

## Impact of Brand-Name Fast Food Service on Students' Participation in School Lunch

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### ABSTRACT

The purpose of this study was to examine the impact of offering brand-name fast food at schools on student participation in school lunch. Two studies were conducted in Indiana, USA. In the first study, daily participation rate of 42 Indiana schools were compared between the days when brand-name fast food were offered and when they were not offered. The impact of brand-name fast food service on school lunch participation differed depending on the types of service offering brand-name fast food. Offering brand-name fast food solely as part of reimbursable meals or a-la-carte items was shown to induce students to the lunch option where brand-name fast food was offered. The second study examined the relationship of brand-name fast food service to monthly participation rate by analyzing secondary data of 1,282 Indiana schools using multiple regression analysis. Offering brand-name fast food was associated with monthly participation rate in school lunch only when schools offered them solely a-la-carte. Based on the results of two studies, it was concluded that offering brand-name fast food induced students from other lunch options to the options where brand-name fast food was offered on the day of service. However, increased or decreased participation in school lunch only on a few days could have not impacted average school lunch participation over a month. It is recommended that schools planning to offer brand-name fast food should make it available as part of reimbursable school lunches so that usual school lunch eaters would not be distracted to a-la-carte lines. (*J Community Nutrition* 7(4) : 201~206, 2005)

**KEY WORDS:** school lunch participation · brand-name fast food · school food service · a-la-carte · reimbursable school lunch.

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### Introduction

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The number of schools offering brand-name fast food has continuously increased throughout the 1990s (Pannell-Martin 1999). The US General Accounting Office (1996) reported that the percentage of schools offering brand-name fast food has increased from 2% in the 1990 – 1991 school year to about 13% in the 1995 – 1996 school year in the nation. More recently, School Health Policies and Programs Study 2000 (Wechsler et al. 2001) showed that about 20 % of schools nationwide offered brand-name fast food to students during the 1999 – 2000 school year. State-based studies also have reported similar percentages of schools were offer-

ring brand-name fast food within the studied states (Craypo, Purcell 2003 ; Yoon et al. 2003).

School lunch participation is one of the most important program statistics to school foodservice professionals because the nutritional benefit of the National School Lunch Program (NSLP) cannot be achieved unless students participate in the program. Therefore, extensive studies have been conducted to identify the factors affecting student participation in NSLP during the 1970's and 1980's and comprehensive reviews and summaries of these studies are available through published papers (Morcos, Spears 1992 ; Smith 1992). However, limited research has been conducted to examine brand-name fast food service as a factor affecting school lunch participation while articles in trade periodicals have consistently reported the impact positively ("Brands in schools" 1996 ; Chater 1999 ; "Food branding in schools" 1997 ; Schuster 1997).

Two studies reported that most of the schools using brand-name fast food in their lunch programs experienced a po-

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sitive impact on school lunch participation (US General Accounting Office 1996 ; Yoon et al. 2003) . However, these studies assessed the impact of brand-name fast food service as perceived by food service managers, not using empirical data. In addition, these studies failed to distinguish the possibly different impact of offering brand-name fast food by the types of service. Therefore, the purpose of this study was to empirically examine the impact of offering brand-name fast food on school lunch participation. More specifically, the study examined the impact by the type of brand-name fast food service (i.e., as part of a reimbursable school lunch, as an a-la-carte item, or as both) .

## Subjects and Methods

Two studies were conducted. The first study compared daily participation rate, which was daily participation in school lunches as a percentage of school enrollment, between the days when brand-name fast food was served (Branding days) and when they were not served (Non-branding days) within each sampled school. The second study examined the relationship between brand-name fast food service and monthly participation rate using regression analysis. The major terms used in the studies were defined in Table 1. Statistical analysis was conducted using SPSS for Windows, 9.0.0 (1998) for both the studies.

