Incentives for Non-Price Competition in the California WIC Program

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Research Question

Do firms carry more and better brands when they do not compete in price?

- Food vendors who primarily serve WIC participants is an example of a firm that does not compete in price.
- I find that these vendors carry more and better brands of some product categories but not others.

Background

The California Special Supplemental Nutrition Program for Women, Infants, and Children’s (WIC) Program is a federally funded food assistance and health intervention program for low-income families with newborns and young children. Participants receive redeemable vouchers called food instruments (FIs) for a fixed quantity allotment of approved food items (see Figure 1). Participants can choose among a set of brands and redeem FIs at no cost at state-approved vendors. Hence, participants have a perfectly price-inelastic demand for WIC goods.

One class of WIC vendor called an A50 vendor caters nearly exclusively to WIC participants. Because virtually all A50 vendor patrons have a perfectly price-inelastic demand, A50 vendors cannot compete in price to attract customers. Therefore, they can only compete in non-price dimensions, e.g., the quality and quantity of WIC brands that they carry.

Compare incentives to compete for redemptions of two FIs similar in product content and profit margin save for the highly differentiated product category that consumers can purchase a variety of: breakfast cereal (FI 6003) and 100% fruit juice (FI 6011).

Data

- A50 vendor in-store product survey (Spring 2012)
- Geographic location of all WIC vendors
- All FIs redeemed including product categories redeemed, vendor location, participant identification number (March-May 2012)
- Wholesale costs for select goods

Table 1: Leading Breakfast Cereal and 100% Fruit Juice Brands, Stocked by Percentage of Vendors and Selected Wholesale Prices

<table>
<thead>
<tr>
<th>Brand</th>
<th>Percentage of Vendors</th>
<th>Wholesale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden Crown</td>
<td>60%</td>
<td>$0.55</td>
</tr>
<tr>
<td>Welch’s</td>
<td>55%</td>
<td>$0.52</td>
</tr>
<tr>
<td>Langer’s</td>
<td>50%</td>
<td>$0.51</td>
</tr>
<tr>
<td>Post</td>
<td>45%</td>
<td>$0.50</td>
</tr>
<tr>
<td>Mill Select</td>
<td>40%</td>
<td>$0.50</td>
</tr>
<tr>
<td>Quaker</td>
<td>35%</td>
<td>$0.49</td>
</tr>
<tr>
<td>Old Orchard</td>
<td>30%</td>
<td>$0.47</td>
</tr>
<tr>
<td>Hansen’s</td>
<td>25%</td>
<td>$0.45</td>
</tr>
<tr>
<td>Yoplait</td>
<td>20%</td>
<td>$0.43</td>
</tr>
<tr>
<td>Dannon</td>
<td>15%</td>
<td>$0.41</td>
</tr>
</tbody>
</table>

Methodology

Emperical model: $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \epsilon$

- Attraction (j=1): percentage of participants who redeem an FI at vendor i in one period but elsewhere the next; defined for all A50 vendors in sample
- Log(Share of FI f) (j=2); logarithm of market share of either FI 6003 or 6011 relative to all WIC vendors; market based on Mean Statistical Areas including the Los Angeles, Inland Empire, Southern California, San Diego, Bakersfield and Fresno Areas.
- Attrition (j=1): percentage of participants who redeem an FI at vendor i in one period but elsewhere the next; defined for all A50 vendors in sample
- Log(Share of FI f) (j=2); logarithm of market share of either FI 6003 or 6011 relative to all WIC vendors; market based on Mean Statistical Areas including the Los Angeles, Inland Empire, Southern California, San Diego, Bakersfield and Fresno Areas.

Table 2. Estimated Models of Vendor Attrition and A50 Vendor Market Share

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A50</td>
<td>0.796</td>
<td>0.190</td>
<td>4.17</td>
<td>0.000</td>
</tr>
<tr>
<td>Log(# Cereal Brands)</td>
<td>1.534</td>
<td>0.508</td>
<td>3.04</td>
<td>0.003</td>
</tr>
<tr>
<td>Nearest A50 (miles)</td>
<td>-0.013</td>
<td>0.001</td>
<td>-11.4</td>
<td>0.000</td>
</tr>
<tr>
<td>FI Redemption Share</td>
<td>0.006</td>
<td>0.001</td>
<td>0.06</td>
<td>0.510</td>
</tr>
</tbody>
</table>

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Results

Results for A5C:
- Higher intensity of spatial competition with A50 vendors relates to higher attrition rates
- Market share unaffected

Results for brand:
- Carrying more cereal brands relates to lower attrition, higher market shares.
- Carrying the higher cost cereal brand (Quaker) relates to an increase in market share, but not the lower cost one (Mill Select).
- Juice brands irrelevant.

Additional notes:
- Robust to definition of market share and A5C; transformations of brand counts.
- Control variables colinear, insignificant in attrition model

Conclusion

Quantity and quality of brands of some but not all product categories matter.
- Consumers respond to breakfast cereal brands but not 100% fruit juice ones.
- Reflects brand profile; A50 vendors invest in carry many and expensive breakfast cereal brands.

Nature of spatial competition unclear
- More competitors relates to more vendor attrition
- Intensity of spatial competition seemingly unrelated to market share, endogenous location to minimize non-price competition.