The U.S. Census Bureau separates the country into four regions which are in turn made up of nine divisions. For the store-level analysis we chose one store from each of the nine divisions; the national analysis relies on a much larger sample that is described below.

A1. Store Level Analysis

The particular stores were chosen as follows. First, we picked a random city in each division and then within that city identified the chain with the most number of stores. We then picked a random store within the chain and verified that it had no more than 15% of the weeks missing for the three main national peanut butter brands (Skippy, Jif and Peter Pan). We also checked that dominant selling UPCs were 16 to 18 ounce jars and that the main national brands were among the top sellers. If the most popular chain did not satisfy these conditions, then we selected the second largest chain in that city. We started this project before the most recent release of the data were available, so the screens were imposed using the data from 2001 to 2007. We used these same stores to study coffee, focusing on package sizes of 11 to 13 ounces.

To select UPCs for inclusion our analysis we start by identifying the top ten brands in each store in terms of average yearly sales. Importantly, most brands have multiple UPCs that are priced identically, such as "master blend" and "original roast" types of coffee. We aggregate all the UPCs within a brand where the correlation of the log prices price per ounce is greater than 0.85 (and the level of prices is within 15%). We do this iteratively to assemble all of the versions of a brand that are essentially the same. Once we have aggregated as many UPCs as is possible, we compute price for composite UPC by dividing the total dollar amount sales of all UPCs in the aggregate by the total ounces.

Having identified the top 10 UPCs in this fashion, we next eliminate private label and premium brands. We do this for three reasons. First, private label discounting strategies and demand is usually different than for branded items (at least for peanut butter and coffee). One way to see this is to recognize that the normal private label price is often lower than the sale price for branded UPCs, and yet many consumers do not switch. Second, the premium products (e.g. organic peanut butter or fair trade coffee) are such that even when they go on sale, they remain more expensive than the standard leading brands. So although there are undoubtedly some consumers that prefer generic or premium products, the willingness to switch between these products and the regular leading brands is undoubtedly more complicated than is posited by our model.

Finally, as a practical matter we are interested in exploring the importance of a best price for consumer behavior. The best price in many stores would almost always just be the private label price and the premium price would likely never be the best price. So by limiting the consideration to UPCs which have similar average prices we are capturing the kind of substitution that is described by the model. Hence, we implement this by pruning the set of candidate UPCs so that their average price per ounce is no moVariable Weight Aggregatere than 25% above or below the price for a reference price for peanut butter and coffee; the reference price for peanut butter in a given store is the average price of the national brands present in all the stores (Skippy, Jif and Peter Pan), while the reference price for coffee is the average price for the two national brands that were always present (Maxwell House and Folgers).[16]

The final step in our data construction is to exclude any UPCs which have substantial periods of missing data. We require a UPC to have been present in at least 6 years and to have non-missing observations for at least 60% of the total weeks in the sample. For the 9 stores in our store-level analysis this process leaves with us with between 3 and 5 brands per store that are used in computing the best price. The exact stores and brands are shown in Table A1.

[16] To decide which UPCs are excluded, we compute UPC specific price deviations from the reference price in each store in each week and then compute the average value of the deviation. If that average is above 25 percent in absolute value the UPC is dropped.

Table A1—Brands used by market

Store (Market)	Peanut Butter Brands	Coffee Brands
250517	JIF	FOLGERS
Charlotte, SC	PETERPAN	JFG
	SKIPPY	MAXWELLHOUSE
262433	JIF	EIGHTOCLOCK
Chicago, IL	PETERPAN	FOLGERS
	SKIPPY	HILLSBROTHERS
		MAXWELLHOUSE
534239	JIF	CHOCKFULLONUTS
Hartford, CT	LEAVITTTEDDIE	FOLGERS
	PETERPAN	MAXWELLHOUSE
	REESES	
	SKIPPY	
230491	JIF	FOLGERS
Houston, TX	PETERPAN	MAXWELLHOUSE
	SKIPPY	SEAPORT
224312	JIF	FOLGERS
Knoxville, TN	PETERPAN	JFG
	SKIPPY	MAXWELLHOUSE
286394	JIF	DONFRANCISCO
Los Angeles, CA	PETERPAN	FOLGERS
	SKIPPY	MAXWELLHOUSE
		MELITTA
		YUBAN
279568	JIF	CHOCKFULLONUTS
New York, NY	PETERPAN	FOLGERS
	REESES	MAXWELLHOUSE
	SKIPPY	
232633	JIF	FOLGERS
Saint Louis, MO	PETERPAN	MAXWELLHOUSE
	SKIPPY	WHITECASTLE
200439	JIF	EIGHTOCLOCK
West Texas/New Mexico	PETERPAN	FOLGERS
	SKIPPY	MAXWELLHOUSE
		MJB