### 1. Study 1 :

#### 1) Sample

Seventy eight Indiana school districts were sampled from 115 districts offering or planning to offer brand-name fast food in their school lunch operations during 1999 – 2000 school year. The 115 districts were identified from the sur-

vey of the previous study (Yoon et al. 2003) . Eighteen were offering or planning to offer brand-name fast food only as part of reimbursable meals (School lunch group), 54 only as a-la-carte items (A-la-carte group), and 43 in both ways (Both group) . All the 18 school districts in School lunch group were selected and 30 districts were randomly chosen from A-la-carte group and Both group each.

### 2) Data collection

A letter asking for daily participation records for September, October, and November 1999 were sent to the sampled school districts. The letter also asked respondents to send back their school lunch menus on which the days of brand-name fast food service were marked as well as any atypical school days such as early dismissals, field trips, and half days. The mailing included an advance letter from the head of the Indiana Division of School and Community Nutrition Programs asking cooperation, a postcard notice from the researcher, and a packet including a letter with a 10" × 13," postage-paid return envelope, and a postcard reminder. Follow-up telephone calls were made to non-respondents and participation records with menu were asked to be faxed to the researchers.

### 3) Data analysis

Mean daily participation rate was calculated for Branding days and Non-branding days, respectively, for each school, using daily school lunch participation records for September, October, and November 1999. Paired t-tests were conducted to detect any significant differences in school lunch participation between Branding and Non-branding days, by the type of service available with brand-name fast food (as part of reimbursable lunches only, as a-la-carte items only, and as both) . In addition, daily participation rate on Branding days

**Table 1.** Definition of key terms used in the studies

Terms	Definition
Brand-name fast food	Fast foods (e.g., pizza, burrito, sub, sandwich) prepared under contract with or delivered by fast-food restaurant companies ; not including manufacturer-branded fast foods, drinks, yogurts, or snacks.
School lunch or reimbursable lunch	Lunch from the school cafeteria for which a school claims federal reimbursement under the National School Lunch Program.
A-la-carte food/lunch	Food/lunch from the school cafeteria for which a school can not claim federal reimbursement under the National School Lunch Program.
Participation in school lunch or school lunch participation	Obtaining school lunch (buying at full/reduced price or getting free school lunch)
Daily participation rate	(Number of students participating in school lunch a day/Student enrollment) × 100
Monthly participation rate	Mean daily participation rate over a month
Branding day	Day when brand-name fast food was served in school cafeteria
Non-branding day	Day when brand-name fast food was not served in school cafeteria

was further compared with that on days serving the same kind of non-branding foods, for the schools where those matched menu items were available.

## 2. Study 2 :

### 1) Secondary data

Three sets of secondary data were utilized for this study. The Indiana Division of School and Community Nutrition Programs provided 2 data sets. The first data set included data such as address, enrollment, grade level, campus door policy during lunch periods (open-campus or closed-campus), offer versus serve availability, kitchen type (on-site, satellite, or no kitchen), number of students eligible for free and reduced-price lunches, number of students served with full, reduced-price, or free lunches, and number of days of lunch served during October 1999 of each school. The second data set included the types (public or private) and full lunch prices for schools. The third data set including estimated population of the city/town in Indiana was downloaded from a website maintained by the Indiana Business Research Center ("1998 City & Town Population Estimates for Indiana" 2000).

The 3 secondary data sets were combined to one data file. In addition, the data regarding whether a school used brand-name fast food or not during fall 1999, which were available from a previous survey (Yoon et al. 2003), was added to the data set. After data cleaning, a total of 1,282 schools were left in the final data set.

### 2) Data analysis

Multiple regression analysis was conducted to examine the relationship of brand-name fast food service with school lunch participation, while controlling the influence of other factors. The dependent variable was monthly participation rate during October 1999 of each school. The explanatory variables used in the analysis included the available type of brand-name fast food service, in addition to school and meal service characteristics known as factors affecting school lunch participation through the previous literature (Morcos, Spears 1992 ; Smith 1992).

