Appendix to "Bundling to save: Analyzing package size choices in South African grocery stores"

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Contents

1 Additional data characteristics

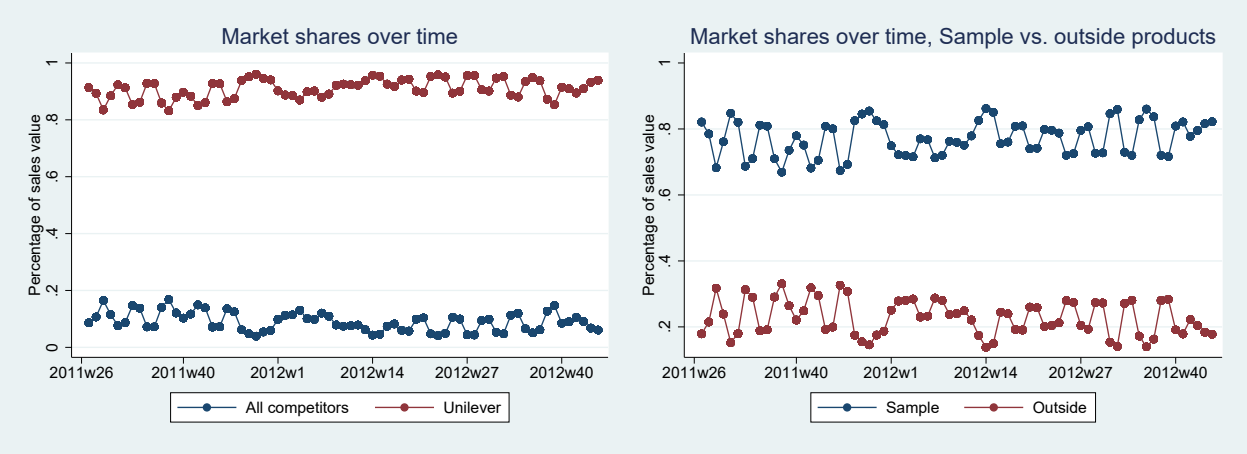
1.1 Market characteristics

Table A.1: Availability of various brands and sizes

	Sunlight regular	Sunlight tropical	OMO
250g	0.9372	0.8118	0.9511
500g	0.9968	0.7737	0.9855
1kg	0.9996	0.9604	0.9987
2kg	0.9996	0.9892	0.9981
3kg	0.9893		
5kg	0.9833		

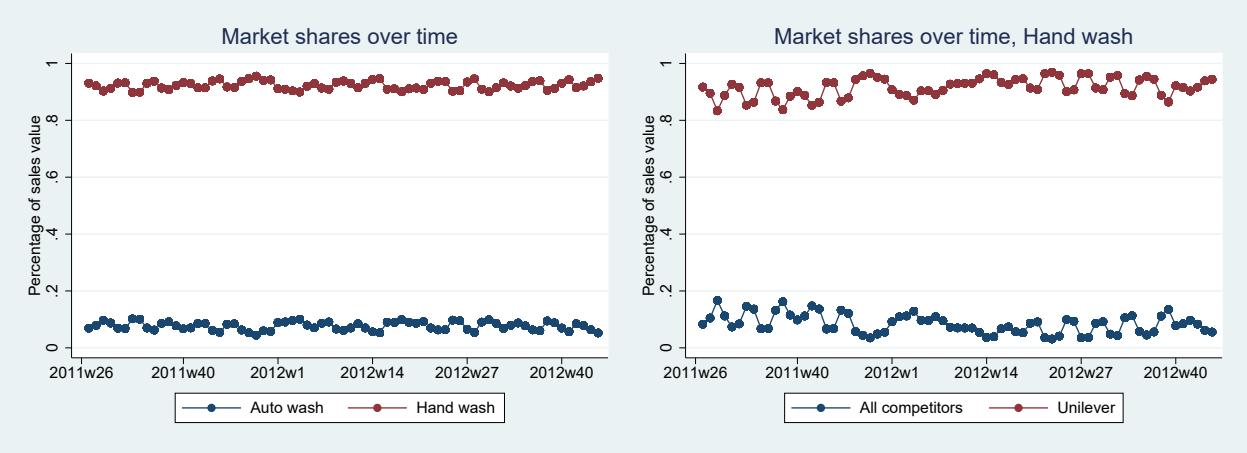
Notes: Fraction of all markets (16 months × 330 stores) where each brand and size is available.

Figure A.2: Overall market shares



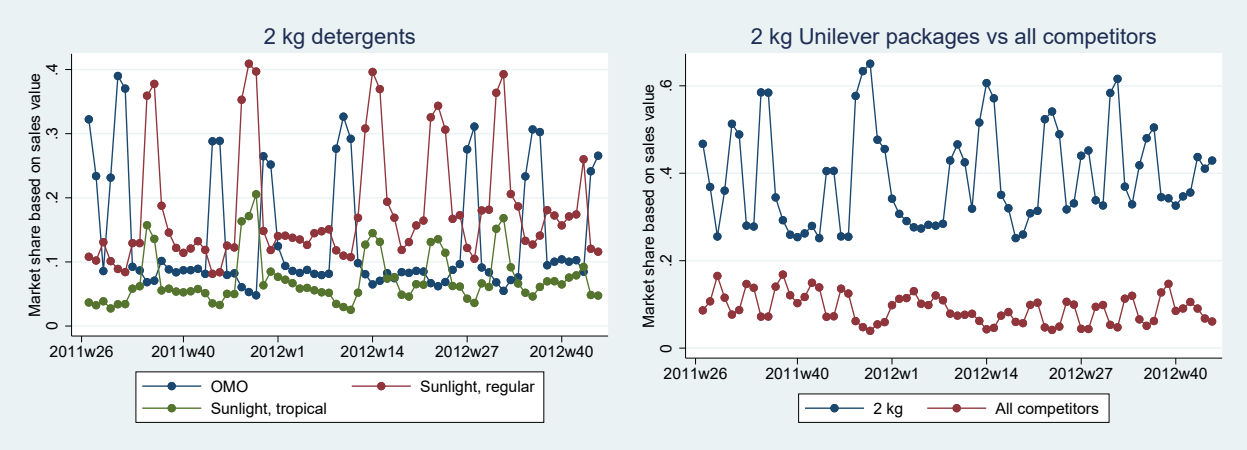
Notes: Market shares based on sales value by week. Left panel: Unilever products and all products by competitors. Right panel: Sample = 14 products in the main sample, outside products = all others.

Figure A.3: Overall market shares of hand wash and automata detergents



Notes: Left panel: Market shares of all handwash vs automata detergents. Right panel: Market shares of only hand wash detergents, Unilever vs all competitors. Market shares based on sales value.

Figure A.4: Overall market share of 2 kg packages

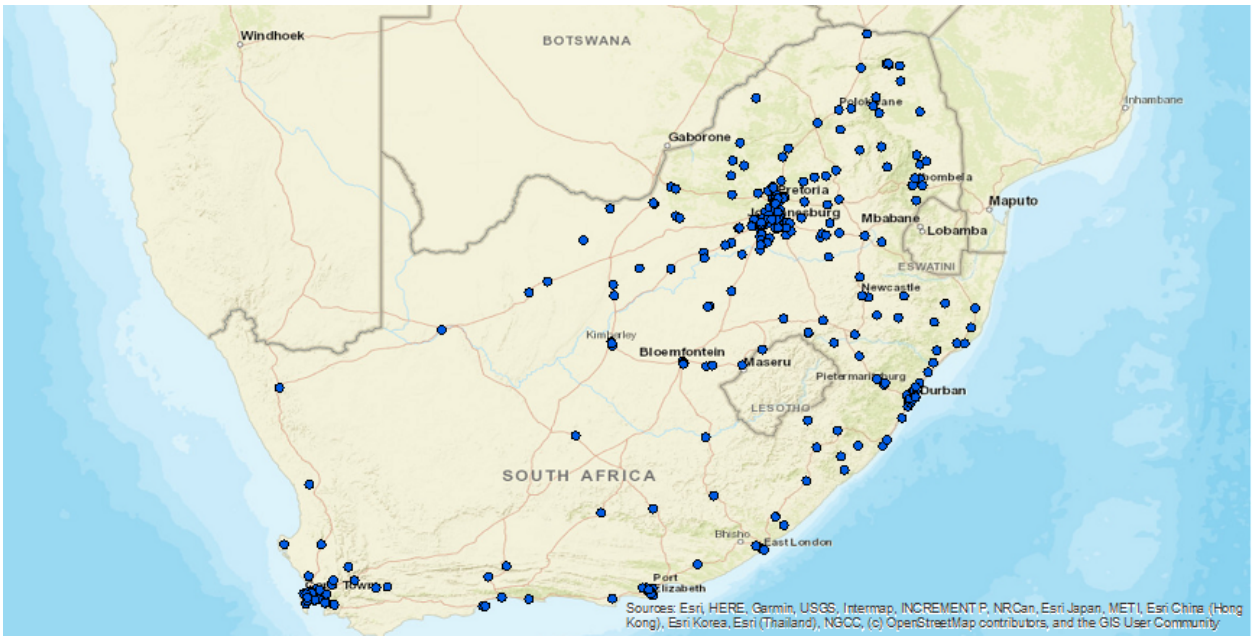


Notes: Market share is based on sales value. "All competitors" contains all sizes of all non-Unilver products.

