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MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS

211-D ANNUAL REPORT

AID/csd 2826

August 31, 1975

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211-d ANNUAL REPORT

AID/csd 2826

August 31, 1975

Title: A Grant to Increase Michigan State University's Capability in Agricultural Economics Related to the Less Developed Countries

Grantee: Department of Agricultural Economics, Michigan State University

Director: Harold M. Riley

A. Statistical Summary:

Period of Grant: June 1970 to June 1975 with an extension to June 1976.
Amount of Grant: $745,000.
Expenditures for 1974-75: $137,321.
Accumulated Expenditures 1970-75: $588,619.
Projected Expenditures for 1975-76: $156,381.
(Expenditures through September 30, 1976)

B. Narrative Summary:

1. From 1974 to 1975 the Department's graduate training program increased from 100 to 124 students with 50 from LDCs and another 12 from foreign countries other than Canada. Enrollment of African students increased from 13 to 20. The Department is attracting many more foreign applicants than can be accepted. There are at least 15 U.S. graduate students in our current program who are preparing for professional careers in international development.

2. The Department continues to place a great deal of emphasis on the development and maintenance of a high quality graduate training activity for young professionals preparing for careers in the LDCs. Our capacity for providing a quality graduate training program has been greatly enhanced by the AID 211-d grant and our related contract programs with AID and LDC governments.

3. Over the past five years 78 professionals with a major interest in international development have received advanced degrees from the MSU Department of Agricultural Economics. Several have both MS and PhDs.

4. During 1974-75 the Department has provided 100 man weeks of short term services and 10 3/4 man years of long term services to AID and foreign governments under various contract projects. Three of our contract projects - AID/csd 2975, AID/csd 3625 and AID/515-234-T - are scheduled to terminate by mid-1976. This coincides with the termination of the 211-d grant program.

5. The MSU Department of Agricultural Economics will be unable to sustain our present level of contributions to the development of badly needed professional competence in the LDCs and to furnish highly qualified technical advisors to AID and LDC governments without some combination of support that provides an increment of flexible 211-d type funds and a continuing flow of more specific contract projects.

C. Detailed Report

1. General Background and Purpose of the Grant

This grant was part of an interrelated set of 211-d grants involving four universities, Michigan State, Cornell, Iowa State and Minnesota. The grant program was initiated in mid-1970 with funding for a five-year period and was subsequently extended for a sixth year terminating in June 1976. Similar grants were subsequently made to Southern University and Virginia State University.

The purpose of this set of grants was to develop and strengthen the competence of the cooperating universities in the field of agricultural economics as it relates to the problems of developing countries and to increase their ability and the ability of significant numbers of their staff to contribute to the solution of these problems.

It was generally recognized that there is a large and growing need for skilled analytical work on agricultural sector problems in the less developed countries. In these countries the process of agricultural development is associated with an increase in the market orientation of the food sector, a growing dependence on more purchased inputs, and a pressing need for public policy decisions on alternative uses of resources. Because of the relative shortage of professionals with agricultural economics training, these countries are seeking assistance in conducting analyses and developing their own analytical capacities to make policy decisions on development alternatives and the implementation of programs to achieve their development goals.

It was anticipated that the universities receiving these grants would expand and strengthen their training and research activities in order to meet some of these needs for professional agricultural economists. AID had

a particular interest in creating and maintaining a pool of faculty talent that would be available for short and long term assignments with AID or other development institutions concerned with problems in the LDCs. It was also envisioned that effective interactions would evolve among the four universities as faculty and graduate students participated in conferences, workshops and interchanged research publications.

The Michigan State University grant was made under the same general agreement that was extended to the three other universities - Cornell, Iowa State and Minnesota. However, the basic grant from TAB to MSU was supplemented by a grant provided by the African Bureau with the condition that Michigan State give additional attention to problems of employment and rural development in Tropical Africa.

II. Objectives of the Grant

A. Objectives Restated

1. "To create a framework within which a significant number of U.S. agricultural economists interested in the international aspects of their discipline can work cooperatively on certain research problems of urgent importance to developing countries, thereby increasing the effectiveness of their efforts, and making the most efficient use of scarce research resources; to provide an efficient means for applying the product of this research in ways which will be helpful to the developing countries; and to contribute to the development of professional contacts and collaboration among agricultural economists in the United States and in the developing countries.

2. "To increase the competence of the University in the area of economic development problems, particularly as they related to the agricultural sector and the relationships between agriculture and other economic sectors, by providing a continuing arrangement for faculty members to conduct research on campus and abroad and to carry on work in developing countries.

3. "To enable the University to provide increased training in economic development and agricultural economics at the graduate level for students from the U.S. and the developing countries.

4. "To provide members of the University faculty the enriching experiences of dealing directly with problems of agricultural development in the less developed countries by arranging for them to serve with AID in capacities which will contribute to the development of their professional skills and to their understanding of how to accelerate agricultural growth in the less developed countries and deal with the practical problems involved in the process."

B. Review of Objectives

Over the five-year period that the grant program has operated at Michigan State University there have been substantial accomplishments toward Objectives 2, 3 and 4. Relatively less has been accomplished on Objective 1 which called for the creation of a framework to facilitate inter-university collaboration on research and related technical assistance activities directed toward the less developed countries. However, during the past two years there has been a concerted effort on the part of the six universities now participating in this set of 211-d grants to work out more effective means of coordination and collaboration. This activity has been encouraged and supported by the staff of the Economics and Sector Analysis Division of the Office of Agriculture in the TAB.

III. Accomplishments of 211-D Grant During 1974-75

A. Criteria for Evaluation

The Department of Agricultural Economics at Michigan State University had an established reputation and extensive involvement in international development activities when the 211-d grant was made in 1970. Under these circumstances the 211-d grant has been utilized to strengthen the capacity of the department faculty to conduct relevant research on LDC problems, to provide high quality technical assistance, and to train new professionals for research, teaching and administrative roles in the LDCs or with agencies involved in international development work.

Consequently, less emphasis has been placed on growth over the past five years and more attention has been given to improving the quality of training, research and technical assistance. In this way the reputation and impact of this Department's international programs have been enhanced. At the same time it was considered important to maintain the high level of international involvement in a quantitative sense.

Some of the criteria which are relevant for evaluating the performance of Michigan State University in its utilization of 211-d funds are the following:

1) The number and proportion of students from LDCs and the U.S. trained at the graduate level for international development careers.
2) The positions held by those trained and the quality of their contribution to the resolution of LDC problems.
3) The number and quality of theses produced and their relevance to LDC problems.

4) The extent of faculty involvement in research and advisory activities with LDCs or related international development agencies.

5) Quantity and quality of faculty contributions to LDC development through research, teaching and advisory activities.

6) Utilization of faculty in talent sharing activities with USAID and other development agencies.

7) Development of linkages with 211-d and other U.S. universities and especially with LDC professionals and institutions.

B. Training at the Graduate Level

The Department has continued a major committment to the training of foreign students since the 211-d grant was initiated in 1970. Approximately one-half of the graduate students in residence over the past five years have come from foreign countries. In the Fall of 1974 50 students were from LDCs, 12 from Europe, and 62 from the U.S. and Canada. The total of 124 M.S. and Ph.D. students in residence represented a 24 percent increase over the 100 enrolled in the Fall of 1973 (See Table 1). All categories of students increased in about the same proportion.

Approximately two-thirds of the total graduate students enrolled were pursuing Ph.D. programs. This is only slightly higher than the 62 percent of LDC students who were working for Ph.D. degrees. An increasing number of LDC students now take Master's level training in their own country or region. The fact that only 55 percent of Africans were working on Ph.D.s reflected Africa's more limited facilities for indigenous graduate training in Agricultural Economics.

While numbers of students in all categories increased, there was a marked increase in African enrollment - the total increased from 13 in the Fall of 1973 to 20 in the Fall of 1974. Comparable changes were from 18 to 19 Asian students and 8 to 11 Latin American students. Expansion in the numbers of African students reflects the increased activities of the African Rural Employment Research Network project and an expansion of relationships with African universities and development agencies. It should also be noted that eight out of a total of 50 out-of-state tuition waivers offered by Michigan State University in all subject areas are committed to support the AFGRAD program. In addition, seven U.S. students have major African rural development interests (See Appendix A).

Table 1

Enrollment of Graduate Students in Agricultural Economics, Michigan State University, Fall, 1974

A. Native Countries	Total	Ph.D.	M.S.	%Ph.D.	%M.S.
U.S. and Canada	62	44	18	71	29
Other DCs	12	9	3	75	25
LDCs	50	31	19	62	38
Total	124	84	40	68	32
B. LDC Enrollments by Region					
Asia	19	13	6	68	32
Africa and Middle East	20	11	9	55	45
Latin America	11	7	4	64	36
Total	50	31	19	62	38

The high Asia enrollment is also related to off-campus projects - namely the Agricultural Sector Analysis project in Korea. Seven of the 19 Asians enrolled in graduate programs in the Fall of 1974 were Korean (See Table 2). Several of the Latin graduate students have been attracted through the Department's Latin American marketing systems projects. A total of 24 LDC countries are represented in the graduate student population. In addition, there are at least 15 U.S. students preparing for professional careers in international development.

The 211-d grant provided significant support for seventeen graduate students during 1974-75. In most cases 211-d funds were used to supplement other sources of support with priority given to students in the final research period of their programs. Six of those supported finished degrees during the past year and several more are in the final stage of thesis writing. Ten of the 17 students with 211-d funds had African research interests. It is also noted that 10 of those supported were from the U.S. with international development interests. In many cases it is more difficult for these students to get adequate thesis research support than those from the developing countries.

Special graduate courses have been developed to better serve the needs of both foreign and domestic students interested in rural development. Most of these courses have been planned and implemented with 211-d funds. These include the following:

Ag. Econ. 862 - Agriculture in Economic Development (Dr. Carl Eicher);

Ag. Econ. 865 - Rural Development Administration (Dr. Akhter Hameed Khan);

Ag. Econ. 882 - Collection and Analysis of Agricultural Data in Low Income Countries (Dr. Warren Vincent);

Table 2

List of Number of Students by Countries and Regions, Fall, 1974

Africa and Middle East		Asia		Europe		North America		South America	
Kenya	4	Bangladesh	1	England	1	United States	58	Brazil	4
Nigeria	5	Japan	1	Greece	4	Canada	4	Colombia	3
Tanzania	1	Korea	7	Ireland	1			Nicaragua	1
Zaire	2	Philippines	3	Spain	2			Dom. Rep.	1
Ethiopia	1	Taiwan	4	Sweden	1			Costa Rica	1
Upper Volta	1	Thailand	1	France	1			Panama	1
Sudan	2	Pakistan	1	Belgium	2				
Cameroon	1	Indonesia	1						
Tunisia	2								
Iran	1								
Total	20		19		12		62		11

Ag. Econ. 962 - Development Planning and Agricultural Sector Analysis (Dr. Robert Stevens and Dr. G. E. Rossmiller).

Grant funds were used for the salary of Dr. Akhter Hameed Khan, Director of the Pakistan Academy for Rural Development, who was a visiting professor in the Department during Winter quarter 1975. In addition to teaching Ag. Econ. 865, Dr. Khan presented two international workshops in the Department and was the principal resource person for a 10-day rural development workshop in April 1975.

Ag. Econ. 882 was offered for the first time during the Summer term 1975. 211-d grant funds were utilized to support Dr. Warren Vincent in the planning and preparation of this important graduate seminar which was attended by 35 students. The major objective of the seminar was to establish the technical and theoretical bases for the planning and conduct of research involving collection and analysis of micro production/marketing systems in developing countries.

In the summer of 1974 Dr. Kelly Harrison offered a special four credit seminar on Marketing Problems in the Developing Countries. This course utilized prior research and advisory experience gained through AID financed marketing projects in Latin America. In addition to the courses listed above with a special focus on development, at least eight other regular graduate courses have a significant international dimension. Most of the staff teaching these courses have international experience which facilitates their ability to teach courses which are relevant to the background and interests of the students enrolled.