Note: The IRI-designated store number is given for each city along with the brands used for the coffee and peanut butter categories. Brands are selected using the rules described in the text of the Data Appendix.

Summary statistics for the price aggregates used city by city are found in Table A2. Using the rules described above to decide which UPCs qualify for consideration in each store, the price aggregates are defined as follows.

Fixed Weight: In each city, for the sampled store, for each product, we construct a weighted average of the prices. The weights in the first quarter of the sample are equal to the prior quarter's quantity (ounce) share of each UPC. In each subsequent quarter, these weights are adjusted so that the weights are 15/16 of the weights used for the previous quarter and 1/16 of the actual quantity shares in the prior quarter. This reflects the BLS's procedure of rotating sampling units (a combination of a store and product) over a four year cycle. The fixed weight is simply the weighted arithmetic mean of the prices.

Geometric Mean: The geometric mean is constructed the same way as the fixed weight, but in the last step, a geometric mean of the weighted prices is calculated rather than an arithmetic mean.

Best Price One Month: We calculate the minimum price per ounce among all of the eligible UPCs over the entire month. For this calculation, each week of the year is assigned in its entirety to a calendar month. This is done because the data from the vendor are aggregated to the weekly level.

Best Price One Week: We calculate the minimum price per ounce among all of the eligible UPCs over each week.

Unit Value: We calculate the total spending on all the UPCs that qualify for consideration for each store and divide by total ounces.

A2. National Analysis

We complement our detailed findings for coffee and peanut butter by constructing national aggregates for more categories. Each category of the IRI Marketing Data Set is further divided (by IRI) into smaller categories. For example, the category "condiments" is divided into two subcategories, mustard and ketchup. We begin with these subcategories. We select 23 for our analysis. The main criteria for selection was that the category contained well-defined sizes of relatively homogeneous products and that the product set remained somewhat stable over the sample period. For example, we excluded diapers because the pricing is a function of both package sizes (24 diapers, 48 diapers, etc.) and sizes (Newborn, 3-6 months, up to 5T). Further, some of the more complex categories that we excluded experienced rapid product change. For example, in razor cartridges, 2 blade cartridges were the norm at the beginning of our sample, and had been supplanted by 3, 4, and 5 blade cartridges by the end of our sample. We also excluded products for which regulation and taxation could be a complicating factor (e.g. cigarettes). The remaining 23 categories are listed in Table A3.

For the calculation of national inflation estimates we followed the BLS sampling procedures to the extent possible. The BLS does not provide detail about product selection by category; their procedure is supposed to select a representative item in each store. For each of our 23 product categories, we consider the full span of sizes that are amongst the sizes represented by the 10 highest overall revenue UPCs nationally in the first and last quarter of the data (2001q1 and 2011q4, respectively). We include all of these product sizes in our sampling procedure unless removing the 8th, 9th, or 10th most popular item from the group reduces the distance from the smallest to second smallest item or the largest to second largest item by more than 10 percent. This replicates the judgmental decision we made in deciding how to pick the package sizes for coffee and peanut butter by essentially dropping any UPCs with unusual sizes if their market share is low.

