

# WIC and the Infant Formula Market

Elizaveta Brover, College of Arts and Sciences, Class of 2022

Dr. Jose Miguel Abito, Wharton School, Business Economics and Public Policy Department

GfFMUR Summer 2020

## Abstract

Three firms, Mead-Johnson, Abbott Laboratories, and Nestle, compete for the majority of market share in the US infant formula market. Due to the high cost of infant formula, the federal government established the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in order to provide low-income households with access to proper nutrition and care. WIC hosts auctions in each state for infant formula firms and awards a contract to the firm that offers WIC the highest rebate per unit of infant formula. In exchange, the firm that wins the WIC auction offers vouchers for free infant formula to WIC households. USDA research on market share using Nielsen Retail Measurement data reveals that upon winning the WIC contract in a state, that the market share of the new WIC formula provider rises to the order of 90-95% of that state's infant formula sales. This measure is significant, as WIC households make up around 40% of the formula market. Our research aims to measure the extent of the WIC premium by analyzing Nielsen Homescan data for purchasing patterns.

## Background Literature

In 2011, USDA produced *The Infant Formula Market: Consequences of a Change in the WIC Contract Brand*.<sup>1</sup> The report used data from 2004-2009 Nielsen scanner-based retail sales in order to observe the market share of infant formula brands before and after a change of the WIC contract brand. The study found that WIC contract brand accounts for 84 percent of all formula sold by the top three manufacturers, and that the market share of the manufacturer of the new WIC contract brand increases an average of 74 percentage points after winning the contract. The study alludes to a spillover effect from winning the WIC contract, where the winning firm sees an increase in sales of formula purchased outside of the WIC program, which we measure in our project.

