	59.8	14.1	9.3
Regular Coffee (Beans)	15.7	25.1	22.7	16.4	24.5	19.2	17.9	21.5	21.4	27.8	23.3	30.3	29.8	27.9	18.0	12.2	11.0	8.7	8.8
Regular Coffee (milled)	11.6	14.1	11.1	11.1	11.3	10.4	10.5	11.0	12.1	11.8	13.8	15.8	15.0	16.4	11.7	9.5	9.4	7.0	6.5
Easy Type Drip Coffee	38.3	84.4	53.7	86.3	65.1	33.5	42.2	32.5	36.1	35.8	56.2	39.3	43.3	35.4	21.3	14.2	13.4	9.9	9.2
Other Regular Coffee																			4.9
Instant Coffee	14.5	15.5	15.6	16.6	13.7	14.3	14.0	13.1	12.8	12.1	12.1	12.7	12.3	12.3	11.3	10.4	10.4	6.7	6.1
Coffee Mix	50.4	61.0	82.1	81.9	77.3	56.9	27.0	22.5	22.5	30.5	29.6	38.2	35.3	39.4	27.4	20.8	16.2	9.8	9.4
Concentrated Coffee	43.4	31.5	22.9	32.9	39.3	46.6	42.2	49.8	19.2	19.1	17.4	19.3	26.1	20.8	14.2	12.4	10.6	7.2	7.0
Other Instant Coffee			41.3													50.7	31.3		
Powder Cocoa	39.0	44.7	38.7	39.4	37.6	29.3	29.9	30.1	31.8	36.8	28.1	30.4	27.5	24.7	20.0	14.6	13.7	9.7	8.4
Malt Mix	17.2	18.4	15.2	16.6	17.2	16.3	18.0	20.9	21.2	21.7	18.6	16.6	15.4	23.3	17.4	14.4	13.9	7.8	7.2
Drink Mix for Milk	14.0	17.5	20.9	24.9	30.4	22.1	25.2	25.6	25.8	23.0	21.0	19.5	17.3	15.7	18.0	15.2	12.6	9.0	8.7
Other Cocoa				21.3				21.1	19.0	17.5	27.2	16.6	20.3	13.5	10.9	14.3	12.8	11.3	
Tea	48.1	43.3	42.7	48.9	35.1	27.7	32.4	38.7	26.4	32.0	28.2	22.2	24.6	22.5	18.1	11.4	10.4	9.4	9.5
Tea Bag	30.3	39.1	34.9	46.4	43.9	33.0	31.4	34.9	33.6	30.0	28.2	26.3	26.9	29.9	26.4	19.0	15.4	11.5	10.5
Instant Tea	21.4	23.2	25.5	29.9	29.6	21.6	30.2	32.1	28.9	29.7	29.1	26.1	28.8	34.7	23.3	17.6	17.1	10.3	8.4
Concentrated Tea	35.3	17.1	13.0	18.4	22.0	21.2	40.4					27.5		48.1	14.6	11.1	12.6	8.1	8.1
Herb Tea											984.0	31.4	22.1	31.7	74.2	284.0	43.7	16.9	17.7
Harb Tea Bag			36.1	78.1	100.1	39.6	643.3	74.5	97.0	53.3	37.0	31.9	41.5	52.5	37.7	19.2	16.2	14.3	13.3
Other Tea																			1.7
Green Tea	36.1	40.6	40.1	40.3	34.2	30.7	26.2	22.2	24.8	23.4	23.2	23.8	22.6	22.9	16.5	11.9	11.0	7.8	6.9
Gyokuro Tea	50.4	42.3	43.4	47.6	35.7	48.6	34.3	34.7	35.5	27.9	29.3	21.5	16.5	17.1	15.6	9.6	8.2	8.8	8.0
Coarse Tea	16.0	48.5	81.6	140.4	57.9	73.4	55.5	59.8	55.6	41.1	33.1	43.7	54.5	55.9	48.4	23.5	15.0	8.5	8.4
Toasted Tea	67.8	100.5	69.8	74.4	61.1	48.2	44.7	38.9	33.6	33.9	28.6	25.1	21.9	20.0	16.0	11.0	10.2	11.8	11.5
Brown Rice Tea	37.8	47.8	46.9	52.5	40.2	42.1	41.4	31.4	33.1	30.4	27.5	25.7	23.8	23.8	21.6	15.8	15.0	9.4	8.6
Powdered Green Tea	22.7	45.0	45.1	77.2	71.8	621.5	68.8	162.7	85.2	98.8	172.3	93.6	93.0	43.2	20.5	17.4	12.4	6.4	6.4
Twig Tea	30.6	34.7	45.8	55.8	32.6	37.1	30.7	29.7	25.6	24.3	20.8	21.6	21.6	31.0	23.7	21.2	28.4	8.8	7.7
Green Tea Bag	125.9	389.1	185.4	141.0	110.2	213.0	143.5	75.3	73.0	61.8	48.1	39.9	38.4	34.2	24.4	17.8	15.7	10.7	8.6
Instant Green Tea	64.7	128.0	81.2	86.0	70.2	85.9	57.8	36.6	23.0	37.8	42.7	29.4	35.1	31.4	20.4	15.5	12.7	9.4	8.4
Other Green Tea	95.9	908.0	118.4	520.0	43.3	125.7	150.4	48.0	22.6	23.5	17.2	18.1	15.6	15.8	10.5	6.4	8.4	12.8	13.2
Barley Tea	55.4	52.1	73.2	69.2	52.0	68.3	72.7	34.0	32.4	38.0	43.5	31.3	39.6	37.9	42.7	31.3	28.9	9.0	7.2
Barley Tea Bag	21.4																		

Table 8
Average Spells of Regular Prices for Change (Nikkei-POS)

(days)

Class	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Momen Tofu	52.1	60.3	48.8	48.4	45.4	39.6	40.1	37.7	39.5	32.6	30.0	30.2	30.8	29.3	28.2	27.9	25.0	26.0
Kinu Tofu	52.4	60.0	51.8	52.0	45.4	41.3	42.9	43.8	40.8	36.5	33.4	33.8	32.6	29.8	26.8	26.0	24.4	25.1
Baked Tofu	79.5	81.1	75.9	62.5	46.1	44.4	40.5	36.7	31.4	27.1	28.2	28.8	27.2	27.5	27.2	24.7	25.8	
Flavored Tofu	86.2	99.5	103.8	91.6	76.2	62.0	79.2	69.0	64.7	49.1	39.2	32.3	32.0	29.0	26.9	26.9	20.6	20.0
Other tofus	35.5	65.3	81.8	96.8	39.8	41.8	46.3	43.7	38.9	27.7	32.1	28.5	24.4	19.6	16.6	19.9	15.5	16.1
Grain Natto	67.6	73.1	59.7	52.2	44.5	47.7	45.9	44.8	46.6	37.9	35.8	33.4	34.3	33.1	31.9	34.2	26.6	26.6
Crushed Grain Natto	80.1	119.7	85.4	78.6	84.3	94.8	83.8	69.9	66.9	60.6	49.2	37.0	40.9	39.2	41.0	35.5	29.6	33.0
Other Nattos	121.5	375.1	222.3	166.0	180.3	111.9	44.2	60.7	259.2	147.6	58.4	59.1	38.5	40.6	56.0	48.1	26.1	15.8
Butter	61.2	94.0	67.2	66.6	65.0	65.4	68.8	60.9	52.2	48.9	50.7	53.8	49.9	47.7	44.7	46.0	33.4	37.6
Mixed Butter	33.2	63.1	132.9	61.1	56.6	52.3	85.0	79.3	72.9	91.5	86.7	71.6	60.9	47.1	38.5	27.9	16.9	15.4
Other Butters		54.7	89.9	143.6												94.7	72.4	15.9
General Milk	46.1	55.2	47.0	48.4	49.1	43.7	43.4	40.5	45.9	41.2	34.6	32.0	32.8	33.0	33.7	33.3	30.4	30.4
Processed Milk	48.2	58.5	51.1	45.7	43.2	39.6	43.0	42.0	43.2	39.8	35.5	34.1	30.3	33.2	35.9	40.3	34.7	37.1
LL General Milk	62.8	77.0	78.6	62.4	79.6	58.8	64.0	69.2	81.3	90.2	94.1	85.1	85.6	73.2	67.5	72.5	42.8	41.9
LL Processed Milk	90.0	127.2	135.6	148.6	136.0	115.4	118.3	144.6	194.3	335.8	266.5	281.0	220.3	51.2	45.9	42.3	27.9	28.0
Low Fat Milk						33.0	55.4	35.8	45.3	39.8	32.7	26.8	23.9	23.3	25.4	26.6	27.4	29.9
Constituent Adjustment Milk					58.1	48.2	58.9	43.6	46.8	34.7	38.6	35.9	47.9	59.4	56.1	49.0	37.9	36.8
Other Milks		27.1	23.5												84.7	31.5	6.1	4.8
Instant Chinese Noodle (Packed)	52.6	56.8	49.4	53.8	47.3	47.7	47.7	51.2	50.8	46.2	44.2	42.4	36.6	32.4	28.6	30.5	24.6	24.0
Instant Fried Noodle (Packed)	65.3	76.4	59.3	60.3	55.3	55.5	54.8	65.1	59.0	54.3	59.6	52.5	38.9	30.6	26.6	24.6	21.4	21.0
Instant Buckwheat Noodle (Packed)	198.2	256.4	67.2	120.9	143.9	113.4	154.5	114.4	121.6	51.1	42.2	44.5	33.6	57.3	43.3	54.4	44.6	25.0
Instant Udon (Packed)	86.3	116.5	39.8	74.8	88.8	91.7	98.4	155.9	122.4	80.6	75.2	62.3	50.3	38.4	41.2	49.9	36.2	34.1
Instant Cold Noodle (Packed)	39.2	35.0	28.4	30.3	29.2	31.7	33.5	32.9	25.6	27.9	27.6	24.9	22.7	17.8	17.1	17.2	13.0	14.6
Other Packed Noodle	85.9	184.5	114.2	134.5	96.0	197.5	86.1	64.4	65.8	61.6	49.2	51.1	41.0	39.1	27.3	21.5	16.3	19.5
Instant Chinese Noodle (Cup)	59.0	55.5	46.9	55.0	46.9	44.4	44.0	43.5	36.1	34.0	32.2	33.0	30.5	28.4	28.0	31.9	26.6	28.5
Instant Fried Noodle (Cup)	43.3	47.1	39.0	44.9	38.1	44.0	39.2	39.5	34.7	32.0	30.7	30.5	28.0	28.1	25.2	27.6	26.1	26.3
Instant Buckwheat Noodle (Cup)	80.6	64.3	47.8	59.2	48.3	50.6	43.9	39.5	37.7	32.4	29.2	27.8	27.7	24.9	27.2	30.0	26.6	28.2
Instant Udon (Cup)	61.5	70.4	46.3	60.9	49.4	49.7	43.9	46.8	37.8	34.3	33.3	34.3	31.2	27.6	28.8	31.1	27.4	29.1
Other Cup Noodle		93.3	47.0	57.2	81.5	86.6	70.6	95.3	68.8	60.2	48.1	57.0	43.2	39.8	44.1	50.7	36.2	28.5
Instant Chinese Noodle (Packed & Fresh)			26.0	30.2	19.4	38.1	38.3	40.3	34.6	43.2	69.6	30.4	33.1	16.4	12.7	26.0	12.6	11.5
Instant Fried Noodle (Packed & Fresh)						64.6	39.3	72.0	18.4	15.0	31.8	48.8	27.2	24.3	17.7	22.5	25.6	13.4
Instant Buckwheat Noodle (Packed & Fresh)	203.3	310.0	157.9	66.0	36.0	35.4	54.9	37.0	41.7	32.7	32.0	25.3	25.2	21.1	27.4	26.4	26.3	18.0
Instant Udon (Packed & Fresh)	53.8	72.2	57.9	61.4	54.0	51.5	42.0	48.6	52.8	42.1	45.2	38.1	34.6	29.7	31.7	34.6	23.1	21.2
Instant Spaghetti (Packed & Fresh)	69.4	57.8	42.0	44.1	50.5	59.1	66.3	59.0	45.8	33.7	30.8	33.2	30.6	27.8	28.9	27.1	19.0	17.4
Other Packed and Fresh Noodle	43.1	29.7	28.6	41.3	28.4	47.2	40.8	42.3	23.3	32.7	20.7	20.3	18.7	18.9	17.1	15.8	14.7	15.2
Instant Chinese Noodle (Cup & Fresh)	43.4	41.6	51.1	55.0	56.3	61.9	42.7	41.4	37.9	44.4	36.6	35.0	33.1	31.2	29.1	29.0	25.4	31.4
Instant Udon and Buckwheat Noodle (Cup & Fresh)		91.4	46.8	46.1	62.1	67.8	60.5	69.2	60.2	63.8	51.3	52.6	54.6	50.2	43.4	42.7	24.2	24.1
Instant Spaghetti (Cup & Fresh)								35.1	38.6	40.5	40.2	41.1	45.4	39.8	36.5	32.5	25.8	30.4
Instant Thin Buckwheat Noodle (Cup & Fresh)						38.2	101.3	77.5	107.2	124.2	78.9	96.2	185.0	216.1	187.8	336.8	101.1	96.8
Other Cup and Fresh Noodle	72.4	126.8		37.3	63.6	49.5	280.5	41.7	80.1	105.0	59.9	49.0	59.0	61.5	64.8	51.7	24.6	16.3
Regular Coffee (Beans)	33.1	38.7	22.4	23.5	24.2	20.3	21.7	24.6	25.3	24.0	20.6	14.7	12.9	10.6	9.8	11.8	7.6	7.4
Regular Coffee (milled)	18.1	16.2	14.9	16.6	19.4	18.2	25.0	27.0	26.4	24.2	24.2	20.8	18.9	16.0	15.0	18.5	13.4	13.5
Easy Type Drip Coffee	75.7	87.1	72.5	69.7	48.4	43.7	46.1	73.9	54.6	50.7	50.5	43.8	35.0	26.1	20.5	24.3	16.1	16.2
Other Regular Coffee																		26.4
Instant Coffee	31.7	32.2	36.4	36.9	37.0	35.4	38.8	40.0	33.2	31.7	34.2	34.7	31.5	27.1	23.7	28.0	19.6	17.5
Coffee Mix	98.2	113.3	94.6	118.7	82.8	47.4	42.1	42.2	46.1	52.4	47.8	46.1	44.5	33.3	27.6	32.2	19.4	19.0
Concentrated Coffee	39.7	41.6	34.5	46.7	45.5	48.1	26.3	22.9	68.2	35.0	32.9	36.9	28.0	27.0	21.1	21.6	17.8	20.1
Other Instant Coffee	30.0	24.5												152.3	247.0		133.3	11.6
Powder Cocoa	50.2	52.8	55.5	56.8	51.6	44.4	52.5	69.7	72.3	48.3	42.9	37.9	33.5	29.6	27.9	29.0	19.2	18.2
Malt Mix	31.1	27.9	29.3	34.5	36.6	35.8	43.0	41.0	44.6	28.4	30.4	33.1	33.1	26.8	21.9	26.5	17.5	23.3
Drink Mix for Milk	27.2	38.2	38.4	34.4	32.1	27.9	43.3	58.0	58.1	38.9	34.9	29.6	21.6	23.0	16.2	18.9	13.2	9.8
Other Cocoa				36.5				68.4	89.4	36.9	27.5	19.3	16.4	13.5	12.7	25.7	14.7	16.6
Tea	41.7	69.7	36.9	37.1	35.9	28.5	32.5	36.5	29.5	25.7	20.2	17.1	14.4	12.2	10.5	11.0	9.2	8.3
Tea Bag	65.1	63.1	64.0	61.3	53.7	47.0	51.8	60.1	56.1	47.8	37.7	30.7	29.6	25.8	25.2	27.3	19.5	18.3
Instant Tea	37.2	41.0	51.8	51.2	35.1	55.0	52.4	63.1	51.2	48.9	35.9	30.8	28.0	24.6	24.0	27.5	19.1	16.7
Concentrated Tea	28.2	15.3	25.6	28.0	33.7	27.3				80.8	50.6	30.4	21.6	18.1	19.3	19.8	20.2	
Herb Tea									32.1	34.0	14.7	19.8	30.6	16.0	25.5	16.4	7.8	9.9
Harb Tea Bag	6.6	61.9	107.7	128.4	275.3	151.7	36.3	54.7	54.3	45.4	30.5	22.2	19.0	16.5	18.8	16.2	13.2	13.7
Other Tea															1.4	2.7	2.0	1.5
Green Tea	63.6	60.6	54.9	53.2	52.5	47.8	52.7	63.1	52.4	47.4	35.9	33.7	30.9	25.8	23.3	26.1	18.0	16.0
Gyokuro Tea	35.4	37.6	64.7	63.5	61.8	56.6	52.1	51.1	43.8	36.8	24.2	22.2	20.7	18.3	15.4	19.9	13.7	11.1
Coarse Tea	124.5	263.0	241.8	335.4	464.1	198.1	195.9	208.2	237.1	219.7	87.0	90.2	65.1	57.6	45.2	53.2	27.3	20.8
Toasted Tea	100.6	74.0	85.8	89.6	84.1	71.9	79.0	110.5	84.0	76.4	52.0	50.0	47.0	38.4	35.7	45.8	32.8	33.5
Brown Rice Tea	55.8	57.3	56.1	69.8	83.1	75.0	81.6	91.8	73.6	71.3	56.0	52.4	49.4	40.3	37.4	43.1	29.1	27.2
Powdered Green Tea	126.5	52.0	78.3	71.7	63.6	101.8	111.7	205.6	254.3	186.5	68.6	42.5	49.5	35.1	32.8	32.3	16.2	14.7
Twig Tea	58.4	60.1	57.0	60.8	62.5	72.9	65.6	70.7	61.6	51.1	41.8	42.3	39.7	31.3	28.0	40.5	23.6	19.1
Green Tea Bag	97.3	63.4	122.9	94.3	146.5	136.3	127.6	120.7	87.0	86.7	60.8	52.3	51.6	43.3	41.3	45.0	29.6	27.0
Instant Green Tea	38.9	53.6	43.5	66.0	62.2	62.3	55.8	60.9	49.9	51.3	45.6	35.8	36.1	27.1	27.1	27.1	16.9	14.3
Other Green Tea	109.0	230.9	70.2	66.7	101.0	114.4	45.0	141.7	70.0	99.2	52.2	38.3	34.6	31.9	32.0	24.9	17.6	16.2
Barley Tea	101.0	105.5	143.0	110.9	157.4	221.6	156.2	308.6	131.7	141.2	99.6	99.1	89.0	66.3	55.3	56.6	32.8	30.4
Barley Tea Bag	64.9	64.4	65.2	60.6	60.9	66.1	73.9	78.3	71.3	53.8	54.6	60.7	55.3	50.5	47.3	43.0	40.1	42.6