For example, the overall most popular products for liquid laundry detergent

Table A2—Summary Statistics- City Data

		Peanut Butter	Coffee
Charlotte	Unit Value Price	0.116	0.248
	Fixed Weight Price	0.119	0.257
	Monthly Best Price	0.101	0.214
	Geometric Mean Price	0.118	0.256
	Total Ounces Sold	8073	3431
	Observations	129	129
Chicago	Unit Value Price	0.140	0.315
	Fixed Weight Price	0.151	0.328
	Monthly Best Price	0.118	0.25
	Geometric Mean Price	0.150	0.325
	Total Ounces Sold	4277	1221
	Observations	129	129
Hartford	Unit Value Price	0.126	0.224
	Fixed Weight Price	0.140	0.266
	Monthly Best Price	0.108	0.186
	Geometric Mean Price	0.138	0.264
	Total Ounces Sold	12898	10522
	Observations	129	129
Houston	Unit Value Price	0.118	0.274
	Fixed Weight Price	0.121	0.277
	Monthly Best Price	0.104	0.245
	Geometric Mean Price	0.121	0.276
	Total Ounces Sold	2414	2538
	Observations	127	127
Knoxville	Unit Value Price	0.118	0.248
	Fixed Weight Price	0.120	0.253
	Monthly Best Price	0.108	0.220
	Geometric Mean Price	0.120	0.252
	Total Ounces Sold	4501	2800
	Observations	129	129
Los Angeles	Unit Value Price	0.162	0.325
	Fixed Weight Price	0.165	0.341
	Monthly Best Price	0.141	0.258
	Geometric Mean Price	0.164	0.338
	Total Ounces Sold	4576	6339
	Observations	129	129
New York	Unit Value Price	0.123	0.221
	Fixed Weight Price	0.140	0.279
	Monthly Best Price	0.101	0.177
	Geometric Mean Price	0.139	0.275
	Total Ounces Sold	9218	15538
	Observations	129	129
St Louis	Unit Value Price	0.117	0.275
	Fixed Weight Price	0.129	0.288
	Monthly Best Price	0.097	0.239
	Geometric Mean Price	0.128	0.286
	Total Ounces Sold	9233	3339
	Observations	129	129
West Tx	Unit Value Price	0.138	0.314
	Fixed Weight Price	0.148	0.321
	Monthly Best Price	0.113	0.252
	Geometric Mean Price	0.147	0.319
	Total Ounces Sold	2692	1391
	Observations	121	121

Note: For the rows that reference prices, the prices are per ounce for each of the different aggregates.

in 2001 and 2011 range from 50 to 200 ounces. The 200 ounce product is the ninth most popular product, and the next largest size represented in the list is 150 ounces. So, we define the category as containing sizes from 50 to 150 ounces. Prices are, of course, computed in per ounce measures for aggregation.

We gather all the UPCs that fit our criteria description in each store and calculate the total amount spent on these items in each month divided by the total ounces sold in that month. We call this the benchmark price per ounce for that store in that month. To exclude premium products, we keep all the UPCs which have a price that is plus or minus 25% of the benchmark price. Having trimmed the data in this fashion, we are left with a data set with the properties described in Table A3.

The IRI coverage does not match the population distribution of the U.S. so we do not want to just sample randomly from these stores. Accordingly, we divide the US into the four regions used by the BLS: The Northeast, Midwest, South, and West. We then sampled from each of these regions to get a distribution of stores that would mimic the BLS sampling weights for these regions. For each product for each month, we sampled 48 prices from the Northeast region, 48 prices from the Midwest region, 80 prices from the South and 64 prices from the West.

Table A3—Product categories used for national analysis

Category	Small Category	Table label	Size	Stores	UPCs
Beer	Domestic beer/ale	beer	8 - 20 OZ	2,567	902
Carbonated Beverages	Regular soft drinks	soft drinks	67.6 - 144 OZ	3,134	1,328
Coffee	Ground coffee	coffee	11 - 39 OZ	3,125	1,002
Deodorant	Deodorants	deoderant	2.25 - 10 OZ	3,172	1,797
Facial Tissue	Facial tissue	facial tissue	69 - 372 CT	3,192	161
Frozen Pizza	Frozen pizza	frozen pizza	10.2 - 38 OZ	2,953	769
Hotdog	Rfg. frankfurters	frankfurters	12 - 16 OZ	2,735	381
Laundry Detergent	Liquid laundry detergent	laundry	50 - 150 OZ	3,130	569
Margarine	Margarine/spreads/butter blends	margarine	0.9 - 2.85 LB	2,808	138
Mayonnaise	Mayonnaise/sandwich spread	mayo	15 - 32 OZ	3,074	165
Milk	Rfg. skim/low-fat/whole milk	milk	64 - 128 OZ	3,076	2,438
Mustard & Ketchup	Ketchup	ketchup	20 - 64 OZ	3,115	64
Mustard & Ketchup	Mustard	mustard	8 - 20 OZ	2,743	197
Paper Towels	Paper towels	paper towels	1 - 12 RL	3,123	395
Peanut butter	Peanut butter	peanut butter	15 - 40 OZ	3,117	180
Razors	Razors	razors	2 - 7 CT	3,152	211
Shampoo	Regular shampoo	shampoo	12 - 32 OZ	3,159	738
Soup	Rts. wet soup	soup	2.1 - 288 OZ	3,116	711
Spaghetti Sauce	Spaghetti/Italian sauce	spaghetti	15 - 67 OZ	3,102	390
Sugar Substitutes	Sugar substitutes	sugar sub	4 - 24 OZ	3,143	68
Toilet Tissue	Toilet tissue	toilet tissue	4 - 24 RL	3,165	440
Toothbrushes	Manual toothbrushes	toothbrush	1 - 32 CT	3,172	888
Toothpaste	Toothpaste	toothpaste	1 - 6.4 OZ	3,170	697