1.2 Store characteristics

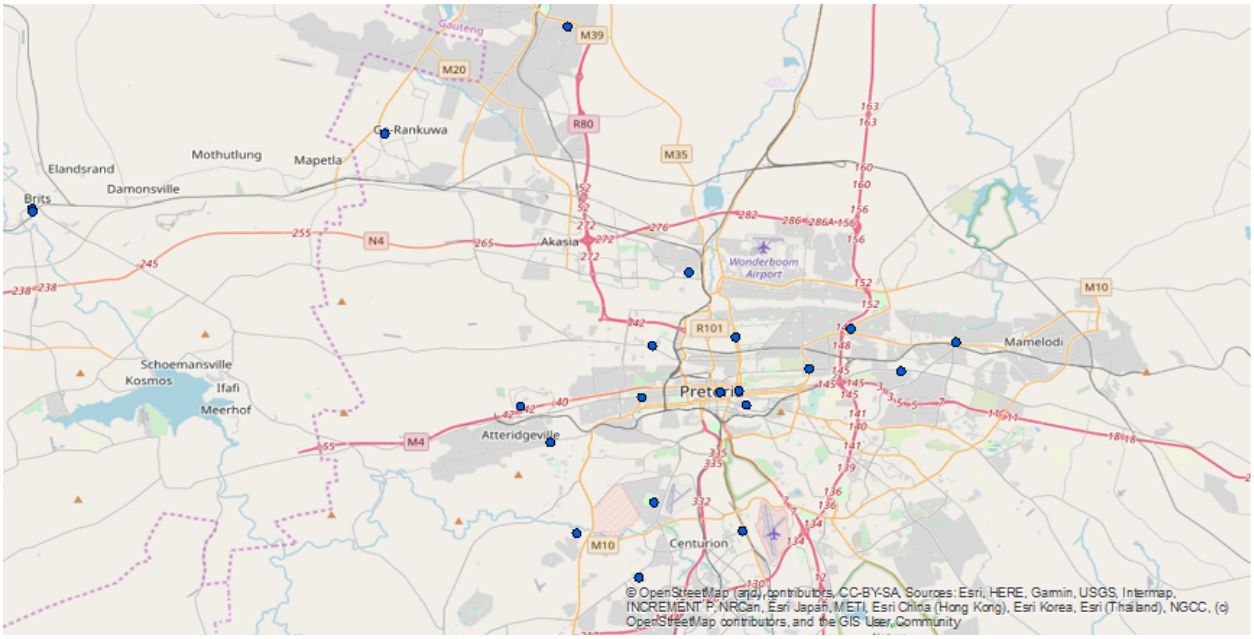
The data contains the name of the stores which allowed me to collect the GPS coordinates of each store. Since I know the identity of each store, I was able to collect store characteristics from individual stores' websites, where detailed information such as opening hours are provided in a standardized format.

Figure A.5: Location of stores in the sample



Notes: Locations based on GPS coordinates of the stores, collected from www.shoprite.co.za

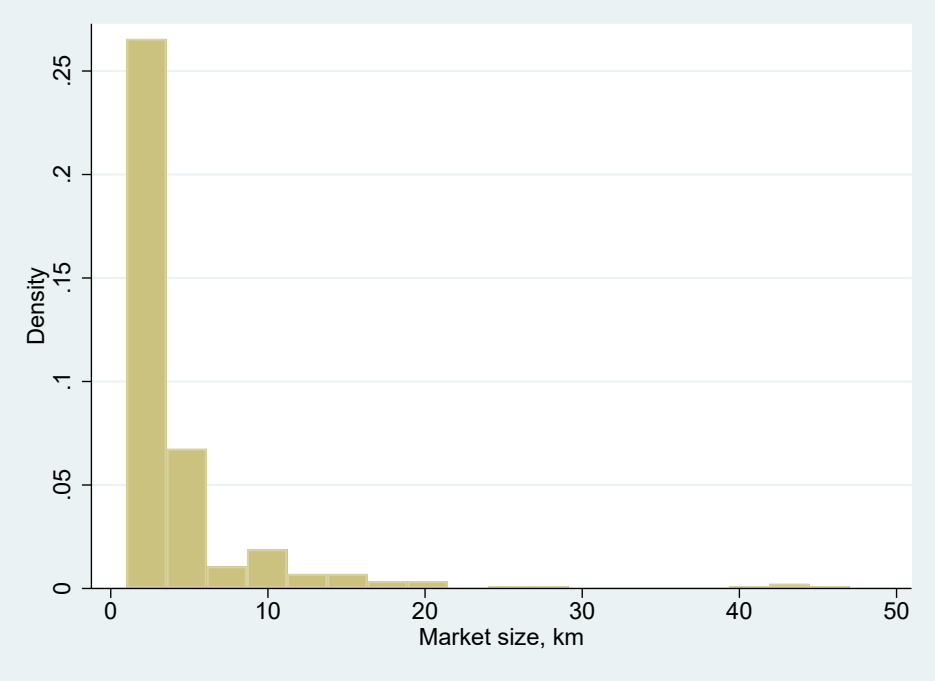
Figure A.6: Location of the stores in the sample around Pretoria



Notes: Locations based on GPS coordinates of the stores, collected from www.shoprite.co.za

Figure A.7: Small stores in shipping containers and trailers

Figure A.8: Distribution of the market radius



Notes: Distribution of market radius corresponding to each store.

Table A.9: Distribution of stores by province

Province	Store percent	Population percent
Eastern Cape	9.2	12.7
Free State	5.3	5.3
Gauteng	26.1	23.7
KwaZulu-Natal	14.2	19.8
Limpopo	7.1	10.4
Mpumalanga	7.7	7.8
Northern Cape	3.6	2.2
North West	5.6	6.8
Western Cape	21.1	11.2

Notes: Distribution of the 330 stores and the total population (51.771 million) across provinces. Population figures are from the 2011 South African Census.

Table A.10: Other store characteristics

	Mean	N
LSM 1 - 4	0.17	330
LSM 5 - 6	0.43	330
LSM 7 - 10	0.40	330
In a shopping mall	0.09	330
In city centre	0.24	330
Open on Sunday	0.98	330

Notes: LSM stands for living standard measures, LSM 1-4: low, LSM 5-6: medium, LSM 7-10: high. (Source: Unilever). Other characteristics based on store locator information at www.shoprite.co.za

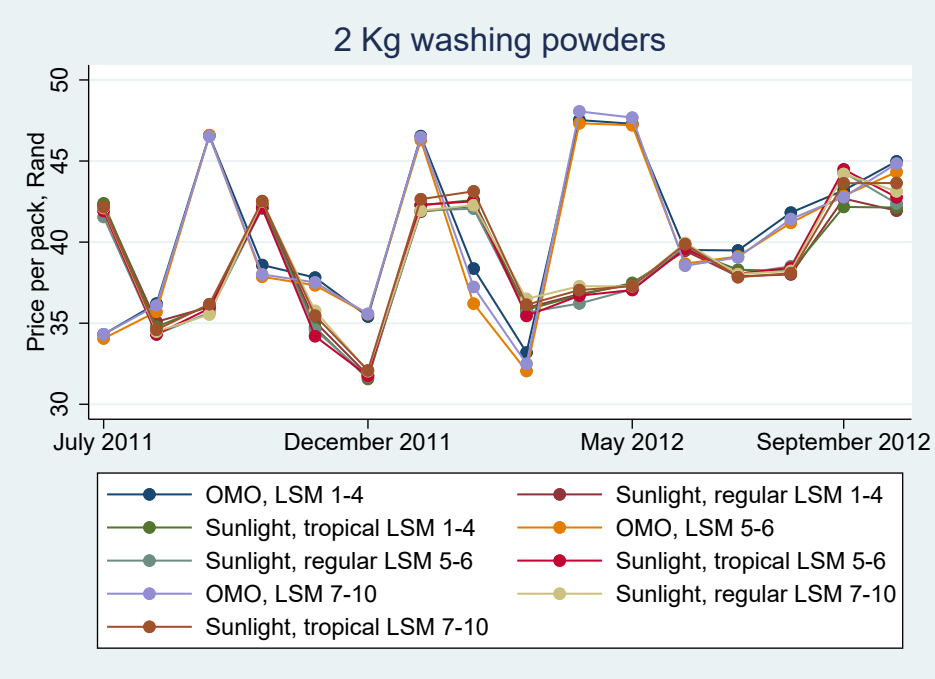
Table A.11: Sunday store hours

Closing time	N	Percent
13	64	19.39
14	90	27.27
15	44	13.33
15:30	6	1.82
16	10	3.03
17	55	16.67
18	8	2.42
19	11	3.33
20	41	12.42
21	1	0.3
Total	330	100

