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Research Informing Policies & Practices for Healthy Youth

Prevalence and Extent of Volume Discounts in U.S. Fast-Food Restaurants

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Presenter Disclosure

Leah Rimkus

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

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Bridging the Gap is...

- A collaborative effort to assess the impacts of policies and environmental factors on a variety of adolescent health-related behaviors

- A Robert Wood Johnson Foundation-funded initiative created in 1997 with a focus on adolescent alcohol, tobacco, and other drug use and related outcomes

- Expanded to examine youth eating practices, physical activity, sedentary activity, and weight outcomes

- Linked to the ongoing, NIDA-funded, *Monitoring the Future* study

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Learning Objectives

- Assess the prevalence of volume discounts for fountain drinks and French fries in fast-food restaurants using observational data collected from a national sample of fast-food restaurant outlets

- Compare the extent of volume discounts offered on fountain drinks and French fries across fast-food chains

- Assess differences in the extent of volume discounts offered on fountain drinks and French fries in fast-food restaurants by community race/ethnicity and income

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Background

- Fast food consumption is associated with higher caloric intake and higher intake of soda, sweetened beverages, fat, saturated fat, and sugar. (Powell and Nguyen 2013)

- Portion sizes in chain fast-food restaurants have increased in the U.S. (Young and Nestle 2007)

- Consumers eat more when served larger portions and do not compensate sufficiently during other meals & snacks. (Rolls et al 2007)

- U.S. food companies use of value pricing, or volume discounts, as a marketing tool. (Vermeer et al 2010, NANA 2002, Wansink 1996)

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Bridging the Gap
Community Obesity Measures Study

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BTG - Community Obesity Measures Study

- Collection of local policy and environmental data in a national sample of communities

- Systematic observation by trained data collectors
  - ➢ Food stores
  - ➢ Fast food restaurants
  - ➢ Parks
  - ➢ Physical activity facilities
  - ➢ Street segments

- Community sample defined by the catchment areas for schools participating in the University of Michigan's *Monitoring the Future* study

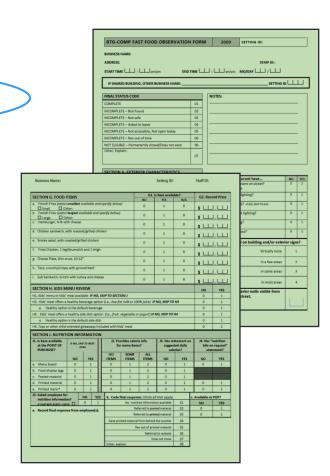- Data collected in 154 communities in 2010 and 157 communities in 2011

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BTG-COMP Fast Food Restaurant Sample

- Fast food sampling frame developed from two commercial sources
  - ➤ Dun & Bradstreet
  - ➤ InfoUSA
- Phone screening conducted to confirm business name, location, and eligibility/classification
- Sampling frame supplemented with fast food outlets discovered in the field
- Goals for # of field-discovered businesses set based on sensitivity rates from a field validation study

(Powell L., et al. *Health & Place* 2011)

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Fast Food Observation Form

- Restaurant features/amenities

- Availability of food/beverage items

- Pricing of food/beverage items

- Marketing and signage

- Availability of nutritional information

Fast Food Observation Form

- Sizes and prices for the smallest and largest fountain drinks and French fries (where available) were recorded in the field

- Information on portion volumes/weights obtained from companies' websites, nutrition brochures, and the Minnesota Nutrient Data System for Research

- The following values were calculated for each outlet:

Fountain drinks	French fries
Price per ounce smallest	Price per gram smallest
Price per ounce largest	Price per gram largest
Difference price per ounce	Difference price per gram
Ratio price per ounce	Ratio price per ounce

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Example:

- Smallest fountain drink = 14 fluid ounces, $0.99

- Largest fountain drink = 32 fluid ounces, $1.39

- Smallest fries = 71 grams, $0.99

- Largest fries = 154 grams, $1.49

Fountain drinks		French fries	
Price per ounce smallest	$0.071	Price per gram smallest	$0.014
Price per ounce largest	$0.043	Price per gram largest	$0.010
Difference price per ounce	$0.028	Difference price per gram	$0.004
Ratio price per ounce	0.606	Ratio price per ounce	0.714

Select Characteristics of Fast Food Sample
Fountain Drink Analysis

	N	%
All Outlets	1,344	100.0
Majority White	1,004	74.7
Majority Black	67	5.0
Majority Latino	87	6.5
Other	186	13.8
Low income	406	30.2
Middle income	447	33.3
High income	491	36.5
Urban	455	33.9
Suburban	642	47.8
Rural	247	18.4

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Mean Difference in Price/Ounce of Fountain Drinks, by Chain, 2010-2011

	Difference price/oz (smallest – largest)	Ratio price/oz (largest / smallest)
All chains/outlets	**$.0267**	**0.6568**

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Mean Difference in Price/Ounce of <u>Fountain Drinks</u>, by Chain, 2010-2011

	Difference price/oz (smallest – largest)	Ratio price/oz (largest / smallest)
Taco Bell	$.0464	0.4547
Chick-fil-A	$.0397	0.5741
Jack in the Box	$.0328	0.5825
All chains/outlets	**$.0267**	**0.6568**

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McDonald's	$.0161	0.7525
Popeye's	$.0151	0.7981
Chipotle	$.0127	0.8181

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Select Characteristics of Fast Food Sample
French Fries Analysis

	N	%
All Outlets	773	100.0
Majority White	575	74.4
Majority Black	46	6.0
Majority Latino	51	6.6
Other	101	13.1
Low income	245	31.7
Middle income	261	33.8
High income	267	34.5
Urban	249	32.2
Suburban	366	47.4
Rural	158	20.4