Table 9
Average Spells of Regular Prices for Change (RDS-POS)

(days)

Class	Average Spells of Regular Prices for Change (RDS-POS)																		
	1988	1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Momen Tofu	31.6	44.3	46.2	49.7	38.2	49.0	43.7	40.1	41.5	44.3	40.9	34.8	32.7	38.1	39.8	36.4	30.5	28.3	30.5
Kinu Tofu	41.7	76.5	81.4	68.5	59.3	64.5	66.6	61.1	56.2	55.4	47.5	40.4	37.2	36.9	34.5	31.2	27.2	25.3	26.5
Baked Tofu	40.4	88.9	83.0	54.6	59.0	77.2	99.4	55.2	46.3	54.6	47.5	40.2	38.2	39.1	42.1	34.2	32.5	26.6	29.5
Flavored Tofu	23.6	70.8	65.5	73.3	68.2	74.2	58.5	67.4	56.3	49.1	38.5	32.3	26.6	23.2	24.3	26.8	20.8	18.5	18.3
Other tofus	18.0	8.6	20.0	24.9	32.4	29.2	30.6	29.0	24.0	22.8	19.6	20.0	20.6	14.0	11.8	12.5	13.2	12.2	10.4
Grain Natto	43.9	57.9	57.4	50.2	51.8	48.9	45.3	41.8	42.6	39.2	34.8	33.5	33.0	31.6	31.7	30.7	28.8	26.1	26.3
Crushed Grain Natto	55.6	79.5	92.2	120.4	104.0	83.7	93.1	64.4	65.1	73.3	64.0	53.5	45.7	45.0	53.4	52.3	42.9	42.2	47.3
Other Nattos	125.7	166.5	186.9	195.8	198.6	259.8	199.3	61.9	71.4	85.5	51.4	48.4	40.9	48.7	63.1	32.5	45.6	22.5	13.9
Butter	33.7	64.3	102.7	65.8	61.1	65.2	67.9	66.2	68.8	56.5	56.6	50.3	58.7	55.3	56.0	54.7	55.1	37.3	43.9
Mixed Butter	26.4	37.5	56.5	104.7	61.5	109.9	70.7	60.0	45.3	59.0	47.7	41.3	47.3	39.8	40.9	29.6	29.6	19.4	23.8
Other Butters			26.9	43.1	47.0														
General Milk	42.0	59.6	52.3	53.4	62.3	60.0	53.8	47.9	46.6	50.5	48.5	46.4	41.0	38.8	46.0	49.6	45.0	41.9	45.0
Processed Milk	44.9	64.6	62.4	60.3	52.7	52.7	58.5	53.3	52.5	49.1	50.5	48.5	43.8	35.0	41.4	38.6	41.9	42.0	46.3
LL General Milk	50.4	73.2	75.2	76.4	78.3	94.6	109.1	73.9	79.8	79.8	85.5	87.6	90.6	87.2	102.3	206.0	110.7	59.2	65.5
LL Processed Milk	77.5	122.8	150.1	138.0	160.3	204.1	277.5	149.4	154.7	173.0	167.5	132.7	120.3	57.1	32.3	63.6	42.0	31.1	24.8
Low Fat Milk							28.9	41.1	35.4	40.6	44.7	37.9	39.8	29.8	36.9	54.7	36.8	40.9	58.3
Constituent Adjustment Milk				74.5	73.7	45.8	47.3	54.9	45.9	38.5	46.1	34.2	39.1	42.7	53.4	72.1	61.2	47.7	47.3
Other Milks									14.0	23.3	15.0	11.3	11.1	11.4	5.7	24.8	73.7	223.0	18.0
Instant Chinese Noodle (Packed)	38.2	46.2	50.9	43.8	44.0	38.9	38.0	36.5	41.3	41.0	36.2	35.9	37.3	35.1	34.5	35.6	31.7	23.7	25.6
Instant Fried Noodle (Packed)	51.1	62.2	58.9	52.4	50.1	51.0	52.2	44.4	58.7	50.8	45.3	49.9	52.6	40.1	39.7	45.4	37.0	22.9	24.6
Instant Buckwheat Noodle (Packed)	61.7	132.8	199.4	54.6	104.8	103.5	86.4	114.6	69.5	95.9	30.7	38.8	46.2	48.5	40.3	38.2	52.1	31.0	31.4
Instant Udon (Packed)	69.5	140.2	67.5	55.3	85.8	65.8	54.0	53.7	95.1	65.1	38.6	46.1	54.2	41.9	41.8	45.4	53.3	34.7	31.5
Instant Cold Noodle (Packed)	22.7	24.9	23.9	23.1	28.5	26.6	25.6	34.7	19.7	17.5	19.3	19.4	21.9	21.0	17.5	19.8	16.2	9.4	12.2
Other Packed Noodle	39.4	75.1	73.9	66.0	59.1	74.1	70.9	101.8	79.7	87.1	72.5	50.9	51.9	57.7	55.5	26.3	21.3	17.7	22.3
Instant Chinese Noodle (Cup)	37.5	44.8	44.5	35.0	40.8	37.1	34.5	33.8	35.3	34.2	31.3	27.0	30.0	29.8	32.4	36.7	34.0	26.3	27.2
Instant Fried Noodle (Cup)	33.5	40.4	37.3	32.1	37.4	35.2	39.5	35.8	36.3	32.1	29.9	29.9	32.3	34.9	41.1	39.1	38.7	29.3	28.6
Instant Buckwheat Noodle (Cup)	39.6	54.0	62.4	49.6	52.4	44.6	35.0	33.3	39.9	41.3	38.3	31.1	33.9	35.7	37.5	41.6	40.4	26.8	26.9
Instant Udon (Cup)	45.7	63.1	64.0	47.5	62.6	49.5	38.0	38.4	45.8	41.0	37.9	33.0	37.7	37.3	37.0	41.9	41.1	27.8	28.4
Other Cup Noodle	71.5	120.0	46.7	41.4	92.0	62.9	54.3	42.2	46.8	62.7	52.7	47.2	51.1	43.6	49.0	48.4	42.8	28.0	27.8
Instant Chinese Noodle (Packed & Fresh)	54.0				45.0		19.1	25.5	35.4	27.2	28.2	43.7	44.3	34.5	14.5	9.6	18.4	20.7	17.5
Instant Fried Noodle (Packed & Fresh)							18.0	16.5	22.5	2.0		20.9	22.0	24.6	26.2	39.5	65.7	19.5	19.9
Instant Buckwheat Noodle (Packed & Fresh)		18.4	35.1	25.9	32.2	24.7	42.9	30.6	18.1	21.6	16.9	29.9	24.9	23.7	26.2	21.4	11.1	13.5	10.7
Instant Udon (Packed & Fresh)	29.5	34.7	57.7	46.9	41.7	41.4	36.9	39.7	41.8	47.7	42.3	26.7	38.1	39.1	41.9	46.8	39.6	22.7	21.2
Instant Spaghetti (Packed & Fresh)	39.9	55.1	46.2	38.8	36.0	47.8	42.2	42.0	48.1	45.7	28.7	34.9	34.4	29.6	31.6	36.2	27.8	20.7	17.4
Other Packed and Fresh Noodle	20.4	43.0	27.8	36.6	33.5	21.0	21.4	16.9	18.5	17.1	17.7	21.7	22.7	25.8	26.5	22.7	22.9	17.1	17.3
Instant Chinese Noodle (Cup & Fresh)	13.7	39.9	35.0	51.6	31.9	24.8	30.4	27.7	28.6	29.4	32.7	28.2	29.3	30.9	30.8	28.2	35.2	22.3	30.4
Instant Udon and Buckwheat Noodle (Cup & Fr	19.5	27.3	18.8	26.4	29.3	35.7	37.9	35.8	42.8	44.5	37.5	35.0	39.4	55.7	48.4	38.6	35.1	23.5	24.8
Instant Spaghetti (Cup & Fresh)									29.3	29.3	29.9	30.8	34.7	36.4	17.5	20.7	35.7	28.9	33.7
Instant Thin Buckwheat Noodle (Cup & Fresh)						25.8	129.2	54.0	22.7	29.6	37.4	36.6	57.6	143.5	96.5	124.7	138.2	45.8	103.5
Other Cup and Fresh Noodle	16.7	115.3			29.3	30.7	165.5	66.3	11.3	18.4	28.9	26.9	14.8	29.2	29.9	44.5	37.9	14.6	20.2
Regular Coffee (Beans)	13.8	21.1	22.8	18.0	22.2	20.7	20.7	21.7	23.6	28.1	19.9	26.0	17.7	23.4	15.9	11.8	12.4	9.3	12.2
Regular Coffee (milled)	9.6	14.2	12.9	13.9	14.7	14.8	15.6	17.5	18.7	19.4	19.8	22.7	22.8	22.2	18.8	16.7	16.9	12.7	14.3
Easy Type Drip Cofee	13.9	33.0	36.4	67.7	37.0	31.4	36.4	35.9	41.0	37.3	48.0	41.0	43.8	36.2	27.3	20.9	20.2	14.6	16.4
Other Regular Coffee																			7.0
Instant Coffee	22.4	26.0	27.6	31.1	25.9	28.4	28.5	31.1	29.0	28.1	25.0	27.1	28.3	30.4	28.3	26.5	24.2	17.4	17.0
Coffee Mix	25.7	50.1	63.5	83.4	65.5	48.0	34.7	26.0	26.8	38.8	39.8	40.0	41.0	45.3	30.2	22.0	22.0	16.6	17.0
Concentrated Coffee	24.2	31.0	20.8	36.3	35.8	47.7	54.1	34.3	17.4	19.2	16.4	21.3	28.6	26.9	18.8	16.6	13.9	12.2	13.6
Other Instant Coffee			25.4												21.3	20.0	55.4		
Powder Cocoa	29.0	56.5	45.1	42.1	33.9	34.4	31.6	35.1	38.5	46.0	39.2	37.6	38.5	38.4	31.9	30.5	25.4	18.4	18.2
Malt Mix	24.5	29.6	24.2	24.3	22.1	22.9	24.7	32.4	36.0	36.9	23.8	22.4	22.8	31.4	24.3	22.1	30.3	15.2	17.2
Drink Mix for Milk	13.1	20.8	20.7	24.3	23.8	26.0	20.8	29.4	30.2	28.4	23.2	20.2	20.2	19.0	21.2	18.0	16.3	12.0	11.3
Other Cocoa					11.8				23.3	44.8	19.4	15.4	14.6	17.5	10.4	10.6	14.6	11.6	13.5
Tea	17.0	33.6	37.8	41.3	25.7	25.1	33.1	32.7	29.6	33.8	27.3	19.9	22.6	19.1	14.7	11.8	12.1	10.4	12.1
Tea Bag	25.7	47.3	44.1	61.9	43.7	42.1	44.8	52.7	50.9	50.2	42.1	34.1	35.6	42.2	37.6	32.1	30.2	24.5	28.9
Instant Tea	17.4	25.1	32.2	40.6	34.7	31.0	46.5	35.9	30.9	35.2	32.6	28.5	32.5	40.8	27.5	24.3	22.2	17.2	16.9
Concentrated Tea	27.3	18.3	9.9	16.2	18.4	23.7	43.8					13.2		22.7	13.2	10.9	18.4	12.1	14.5
Herb Tea							9.0	13.7		133.0	13.6	13.1	14.2	14.2	42.4	33.3	16.4	10.1	14.8
Harb Tea Bag			16.8	34.9	39.8	38.3	482.7	57.3	35.4	27.2	30.0	23.1	33.4	49.3	31.0	26.4	21.3	14.5	17.6
Other Tea																		1.7	1.7
Green Tea	30.6	48.1	45.7	43.8	36.5	38.1	36.3	35.7	42.2	46.7	40.7	36.4	35.6	34.1	27.2	24.1	26.6	18.6	18.7
Gyokuro Tea	25.5	50.0	59.8	61.6	36.2	48.7	36.2	32.9	40.9	39.1	36.2	25.4	18.5	21.3	20.3	15.0	15.8	17.8	16.1
Coarse Tea	38.5	52.1	71.3	171.7	68.9	108.7	75.3	143.8	152.1	73.4	60.4	72.7	108.4	109.2	71.5	41.7	45.2	39.2	49.3
Toasted Tea	57.8	101.6	81.6	75.3	69.4	62.3	69.6	59.7	60.6	65.9	46.5	44.4	40.0	39.4	34.2	35.8	41.4	33.6	43.2
Brown Rice Tea	41.2	62.9	55.7	61.3	48.1	52.2	54.9	48.2	55.3	62.5	50.9	44.8	44.7	43.5	39.8	36.6	44.1	27.7	32.3
Powdered Green Tea	13.0	30.3	60.5	155.3	48.3	89.6	81.7	88.2	56.4	102.7	129.7	50.7	77.7	49.4	26.4	30.6	25.4	15.7	17.7
Twig Tea	33.3	41.4	47.6	57.3	40.4	58.7	68.2	55.7	38.9	44.4	36.6	43.0	46.0	53.2	29.8	28.0	39.3	24.6	26.8
Green Tea Bag	34.7	90.4	138.2	116.9	84.0	161.0	324.5	111.2	109.2	107.8	75.0	64.1	63.1	54.9	39.3	36.5	39.0	26.4	25.6
Instant Green Tea	24.7	64.7	49.3	64.2	54.8	72.1	53.7	40.7	27.2	29.1	40.7	31.0	37.5	35.3	26.5	23.3	21.6	14.9	