## Results and Discussion

### 1. Study 1 : Daily impact of offering brand-name fast food on school lunch participation

Twenty nine school districts provided the students' participation records of their schools using brand-name fast food via mail or fax, resulting in the records of 42 schools. The number of elementary, middle, and high schools were 8, 8, and 18, respectively. There were 1 primary and 7 secondary schools. Most of the schools offered 1 kind of brand-name fast food ( $n = 36$ ) and pizza ( $n = 33$ ). There were 5 schools offering 2 kinds of brand-name fast foods. Only 1 school was offering 3 kinds of brand-name fast foods, which were burrito, sandwich as well as pizza. During the data collection period of 3 months, the schools provided brand-name fast food 5 times ( $\pm 2.4$ ) on average.

In the schools offering brand-name fast food solely as part of school lunches, the mean daily participation rate on Branding days was significantly higher than that on Non branding days. In the schools where brand-name fast food was served only as a-la-carte items, mean daily participation rate on Branding days was significantly lower than that on Non-branding days. In the schools where brand-name fast food was available both as part of reimbursable lunches and as a-la-carte items, the impact on students' school lunch participation was not significant (Table 2). These results are not surprising considering students' high preference of fast food as proven in previous literature (Paeratakul et al. 2003 ; Penka et al. 1996).

Six out of the 10 schools offering brand-name fast food solely as part of school lunches also served the same type of school-prepared foods (pizza) during the data collection period. Therefore, further analysis was conducted to compare school lunch participation rate on Branding days (Branding pizza days) to those when school-prepared pizzas were served (School pizza days) and to those when pizza was not served at all (Non-pizza days). Mean participation rate on Branding

**Table 2.** Comparison of students' daily participation rates in school lunch between branding and non branding days

Type of service of brand-name fast food	Number of schools	Difference in daily participation rate between Branding and Non-branding days	Paired t	p
Reimbursable	10	15.6%	5.699	< 0.001
A-la-carte	16	-11.2%	-4.047	0.001
Both	16	6%	0.327	0.748

pizza days, on School pizza days, and on Non-pizza days were 71%, 57%, and 54%, respectively. The difference in daily participation between Branding pizza days and School pizza days were statistically significant (paired  $t = 10.3$ ,  $p < 0.001$ ). The difference in daily participation between School pizza days and Non-pizza days was also statistically significant (paired  $t = 4.8$ ,  $p = 0.005$ ).

## 2. Study 2 : Monthly impact of offering brand-name fast food on school lunch participation

When the monthly participation rate was compared between schools offering ( $n = 106$ ) and not offering ( $n = 1,176$ ) brand-name fast food in lunch cafeterias, it was significantly lower in the schools offering brand-name fast food (48% over 62% ;  $p < 0.001$ ). However, considering the fact that schools with certain characteristics are more likely to use brand-name fast food for lunch services (US General Accounting Office 1996 ; Yoon et al. 2003), the difference

**Table 3.** School and food service characteristics included in multiple regression models (n = 1,282)

Characteristics	value	
(Dependent variable)		
Monthly participation rate in school lunch, % (mean, S.D.)	61.5	17.0
(Independent variables)		
Area population (mean, S.D.)	119,742	228,294
School enrollment (mean, S.D.)	536	355
Full lunch price, ¢ (mean, S.D.)	140	20
Free/reduced-price lunch eligibility rate, % (mean, S.D.)	32.7	22.3
School level (n, column %)		
High	181	14.1
Middle	219	17.1
Elementary (Reference)	882	68.8
Kitchen type (n, column %)		
On-site	958	74.7
Satellite (Reference)	324	25.3
Campus door policy (n, column %)		
Closed	1,167	91.0
Open (Reference)	115	8.8
Offer vs. serve availability (n, column %)		
Yes	932	72.7
No (Reference)	35	27.3
Available brand-name fast food service (n, column %)		
Reimbursable	26	2.0
A-la-carte	29	2.0
Both	51	3.9
No service (Reference)	1176	91.7

should not be attributed solely to brand-name fast food service. Therefore, a multiple regression model was estimated to further examine whether various types of brand-name fast food service was still associated with school lunch participation while statistically controlling other school and food service characteristics. Table 3 shows the school and food service characteristics included in the multiple regression model.

