

Chapter 11

Summary and Conclusions

The previous chapters reported the observed relationships between WIC cost-containment practices in the six case study States and the outcome measures specified by the U.S. Congress in this study's authorizing legislation. This chapter summarizes the main findings from the study. The first section of the chapter organizes the findings according to each outcome measure. The second section reorganizes these findings according to the cost-containment practices implemented in the six States. This reorganization focuses on the individual practices, the costs and savings attributable to them, and their relationships with participant outcomes.

This study examined the following cost-containment practices. States implementing each practice are shown in parentheses.

- **Competitive pricing.** State applies competitive pricing criteria at application to ensure that stores with excessive prices are not authorized (all States except North Carolina and Ohio used competitive pricing criteria at application, but Connecticut, Oklahoma, and Texas had the most explicit and restrictive policies).
- **Requiring least expensive brand.** For specified food categories, WIC participants must purchase the least expensive brand available in the store (Connecticut, North Carolina, Oklahoma, and Texas).
- **Restricting brands or types.** For specified food categories, the State's list of approved foods restricts which brands or types (such as cheese varieties) that may be purchased (California, Oklahoma, and Texas).
- **Limiting package form.** For specified food categories, the State's list of approved foods restricts which package forms (package size or container type) may be purchased (California, North Carolina, Ohio, Oklahoma, and Texas).
- **Rebate contracts.** For infant cereal, the State's list of approved foods restricts purchase to a single brand due to a negotiated rebate contract with the manufacturer (California, Connecticut, and Texas).

A number of vendor management practices that may affect food package costs were not examined because they do not impose restrictions on WIC participants. Examples include maximum values on food instruments and limits on the number of WIC-authorized outlets within a specified area. All of the States in the study set maximum redemption values for food instruments. Ohio and Oklahoma placed limits on the number of WIC vendors in an area. Oklahoma denied authorization to six stores in FY1999 and three in FY2001 when numeric limits were reached. Numeric limits in Ohio had never been reached when data for this study were collected (primarily during the spring and summer of 2001), so the State had never denied authorization for this reason.

Summary of Findings

There are three major findings from this study:

1. Four of the six case study States (California, Connecticut, Oklahoma, and Texas) imposed restrictions on many WIC foods in an effort to reduce food package costs. Their efforts were successful, reducing monthly food package costs by an average of nearly 15 percent.
2. Cost-containment practices were associated with few adverse outcomes for WIC participants.
3. State and local office administrative costs attributed to cost-containment practices were relatively low. In the four States with substantial food-item restrictions, administrative costs averaged less than 1.5 percent of estimated food package savings. These costs averaged about 0.4 percent of the States' annual NSA funds.

Due to the nature of case studies, these findings cannot be construed as applicable to all States. In addition, the success of cost-containment practices in these six States was the result of their ongoing efforts to find those practices that both reduced food package costs and were acceptable to participants.

Main Findings by Outcome Measure

Food Costs and Food Cost Savings

The study examined average WIC food costs and the savings resulting from food-item restrictions. Two sets of estimated costs and savings were obtained. The first set is based on a research approach that used a uniform distribution of standard food packages across the States to remove State-by-State variation in food package contents—an important factor affecting food package costs. This standardized measure is useful for cross-State comparisons of costs and savings. The second measure removed this standardization and includes estimates by State officials of some savings that this study did not examine. The second measure is likely to be more meaningful to program officials in the six States, and it is the appropriate one to use when comparing savings to administrative costs.

Based on the second (nonstandardized) measure, average food package costs (excluding the cost of infant formula, tuna, and carrots) varied from a low of \$24.26 per participant per month (PPM) in Oklahoma to a high of \$35.72 PPM in California.¹ The largest contributors to average food package costs in the six States were milk, juice, cereal, and cheese.

Again using the nonstandardized measure, cost-containment practices led to estimated savings as high as \$6.43 PPM in Oklahoma and \$7.33 PPM in Texas. The large savings in Oklahoma and Texas were due primarily to food-item restrictions on juice and cereal. In California and Texas, the States with the largest WIC caseloads, estimated annual savings from cost-containment practices were

¹ Formula costs were not estimated because infant formula was specifically excluded from the study by the authorizing legislation; costs for tuna and carrots were not estimated because these foods were not subject to cost-containment restrictions in any of the six States, and thus could not contribute to food cost savings.

nearly \$40 million and \$66 million, respectively. Even in Oklahoma, a State with a relatively small WIC caseload, estimated annual savings were \$6.7 million.

