

The World's Largest Open Access Agricultural & Applied Economics Digital Library

# This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search http://ageconsearch.umn.edu aesearch@umn.edu

Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

ISSUES IN AGRICULTURAL COMPETITIVENESS

### IAAE OCCASIONAL PAPER SERIES

No. 1–Papers on Current Agricultural Economic Issues No. 2–Rural Challenge No. 3–Rural Development: Growth and Inequity No. 4–Agriculture and Economic Instability No. 5–Government Intervention in Agriculture: Cause and Effect

No. 6–Issues in Agricultural Development: Sustainability and Cooperation No. 7–Issues in Agricultural Competitiveness: Markets and Policies

IAAE Occasional Paper No. 7

# Issues in Agricultural Competitiveness Markets and Policies

Edited by Roger Rose, Carolyn Tanner and Margot A. Bellamy



International Association of Agricultural Economists

#### © The International Association of Agricultural Economists 1997

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior permission of the publisher.

Published by Dartmouth Publishing Company Limited Ashgate Publishing Company Gower House Croft Road Aldershot Hants GU11 3LR England

Ashgate Publishing Company Old Post Road Brookfield Vermont 05036 USA

#### **British Library Cataloguing in Publication Data**

Issues in agricultural competitiveness : markets and policies : proceedings of the twenty-second International Conference of Agricultural Economists, held at Harare, Zimbabwe, 22-29 August 1994. - (IAAE occasional paper ; no. 7) 1.Agriculture - Economic aspects - Congresses 2.Competition - Congresses I.Rose, Roger II.Tanner, Carolyn III.Bellamy, Margot A. IV.International Association of Agricultural Economists V.International Conference of Agricultural Economists (22nd : 1994 : Harare, Zimbabwe)

338.1

#### Library of Congress Cataloging-in-Publication Data

International Conference of Agricultural Economists (22nd : 1994 : Harare, Zimbabwe)

Issues in agricultural competitiveness markets and policies : proceedings of the Twenty-first International Conference of Agricultural Economists, held at Harare, Zimbabwe, 23-29 August 1994 / edited by Roger Rose, Carolyn, Tanner, Margot A. Bellamy.

p. cm. – (Occasional paper (International Association of Agricultural Economists); no. 7)

ISBN 1-85521-634-5 (pb)

1. Agriculture-conomic aspects-Congresses. 2. Agriculture and state-Congresses. 3. Competition, International-Congresses. I. International Association of Agricultural Economists. II. Title. III. Series: I.A.A.E. occasional paper ; no. 7. HD1405.I58 1994 338.1-dc21 97

97-15982 CIP

ISBN 1 85521 634 5

Printed and bound by Athenaeum Press, Ltd., Gateshead, Tyne & Wear.

# CONTENTS

Foreword George H. Peters	x
Rekha Mehra Women's Land Rights and Sustainable Development	1
Hugo De Groote Women's Income Versus Family Income as a Determinant for Food Security, an Example from Southern Mali	12
Jaakko Kangasniemi and Thomas Reardon Demographic Pressure and the Sustainability of Land Use in Rwanda	23
Stephan von Cramon-Taubadel Policy Preference Functions: The Implications of Recent Developments	32
Jean-Christophe Bureau, V. Eldon Ball, Jean Pierre Butault and Ahmed Barkaou Productivity Gaps Between European and United States Agriculture	39
Mary A. Marchant, Steven A. Neff and Mei Xiao Political Economy of United States and European Union Dairy Policy Choice	46
Michael Lyne, Michael Roth and Betsy Troutt Land Rental Markets in Sub-Saharan Africa: Institutional Change in Customary Tenure	58
Marcos Gallagher, Stephan J. Goetz and David L. Debertin Efficiency Effects of Institutional Factors: Limited-Resource Farms in Northeast Argentina	68
Y. Khatri, T.S. Jayne and C. Thirtle A Profit Function Approach to the Efficiency Aspects of Land Reform in Zimbabwe	77