Notes: Collected from www.shoprite.co.za

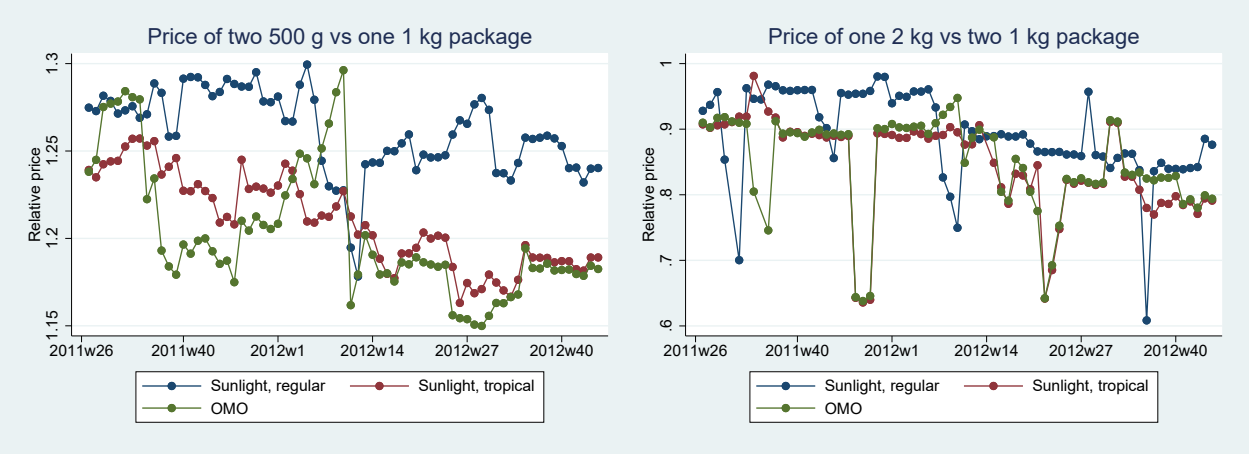
1.3 Prices

Figure A.12: Prices of 2 kg packages over time by brand and LSM area



Notes: Store level monthly sales-weighted prices in Rand. LSM stands for living standard measures, LSM 1-4: low, LSM 5-6: medium, LSM 7-10: high. There are a total of 57, 144 and 129 stores in these LSM areas, respectively.

Figure A.13: Quantity discount



Notes: Quantity discount for 500g vs 1kg packages (left) and 1kg vs 2kg packages (right).

1.4 Census Data

The paper uses dataset 4.6. Household goods from the "Census 2011: Community Profiles" CD. The data is accessed using SuperCross, a software provided by the South African Census. The dataset has appliance ownership information which includes ashing machine and car, besides basic household characteristics such as type of main dwellling, urban or rural location, gender and race of the household head and annual household income.

2 Details of the survey

2.1 Sampling

The survey was entirely funded by the University of Houston. It was approved by the Human Subject Committee of the University of Houston, and was conducted in accordance with the standards of that institution regarding the ethical treatment of human subjects (Protocol number: 2626). Participation in the survey was voluntary and respondents could stop participating in the survey at any time. Only adults between the ages of 18 and 65 were asked to participate.

Surveys were collected from 300 households. For logistical reasons, sampling had to be restricted to a single metropolitan area. I chose the area around Pretoria because of the diverse socio-economic characteristics of its population.

I first took all the stores in my dataset located within 20 miles from Pretoria (25 stores). I then extended this area 5 miles to the north to include more rural areas, resulting in a total of 27 stores. For marketing reasons, Unilever categorizes the stores into living standard measure (LSM) areas. Of these 27 stores, 4 are located in LSM areas 1-4 (low), 15 stores in LSM areas 5-6 (middle) and 8 stores in LSM areas 7-10 (high). One of these stores was closed at the time of the survey due to damage from a tornado. Of the remaining 26 stores, I randomly selected a store from each of the three LSM groups. I selected the sample of households to be surveyed around each of these 3 stores as follows.

For each store, I randomly selected 5 of the 10 closest small area layers of the 2011 South African Census. Surveyors were provided maps of each of these 5*3 areas. From each map, they selected an intersection, and starting from there interviewed 5 households in each direction. Specifically, surveyors visited every 5th house in each direction, subject to the constraint that the final sample had to be stratified based on dwelling type recorded in the Census ("house," "flat," and "informal/other"). Households to be interviewed were selected to match as closely as possible the corresponding fraction of each dwelling type from the census.

Surveyors recorded the GPS coordinate and a detailed description of the selected houses. Based on this information, surveyors visited the same houses during the second round of the survey.

2.2 Purchase, consumption, and inventory data

Out of the 300 respondents, 91.3 % typically buy powdered detergents only.[1] This is very close to the market share from 2013 (see Figure A.3).

I have 575 observations with purchase, inventory and consumption information. To infer whether the package currently in inventory was purchased during the past month, I compute the sum of the current inventory and consumption, and if this is smaller than the package size then I assume that the detergent was purchased more than a month ago. In this case, I assign "no purchase" to the current month for the given household. Otherwise, the household's purchase is the package they showed to the surveyor.

Based on the data, 32.87% of the households did not purchase detergent during the current month. This percentage is the highest (37.89%) for the highest LSM area. These are also the households who are somewhat more likely to purchase larger packages both in the survey and in the scanner data.

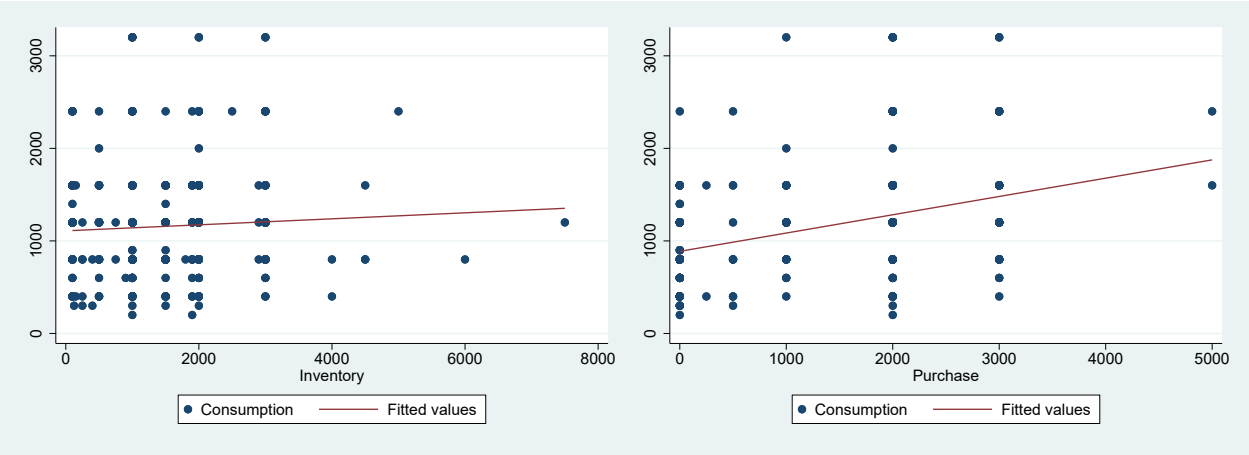
Two patterns are visible in the data. First, reported consumption is not correlated with inventory at home. This makes sense since the households are unlikely to use more detergent just because they have a new package at home, or do fewer loads because there is less detergent left in the package. Second, there is a positive, statistically significant correlation between consumption and purchase size. Households who tend to buy larger packages consume more on average. Figure A.14 shows both of these relations in the data.

Consequently, I do not assume in the dynamic model that consumption depends on inventory directly. Instead I assume that consumption depends on household characteristics, including income of the area. The model also takes into account that current consumption cannot be larger then current inventory. This means that although the model assumes that a specific household has a preset consumption level (which changes only with a random consumption shock), it is still able to predict substantially lower consumption levels if inventory not met.