Figure 1

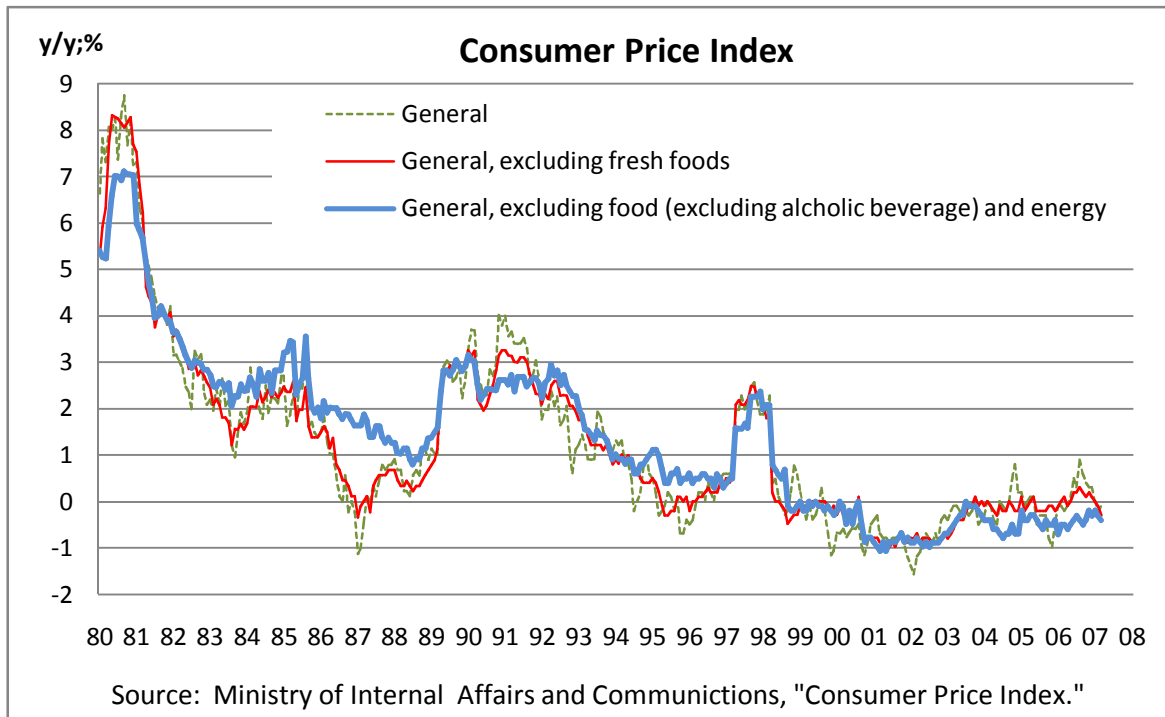


Figure 2

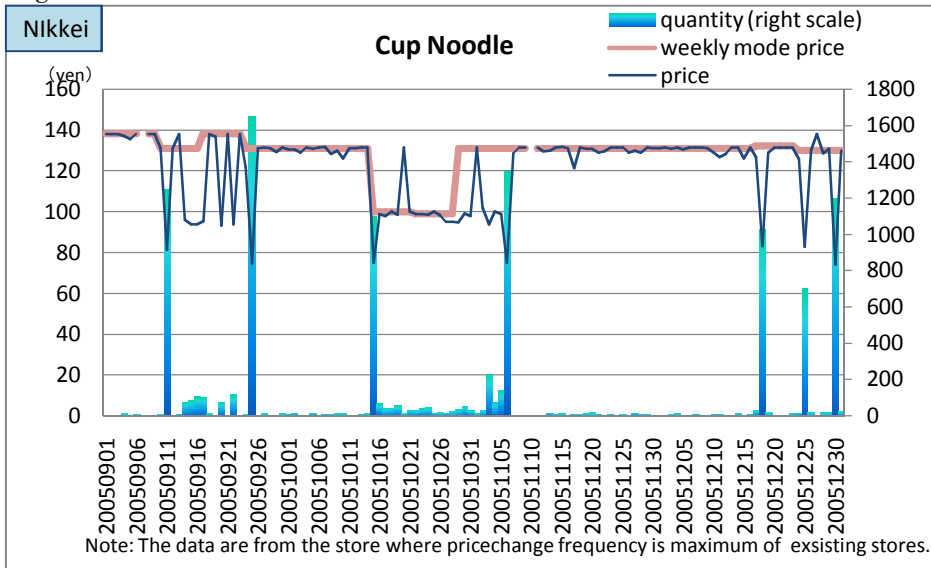


Figure 3

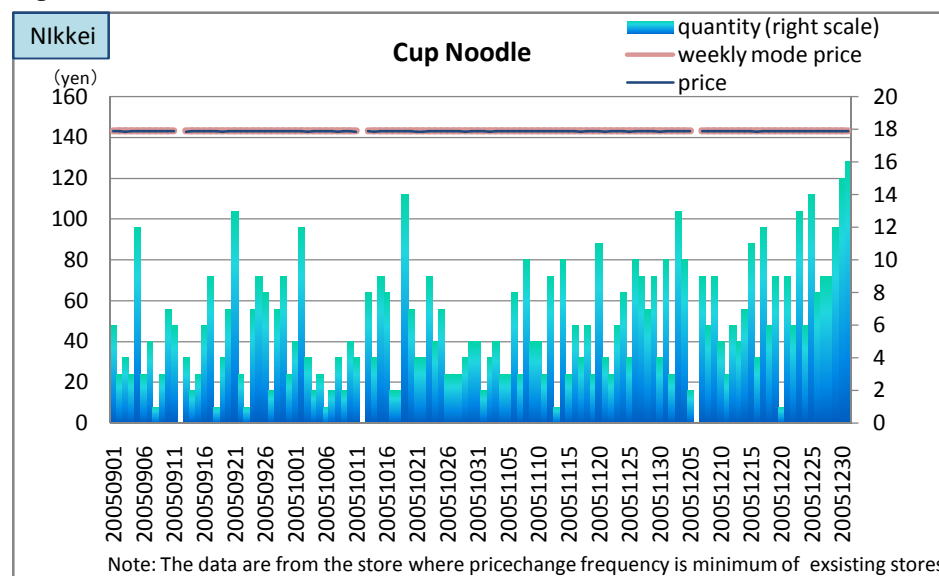
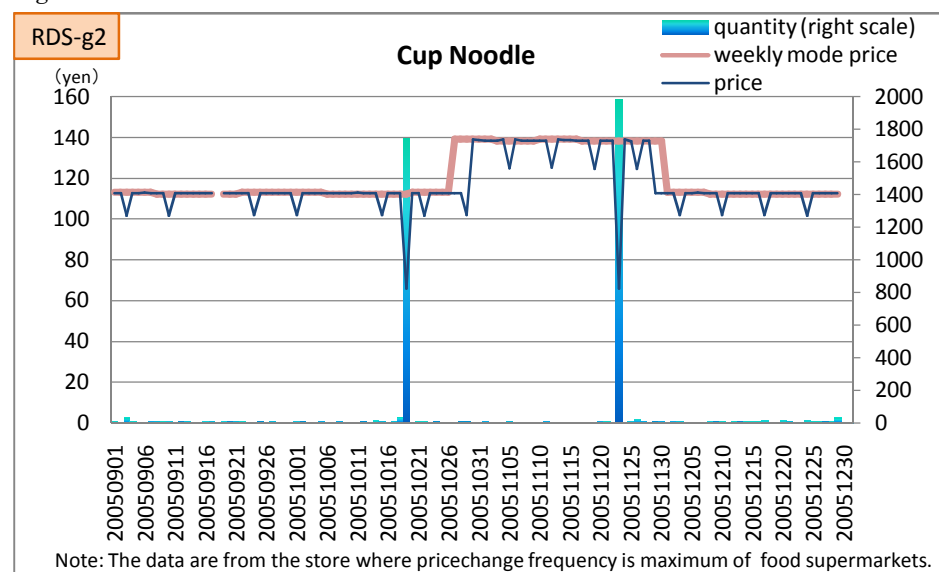
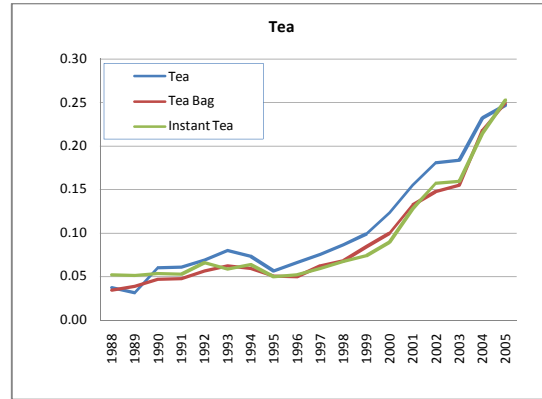
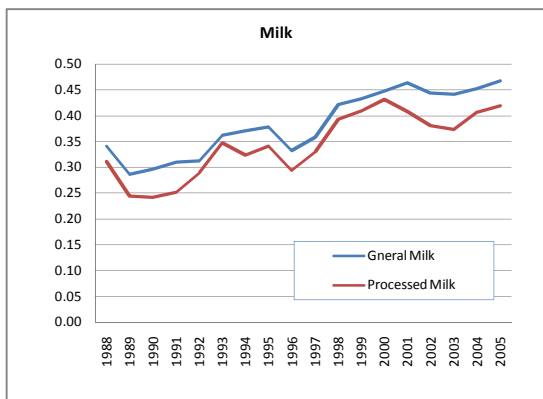
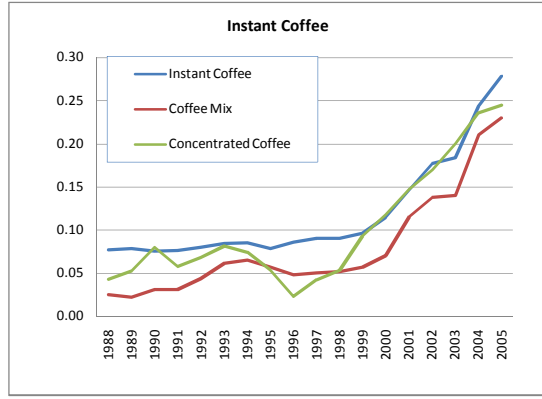
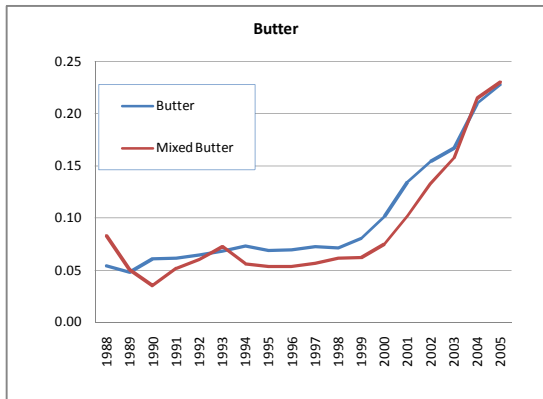
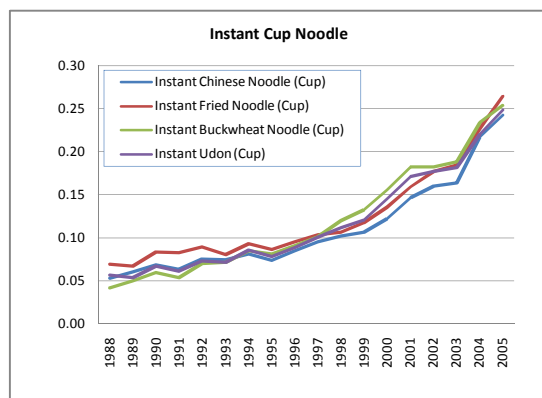
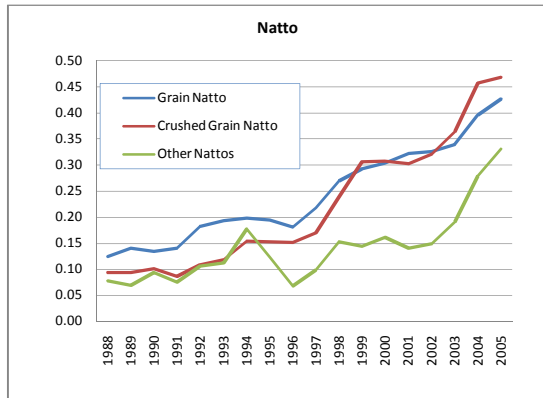
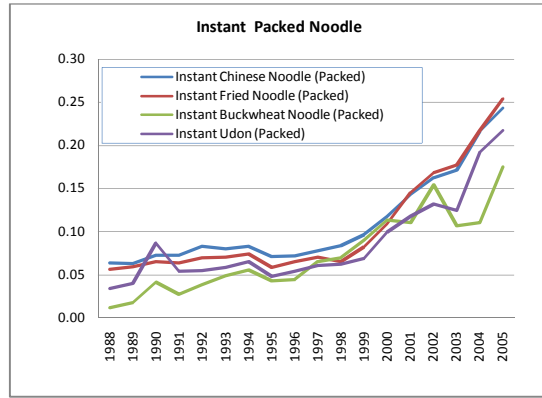
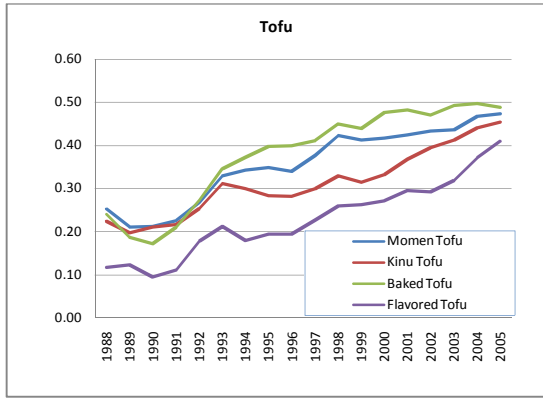