Table 4 shows the result of estimation of the regression model. Free/reduced eligibility rate and having on-site kitchen and closed campus policy were positively related with school lunch participation. Higher grade schools had lower school lunch participation. Higher lunch price and larger school enrollment were related with lower school lunch participation. Area population appeared to be positively related to school lunch participation.

Schools serving brand-name fast food solely as a-la-carte items had a significantly lower participation rate (about 6%) than schools without any brand-name fast food service at all, assuming that other considered characteristics were the same. This could be because brand-name fast food in a-la-carte lunch lines attracted students who could have eaten school lunches otherwise.

The result, however, should be interpreted with caution. The lower participation rate might be due to other food service characteristics which could not be included in the model, but

**Table 4.** School and food service characteristics associated with school lunch participation rate-result of multiple regression analysis (n = 1,282)

Variable	Coefficient		t	p
	Unstand-ardized	Stand-ardized		
(Constant)	74.091		24.228	<.001
<b>Reimbursable only</b>	<b>-4.283</b>	<b>-.036</b>	<b>-1.766</b>	<b>.078</b>
<b>A-la-carte only</b>	<b>-5.794</b>	<b>-.051</b>	<b>-2.474</b>	<b>.013</b>
<b>Both</b>	<b>2.194</b>	<b>.025</b>	<b>1.231</b>	<b>.219</b>
Area population	3.297E-06	.044	1.971	.049
School enrollment	-6.425E-03	-.134	-5.199	<.001
Free/reduced eligibility rate, %	.235	.310	13.351	<.001
Full lunch Price, ¢	-.146	-.173	-7.641	<.001
High school	-19.262	-.395	-14.575	<.001
Middle school	-4.396	-.097	-4.355	<.001
On-site kitchen	5.246	.134	6.197	<.001
Closed campus	4.075	.069	3.383	.001
Offer vs. serve availability	-1.288	-.034	-1.527	.127

Dependent variable: School lunch participation rate (%).  
 $R^2 = .511$ ,  $F = 110.407$  (degree of freedom = 12, 1269,  $p < .001$ )

which possibly were related to a-la-carte brand-name fast food service. For example, schools offering brand-name fast food as a-la-carte items might have had more extensive a-la-carte programs than schools not offering brand-name fast food a-la-carte, thus resulting in lower school lunch participation rates.

Although it was not significant at the level of .05, schools offering brand-name fast food only as part of reimbursable school lunches had an about 4% lower school lunch participation rate than those offering no brand-name fast food at all during lunch services. Again, this result should be interpreted carefully, keeping in mind that this regression result can be used only to examine association, not to prove a causal relationship. It seems to be more reasonable to consider that schools offering brand-name fast food had lower participation rates for other reasons, such as lower quality of school-prepared food, which could not be controlled in this model. This interpretation is also supported by the fact that the most often cited reason for brand-name fast food use in the previous studies was "believed more students would participate." (US General Accounting Office 1996 ; Yoon et al. 2003).

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### Summary and Conclusion

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Two studies were conducted to examine the impact of offering brand-name fast food on students' participation in NSLP. The first study compared students' daily participation rate between the days when brand-name fast food was offered and they were not offered in school lunch cafeteria. It was shown that the impact of offering brand-name fast food on daily participation rate differed depending on the types of service how brand-name fast food was offered. In the schools offering brand-name fast food solely as part of reimbursable school lunches, the participation rate was significantly higher on Branding days than Non-branding days. In the schools offering brand-name fast food solely a-la-carte, the participation rate was significantly lower on Branding days than non branding days. In the schools where brand-name fast food was served both as part of reimbursable school lunches and a-la-carte, the participation rate did not significantly differ between branding and non branding days.