The small savings in North Carolina and Ohio were expected, as these States used few cost-containment practices. The large savings in Oklahoma and Texas were due primarily to food-item restrictions on juice and cereal. Oklahoma required purchase of store- or private-label brands for most allowed juice and cereal products, and restricted many juice purchases to 46-ounce cans, a less expensive form than bottled juice. Texas allowed a large number of cereal types and brands, but its specified minimum package sizes were generally larger than in the other States. For juice, Texas limited the number of allowed types, required purchase of the least expensive brand available, and restricted most juice containers to 46-ounce cans.

Administrative Costs of Cost-Containment Practices

When compared to the overall costs of program administration, the cost-containment practices implemented by the case study States were inexpensive to operate. The estimated total administrative costs ranged from \$0.01 per participant per month (PPM) in Oklahoma to \$0.10 PPM in Connecticut. These estimates may under- or overstate actual costs because the States could not always provide information needed to estimate costs for specific functions.² Even allowing for a considerable margin of error, however, costs related to cost-containment were small. The estimated costs represented, on average, about 0.4 percent of the States' FY2001 NSA costs.

The study did not estimate the cost of designing and implementing (as opposed to operating) cost-containment practices because the States implemented these practices many years ago. Program officials in other States considering the initiation of a cost-containment practice should be aware of the unknown magnitude of implementation costs.

Access to Vendors

Four of the six States (all but North Carolina and Ohio) applied competitive pricing criteria at application to ensure that stores with excessive prices were not authorized.³ Connecticut, Oklahoma, and Texas had the most explicit and restrictive policies, using a fixed threshold for evaluating prices of a standard package of WIC foods. Program officials in all four States, however, said that they rarely, if ever, denied vendor authorization based on prices. Instead, if prices were high, the stores agreed to reduce their prices for WIC transactions.

Although very few stores were denied WIC authorization because of high prices, it is possible that pricing criteria kept some higher priced stores from applying to WIC at all. This could lead to problems with participant access to WIC-authorized outlets if enough stores elected not to apply.

Examination of shopping patterns, as measured in the Survey of WIC Participants, shows that vendor pricing restrictions in the three most restrictive States had no impact on participant access to WIC vendors. Survey respondents in the three States with vendor restrictions, as a group, did not travel

² In some instances, activities supporting cost-containment practices were so integrated with other administrative processes that State officials could not provide estimates of the cost-containment portion of the activity.

³ Ohio's policy of competitive pricing applies only when limits on the number of authorized vendors in an area have been reached. These limits had never been reached at the time data for this study were collected.

farther or longer to do their WIC shopping, compared with their regular shopping, than participants in the remaining States, nor did they pay more in out-of-pocket expenses. A major reason for finding no relationship between price restrictions and access to vendors is that most survey respondents said they did their WIC and regular shopping at the same store. A cross-State average of only 13.0 percent of survey respondents did their WIC and non-WIC shopping at different stores.

Availability of Prescribed Foods

Cost-containment practices may reduce the availability of prescribed WIC foods in two ways. First, if competitive pricing restrictions have the unintentional consequence of limiting access to well-stocked stores, then WIC participants may have difficulty finding prescribed foods at WIC vendors. Second, when State cost-containment practices limit the number of food items that may be purchased with the WIC food instrument, the likelihood of finding an approved item at an authorized store may decrease.

The study found that restrictions on the brands, types, and packaging of prescribed foods did not affect item availability in a sample of stores in each State. Indeed, there is some evidence that approved items were more available, rather than less, at WIC-authorized stores in States with food-item restrictions. This could reflect grocers' greater efforts and/or ability to maintain inventory of WIC-approved foods when the number of approved items was reduced. It may also reflect greater State enforcement of minimum inventory requirements when food-item restrictions are in place.

The study also compared the percentages of stores in States with and without restrictions that met WIC's minimum variety requirements for store inventory. Nearly all stores met the requirements for all food categories. There were no significant differences between the States with and without restrictions.

Participant Satisfaction With and Use of Prescribed Foods

Among the case study States, most surveyed WIC participants indicated they were "very satisfied" with the brands of food allowed on their State's list of approved foods. Brand satisfaction was highest for milk, cheese, infant cereal, and juice, with satisfaction levels generally near or above 80 percent. About 65 percent of respondents said they were "very satisfied" with allowed brands of peanut butter, and a little more than 50 percent indicated satisfaction with allowed brands of cereal. Most importantly, when overall satisfaction levels in States with restrictions are compared with levels in the nonrestrictive States, the differences are small and usually not statistically insignificant. Only for cheese and cereal did food-item restrictions affect levels of satisfaction with allowed brands.

