

## BIOGRAPHICAL SKETCH

Name	Position Title
Chen Zhen	Associate Professor

### Education/Training

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Colorado, Denver, CO	BA	1999	Economics
Montana State University, Bozeman, MT	MS	2001	Applied Economics
North Carolina State University, Raleigh, NC	PhD	2006	Economics

I specialize in demand and price analysis, applied econometrics, and the economics of nutrition and healthy eating. I develop and estimate innovative models of consumer behavior using large data sets on household and supermarket transactions with millions of observations. I have used these structural econometric models to quantify the extent of habits in beverage consumption, to predict the effects of taxing sugary drinks on untaxed foods and beverages, and to evaluate *ex ante* the performance of per-calorie beverage taxes relative to per-volume taxes in reducing caloric intake and obesity. Currently, I am conducting research on the causal link between food assistance program participation and food choices, scanner data price indexes, U.S. tobacco control policies, and China nutrition policies using retail and household scanner data from the United States and China.

### A. Positions and honors

#### Positions and Employment

- 2006–2015     Research Economist, Food and Nutrition Policy Research Program, RTI International, Research Triangle Park, NC
- 2015–present     UGA Athletic Association Associate Professor in Food Choice, Obesity, and Health Economics, Department of Agricultural and Applied Economics, University of Georgia
- 2015–2019     Associate Editor, *Applied Economic Perspectives and Policy*
- 2018–2020     Editorial Council, *Journal of Agricultural and Applied Economics*

#### Honors

- 2011 Best Economics Paper in Food Safety and Nutrition, Agricultural and Applied Economics Association: Zhen, C., Wohlgenant, M.K., Karns, S., & Kaufman, P. (2011). Habit formation and demand for sugar-sweetened beverages. *American Journal of Agricultural Economics*, 93(1), 175–193.
- 2011 RTI President's Award
- 2015 Honorable Mention, Best Economics Paper in Food Safety and Nutrition, Agricultural and Applied Economics Association: Zhen, C., Finkelstein, E.A., Nonnemaker, J.M., Karns, S.A., & Todd, J.E. (2014). Predicting the effects of sugar-sweetened beverage taxes on food and beverage demand in a large demand system. *American Journal of Agricultural Economics*, 96(1):1–25.

## B1. Books

Muth, M.K., Okrent, A., Zhen, C., & Karns, S.A. (2019). *Using scanner data for food policy research*. (1<sup>st</sup> ed.) Elsevier Academic Press.

## B2. Peer-reviewed publications (in chronological order)

Zhen, C., & Wohlgenant, M.K. (2006). Meat demand under rational habit persistence. *Canadian Journal of Agricultural Economics*, 54(4), 477–495.

Zheng, X., & Zhen, C. (2008). Healthy food, unhealthy food and obesity. *Economics Letters*, 100(2), 300–303.

Zhen, C., Taylor, J.L., Muth, M.K., & Leibtag, E. (2009). Understanding differences in self-reported expenditures between household scanner data and diary survey data: A comparison of Homescan and Consumer Expenditure Survey. *Review of Agricultural Economics*, 31(3), 470–492.

Todd, J., & Zhen, C. (2010). Can taxes on calorically sweetened beverages reduce obesity? *Choices*, 25(3).

Finkelstein, E.A., Zhen, C., Nonnemaker, J., & Todd, J.E. (2010). The impact of targeted beverage taxes on higher and lower income households. *Archives of Internal Medicine*, 170(22), 2028–2034. (featured in USA Today, December 14, 2010)

Zhen, C., Wohlgenant, M.K., Karns, S., & Kaufman, P. (2011). Habit formation and demand for sugar-sweetened beverages. *American Journal of Agricultural Economics*, 93(1), 175–193.

Adhikari, B., Zhen, C., Kahende, J., Goetz, J. L., & Loomis, B. R. (2012). Price responsiveness of cigarette demand in US: retail scanner data 1994-2007. *Economics Research International*, 2012, Article ID 148702, 10 pages.