The Department's seminar and workshop program is another important forum for the exchange of ideas between faculty and students which contributes to the graduate training process. During the 1974-75 academic year a total of 44 individual seminars were presented of which 19, or 43 percent were devoted to international agricultural development topics. Six seminars were presented by professors and scholars from third-world universities, seven from representatives of international development agencies and five from U.S. scholars from Michigan State and other U.S. institutions (See Appendix B). These seminars help staff and students keep abreast of current thinking and development in the third world, in the U.S. academic community, and in the international development agencies.

Another part of the Department's international dimension policy is to attract resident visiting scholars each year. In addition to Dr. Akhter Hameed Khan who was paid from 211-d funds - others included Dr. Arturo Gomez and Dr. Kwanchai Gomez from the University of the Philippines in Los Banos and the International Rice Research Institute respectively who spent the 1974 academic year in the Department. Dr. Darrell Fienup continued his residence during 1974-75 under a joint appointment with the Ford Foundation. He taught and participated in courses, supervised several Latin American students and was responsible for the Department's international workshop program. Jerry Edwards from the AID Africa Bureau spent a one-year study sabbatical in the Department and recently left to assume a new post as AID Agricultural Officer in Cairo, Egypt.

In the coming year, it is planned to use 211-d funds to bring Dr. Akhter Hameed Khan back to the campus for 15 weeks to teach Ag. Econ. 865 and also to lead another development workshop in April 1976. Mr. Lane Holdcroft

will be in the Department for one year on a USAID sabbatical and Dr. Shaoer-Ong, ADC Associate in Bangkok, Thailand plans to be resident in the Department for three to six months. Dr. Dunstan Spencer, Chairman of the Department of Agricultural Economics at Njala University College in Sierra Leone, will be a visiting professor from August 1975 to June 1976 while participating in the preparation of research reports based upon AREP field research. Through visiting scholars, special workshops and seminars, and special graduate courses oriented toward development - the quality of the graduate training program in the Department of Agricultural Economics has been substantially strengthened.

Over the past five years 78 professionals with a major international orientation have received advanced degrees in Agricultural Economics from Michigan State University. Forty-two have Ph.D.s (some of which also have M.S. degrees from MSU) and 36 have Master's degrees. Fifteen of the total are from the U.S. and Canada; the rest are principally from the developing countries. These graduates hold important posts in teaching, research, and development administration throughout the world. (See Appendix C for names and positions of graduates since 1970.) Their influence in helping meet the objectives of vitalizing the contribution of agriculture in the developing countries of Asia, Africa and Latin America is significant - and the availability of 211-d grant funds over the past five years has helped make that possible.

C. Research

The 211-d grant has supported research activities of professors and students related to existing USAID research contracts as well as thesis preparation and other research not directly connected with contract projects. During 1974-75 four theses were completed which had significant 211-d support and several more are now in the final stages. The three major international research thrusts of the Department center around present and past AID research contracts including the African Rural Employment Research Network, Agricultural Sector Analysis and Latin American Marketing Systems. The following research activities relate to these research thrusts and were supported in part by 211-d funds.

African Rural Employment Research Network

Eric Tollens has received 211-d support since he returned to the Department from Zaire in mid-1974 to complete his Ph.D. dissertation. His basic data were gathered while in Zaire. Tollens completed his thesis entitled "An Economic Analysis of Cotton Production, Marketing and Processing in Northern Zaire" during the past year and has since returned to his position as Associate Professor and Chairman of the Department of Agricultural Economics at the National University of Zaire in Yangambi.

Fred Winch has been supported for his Ph.D. dissertation research since he returned to the campus from Ghana in the summer of 1974. His thesis entitled "Costs and Returns of Alternative Rice Production Systems in Northern Ghana" will be completed in October 1975. Winch has accepted an appointment with IITA in Lagos, Nigeria.

Tom Zalla spent the past four years in Tanzania where he was a Research Fellow in the Economic Research Bureau of the University of Dar es Salaam.

During that time he collected data for his Ph.D. thesis topic concerning the economic and nutritional aspects of smallholder milk production in Northern Tanzania. He returned to Michigan State University in December 1974 and has received 211-d support to complete his dissertation.

Dean Linsenmeyer is currently in Sierra Leone gathering data for his thesis on the economics of the fishing industry in that country. He has general support from a Foreign Area Fellowship but 211-d funds were used for supplemental salary support, key punching and preliminary runs of some of his data. Linsenmeyer is expected to return to the MSU campus on September 15, 1975 to complete his Ph.D. dissertation.

Other students receiving 211-d support who worked in connection with the African Rural Employment Research Network included Habib Fatoo, Merritt Sargent and David Wilcock. Fatoo is a Tanzanian student working for a Ph.D. He assisted in preparing a research proposal on migration in Ethiopia, developed bibliographic materials on African employment and assisted in teaching two development courses. Sargent has extensive prior experience in Africa. During the past year he worked on preparing research proposals on employment in West Africa, helped teach Ag. Econ. 363 (Economic Development of Tropical Africa) and worked on his own thesis research concerned with animal powered farm systems in Northern Dahomey. Wilcock did bibliographic work for the African Rural Employment Library collection and also worked in the preparation of new research proposals.

Dr. John Hanson, professor in the College of Education at MSU, continued to work on three papers concerned with the role of education and training in rural development in Africa. John Shields, a Ph.D. graduate student in

agricultural economics, assisted Hanson in the bibliography search and review during the past year. The papers expected should be produced in the following sequence.

1. Education for Rural Development in Africa: Ten Propositions in Search of Evidence. (A survey of the existing empirical and judgmental evidence available to support propositions commonly advanced with respect to the impact of various forms of education and training on agricultural innovation, agricultural production, income distribution, employment in rural areas, and the quality of living in rural zones. (December 1975)

2. Education for Rural Development in Africa: Alternative Strategies, Their Promise and Evidence to Date. (This paper will include work originally anticipated exclusively in respect to Tanzania but will also include other options being tried in at least Ivory Coast, Upper Volta, Senegal, Ethiopia, Chad.) (April 1976)

3. Youth Mobilization and Rural Development in Africa: The Evidence of the Last Decade. (This study will include studies of educational and training dimensions of youth service movements in African countries since the January 1966 issue of the International Labour Review.) (June 1976)

Materials have been accumulated and indexed from American libraries and from the following libraries and documentation centers in Europe: Institute of Development Studies, University of Sussex; Institute of Commonwealth Studies, Oxford; Institute of Education, University of London; FAO, Rome; ILO, Geneva; UNESCO, Paris; ISS, the Hague; IEDES, Paris; IRFED, Paris; BDPA, Paris; IIEP, Paris. Library searches in Europe were made at no expense to the project. ILO, FAO, ERIC, IBE search printouts have also been conducted at no expense to the project. At present work is progressing principally in respect to the first of the three papers.

Agricultural Sector Analysis

Felix Nweke returned to Nigeria in 1974 to collect data for a systems analysis and simulation study of the Nigerian forestry economy. In January

1975 he returned to MSU and has now completed his Ph.D. thesis working under the direction of Dr. Glenn Johnson. The title of the dissertation is "Simulation of the Nigerian Forestry Economy". The 211-d grant supported this study.

Bo Anderson, a Ph.D. student from Sweden, received a 211-d assistantship to work on systems modeling. Other U.S. and Korean students are working or have completed theses utilizing systems analysis and simulation techniques. Some have received direct support from the AID financed simulation project but may utilize 211-d funds for final completion of their research. Two Koreans completed sector analysis studies on Korean agriculture during the year (See Appendix C). Two Americans and one Korean are currently receiving thesis research support under the Korean Agricultural Sector Planning Project (KAPP). Marty Hanratty plans to go to Korea for one year beginning in September 1975 with 211-d funding for his thesis research on land use policy. This research has direct ties to the KAPP project.

Latin American Marketing Systems

During the past year Michael Weber has been supported by 211-d funds to continue research on his Ph.D. thesis utilizing data collected while resident in Costa Rica under AID contract 515-234-T. His research topic is on the role of municipal governments in improving rural food assembly and distribution systems in Costa Rica. Weber has also spent time advising with several Central American graduate students since the departure of Dr. Kelly Harrison in January for a one-year assignment with the Colombia AID Mission in Bogota.

Ken Shwedel received support to prepare his Ph.D. thesis proposal on market restrictions to small farm agriculture in Costa Rica before his departure to San Jose under AID contract 515-250-T in late 1974. He is currently gathering data for his thesis while serving as a member of the MSU resident team in Costa Rica. Funds from 211-d were utilized to support Tom Dickey's Master's thesis on mechanization of corn production in Costa Rica. Dickey is currently employed by the Department of Agriculture in Puerto Rico.

Dr. Kelly Harrison is currently supervising the Ph.D. dissertation of Alvaro Silva in Colombia. Silva is making an evaluation of a marketing reform program that was initiated through the LAMP project in 1970. 211-d may be utilized during the coming year to facilitate the completion of Silva's thesis. Dr. Harrison has also worked out an arrangement for Dennis Pervis, MSU doctoral candidate, to conduct a study of the edible bean production-distribution system in Colombia. This work will be carried out in collaboration with CIAT, MUCIA and the National University of Colombia. It will be partially supported by 211-d funds.

Other research completed in 1974-75 partially supported by 211-d funds included the preparation of a research monograph entitled "Improving Food Marketing Systems in Developing Countries: Experiences from Latin America" authored by Kelly Harrison, Donald Henley, Harold Riley and James Shaffer. This publication has been delivered to the Latin Bureau of AID and has been distributed to approximately 300 professionals in the U.S. and developing countries.

Other papers prepared during the year that were based upon the LAMP program included:

"Public Policies and the Development of Effective Marketing Systems" presented by Kelly Harrison at an Agricultural Policy Seminar sponsored by the Inter-American Development Bank, March 1975.

"Vertical Coordination of Food Marketing Systems" jointly authored by Harold Riley and Kelly Harrison and sent to an FAO conference on the Development of Food Marketing Systems for Large Urban Areas in Asia held at Kuala Lumpur, March 1975.

Research Activities Not Closely Related to Existing USAID Contracts

Tirso Paris, a Philippine doctoral candidate at MSU during 1974, received support from the 211-d grant while he was in residence here to prepare his thesis research proposal. In late 1974 he returned to the University of the Philippines to resume his duties as a professor of agricultural economics and to conduct the research for his Ph.D. thesis on Philippine rice production and marketing systems. An arrangement was made for IRRI to pay Paris field research expenses and for 211-d funds to be used to enable Dr. Warren Vincent, his major professor, to advise with him on his research after he returned. Dr. Vincent spent one week with Paris at Los Banos advising him on further development of the micro-simulation model needed to analyze multiple cropping systems including rice.

Two doctoral candidates from Greece completed their Ph.D. theses during the year with 211-d support. Loukas Ananikas' thesis was entitled "Potential Livestock Production Adjustments on Family Farms in Central Macedonia, Greece". Christos Kamenides' thesis was entitled "Efficient Organization of the Livestock-Meat Marketing System in Eastern Macedonia, Greece". Dr. Warren Vincent served as major professor for Ananikas and

Dr. Vernon Sorenson was research advisor for Kamenides. Both men have returned to their positions as professors of agricultural economics at the University of Thessaloniki in Greece.

During the past year (1974-75) a total of 19 theses on development including 12 Ph.D. and 7 M.S. have been completed in the Department of Agricultural Economics at Michigan State University (See Appendix D). Seventeen of the theses were completed by foreign students. Sixteen of the theses dealt directly with agricultural development problems in LDCs. The direction of this quantity of research required a substantial input of faculty resources which was partially supported by 211-d funds.