With regard to "use" of prescribed foods, the study examined both the purchase and consumption of WIC foods by asking survey respondents how much of their monthly prescription they purchased, and how much of the purchased food they (or other WIC members of the household) ate or drank. The findings, by food category, were:

- **Milk:** Four States (Connecticut, North Carolina, Oklahoma, and Texas) required participants to purchase the least expensive brand of milk. The percentage of respondents purchasing all their prescribed milk was not related to these least cost restrictions. Although the percentage of respondents drinking all their purchased milk was lower in the States with restrictions than in the nonrestrictive States, the evidence suggests that

factors other than brand dissatisfaction accounted for this difference. The factors cited most often by respondents were that “too much” milk was prescribed and that other (non-WIC) members of the household drank some of the milk.

- **Eggs:** Connecticut and Oklahoma required purchase of the least expensive brand of eggs available. These restrictions had no impact on the amount of eggs purchased. Consumption of purchased eggs in the two restricted States was lower than in the other States, but apparently not because of the imposed restrictions. The most commonly cited factor for not eating all the purchased eggs was that too many were prescribed.
- **Cheese:** Survey respondents in California, Connecticut, and Oklahoma were somewhat less satisfied with allowed brands of cheese than respondents elsewhere. Respondents in States with and without cheese restrictions, however, were equally likely to purchase and eat the cheese that had been prescribed for them by the local WIC office.
- **Cereal:** California and Oklahoma were the most restrictive States with regard to allowed brands or types of cereal. California limited the number of different types of cereal that could be purchased, and Oklahoma required purchase of store-brand or private-label cereals. When responses of sampled respondents in these two States were compared with those in the other States, there were no significant differences in satisfaction with allowed brands or the amount of cereal purchased or consumed. When Oklahoma is looked at separately, however, brand satisfaction and the amount of cereal that survey respondents said they purchased and consumed were lower than in the other States.
- **Infant cereal:** With rebate contracts in place, California, Connecticut, and Texas allowed only Gerber infant cereal to be purchased. The brand restriction did not reduce the amount of infant cereal purchased or eaten.
- **Juice:** Four States had restrictions on the purchase of single-strength juice. Connecticut and Texas required purchase of the least expensive brand for some or all of their approved juices, Texas and California restricted the allowed types of juice, and Oklahoma and Texas did not allow purchase of juice in plastic bottles. Oklahoma also approved only store brands or private labels for most juice types. State restrictions on allowed juice were not related to the amount of juice purchased or consumed.
- **Peanut butter:** Connecticut limited purchase of peanut butter to the least expensive brand available. This restriction had no impact on the amount of peanut butter bought or eaten.
- **Dried beans or peas:** Oklahoma was the only State to restrict dried beans or peas, requiring purchase of the least expensive brand available in the store. This restriction had no impact on the amount of dried beans/peas purchased, but it may have reduced the amount of purchased dried beans/peas that were eaten. Although the most common reason given for not eating all the food that had been purchased was that “too much” was prescribed, another common response was that the respondent did not like the beans or peas. This latter response may have indicated dissatisfaction with the taste or quality of the least expensive brand.

The above findings on satisfaction with, and purchase and consumption of, prescribed foods are based on the responses of all sampled participants in each State. There are participants, however, for whom their State’s food-item restrictions were binding—they would have bought a different federally approved food if it was included on their State’s list. Table 11-1 shows the percentage of sampled

families in each State who faced binding constraints on the purchase of cheese, infant cereal, juice, and cereal.

Table 11-1—WIC families facing binding constraints on food choices

	CA	CT	NC	OH	OK	TX	All States
				<i>Percent</i>			
Cheese	5.4 ^a	8.8 ^a	1.1	12.6	15.7 ^a	9.3	8.8
Infant cereal	0.0 ^a	2.1 ^a	0.0	0.0	0.0	0.7 ^a	0.5
Juice	13.3 ^a	7.2 ^a	1.0	4.7	3.1 ^a	12.1 ^a	6.9
Cereal	5.4 ^a	15.1	12.7	5.6	19.4 ^a	1.7	10.0

a Study treats State as “restrictive” with regard to food choice within this food category.

Group estimates give equal weight to each State in the group.

Source: Survey of WIC Participants.