To use the survey data in the dynamic programming problem I do the following. Each observation of consumption inventory and purchased package size is randomly assigned to the model's simulated individuals based on the package size variable. That is, once the purchased

[1] Only 4 respondents stated that they typically buy liquid detergents and only 1 said that they typically use bar soap instead of detergent. 21 additional respondents buy a combination of powdered detergent and either liquid or bar soap.

Figure A.14: Consumption as a function of purchase and inventory in the survey

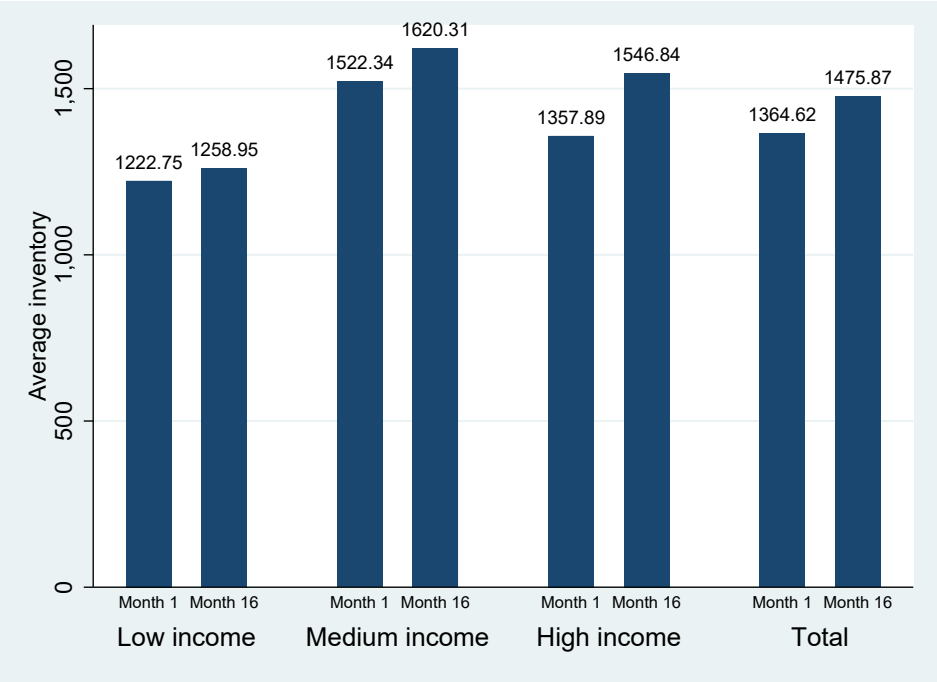


size is drawn based on the market shares for simulated individuals for each market, survey data is randomly matched based on package size. This is done separately for markets in three income areas.

Another noteworthy feature of the survey is that average inventory during the first and the second round of the survey is not statistically different. This is the case for the average across all households or across household groups. Note that there is a 16-month difference between the first and the second round of the survey, which is the exactly the same time period I observe in the scanner data. Figure A.15 plots mean inventory across the round of surveys.

Figure A.15 implies that average consumption is the same as the average of the purchased quantity over the 16 month period. I use this information in computing the dynamic parameters of the consumer. Specifically, I first draw a sequence of 16 monthly purchased quantities based the observed market shares and I compute the average consumption based on the simulated purchase.

Figure A.15: Average inventory of households, by area



Notes: p-values of Month 1 vs. Month 16 differences: 0.7520, 0.5018, 0.1353, and 0.1394, respectively. Inventory is given in grams.

3 Details of the dynamic estimation

Markets and simulations. The dynamic estimation uses markets with no bundling opportunities, as well as markets that feature bundling opportunities. I drop only markets that do not have all brands and sizes to keep the consumer's choice set constant (430 out of 5255 markets). Finally, I only use markets where I have at least 16 consecutive time periods. This can happen because a few stores did open during the period and/or the store did not carry all sizes during the 16 month period.

This results in 528, 1248 and 992 markets, respectively, for each LSM group. From the static part of the estimation, I have 400 simulated consumers on each of these markets. To reduce the computational complexity of the dynamic estimation, I restrict attention to a random sample of markets and consumers. To solve the dynamic programming problem, I randomly draw 400 markets, and 50 consumers from each. For the dynamic estimation, I use all markets, with 50 consumers from each.

For each individual, for each market, the model predicts individual choice probabilities for each possible package size. Since I have 100 draws for consumption shock, I average predicted choice probabilities across these options when computing $Q(\theta_h)$.

Individual purchase, consumption, and inventory. For the dynamic programming problem, one needs to know purchased package size, consumption, and inventory at the individual level. I simulate purchases based on the observed market shares in the data. The survey data provides information on the joint distribution of inventory and consumption conditional on purchase. I draw inventory and consumption pairs for each (simulated) individual from this distribution. Observing this joint distribution in the survey helps identify the parameters of the flexible polynomial of state variables used to approximate the value function.

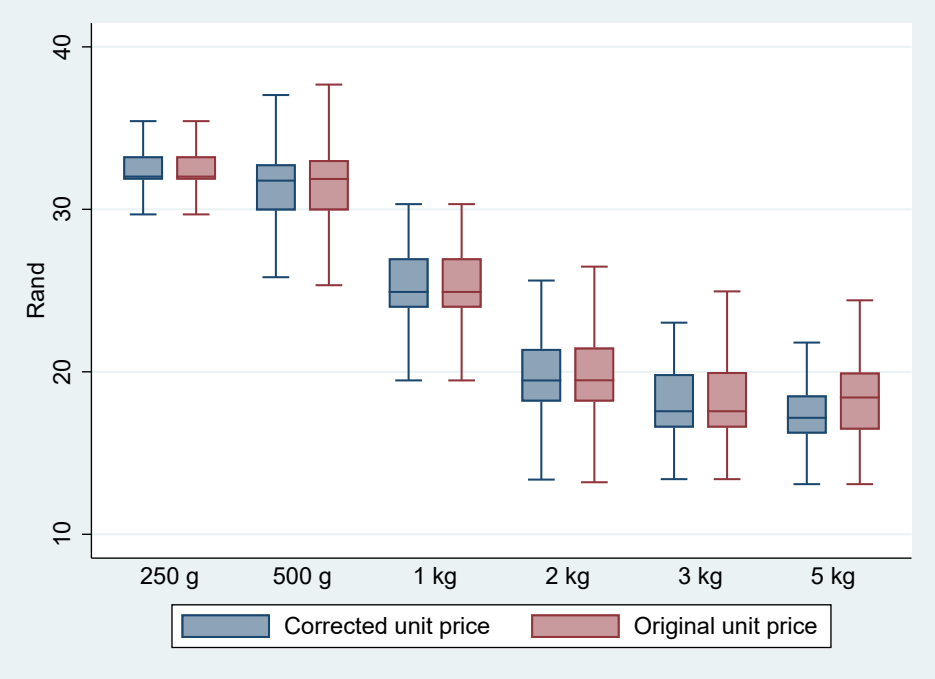
After solving the nested dynamic programming problem (for a given vector of dynamic parameters), I simulate over time the purchase (and inventory) decision of the consumers. There is no need to discretize either the consumption or the inventory levels. The maximum potential inventory is set to 50% higher than the highest observed inventory.

Outside option. In a typical BLP application the outside option is only a normalization, but the case here is different. In the dynamic problem, the outside option corresponds to a consumer not purchasing any detergent. To better approximate the share of no purchase, I compute the fraction of surveyed consumers who did not purchase detergent in the given month (these values are similar in both rounds of the survey). I normalize the observed market shares using this average, keeping the relative share of the outside good across markets constant.

