

Essays on better statistics for price predictability and household resilience in a food security context

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Abstract

Food price shocks and nutritional insecurity can weaken the resilience of poor people, thereby exacerbating economic insecurity and conflicts. It is then essential to have adequate agricultural price data, investigate the related risks, and understand how poor households cope with these shocks. This thesis develops different methodologies to provide better statistics for the above needs. The first chapter investigates the usefulness of the technical conversion factor (TCF) in predicting the price effects of processing livestock. By regressing the price ratio on the inverse value of the corresponding TCF for a large panel of European countries and animal types, we find a significant positive relation between these variables. This finding is helpful in the imputation of missing observations or improving out-of-sample forecasting precision. Next, the second chapter analyzes the risks associated with food price inflation using a multivariate GARCH framework combined with the Euler method. We apply this framework to the Food and Agriculture Organization food price index and find that even though meat inflation systematically has the highest weight in the aggregate index, cereal inflation is the main contributor to the total food price inflation risk over the period 1990–2018. Last, the third chapter discusses interpretability of four pillars of the Resilience Capacity Index, which is used by the Food and Agriculture Organization to understand how households cope with shocks and stressors. We discuss the weakness of the indicators constructed using the traditional principal component approaches and propose to fix them by adding a constraint in the loading matrix. This ensures a correct evaluation of household situations and improving the reliability of the composite indicator.