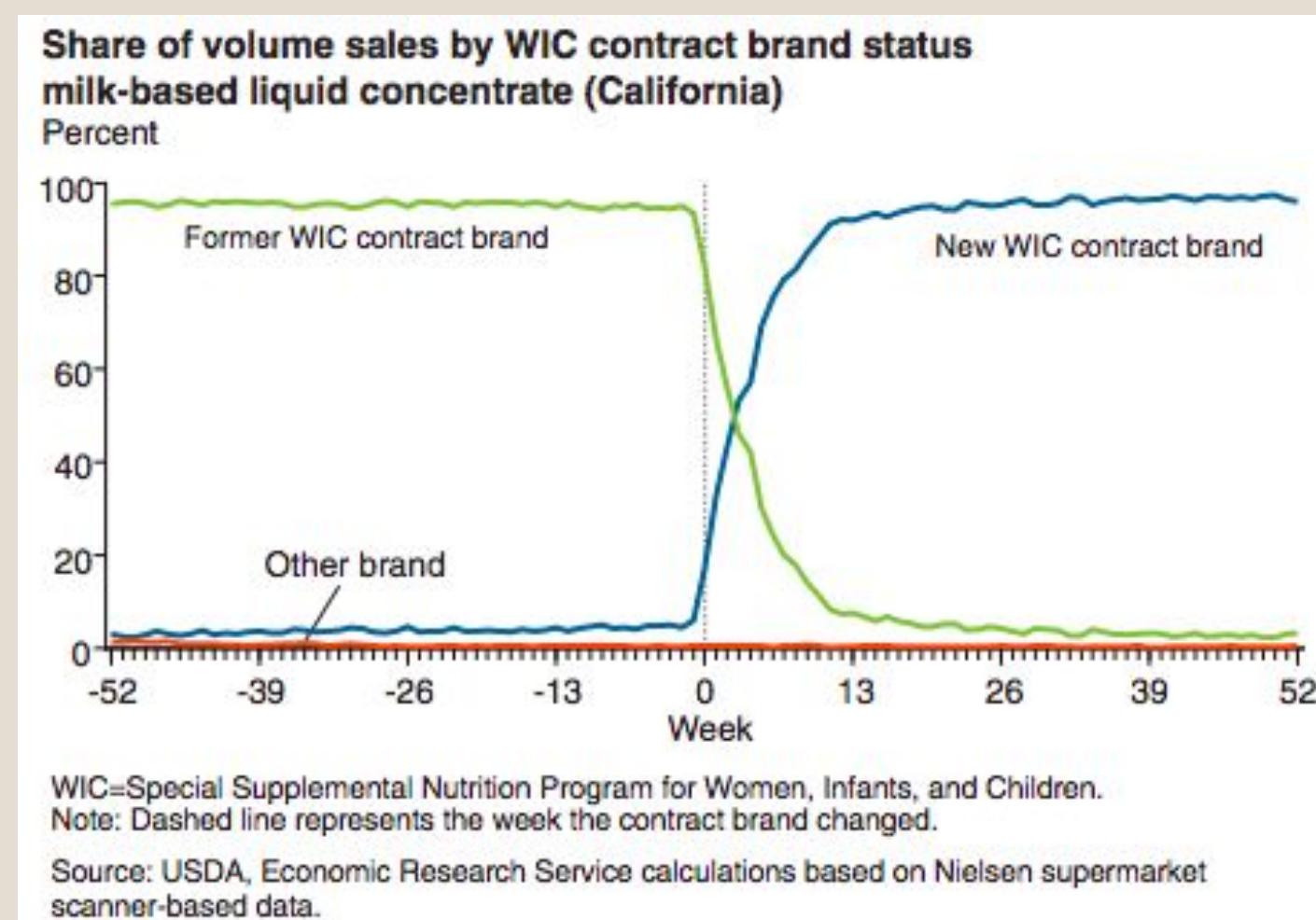


Figure 1. Aggregated market share trend for firms before and after contract change

## Dataset and Methods

The dataset we are using to analyze purchasing patterns is Nielsen Homescan data, which is composed of data from data recording machines placed in a group of self-selected US households. The machines collect SKU data regarding purchases made by the household over the period they possess the Homescan machine. The data we used from Homescan was household number, quantity of product, type of product, manufacturer, date, state, and family's WIC status. From this data, we were first able to replicate the 2011 USDA paper with breakdowns by household WIC status and purchasing spell.

The second dataset we are using to build our supply model is ScanTrak's Promodata. This data provides information on wholesale prices that participating wholesalers submit. We will be using the wholesale prices in combination with the retail prices in order to determine firms' supply.

## Current Findings

Currently, we see that the trend observed in the USDA study holds with the Homescan dataset, with WIC contract firms earning about about 50-60 percent higher market share than their non-WIC counterparts (Table 1). We also see that brand sensitivity decreases with parental education and among families that buy in bulk. Holding the WIC label also affects retailers' decisions in purchasing infant formula stock, with the retailer overwhelmingly preferring to buy the WIC label over non-WIC labels.