There is considerable State-to-State variation in table 11-1, although all the rates are below 20 percent. Virtually no participants faced a binding constraint for infant cereal. For cheese, the highest rates of binding constraints were in Oklahoma (15.7 percent) and Ohio (12.6 percent). North Carolina had the lowest rate (1.1 percent). Examination of respondents’ preferences reveals that restrictions on individually wrapped cheese created many of the binding constraints. Restrictions on allowed types of cheese were also important; many of the respondents with binding constraints said they preferred to buy Colby-jack, which was allowed only in Texas. Thus, it was not the least expensive brand policies in Connecticut and Oklahoma that created most of the binding constraints, but rather packaging restrictions and limits on the types of cheese that could be purchased.

When asked about preferences for cereals not on their State’s food list, a cross-State average of 10.0 percent named cereals that met Federal regulations. Oklahoma had the highest percentage of respondents facing a binding constraint on cereal (19.4 percent), followed by Connecticut (15.1 percent) and North Carolina (12.7 percent).⁴ Only 5.4 percent of California respondents faced a binding constraint, suggesting that California WIC officials were effective in identifying a limited number of cereal types that satisfied the preferences of most of their WIC participants.

Survey respondents facing a binding constraint on cheese purchased less cheese, on average, than those not facing a binding constraint. The presence of a binding constraint on cereal was associated with reduced brand satisfaction, but not with reduced purchase or consumption of cereal. Finally, binding constraints on juice did not affect either expressed satisfaction with allowed juice brands or the purchase or consumption of juice.

⁴ The high percentages in Connecticut and North Carolina seem puzzling because these States imposed few food-item restrictions. Upon inspection of the stated preferences of respondents, the high percentages were found to be due mostly to instant oatmeal (both States) and Kix (North Carolina) not being on their State’s list of approved foods.

Impacts on Participants with Special Diets or Food Allergies

A large number of survey respondents said they (or another WIC member in the household) modified their diets for various health-related reasons; the modifications included high-fiber diets, sugar-free or low-sugar diets, and low-fat or low-cholesterol diets. The percentage of respondents on special diets varied from a low of 28.5 percent in Texas to a high of 48.5 percent in North Carolina. In addition, depending on State, from zero to 4.8 percent of respondents said they followed religious diets, and from 0.2 to 2.8 percent said they followed vegetarian diets.

A cross-State average of 9.4 percent of survey respondents reported either that a doctor told them they (or another WIC member) had a food allergy, or they or the other individual had suffered a severe reaction after eating a meal. The percentage of WIC families with food allergies varied from 4.6 percent in Texas to 13.4 percent in North Carolina. Allergies to cow's milk were most prevalent.

Respondents on special diets or with food allergies were asked whether their dietary restriction posed problems finding appropriate foods in their WIC shopping. Only 2.5 percent said yes. When asked a follow-up question about the nature of their shopping problem, the most common responses were that they could not find out what ingredients were in a food item or did not know whether approved brands were safe or appropriate to eat. The small numbers of respondents involved, however, suggest that food-item restrictions were not creating many problems for most WIC participants.

For each food category, patterns of brand satisfaction, purchase, and consumption of prescribed foods were compared for respondents with and without special diets or allergies, using multivariate analysis. There was no evidence that food-item restrictions had any disproportionate effects on these respondents. Participants on special diets or with food allergies were occasionally less satisfied with brands, or purchased or consumed less food than those without dietary restrictions, but the differences were no greater in States with food-item restrictions than those with none.

Food Instrument Redemption

Participant dissatisfaction with vendor or food-item restrictions used to reduce costs could lead to reduced use of food instruments, defeating the program goal of supplementing participants' diets with nutritious foods. Three types of behavior could reduce food instrument use:

1. Participants could fail to pick up their food instruments at the local WIC office or clinic.
2. They could fail to redeem some or all of their food instruments.
3. For instruments containing multiple food categories, participants could purchase foods from some categories but not all ("partial redemption").

As shown in table 11-2, rates of food instrument issuance/pickup were high in the five States in which they could be calculated, varying from a low of 88.8 percent in Oklahoma to a high of 94.2 percent in Ohio.⁵ Rates of food instrument redemption varied from a low of 80.6 percent in Ohio to a high of 90.7 percent in California.

⁵ A food instrument pickup rate could not be determined for North Carolina because the State could not provide complete data on food instrument issuances.

Table 11-2—Use of WIC food instruments

	CA	CT	NC	OH	OK	TX
	<i>Percent</i>					
Pickup rate ^a	90.0	93.8	(b)	94.2	88.8	90.0
Redemption rate	90.7	87.9	85.7	80.6	85.7	85.2

a Excludes infants who were breastfed and received no food packages.

b The North Carolina data could not be used to calculate rates of food instrument pickup among certified participants. For estimating the rate of food instrument redemption, the North Carolina data represent about 80 percent of all WIC participants within the State.