Finkelstein, E.A., Zhen, C., Bilger, M., Nonnemaker, J.M., Farooqui, A.M., & Todd, J.E. (2013). Implications of a sugar-sweetened beverage (SSB) tax when substitutions to non-beverage items are considered. *Journal of Health Economics*, 32(1), 219–239.

Muth, M.K., Zhen, C., Taylor, J., Cates, S.C., Kosa, K.M., Zorn, D., & Choiniere, C. (2013). The value to consumers of health labeling statements on breakfast foods and cereals. *Journal of Food Products Marketing*, 19(4), 279–298.

Zhen, C., Finkelstein, E.A., Nonnemaker, J.M., Karns, S.A., & Todd, J.E. (2014). Predicting the effects of sugar-sweetened beverage taxes on food and beverage demand in a large demand system. *American Journal of Agricultural Economics*, 96(1):1–25. (Lead article)

Ferrier, P., & Zhen, C. (2014). The producer welfare effects of trade liberalization when goods are perishable and habit-forming: the case of asparagus. *Agricultural Economics*, 45(2):129–141.

Zhen, C., Brissette, I.F., & Ruff, R.R. (2014). By ounce or by calorie: The differential effects of alternative sugar-sweetened beverage tax strategies. *American Journal of Agricultural Economics*, 96(4):1070–1083. (featured in New York Times, NPR, June 2, 2014)

Finkelstein, E.A., Strombotne, K.L., Zhen, C., & Epstein, L.H. (2014). Food prices and obesity: a review. *Advances in Nutrition*, 5(6): 818–821.

- Ruff, R.R., & Zhen, C. (2015). Estimating the effects of a calorie-based sugar-sweetened beverage tax on weight and obesity in New York City adults using dynamic loss models. *Annals of Epidemiology*, 25(5): 350–357.
- Zheng, Y., Zhen, C., Nonnemaker, J., & Dench, D. (2016). Advertising, habit formation, and U.S. tobacco product demand. *American Journal of Agricultural Economics*, 98(4):1038–1054.
- Zheng, Y., Zhen, C., Dench, D., & Nonnemaker, J. (2017). U.S. demand for tobacco products in a system framework. *Health Economics*, 26(8):1067–1086.
- Ferrier, P.M., & Zhen, C. (2017). The role of income in explaining the shift from preserved to fresh vegetable purchases. *Journal of Agricultural and Resource Economics*, 42(3):329–349.
- Finkelstein, E.A., Li, W., Melo, G., Strombotne, K., & Zhen, C. (2018). Identifying the effect of shelf nutrition labels on consumer purchases: results of a natural experiment and consumer survey. *American Journal of Clinical Nutrition*, 107(4):647–651.
- Zhen, C., Finkelstein, E.A., Karns, S.A., Leibtag, E., & Zhang, C. (2019). Scanner data-based panel price indexes. *American Journal of Agricultural Economics*, 101(1):311–329.
- Zhen, C., Muth, M., Okrent, A., Karns, S., Brown, D., & Siegel, P. (2019). Do differences in reported expenditures between household scanner data and expenditure surveys matter in health policy research? *Health Economics*, 28(6): 782–800.
- Melo, G, Zhen, C., & Colson, G. (2019). Does point-of-sale nutrition information improve the nutritional quality of food choices? *Economics and Human Biology*, 35: 133–143.
- Zhen, C., & Zheng, X. (2019). The impact of NuVal shelf nutrition labels on food purchase. *Applied Economic Perspectives and Policy* forthcoming.
- Li, W., Zhen, C., & Dorfman, J.H. (2019): Modelling with flexibility through the business cycle: using a panel smooth transition model to test for the lipstick effect, *Applied Economics* forthcoming.