Figure 4



Figuar 5
Frequencies of Price Changes (Nikkei-POS)



Figuar 6
Frequencies of Price Changes (RDS-POS)

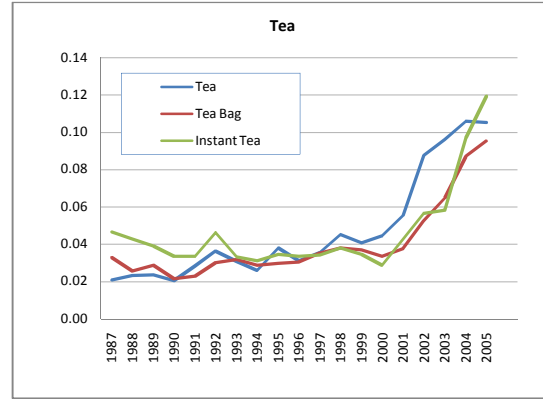
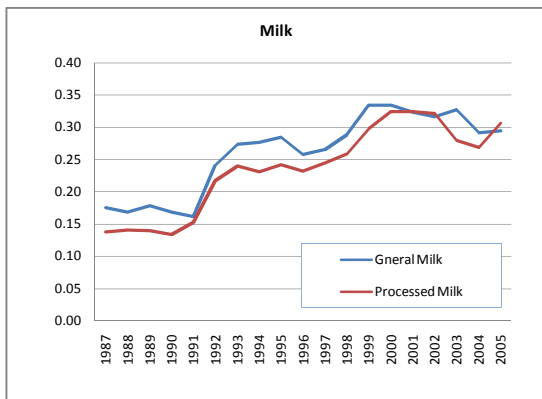
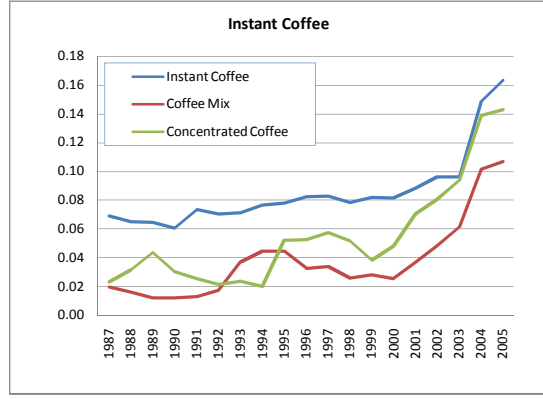
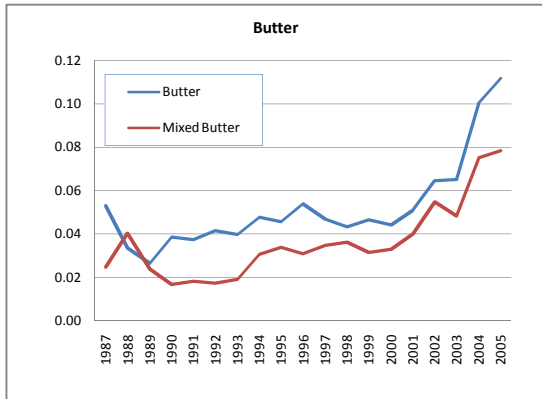
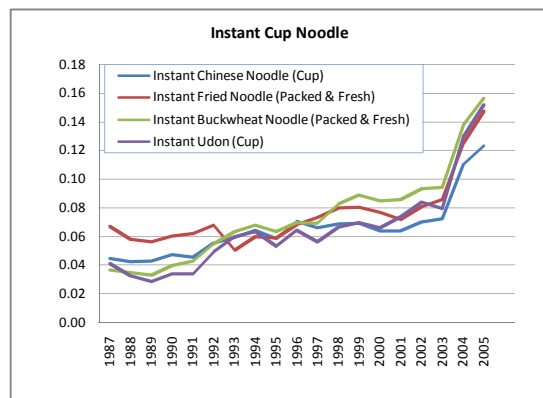
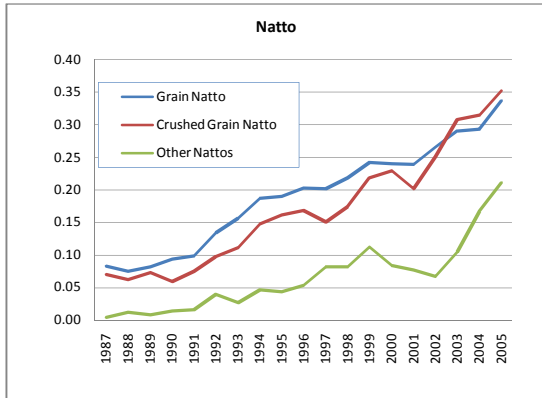
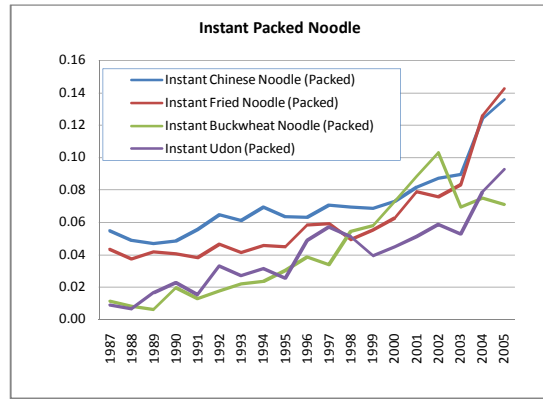
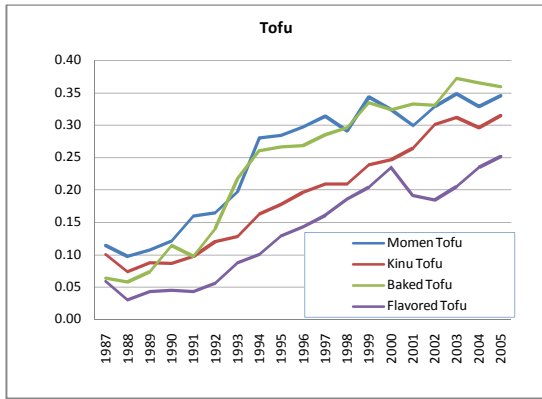


Figure 7
Standard Deviations of the Frequencies for Price Changes across Stores (Nikkei-POS)

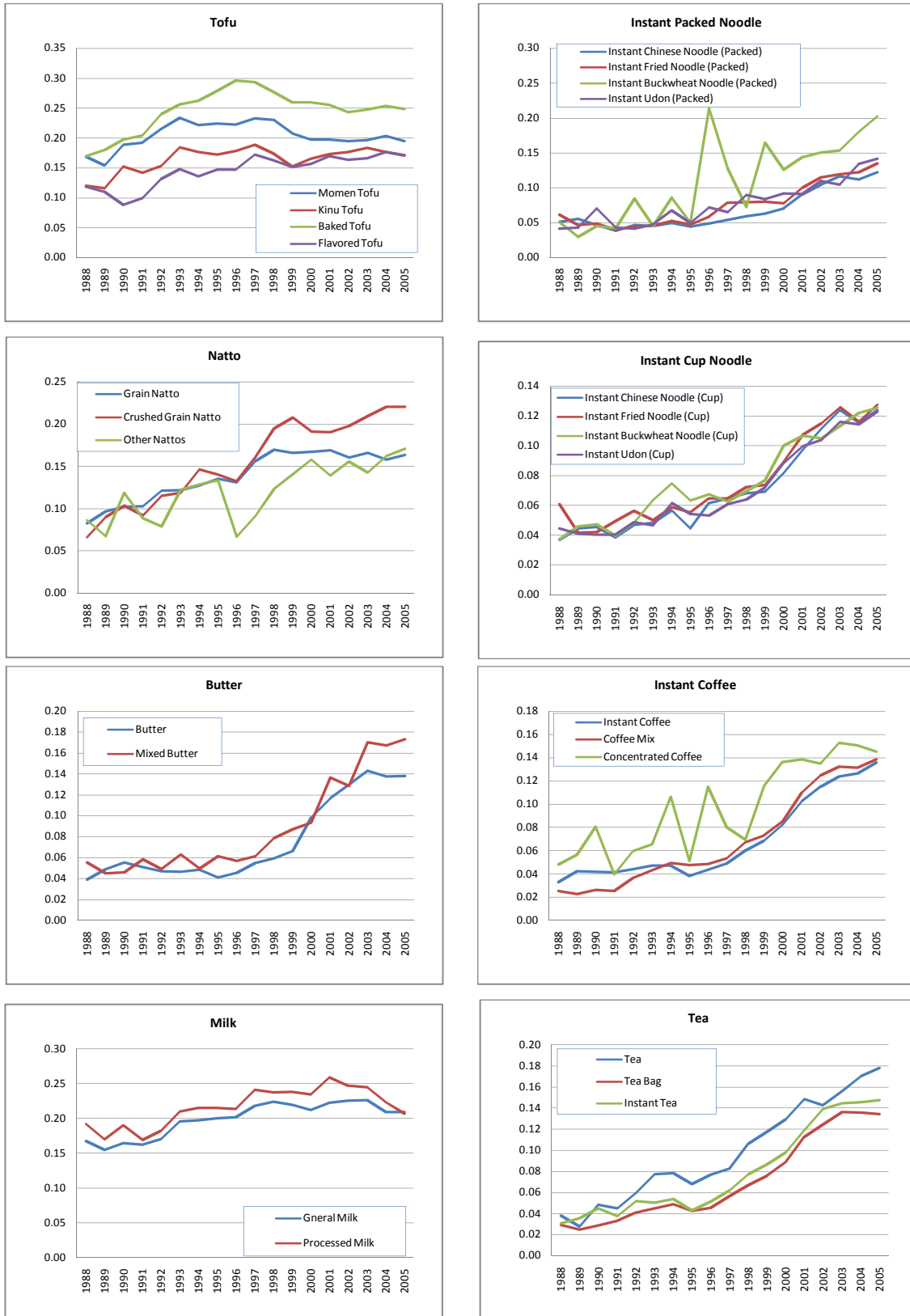


Figure 8
Standard Deviations of the Frequencies for Price Changes across Stores (RDS-POS)

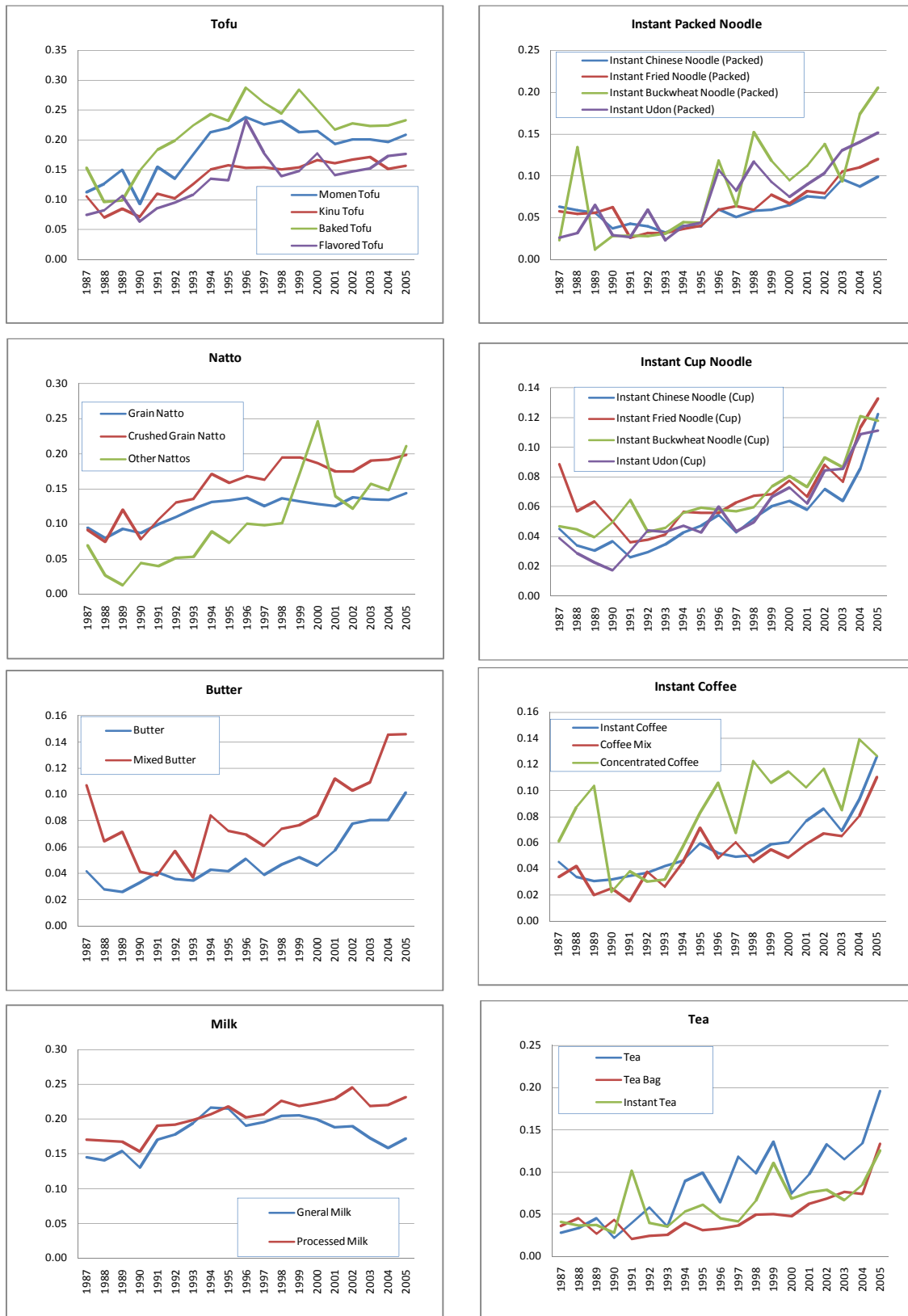


Figure 9
Frequencies of Bargain Sales (Nikkei-POS)