Sources: Food instrument issuance and redemption data for November 2000.

With regard to food instrument issuance/pickup rates, the effect of various food-item restrictions on issuance rates cannot be determined because participants must pick up all their instruments for the month at the same time. For example, if a participant did not want to buy cheese because the State did not include her (federally approved) favorite cheese on its list of approved foods, she could not pick up just those food instruments for the remaining foods in her prescription. Thus, administrative data on food instrument issuance cannot isolate the possible impacts of different food-item restrictions.

The impacts of food-item restrictions on redemption rates could be examined because participants can redeem instruments containing desired foods, while not using those containing foods whose appeal was reduced by the restrictions. The presence of multiple food categories on many food instruments made this a challenging analysis, however, because some categories were subject to restrictions whereas others were not. Attempts to model the likelihood of food instrument use as a function of prescribed foods, food restrictions, and other variables were unsuccessful; model results were inconsistent and extremely sensitive to model specification. Examination of redemption rates, by State, for all instruments containing particular food categories found that redemption rates were often higher, rather than lower, in States with restrictions, suggesting that unmeasured State-level effects were obscuring any possible effects of the restrictions. Thus, if food-item restrictions did reduce rates of food instrument redemption in these States, the effects were too small to detect with available data.

The Survey of WIC Participants did ask about purchase behavior. The survey results do not unambiguously identify partial redemption, because respondents who said they did not buy “all” of a prescribed food could have either partially redeemed an instrument or not redeemed it at all. Nevertheless, the survey results provide an upper bound for rates of partial redemption.

The WIC food category most often redeemed in full was cheese in California, where only 0.6 percent of respondents said they did not purchase all. The highest rate for not buying all was 33.5 percent for dried beans/peas in North Carolina. Averaged over all six States, the highest rates for not buying all prescribed food were 13.1 percent for dried beans/peas and 10.9 percent for infant cereal. Only one rate difference between restricted and unrestricted States was statistically significant (a 3.6 percentage-point difference for juice), but the direction was opposite to what one would expect from food-item restrictions. Thus, the survey results indicate that food-item restrictions were not related to rates of partial redemption.

Program Participation

One concern with the use of cost-containment practices is that they may reduce participants' satisfaction with the WIC program, leading to reduced participation, and hence, reduced distribution of health and nutrition benefits to eligible individuals. The study addressed this possibility by examining program "dropout" rates and conducting focus groups with WIC dropouts to determine whether State restrictions on vendors or food choice contributed to their decision to leave the program.

The study defined program dropouts as participants who failed to pick up their food instruments for 2 consecutive months in the 6-month period prior to November 2000 (except in California, where data limitations caused dropouts to be defined as participants who failed to pick up their most recent set of food instruments prior to November 2000).

The WIC dropout rate varied from a low of 2.5 percent in North Carolina to a high of 4.2 percent in California. All the rates were relatively low, and factors unrelated to cost containment (for instance, problems getting to the clinic for an appointment, difficulty using the food instruments, the belief that one was no longer eligible for WIC) explained some of the dropouts.

Focus group sessions were held with dropouts who said, during a screening interview, that vendor or food-item restrictions contributed to their dropping out. Finding enough dropouts who met the screening criteria proved difficult, suggesting that most dropouts failed to pick up their instruments for reasons unrelated to cost-containment practices. Indeed, even among the focus group respondents, the major reasons for dropping out were unpleasant experiences at WIC clinics and the "hassle" of picking up one's food instruments. Only about one-third of all focus group respondents said that food-item restrictions were their major or second most important reason for dropping out. Vendor restrictions were seldom mentioned. Thus, although cost-containment practices may have contributed to the decision of some participants to stop participating in WIC, the evidence suggests that any effects were small.

Health Outcomes

WIC cost-containment practices do not directly affect the health outcomes of WIC participants, but there is potential for an indirect effect. If limits on food choice result in reduced food instrument redemption or food use, then WIC's goal of improving health and nutrition status by providing nutrient-dense foods could be compromised. Similarly, if cost-containment practices cause participants to drop out of the program, they would not have access to the program's nutrition education and health referral services.

Based on study results, there is little evidence that the six States' cost-containment practices affected food instrument redemption, food use, or participation rates. Thus, the study concludes that these cost-containment practices did not have adverse effects on health outcomes of participants.