**C. Research support** (\$5,526,196 in monetary value for projects on which I serve as PI, co-PI or PD; not including projects that I contributed to but was not in a PI, co-PI or PD role)

### Grants

2019-67023-29672 (Role: PI) 6/1/2019–5/31/2022  
 USDA National Institute of Food and Agriculture \$499,991

**Building A Public-Use Small Area Panel Price Index Database Using Scanner Data**

Collaborators: Gauri Datta (UGA), Lan Mu (UGA), Gianna Short (USDA)

OPP1182843 (Role: co-PI) 11/6/2017–12/31/2020  
 Bill & Melinda Gates Foundation \$784,830

**Harnessing food demand systems for improved nutrition in Sub-Saharan Africa.**

Collaborators: Ellen McCullough (PI, UGA)

2017-67023-26234 (Role: PI) 3/15/2017–3/14/2021  
 USDA National Institute of Food and Agriculture \$499,630

**Promising Strategies for Promoting Healthier Food Purchases Among SNAP Households**

Collaborators: Biing-Hwan Lin (USDA), Travis Smith (UGA), Janani Thapa (UGA), Jung Sun Lee (UGA), Lan Mu (UGA), Shawn Karns (RTI),

CAS031 (Role: PI)	8/15/2015–11/30/2016
Robert Wood Johnson Foundation Healthy Eating Research	\$74,919
<b>Examining the Effects of Summary Nutrition Shelf Labels on Lower-Income Household Food Purchases</b>	
Collaborators: Xiaoyong Zheng (NCSU), Eric Finkelstein (Duke-NUS), Kiersten Strombotne (Yale), Biing-Hwan Lin (USDA)	
71637 (Role: PI)	2/01/2014–7/31/2015
Robert Wood Johnson Foundation Healthy Eating Research	\$170,000
<b>Assessing the Impact of Food Restrictions Under the Supplemental Nutrition Assistance Program on Food Choices by Children and Families</b>	
Collaborators: Biing-Hwan Lin (USDA), Lisa Mancino (USDA), Michele Ver Ploeg (USDA), Ryan Ruff (NYU)	
0271400.018 (Role: PI)	10/01/13–9/30/14
RTI Internal Research and Development Grant	\$85,000
<b>Tools to Conduct Comparative Food and Nutrition Policy Studies in China and Indonesia</b>	
Collaborators: James Hersey (RTI), Kelly Wohlgenant (RTI), Mary Muth (RTI)	
70754 (Role: PI)	3/01/13–8/31/14
Robert Wood Johnson Foundation Healthy Eating Research	\$169,972
<b>Understanding How Food Pricing and Access Affect the Diets of Children and Their Families</b>	
Collaborators: Biing-Hwan Lin (USDA), Abigail Okrent (USDA), Ian Brissette (NYSDOH)	
1R21HL108121-01 (Role: PI)	8/01/11–5/31/14
NIH Heart, Lung and Blood Institute	\$472,832
<b>Geospatial and Time Series Analysis of Food Prices and Obesity</b>	
Collaborators: Eric Finkelstein (Duke-NUS), Ephraim Leibtag (USDA)	
1561-207-2098563 (Role: co-PI)	7/29/11–9/30/2014
Texas Tech University (client)	\$42,080
U.S. Department of Agriculture, Economic Research Service, Food Assistance and Nutrition Research Program (funding source)	(RTI subaward)
<b>The Supplemental Nutrition Assistance Program and Household Spending: A Flexible Demand System Approach</b>	
Collaborators: Carlos Carpio (PI, Texas Tech), Tullaya Boonsaeng (co-PI, Texas Tech)	
66971 (Role: PI)	11/01/09–10/30/11
Robert Wood Johnson Foundation Healthy Eating Research	\$149,977
<b>Studying the Effect of Beverage Taxes on Children's Energy Intake and Tax Revenue</b>	
Collaborators: Eric Finkelstein (co-PI, Duke-NUS), Ephraim Leibtag (USDA)	
3916-01 (Role: PI of RTI subaward)	2/04/10–2/29/12
New York State Department of Health (client)	\$179,524
Centers for Disease Control and Prevention (funding source)	(RTI subaward)
<b>Evaluating Trends in the Pricing and Purchase of Sugar-Sweetened Beverages in Upstate New York State Markets</b>	
Collaborators: Ian Brissette (NYSDOH), Ryan Ruff (NYU)	