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Mean Difference in Price/Gram of <u>French Fries</u>, by Chain, 2010-2011

	Difference price/gm (smallest – largest)	Ratio price/gm (largest / smallest)
All chains/outlets	**$.0022**	**0.8545**

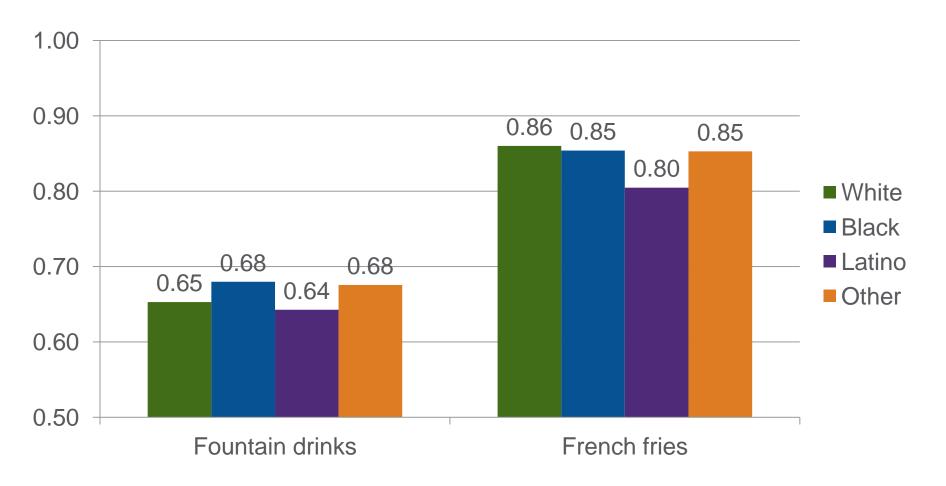**br**ı**ag**ı**ng** **t**н**e gap**

Mean Difference in Price/Gram of <u>French Fries</u>, by Chain, 2010-2011

	Difference price/gm (smallest – largest)	Ratio price/gm (largest / smallest)
Popeye's	$.0067	0.6891
Jack in the Box	$.0038	0.7381
Dairy Queen	$.0029	0.7925
All chains/outlets	**$.0022**	**0.8545**

Mean Difference in Price/Gram of <u>French Fries</u>, by Chain, 2010-2011

	Difference price/gm (smallest – largest)	Ratio price/gm (largest / smallest)
Popeye's	$.0067	0.6891
Jack in the Box	$.0038	0.7381
Dairy Queen	$.0029	0.7925
All chains/outlets	**$.0022**	**0.8545**
Burger King	$.0018	0.8781
McDonald's	$.0017	0.8894
Sonic	$.0013	0.9075

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Ratio of price/unit for largest over smallest size, by <u>predominant race/ethnicity</u>

	Fountain drinks	French fries
White	0.65	0.86
Black	0.68	0.85
Latino	0.64	0.80
Other	0.68	0.85

p ≤ 0.05: White vs. Latino (french fries); Latino vs. Other (french fries)

Ratio of price/unit for largest over smallest size, by <u>median household income</u>

Legend:
- Low income (green)
- Middle income (blue)
- High income (purple)

Fountain drinks: 0.67, 0.64, 0.66
French fries: 0.85, 0.85, 0.86

p ≤ 0.05: Low-income to Middle-income (fountain drinks)

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Multivariate Regression Results – <u>Fountain Drinks</u>

	Ratio of price/oz for largest/smallest
Majority Black	0.0108
Majority Hispanic	0.0242
Other	-0.0165
Low income	0.000268
Middle income	-0.0192**
Suburban	-0.00348
Rural	-0.00659

*p ≤ 0.10; **p ≤ 0.05; ***p ≤ 0.01
Reference groups: majority white, high income, urban
Regression results also controlled for nine Census divisions and data collection year

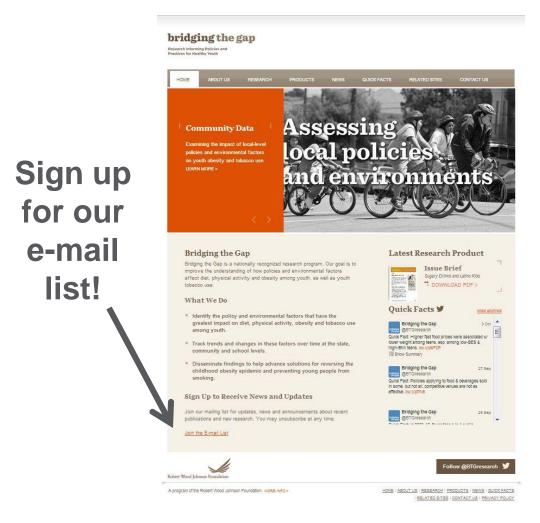# **Multivariate Regression Results – <u>French Fries</u>**

	Ratio of price/gm for largest/smallest
Majority Black	-0.000250
Majority Hispanic	-0.00786
Other	-0.0111
Low income	-0.0156
Middle income	-0.0179*
Suburban	0.00457
Rural	0.00661

*p ≤ 0.10; **p ≤ 0.05; ***p ≤ 0.01
Reference groups: majority white, high income, urban
Regression results also controlled for nine Census divisions and data collection year

Summary/Conclusions

- Use of volume discounts is common among top chain fast food outlets in the U.S.; extent of discount varies considerably by chain.

- The size of the average volume discount for fountain drinks (0.657) is much greater than that for French fries (0.855).

- No strong evidence of variation in volume discounts by racial/ethnic composition or median household income of the community.

- Implications for policy and practice

    - NYC's proposed portion cap (16 fluid ounces)

    - Proportional pricing rules

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For more information: www.bridgingthegapresearch.org

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Thanks!
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