Despite the conclusion that cost-containment practices could not have affected health outcomes because they did not affect food instrument redemption or food use, the study did examine the relationship between food instrument redemption rates and changes in four health measures, based on WIC participants observed in the November 2000 caseload and recertified by April 2001. The four health measures, and the groups of participants to which they were applied, are shown in table 11-3.

Table 11-3—Health outcomes

Outcome measure	Sample
Birth weight of infant	Pregnant women
Growth in stature (measured by change in height-for-age) ^a	All children
Probability of “exiting” anemic status ^b	Anemic children
Probability of “exiting” underweight status ^c	Underweight children

a Height-for-age was obtained by comparing height measurements from WIC certification data to age- and gender-specific reference curves developed by the Centers for Disease Control and Prevention (CDC) in 2000.

b CDC guidelines identify anemia in children by hemoglobin below 11 g/dl or hematocrit below 33 percent.

c Underweight children identified as those with weight-for-age below the 10th percentile, using age- and gender-specific reference curves developed by the CDC.

The analysis results were consistent for all four health outcomes. Using participant-level data from all six States, participants with higher rates of food instrument redemption had improved health outcomes.⁶ The magnitudes of the improvements were all small, but still statistically significant. One cannot infer, however, that a causal relationship necessarily exists between food instrument redemption rates and positive health outcomes. Even if adequate baseline information on the participant’s health status in November 2000 were available, the analysis could not control for many intervening variables, such as actual consumption of WIC foods between November 2000 and April 2001. Nevertheless, the results provide evidence that when the food package is consumed, it has a positive effect on health status.

Main Findings by Cost-Containment Practice

One of the stated goals of the study was to link various cost-containment practices used in the case study States to their outcomes, in order to better understand their consequences for both WIC participants and program administration. This section presents each major cost-containment practice and its associated outcomes. When multiple cost-containment practices affected the same outcome (for instance, the average price of juice when the State restricted both allowed types and packaging of juice), this section presents the combined impact of the practices.

Competitive Pricing at Application

Four of the six States (all but North Carolina and Ohio) used competitive price criteria when selecting stores to authorize as WIC vendors. The study found no evidence that use of price criteria at application had an adverse effect on participants’ access to vendor locations, availability of food items, or continuing participation. This was not surprising, because State officials said they rarely denied vendor authorization based on prices.

In order to receive authorization, stores with high prices reduced their pricing for WIC purchases. The study did not examine whether this vendor restriction had an impact on average food package costs. An effect, if one existed, could have gone either way. By keeping out high-price stores,

⁶ Food instrument redemption rates were measured over the 4-month period November 2000 to February 2001.

average food package costs could have been reduced. By allowing high-price stores to reduce prices to meet price criteria, however, such policies could have raised average costs by authorizing more stores at the high end of the price distribution. If so, this is a tradeoff that State officials seemed willing to make in order to improve access.

The use of competitive pricing at application was not expected to have an impact on the other outcome measures under investigation—satisfaction with and use of prescribed foods, disproportionate effects on participants on special diets or with food allergies, redemption of food instruments, or achievement of positive health outcomes.

Requiring Purchase of Least Expensive Brands

The most common food-item restriction in the six States was the requirement that participants purchase the least expensive brand of a food category available in the store. Connecticut had this policy for milk, eggs, cheese, citrus juice, and peanut butter. North Carolina, which was selected for this study because it used very few cost-containment practices, required purchase of the least expensive brand of milk. Oklahoma had a least expensive brand policy for milk, eggs, cheese, and dried beans/peas, and Texas required purchase of the least expensive brand of milk and juice.

Table 11-4 shows that requiring purchase of the least expensive brand of cheese saved Connecticut an estimated \$1.04 PPM, and it contributed to savings of \$1.14 PPM in Oklahoma (which also limited the number of approved types of cheese). Least expensive brand policies saved \$0.10 PPM on peanut butter in Connecticut and \$0.03 PPM on dried beans or peas in Oklahoma. Texas' least expensive brand policy for juice, one of several restrictions in effect for juice in that State, contributed to the very large estimated savings of \$4.16 PPM. This study did not estimate savings arising from least expensive brand policies on eggs and milk, but program officials in Oklahoma estimated egg savings equal to \$0.19 PPM and milk savings equal to \$0.57 PPM. These estimates are applied to the other States that used the same policies.

Where States imposed multiple restrictions on individual food categories, it was not possible to estimate the individual effects of each restriction, so the table says that savings were “part of” the total estimated savings for that food category.