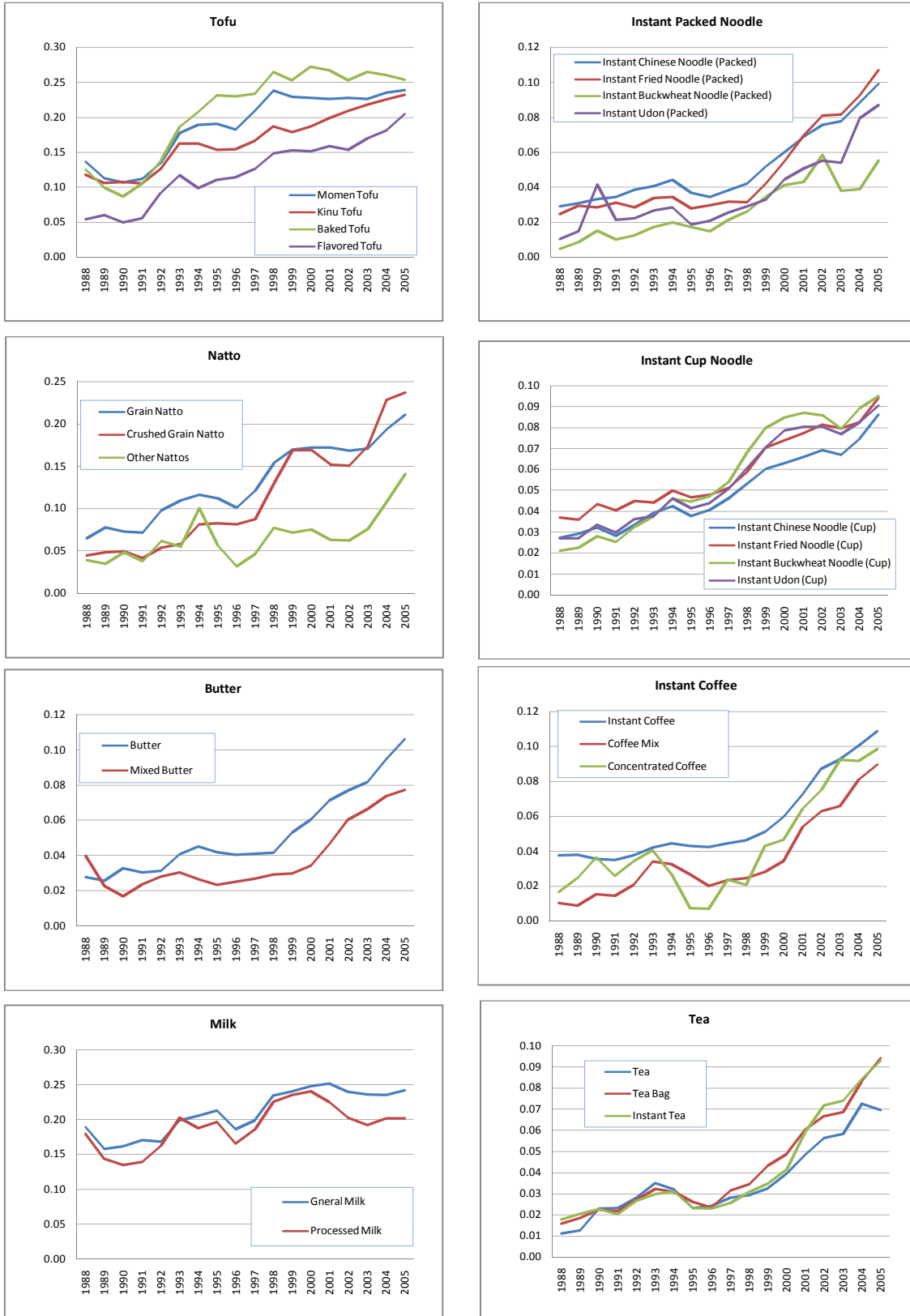


Figure 10
Frequencies of Bargain Sales (RDS-POS)

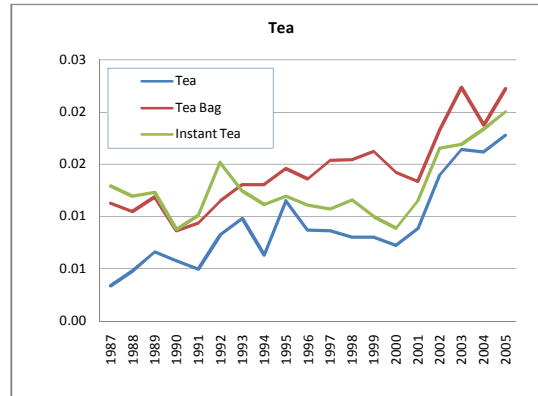
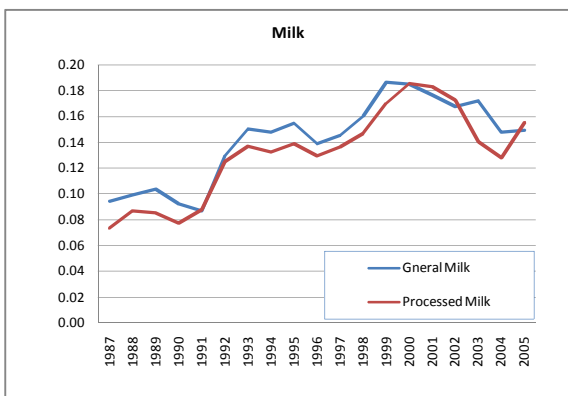
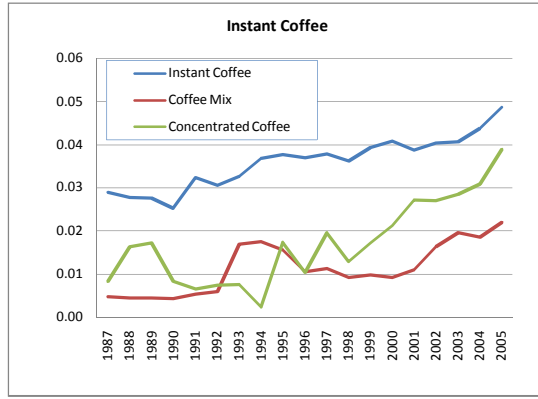
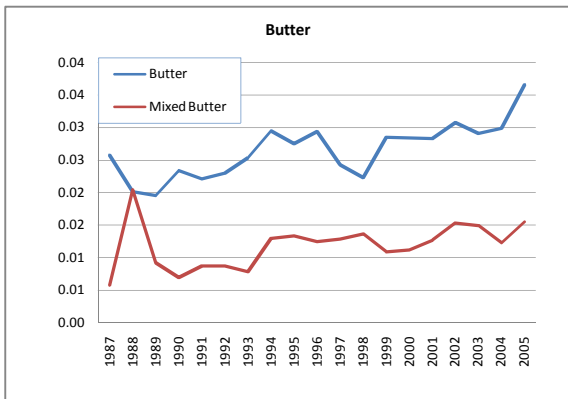
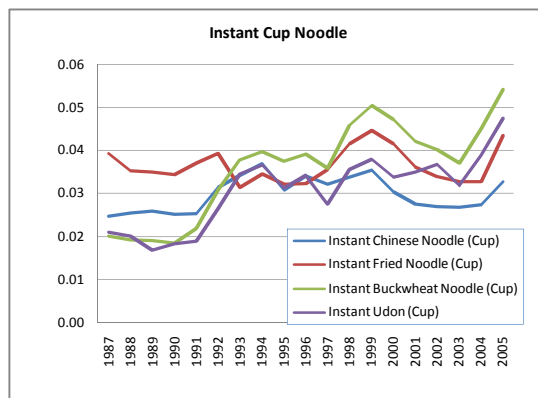
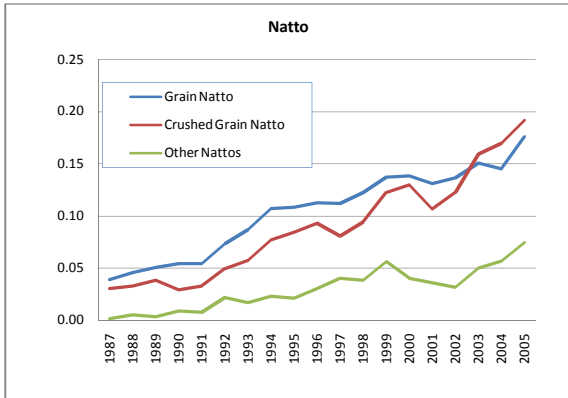
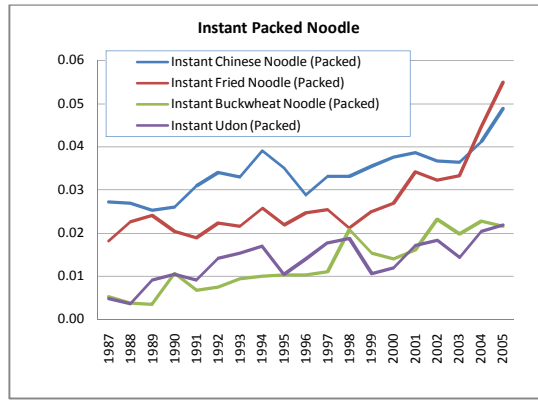
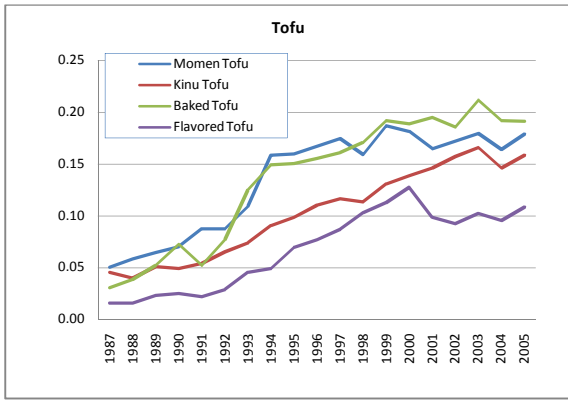


Figure 11
Average Percentage of the Price Decline by Bargain Sale (Nikkei-POS)

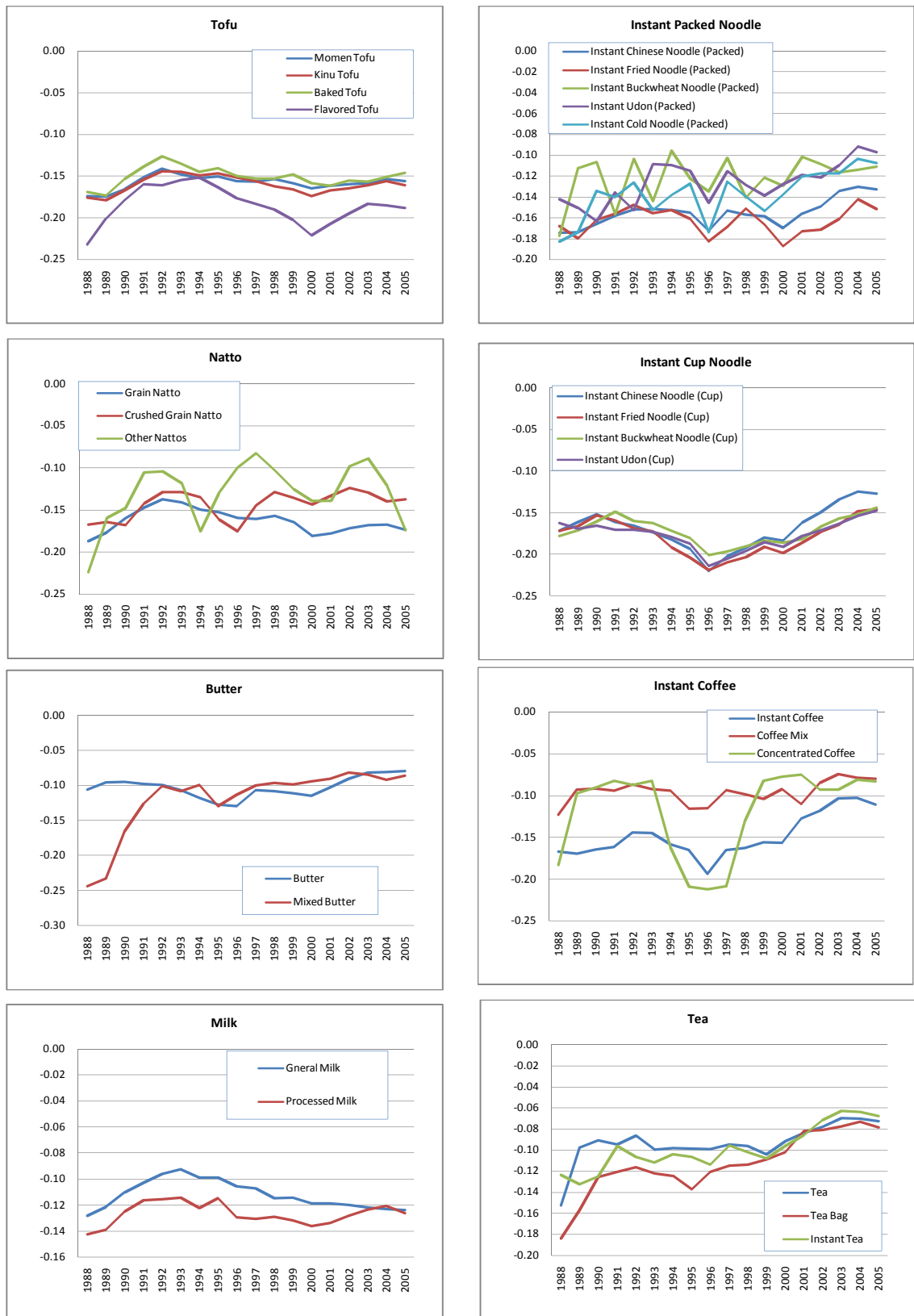


Figure 12
Average Percentage of the Price Decline by Bargain Sale (RDS-POS)

