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Insurance Premium Bonus as a Preventive Measure in Agriculture in Finland

Rautiainen R¹, Saarimäki P², Phillips K¹, Zwierling C¹, Sprince N¹,
Reynolds S¹, Donham K¹, Burmeister L¹

¹The University of Iowa¹, ²Farmers Social Insurance Institution, Finland

The purpose of this study was to evaluate the effectiveness of a no-claims bonus, implemented on June 1, 1997 in the Finnish farmers accident insurance (MATA). Each claim-free year reduces the premium by 10%, up to 50% level. MATA is nationwide, mandatory, well established, and well utilized by farmers in Finland. Registries of injuries and insured persons enable accurate measurement of changes in injury characteristics over time.

Methods. A quasi-experimental study was conducted to evaluate the preventive effects. The research questions were whether the injuries decreased, whether some other factors besides the bonus had an effect, and to what extent the decrease could be due to reporting bias. The overall change in injury rates from 1996 to 1998 was measured using two-sample tests for binomial proportions. The changes over time (1990-2000) were examined using the Interrupted Time Series method (ARIMA). Economic and insurance policy factors were controlled for in this analysis. A stratified analysis of injury rates at different levels of severity was used to examine the changes in claims severity, which could indicate reporting bias. Length of disability and claim cost scales were used to measure severity.

Results. The overall injury rate reduced from 6.8 to 6.1 injuries per 100 farmers. This 10% reduction was statistically significant ($p < 0.0001$). The Interrupted Time Series analysis showed that over time, the intervention effect was of the same magnitude, 0.66 injuries per 100 farmers. The severity of the injuries changed from 1996 to 1998. The mean length of disability increased from 25 to 29 days ($p < 0.0001$). The less severe injuries in categories from 0 – 30 days of disability reduced by 10-17%. The minor injuries in categories from \$0 - 1,000 USD reduced by 9-28%, while more severe injuries did not change. In some severe injury categories there were actual increases in the injury rate, but the fatalities reduced from 13 to 6 ($p = 0.25$).

Discussion. The results showed that the no-claims bonus reduced injuries by about 10%. The reduction was mainly in the minor injuries. However, there were also significant decreases in injuries clearly above the break-even point where it would be beneficial for the farmers to make claims. The claims in lowest compensation categories, below \$200 reduced only by 20-30%. This indicates that the loss of bonus did not stop the majority of farmers from making small claims. Overall it appears that the no-claims bonus had a beneficial effect. Although the "under reporting" of minor injuries occurred, it does not explain the entire reduction in injuries.