

Food retailer practices, attitudes and beliefs about the supply of healthy foods

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Abstract

Objective: Non-supermarket food retailers can be a promising channel for increasing the availability of healthy foods in underserved communities. The present paper reports on retailer practices, attitudes and beliefs about the supply of healthy foods before and after the introduction of new subsidies for healthy foods by the US Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in October 2009.

Design: We designed and conducted in-person standardized interviews with store owners and managers to assess perceptions of demand and profits for different foods, supply networks, barriers to stocking healthy foods and their changes following implementation of the new WIC packages.

Setting: Non-supermarket retailers in five towns of Connecticut, USA (*n* 68 in 2009 and *n* 58 in 2010).

Subjects: Owners and managers of WIC-authorized and non-WIC convenience stores and non-chain grocery stores.

Results: Retailers identified customer demand as the primary factor in stocking decisions. They reported observing a significantly weaker demand for healthy foods compared with unhealthy foods, although it improved for certain foods with the new WIC subsidies. Less healthy foods were also perceived as more profitable. Supplier networks varied by product from convenient manufacturer delivery for salty snacks to self-supply for produce. WIC retailers were able to quickly adapt and supply healthy foods required under the new WIC programme guidelines.

Conclusions: Retailers other than supermarkets currently perceive little demand for healthy foods, but new WIC subsidies have the power to change these perceptions. Supply barriers seem secondary in the limited offerings of healthy foods by stores and could be overcome when policy changes generate new demand for healthy foods.

Keywords
Food policy
WIC programme
Stores

Residents in communities with limited availability of healthy foods are at higher risk for poor nutrition^(1,2) and chronic illnesses including obesity^(3,4) and heart disease^(5,6). Low-income and minority populations in the USA are more likely to have limited supermarket access combined with saturation of fast-food establishments and convenience stores^(7,8), a pattern that has not consistently been observed in other wealthy countries⁽⁹⁾. Although evidence is mixed^(10–14), poor food access conditions have been linked to lower fruit and vegetable intakes^(15–17) and higher risk of obesity in adults and adolescents^(7,18–21). Even when physical access to healthy foods is available, higher prices and poor quality may be meaningful barriers to improving nutrition and health in vulnerable populations in many countries^(22–28). Despite widespread findings of limited access to healthy foods in low-income

communities⁽²⁾, few studies have assessed the causes of this disparity. One hypothesis is that low demand for healthy foods discourages retailers from stocking them. Limited supply networks or inadequate storage capacity could also limit the ability of convenience stores and small groceries to supply healthier products despite increased demand. Anecdotal evidence and focus group reports suggest that retailers would provide healthy foods if they perceived demand for these products^(29,30).

Government food assistance programmes can play a role in increasing demand for healthy foods via economic incentives such as food subsidies and income transfers. Interventions in both developed and developing countries have used conditional cash and in-kind transfers to encourage purchases of healthy foods, with mixed results. For example, income transfers without concurrent

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promotion of healthy foods⁽²⁸⁾ were shown to improve intakes of healthy foods but also increase consumption of unhealthy foods and thus contribute to excess energy intake⁽³¹⁾. Recently, the US Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) initiated changes designed to improve the diets of WIC participants through the provision of certain healthy foods⁽³²⁾. WIC is one of the federal food assistance programmes that supplies low-income families with vouchers for specific food packages intended to support prenatal, infant and child development. WIC vouchers are redeemable only in authorized stores, which are required to stock certain WIC foods. Since October 2009, WIC participants began to receive vouchers for new food packages including fruit and vegetables, whole grains and other nutritious products. Given that the WIC programme spends over \$US 4.6 billion annually on food packages for over nine million WIC recipients⁽³³⁾, this policy change has the potential to create significant new demand for foods that were previously lacking or insufficient in the diets of low-income populations and in the stores that serve them.

The purpose of the present study was to understand the perceptions of demand for healthy foods, supply practices and barriers to stocking healthy foods, and the role of WIC revisions in the operation of convenience stores and non-chain grocery stores in the USA. We surveyed storeowners and managers before and after the implementation of the WIC revisions to assess changes in their practices and perceptions about selling various foods and identify whether retailers were able to overcome supply barriers in meeting new demand for healthy foods. Results from our study can inform the development and revisions of food assistance programmes in the USA and other countries responding simultaneously to food insecurity and the obesity epidemic, as well as contribute to broader efforts to reduce disparities in access to healthy foods.