Note: These are the categories used to study inflation in the body of the paper. The category name is created by IRI. To insure the homeogeneity of goods, we limit our analysis to the subset of each category that is listed under the heading "small category." The product sizes are those we use in the analysis and the number of UPCs pertains to the total available for those sizes in the subcategory.

A3. Choosing Stores

The stores in the national sample are initially chosen randomly using the total expenditure in that store for each category (relative to total expenditure for that category in the region) to determine the probability that the store is selected. At the time a store enters that sample, we randomly pick a week during the month at which price quotes from that store will be collected. If the chosen store has missing data it is replaced, drawing again proportionally to expenditure shares. Starting with the next quarter, we begin our sample rotation, whereby 1/16 of the stores will be replaced each quarter. (The initial order in which stores are replaced is random). To replace a store that is rotating out of the sample we draw a new one using expenditure weights from the prior quarter. We believe this procedure approximates the strategy that the BLS pursues in selecting outlets to sample.

A4. Choosing UPCs

Based on total revenue for each UPC, we find the top 10 UPCs per store in the first quarter and use those while the store is in the sample. From the top 10 UPCs, we sample one per store. The probability of being chosen is proportional to each UPC's fraction of the spending relative to total spending for all of the 10 UPCs in the base period. If the chosen UPC is not available during a month, we choose another UPC from the top 10 for that period. When a new store rotates into the sample, its set of top 10 UPCs is identified using the expenditure shares from the prior quarter. A new UPC for that store will be selected and that UPC will be sampled for as long as the store is in the sample. If the selected UPC is missing then another from the top 10 will be randomly selected. This will mean that over time as stores change the list of UPCs is evolving to track recent purchase patterns.

A5. Indices

A dataset containing all the sampled stores and UPCs comes out of this procedure. Each observation consists of information relating to a given week, month, and store. This information consists of the unit value (dollars paid per ounce), region, and store. These annual inflation variables are summarized in Table A4.

Geometric Mean: This is our approximation of how the BLS would calculate an aggregate for a given product. Each sampled store is sampled for one week of the month. We use one UPC per store and take the geometric mean across stores of the sampled prices per ounce for the month. The sampling procedure that governed the selection of stores and UPCs already accounts for the popularity of stores and UPCs, so the equally weighted geometric mean is what we report.

Fixed Weight: This differs from the geometric mean only because we take an arithmetic average of the UPCs rather than a geometric one.

Best Price One Week: Stores are sampled in one week of the the month as for the Geometric Mean. We then find the minimum price per ounce among the top 10 UPCs in the sampled store for the week. The index level is the arithmetic average of store best prices over the month.

Sampled Unit Value: We calculate the total spending on the top 10 UPCs divided by the total ounces for each store. We then calculate the arithmetic mean across stores assuming equal weights.

When an inflation rate is reported it is computed as the logarithmic change of an aggregate. Note that the annual inflation measures are in many cases quite volatile. For coffee and peanut butter, the changes in prices correlate quite substantially with changes in the prices of the underlying agricultural commodities which are quite volatile. Prices in other categories may reflect technical change issues that are not captured in our methodology (a problem that the BLS also confronts). For example, the highest average inflation levels reported below are for laundry detergent. It may be possible to clean a load of laundry with fewer ounces of detergent at the end of the sample period than at the beginning and that prices per unit cleaning power deviate from prices per ounce; our methodology does not capture this transition.

