

Symposium No. 3: Non-conventional Inputs in Total Factor Productivity Analysis

Monday 29 March 2021; 16.00-17.15 GMT

Session organiser: Dimitris DIAKOSAVVAS, Senior Economist, Trade and Agriculture Directorate, Organization for Economic Co-operation and Development (OECD).

Increasing the growth of agricultural productivity has become a policy priority in several countries and productivity for the aggregate agricultural sector (TFP) is now a key policy performance indicator (e.g. European Union). However, a major shortcoming of empirical assessments of traditional agricultural TFP is that account only for marketed outputs and inputs, while changes in the quality and quantity of by-products that result from agricultural activity are overlooked. This omission can be a serious source of systematic bias in productivity calculations and lead to incorrect policy conclusions. The OECD co-ordinated Network on agricultural TFP & Environment seeks to bring frontier thinking on the measurement and determinants of TFP, incorporating by-products to policy makers and researchers alike (<http://oe.cd/eatfp>). In this symposium, some members of the Network will present on-going work on selected issues.

Moderator: Spiro STEFANO,

Administrator, U.S. Department of Agriculture Economic Research Service (USDA/ERS), United States

16h00-
16h35

Incorporating Water in Agricultural Total Factor Productivity: Data Sources and Empirical Considerations

Maria VRACHIOLI, Postdoctoral Researcher, Agricultural Production and Resource Economics, Technical University of Munich, Germany

Abstract: Sustainable management of water resources constitutes a global challenge that undermines economic development and environmental sustainability. With agriculture being the biggest user of freshwater resources, agricultural water use has received more of the global attention. Except for water quantity, water-use efficiency and water allocation issues in agriculture, water quality problems due to poor management of wastewater and agricultural drainage have been in the center of discussions. This presentation will provide a brief overview of available data on water management practices, together with water enhanced empirical considerations that are essential to identify and quantify the impact of water scarcity and water quality degradation in agricultural productivity.

Incorporating Soil Organic Matter in Agricultural Total Factor Productivity: Preliminary Results from Dutch Agriculture

Frederic ANG, Assistant Professor, Business Economics, Wageningen University and Research Centre, The Netherlands

Abstract: Soil organic matter plays an essential role in the agricultural production process, but is rarely incorporated in total factor productivity measurement. In line with adjustment-cost theory, we model soil organic matter as a capital stock in the production technology. Using data envelopment analysis, the application focuses on Dutch farms for the period of 2010-2019.

Incorporating Weather Effects in Agricultural Total Factor Productivity: Preliminary Empirical Evidence Across Countries

Robert G. CHAMBERS, Professor, Agricultural and Resource Economics, University of Maryland, United States

Abstract: A series of recent studies have examined the impact that weather and climate-related factors have had on agricultural total factor productivity patterns in the United States, Australia, and the world. This presentation will focus on summarizing the lessons learned from those studies.

16h35-
17h05

General discussion

17h05-
17h15

Concluding comments

- **Spiro STEFANO**, Administrator, U.S. Department of Agriculture Economic Research Service (USDA/ERS), United States

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| | <ul style="list-style-type: none">• Jonathan BROOKS, Head, Agriculture and Resource Division, Trade and Agriculture Directorate, OECD. |
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