Contents

Godfrey J. Tyler Macro-Economic Policy, Export Competitiveness and Poverty in Kenya: A General Equilibrium Analysis	88
W. Neil Adger and Florian Grohs Aggregate Estimate of Environmental Degradation for Zimbabwe: Does Sustainable National Income Ensure Sustainability?	99
Manfred Wiebelt and Rainer Thiele A CGE Analysis of Policies to Combat Deforestation in Cameroon	108
Romeo M. Bautista and Clemen G. Gehlhar Export Price Variability, Government Interventions and Producer Welfare: The Case of Egyptian Cotton	121
Christopher D. Gerrard and John Spriggs Optimal Price Stabilization Policies for Staple Grains: The Case of Maize in Eastern and Southern Africa	129
M.K. Ehui and S.K. Ehui Optimal Pricing of Primary Commodities in Developing Countries: A Model From Sub-Saharan Africa	139
Harald von Witzke and Ulrich Hausner The Political Economic Myth and Reality of Agricultural Producer Price Support: The 'Agricultural Treadmill' Revisited	148
Michael Schmitz Cap and Food Security	157
Jean-Christophe Bureau The CAP and the Unequal Public Support to European Agriculture	172
Melinda Smale and Paul W. Heisey Grain Quality and Crop Breeding when Farmers Consume their Grain: Evidence from Malawi	185

vi

Contents	

Robert Townsend and Colin Thirtle Dynamic Acreage Response: An Error Correction Model for Maize and Tobacco in Zimbabwe	198
Daniel C. Clay and Thomas Reardon Determinants of Farm-Level Conservation Investments in Rwanda	210
Alberto A. Fantino and Terrence S. Veeman The Choice of Index Numbers in Measuring Agricultural Productivity: A Canadian Empirical Case Study	222
K.P. Kalirajan and R.T. Shand Modelling and Measuring Technical Efficiency: An Alternative Approach	232
M.B. Obwana, K.P. Kalirajan and R.T. Shand On Measuring Farmer-Specific and Input-Specific Allocative Efficiency	240
Douglas H. Graham, Geetha Nagarajan and Korotoumou Quattara Financial Liberalization, Bank Restructuring and the Implications for Non-Bank Intermediaries in the Financial Markets of Africa: Lessons from The Gambia	249
Richard L. Meyer, Geetha Nagarajan and Leroy J. Hushak Segmentation in The Philippine Informal Credit Markets: A Multinomial Logit Analysis	258
Geetha Nagarajan, Richard L. Meyer and Douglas H. Graham Institutional Design for Financial Intermediation by NGOs: Implications for Indigenous Self-Help Village Groups in The Gambia	268
Charles S. Mataya and Michele M. Veeman Trade Balance and the J-Curve Phenomenon in Malawi	278
Nicholas W. Minot Devaluation and Household Welfare in Rwanda	288

vii

Contents

J. Edward Taylor and Antonio Yúnez-Naude Agricultural Policy and the Village Economy: A Computable General Equilibrium Analysis	298
Kyrre Rickertsen The Demand for Meat: Conditional and Unconditional Elasticities	305
Jean-Marc Boussard A Risk Generated Non-Linear Cobweb	317
Catherine Halbrendt, John Pesek, April Parsons and Robert Lindner Analysis of Australian Consumer Preference for pST-Pork Products	326
Stephan J. Goetz, David L. Debertin and Angelos Pagoulatos Linkages Between Human Capital and the Environment: Implications for Sustainable Economic Development	336
Thomas C. Pinckney Does Education Increase Agricultural Productivity in Africa?	345
Jikun Huang and Scott Rozelle Technological Change: The Re-Discovery of the Engine of Productivity Growth in China's Rural Economy	354
P. Lynn Kennedy, Harald von Witzke and Terry L. Roe International Strategic Agricultural Trade Policy Interdependence and the Exchange Rate: A Game Theoretical Analysis	366
Mary E. Burfisher, Sherman Robinson and Karen Thierfelder Migration, Prices and Wages in a North American Free Trade Agreement	375
David R. Lee and Kristin A. Markussen Structural Adjustment and Agricultural Export Response in Latin America	384
William A. Masters and Alex Winter-Nelson Evaluating the Economic Efficiency of Agricultural Activities in Developing Countries: Domestic Resource Costs and the Social Cost–Benefit Ratio	395

viii

S.K. Ehui and M.A. Jabbar A Framework for Evaluating the Sustainability and Economic Viability of Crop–Livestock Systems in Sub-Saharan Africa	406
John H. Sanders, Sunder Ramaswamy and Barry I. Shapiro Technology Development For Semi-Arid Sub-Saharan Africa: Theory, Performance and Constraints	415
Eduardo Segarra Depletion of a Ground Water Source: The Role of Irrigation Technology Adoption	425
Monika Hartmann The Impact of EC Nitrogen Taxes on Agricultural Competitiveness and Welfare: Simulations with the World Trade Model TEPSIM	436
Henglun Sun and Jack Houston Economic Analysis of Best Management Practices in a Pilot Cost-Sharing Water Quality Program	448
Poster Abstracts	458

## FOREWORD

This book is the seventh in the IAAE Occasional Paper series. It contains the 45 contributed papers — together with the discussion opening and summary of general discussion presented at the Twenty-Second International Conference of Agricultural Economists, Harare, Zimbabwe, 22–29 August 1994. A companion publication, Agricultural Competitiveness: Market Forces and Policy Choice (edited by G.H. Peters and Douglas D. Hedley), published in 1995, contains the plenary and invited papers presented at the conference and also appears under the imprint of the Dartmouth Publishing Company.