Methods

Sampling frame

The retailer survey was part of a larger study assessing the effects of change in the federal WIC policy on the availability, quality and prices of healthy foods. In-store assessment of these factors relied on an updated version of a food environment measurement tool⁽²²⁾ adapted from the Nutrition Environment Measures Survey in stores (NEMS-S)^(22,34). The larger study sample frame included all food retailers operating in five towns in Connecticut, USA. To maximize the diversity of food environments surveyed within a limited study budget, we sampled towns from the twenty-four most populated towns in Connecticut and selected five towns to represent communities from a broad range of residential income and food retailer densities. The retailer survey used a

pre/post-matched, non-randomized design to select WIC and non-WIC food stores other than supermarket chains, such as convenience stores and independent (non-chain) groceries within the five towns.

Selection of stores and data collection

We obtained a list of food retailers in Connecticut from InfoUSA Inc., a commercial database provider⁽³⁵⁾. Retailer locations were geocoded to identify stores within the five towns and within a half mile buffer around the official boundary of each town included in our sample using ArcGIS 9.2 (ESRI, Inc., Redlands, CA, USA) Census 2000 TIGER/Line[®] data⁽³⁶⁾ (ESRI, Inc.) designated town and census tract boundaries and InfoUSA provided latitude and longitude coordinates for store locations. We verified and extended InfoUSA store locations on the basis of WIC administrative data and fieldwork. We recruited all WIC-authorized retailers other than supermarket chains operating within the study sampling area ($n = 40$). WIC authorization status was assessed during store visits and verified in state administrative records. We then purposively sampled comparable non-WIC retailers to serve as a control group for the study. Control stores were matched on store type (a non-chain grocery store, convenience store or a food mart, i.e. a convenience store at a gas station⁽²²⁾) and proximity to WIC retailers (usually within the same census tract). We expected a lower response rate from non-WIC retailers on the basis of experience conducting store inventories in the study area. To recruit a similar number of WIC and non-WIC retailers, we included fifty-one non-WIC stores.

We recruited storeowners or managers directly involved in ordering food products to participate in a 30–45 min interview. Each participant was offered monetary compensation and signed an informed consent form. One or two interviewers visited the store to interview participants at the scheduled time on store premises. The interviewer read survey questions to the retailer, made clarifications, displayed answer choices for multiple choice questions and filled in the paper-based survey. Baseline interviews were conducted in English or Spanish during April–July 2009, and follow-up interviews were conducted in May–July 2010. All materials were approved by the University Institutional Review Board.

Survey development and measures

Survey constructs were pooled from literature on cigarette retailer interventions⁽³⁷⁾ and food retailer focus group guides, as well as from qualitative surveys and state WIC surveys^(38,39). Each construct was evaluated in light of its feasibility in a small store context and relevance to the WIC policy change. We chose a structured interview over more qualitative, open-ended questions to be able to assess changes in retailer responses following the policy revision. The instrument was pilot tested in three stores outside the sample. The authors can provide copies of the surveys

upon request. Store characteristics, demographics, stocking behaviour and attitudes regarding WIC were assessed with closed and open-ended questions.

Product selection, suppliers and pricing

Retailers were asked to categorize each supplier for each food category as: (i) a general distributor (a wholesaler who delivers products from multiple brands); (ii) direct store delivery (a manufacturer and distributor of a specific brand); or (iii) self-supply (a retailer stocking at supermarkets or warehouse clubs). Our product selection was based on foods from the pre- and post-revision WIC food packages as a proxy for healthy foods. These included fruit and vegetables (fresh, frozen and canned), whole wheat/grain bread, cereals, reduced, low-fat or skimmed milk (i.e. lower-fat milk), tofu, soya milk, infant formula and jarred baby foods. In addition, we assessed several non-WIC products that are widely available, nutritionally poor and common in US diets^(40–44), such as soda, salty snacks, candy and white flour bread. Participants were asked to select how they determine pricing from a list of options, such as by manufacturer's suggestion or neighbourhood competition.

