Hypotheses

We contend that the growing size of a firm will not lead to safer and more stringent food safety practices and a decrease in the risk of recall events. Therefore, we expect that controlling for firm branding, an increase in the size of a firm will increase the risk of recall recurrence of recall events. We believe that controlling for branding is a signal of higher-quality sausage products. We expect that, controlling for firm size, branding, and a growing portfolio of brands will decrease the risk of recall recurrence of recall events with the likelihood that branding is a signal of higher-quality sausage products. We expect that, controlling for firm size, branding, and a growing portfolio of brands will decrease the risk of recall recurrence of recall events and therefore the hazard ratios for the branding variables will be less than one (i.e., brands are associated with a 126.8% increase in the risk of recall recurrence. Controlling for sales, the fact that a firm brands is associated with a 126.8% increase in the risk of recall recurrence.

Results

Model 1: $h(t) = \exp(b_0 + b_1x_1 + b_2x_2) + \epsilon$

Where $MRE$ is sales measured in millions of dollars and $BYN$ is a binary variable equal to one if a firm has a brand.

Variable | Parameter Estimate | Pr > Chi Sq | Hazard Ratio |
--- | --- | --- | --- |
Sales | $0.01509$ | $<0.0001$ | $1.012$ |
Number of Brands | $0.0161$ | $<0.0001$ | $1.002$ |
Number of States | $0.0161$ | $<0.0001$ | $1.002$ |
Number of Countries | $0.0161$ | $<0.0001$ | $1.002$ |

Model 2: $h(t) = \exp(b_0 + b_1x_1 + b_2x_2) + \epsilon$

Where $MRE$ is sales measured in millions of dollars and $BYN$ is a binary variable equal to one if a firm has a brand.

Variable | Parameter Estimate | Pr > Chi Sq | Hazard Ratio |
--- | --- | --- | --- |
Sales | $0.01509$ | $<0.0001$ | $1.012$ |
Number of Brands | $0.0161$ | $<0.0001$ | $1.002$ |
Number of States | $0.0161$ | $<0.0001$ | $1.002$ |
Number of Countries | $0.0161$ | $<0.0001$ | $1.002$ |

Conclusions and Applications

Consistently, in models 1, 2, and 3, we found that the trend in the number of brand brands had an increase in the size of a firm where the number of brand brands was not related to the risk of recall recurrence. This is evidence that the existence of bounded rationality in terms of food safety may be a factor influencing the risk of recall recurrence. Larger firms are less able to effectively manage multiple production processes.

Consistently, in models 1, 2, and 3, we found that the trend in the number of brand brands had an increase in the size of a firm where the number of brand brands was not related to the risk of recall recurrence. This is evidence that the existence of bounded rationality in terms of food safety may be a factor influencing the risk of recall recurrence. Larger firms are less able to effectively manage multiple production processes.

Consistently, in models 1, 2, and 3, we found that the trend in the number of brand brands had an increase in the size of a firm where the number of brand brands was not related to the risk of recall recurrence. This is evidence that the existence of bounded rationality in terms of food safety may be a factor influencing the risk of recall recurrence. Larger firms are less able to effectively manage multiple production processes.