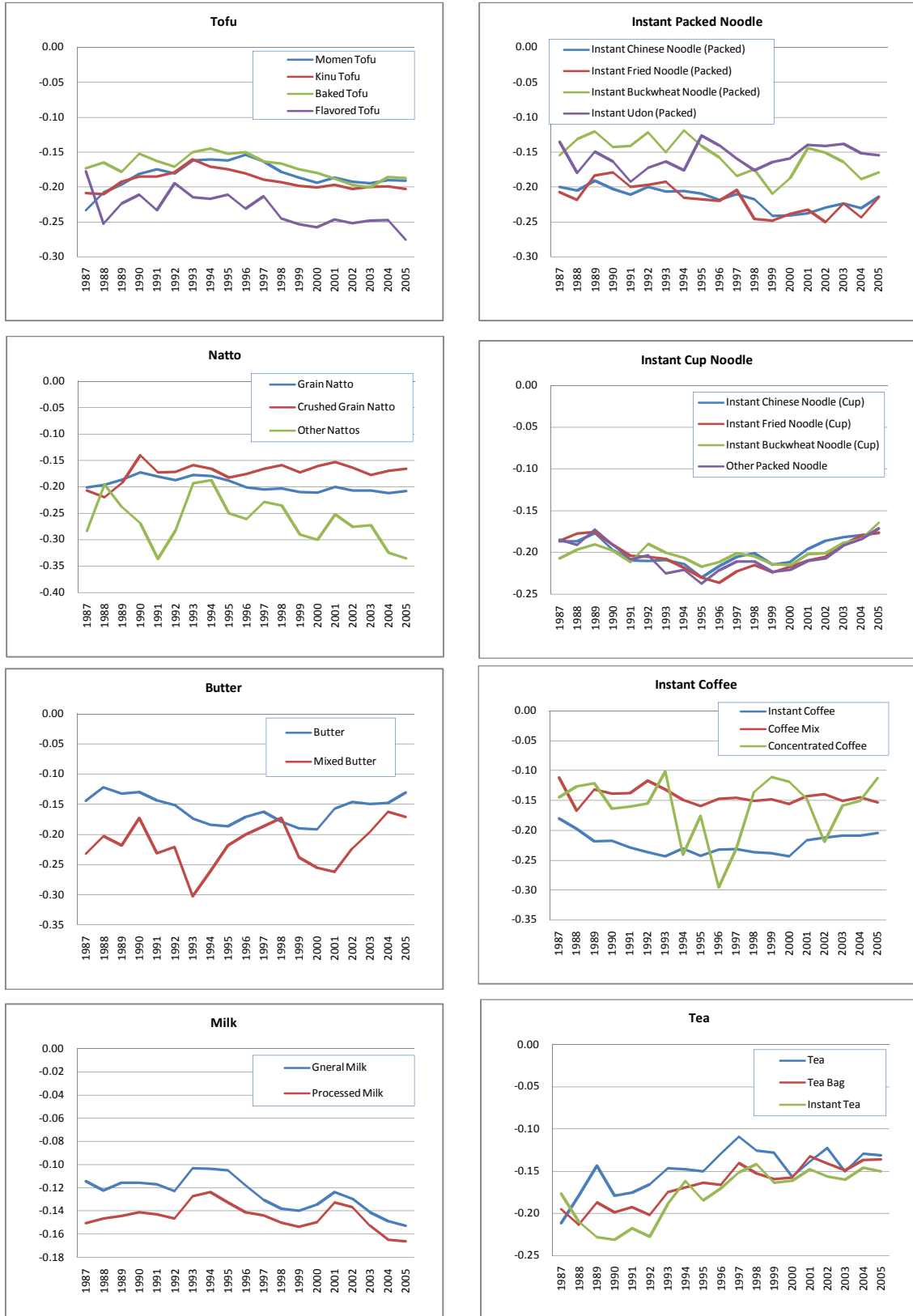


Figure 13
Frequencies of Regular Price Changes (Nikkei-POS)

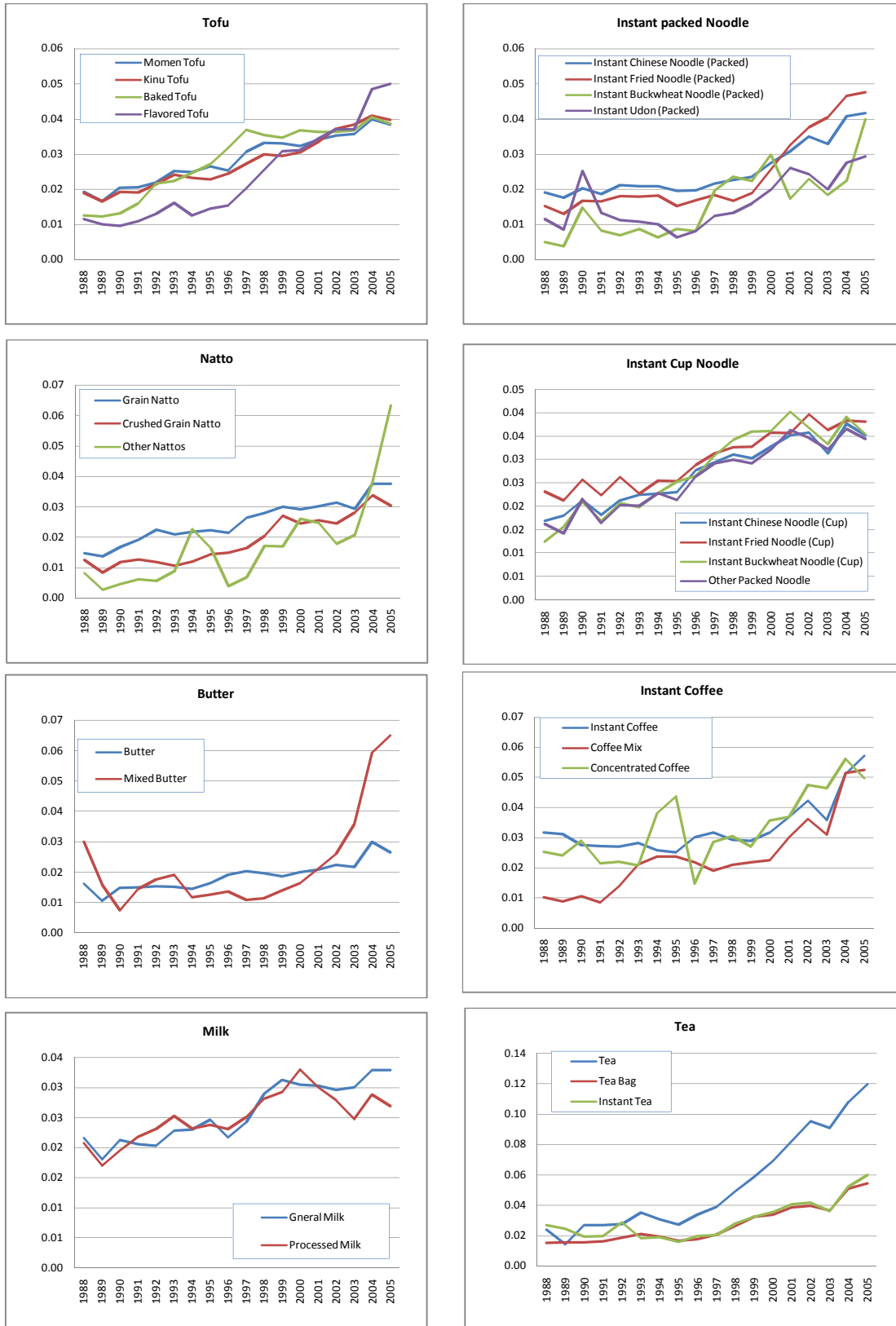


Figure 14
Frequencies of Regular Price Changes (RDS-POS)

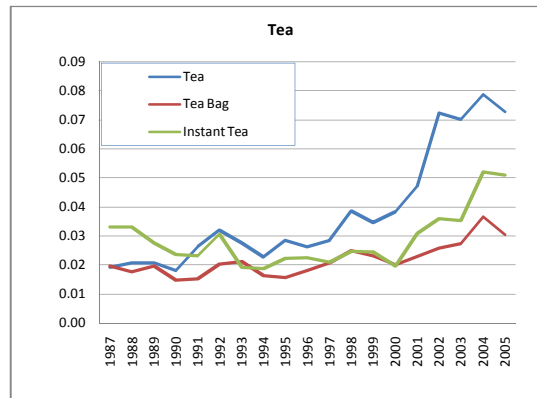
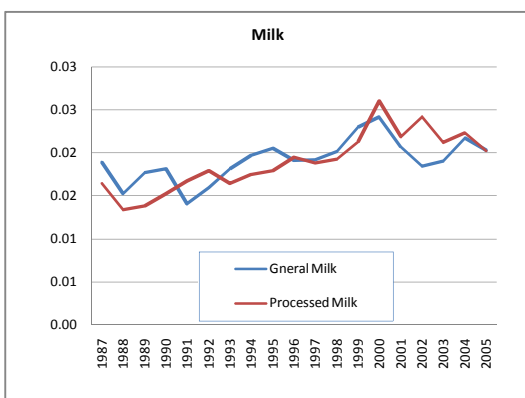
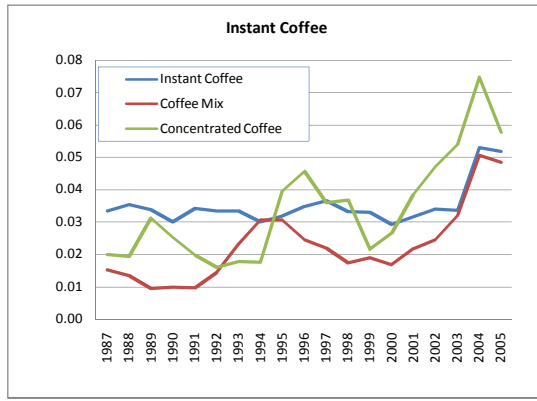
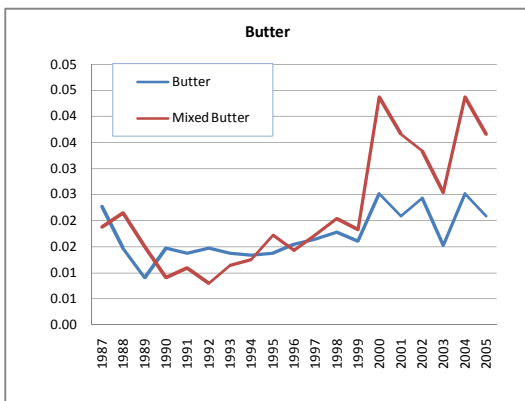
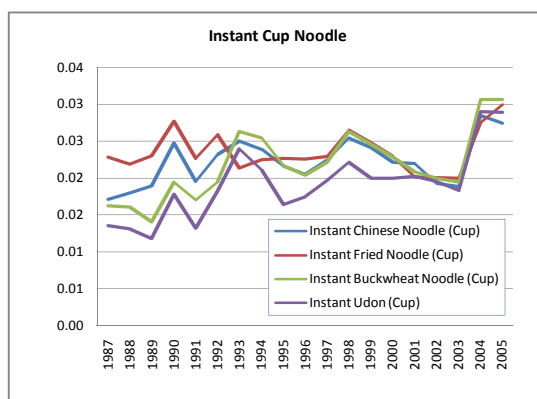
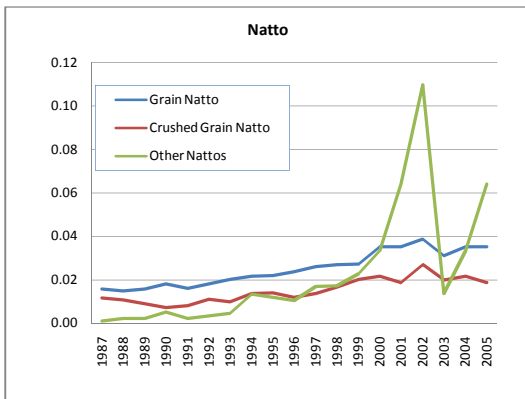
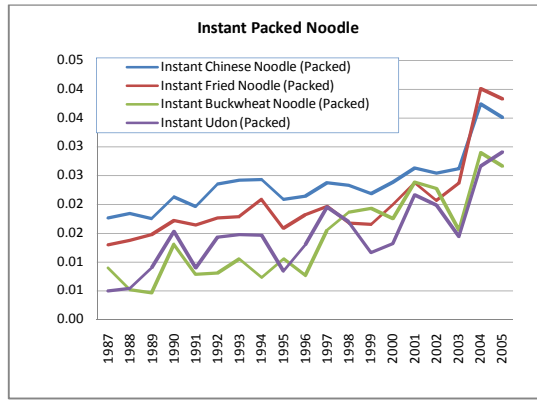
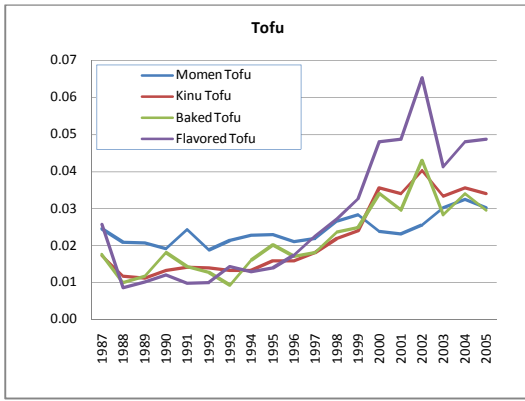


Figure 15
Standard Deviations of the Frequencies for Mode Price Changes across Stores (Nikkei-POS)