Perceived demand

To assess retailers' perceived demand by product category, participants responded to a statement '[Product] sells well in my store' on a 6-point scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree and 6 = strongly agree) for eighteen food categories. We also asked all retailers about hypothetical demand for selected foods. If stores did not stock a certain food, they rated the demand they could have had if they had been selling it. Stores already stocking the item rated the likelihood that customers would purchase more of that product. To summarize demand for healthy and unhealthy foods, we averaged demand across products. Hypothetical demand was used if the store did not offer the product. Product categories with a high number in hypothetical demand or in which we found significant differences between actual and hypothetical demand were excluded. The summary measure of demand for healthy food included fresh fruit, canned fruit, canned vegetables, lower-fat milk and wholegrain cereal (mean = 4.00, SD 0.85, $\alpha = 0.63$). For unhealthy foods, we included retailers' assessments of demand for salty snacks and soda (mean = 5.57, SD 0.48, $\alpha = 0.68$). In 2010, retailers were asked to report whether and how purchases of unhealthy and healthy foods had changed.

Perceived profitability

To assess perceived profitability by product category, retailers were asked 'Generally speaking, how much profit do you make from selling [product]?' on a 5-point scale (1 = very little, 2 = lower than average, 3 = average, 4 = above average and 5 = best of all foods). We built a summary measure for perceived profitability of healthy

and unhealthy foods. Healthy food profitability was calculated as an average of scores for fresh fruit, fresh vegetables and lower-fat milk in stores that sold at least one of these most-prevalent healthy products (mean = 2.59, SD 0.87, $\alpha = 0.78$). The perceived profitability of unhealthy food was assessed by averaging the scores for salty snacks, soda and candy when all three products were stocked (mean = 3.44 SD 0.82, $\alpha = 0.76$).

Healthy food attitudes, supports and barriers

Attitudes about selling healthy food were assessed on the basis of retailers' ratings on the above-mentioned 6-point scale that: (i) the food they sold was healthy; (ii) they should play a role in increasing the availability of healthy food in the store neighbourhood; and (iii) if they stocked healthy food, their customers would have a better diet. We also asked retailers to consider: (i) whether their sales would go down if they stocked healthier foods; and (ii) whether their customers looked for healthier food in stores. Open-ended questions assessed interest in offering more healthy foods and strategies to increase sales of healthy foods. Supports and barriers to offering more healthy foods were assessed, including seven positive factors such as high profitability and eleven barriers such as lack of suppliers and limited customer demand. Respondents could also offer unlisted supports/barriers. In addition, retailers rated twelve strategies that government or non-profit organizations could use to support store provision of healthier foods, including training, tax incentives, customer education and changes to government programmes.

Retailer perceptions of WIC programme and policy changes

In 2009, all retailers were assessed on their knowledge of new WIC foods, expected changes in WIC participation due to programme revisions, feasibility of accommodating new foods (enough shelf space, refrigeration capacity) and expected business impact of the WIC policy change to add more healthy items to WIC packages. WIC retailers answered additional questions regarding impressions of the WIC programme. In 2010, WIC retailers were asked about changes they made to business practices to accommodate the new WIC foods. WIC stores also reported on challenges in implementation and overall effects of the WIC revisions on their business.

Empirical analyses were based on frequencies and mean comparisons using both single items and mean scales. Differences in means were tested with the (two-sided) *t* test.

Results

Response rate and sample description

Sixty-eight of ninety-one retailers approached (75%) participated in the baseline survey, with higher participation

Table 1 Supply methods for food categories, 2009

Food categories	Percentage of stores delivering product using		
	Self-supply*	General distributor†	Direct store delivery‡
WIC foods			
Canned fruit and vegetables	37	78	2
Milk (any fat content)	15	54	35
Cereal	40	72	2
Bread	19	42	50
Formula	46	72	2
Baby food	37	71	0
Fresh fruit and vegetables	78	25	0
Frozen fruit and vegetables	33	76	0
Tofu	0	100	0
Standard (non-WIC) products			
Candy	50	66	4
Salty snack	12	32	77
Soda	28	59	35

WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

Respondents could choose more than one response.

*A retailer stocks products from supermarkets or warehouses.

†Distributor or wholesaler who delivers products from multiple brands.