Dr. Glenn Johnson participated as a member of the Transatlantic Committee on Agricultural Change (TACAC) in authoring a book entitled "Agricultural Change: Old Problems, New Approaches". Other authors included Richard H. Day (U.S.A.), Michel Petit (France), Ulf Renborg (Sweden), and Theodor Heidhues (West Germany). The chapters authored by Dr. Johnson included the following:

Chapter IV - "A Critical Review of Selected Studies of Agrarian Change Done Prior to TACAC"

Chapter V - "Philosophic Foundations--Problems, Knowledge and Solutions"

Chapter XII - "General Systems Simulation Analyses (GSSA) of the Nigerian and Korean Agricultural Sectors and Related Efforts"

Chapter XIII - "Conclusion" co-authored with Michel Petit.

Dr. Johnson also directed and advised on a study of the "Foreign and Global Aspects of Data and Information Systems" for the Office of Technical Assessment of the U.S. Government.

Dr. Robert Stevens has edited a book on Rural Development in Bangladesh and Pakistan that is being published this year by the University of Hawaii Press. Another book edited by Stevens on "Tradition and Dynamics in Peasant Agriculture, Economic Studies of Small Farms in Asia, Africa, and Latin America" is being considered by several publishers. Stevens prepared the introductory chapter for this manuscript.

Staff Participation in International Seminars and Conferences

The ability to present papers and participate in international seminars and conferences is an important dimension of maintaining and enhancing faculty competence in international agricultural development. In this way MSU staff are also able to make a contribution to the ongoing development process in the LDCs. 211-d funds have been especially helpful as a source of support especially when international travel is involved.

In April 1975 Dr. Glenn Johnson was in Korea for one month where he presented seminars on sector analysis to the Ministry of Agriculture and Forestry, the Economic Planning Board, and to a joint group including USAID, Ministry of Agriculture, and Ministry of Planning. In June 1975 Dr. Johnson and Dr. Ed Rossmiller visited the International Institute for Applied Systems Analysis in Vienna, Austria with the purpose of exploring joint research activities. Drs. Johnson and Rossmiller attended the Economic Development Planning Conference at Virginia State College in Petersburg in July 1975 at which time Dr. Rossmiller presented a paper.

Dr. Johnson participated in an ADC conference in Madison, Wisconsin on "Training Needs for Agricultural Sector Analysis" in June 1975. In September 1974, he attended a Commonwealth Forestry Conference at Oxford University. Dr. Rossmiller was a discussant at a MUCIA Planning Conference

held at Racine, Wisconsin in July 1975. During that same month he also attended a Regional Agricultural Sector Analysis Training Conference sponsored by FAO in Bangkok, Thailand. Both Johnson and Rossmiller are recognized international authorities on agricultural sector and simulation analysis and are making important contributions in this area of research.

In April 1975 Dr. Robert Stevens presented a paper at a seminar in Bangladesh on "The Socio-Economic Implications of Introducing High Yielding Varieties in Bangladesh". The conference was sponsored by the Bangladesh Academy for Rural Development, Comilla. Dr. Stevens' paper was entitled "On the Income Distribution Implications of Alternative Institutional Strategies in Bangladesh Agriculture". As a result of the conference Stevens drafted another paper "Whither Bangladesh Socialism in Agriculture - Cooperatives or Communes?"

Dr. Vernon Sorenson presented a paper entitled "Food Policy: Food Reserves and the Goal of Self-Sufficiency" at a conference sponsored by the Inter-American Development Bank for high level officials from Latin American countries held in Washington, D.C. March 17-21, 1975. Dr. Kelly Harrison presented a paper at the same conference as reported earlier. The conference papers are being published by I.D.B.

Dr. Carl Eicher participated in various seminars and workshops during the year. He is Chairman of the Overseas Liaison Committee of the American Council on Education and a member of the National Academy of Sciences Advisory Panel on Arid Lands of Sub-Saharan Africa.

On October 20-25, 1974 Dr. Warren Vincent attended an International Seminar for Research in Asia to Increase Food Production with Fertilizer

Shortage at the East-West Center of the University of Hawaii. During this trip he conferred with FAO officials in Rome on data collection activities in Ethiopia. Dr. Vincent also presented seminars at the University of Chiang Mai in Thailand in February 1975.

IV. Linkages and Collaborative Activities with Other Institutions

The Department of Agricultural Economics at Michigan State University and the Overseas Liaison Committee of the American Council on Education sponsored an International Seminar on Rural Development from April 6-18, 1975 at the Kellogg Center. This seminar was organized by Dr. Carl Eicher; Dr. Akhter Hameed Khan was the principal resource person. Students and faculty members from other 211-d universities were invited to the seminar. Representatives from Tuskegee Institute, North Carolina A & T, Cornell, and Iowa State University were in attendance. Other institutions represented included USAID, the World Bank, LDC universities and other U.S. universities. Thirty professionals attended the conference.

Through the African Rural Employment Research Network cooperative arrangements have been developed for doctoral students from other U.S. universities to carry out their research in Africa. James Bingen, a Ph.D. candidate in Political Science at UCLA, spent January-June, 1975 in the Department where he prepared a research proposal on the evolution of farmer training institutes in Mali where he is currently conducting his research. Joseph Tommy, a Ph.D. candidate in Agricultural Economics at Ohio State University, is doing his dissertation research in connection with the Sierra Leone project. Active linkages exist with the University of Sierra Leone, University of Ibadan, National University of Zaire,

University of Dar es Salaam, and Haile Sellassie I University where joint research projects are underway through the Rural Employment Network.

In Asia the Department has continuing contacts with Chiang Mai University in Thailand, the Pakistan Academy for Rural Development at Peshawar, University of the Philippines, and Sogang University in Korea. Dr. Warren Vincent has an active relationship with Chiang Mai University where he has visited and consulted for three consecutive years. Joint research is underway on multiple cropping systems in Northern Thailand and Dr. Vincent advised graduate students from Thailand on campus. This coming year Professor Manu Seetisarn, Head of the Agricultural Economics Department at Chiang Mai, plans to come to Michigan State for three months of post-doctoral research with Ford Foundation support.

In Latin America, the Department has contacts with the Faculty of Agriculture at the National University in Bogota, Colombia and the graduate training program at ICA near Bogota. Important relationships exist with the Hemispheric Marketing Group of the Inter-American Institute for Agricultural Sciences located in San Jose, Costa Rica. Through the Latin American Marketing program the Department has developed linkages with the FAO marketing program. This has facilitated exchange of publications and MSU staff participation in FAO conferences. Dr. Kelly Harrison and Dr. Harold Riley have been key individuals in developing these and other institutional contacts in Latin America.

Dr. Darrell Fienup maintains a close relationship with the graduate program in agricultural economics at the Graduate School for Agricultural Sciences in Castelar, Argentina where he visits and advises at least twice

a year. New and expanded relationships will be developed with four graduate programs in Agricultural Economics in Brazil through a major project with the Brazilian Ministry of Education to expand and increase the quality of graduate education in all the agricultural sciences. Approximately half the funds for this $15 million project come from an AID loan to Brazil. Dr. Fienup will leave in September 1975 for a two-year assignment in Brazil as a senior agricultural economist stationed at Porto Alegre to work on this project.

The Department has continuing relationships with several of the International Research Centers including IRRI, IITA, and CIAT through jointly sponsored research, graduate training of professionals, seminars, and exchange of scientists. Further relationships with the Centers are actively sought to strengthen the international network of cooperative activity. Linkages have also been established with international organizations such as the Ford Foundation. Dr. Dale Hathaway, former Chairman of the Department, has served as the Senior Advisor for the Asian program and Dr. Garland Wood is currently on a two-year assignment with the Ford Foundation as Program Officer for Agriculture in Pakistan. Dr. Darrell Fienup continues as a consultant in agriculture for Foundation programs in Argentina after a long term residence as Foundation Program Advisor in the region.

The Department of Agricultural Economics at MSU has established a substantial network of interchange with professionals and institutions in the developing countries. This has been facilitated through training LDC students on campus, through joint research activities, travel of MSU staff to foreign

countries to present seminars and interact with foreign nationals in their own institutions, and through exchange of professors. The 211-d monies have been of great value in providing the necessary support and flexibility needed to make this a reality.

V. Utilization of Faculty in Talent Sharing Activities

Effective January 1, 1975 Dr. Kelly Harrison began a one-year assignment with the Colombia AID Mission under a personal services contract. In this position he is serving as a Marketing Advisor to the Mission and to the Colombian Ministry of Agriculture. This activity is regarded as a continuation of an MSU research and advisory program that has operated in Colombia since 1968. It was anticipated that Dr. Harrison's personal services contract with the AID mission would be terminated upon final approval of a two-year technical assistance university contract that has been under negotiation more than a year. As of this date this contract has yet to be cleared by AID/Washington. If and when approval comes, Dr. Harrison would continue his residence in Colombia under the proposed university contract.

Dr. Glenn Johnson has served as a consultant on systems and sector analysis to TAB/AID/Washington during the past year. Dr. Rossmiller was a consultant to the Africa Bureau of AID on the use of modeling in the Sahel during November 1974. Fred Winch served as a consultant to the USAID Mission in Ghana during November and December 1974 in preparing an agricultural sector analysis (DAP) there. Tom Zalla was a consultant to the USAID Mission in Kenya during October-November 1974 to evaluate the Rural Development Program. Merritt Sargent was a consultant to TWR/AID/Washington during June 1975 to prepare a feasibility study on rice production in Senegal. In July, August and September 1974 he consulted with USAID

in developing research on sugar production in Senegal and Upper Volta. Sargent attended a meeting at AID/Washington in October 1974 on problems of communication flows in research networks.

All the above represent direct professional inputs into the programs of USAID. Several other staff members have advised on projects with the AID support. In April 1975 Dr. Harold Riley spent nine days in Santo Domingo as a consultant to the Hemispheric Agricultural Marketing Program Staff of the Inter-American Institute of Agricultural Sciences. This staff now includes nine professionals, several of which received advanced degrees from MSU. IICA has a grant from AID for procurement of technical assistance to further develop their marketing program. Other utilization of talent included three weeks of consulting and evaluation of the MSU-Brazilian Ministry of Education by Dr. Riley in November and December 1974. Dr. Fienup spent five weeks in Brazil working on the same project in March and April 1975.

In early 1974, the President of the American Agricultural Economics Association requested Dr. Harold Riley to head a committee to evaluate the AID financed Research and Training Network which has been operating through the Agricultural Development Council since 1970. Dr. Darrell Fienup assisted in the evaluation as well as Dr. Peter Dorner, University of Wisconsin; Dr. Roger Fox, University of Arizona; and Dr. Price Gittinger, International Bank for Reconstruction and Development. The committee completed its report on August 31, 1974 and subsequently AID extended five more years of support to the ADC/RTN network.

Dr. Darrell Fienup participated in a series of three workshops (Palo Alto, California; Madison, Wisconsin; and Washington, D.C.) sponsored by the American Agricultural Economics Association to review and evaluate the role of the U.S.

profession in training foreign students and to consider ways to better meet the needs of LDC countries for trained agricultural economists. Dr. Fienup prepared one of the working papers on graduate training and research in Latin America for the regional workshops and presented one of the three major papers on international training at the AAEA meetings in August 1974. His paper was entitled "Institutional Roles and Training Issues in International Agricultural Development" and was published in the December 1974 issue of the American Journal of Agricultural Economics.

The following tables have been prepared in order to complete the picture of Departmental and University resources utilized in international development overseas on contracts devoted to research institutional building and AID orientated technical assistance. The period covered is July 1974 - June 1975.