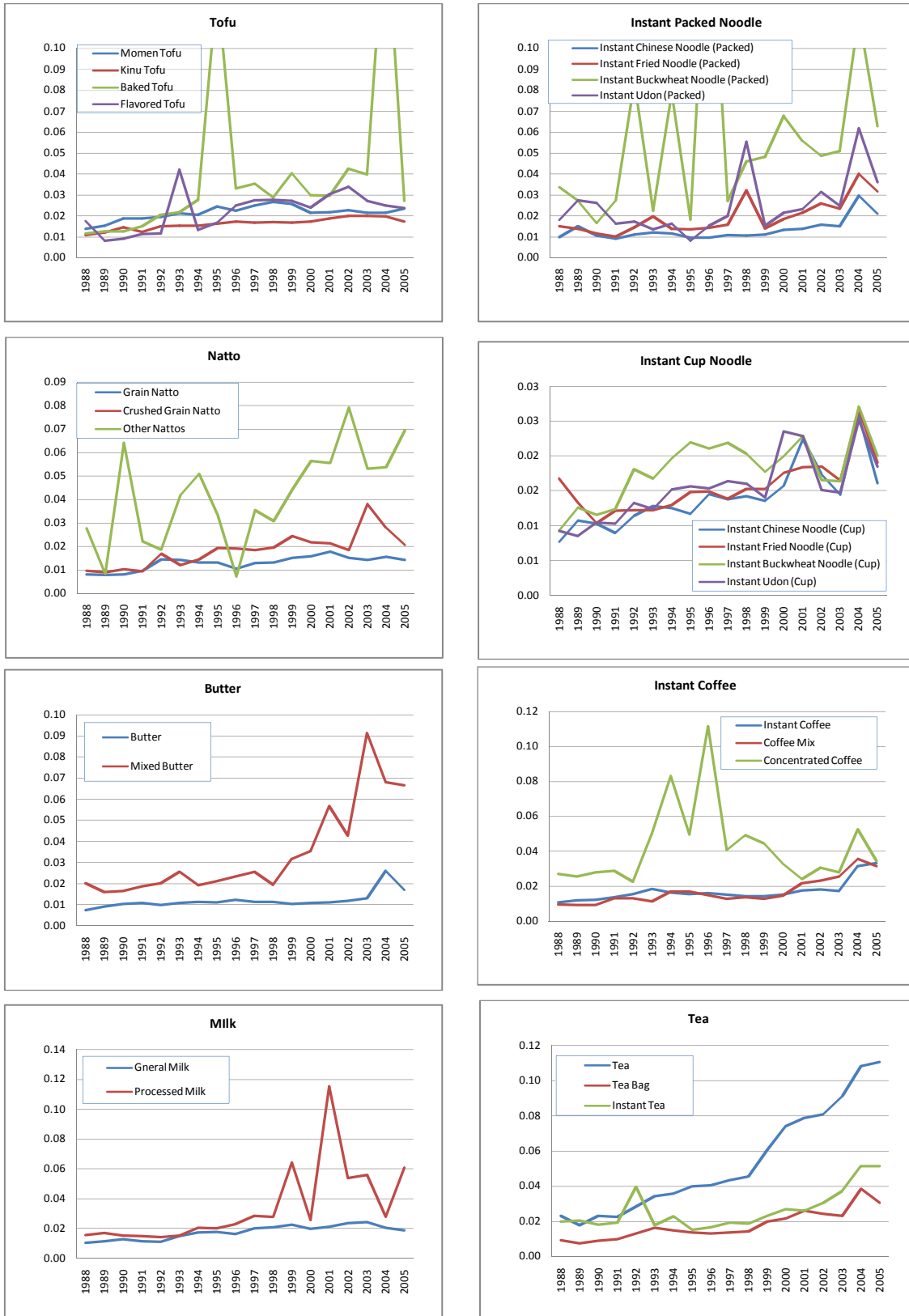


Figure 16
Standard Deviations of the Frequencies for Mode Prices across Stores (RDS-POS)

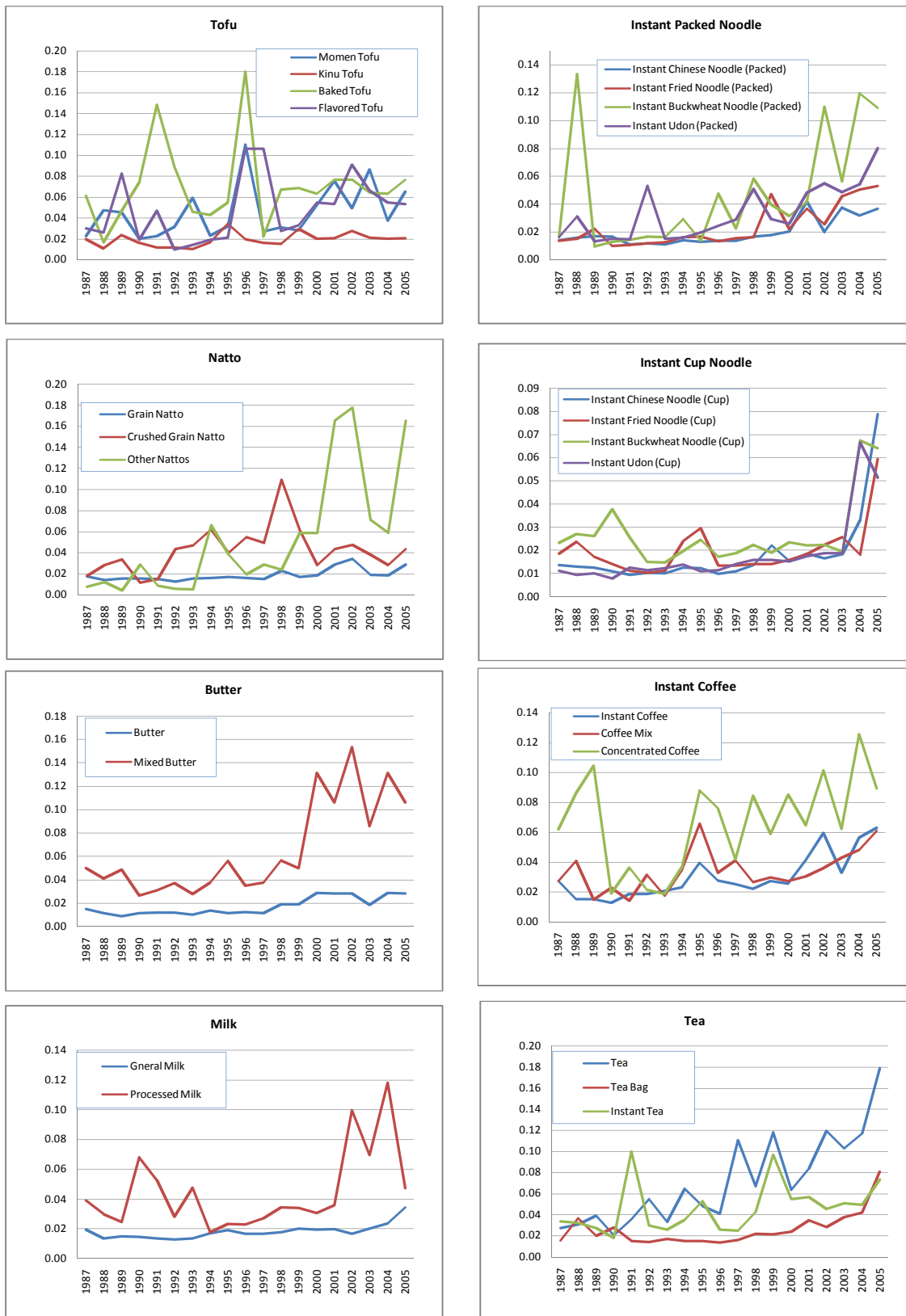


Figure 17
Bargain Sale Selling / Total Selling Ratio (Nikkei-POS)

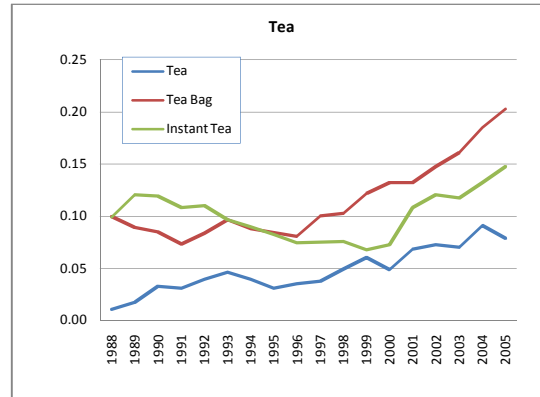
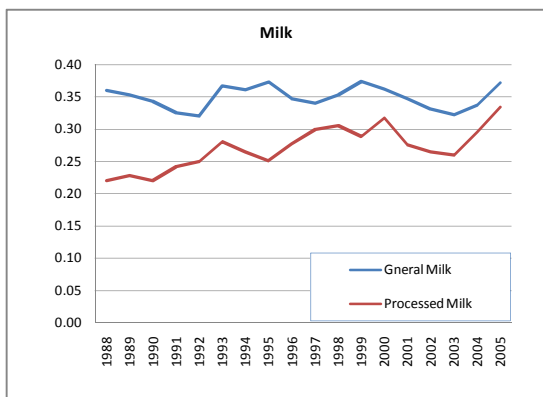
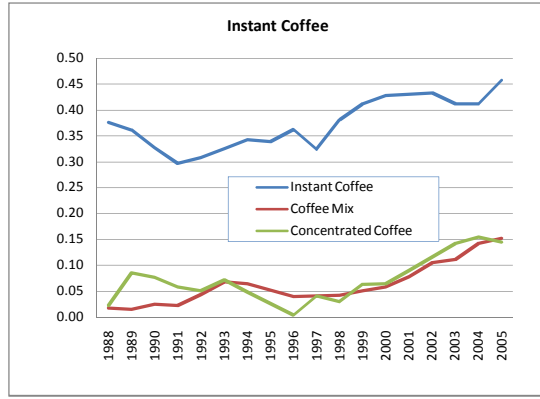
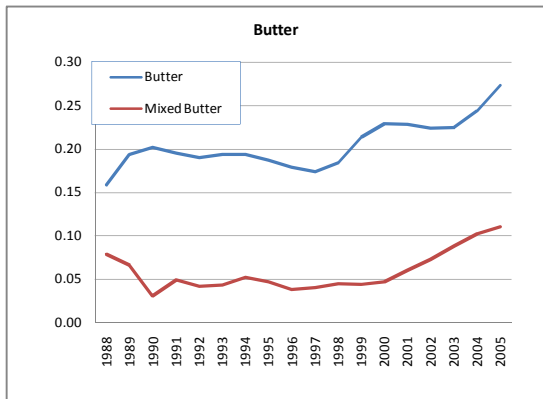
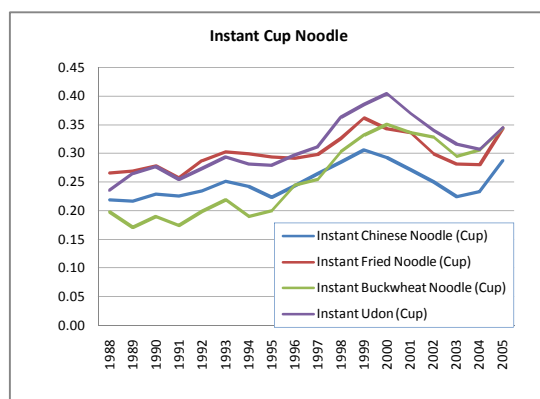
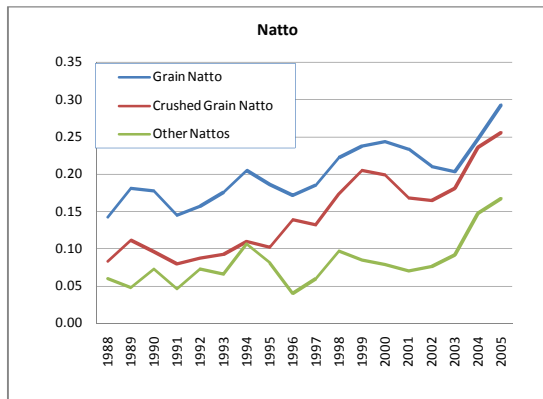
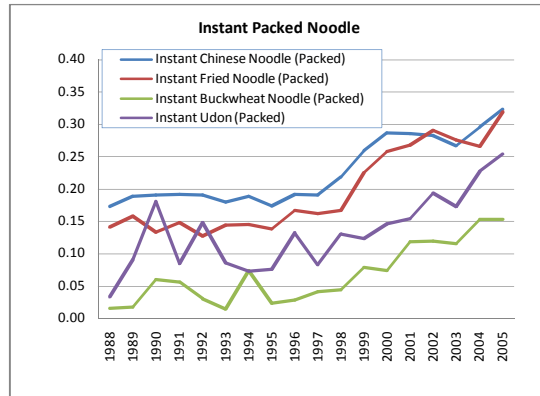
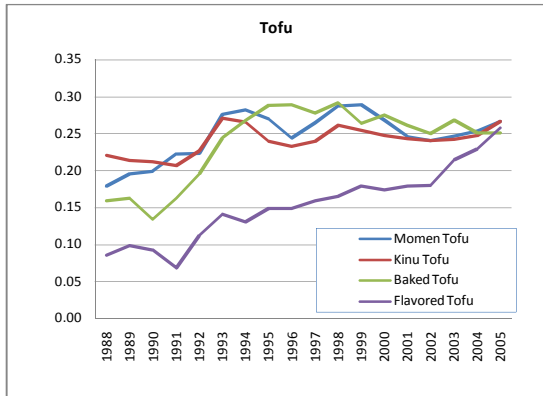


Figure 18
Bargain Sale Selling / Total Selling Ratio (RDS-POS)