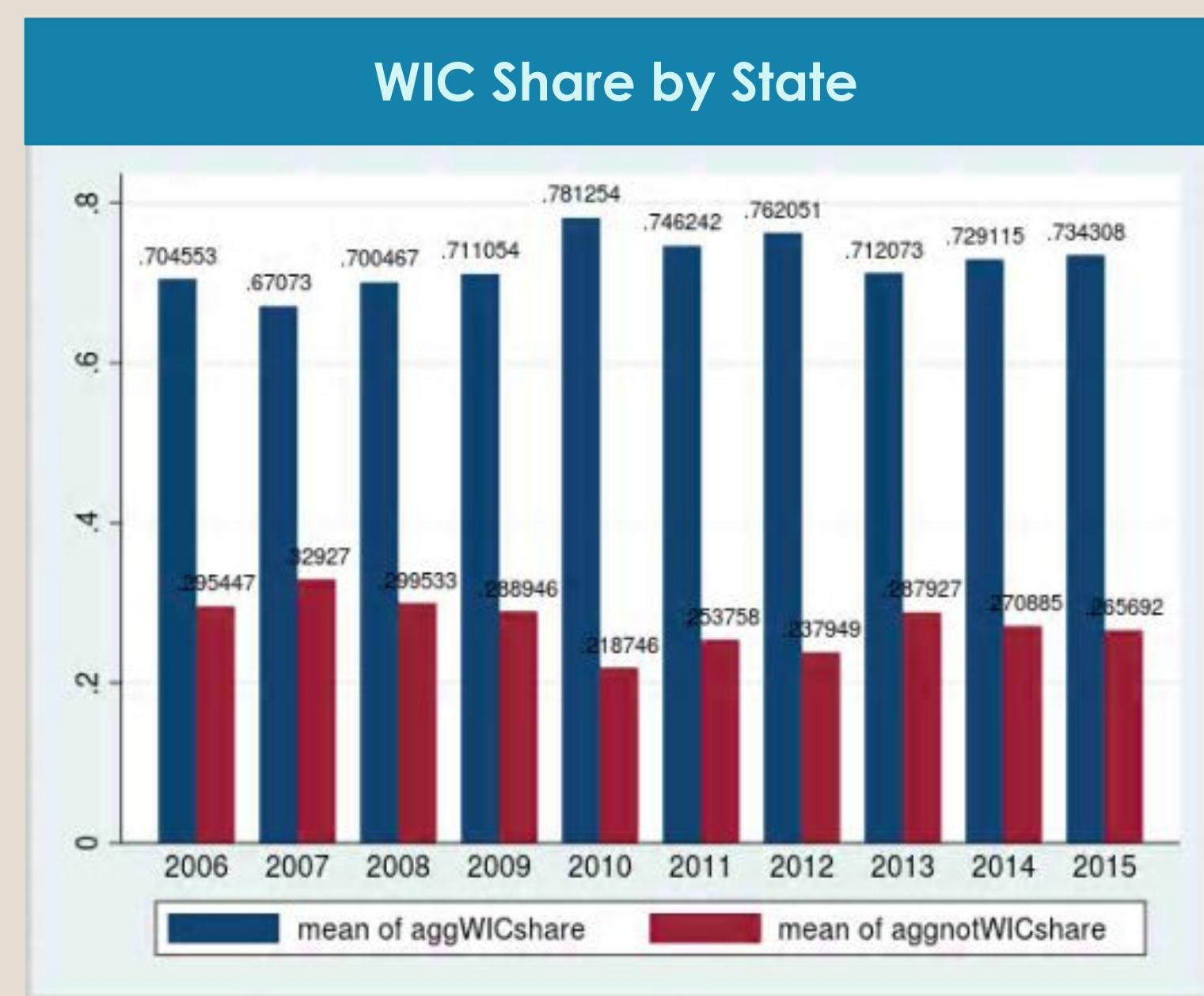


Table 1. Aggregate WIC share by state, contract holder and not contract holder firms