‡Manufacturer and distributor of a specific brand who also stocks products in the store.

rate among WIC (88%) than among non-WIC retailers (65%). Among participants in the baseline survey, most owned or managed convenience stores (75%), with the remainder from non-chain grocery stores (13%) and food marts (12%). A total of 60% of the stores were in census tracts with a 2000 median household income below 185% of the US federal poverty level, which we chose to describe low-income communities (specifically, income below \$US 39 200)⁽⁴⁵⁾. Only one-third of the respondents lived in the neighbourhood where they worked. The primary racial/ethnicities were South Asian (38%) and Latino (38%). Most interviews were conducted in English (78%), yet only 21% of the respondents were native English speakers.

Interviews in 2010 were completed among fifty-eight of the sixty-eight baseline participants. More WIC stores were lost to follow-up compared with non-WIC stores in 2010, with some stores losing WIC authorization due to ownership changes or programme violations unrelated to the revisions. Several businesses have closed since the 2009 interviews. The final response rate for all stores participating in the 2-year survey assessment was 64%. The same individuals were interviewed in both years in 85% of the stores.

Product selection, suppliers and pricing

Retailers reported customer requests as the primary factor in deciding which products to stock (81% mentioned it as the main factor), with some also selecting profitability, supplier recommendations and wholesale deals (20–30%). Close to half of the retailers were interested in offering new products and 83% were interested in selling healthy foods. Adding variety was mentioned as the motivation to offer new healthy foods. Customers' dislike and supermarket competition were cited as reasons for lack of interest.

Retailers reported using a range of suppliers that varied considerably across products (Table 1). Unhealthy foods such as salty snacks and soda were more likely to be delivered directly to stores and often shelved by the manufacturer, whereas healthy products (e.g. fresh, frozen and canned produce) were more likely to be self-stocked or obtained from a general distributor. Over half of the retailers (58%) used manufacturer's/distributor's suggestions to set prices, whereas alternative strategies were neighbourhood price matching and flat markups (e.g. 30% on all products).

Perceived demand

At both baseline and follow-up, retailers perceived lower customer demand for healthy *v.* unhealthy foods, both in comparing individual items and in summary scales (baseline paired $t(67) = -13.92$, $P < 0.001$). At baseline, there was no difference in perceived demand by WIC status except for infant formula, which was higher in WIC stores (baseline $t(55) = -2.53$, $P < 0.05$). Almost all retailers said that whole milk, salty snacks and soda sold well, but less than half to one-third had the same opinion regarding many of the healthy items (Table 2). For some food categories, retailer ratings of customer demand differed for the healthier and unhealthy versions. For example, 42% of baseline respondents thought that wholegrain cereals were selling well; however, for cereals high in sugar, responses were more positive: 71% of retailers thought that they sold well. The difference in perceived demand across types of milk was even greater: 37% of 2009 demand ratings were positive for lower-fat milk *v.* 93% for whole milk. This reduced in 2010 when positive rankings of lower-fat milk went up to 49%. At follow-up, many WIC store retailers reported increased demand for certain healthy foods, including fresh fruit

Table 2 Perceived demand and profitability across foods

Food categories	Percentage of retailers who agree or strongly agree that 'product sells well in my store'		Percentage of retailers reporting increases or decreases in demand between 2009 and 2010				Percentage of retailers reporting above average or best of all profits from selling the product	
	2009	2010	Increase		Decrease		2009	2010
			WIC store	Non-WIC store	WIC store	Non-WIC store		
Soda	98	98	15	19	6	4	60	67
Salty snacks	95	93	15	19	10	0	32	41
Whole milk	93	97	7	6	13	37	43	48
White bread	86	93	11	6	6	4	29	32
Children's cereal	71	74	—*	—*	—*	—*	33	37
Fresh vegetables	63	43	48	6	3	7	18	21
Infant formula	57	63	7	3	6	11	18	27
Wholegrain bread	53	66	70	6	6	4	14	26
Canned vegetables	52	47	22	3	13	4	16	21
Jarred baby food	45	57	37	3	10	4	4	17
Fresh fruit	43	57	74	10	0	8	14	11
Frozen fruit	43	23	4	0	0	0	13	31
Wholegrain cereal	42	47	33	0	6	7	12	32
Frozen vegetables	41	32	7	3	3	0	35	5
Lower-fat milk (2%, 1%, skim)	37	49	63	16	10	4	14	22
Canned fruit	37	41	30	0	13	4	16	21
Candy	—*	—*	11	10	13	0	52	53

WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

Fifty-eight stores participated in both baseline and follow-up interviews.

