Quantity based indicators fail to identify extreme pesticide risks

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Abstract:

To reduce environmental and health risks caused by pesticide use, efficient and effective policies strongly demand a precise and meaningful quantification of these adverse effects. The indicators currently used in policy analysis are diverse and mainly focus on a purely quantitative dimension of used pesticides. Using a unique dataset on pesticide use of Swiss farmers, we demonstrate that the two most important quantitative indicators on average show a significant correlation with pesticide risks, but they have almost no explanatory power for applications with extreme risks for the environment and human health. Single applications and application regimes with extreme risks, have been shown to be central for potential environmental and human health impacts of pesticides. These findings render the use of common, quantitative indicators in-effective to reduce environmental and health risk - in the worst case leading to biased policy incentives and adverse outcomes of current pesticide policies.

Acknowledegment:

JEL Codes: Q58, C46

#1811