4 Additional results

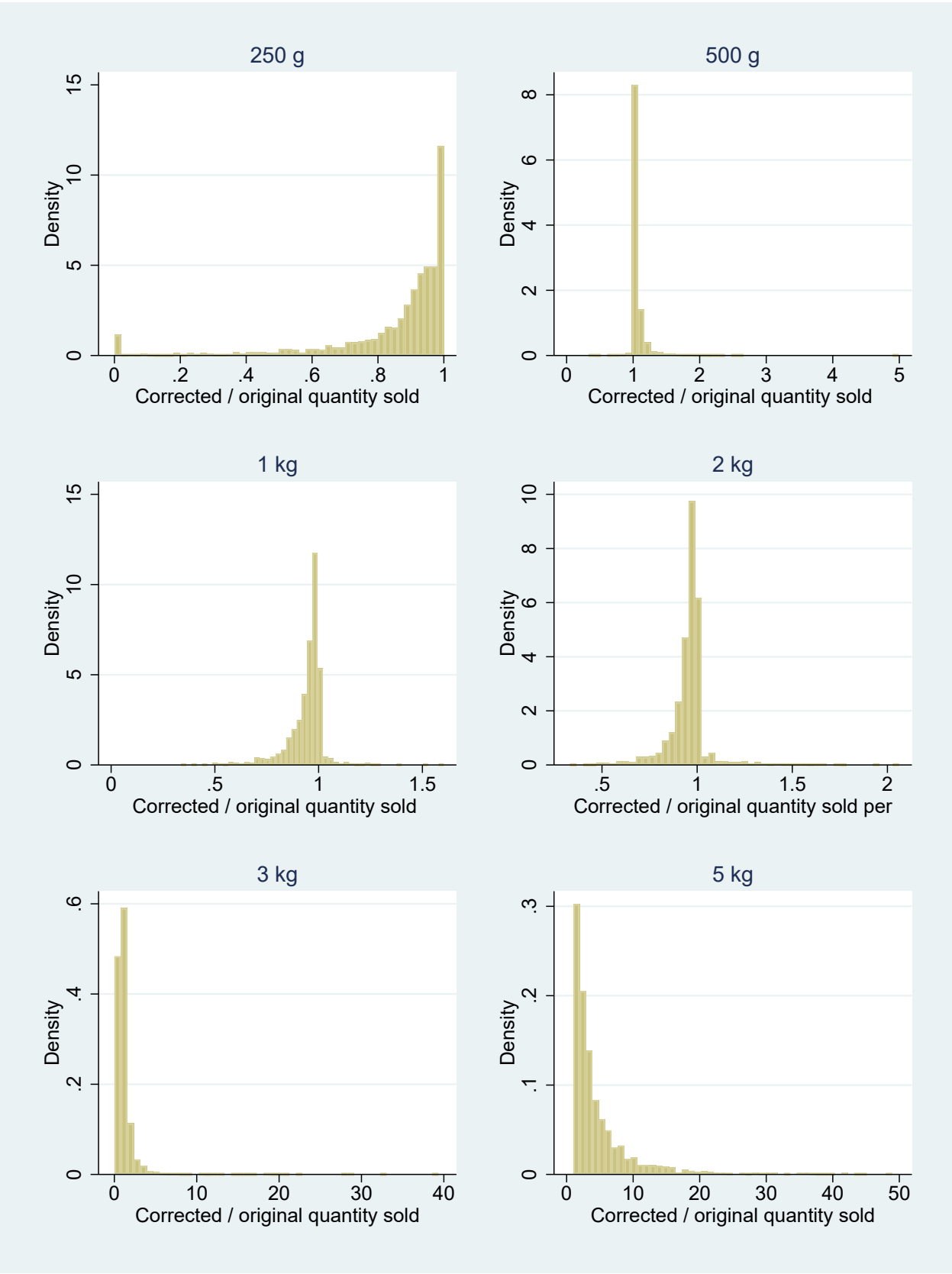
4.1 Dynamic model results

Figure A.16: Average unit price by package size



Notes: Original unit prices refer to prices observed in the data. Corrected refers to prices corrected for bundling opportunities as described in the paper.

Figure A.17: Ratio of corrected and original quantities sold, full distribution



Notes: Histograms correspond to Figure 8 in the paper but show the full support in each case.

Table A.18: Correlation between bundling opportunities and market characteristics

	250 g	500 g	1 kg	2 kg	3 kg	5 kg
Low income area	0.037	0.045	0.008	0.016	0.009	0.008
	(0.028)	(0.028)	(0.016)	(0.017)	(0.017)	(0.015)
Middle income area	0.018	0.021	0.003	-0.002	-0.002	-0.006
	(0.016)	(0.016)	(0.011)	(0.012)	(0.011)	(0.009)
Mall	-0.017	-0.016	0.006	-0.015	-0.013	-0.015
	(0.021)	(0.022)	(0.012)	(0.015)	(0.015)	(0.012)
City center	0.025	0.019	-0.006	-0.012	-0.002	-0.005
	(0.016)	(0.017)	(0.010)	(0.013)	(0.013)	(0.010)
Sunday hours	0.010	0.009	-0.001	0.001	-0.006	-0.000
	(0.016)	(0.017)	(0.012)	(0.020)	(0.014)	(0.013)
HH share black	0.297***	0.271***	-0.081**	0.007	0.051	0.059*
	(0.071)	(0.070)	(0.036)	(0.037)	(0.039)	(0.035)
HH share white	-0.069	-0.068	-0.117***	-0.074	0.004	0.015
	(0.086)	(0.081)	(0.040)	(0.056)	(0.055)	(0.054)
HH share flat	0.263***	0.177**	-0.059	0.067	0.035	0.083
	(0.088)	(0.082)	(0.076)	(0.099)	(0.072)	(0.061)
HH share house	0.163*	0.101	-0.123	-0.030	-0.058	0.040
	(0.086)	(0.080)	(0.079)	(0.099)	(0.073)	(0.057)
HH share male HH head	0.512***	0.506***	-0.169**	0.152	0.233**	0.286***
	(0.120)	(0.125)	(0.074)	(0.094)	(0.091)	(0.081)
HH share urban	-0.049	-0.044	-0.014	-0.053**	-0.070**	-0.059**
	(0.040)	(0.039)	(0.026)	(0.027)	(0.029)	(0.025)
HH share no car or washm	-0.193	-0.205	-0.105	-0.043	-0.018	0.050
	(0.133)	(0.127)	(0.067)	(0.080)	(0.074)	(0.062)
HH share washm only	-0.391**	-0.382**	-0.198**	-0.168	-0.020	-0.008
	(0.175)	(0.169)	(0.100)	(0.129)	(0.123)	(0.111)
HH share car only	-0.428	-0.294	0.017	-0.103	-0.024	-0.042
	(0.337)	(0.338)	(0.182)	(0.238)	(0.224)	(0.209)
Adj. R2	0.26	0.24	0.38	0.33	0.40	0.49
Adj. R2 controls only	0.25	0.23	0.38	0.32	0.40	0.49
N	14,189	14,483	15,548	15,696	5,199	5,167

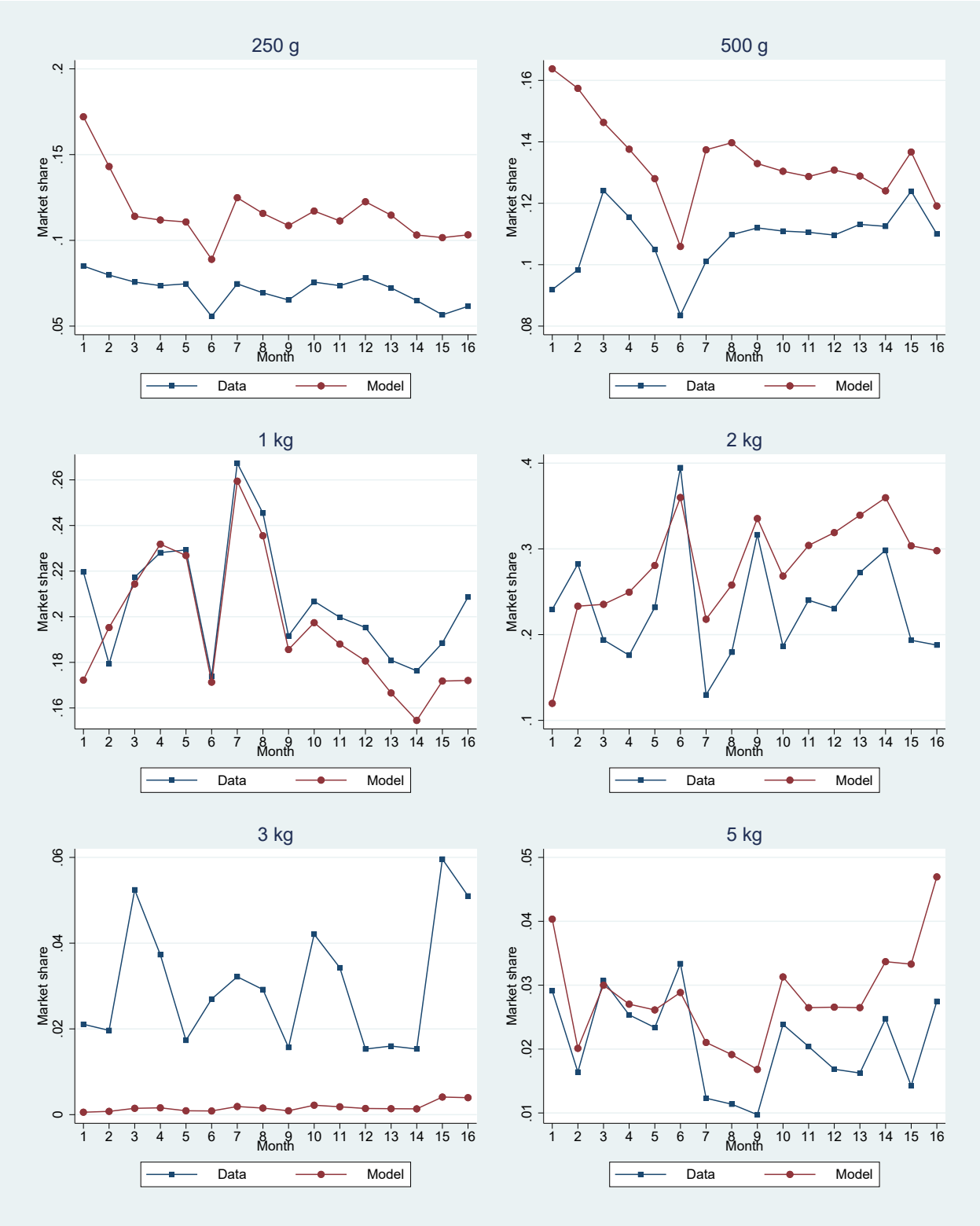
Notes: The dependent variable in each regression is an indicator for the presence of bundling opportunities.