65062 (Role: PI transferred from Eric Finkelstein in July 2009) 9/1/08–8/31/11  
Robert Wood Johnson Foundation Healthy Eating Research \$299,994  
**Examining Higher and Lower Income Household Food Purchasing Behavior and Whether It May be Responsible for Childhood Obesity**  
Collaborators: Eric Finkelstein (PI, Duke-NUS), James Nonnemaker (RTI), Jessica Todd (USDA)

59-5000-7-0117 (Role: PI) 9/13/2007–9/30/2010  
U.S. Department of Agriculture, Economic Research Service, Food Assistance and Nutrition Research Program \$250,000  
**Measuring Consumption Response to Prices in a Dynamic Model of Consumer Food Purchase Behavior**  
Collaborators: Michael Wohlgenant (co-PI, NCSU), Xiaoyong Zheng (NCSU)

### Cooperative Agreements

58-4000-6-0052 (Role: PI) 8/16/2016–9/01/2018  
U.S. Department of Agriculture, Economic Research Service \$30,000  
**The Effects of Pricing Strategies on the Nutritional Quality of Food Purchases by SNAP and non-SNAP Households**  
Collaborators: Travis Smith (UGA), Biing-Hwan Li (USDA)

58-5000-5-0009 (Role: Co-PI) 9/22/2015–9/30/2018  
U.S. Department of Agriculture, Economic Research Service \$200,000  
**Heterogeneity in SNAP Benefit Redemption: Causes and Characteristics**  
Collaborators: Travis Smith (PI, UGA), Jeffery Dorfman (Co-PI, UGA)

59-3000-4-0031 (Role: PI) 8/11/2014–9/30/2016  
U.S. Department of Agriculture, Economic Research Service \$60,000  
**Economic Evaluation of the Food Safety Modernization Act (FSMA)**  
Collaborators: Peyton Ferrier (USDA), John Bovay (USDA)

59-3000-2-0077 (Role: PI) 6/08/2012–9/30/2014  
U.S. Department of Agriculture, Economic Research Service \$30,000  
**The Shift from Preserved to Fresh Produce Consumption**  
Collaborators: Peyton Ferrier (USDA)

58-5000-3-0069 (Role: PI) 9/10/2013–9/30/2018  
U.S. Department of Agriculture, Economic Research Service \$218,026  
**Understanding the Statistical Properties of IRI Store-based and House-based Scanner Data**  
Collaborators: Mary Muth (co-PI, RTI), Shawn Karns (RTI), Derick Brown (RTI), Peter Siegel (RTI), Kristen Capogrossi (RTI)

### Contracts

Nestlé Nutrition Institute (Role: PD) 2/01/2014–4/16/2014  
**A Systematic Review of the Economics Literature on the Effects of Targeted Food and Beverage Taxes** \$30,000

HHSF223201110005B (Role: PD) 9/09/2011–7/30/2014  
The Food and Drug Administration, Center for Tobacco Product \$897,805  
**Estimating Policy Scenario Impacts and Comparison of Policy Scenarios**

08555-005-00-01-RTI (Role: PD of RTI subaward) 10/01/2011–10/31/2012  
Urban Institute (client) \$59,430  
U.S. Department of Agriculture, Food and Nutrition Service (funding source)  
**WIC Food Cost Report and Market Analysis**

HHSF223200710273G (Role: PD) 9/18/2009–12/31/2010  
The Food and Drug Administration, Center for Food Safety and Applied Nutrition \$199,921  
**The Costs to Farms of Controlling Human Health Risks in the Products They Produce**

53-3K06-06-1302 (Role: PD) 9/26/2007–9/30/2008  
U.S. Department of Agriculture, Economic Research Service \$67,164  
**Comparing Food-at-Home Expenditure Estimates Across Data Sets**

223-01-2466 TO#11 (Role: PD) 9/25/2006–9/24/2008  
The Food and Drug Administration, Center for Food Safety and Applied Nutrition \$55,101  
**Consumption of Imported Food**