Korean Agricultural Sector Simulation Project

(AID/csd-2975)

Short-Term Basis	Total Weeks
Professor Glenn L. Johnson	6
Professor Thomas J. Manetsch (Systems Science)	4
Dr. George E. Rossmiller	9
Ms. Claudia S. Winer	16

Long-Term Basis	Total Months
Dr. Michael H. Abkin	11
Dr. Tom W. Carroll (Computer Science)	11
Mr. Forrest J. Gibson	12
Dr. Alan R. Thodey	6

Korean Agricultural Planning Project

Korean Government Agreement

Short-Term Basis	Total Weeks
Professor David E. Culver	4
Dr. George E. Rossmiller	8
Professor Karl T. Wright	8

Long-Term Basis	Total Months
Professor David Culver	1
Dr. Stanley Driskell	3
Dr. Richard Duvick (Ohio State University)	11
Dr. Fred A. Mangum (North Carolina State University)	12

African Rural Employment Research Network

(AID/csd-3625)

Short-Term Basis	Total Weeks
Dr. Hartwig deHaen	4
Professor Carl K. Eicher	16
Professor A. H. Khan	2
Professor C. Liedholm (Economics)	5
Mr. Bert M. Pulaski	3
Professor Warren Vincent	9

Long-Term Basis	Total Months
Dr. Derek Byerlee	12
Mr. E. Chuta	12
Professor T. Hedges	11

Latin American Marketing Projects

Short-Term Basis	Total Weeks
Dr. Harold Riley-IICA-Dominican Republic	2
Professor Kelly Harrison	
Costa Rica	2
Colombia	2

Long-Term Basis	Total Months
Mr. William Baucom (Costa Rica)	10
Professor Kelly Harrison (Colombia)	6
Mr. S. Kenneth Shwedel (Costa Rica)	11

In total, 100 weeks of staff time was spent overseas as short-term consultants and advisors to contract projects. Long-term resident inputs totaled 10 3/4 man years. Support from 211-d for the most part complements these major contract responsibilities assumed by the Department of Agricultural Economics in helping to maintain staff competencies and facilitate their utilization.

VI. Other Resources for Grant-Related Activities

During 1974-75 the Department was actively involved in three contracts directly with AID and three contracts with foreign governments. The approximate level of expenditures for these contract activities are summarized with projections for 1975-76 on the following page in Table 3.

There is a high degree of complementarity between the 211-d grant and the contract activities of the Department. The contracts provide opportunities for our faculty and graduate students to work with LDC governments and development institutions on pressing economic and social problems. The 211-d grant provides support for graduate student research that can relate to the contract activity and in any case, can be facilitated by the institutional and professional linkages which department faculty develop through contract activities. Also, the contract activities become an important part of a graduate student recruitment process that can benefit several U.S. universities.

It should be recognized that Michigan State University provides considerable resources for the 211-d grant program. All overhead costs which include office space, administrative support, library and computer center research facilities are provided by the University. In addition, the cost of faculty time which actually goes into the teaching and supervision of foreign graduate students is substantially greater than the compensation which the University receives from student fees; consequently there is a sizeable net contribution by the University and, ultimately the State of Michigan, to the training of foreign students.

Looking ahead, it is apparent that the MSU Department of Agricultural Economics will be confronted with a sharp decline in contract and grant funds in the next fiscal year. Both the African Rural Employment project and the Agricultural Sector Simulation project are scheduled to terminate in mid-1976. This

Table 3

Title	Contract No. or Contracting Entities	Estimated Expenditures 1974-75	Projected 1975-76 Expenditures	Termination Date
Rural Employment in Tropical Africa	AID/csd 3625	316,000	216,000	June 30, 1976
Rural Development in the ADA District of Ethiopia	Haile Sellassie I University Institute for Development Research	-------	72,000	December 31, 1976
Agricultural Sector Simulation	AID/csd 2975	386,000	457,000	June 30, 1976
Korean Agricultural Planning Project	Republic of Korea, Ministry of Agriculture and Fisheries	106,000	250,000	March 1977
Costa Rican Agricultural Marketing Project	AID/515-234-T	60,000	60,000	August 1976
Colombian Agricultural Marketing Project	Contract preparation in progress	-------	60,000	September 1977
Graduate Agricultural Education in Brazil (Ag. Economics portion)	Government of Brazil Ministry of Education	15,000	100,000	June 1978
	Total	883,000	1,215,000	

coincides with the termination of the existing 211-d grant. Unless new contract or grant funds can be secured there will be a redeployment of existing internationally-oriented staff to domestic work and the size and quality of the Department's graduate training and research activities with LDC students will be reduced significantly. However, with reasonable assurance of continued financial support the Department would take steps to expand its faculty base in the area of international development and maintain the present level of graduate training.

VII. Plan of Work for 1975-76

The activities for the last year of this grant give priority to the completion of graduate student research projects. We anticipate that 10 doctoral students will finish theses prior to the termination of this grant. Five doctoral students are expected to complete theses on African problems. Three doctoral candidates with 211-d support are preparing proposals for field research in Africa. Their field work will be financed by other funds. Four doctoral candidates are expected to complete theses on topics related to departmental marketing activities in Colombia and Costa Rica and the sector analysis program in Korea. Another doctoral candidate will complete a thesis study of the Philippine rice industry.

Approximately 2 1/3 man years of regular faculty time will be supported by 211-d funds to supervise graduate student research, to prepare new program proposals, participate in selected development workshops, and to publish materials drawn from contract research output. Upon completion of their theses, two of our present Ph.D. candidates will be shifted to temporary faculty appointments for up to six months to assist with research and related graduate training

activities. Subject matter topics to be given special attention will include the development of local industry in rural areas and food production-distribution programs to serve the lower income segments of LDC populations.

During the year Dr. Akhter Hameed Khan will again be on campus for four months to teach our graduate course in development administration and to collaborate with Dr. Eicher in the planning and carrying out of a workshop on Rural Development as a follow up to last year's successful effort.

Dr. Vincent will again offer a special graduate seminar on the planning and conduct of micro-economic studies of farming and marketing activities in LDCs. Consideration is being given to offering this material as a short summer workshop for LDC graduate students now enrolled at other U.S. universities and for selected professionals from LDC institutions. An alternative would be to offer such a workshop overseas as a regional training activity in collaboration with an LDC institution.

An important activity for the next several months will be to participate in discussions of future AID-University programs such as the one that has been proposed by ESP/TAB and similar programs which may be initiated through Title 12 Amendment to the AID Appropriation Bill. Our Department places a very high priority on collaborating with other universities and AID to develop a long-term program of research and technical assistance directed toward LDC problems.

VIII. Report on Expenditures for 1974-75 and Planned Expenditures for 1975-76

The 1974-75 expenditures were $137,321. The accumulated expenditures from the initiation of the grant were $588,619 through June 30, 1975. The original grant was $625,000 which was increased to $745,000 by an amendment and extension of the grant through September 30, 1976. The remaining balance of $156,381 is to be expended by the termination date. See Tables 4 and 5 for details on grant expenditures. Table 6 shows the planned pattern of expenditures for 1975-76.

Table 4

Summary of Actual Expenditures
211-D Grant, AID/csd 2826
Michigan State University

Expense Categories	Periods		
	July 1, 1970 through June 30, 1974	July 1, 1974 through June 30, 1975	Total July 1, 1970 through June 30, 1975
Salaries and Fringe Benefits	$412,457	$117,276	$529,733
Travel	16,740	9.140	25,880
Equipment	454	--------	454
Other Direct Costs	21,647	10,905	32,552
TOTALS	$451,298	$137,321	$588,619

Table 5

Details of Michigan State University 211-D Grant Expenditures, 1974-75

Salaries, Faculty		$51,260
Eicher, C. K.	$ (63)	
Fienup, D.	8,156	
Hanson, J.	10,625	
Harrison, K.	6,923	
Johnson, G. L.	1,476	
Pervis, D.	1,879	
Khan, A. H.	3,102	
Pulaski, B.	2,325	
Rossmiller, G. E.	2,941	
Sorenson, V.	2,775	
Stevens, R.	1,020	
Vincent, W.	10,100	
Salaries, Graduate Assistants and Other Staff		$49,657
Ananikas, L. I.	$ 3,510	
Anderson, B.	1,200	
Fatoo, H.	4,710	
Dickey, T.	1,200	
Guzman, G.	67	
Kamenides, C.	1,155	
Kless, Refund	(400)	
Linsenmeyer, D.	1,800	
Nweke, F.	5,565	
Paris, T.	3,510	
Rincon, E.	133	
Sargent, M.	1,600	
Shields, J.	1,800	
Shwedel, S.	1,000	
Tollens, E.	4,000	
Wandschneider, D.	1,510	
Weber, M.	5,200	
Wilcock, D.	4,710	
Winch, F.	6,187	
Zalla, T.	1,200	
Secretarial and Student Help	$ 3,753	$3,753
Programmers		$5,345
Wolf, C.	$ 2,620	
Olson, K.	2,725	
TOTAL SALARIES		$110,015

Fringe Benefits		$7,261
Retirement (10% of all salaries of Faculty who are enrolled in TIAA-CREF Program)		
Social Security (5.85% of all salaries up to $10,800)		
Hospitalization (University contribution for those enrolled at $35.55 per month)		
Unemployment Compensation (one-half of 1% of salaries for those covered under University rules)		
TOTAL SALARIES AND FRINGE BENEFITS		$117,276
Travel and Transportation		$9,140
Other Direct Costs		$10,905
Postage/Telephone/Telegraph	$ 555	
Services	6,213	
Supplies and Materials	3,631	
Books and Magazines	506	
TOTAL EXPENDITURES		$137,321

Table 6

Actual and Projected Expenditures
Michigan State University
211-D Grant (AID/csd 2826)

Line Items	Total Grant	Expenditures July 1970 to June 1975	Projected Expenditures June 1975 to September 1976	Projected Total Expenditures
Salaries and Fringe Benefits	620,781	529,733	120,000	649,733
Equipment	10,000	454	-------	454
Travel	70,000	25,880	20,000	45,880
Other Direct Costs	64,219	32,552	16,000	48,552
TOTAL	745,000	588,619	156,000	744,619

Appendix A

AFRICAN GRADUATE STUDENTS

Spring Term, 1975

Department of Agricultural Economics - Michigan State University - East Lansing, Michigan

Name	Country	Previous Institutional Affiliation	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
1) Okon Akpan	Nigeria	Ministry of Agriculture, S.E.	Ph.D.	Government of South Eastern State Nigeria	Agricultural Production Economics or International Development
2) Kassahun Abebe	Ethiopia	Ministry of Agriculture	M.Sc.	Agency for International Development	An Analysis of Input Delivery Systems for Ethiopia's Rural Development Programs
(3) Muangu Bazola	Zaire	Dept. of Rural Economy, National University of Zaire	Ph.D.	Ford Foundation	Unemployment in Rural Areas in the Kisangani Area, Zaire
4) Nilam Bedi	Kenya	Institute of Development Studies, University of Nairobi	Ph.D.	Graduate Assistantship, Dept. of Fisheries & Wildlife, MSU	Economics of Michigan's Commercial Fisheries
5) Fred Chege	Kenya	Institute of Development Studies, University of Nairobi	Ph.D.	Rockefeller Foundation	Marketing

Name	Country	Previous Institutional Affiliation	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
(6) Enyinna Chuta	Nigeria	Economic Development Institute, Uni. of Nigeria	Ph.D.	AID Contract, Dept. of Ag. Econ., M.S.U., African Rural Emp. Res. Network	An Economic Analysis of Small-Scale Industries in Rural Areas of Sierra Leone
(7) Lotanga Dimandja	Zaire	Dept. of Rural Economy, National University of Zaire	M.S.	Ford Foundation	Production Economics, Farm Management & Quantitative Methods
(8) Enefiok Etuk	Nigeria	Rural Economy Research Unit, Ahmadu Bello University	M.S.	African-American Institute (AFGRAD Fellowship)	Development
(9) Habib Fatoo	Tanzania	Dept. of Ag. Econ., Uni. of Dar es Salaam	Ph.D.	Graduate Assistantship, Dept. of Ag. Econ., M.S.U. (AID/211-D)	Economic Demography
(10) Girma Begashaw	Ethiopia	Dept. of Ag. Econ., Haile Sellassie I University	M.S.	Agency for International Development	Economic Development & Econometrics
(11) Abdel El Hamrouni	Tunisia	Institute of National Agronomique, Ministry of Agriculture	M.S.	Agency for International Development	--
(12) Latifa El Hamrouni	Tunisia	Institute of National Agronomique, Ministry of Agriculture	M.S.	Agency for International Development	--