Table A.19: Correlation between bundling opportunities and market characteristics

	Low income	Medium income	Mall	Centre	Sunday	Black	Flat
250 g	0.048**	-0.005	-0.036**	0.035*	0.014	0.153***	-0.022
	(0.024)	(0.015)	(0.018)	(0.018)	(0.015)	(0.032)	(0.036)
	0.25	0.25	0.25	0.25	0.25	0.26	0.25
500 g	0.053**	-0.006	-0.035*	0.029	0.012	0.147***	-0.040
	(0.024)	(0.015)	(0.018)	(0.019)	(0.016)	(0.031)	(0.037)
	0.23	0.23	0.23	0.23	0.23	0.24	0.23
1 kg	0.004	-0.002	0.015	-0.008	0.000	-0.043**	0.077***
	(0.012)	(0.009)	(0.010)	(0.010)	(0.012)	(0.019)	(0.020)
	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2 kg	0.020	-0.012	-0.012	-0.010	0.001	0.014	0.065**
	(0.014)	(0.011)	(0.013)	(0.013)	(0.019)	(0.021)	(0.027)
	0.32	0.32	0.32	0.32	0.32	0.32	0.32
3 kg	0.018	-0.011	-0.018	-0.002	-0.006	0.033*	0.044*
	(0.014)	(0.010)	(0.013)	(0.012)	(0.013)	(0.018)	(0.026)
	0.40	0.40	0.40	0.40	0.40	0.40	0.40
5 kg	0.022*	-0.012	-0.019**	-0.002	0.002	0.057***	-0.004
	(0.013)	(0.009)	(0.010)	(0.010)	(0.012)	(0.018)	(0.024)
	0.49	0.49	0.49	0.49	0.49	0.49	0.49
	House	Male HH	Urban	White	No car or washm	Washm only	Car only
250 g	0.009	0.113	-0.081**	-0.038	0.139***	-0.412***	0.889***
	(0.039)	(0.103)	(0.037)	(0.033)	(0.042)	(0.096)	(0.250)
	0.25	0.25	0.25	0.25	0.25	0.25	0.25
500 g	0.011	0.143	-0.079**	-0.033	0.135***	-0.433***	0.911***
	(0.039)	(0.107)	(0.035)	(0.035)	(0.041)	(0.094)	(0.254)
	0.23	0.23	0.23	0.23	0.23	0.24	0.23
1 kg	-0.086***	-0.085	-0.012	0.006	-0.040	-0.017	0.041
	(0.026)	(0.067)	(0.022)	(0.021)	(0.029)	(0.058)	(0.150)
	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2 kg	-0.084***	0.023	-0.050**	-0.004	0.029	-0.149**	0.291*
	(0.032)	(0.080)	(0.022)	(0.024)	(0.033)	(0.065)	(0.165)
	0.32	0.32	0.32	0.32	0.32	0.32	0.32
3 kg	-0.072**	0.059	-0.056***	0.000	0.048*	-0.158**	0.309*
	(0.030)	(0.076)	(0.021)	(0.024)	(0.028)	(0.063)	(0.158)
	0.40	0.40	0.40	0.40	0.40	0.40	0.40
5 kg	-0.019	0.063	-0.061***	-0.020	0.081***	-0.159***	0.333**
	(0.026)	(0.071)	(0.019)	(0.024)	(0.026)	(0.053)	(0.147)
	0.49	0.49	0.49	0.49	0.49	0.49	0.49

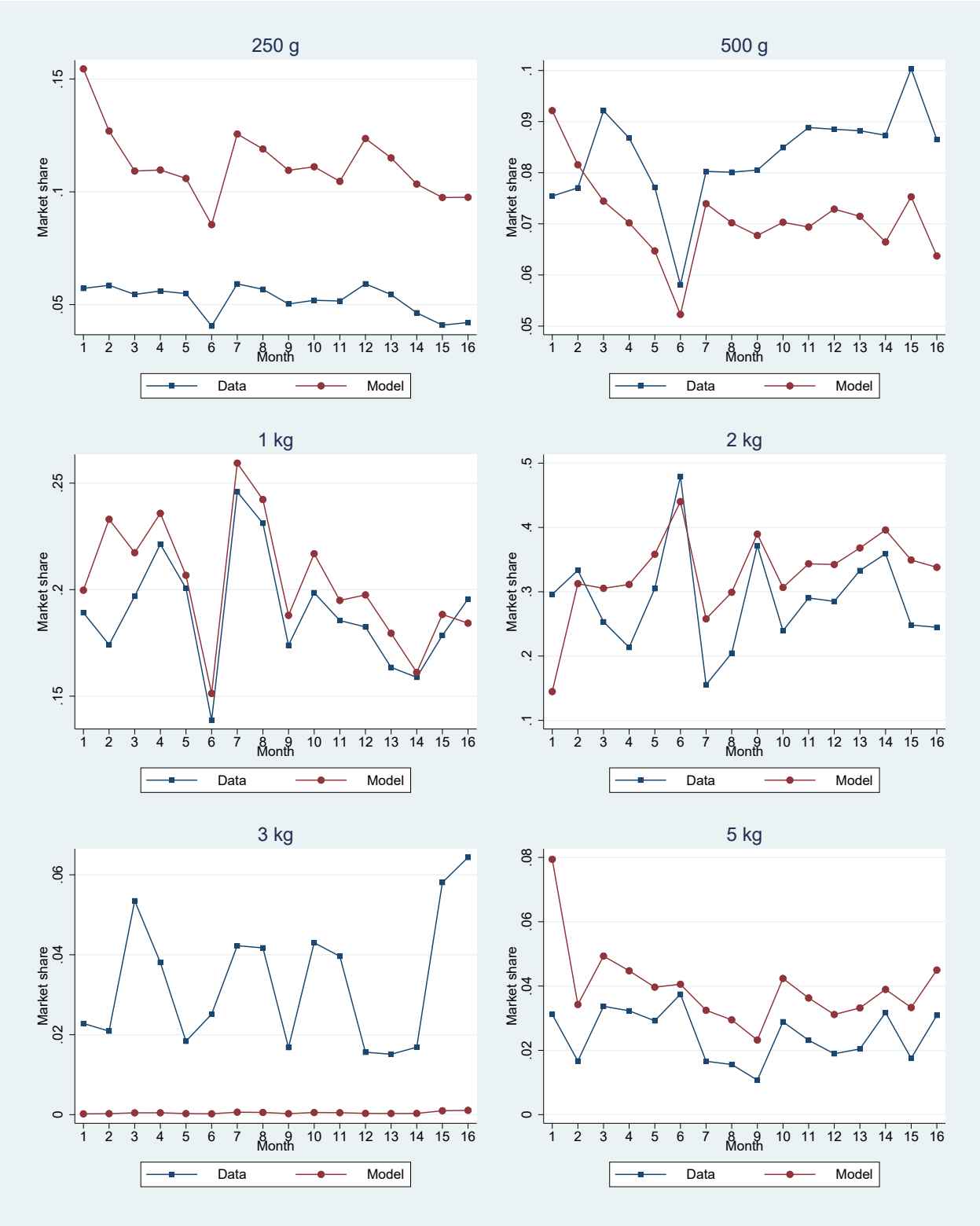
Notes: Univariate regressions of bundling opportunities for different sizes on market characteristics.