The contributed papers were refereed using a double blind refereeing process. The 45 papers presented in contributed paper sessions and published in full were selected from a total of 257. A further 119 papers were selected for presentation in the poster programme. The 44 referees representing 24 countries and 6 continents, were Giovanni Anania (Universita degli studi della Calabria), Malcolm D. Bale (World Bank), Vishwa Ballabh (Institute of Rural Management, India), Herbert I. Behrmann (University of Natal), Olof Bolin (Swedish University of Agricultural Sciences), John R. Brake (Cornell University), Elisabetta Croci-Angelini (University of Siena), Elmar R. da Cruz (Empresa Brasileria de Pesquisa Agropecuaria), Dana G. Dalrymple (US Agency for International Development). Cristina C. David (International Rice Research Institute), Paulo F.C. de Araujo (University of Sao Paulo), Eugenia M. de Rubinstein (Universidad Catolica de Chile), Fumio Egaitsu (The University of Tokyo), Robert Evenson (Yale University), John Graham (IDRC), Harold Guither (University of Illinois), Larry Harrington (Centro International de Mejoramiento de Maiz y Trigo), D.R. Harvey (University of Newcastle Upon Tyne), Marvin L. Hayenga (Iowa State University), M.A. Jabbar (International Livestock Centre for Africa), Habibullah Khan (National University of Singapore), Yoav Kislev (Hebrew University of Jerusalem), Donald Larson (The Ohio State University), Gordon MacAulay (The University of Sydney), Paavo Makinen (Ministry of Agriculture and Forestry, Finland), Laurent Martens (University of Gent), Joseph G. Nagy (Hunting Technical Services, Pakistan), James Obben (University of Brunei Darussalam), Tongroj Onchan (Kasetsart University), Sushil Pandey (International Rice Research Institute), Epictetus Patalinghug (University of the Philippines), Ewa Rabinowicz (Swedish University of Agricultural Sciences), Thomas Reardon (Michigan State University), Günther Schmitt (Georg-August-Universität Göttingen), David B. Schweikhardt (Michigan State University), Chamhuri Siwar (University of Kebangsaan), Reza Soltani (Shiraz University), Stefan Tangermann (Georg-August-Universität Göttingen), Luther G. Tweeten (The Ohio State University), Cornelis L.J. van der Meer (National Council for Agricultural Research, The Netherlands), Michele Veeman (University of Alberta), Vijay S. Vyas (Institute of Development Studies, Jaipur), Timothy O. Williams (International Livestock Centre for Africa) and Hiroshi Yamauchi (University of Hawaii).

The International Association of Agricultural Economists is grateful to the referees for their efforts in reviewing the papers. A particular debt is also owed to the Australian Bureau of Agricultural and Resource Economics (ABARE) where Marian Hinds, Vicki Bell and Julie Murley undertook the onerous task of preparing the papers in camera ready format prior to their printing. The editing work was led by Roger Rose (ABARE), with major input from Carolyn Tanner (University of Sydney) and Margot Bellamy (CAB

#### Foreword

International, Wallingford, UK). Roger Rose also undertook the task of organising the contributed paper sessions at Harare Conference. The poster paper sessions were in the capable hands of Kenneth Thomson (University of Zimbabwe). At the conference Emma Matimati (University of Zimbabwe) provided important secretarial assistant to the organisers. The staff of Dartmouth Publishing Company, in particular John Irwin and Sonia Hubbard, were constantly supportive and tolerant of delays in preparation of the test. We cannot disguise the fact that delays did occur though the authors who have waited for their papers to appear, and those who wished to read them, are assured that the late publication could not possibly have been foreseen when the work of editing and preparation was put in hand.

The views expressed in the papers are the responsibility of the authors, and are not necessarily those of the IAAE or of the institutions with which authors and editors are associated.

G.H. Peters IAAE Proceedings Editor Queen Elizabeth House University of Oxford