	Name	Country	Previous Institutional Affiliation	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
13)	Mulumba Kamuanga	Zaire	Dept. of Rural Economy, National University of Zaire	M.S.	Ford Foundation	--
14)	Adewale Mabawonku	Nigeria	Dept. of Ag. Econ., University of Ibadan	Ph.D.	African-American Institute (AFGRAD Fellowship)	Employment and Productivity in the Non-Farm Rural Industries
15)	Andre Meka	Cameroons	Ministry of Agriculture	M.S.	Agency for International Development	--
16)	Abdel Razig El Bashir Mohamed	Sudan	Planning Commission Office	Ph.D.	African-American Institute (AFGRAD Fellowship)	Economic Development
17)	Wilfred Mwangi	Kenya	Agricultural Finance Corporation, Nairobi	M.S.	African-American Institute (AFGRAD Fellowship)	Agricultural Credit & Development in General
18)	Felix Nweke	Nigeria	Dept. of Ag. Econ., University of Nigeria	Ph.D.	Graduate Assistantship (AID/211-D)	Nigerian Forestry Sector Analysis
19)	George Ruigu	Kenya	Institute of Development Studies, Uni. of Nairobi	Ph.D.	Rockefeller Foundation	Economics of Fertilizer Distribution in Kenya

	Name	Country	Previous Institutional Affiliation	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
9)	Edouard Tapsoba	Upper Volta	Ministry of Agriculture	M.S.	African-American Institute (AFGRAD Fellowship)	Development, Production, Marketing
10)	Elsayed Ali Ahmed Zaki	Sudan	Head, Planning Division, Ministry of Agriculture	Ph.D.	African-American Institute (AFGRAD Fellowship)	Economic Development & Management of Planning

21 African Graduate Students

NON-AFRICAN GRADUATE STUDENTS WITH A RESEARCH FOCUS ON AFRICA

Spring Term, 1975

Department of Agricultural Economics - Michigan State University - East Lansing, Michigan

	Name	Country	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
1)	James Kocher	United States	Ph.D.	Population Council	Rural Development and Demographic Change in Lushoto and Mosi Districts, Tanzania
2)	Dean Linsenmeyer	United States	Ph.D.	Social Science Research Council (Foreign Area Fellowship)	Economic Analysis of Sierra Leonean Fresh Water and Marine Fish Industry with Comparison Between the Small and Large-Scale Sectors
3)	Merritt Sargent	United States	Ph.D.	Graduate Assistantship (AID Contract, African Rural Employment Research Network, Ag. Econ. (AID/211-D)	Production Economics, Farm Management, Economics of Animal Powered Mechanization
4)	Fred E. Winch, III	United States	Ph.D.	Graduate Assistantship (AID/211-D), Near East Foundation (New York) and Government of Ghana	A Micro-Economic Study of Rice Production in Northern Ghana and a Regional Analysis of Alternative Production Strategies
5)	David Wilcock	United States	Ph.D.	Graduate Assistantship (AID/211-D)	Rural Development in Francophone West Africa

Name	Country	Degree Pursued	Source of Financial Aid	Tentative Dissertation Topic or Research Interest
(6) Thomas Zalla	United States	Ph.D.	Social Science Research Council (Foreign Area Fellowship) and (AID/ 211-D)	Economic and Nutritional Aspects of Smallholder Milk Production in Northern Tanzania
(7) James Bingen	United States	Ph.D. in Political Science at UCLA	Foreign Area Fellowship	Mr. Bingen spent January through June, 1975 at MSU preparing a dissertation proposal for research in Mali

7 Non-African Graduate Students with African Interests.

Total: 28 Graduate Students Pursuing Research on African Agricultural Development Problems

Appendix B

International Seminars and Workshops Presented in the Department of Agricultural Economics, Michigan State University, October 1974 - July 1975

Date	Topic	Speaker
October 10, 1974	"Strategic Factors in the History of Economic Development"	Maurice Perkins, International Development Consultant and Professor of Economics, Brock University, Canada
October 23, 1974	"Social and Political Factors Affecting the Green Revolution in Southeast Asia"	Brewster Grace, American University Field Staff
November 15, 1974	"African Employment Problems"	Derek Byerlee, Assistant Professor, Department of Agricultural Economics, Michigan State University
November 25, 1974	"Reflections on the World Food Conference"	Tom Cowden, Counselor to U.S. Secretary of Agriculture
December 5, 1974	"Marketing Systems and Sector Analysis as Alternative Approaches to Rural Development	Kelly Harrison and G. E. Rossmiller, Professors, Department of Agricultural Economics, Michigan State University
January 16, 1975	"The World Food Conference--Where Do We Go From Here"	Dale Hathaway, Ford Foundation, New York, New York
January 23, 1975	"The Resurgence of Famine--An Analysis"	Akhter Hameed Khan, Visiting Professor from Pakistan
January 30, 1975	"The Design and Implementation of Rural Development: Experience from Daudzi Thana, Pakistan and Comilla, Thana, Bangladesh"	Akhter Hameed Khan, Visiting Professor from Pakistan
February 27, 1975	"World Food Security"	Carroll Brunthaver, Cook Industries, Inc.

Date	Topic	Speaker
April 3, 1975	"The New Credit and Technical Assistance Roles of World Bank in a Changing World"	William Ward, IBRD, Washington, D.C.
April 4, 1975	"Developing Agricultural Economics Capacity in West African Governments and Universities: Opportunities for Collaboration of United States and African Universities"	William Gamble, Representative for Ford Foundation, Nigeria (now Director General of IITA)
April 16, 1975	"Economic Role of Women in Development in Developing Countries"	Achola Pala, University of Nairobi
April 28, 1975	"Economic Development in the Third World"	Leonid Schlesner, "Vice President" of Leningrad State University
May 1, 1975	"Adoption and Impact of Intensive Cropping Systems in Selected Communities in the Philippines"	Arturo Gomez, Visiting Professor, University of the Philippines
May 8, 1975	"Population Programs in a Post-Bucharest Era"	Everett Rogers, University of Michigan Sociology and Communication
May 16, 1975	"Canadian International Development Strategies and Programs in IDRC Operations"	David Hopper, President, IDRC
May 22, 1975	"Perspective on World and U.S. Fertilizer Situation--Forecasted Uses and Availabilities"	John Shields, Staff Economist, International Fertilizer Development Staff, TVA
June 5, 1975	"The Technology of Technological Innovation"	K. L. McDermott, TAB, USAID, Washington, D.C.
July 24, 1975	"Production Cooperatives in Tanzania's Rural Development	Tom Zalla, Ph.D. Candidate, Dept. of Agricultural Economics, MSU

Appendix C

MSU Department of Agricultural Economics Graduates Since 1970 and Positions Held

1970-71

Name	Native Country	Level	Present Position
Eckert, Jerry	U.S.	Ph.D.	Professor Agr. Economics, Colorado State University, currently in Pakistan
Hedley, Douglas	Canada	Ph.D.	Ag. Economist, Government of Canada
Davis, Carlton	Jamaica	Ph.D.	Prof. of Ag. Economics, University of Florida
Essang, Sunday	Nigeria	Ph.D.	Faculty, University of Ibadan, Nigeria
Gimenez-Dixon, Jorge	Argentina	Ph.D.	BID Honduras, C.A.
Libereiro, Ernesto	Argentina	Ph.D.	IICA, Bogota, Colombia
Baucom, William	U.S.	M.S.	Employed by MSU to work in Costa Rica AID Project
Ghayur, Aslam	Pakistan	M.S.	Sr. Ag. Economist, Planning Commission of Pakistan
Konjing, Chawat	Thailand	M.S.	Employed by Government of Thailand (now in U.S. as Ph.D. student)
Lee, Seong	Korea	M.S.	Enrolled as Ph.D. candidate
Quadir, Ghulum	Pakistan	M.S.	Agr. Planning Division, Gov. of Punjab
Rahman, Khandker	Pakistan	M.S.	Bangladesh Academy of Rural Development, Comilla, Bangladesh
Rudra, Sulata	India	M.S.	Private Bank in Calcutta, India
Teigen, Lloyd	U.S.	Ph.D.	Employed by MSU on Korean Project, 1973-74 (now ERS-USDA)

Name	Native Country	Level	Present Position
Vandermeowe, Barth	South Africa	M.S.	Gov't. of South Africa
Lins Everton, Ramos	Brazil	M.S.	Gov't. of Sao Paulo, Brazil, Economic Research Division
Wu, Ming Wu	Taiwan	M.S.	Mich. Crop Reporting Service, also Ph.D. candidate
McLean, Canute	Jamaica	M.S.	Gov't. of Jamaica
	1971-72		
Billings, Martin	U.S.	Ph.D.	AID/Washington, Africa Bureau
Chaudhary, M.A.	Pakistan	Ph.D.	Professor, University of Agriculture, Lyallpur, Pakistan
Dickinson, Thomas	U.S.	Ph.D.	Prof. Ag. Econ., Univ. of California at Davis
Green, David A. G.	U.K.	Ph.D.	Prof. Ag. Econ., Univ. College of Wales, Pinglais, Wales
Kellogg, Earl	U.S.	Ph.D.	Prof. of Ag. Econ., Univ. of Illinois (now in Thailand for Ford Foundation, 1975-77)
Rochin, Refugio	U.S.	Ph.D.	Ford Foundation, Colombia, S.A.
Hai, Ngugen Minh	Vietnam	M.S.	Ministry of Planning, Gov't. of Vietnam
Buasri, Prajad	Thailand	M.S.	Ministry of Ag., Thailand
Hassan, Yousef F.	Iraq	M.S.	Finishing Ph.D. in Resource Development
Samuel, S. N.	Sri Lanka	M.S.	Central Bank Sri Lanka
Solomon, Seyoom	Ethiopia	M.S.	Ph.D. Candidate, Ohio State
Lee, Moon Kyu	Korea	M.S.	Employed in U.S. private industry

1972-73

Name	Native Country	Level	Present Position
McKenzie, Kenneth	Canada	Ph.D.	Canadian Gov't., International Development Agency
Sadeghi, Javad M.	Iran	Ph.D.	Prof. of Ag. Econ., Iran
Ahmad, Bashir	Pakistan	Ph.D.	Head, Ag. Planning Section, Gov't. of Punjab, Pakistan
Ahmad, Rais	Bangladesh	Ph.D.	Planning Div., Gov't. of Bangladesh
Idachaba, Francis	Nigeria	Ph.D.	Faculty, University of Ibadan, Nigeria
Peacock, David L.	U.S.	Ph.D.	AID, Colombia Mission staff
Nanayakkara, Upali	Sri Lanka	M.S.	Private firm, Sri Lanka
Graterol, Alejandro	Venezuela	M.S.	Private firm
Weber, Michael	U.S.	M.S.	Working toward Ph.D. at MSU
Keller, Radrigo R.	Spain	M.S.	Economist, Gov't. and Professor in Spain
Silva, Alvaro	Colombia	M.S.	Doing Ph.D. research in Colombia, Professor at Nat. Univ., Bogota
Zegge, Barnabas K.	Tanzania	M.S.	Ag. Economist, East African Development Bank, Kampala, Uganda
Bellati, Sallmon	Ethiopia	M.S.	Ag. Econ. Inst. of Ag. Research, Addis Ababa, Ethiopia
Navarro, Luis A.	Nicaragua	M.S.	Central Park, Managua, Nicaragua, C.A.
Sjamau, Asmarni	Indonesia	M.S.	National Planning Board, Dikarti, Indonesia

1973-74

Torrealba, Pablo	Chile	Ph.D.	Research Economist, Inter-American Institute of Agr. Sciences, IICA, San Jose, Costa Rica