The second study examined the relationship of brand-name fast food service to monthly participation rate in NSLP while controlling other related variables by estimating a multiple

regression model. It was shown that offering brand-name fast food was not related to average participation rate in the NSLP unless schools offered them solely as a-la-carte items. Schools offering brand-name fast food solely a-la-carte had lower monthly participation rate than schools not offering brand-name fast food at all even after considering other characteristics of schools and their food service. Schools offering brand-name fast food solely as part of reimbursable school lunches or both as reimbursable and a-la-carte lunches did not have significantly different monthly participation rate from those not offering brand-name fast food at all.

In conclusion, offering brand-name fast food solely as a-la-carte items was thought to distract usual school lunch participants to purchase a-la-carte foods on the day of service. And offering brand-name fast food solely a-la-carte was related to lower monthly school lunch participation rate although the causal relationship could not be proven in this study.

The first study showed substantial increase in daily participation rate when brand-name fast food was offered as part of reimbursable meals. However, most of the Indiana schools offering brand-name fast food was doing so once or less often per month (Yoon et al. 2003). Considering all these facts together, it is thought that many schools with low school lunch participation started to offer brand-name fast food to increase the participation and were able to attract more students to school lunch lines from other lunch sources on the days when they offered brand-name fast foods. However, increased school lunch participation on a few days could have not impacted average school lunch participation over a month.

It is recommended that schools offering brand-name fast food in their lunch services should make them available as part of reimbursable school lunches so that usual school lunch eaters could not be distracted to a-la-carte lines. If brand-name fast food service is extended to such degree as impacting school lunch participation over a month, another research is needed to identify the magnitude of the impact more precisely.

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## References

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- Brands in schools : kids demand broader offerings (1996) : *Food Service Director* November 15 : 6s
- Chater A (1999) : Menu branding in schools : pizza concepts rule lunchrooms. *Food Service Director* March 15 : 12s
- Craypo L, Purcell A (2003) : The 2003 California High School Fast Food Survey. Available at [www.phi.org/pdf-library/fastfood-survey2003.pdf](http://www.phi.org/pdf-library/fastfood-survey2003.pdf), accessed on 8/1/2005
- Food branding in schools: branding forms marketing allies (1997) : *Food Service Director* March 15 : 18s
- Morcos SH, Spears MC (1992) : The National School Lunch Program : factors influencing participation. *School Food Service Res Rev* 16(1) : 11-22
- 1998 city & town population estimates for Indiana (2000) : Available at : [www.iupi.edu/it/librc/states/city/allcities98.html](http://www.iupi.edu/it/librc/states/city/allcities98.html), accessed on 1/26/2000
- Paeratakul S, Ferdinand DP, Champagne CM, Ryan DH, Bray GA (2003) : Fast-food consumption among US adults and children : dietary and nutrient intake profile. *J Am Diet Assoc* 103(10) : 1332-1338
- Pannell-Martin D (1999) : School Foodservice Management for the 21<sup>st</sup> Century, InTEAM Associates Inc., Alexandria, VA
- Penka AM, Ferris DA, Pickert MJ, Gould RA (1996) : A survey of student food preference at a Midwestern high school. *School Food Service Res Rev* 20(1) : 7-12
- Schuster K (1997) : Pizza licensing agreement reduces food cost, boosts participation. *Food Manag* 20(3) : 24
- Smith ER (1992) : Factors affecting participation in the National School Lunch and School Breakfast Programs. *School Food Service Res Rev* 16(2) : 91-100
- SPSS for Windows, 9.0.0. [Computer Software]. (1998) : SPSS Inc., Chicago
- US General Accounting Office (1996) : School Lunch Program : Role and Impacts of Private Food Service Companies (GAO/RCED-96-217). Washington, DC
- Yoon BJ, Almanza BA, Hiemstra SJ (2003) : Current status of and factors associated with the use of brand-name fast food in Indiana schools participating in the National School Lunch Program. *Journal of Child Nutrition and Management*. [On-line publication] : Available at <http://docs.schoolnutrition.org/new-room/jcnm/03fall/yoon>, accessed on 8/1/2005
- Wechsler H, Brener ND, Kuester S, Miller C (2001) : Food service and foods and beverage available at school : results from the school health policies and programs study 2000. *J School Health* 71(7) : 313-324