Figure A.20: Model fit, LSM area 7-10



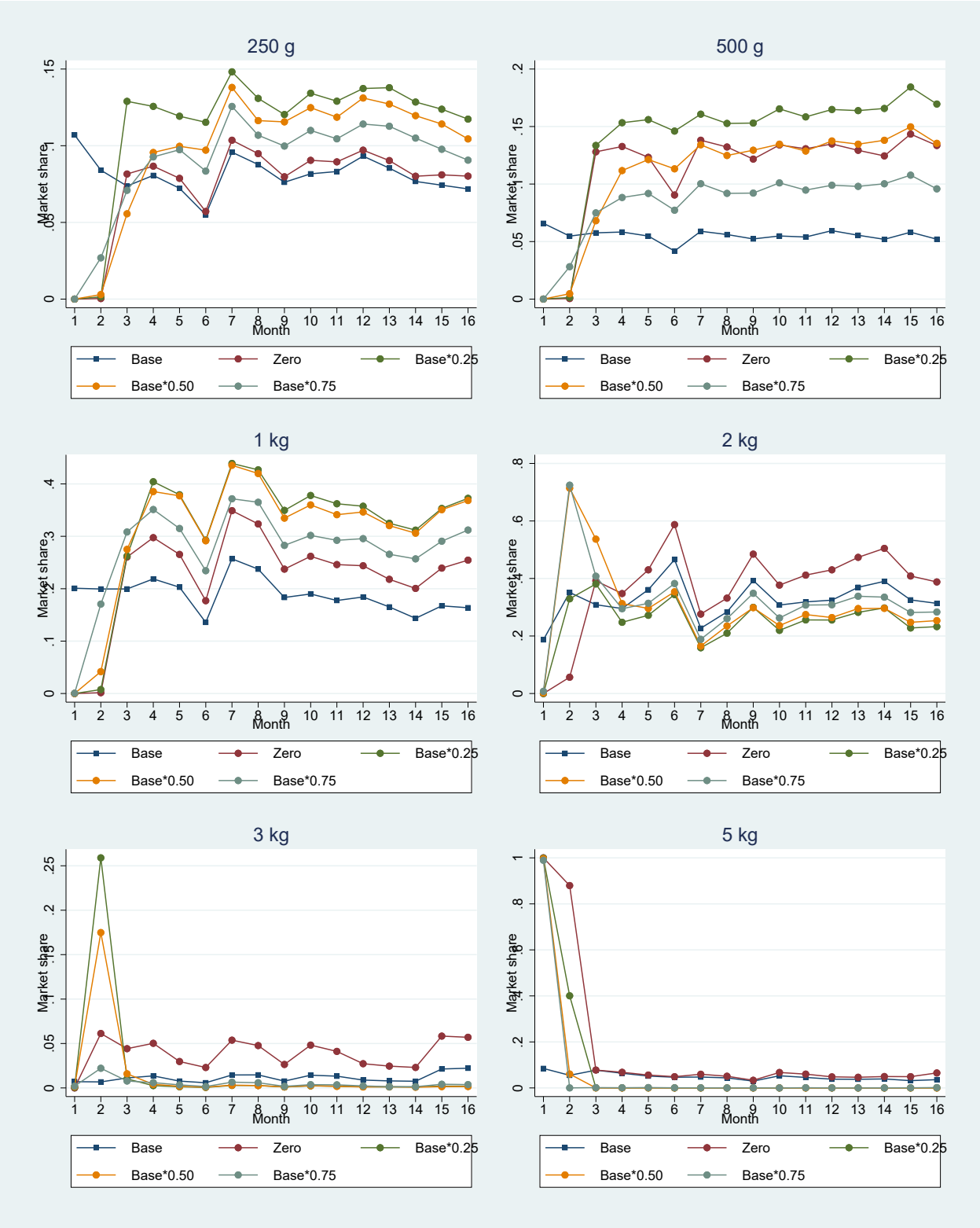
Notes: Market shares of different sizes observed in the data and predicted by the model, LSM area 7-10, estimation sample

Figure A.21: Model fit, LSM area 5-6



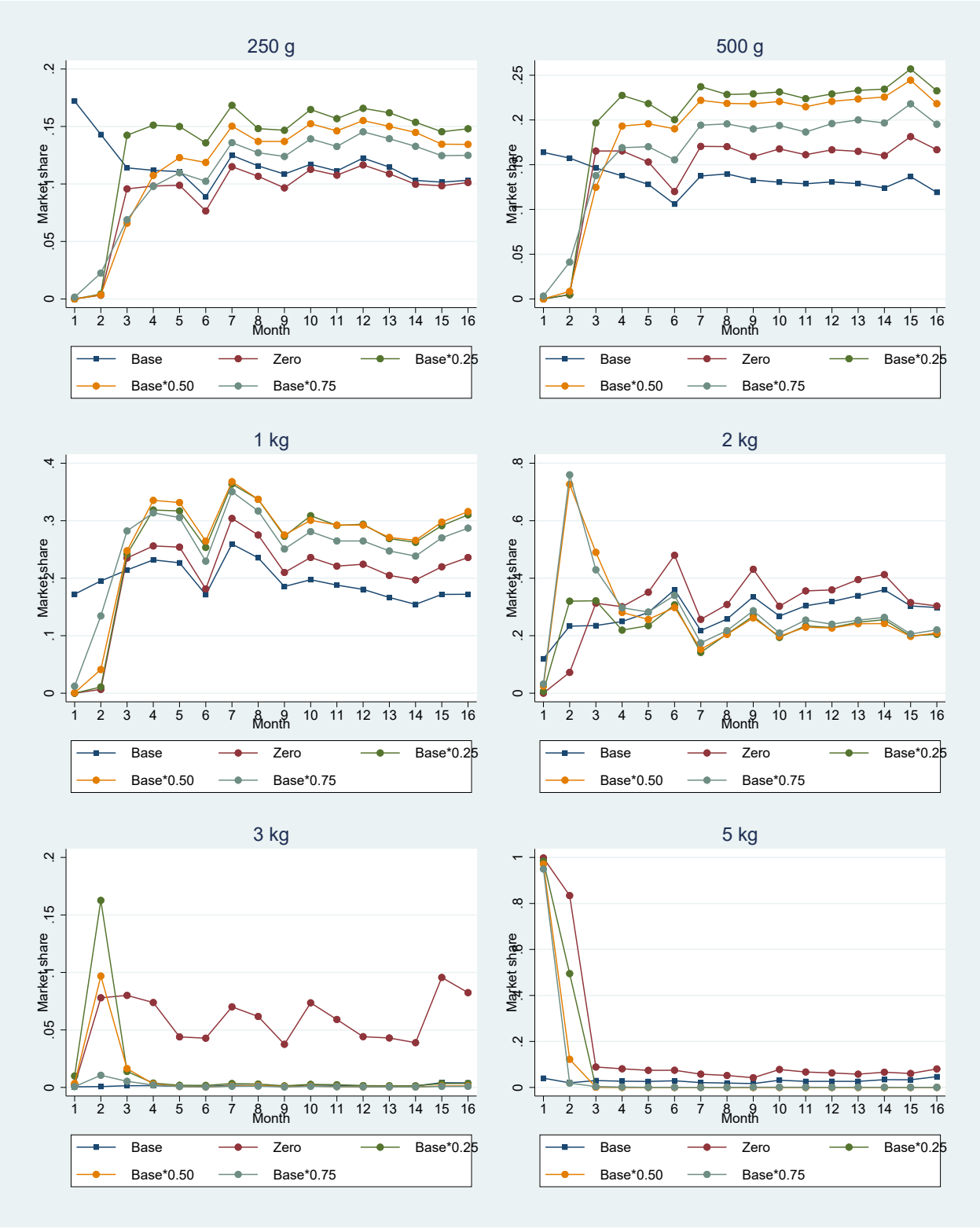
Notes: Market shares of different sizes observed in the data and predicted by the model, LSM area 5-6, estimation sample

Figure A.22: Counterfactual market shares with reduced fixed cost of purchase, low-income areas



Notes: 50 simulated consumers for each store.

Figure A.23: Counterfactual market shares with reduced fixed cost of purchase, high-income areas



Notes: 50 simulated consumers for each store.

Table A.24: Counterfactual simulations

	LSM 5 -6					
	250 g	500 g	1 kg	2 kg	3 kg	5 kg
Consumption						
Average	39.03	57.67	81.71	87.48	85.28	89.84
Median	25.00	50.00	90.16	85.10	83.73	87.45
Inventory						
Average	19.35	24.73	73.04	206.09	114.13	263.63
Median	0.00	0.00	18.50	105.99	118.54	277.94
Purchase probability						
Average	0.49	0.47	0.48	0.37	0.20	0.16
Median	0.50	0.48	0.48	0.34	0.20	0.14
Utility level (expected)						
Average	147.87	153.37	153.80	164.35	150.75	169.24
Median	144.87	150.47	150.09	154.13	148.39	166.46

Notes: Each column corresponds to a different scenario where the consumer's choice set is restricted to the given size (or the outside option). The simulations span a period of 16 months, with 50 individuals per store. Consumption and inventory are measured in 10 g.