#### **D. Technical reports**

- Muth, M. K., Sweitzer, M., Brown, D., Capogrossi, K., Karns, S., Levin, D., Okrent, A., Siegel, P., & Zhen, C. (2016, April). Understanding IRI household-based and store-based scanner data, TB-1942, U.S. Department of Agriculture, Economic Research Service.
- Sweitzer, M., Brown, D., Karns, S., Muth, M. K., Siegel, P., & Zhen, C. (2017, September). Food-at-home expenditures: comparing commercial household scanner data from IRI and government survey data, TB-1946, U.S. Department of Agriculture, Economic Research Service.
- Muth, M. K., Bradley, S. R., Coglaiti, M. C., Hersey, J. C., Karns, S. A., Wohlgenant, K. C., & Zhen, C. (2014, February). Analysis of food product reformulation, 2009–2011. Prepared for U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition.
- Muth, M. K., Cates, S. C., Karns, S. A., Siegel, P. H., Wohlgenant, K. C., & Zhen, C. (2013, March). Comparing attitudinal survey responses from proprietary and government surveys. Prepared for U.S. Department of Agriculture, Economic Research Service.
- Anater, A. S., Wohlgenant, K. C., Cates, S. C., Hersey, J. C., Muth, M. K., Zaccaro, D. J., & Zhen, C. (2012, September). Evaluation planning and tools for front of package nutrition labeling (Report No. 0212050.020.000.001). Prepared for Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.
- Watson, K. A., Dench, D. L., Girlando, M. E., & Zhen, C. (2012, February). Assessment of the retail beverage environment. Prepared for New York State Department of Health.
- Zhen, C., Ball, M. J., & Muth, M. K. (2012, February). Produce industry baseline food safety practices. Prepared for Food and Drug Administration Center for Food Safety and Applied Nutrition.
- Zhen, C. (2012, February). Implications of sugar-sweetened beverage taxes on beverage demand in New York State. Prepared for New York State Department of Health.
- Muth, M. K., Zhen, C., Coglaiti, M. C., Karns, S. A., & Viator, C. L. (2011, November). Food processing sector study. Prepared for Food and Drug Administration Center for Food Safety and Applied Nutrition.
- Cates, S. C., Zhen, C., Karns, S. A., Kosa, K. M., Muth, M. K., & Siegel, P. H. (2011, November). Measuring consumption response to prices in a dynamic model of consumer food purchase behavior: Homescan panel survey. Prepared for USDA Economic Research Service.