In the main paper, Figures 4, 5, 6, and 7 are graphical representations of regression estimates. The corresponding regressions are presented in Tabular form in A5, A6, A8, and A9. Table A7 reports the results for the Tornqvist index regressions referenced in the body of the paper.

Table A4—Summary Statistics - National specifications. Mean levels of 12 month inflation.

VARIABLES	beer	coffee	deoderant	detergent	facial_tiss	frankfurters	frozen_pizza	ketchup
fixed weight	0.0186	0.0675	0.0026	0.0739	0.0247	0.0176	0.0094	0.0199
	(0.0178)	(0.1082)	(0.0305)	(0.2395)	(0.0661)	(0.0434)	(0.0477)	(0.0247)
geometric mean	0.0190	0.0697	0.0022	0.0734	0.0244	0.0172	0.0095	0.0191
	(0.0186)	(0.1120)	(0.0336)	(0.2416)	(0.0654)	(0.0469)	(0.0504)	(0.0261)
unit value	0.0187	0.0738	0.0010	0.0729	0.0311	0.0210	0.0095	0.0189
	(0.0173)	(0.1160)	(0.0268)	(0.2463)	(0.0647)	(0.0546)	(0.0535)	(0.0401)
best price	0.0276	0.0742	0.0025	0.0645	0.0235	0.0315	0.0133	0.0189
	(0.0230)	(0.1252)	(0.0370)	(0.2261)	(0.0533)	(0.0663)	(0.0620)	(0.0459)
Observations	117	117	117	117	117	117	117	117

VARIABLES	margarine	mayo	milk	mustard	paper_towel	peanut_butter	razors	shampoo
fixed weight	0.0614	0.0470	0.0346	0.0329	0.0412	0.0291	0.0329	-0.0017
	(0.0898)	(0.0714)	(0.0825)	(0.0411)	(0.0656)	(0.0608)	(0.0313)	(0.0424)
geometric mean	0.0601	0.0473	0.0346	0.0317	0.0405	0.0287	0.0330	-0.0010
	(0.0881)	(0.0751)	(0.0883)	(0.0482)	(0.0672)	(0.0610)	(0.0333)	(0.0424)
unit value	0.0568	0.0452	0.0369	0.0351	0.0395	0.0280	0.0313	0.0023
	(0.0815)	(0.0732)	(0.0847)	(0.0519)	(0.0649)	(0.0630)	(0.0405)	(0.0460)
best price	0.0474	0.0458	0.0366	0.0298	0.0382	0.0255	0.0345	0.0125
	(0.0709)	(0.0724)	(0.0936)	(0.0534)	(0.0701)	(0.0662)	(0.0547)	(0.0614)
Observations	117	117	117	117	117	117	117	117

VARIABLES	soft_drinks	soup	spaghetti	sugar_sub	toothbrush	toilet_tissue	toothpaste
fixed weight	0.0261	0.0038	0.0010	0.0394	-0.0004	0.0573	0.0044
	(0.0383)	(0.0420)	(0.0493)	(0.0369)	(0.0271)	(0.0791)	(0.0376)
geometric mean	0.0267	0.0031	0.0009	0.0392	-0.0060	0.0591	0.0035
	(0.0381)	(0.0453)	(0.0497)	(0.0351)	(0.0317)	(0.0833)	(0.0387)
unit value	0.0249	0.0002	0.0116	0.0437	-0.0021	0.0531	0.0382
	(0.0370)	(0.0465)	(0.0527)	(0.0583)	(0.0259)	(0.0795)	(0.0343)
best price	0.0239	0.0001	0.0114	0.0310	-0.0103	0.0533	-0.0034
	(0.0386)	(0.0547)	(0.0502)	(0.0477)	(0.0409)	(0.0791)	(0.3868)
Observations	117	117	117	117	117	117	117

Note: Inflation is computed as the 12 month log difference of the alternative price aggregates.