A comparison of the responses of sampled participants in the case study States with and without least expensive brand policies revealed that the practice was not associated with reduced purchase of foods subject to the restrictions. The policies were correlated with reduced levels of consumption of milk, cheese, eggs, and dried beans/peas, but not peanut butter or juice. In all cases except dried beans/peas, however, respondents who did not eat all the purchased food cited factors unrelated to food-item restrictions as the main reason (for instance, that too much food had been prescribed). Thus, whether least expensive brand policies reduced consumption is unclear. If so, the magnitude of the effect was too small to detect.

Table 11-4—Estimated savings per participant per month from requiring purchase of least expensive brands

	CA	CT	NC	OH	OK	TX
			<i>Dollars PPM</i>			
Milk		0.57 ^a	0.57 ^a		0.57 ^a	0.57 ^a
Eggs		0.19 ^a			0.19 ^a	
Cheese		1.04			Part of 1.14 ^b	
Juice		Part of 1.69 ^b				Part of 4.16 ^b
Peanut butter		0.10			0.03	

Blank cell indicates that State did not impose a least expensive brand policy for that food category.

a Savings estimate based on information provided by State WIC officials in Oklahoma; this information is the only available evidence on savings due to least expensive policies for milk and eggs.

b State applied multiple restrictions to this food category.

Sources: Survey of Food Prices and Item Availability, State administrative data on food packages, and interviews with State officials.

There is no evidence that the use of least expensive brand policies affected the study’s other outcome measures, or that they had disproportionate effects on participants on special diets or with food allergies.

Limiting Approved Brands

Oklahoma was the only State that required purchase of private-label or store-brand items for cereals and juices. Texas also placed limits on brands of juice, allowing selected national brands.

Oklahoma’s restrictions against national brands of cereal saved an estimated \$2.72 PPM. The restrictions, however, were associated with lower levels of participant satisfaction with allowed brands of cereal, reduced levels of cereal purchase, and reduced levels of consumption. In response to participant preferences, Oklahoma added some national-brand cereals to its list of approved foods after data for this study were collected.

With respect to brand restrictions on juice, they had no impact on expressed levels of satisfaction with approved brands. In addition, they did not reduce either the amount of juice purchased or consumed.

Finally, there is no evidence that limiting the number of approved juice and cereal brands affected rates of either food instrument pickup (based on focus group respondents’ reasons for dropping out of WIC), instrument redemption, achievement of positive health outcomes, or the availability of allowed juice or cereal in these States.

Limiting Approved Types of Foods

As shown in table 11-5, all States except Ohio limited the types of certain foods on their approved lists. California approved a relatively small number of cheeses, juices, and cereals, and it prohibited purchase of extra-large or jumbo eggs and infant juice (substituting single-strength juice instead). Connecticut limited egg selection to large white eggs only, and it prohibited purchase of infant juice. North Carolina also prescribed single-strength juice instead of infant juice. Oklahoma prohibited

purchase of extra-large or jumbo eggs, and its list of approved foods included relatively few types of cheese and cereal. Texas also prohibited purchase of extra-large or jumbo eggs and infant juice, and it approved a limited number of different types of single-strength juice. The table shows estimated savings from these restrictions.

Table 11-5—Estimated savings per participant per month from restrictions on allowed types of food

	CA	CT	NC	OH	OK	TX
	<i>Dollars PPM</i>					
Eggs	0.16	0.07			0.12	0.10
Cheese	0.12				Part of 1.14 ^a	
Cereal	0.95				Part of 1.72 ^a	
Juice	Part of 0.63 ^a					Part of 4.16 ^a
Infant juice	0.10	-0.39	-0.06			0.22

Blank cell indicates that State did not restrict allowed types of food for that category.

a State applied multiple restrictions to this food category.

Sources: Survey of Food Prices and Item Availability and State administrative data on food packages.

The largest savings from restrictions on food type were for cereal and juice. The small savings for infant juice in California and Texas, and the negative “savings” in Connecticut and North Carolina, appear because these States, by prescribing single-strength juice instead of infant juice, prescribed extra amounts of juice.

One concern with limiting food types is that participants may have difficulty finding the approved foods at WIC-authorized stores. The study’s survey of WIC-authorized stores in each State found no relationship between these restrictions and the availability of approved foods within the stores.

There was no significant difference in the amount of cereal purchased or consumed between States with and without restrictions on cereal type.

There was also no evidence that limiting the number of approved types of food negatively affected rates of either food instrument pickup (based on focus group respondents’ reasons for dropping out of WIC), instrument redemption, or achievement of positive health outcomes.

Limiting the Allowed Packaging of Foods

All six States set minimum package sizes for at least one WIC food group. California, Oklahoma, and Texas had the most package-size restrictions.