- Zhen, C., Karns, S. A., Ball, M. J., & Muth, M. K. (2011, January). Costs to farms of controlling human health risks in the products they produce. Prepared for Food and Drug Administration Center for Food Safety and Applied Nutrition.
- Beach, R. H., Zhen, C., Thomson, A. M., Rejesus, R. M., Sinha, P., Lentz, A. W., Vedenov, D. V., & McCarl, B. (2009, December). Climate change impacts on crop insurance. Prepared for U.S. Department of Agriculture, Risk Management Agency.
- Beach, R. H., Vedenov, D. V., Zhen, C., & Lentz, A. W. (2009, July). Program Impact Model documentation, validation, and stress testing. Prepared for U.S. Department of Agriculture, Risk Management Agency.
- Beach, R. H., Zhen, C., Rejesus, R. M., Sinha, P., Lentz, A. W., & Vedenov, D. V. (2009, April). Climate change impacts on crop insurance: Program Impact Model. Prepared for U.S. Department of Agriculture, Risk Management Agency.
- Beach, R. H., Zhen, C., Rejesus, R. M., Sinha, P., Lentz, A. W., & Vedenov, D. V. (2009, March). Climate change impacts on crop insurance: Expected climate change impacts report. Prepared for U.S. Department of Agriculture, Risk Management Agency.
- Zhen, C., Goetz, J. L., & Loomis, B. R. (2009, February). The price responsiveness of cigarette demand in the United States: Results from retail scanner data. Prepared for the Centers for Disease Control and Prevention, Office on Smoking and Health.
- Zhen, C., Wohlgenant, M. K., Zheng, X., Karns, S. A., Muth, M. K., & Cates, S. C. (2008, September). Measuring consumption response to prices in a dynamic model of consumer food purchase behavior: First-year activity report. Prepared for the U.S. Department of Agriculture, Economic Research Service.
- Zhen, C., Taylor, J. L., Muth, M. K., & Siegel, P. H. (2008, September). Comparing food-at-home expenditures across datasets. Prepared for the U.S. Department of Agriculture, Economic Research Service.
- Zhen, C., Muth, M. K., Karns, S. A., Nielsen, S. J., & Viator, C. L. (2008, August). Consumption of imported foods. Prepared for Economics Team, Division of Social Sciences, Office of Regulations, Policy and Social Sciences, Center for Food Safety and Applied Nutrition, FDA.
- Zhen, C., Muth, M. K., Karns, S. A., Nielsen, S. J., & Viator, C. L. (2008, February). Consumption of imported foods. Prepared for the Food and Drug Administration, Center for Food Safety and Applied Nutrition.
- Beach, R. H., Kuchler, F., Leibtag, E., & Zhen, C. (2008). The effects of avian influenza news on consumer purchasing behavior: A case study of Italian consumers' retail purchases. Prepared for the U.S. Department of Agriculture, Economic Research Service.
- Beach, R. H., Kuchler, F., Leibtag, E., & Zhen, C. (2007, March). The effects of avian influenza news on consumer purchasing behavior. Prepared for the U.S. Department of Agriculture, Economic Research Service.
- Beach, R. H., & Zhen, C. (2007, March). Review of international data available for analysis of effects of avian influenza on meat consumption. Prepared for the U.S. Department of Agriculture, Economic Research Service (through subcontract to ACNielsen).
- Beach, R. H., & Zhen, C. Contractor and cooperator report. The effects of avian influenza on poultry sales: An analysis of Italian scanner data. Washington, DC: U.S. Department of Agriculture, Economic Research Service.
- Muth, M. K., Zhen, C., Beach, R. H., Karns, S. A., Taylor, J. L., & Viator, C. L. (2007, May). Pork slaughter and processing sector facility-level model. Prepared for the U.S. Department of Agriculture, Food Safety and Inspection Service.
- Beach, R. H., Zhen, C., Piggott, N. E., Wohlgenant, M. K., Viator, C. L., & Cates, S. C. (2007, February). An economic analysis of the effectiveness of the pork checkoff program. Prepared for the National Pork Board.
- Muth, M. K., Siegel, P. H., & Zhen, C. (2007, February). ERS data quality study design. Prepared for the U.S. Department of Agriculture, Economic Research Service.
- Zhen, C., Atwood, J. A., & Buschena, D. E. (2004, December). Improving statistical model of crop yield forecasting using AVHRR-NDVI satellite data. Staff paper 2004-3, Department of Agricultural Economics and Economics, Montana State University.

## **E. Invited Presentations and Media Interviews**

### **Invited Presentations**

*Predicting Impacts of Targeted Beverage Taxes: Research Challenges and Potential Solutions*, presented to Institute of Medicine Committee on Valuing Community-Based, Non-Clinical Prevention Policies and Wellness Strategies, September 19, 2011, Washington, DC.

### **Media Interviews**

New York Times, NPR, WHY, WNYC

### **F. Professional Services**

Grant reviewer for Robert Wood Johnson Foundation Healthy Eating Research 2010, 2011.

Referee for *American Journal of Agricultural Economics*, *Journal of Agricultural and Resource Economics*, *Applied Economics and Policy Perspectives*, *Canadian Journal of Agricultural Economics*, *Agribusiness: An International Journal*, *Journal of Agricultural and Applied Economics*, *Food Policy*, *China Agricultural Economic Review*, *Health Economics*, *Public Health Nutrition*, *Economics & Human Biology*, *BMC Public Health*, *National Tax Journal*, *Southern Economic Journal*.

Co-topic leader for Demand and Price Analysis, Agricultural and Applied Economics Association Annual Meetings 2013-2014.