*Not assessed.

and vegetables, wholegrain bread and cereal and lower-fat milk (Table 2). At the same time, they reported declines for products that were reduced in the new WIC food packages, such as whole milk.

Perceived profitability

At both baseline and follow-up, participants rated perceived profitability of all food items within a narrow range by citing that most products earned below average or average profit. Nevertheless, many reported making above average or their best profit from selling soda, candy and whole milk (Table 2). As with perceived demand, retailers rated profitability of healthier foods less favourably than their less healthy counterparts. For example, 14% of retailers said that they made at least above average profit on lower-fat milk *v.* 43% for whole milk in 2009. At baseline, perceived profitability of selling healthier foods was significantly lower than that of unhealthy foods on the basis of scale comparisons (paired $t(63) = -6.28$, $P < 0.001$). Except for a higher perceived profitability of infant formula in WIC stores ($t(55) = -2.09$, $P < 0.05$), there was no significant difference in perceived profitability by WIC status at baseline and follow-up.

Healthy food attitudes, supports and barriers

At baseline, over half of the retailers agreed/strongly agreed that on average they sold healthy food in their stores; that they should play a role in increasing the availability of healthy food in their neighbourhood; and that if they stocked healthier food, their customers would have better diets. Attitudes towards offering healthy foods

increased between 2009 and 2010 among WIC stores but worsened in non-WIC stores, although neither change was significant. Customer dislike was cited most frequently (31%) as the primary barrier to stocking healthy foods. Spoilage was a common barrier to offering fresh fruit and vegetables, compared with refrigeration for frozen vegetables, customer dislike for whole grains and lower-fat milk, and no barriers for canned produce (Table 3). Finding a supplier and ordering small quantities were infrequently cited as important barriers. Customer dislike discouraged some retailers from offering wholegrain breads/cereals and lower-fat milk. The three potential institutional supports deemed most useful for the interviewed stores included monetary incentives to cover the cost of electricity (74% found very useful), subsidies for healthy foods (73%) and educating customers about healthy eating (63%).

Retailer perceptions of WIC programme and policy changes

At baseline, most retailers (71%) were happy or very happy to participate in the WIC programme. Advantages to participating in WIC included additional sales, customer traffic, financial stability in economic downturns and spillovers into non-WIC products. Disadvantages were extra time in processing WIC purchases, WIC customers 'trying to negotiate trades' for non-WIC products, price ceilings, minimum stocking requirements and punishment of the store for unauthorized purchases. As one respondent said, '[Customers] get angry when WIC rules are enforced, and will go to another store to get their products if you do not make illegal transactions'. Two-thirds of

Table 3 Customer-, store- and supplier-level barriers to offering healthier foods

Food categories	Customers dislike		Expensive for customers		Spoils fast		Low profits		Refrigeration need		Electricity cost		Special equipment need		Burden on staff		Lack of suppliers		Problems with small orders		No return for expired product to supplier		No negative issues	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Fresh fruit and vegetables	12	13	47	10	26	7	6	1	13	15	15	10	15	10	1	13	15	7	6	1	13	15	10	10
Frozen fruit and vegetables	26	7	6	9	37	22	3	0	10	3	22	3	0	0	0	10	3	0	3	3	3	3	9	9
Canned fruit and vegetables	9	5	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	11	57	57
Wholegrain breads, cereals	35	19	6	9	0	0	0	0	0	0	0	0	0	0	0	6	0	0	1	1	1	7	28	28
Lower-fat milk	41	3	15	4	1	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7	41	41
Soya milk	74	8	11	2	0	0	0	0	0	0	0	0	0	0	6	0	0	6	2	2	3	3	5	5
Baby food, formula	13	25	7	10	0	0	0	1	3	0	0	0	0	1	1	3	1	3	0	0	4	4	37	37
Average	31	12	14	7	10	5	1	0	6	3	5	1	0	6	0	6	0	6	3	3	7	7	26	26

Data are presented as the percentage of retailers (n 68; baseline assessment) indicating factor as a barrier to stocking food. Respondents could choose more than one response. Bold indicates the most frequently mentioned barrier within a given food category.

non-WIC stores had participated in WIC earlier. Some lost their authorization because of ownership changes or violations; others ended participation because of cumbersome paperwork. Half of the non-WIC stores had applied and been rejected WIC authorization (often because of state limits on the number of authorized stores in a certain area). Three-quarters were still interested in becoming authorized.