Table A5—Explaining Store-Level Unit Values with BLS-style Geometric Mean Price Indices and Best Price

		Peanut Butter Coefficients		Coffee Coefficients
Charlotte	Geomean	0.827	Geomean	0.743
		(0.024)		(0.039)
	Best Price	0.209	Best Price	0.284
		(0.022)		(0.041)
	constant	-0.0037	constant	-0.003
		(0.002)		(0.003)
Chicago	Geomean	0.593	Geomean	0.694
		(0.033)		(0.031)
	Best Price	0.493	Best Price	0.336
		(0.039)		(0.042)
	constant	-0.007	constant	0.005
		(0.003)		(0.005)
Hartford	Geomean	0.503	Geomean	0.453
		(0.045)		(0.036)
	Best Price	0.571	Best Price	0.649
		(0.030)		(0.039)
	constant	-0.0053	constant	-0.0162
		(0.004)		(0.005)
Houston	Geomean	0.683	Geomean	0.863
		(0.044)		(0.017)
	Best Price	0.290	Best Price	0.173
		(0.030)		(0.017)
	constant	0.005	constant	-0.007
		(0.004)		(0.002)
Knoxville	Geomean	0.689	Geomean	0.699
		(0.038)		(0.028)
	Best Price	0.270	Best Price	0.285
		(0.032)		(0.032)
	constant	0.006	constant	0.0086
		(0.003)		(0.002)
Los Angeles	Geomean	0.732	Geomean	0.756
		(0.046)		(0.038)
	Best Price	0.276	Best Price	0.248
		(0.032)		(0.033)
	constant	0.0029	constant	0.0051
		(0.004)		(0.007)
New York	Geomean	0.441	Geomean	0.373
		(0.038)		(0.044)
	Best Price	0.567	Best Price	0.668
		(0.039)		(0.048)
	constant	0.004	constant	0.0005
		(0.004)		(0.008)
StLouis	Geomean	0.825	Geomean	0.672
		(0.070)		(0.023)
	Best Price	0.373	Best Price	0.346
		(0.045)		(0.020)
	constant	-0.024	constant	-0.0016
		(0.006)		(0.003)
West TX- New Mexico	Geomean	0.726	Geomean	0.937
		(0.066)		(0.030)
	Best Price	0.353	Best Price	0.146
		(0.044)		(0.026)
	constant	-0.009	constant	-0.022
		(0.007)		(0.006)

Note: For each city and category we run a single regression. We replace the fixed weight price aggregate that is suggested by Equation (12) with a BLS-style geometric mean price aggregate. The dependent variable is the unit value for the dominant brands in that store. The independent variables are the geometric mean aggregate for the brands under consideration in that store, the monthly best price for those brands and a constant. Standard errors are in parentheses. Estimates are represented in Fig. 4 in text.

Table A6—Explaining Store Level Unit Values with the Best Fit CES Index and the Best Price

		Peanut Butter Coefficients		Coffee Coefficients
Charlotte	CES Index 4.5	0.893	CES Index 2	0.748
		(0.027)		(0.041)
	Best Price	0.136	Best Price	0.276
		(0.025)		(0.043)
	constant	-0.0027	constant	-0.0021
		(0.002)		(0.004)
Chicago	CES Index 8	0.899	CES Index 7	0.98
		(0.040)		(0.031)
	Best Price	0.167	Best Price	0.026
		(0.044)		(0.039)
	constant	-0.006	constant	0.0052
		(0.003)		(0.004)
Hartford	CES Index 10	0.624	CES Index 10	0.562
		(0.052)		(0.042)
	Best Price	0.456	Best Price	0.525
		(0.036)		(0.045)
	constant	-0.0066	constant	-0.013
		(0.004)		(0.005)
Houston	CES Index 8.5	0.852	CES Index 5	0.998
		(0.049)		(0.019)
	Best Price	0.123	Best Price	0.032
		(0.034)		(0.019)
	constant	0.0053	constant	-0.0066
		(0.003)		(0.002)
Knoxville	CES Index 8	0.818	CES Index 8.5	0.873
		(0.044)		(0.035)
	Best Price	0.171	Best Price	0.118
		(0.036)		(0.039)
	constant	0.0031	constant	0.0068
		(0.003)		(0.002)
Los Angeles	CES Index 6.5	0.85	CES Index 4.5	0.844
		(0.050)		(0.041)
	Best Price	0.15	Best Price	0.128
		(0.037)		(0.036)
	constant	0.0036	constant	0.014
		(0.004)		(0.007)
New York	CES Index 9.5	0.692	CES Index 10	0.484
		(0.053)		(0.047)
	Best Price	0.377	Best Price	0.523
		(0.047)		(0.053)
	constant	-0.0057	constant	0.009
		(0.004)		(0.006)
StLouis	CES Index 10	0.778	CES Index 4.5	0.755
		(0.063)		(0.031)
	Best Price	0.252	Best Price	0.239
		(0.051)		(0.029)
	constant	-0.009	constant	0.0075
		(0.005)		(0.003)
West TX-New Mex	CES Index 7	0.925	CES Index 3.5	0.993
		(0.066)		(0.033)
	Best Price	0.105	Best Price	0.0544
		(0.051)		(0.029)
	constant	-0.0027	constant	-0.0158
		(0.005)		(0.006)