Table A.25: Counterfactual simulations, zero fixed cost of purchase

	Low income						High income					
	250 g	500 g	1 kg	2 kg	3 kg	5 kg	250 g	500 g	1 kg	2 kg	3 kg	5 kg
Consumption												
Average	36.42	58.38	89.07	97.71	97.72	97.72	39.08	58.22	77.78	81.39	81.39	81.39
Median	25.00	50.00	97.85	97.85	97.85	97.85	25.00	50.00	76.09	76.09	76.09	76.09
Inventory												
Average	17.21	49.57	262.07	1025.49	1219.89	2493.08	30.99	79.63	320.10	941.67	1153.38	2168.56
Median	0.00	0.00	206.31	961.48	1063.21	2253.44	0.00	0.00	287.29	909.45	1070.74	1972.78
Purchase probability												
Average	0.81	0.85	0.96	0.96	0.64	0.69	0.82	0.87	0.98	0.97	0.66	0.71
Median	0.81	0.84	0.98	0.98	0.58	0.68	0.82	0.88	1.00	0.99	0.57	0.70
Utility level (expected)												
Average	160.89	170.79	197.50	248.38	253.29	257.27	120.97	129.11	156.51	200.29	205.94	210.94
Median	159.57	169.90	194.35	245.91	251.08	255.12	117.27	125.26	153.59	198.66	203.12	207.37

Notes: Each column corresponds to a different scenario where the consumer's choice set is restricted to the given size (or the outside option). The simulations span a period of 16 months, with 50 individuals per store. Consumption and inventory are measured in 10 g.

5 List of bundling options in the data

In the data, 14 products are sold, where a product is a particular package size of a particular brand. By bundling smaller packages, the quantities corresponding to these package sizes can be purchased in a total of 30 different combinations. For example, 1 kg of Sunlight Tropical could be purchased as four 250 g packages or two 500 g packages (as well as a non-bundled 1 kg package). Table 4 in the paper shows all these possible product bundles. However, in a given store in a given month, there can be multiple combinations of these bundling options. In total, there are 57 possible combinations of these bundling opportunities in the data. Table A.26 below lists all these cases.

Table A.26: Bundle options

Bundling group	Omo	Sunlight	Sunlight tropical	N of markets	Percent of markets
1	buy 2x1kg instead of 2 kg			3	0.06
2	buy 2x250g instead of 500g			563	10.71
3		buy 2x2kg+1kg instead of 5 kg		2	0.04
4		buy 3kg+2kg instead of 5 kg		834	15.87
5	buy 2x250g instead of 500g	buy 3kg+2kg instead of 5 kg		363	6.91
6		buy 2kg+1kg instead of 3 kg		289	5.5
7	buy 2x250g instead of 500g	buy 2kg+1kg instead of 3 kg		132	2.51
8		buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg		145	2.76
9	buy 2x250g instead of 500g	buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg		56	1.07
10		buy 2x1kg instead of 2 kg		25	0.48
11	buy 2x250g instead of 500g	buy 2x1kg instead of 2 kg		13	0.25
12		buy 2x1kg instead of 2 kg and buy 3kg+2x1kg instead of 5 kg		1	0.02
13		buy 2x500g instead of 1 kg		1	0.02
14		buy 2x500g instead of 1 kg and buy 2kg+2x500g instead of 3 kg		6	0.11
15		buy 2x250g instead of 500g		156	2.97
16	buy 2x250g instead of 500g	buy 2x250g instead of 500g		84	1.6

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Table A.26 – continued from previous page

Bundling group	Omo	Sunlight	Sunlight tropical	N of markets	Percent of markets
17		buy 2x250g instead of 500g and buy 3kg+2kg instead of 5 kg		110	2.09
18	buy 2x250g instead of 500g	buy 2x250g instead of 500g and buy 3kg+2kg instead of 5 kg		95	1.81
19		buy 2x250g instead of 500g buy 2kg+1kg instead of 3 kg		12	0.23
20	buy 2x250g instead of 500g	buy 2x250g instead of 500g and buy 2kg+1kg instead of 3 kg		64	1.22
21		buy 2x250g instead of 500g and buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg		1	0.02
22	buy 2x250g instead of 500g	buy 2x250g instead of 500g and buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg		4	0.08
23		buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg		1	0.02
24			buy 2x1kg instead of 2 kg	21	0.4
25	buy 2x250g instead of 500g		buy 2x1kg instead of 2 kg	9	0.17
26		buy 3kg+2kg instead of 5 kg	buy 2x1kg instead of 2 kg	3	0.06
27		buy 2x1kg instead of 2 kg	buy 2x1kg instead of 2 kg	67	1.27

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Table A.26 – continued from previous page

Bundling group	Omo	Sunlight	Sunlight tropical	N of markets	Percent of markets
28	buy 2x250g instead of 500g	buy 2x1kg instead of 2 kg	buy 2x1kg instead of 2 kg	42	0.8
29		buy 2x1kg instead of 2 kg and buy 3kg+2x1kg instead of 5 kg	buy 2x1kg instead of 2 kg	8	0.15
30	buy 2x250g instead of 500g	buy 2x1kg instead of 2 kg and buy 3kg+2x1kg instead of 5 kg	buy 2x1kg instead of 2 kg	1	0.02
31		buy 2x1kg instead of 2 kg and buy 3x1kg instead of 3 kg	buy 2x1kg instead of 2 kg	3	0.06
32		buy 2x1kg instead of 2 kg and buy 3x1kg instead of 3 kg and buy 5x1kg instead of 5 kg	buy 2x1kg instead of 2 kg	2	0.04
33		buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	buy 2x1kg instead of 2 kg	9	0.17
34		buy 3kg+2kg instead of 5 kg	buy 2x500g instead of 1 kg	33	0.63
35	buy 2x250g instead of 500g	buy 3kg+2kg instead of 5 kg	buy 2x500g instead of 1 kg	4	0.08
36		buy 2x250g instead of 500g and buy 3kg+2kg instead of 5 kg	buy 2x500g instead of 1 kg	15	0.29
37		buy 3kg+2kg instead of 5 kg	buy 2x500g instead of 1 kg and buy 4x500g instead of 2 kg	2	0.04
38			buy 2x250g instead of 500g	140	2.66
39	buy 2x250g instead of 500g		buy 2x250g instead of 500g	75	1.43

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Table A.26 – continued from previous page

Bundling group	Omo	Sunlight	Sunlight tropical	N of markets	Percent of markets
40		buy 3kg+2kg instead of 5 kg	buy 2x250g instead of 500g	125	2.38
41	buy 2x250g instead of 500g	buy 3kg+2kg instead of 5 kg	buy 2x250g instead of 500g	48	0.91
42		buy 2kg+1kg instead of 3 kg	buy 2x250g instead of 500g	55	1.05
43	buy 2x250g instead of 500g	buy 2kg+1kg instead of 3 kg	buy 2x250g instead of 500g	54	1.03
44		buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg	buy 2x250g instead of 500g	54	1.03
45		buy 2x500g instead of 1 kg	buy 2x250g instead of 500g	1	0.02
46		buy 2x500g instead of 1 kg and buy 2kg+1kg instead of 3 kg	buy 2x250g instead of 500g	5	0.1
47		buy 2x250g instead of 500g	buy 2x250g instead of 500g	59	1.12
48	buy 2x250g instead of 500g	buy 2x250g instead of 500g	buy 2x250g instead of 500g	90	1.71
49		buy 2x250g instead of 500g and buy 3kg+2kg instead of 5 kg	buy 2x250g instead of 500g	78	1.48
50	buy 2x250g instead of 500g	buy 2x250g instead of 500g and buy 3kg+2kg instead of 5 kg	buy 2x250g instead of 500g	54	1.03
51		buy 2x250g instead of 500g and buy 2kg+1kg instead of 3 kg	buy 2x250g instead of 500g	3	0.06
52	buy 2x250g instead of 500g	buy 2x250g instead of 500g and buy 2kg+1kg instead of 3 kg	buy 2x250g instead of 500g	97	1.85
53		buy 2x250g instead of 500g and	buy 2x250g instead of 500g	1	0.02

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Table A.26 – continued from previous page

Bundling group	Omo	Sunlight	Sunlight tropical	N of markets	Percent of markets
		buy 2kg+1kg instead of 3 kg and buy 2x2kg+1kg instead of 5 kg			
54			buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	1	0.02
55		buy 2x1kg instead of 2 kg	buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	6	0.11
56	buy 2x250g instead of 500g	buy 2x1kg instead of 2 kg	buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	1	0.02
57		buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	buy 2x250g instead of 500g and buy 2x1kg instead of 2 kg	41	0.78
All bundling markets				4167	79.3
All markets				5255	100