## WIC Firm Share, 2006-2014

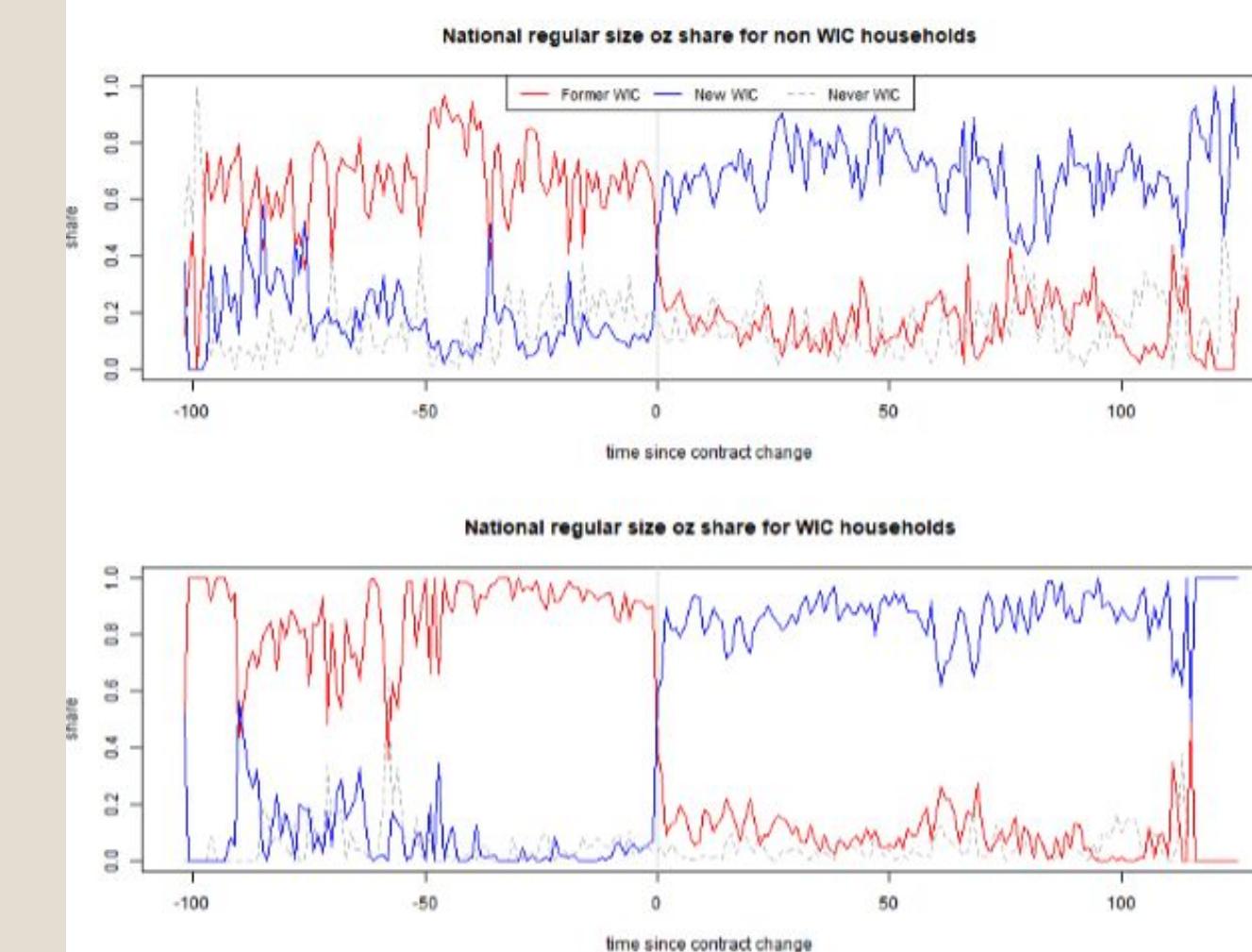


Figure 2. Shares of WIC and non-WIC formula by ounces before and after contract change, in months since contract change..

## Discussion

In 2008, USDA produced a review of Nielsen Homescan data titled *On the Accuracy of Nielsen Homescan Data*.<sup>2</sup> The paper outlines possible restrictions of the dataset, including that the data is self-recorded and the recording process is time-consuming. While the study finds that the accuracy of the dataset is in line with other government-collected economic data sets, the study points out that households who agree to contribute data may not be representative of the US population as a whole due to its time commitment. This observation is important to our study as we observe that families that earn 185 percent of the national poverty guidelines are eligible for WIC, and thus the amount of WIC households in our data may be underrepresented. For this reason, we have limited some of our observations to purchasing patterns of only non-WIC households.

## Next Steps

The future of our research lies in the development of our demand and supply models for infant formula. Research inspired by our paper could include the regional winning of contracts as well as a more cohesive theory of the WIC auctions. Other possible topics include the exploration of commercial infant hospital bags and how the WIC brand at the time of an infant's birth affects the family's future purchases of infant formula. Additionally, it may be worthwhile to examine the motivating factors for enrolling in WIC and what factors prevent eligible families from enjoying their WIC benefits.

## References

1. Oliveira, Victor, et. al. *The Infant Formula Market: Consequences of a Change in the WIC Contract Brand*. United States Department of Agriculture, Economic Research Service, no. 124, August 2011.

2. Einav, Liran, et. al. *On the Accuracy of Nielsen Homescan Data*. United States Department of Agriculture, Economic Research Service, no. 69, December 2008.