Note: For each city and category we run a single regression. We replace the fixed weight price index that is suggested by equation (6) with a constant elasticity of substitution (CES) price index. The CES substitution parameter for each store-product is separately chosen by a grid search to match the unit value index as closely as possible. The preferred substution parameter is shown in the table. The dependent variable is the unit value for the dominant brands in that store. The brands for each store are listed in Data Appendix Table A1. The independent variables are the CES index for the brands under consideration in that store, the monthly best price for those brands and a constant. Estimates are represented in Figure 5 in the text.

Table A7—Relationship between Tornqvist, Geometric Mean Price Indices and Best Price

		Peanut Butter Coefficients		Coffee Coefficients
Charlotte	Geomean	0.998	Geomean	0.997
		(0.005)		(0.011)
	Best Price	-0.006	Best Price	0.003
		(0.005)		(0.011)
	constant	0.001	constant	0.000
		(0.013)		(0.010)
Chicago	Geomean	0.995	Geomean	0.952
		(0.013)		(0.010)
	Best Price	0.067	Best Price	0.054
		(0.015)		(0.013)
	constant	-0.002	constant	0.002
		(0.001)		(0.002)
Hartford	Geomean	0.967	Geomean	0.974
		(0.008)		(0.008)
	Best Price	0.022	Best Price	0.032
		(0.005)		(0.009)
	constant	0.002	constant	-0.001
		(0.001)		(0.001)
Houston	Geomean	0.924	Geomean	0.976
		(0.015)		(0.006)
	Best Price	0.040	Best Price	0.032
		(0.010)		(0.006)
	constant	0.004	constant	-0.002
		(0.001)		(0.001)
Knoxville	Geomean	0.960	Geomean	0.892
		(0.012)		(0.014)
	Best Price	0.006	Best Price	0.082
		(0.010)		(0.006)
	constant	0.004	constant	-0.002
		(0.001)		(0.001)
Los Angeles	Geomean	0.952	Geomean	0.973
		(0.011)		(0.011)
	Best Price	0.033	Best Price	0.002
		(0.008)		(0.009)
	constant	0.003	constant	0.008
		(0.001)		(0.002)
New York	Geomean	0.897	Geomean	0.963
		(0.010)		(0.011)
	Best Price	0.043	Best Price	0.045
		(0.011)		(0.013)
	constant	0.008	constant	0.000
		(0.001)		(0.002)
StLouis	Geomean	0.993	Geomean	0.934
		(0.019)		(0.015)
	Best Price	0.018	Best Price	0.064
		(0.002)		(0.013)
	constant	-0.002	constant	0.001
		(0.002)		(0.002)
West TX- New Mexico	Geomean	0.931	Geomean	1.018
		(0.029)		(0.013)
	Best Price	0.087	Best Price	0.013
		(0.019)		(0.011)
	constant	-0.002	constant	-0.010
		(0.003)		(0.025)

Note: For each city and category we run a single regression. The dependent variable is the Tornqvist aggregate. The independent variables are the geometric mean aggregate for the brands under consideration in that store, the monthly best price for those brands and a constant.