Name	Native Country	Level	Present Position
Chong, Kwo Ngyuah	Malaysia	Ph.D.	Prof. East-West Center, Hawaii
Frigerio, Norberto	Argentina	Ph.D.	Research Economist, Inter-Amer. Institute for Ag. Sciences, IICA San Jose, Costa Rica
Ladipo, Alasupo	Nigeria	Ph.D.	Un. of Ife, Nigeria
Barla, Chain	India	Ph.D.	Prof. Un. of Rajathan, India
Islam, Tarafder	Bangladesh	Ph.D.	Economist, Bangladesh Inst. of Development Economics
Nicholas, Samuel	Sri Lanka	Ph.D.	Central Bank for Sri Lanka
Chi Sheng, Cheng	Taiwan	M.S.	Currently Ph.D. candidate in Resource Development
Goquiolay, Nulasri	Thailand	M.S.	Not currently employed
Tarafder, R. Islam	Bangladesh	Ph.D.	Deputy Chief, Planning Comm., Gov't of Bangladesh
Ajobo, Owolabi	Nigeria	M.S.	Cocoa Research Inst., Ibadan Nigeria
Dejene, Tekola	Ethiopia	M.S.	Ag. Economist, Planning Commission, Addis Ababa
Swenson, Clyde	U.S.	Ph.D.	Associate with ADC in Bogor, Indonesia
	1974-75		
Atta-Konadu, Yiadom	Ghana	Ph.D.	Economist, Min. of Agriculture in Ghana
Kamenides, Christos	Greece	Ph.D.	Professor of Agricultural Economics, Univ. of Thessaloniki, Greece
Posada, Alvaro	Colombia	Ph.D.	Economist with Sugar Federation, Bogota, Colombia
Rao, Alfredo	Colombia	Ph.D.	Ag. Economist with Cauca Valley Corporation

Name	Native Country	Level	Present Position
Silva, Paulo	Brazil	Ph.D.	Prof. of Ag. Econ., Univ. of Ceara, Fortaleza, Brazil
Sutharomn, Bunloe	Thailand	Ph.D.	Agricultural Economist, Nat. Inst. of Development Administration, Bangkok, Thailand
Diez-Patier, Eduardo	Spain	M.S.	Continued Ph.D. study
Dickey, Thomas	U.S.	M.S.	Ag. Economist, Govt. of Puerto Rico
El Nagger, Salah	Egypt	M.S.	Private Industry, U.S.
Guzman, Grover	Bolivia	M.S.	Corporacion Gestiva del Projecto Abapo Izozog, Santa Cruz, Bolivia
Vico, Antonio	Guatamala	M.S.	
Tollens, Eric	Belgium	Ph.D.	Assoc. Prof. and Chairman of Dept. of Agricultural Economics, National Univ. of Zaire, Yangambi, Zaire
Ananikas, Lucas	Greece	Ph.D.	Prof. of Agri. Econ., Univ. Thessaloniki, Greece
Yoo, Jong-Tack	Korea	Ph.D.	Ag. Economist, Min. of Agriculture and Fisheries, Seoul, Korea
Meek, John	Canada	Ph.D.	Canadian Ministry of Agriculture
Lee, Y.C.	Taiwan	Ph.S.	Unemployed
Hondai, Susumu	Japan	Ph.D.	Research Assoc., Dept. Ag. Econ., M.S.U.
Gray, Robert	U.S.	Ph.D.	USDA-PASA - Kenya
Shen, Rafael	Singapore	Ph.D.	Fuyen Univ., Taipai, Taiwan
Mwang, Josiah	Nigeria	M.S.	Chief Planning Officer for Ag. Min. of Ec. Dev., East Central State, Nigeria

Appendix D

Theses Completed During 1974-75 on Development

Name	Degree	Title of Thesis	Advisor
Atta-Konadu, Yiadom Kwasi	Ph.D.	Economic Optima in Resource Allocation for Smallholder Farming in Ghana	Manderscheid
Tollens, Eric	Ph.D.	An Economic Analysis of Cotton Production, Marketing, and Processing in Northern Zaire (211-D support)	Sorenson
Chege, Fred	M.S.	Economic Analysis of Maize Marketing in Kenya (Plan B paper)	Eicher
Nwanko, Josiah C.O.	M.S.	Costs and Returns to Poultry Business in Eastern Nigeria	G. Johnson
Ananikas, Loukas	Ph.D.	Potential Livestock Production Adjustments on Family Farms in Central Macedonia, Greece (211-D support)	Vincent
Kamenides, Christos	Ph.D.	Efficient Organization of the Livestock Meat Marketing System in Eastern Macedonia, Greece (211-D support)	Sorenson
Roa, Alfredo	Ph.D.	Rural-Urban Migration and Its Relation to Unemployment in the Urban Area of Valle Del Cauca, Colombia	G. Johnson
Diez-Patier, Eduardo	M.S.	Determination of the Optimum Interprovince Flow and Differences of Prices for Fluid Milk in Spain (Plan B paper)	Sorenson
El Nagger, Salah	M.S.	The Demand for Food in Egypt: Problems and Prospects (Plan B paper)	G. Johnson

Name	Degree	Title of Thesis	Advisor
Guzman, Grover	M.S.	Development Plans in Bolivia: Problems and Prospects (Plan B paper) (211-D support)	Vincent
Vico, Antonio	M.S.	Market Studies in Central America as a First Step of Investment Projects (Plan B paper)	Harrison
Lee, Jung Han	Ph.D.	Projections of Product Supply and Factor Demand Under Structural Change for Korean Agriculture: A Systems Simulation Approach	G. Johnson
Yoo, Jong Tack	Ph.D.	A Short and Long Run Analysis of the Korean Rural Demand for Food and Its Implications to Agricultural Policies	Ferris
Meek, John	Ph.D.	Simulation of the Cattle-Calves Sub-Sector in a Developed Economy with Special Reference to the Canadian Cattle Herd	G. Johnson
Lee, Y.C.	Ph.D.	Adjustment in the Utilization of Agricultural Land in South Central Michigan with Special Emphasis on Cash-Grain Farms	G. Johnson
Hondai, Susumu	Ph.D.	The Effects of Import Restrictions on Japanese Agricultural Production	G. Johnson
Gray, Robert	Ph.D.	Agricultural Export Potentials and Balance of Payments Aspects of the Nigerian Economy	G. Johnson
Shen, Rafael	Ph.D.	Narrowing Taiwan's Per Capita Farm/Nonfarm Income Gap Via Increased Agricultural Production and Guaranteed Prices: Projections and Analysis, 1973-1984	G. Johnson
Shwedel, Kenneth	M.S.	Utility, Probability, and the Adoption of Agricultural Innovations (Plan B paper) (211-D support)	Wood

Appendix E - Abstracts of Ph.D. Theses Completed During 1974-75

Atta-Konadu, Yiadom Kwasi
Tollens, Eric (211-D support)
Ananikas, Loukas (211-D support)
Kamenides, Christos (211-D support)
Roa, Alfredo
Lee, Jung Han
Yoo, Jong Tack
Meek, John
Lee, Y.C.
Hondai, Susumu
Gray, Robert
Shen, Rafael

ABSTRACT

ECONOMIC OPTIMA IN RESOURCE ALLOCATION

FOR SMALLHOLDER SUBSISTENCE FARMING IN GHANA

By

Yiadom Kwasi Atta-Konadu

The primary objective of this study was to investigate optimal resource use for smallholder subsistence farmers--information needed to evaluate issues and emerging policies associated with smallholder producers of food crops in selected regions in Ghana. The major concern was to provide some insights into efforts necessary for expanding the productive potentials of the farms delineated in the study. The study was designed to interface with the maize improvement project of the Government of Ghana.

Specifically, the issues were: 1) resource utilization and profit maximizing plans consistent with initial resource endowments and expanded resource use; 2) competitive position of crops produced using new technology and crops produced in mixtures using indigenous technology; 3) dynamic interdependence between production, subsistence consumption and investment/disinvestment; 4) the use of on-farm storage of crops as additional means of increasing farm income; and 6) increased efficiency in labor utilization.

The methodology used included the use of static linear programming and poly-period linear programming to assess the income increasing possibilities for the representative farms by an optimum allocation of resources actually used by the farmers in the sample. The representative farms were defined by the level of technology of production and by the ability to adopt agricultural innovations. The analysis was conducted in three empirical phases and two types of representative farms located in five regions in the country, viz. Brong-Ahafo, Ashanti, Central, Eastern and Volta regions. Phase I was designed to investigate the optimal allocation of currently available resource using currently utilized technology. The Phase II model incorporated on-farm storage activities and allowed borrowing up to optimum levels instead of putting a restriction on the amount of money that could be borrowed. Phase III, the Phase II model was expanded to include parallel cropping activities representing two alternative advanced technologies of producing crops in pure-stand.

The data used were collected from a sample of 361 operating holders through intensive farm management survey carried out for a period of fifteen months during 1972-73. The holders were interviewed to obtain information regarding actual resource constraints facing them, the input-output relations encountered by them and food consumption.

Several important policy implications emerge from the findings of this study. First, on all representative

farms, the marginal value products (MVP's) of land and money capital were high, suggesting that increasing the use of these resources would lead to income gains. A large income increasing possibility was also indicated by large MVPs of agricultural inputs complementary to land such as labor, fertilizers, planting materials and farm implements. Regional variations in the magnitudes of the MVP's were indicated. Second, for all the representative farms mixed-cropping held a comparative advantage over pure-stand cropping, as shown by the magnitudes of the relevant shadow prices. The implication is that given the choice, the farmers would prefer growing crops in mixtures rather than in pure-stand--a situation that would appear to militate against the introduction of new technology and/or enterprise specialization. Third, the results indicate that organization of an adequate credit supply is the starting point of any program to encourage the farmers to increase resource use. Credit policy should aim at providing credit to the farmers taking into account expected returns, production and household consumption requirements rather than using arbitrary rules. Fourth, significant income gains can be derived by removing the bottlenecks that lead to under-utilization of agricultural labor. One policy option discussed is the provision of a network of feeder roads and an organization of mass transit services to serve the farming communities. Fifth, the results provide the basis not only for direction in general product and input policy

formulations, but also indicate the magnitudes by which relevant policy variables such input subsidies and guaranteed minimum prices could be manipulated to achieve specified development goals.

Major research needs highlighted by this study include: 1) an incorporation of stochastic factors such as weather variability and risk and uncertainty associated with the adoption of new technology; 2) an expansion of the periods covered in the poly-period model to more rigorously a) investigate the dynamic interdependence of between production, consumption and investment/disinvestment; and b) account for the full production cycle of crops such as cassava and plantains often left in bush fallow and undergo continuous harvesting over an extended period of years; 3) economics of mixed-cropping vis-a-vis pure-stand cropping; and 4) benefit-cost analysis of feeder road construction and the building and location of storage facilities. The macro-effect of storage operations on prices will need an investigation also.

10/95

ABSTRACT

EFFICIENT ORGANIZATION OF THE LIVESTOCK-MEAT MARKETING SYSTEM IN EASTERN MACEDONIA, GREECE

By

Christos Theocharis Kamenidis

The significant rise in per capita income of the Greek people coupled with remarkable growth of foreign tourism in Greece has led to a substantial increase of total meat consumption in the country. In order to reduce meat imports, and therefore the foreign exchange outflow, the Government has taken a series of measures, such as higher output prices and input subsidies, more credit to producers with very low interest rates, etc. As a result of this policy, some larger producers have entered the livestock industry while most of the existing livestock producers have expanded their operations. Thus, livestock production is expected to increase appreciably by 1980.

On the other hand, existing slaughterhouses are relatively many, small and technologically out of date. Their buildings are generally old and poorly equipped. They still employ crude methods of livestock slaughtering. They do not process livestock by-products because their small volumes make it unprofitable.

The aforementioned factors may necessitate the establishment of new slaughter plants and systems. If new investment occurs, then

the main questions which might be raised include: What should be the optimum number, size, and location of new slaughter plants in E. Macedonia, so that the aggregate cost of livestock assembly, processing and meat distribution be minimized and thus the efficiency of the livestock-meat marketing system be improved?

To undertake the empirical analysis, a linear programming transhipment model was employed. The computer program used was the APEX-I.