Ohio and Oklahoma generally prohibited purchase of milk in half-gallon or quart containers. These restrictions saved the States an estimated \$0.05 PPM in both Ohio and Oklahoma. State officials in California estimated that their efforts to have participants buy milk in 2-gallon “value packs” saved an amount equal to \$0.38 PPM.

Restrictions on egg sizes saved an estimated \$0.16 PPM in California, \$0.07 PPM in Connecticut, \$0.12 PPM in Oklahoma, and \$0.10 PPM in Texas.

Texas imposed larger package-size requirements on cereal purchases to take advantage of lower per-ounce costs. The estimated savings from this policy were \$2.00 PPM. The State's restrictions on shelf-stable juice containers (46-ounce cans only) contributed to juice savings of \$4.16 PPM.

There is no evidence that limiting the package forms of food negatively affected either rates of food instrument pickup (based on focus group respondents' reasons for dropping out of WIC), instrument redemption, consumption of prescribed foods, the achievement of positive health outcomes, or program participation.

Manufacturer Rebates

California, Connecticut, and Texas received rebates on sales of infant cereal through contracts that specified a single allowed brand. These rebates saved an estimated \$0.32 PPM in California, \$0.37 PPM in Connecticut, and \$0.27 PPM in Texas.

The infant cereal rebates did not affect the availability of allowed brands in the three States. They were binding on almost no WIC participants, and the brand restrictions were not related to levels of brand satisfaction, amount purchased, or amount consumed. There is also no evidence that the infant cereal rebates affected rates of food instrument redemption, program participation, or the achievement of positive health outcomes.

Multiple Food-Item Restrictions

The States in the study imposed multiple food-item restrictions for some foods, and it was not possible for the study to estimate the singular effect of the individual restrictions. This section summarizes the total effects of these multiple restrictions.

For cheese, least expensive brand policies and restrictions on type and packaging created binding constraints on a cross-State average of 8.8 percent of survey respondents, with the lowest rate in North Carolina (1.1 percent) and the highest rates in Oklahoma (15.7 percent) and Ohio (12.6 percent).

Restrictions on brand, type, and packaging of breakfast cereal were binding on a cross-State average of 10.0 percent of survey respondents, with the highest rates in Oklahoma (19.4 percent), Connecticut (15.1 percent), and North Carolina (12.7 percent). Texas had the lowest rate (1.7 percent).

Least expensive brand policies and restrictions on brand, type, and packaging of juice were binding on a cross-State average of 6.9 percent of survey respondents, with the highest rates in California (13.3 percent) and Texas (12.1 percent). The lowest rate was in North Carolina (1.0 percent).

Finally, there is no evidence that any food-item restrictions had a differential impact on WIC participants with food allergies or those on special diets.

Implications of the Findings for Other States

The cost-containment practices implemented by the six case study States were relatively inexpensive to manage and operate, reduced food package costs, and had few adverse impacts on WIC participants. It is therefore tempting to conclude that all States should implement similar practices.⁷

For cost-containment practices to work, they need to be well managed by State officials. The success of cost containment in the case study States was the result of ongoing efforts by these States to find those restrictions that both reduced food package costs and were acceptable to participants. (For instance, all six States collected price information on a regular basis and obtained feedback from local offices on participant comments on allowed foods.) What works well in one State might not work at all in another. Similarly, an effective practice today may not work tomorrow. Selecting and managing appropriate cost-containment practices is therefore a dynamic process, requiring ongoing attention to local food markets (especially price and availability of federally approved food items) and participant preferences.

A critical factor in this process lies in the ongoing evaluation of program effectiveness. To facilitate this activity, States should not overlook the ability to systematically collect and analyze relevant data. In the process of assessing cost-containment practices for this study, considerable limitations and difficulties were encountered due to a lack of program information in readily useable form. In most States, for example, the effects of cost-containment practices on food redemptions could not be completely analyzed due to different foods being combined on individual food instruments.

This study provides evidence that cost-containment practices can reduce WIC food package costs. Estimates of cost savings in other States are beyond the scope of this study, as are estimates of the potential for additional savings if further restrictions were adopted. The potential for further cost savings would depend on States' current use of vendor and item restrictions and Federal incentives for States to adopt additional restrictions. Furthermore, not all cost-containment practices may be appropriate for all States because of differences in item prices, availability, and participant preferences. States therefore need the flexibility to find the right balance between food cost reductions and limits on participant choice and use.

⁷ Many other States, of course, already use cost-containment practices. The six States in this study were selected only to represent different combinations of these practices.