Table A8—National specifications - Structural Estimates of inflation based on changes in fixed weight and best price aggregates

VARIABLES	beer	coffee	deodorant	detergent	facial_tissue	frankfurters	frozen_pizza	ketchup
constant	-0.0038	0.00109	-0.00137	0.00172	0.0067	-0.0042	-0.0020	-0.00030
	(0.001)	(0.003)	(0.001)	(0.002)	(0.003)	(0.002)	(0.001)	(0.001)
fixed weight	0.4939	0.1095	0.5234	0.4428	0.1980	0.3333	0.3627	0.2735
	(0.041)	(0.057)	(0.042)	(0.054)	(0.041)	(0.033)	(0.034)	(0.037)
Observations	117	117	117	117	117	117	117	117
R-squared	0.814	0.937	0.798	0.987	0.790	0.885	0.960	0.836

VARIABLES	margarine	mayo	milk	mustard	paper_towel	peanut	razors	shampoo
constant	0.0020	-0.0012	0.0016	0.0036	0.0004	0.0005	-0.0020	-0.0023
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
fixed weight	0.4187	0.3887	0.5068	0.4308	0.2969	0.5347	0.7246	0.4707
	(0.036)	(0.074)	(0.029)	(0.034)	(0.050)	(0.038)	(0.042)	(0.048)
Observations	117	117	117	117	117	117	117	117
R-squared	0.960	0.898	0.991	0.950	0.826	0.974	0.845	0.809

VARIABLES	soft_drinks	soup	spaghetti	sugarsub	toilet_tissue	toothbrush	toothpaste
constant	0.00010	-0.0024	0.00085	0.00507	-0.00073	0.0044	0.0026
	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.001)	(0.001)
fixed weight	0.3617	0.4673	0.4021	0.7426	0.1100	0.6016	0.5561
	(0.036)	(0.032)	(0.043)	(0.130)	(0.041)	(0.044)	(0.041)
Observations	117	117	117	117	117	117	117
R-squared	0.845	0.944	0.945	0.502	0.928	0.639	0.889

Note: For each category we estimate (7) using non-linear least squares. The coefficient on the fixed weight index, α, and the constant, γ, are reported along with their standard errors, which are shown beneath the coefficients in parentheses. Estimates are displayed in Figure 6 in the body of the paper.

Table A9—National specifications - Estimates of inflation based on changes in geometric mean and best price aggregates

VARIABLES	beer	coffee	deodorant	detergent	facial_tissue	frankfurters	frozen_pizza	ketchup
constant	-0.0041	0.00071	-0.00111	0.00346	0.0067	-0.0040	-0.0019	-0.00004
	(0.001)	(0.003)	(0.001)	(0.002)	(0.003)	(0.002)	(0.001)	(0.001)
geometric mean	0.4904	0.07096	0.4733	0.2632	0.1960	0.3478	0.3925	0.2848
	(0.042)	(0.061)	(0.048)	(0.051)	(0.043)	(0.035)	(0.039)	(0.038)
Observations	117	117	117	117	117	117	117	117
R-squared	0.803	0.935	0.721	0.982	0.785	0.882	0.957	0.836

VARIABLES	margarine	mayo	milk	mustard	paper_towel	peanut	razors	shampoo
constant	0.0028	-0.00116	0.0019	0.0041	0.00071	0.00065	-0.00203	-0.00259
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
geometric mean	0.4115	0.3303	0.5266	0.4714	0.2940	0.5567	0.7142	0.4828
	(0.042)	(0.078)	(0.044)	(0.037)	(0.052)	(0.043)	(0.046)	(0.051)
Observations	117	117	117	117	117	117	117	117
R-squared	0.950	0.889	0.985	0.950	0.820	0.971	0.811	0.800

VARIABLES	soft_drinks	soup	spaghetti	sugarsub	toilet_tissue	toothbrush	toothpaste
constant	-0.00021	-0.0020	0.00092	0.00567	-0.00073	0.0058	0.0032
	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.002)	(0.001)
geometric mean	0.3935	0.4943	0.4120	0.6814	0.0822	0.5707	0.5507
	(0.040)	(0.035)	(0.051)	(0.138)	(0.043)	(0.051)	(0.046)
Observations	117	117	117	117	117	117	117
R-squared	0.837	0.940	0.937	0.458	0.925	0.507	0.868

Note: For each category we estimate an alternative version of (7) using non-linear least squares. Here the fixed weight index is replaced by the BLS-style geometric mean index. The coefficient on the geometric mean index, α, and the constant, γ, are reported along with their standard errors, which are shown beneath the coefficients in parentheses. Estimates are displayed in Figure 7 in the body of the paper.