At baseline, almost all WIC retailers reported having enough shelf space (94%), refrigeration (89%) and suppliers (79%) to accommodate the new foods. Most non-WIC retailers thought that they would be ready to accommodate the new products if they had to do so. Most stores felt that the change would be easy or very easy to incorporate (71% WIC and 87% non-WIC). At follow-up, WIC stores reported making multiple changes to accommodate the new packages, such as adding new products (93%), increasing delivery frequency (54%), training staff (54%), increasing the amount of space allocated for WIC products (43%) and purchasing new equipment (18%). Most retailers had either a positive (46%) or neutral (36%) overall impression of the WIC programme changes, compared with 18% who had a negative overall impression.

Discussion

Our study adds important new information to policy makers regarding the potential impact of improved food assistance programme guidelines on community-level demand for healthy foods. Before recent WIC revisions, convenience stores and non-chain groceries in the state of Connecticut perceived limited demand for healthy foods in their stores, especially in comparison with demand for soda, candy and chips. Retailers consistently cited customer demand as the most important determinant of retailer stocking decisions. The addition of healthier food items to the WIC food packages in 2009 led to increases in perceived demand for certain healthy foods in stores authorized to accept WIC benefits compared with non-WIC stores. WIC participant demand for healthy products in the new WIC packages may persist after their WIC eligibility ends if participants develop taste preferences for healthier foods. Long-term assessment of changes in customer preferences, food choices and purchases is necessary to understand whether and how such changes occur.

Although customer demand has a powerful influence on retailer decisions to stock certain foods, the availability of suppliers is also important. Suppliers have pervasive influence in the market, particularly through price setting, which was mentioned by many retailers. Supplier networks differ by product, and healthy products such as fruits and vegetables typically have fewer suppliers. Produce is usually procured by small retailers through self-supply from supermarkets and warehouse clubs, potentially leading to double retail markup, poor food

safety and increased spoilage due to multiple handling. In contrast, convenient delivery of chips and soda directly to stores makes it easy for retailers to stock them. Small retailers need distributors who will provide produce and other healthy foods in appropriate quantities and through convenient delivery mechanisms. This would likely increase the availability and quality of healthy foods and potentially reduce prices. Despite limitations in small-store supplier networks, almost all (93%) WIC-certified retailers reported adding new products in response to the WIC revisions, and few identified supplier networks as an important barrier or added a new supplier to comply with programme changes (18%).

Before programme changes, WIC retailers anticipated few problems with implementation of the WIC food package revisions. Most felt that they could find suppliers, additional shelf space or equipment to provide the new products. Follow-up interviews confirmed that most retailers were able to accommodate new healthy foods in the revised WIC food packages, although retailers put extra effort and sometimes investment to meet new programme demands.

Our data represent food retailers other than supermarkets that operate in the state of Connecticut and may not generalize to other settings, particularly in developing countries with more limited supply networks. In the USA, rural areas might have unique challenges not captured in our study of urban and suburban neighbourhoods⁽³²⁾. Assessing bigger samples of retailers from diverse locations would further help understand the perceptions, attitudes and business practices among owners and managers of convenience and non-chain grocery stores that in some neighbourhoods provide the only source of food access to community residents. Given the nature of personal interviews⁽⁴⁶⁾, some respondents probably gave socially desirable answers in our survey. For example, many retailers rated foods sold in their stores as healthy although in fact they had much greater offerings of unhealthy foods. It is also possible that monetary compensation for survey participation influenced some retailers, although we found no difference in the types of foods available between stores that agreed to participate and those that did not.

In conclusion, we designed a survey of non-chain supermarket food retailers to assess retailer practices, attitudes and beliefs around the supply of healthy foods. Our assessment suggests that convenience stores and non-chain groceries currently perceive little demand for healthy foods, but new WIC subsidies have the power to change that, at least in WIC-authorized stores. Supply barriers seem secondary in stores' limited offerings of healthy foods and could be overcome when policy changes generate new demand for healthy foods. This became evident following implementation of the revised WIC food packages that increased the types and amounts of major healthy foods (fruits and vegetables and wholegrain products) in WIC-authorized stores through

stocking requirements while simultaneously subsidizing these foods for low-income women, children and infants. Revisions to food assistance programmes that increase demand for healthy foods have the potential to significantly improve the food environment in underserved communities with little burden on retailers.

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