The basic data needed for this computer analysis were: (1) Regional livestock supplies; (2) Regional meat consumption; (3) Livestock assembly cost per unit of product between all the supply regions and all the plant locations; (4) Livestock slaughtering unit cost by plant sizes and by levels of capacity utilization; and (5) Meat distribution cost per unit of product between all the plant locations and all the consumption centers.

Six alternative solution models were constructed and tested in order to find out what might be the impact of changing the corresponding variable--characterizing each model--upon the optimal solution of the basic model. The characteristics of the basic model are: (1) 1972 livestock supplies; (2) 50 percent capacity utilization of trucks engaged in livestock assembly; (3) full capacity utilization of slaughtering plants; (4) use of modern technology in livestock slaughtering; and (5) 20 supply regions, 21 consumption centers and 10 potential plant sites. Model II differs from the basic one in assuming full capacity utilization of the trucks engaged in livestock assembly. Model III assumes 14 supply regions, 15 consumption regions and 8 potential

plant sites. Model IV assumes 1980 livestock supplies; Model V assumes 90 percent plant capacity utilization; and Model VI assumes continuation of the currently existing livestock slaughtering system.

The empirical analysis has shown that whenever a modern livestock slaughtering system was assumed--as is the case in all models except model VI--the optimum solution ended up with either two plants (models: Basic, II, III and optimal solution of model IV) or three plants (second optimal solution of model IV and optimal solution of model V). When the optimum number of plants is two, then the optimum plant locations are either Serres and Kavala (when 1972 livestock supplies are assumed) or Serres and Drama (when 1980 supplies are assumed). When the optimum number of plants is three, then the optimum plant locations are Serres, Kavala and Drama.

The major questions which arise next are: (1) Should new slaughtering plants using modern technologies by established in E. Macedonia, Greece, or should the current system continue? (2) If modern slaughtering technology is to be introduced, should two or three plants be built? The trade-offs (advantages and disadvantages) of the alternative solutions will determine which course of action should be adopted.

If two or three new slaughtering plants using a modern technology were established, then some probable advantages over the old system of 21 slaughterhouses would be: (1) concentration of larger amounts of livestock by-products at the plant locations, which in turn may make their processing profitable; (2) increased efficiency of the livestock-meat marketing system; (3) improvement in meat quality;

(4) economies of size in the veterinary inspection of slaughtered animals. Some probable disadvantages of the proposed new slaughtering system over the existing one would be: (1) reduction in the employment of slaughterers as a result of substitution of capital for labor; (2) loss of revenues for the communities whose slaughterhouses will be closed; (3) problems of disposing larger amounts of waste.

If three plants (i.e., one in each province of E. Macedonia) were established rather than two, a more equitable pattern of regional economic development would result. However, a system of three plants would have a higher total cost than one of two plants, given the same total output and input price structure.

Given these benefits and costs for all the alternative solutions, it is the task of policy makers to make the final decision.

RURAL-URBAN MIGRATION AND ITS RELATION TO UNEMPLOYMENT IN THE URBAN AREA OF VALLE DEL CAUCA, COLOMBIA

By

Alfredo Roa Mejia

AN ABSTRACT OF A DISSERTATION

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Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Agricultural Economics

1974

ABSTRACT

RURAL-URBAN MIGRATION AND ITS RELATION
TO UNEMPLOYMENT IN THE URBAN AREA OF
VALLE DEL CAUCA, COLOMBIA

By

Alfredo Roa Mejia

High rates of urban unemployment, considered by many an important aspect of many related problems of Colombia, motivated this study. The primary objective of this research was the analysis of rural-urban migration and its relation to unemployment in the urban areas of Valle, especially Cali, and to determine the causes of the high rates of urban unemployment. The specific objectives were: (1) to formulate a decision model on rural-urban migration under conditions of urban unemployment and imperfect knowledge on the part of the prospective migrants, (2) to formulate a model for estimating the labor force of urban Valle and particularly Cali, (3) to develop a theoretical framework that explains the limited labor absorption of Valle's manufacturing sector for unskilled labor, (4) to estimate the number of jobs needed to (a) prevent unemployment from increasing and (b) lower unemployment rates in urban Valle during the period 1974 to 1980, and (5) to identify and examine policy alternatives with respect to labor employment.

Urban unemployment rates have risen every year during the period 1960 to 1969 and will continue to be high if basic changes are not affected in the economic organization and activity of Valle. The unemployment rate in Cali was estimated at 18.3 percent in 1969.

Migration to the urban centers, which continued during the 1960s despite high unemployment rates, takes place under imperfect knowledge on the part of the prospective migrants. Investment/disinvestment theory helps us to understand (1) migration under imperfect knowledge, (2) high urban unemployment rates, (3) the high proportion of young people and females among migrants and (4) people living in both rural or urban areas under very difficult economic conditions without being able to seek better opportunities in other places.

The lack of educational opportunities causes a low rate of conversion of unskilled to skilled labor. This fact along with migration to urban areas, high fertility rates, and the increasing participation of women in the labor force, results in large numbers of unskilled laborers in the urban zones of Valle, especially in Cali.

The demand for unskilled labor grows very slowly in the urban zone because the industrial sector has a low demand for additional unskilled labor. Manufactured goods are largely produced in big firms with high capital-labor ratios while labor-intensive small and medium-sized firms are relatively few and absorb little labor.

The total number of jobs that need to be created during the period 1964 to 1980 to give everyone of the projected labor force the opportunity to find a job and to eliminate low paid jobs in Cali are estimated at 114,000 to 162,000 under three alternative assumptions about migration to Cali.

In the past, policies oriented toward production growth and productivity have produced (1) high unemployment and underemployment rates, and (2) uneven income distribution. Agricultural and manufacturing sectors of Valle are characterized by an acute dualistic system. Under dualism policies oriented to increase agricultural and manufacturing production in the modern sectors can hurt the traditional sectors. In this study policies aimed at (1) lowering urban unemployment rates, (2) obtaining more even distribution of income, and (3) increasing production were identified and examined. The specific policies considered were: (1) revision of labor code especially as it affects unskilled laborers and small and medium-sized enterprises, (2) reduction in growth of total labor force, (3) changing composition of labor force and upgrading of skills, (4) slow down the rate of migration to the large urban centers such as Cali, (5) creation of jobs in urban areas for large pool of unskilled workers, and (6) improvement in the performance of the labor market. The first four policies are aimed at affecting the amounts and kinds of labor at the large urban centers of

Valle. Policies to create additional jobs in urban Valle are focused in (a) relative price of different kinds of labor and different kinds of capital, (b) factor proportions used by size of enterprises, (c) use of installed capacity, and (d) amounts and kinds of labor absorbed by different products. The lack of information on urban wages and employment opportunities on the part of the prospective rural migrants and the existence of urban unemployment and rural underemployment despite high migration rates to the urban areas of Valle suggested the need for improving the performance of the labor market.

Research on recent migratory currents and the effect of the present National Development Plan on employment in the last two years should be carried out as data becomes available. Also, future research is needed on (1) the kinds of products being produced by small and medium-sized enterprises, the prices they received for their products and on its costs of production; (2) estimates of elasticities of substitution between different kinds of labor and capital and between imported and domestically produced inputs; and (3) performance evaluation of public institutions created to help small farmers and manufacturing firms.

ABSTRACT

PROJECTIONS OF PRODUCT SUPPLY AND FACTOR DEMAND
UNDER STRUCTURAL CHANGE FOR KOREAN AGRICULTURE:
A SYSTEMS SIMULATION APPROACH

By

Jeung Han Lee

The primary purpose of this study has been to build a model of part of Korea's agricultural production system to be used as a component of the MSU/KASS model. Since the acreage response component has already been built, we have concentrated on modeling yield responses and factor demand of various crops in different regions. The basic emphasis of this study is on the yield effect of structural changes growing out of public policies, programs and projects designed to influence technology, institutions and people. It is recognized in this study that the major sources of productivity growth and development are structural changes.

One important byproduct of this study has been to show empirically how different disciplinary theories and techniques can be combined to model a complex system more precisely and accurately.

Useful neoclassical economics (modified or unmodified), development and growth theories are incorporated in this model, along with concepts, theories and descriptive information from other disciplines. The systems simulation approach has proven a useful technique in

integrating these diverse inputs into a yield determination component that can be incorporated into the larger KASS model for use in solving practical problems in the complex multidisciplinary system, which is Korean agriculture.

Economic development in agriculture is a complex process. An equally complex set of policy instruments is required to affect transformation of traditional agriculture. Thus, the model dealing with this complex system must be complex enough to measure important possible repercussions of complex policies, programs and projects. We have tried to meet comprehensiveness, consistency and balance, clarity, workability criterion in a sector model for planning purposes.

We specified a Cobb-Douglas type production function for every crop in each region under consideration with two basic kinds of variables: conventional inputs and structural change variables. The latter shift the yield function as well as the factor demand function. There are three different structural change variables. The first involves biological technology and human change (biological research and extension of its results). The second involves land and water development. And the third is the variable exclusively related to perennial crop production such as tree crop age cohort and residual effect of the conventional inputs used in the past. The first two structural change variables are generated mainly by the public sector. The rate of land improvement has been modeled by a high-order differential equation as a function of public investment, among others. The same is true for biological research and dissemination of its results. We have also recognized the existence of indigenous innovation among the leading farmers and by the agribusiness sector.

In order to estimate input usage for conventional production factors under the assumption of optimizing behavior, we have derived a factor demand function from the production function. In doing this, we have used several behavioral constraints. First, we have imposed a capital budget constraint modeled as a stepped supply function for credit. Second, various elasticities of factor demand have been adjusted, based on the direction, duration and magnitude of prices of both products and factors. The model allows adjustment to take place as a result of regional specialization, long-term profitability and for other reasons.

Once the relevant marginal rate of return to capital, as determined by the supply and demand relationship, was known, it was a mechanical process to project input usage and hence output. This permitted us to use accounting equations to compute the relevant aggregate variables.

After testing the model, through a series of sensitivity analyses, to determine whether it worked properly, we specified several policy experiments with variables. Then we made computer runs for each level for each policy variable and several different combinations of policy variable levels.

First of all, we identified quantitatively the sources of productivity growth for each crop in each region in more detail and precision than any study has thus far achieved.

The major conclusions drawn from the policy experiment computer run can be summarized as follows: First, important complementary relationship exist among the so-called conventional inputs, between these

inputs and structural change variables, and between technological change and variables governing farmer incentives. The major determinants of conventional input usage, especially fertilizer, seem to be: (1) varietal change and (2) land and water development. Second, it appears that biological technology is a critical and leading determinant of yield growth. The second important structural change variable in productivity growth was found to be irrigation. Another important structural change variable defined in this model was found to be age composition change for tree crops.

Several values are important in the development of Korean agriculture. The simulated results of this study cannot be fully evaluated in terms of these performance variables unless the model presented in this study is linked with other components of the KASS model. For this reason, we have tried to evaluate alternative policies mainly in terms of food self-sufficiency and, in doing so, have assumed that the producer prices, areas allocated to each crop and consumption needs projected by the initial version of the KASS model correctly represent the future. Recognizing that biological technology involving varietal change is a crucial factor determining yield increases, we made several alternative assumptions about possible biological research accomplishments on the part of the Korean agriculture in order to project the simulated consequences of these alternatives.

In connection with this policy experiment, we have concluded that Korea is, at best, able to achieve her food self-sufficiency development goal in late 1970s. In the case of the worst biological research assumption, Korea was not able to attain this goal even by 1990.

The degree of food self-sufficiency depends substantially on the commitment of resource to improve biological technology.

All sets of conclusions reached here should be interpreted with reservations. This is so partially because various levels of interactions with other sectors or subsectors of Korean economy are not fully taken into consideration, partially because the model presented in this study needs some further refinements, and partially because the model's data base is rather weak. Needless to say, projections based on the model components developed herein and intended for use in evaluating public policies, projects and programs will be much improved when this component is linked with the rest of the KASS model.

Limitations of the present model and further study needs for improving it were presented. Needed additional study has to do with: (1) data improvement, (2) refinement of some model structures, and (3) linkage with other components of the KASS model.

