Session 3: METHODOLOGICAL ISSUES AND APPROACHES TO CALCULATE INTER-COUNTRY AGRICULTURAL TFP

Yu SHENG, The superlative versus quantity-only based index: Is there a “price” to pay for cross-country productivity comparison?

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It is well recognized that there are substantial cross-country differences in productivity. The differences feature more prominently in agricultural sector which raises concerns about agriculture sustainability and food security. Recent studies that compare agricultural TFP across countries use either the superlative index approach or the quantity-only based index approach, with significantly different results. We demonstrate theoretically that the difference comes from implicit prices used by the quantity-only based index which differ significantly from market prices used by the superlative index. Using a novel dataset built upon production accounts for the United States, Canada and Australia, we show that the superlative index approach which uses both price and quantity information always outperforms the quantity-only based index approach which uses quantity information only, in terms of accuracy and consistency in aggregation. Our finding highlights the importance of collecting price data for performing international comparisons of agricultural productivity.