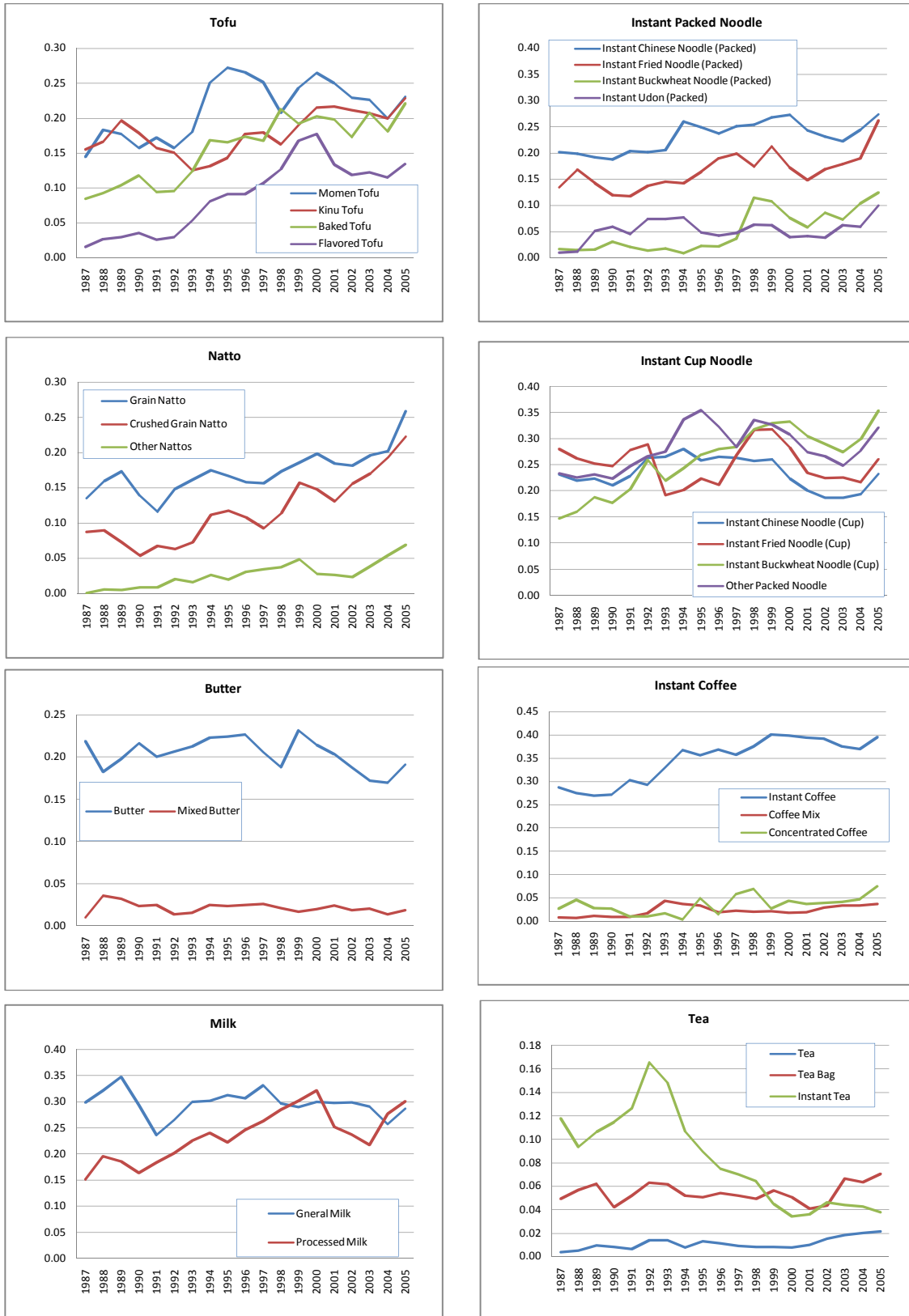


Figure 19
Price Gaps (Nikkei-POS versus RDS-POS)

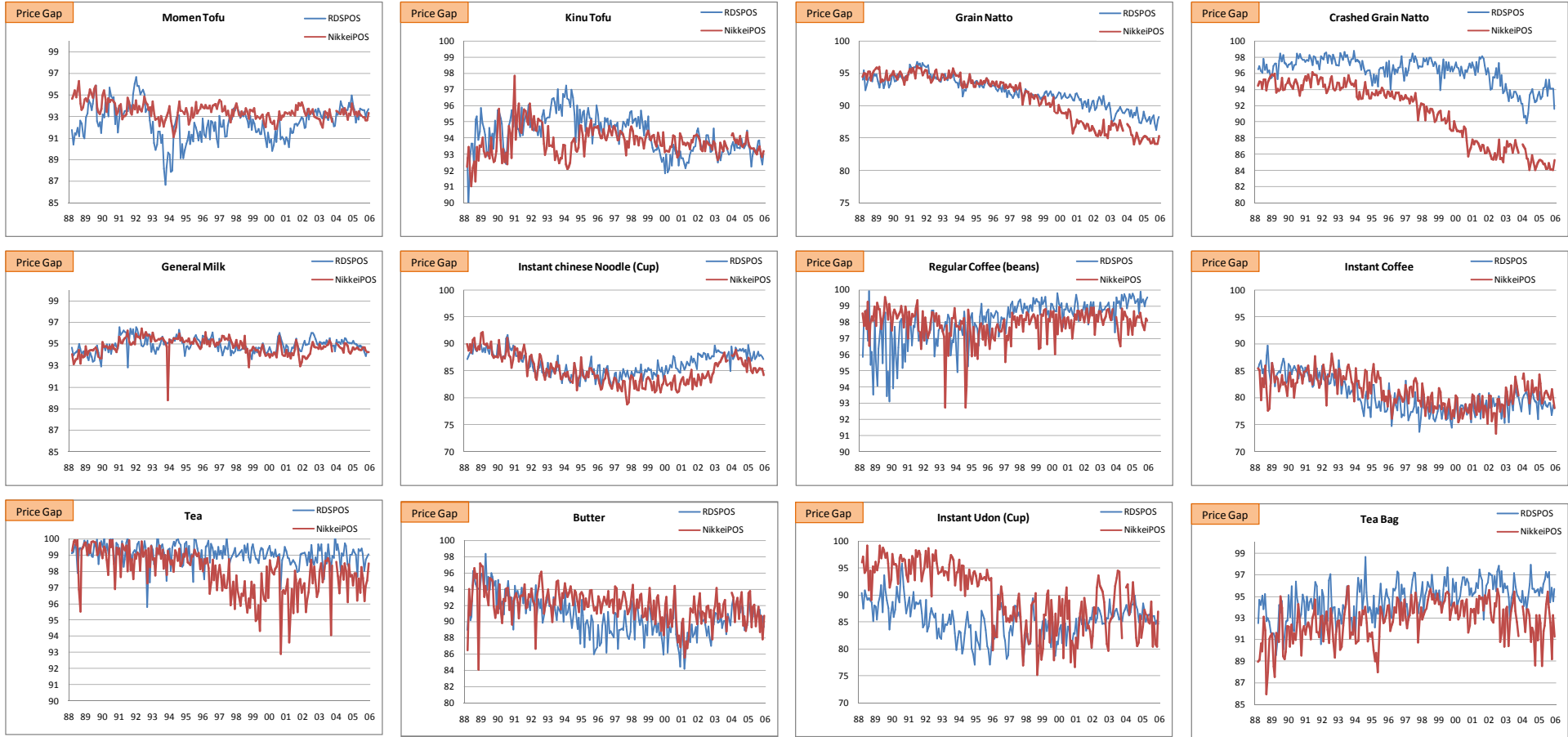


Figure 20
Price Gaps (RDS-POS)

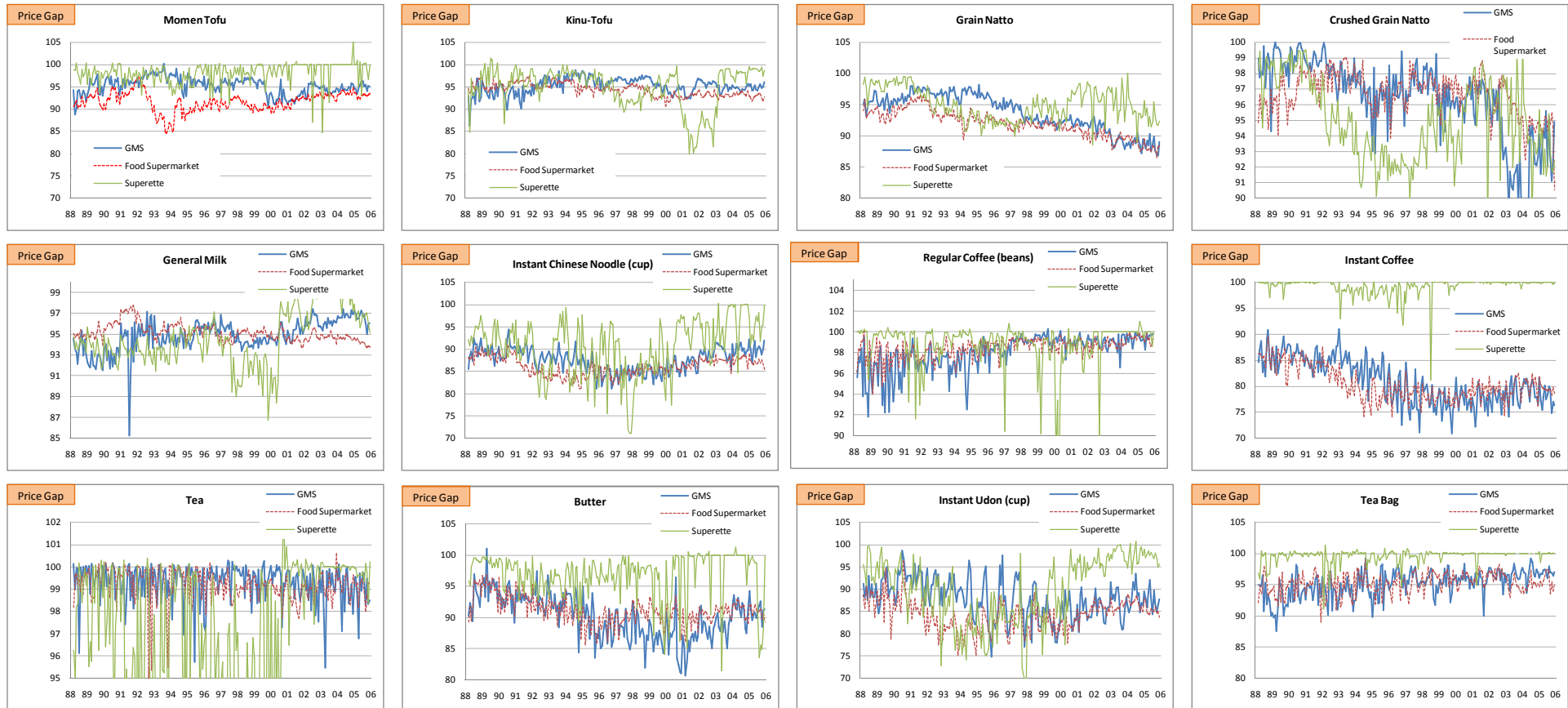


Figure 21
Levels of Aggregate Prices of 6 Major Classes

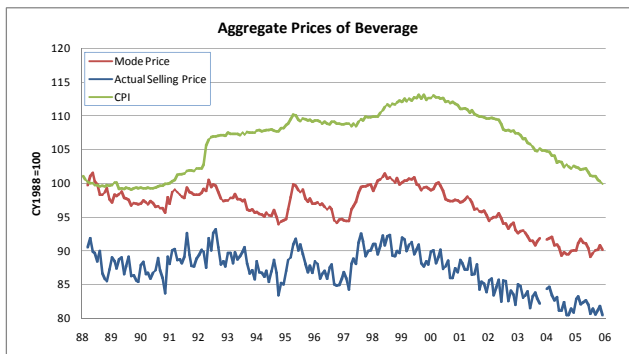
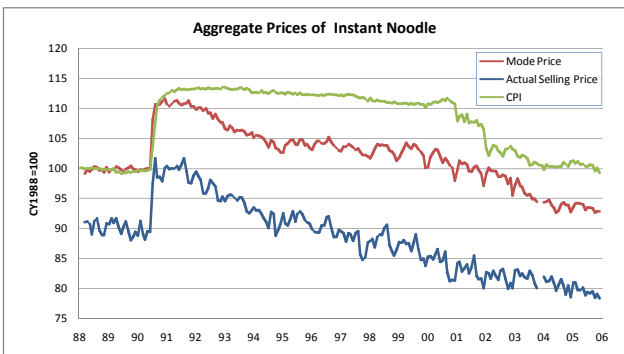
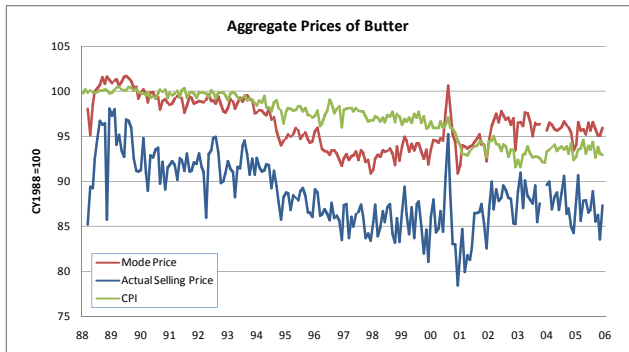
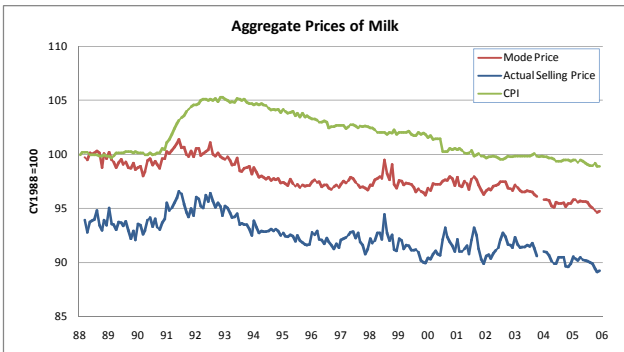
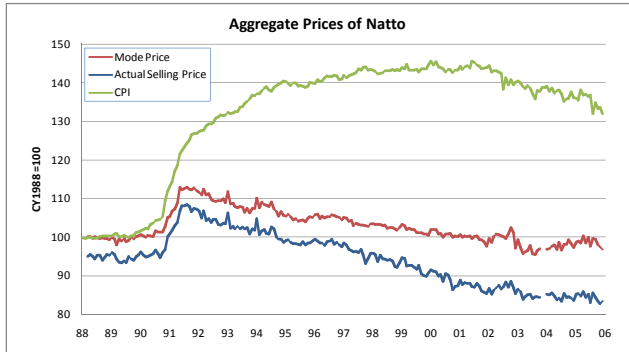
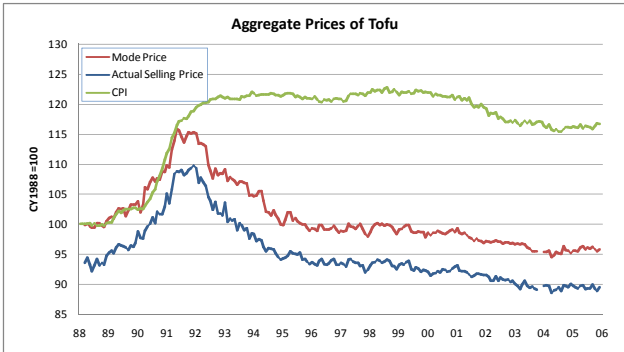
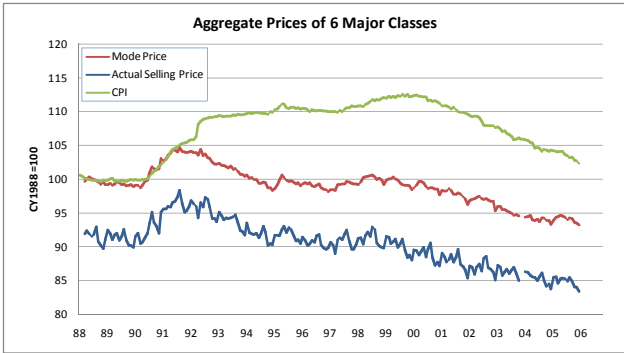


Figure 22
 Change Rates of Aggregate Prices of 6 Major Classes