Nevertheless, the version of the model presented here seems to represent the real world situation reasonably well; that is, the model seems to be capable of projecting yield levels and related conventional factor demand and projecting the consequences of various policy alternatives in terms of relevant criterion variables. With further refinement the model can be useful in evaluating policy alternatives for Korean agricultural development.

ABSTRACT

A SHORT AND LONG RUN ANALYSIS OF THE KOREAN RURAL DEMAND FOR FOOD AND ITS IMPLICATIONS TO AGRICULTURAL POLICIES

By

Jongtack Yoo

The desire to investigate the rural demand for food in Korea emerged from the fact that relevant research in depth is rare and conventional static models for demand analysis have been inadequate.

It seems less attention has been paid to rural demand analysis, because of the fact that it is more complicated than urban demand analysis. One complication is that rural consumers are also producers of most food products they consume.

It has been asserted that long-run elasticities or effects in economic relationships are greater than short-run elasticities or effects. On the other side of the argument, it is also asserted that short-run effects are greater than long-run effects. In relation with these contradicting arguments, the other problem areas in both theoretical and methodological aspects in empirical demand analysis are instantaneous versus lagged adjustment, money illusion versus no money illusion, and other statistical problems such as aggregation bias and serial correlation.

Jongtack Yoo

A dynamic demand analysis by using a state adjustment model was undertaken. The basic idea of the model was to investigate if consumers adjust their consumption according to psychological inertia (habit) or according to the physical inventory level.

In this study, data were grouped into quarterly and annual data. With quarterly data, a state adjustment model for ten food items and a second-order distributed lag model for two major grains were specified for farm groups classified according to the size of land holdings. With annual data, three systems of equations for the demand for rice and barley-and-wheat were established.

It was found that rice, meat, dairy and processed foods have stronger habit forming aspects than other types of food studied. The adjustment coefficient in the rice demand relationship was the largest next to that of the processed foods. This indicates the degree of the habit forming characteristics of rice and will give a new direction in interpreting static demand analysis. The second order distributed lag model for rice and barley-and-wheat also gave consistent results with those of the state adjustment model; the lagged effects for rice were greater than those of barley-and-wheat, and for other foods, they were negligibl

There was no uniformity about the magnitude of short and long run effects. For rice, meat, dairy products and processed foods, the long run effects were greater than the

short run effects in absolute terms indicating a possible increase in the demand if income effect is positive and greater than price effect.

As to the differences among farm groups, the adjustment coefficient for the largest farm group showed the smallest value for rice(relative to the other farm groups), indicating that the more wealthy families have more opportunities to switch to other foods. The differences in the adjustment coefficients among the farm groups on other food followed no distinguishable pattern.

When undeflated nominal data were used, the results were less satisfactory, particularly in cases of income coefficients which were mostly negative. A sort of money illusion was interpreted as a rational consumer behavior for the farmer.

In the simulation model, a "three-mode" control method and various levels of government purchase prices of rice and barley were tried. Despite severe fluctuations of the results, an interpretation was established on the basis of the previous analysis; demand for rice would increase moderately or remain stable while demand for barley-and-wheat would decrease. The unstable results were attributed to unstable error terms in the estimated equation system and to exclusion of urban demand and supply response.

Relevancy of the characteristics of foods and its importance to policy issues have long been recognized. In

view of rural consumers' habit formed for rice, the policy instruments such as the purchase price mechanism may be limited.

Consequently future policy should place more emphasis on the rural poverty problem in general. In addition, efforts should be made to lower prices for which rural demands are elastic, such as processed foods and dairy products.

Though there were some encouraging results, there are many areas that should be refined and investigated. They include handling of nonlinear constraints, developing consistency checks with budget constraints and nutritional requirements, making inter-group comparisons of income elasticities, testing the validity of the permanent income hypothesis, and developing more stable and accurate simulation models.

ABSTRACT

SIMULATION OF THE CATTLE-CALVES SUB-SECTOR IN A DEVELOPED ECONOMY WITH SPECIAL REFERENCE TO THE CANADIAN CATTLE HERD

By

John James Meek

Cattle prices and cattle numbers in Canada have historically demonstrated a regular cyclical time pattern; recently this pattern has become more irregular. This cycle results in fluctuating incomes to producers, fluctuating prices to consumers, and fluctuating contributions to the foreign trade sector. While these fluctuations might have been tolerated in an earlier age, modern society demands more stability, more growth, and more management.

In order to predict supply or prescriptive right actions, descriptive knowledge of the dynamics of cattle production and trade is required. The purpose of this dissertation is to contribute both descriptive knowledge and analytical tools that may subsequently be employed in prescriptive and predictive applications as well as in future descriptive analyses.

The study has three basic objectives; these objectives are realized concurrently rather than sequentially. The first objective is to identify the structure and develop a model of the Canadian cattle herd consistent with specified design parameters. The second is to

identify, assemble, and explicitly evaluate such data, official and otherwise, as are required to build and validate the model. Thirdly, the model must be tested and found to be valid by specific validation criteria. The third objective includes generation of plausible disaggregations of published population and slaughter data.

This study was conducted as an element of the sector modeling program of the Economics Branch, Agriculture Canada. While the cattle herd model is designed to interact with other models in this program, it is also designed to provide useful answers independent of these other models. Specifically, the model reflects the supply side of the cattle-calves sub-sector. Modeling of the price determination mechanism, the trade mechanism, and the wheat-feed grain sub-sector are left to the other models with the cattle herd model taking prices and trade flows as given.

The cattle herd model is based on the biological growth and production processes as experienced and practiced in Canada. In addition, the cattle herd is separated into its dairy, beef, male and female components. Three geographic regions are recognized; Eastern and Western Canada are modeled explicitly while the third region, the rest of the world, is treated implicitly through the exogenously determined or given trade flows.

The herd is further disaggregated to recognize function, production process, and age. The basic functional choice is recognized through allocation of breeding age cattle to either the breeding herd (investment) or to the feedlot for subsequent slaughter (consumption).

Two feeding processes are modeled: the first simulates a low energy ration such as might be experienced with high roughage feeding; the second employs a high energy ration simulating feedlot feeding-finishing. Finally, the model recognizes age by subdividing calves into ages one to three months, four to six months, and six to twelve months. Further age subdivision is recognized through the above functions and processes.

While many aspects of cattle production and marketing are behavioral, three were isolated for explicit modeling. All others are left for subsequent model development. As investment-disinvestment in the breeding herd is central to the study of cattle herd dynamics, cow and bull cull flows and cow and bull replacement flows are estimated econometrically. In addition, the flow of calf slaughter is estimated in similar manner.

In order to conveniently adapt the behavioral models to the cattle herd model, a statistical "excess price" model was developed. This latter model is developed from simultaneous supply-demand equations to abstract from "own" price producing a single equation with quantity as the endogenous variable.

The excess price model proved to be a good predictor of quantity (flows) but was a disappointing estimator of sign. That is, the estimated sign of the regression coefficients differed from the predicted sign in a high proportion of instances.

The technique employed to model the cattle herd is that of generalized simulation. This technique encompasses the system science approach to problem solving. The system science approach is an

iterative, learning one where concepts or values initially held to be true may subsequently be found to be false or not useful in the context of the study. Should this occur, then a return to a prior stage of the investigation is required. Four tests of objectivity were used as validation criteria; the first two were applied continually throughout the study. These tests are: consistency with observed and possibly recorded experience, logical internal consistency of the concepts used, interpersonal transmissibility of the concepts used and results produced, and workability of the model in the solution of practical problems.

Three basic versions of the cattle herd simulator, CATSIM, were built. They differ basically in the method of calculating investment and disinvestment in the breeding herd. The most advanced version, CATSIM3, employs the behavioral models to estimate these flows. Two other models were built. The first, MATRIX, is used to estimate endogenous variables for the behavioral models from known published data using simplifying assumptions. The second, RECON, is used to evaluate the various published data series and other information descriptive of the cattle herd. This second model is based on a single identity.

The most substantive results of this study are contained in the structure, parameter estimates, and assumptions of the models. A basic purpose of this study was to develop general models and evaluate historic cattle data in order to solve future practical problems. This objective was met.

While meeting this basic objective, several useful results were obtained concurrently. MATRIX provided highly plausible estimates of dairy and beef cow slaughter and replacement flows for both Eastern and Western Canada. Eastern and Western bull cull and replacement flows are also estimated as well as beef and dairy calf slaughter flows. These estimates are produced for the years 1958 to 1972 inclusive.

RECON provided valuable insights into the validity of official cattle-calves statistics for the period 1959 to 1972. In addition, the model provided an opportunity to test certain beliefs about the cattle herd, cattle production and cattle trade. The assumptions made to disaggregate the official data in order to build MATRIX, RECON, and CATSIM, served to accent the deficiency of the official data.

Model CATSIM embodies all of the descriptive knowledge of the cattle herd that was assembled. This model generated quarterly population and slaughter flows for the years 1958 to 1972 inclusive. These estimates were demonstrated to be highly credible when compared to the historic official data. These data disaggregations are a significant result.

All models serve to highlight deficiencies in the descriptive knowledge of the Canadian cattle herd. Model sensitivity to certain model elements served to rank the importance of the missing elements. While all models developed in this study may immediately be adapted to solve practical problems of the cattle-calves sub-sector, a concurrent effect must be made to alleviate these noted deficiencies.

ABSTRACT

ADJUSTMENT IN THE UTILIZATION OF AGRICULTURAL LAND IN SOUTH CENTRAL MICHIGAN WITH SPECIAL EMPHASIS ON CASH-GRAIN FARMS

By

Yung-chang Lee

The main objective of this study was to determine profitable adjustments in the organization and use of land by cash-grain farms in response to the increasing demand for agricultural products. Emphasis was placed on estimation of the marginal value productivities for various inputs and investments which would provide an objective and reliable basis for evaluating the efficiency of current farm organizations and serve as a guide in planning the necessary changes in farm organization. Further, the general land use situation and the factors affecting the utilization of land in a Miami/Conover soil area were studied.

The data used in this study were obtained from 61 cash grain farms in south central Michigan for the operating year 1972.

Linear programming was used to determine optimum farm plans with (1) farm resources fixed at initial level, (2)

labor, land and machinery investment variable and (3) product prices variable. Investment/disinvestment theory was incorporated into situations (2) and (3). Farmers were stratified by age of operator and net worth as a major determinant for setting up four representative farms. The former was used to indicate their willingness and the latter their ability to make adjustments. The analysis was first presented for Model I with cropland and associated durable resources fixed at initial levels. Secondly, the optimal organization was given for Model II which permitted variation in land resources and associated durable assets.

A production function of the Cobb-Douglas type was employed in deriving the estimates of marginal value productivities of inputs and investments. An effort was made to examine returns to scale by dividing the sample farms into two size groups. Examination of results lead to use of the third equation which forced constant returns to scale. Estimated coefficients were adjusted in a rough "Bayesian" way. Profitable reorganizations of farms were studied using the adjusted regression coefficients.

A comparison of linear programming and Cobb-Douglas techniques was made so as to be able to exploit fully their complementarities. In addition, an attempt was made to distinguish the more or less pseudo MVPs of linear programming from the MVPs of continuous function, which are partial derivatives of such functions.

The programmed solutions indicated that farms in this area similar to the representative cash-grain farms could profitably adopt a wheat-beans rotation under price conditions which existed in late 1973. Also, a corn-corn-corn-corn-soybeans rotation entered the optimal solution on larger farms. Land was the most limiting resource for each representative farm, so long as off farm work and migration were restricted. All farms had some members with off farm work, which agrees with what cash grain farmers were doing in south central Michigan area in 1973. Maximization of returns for representative farms in the studied area used all initial capital and considerable credit indicating that cash grain farmers are currently not fully utilizing their capital resources. Furthermore, capital and labor were not fully utilized in Model I where farm resources were fixed at initial levels. Thus, the representative farms studied were not completely organized so as to maximize profits.

The results of the functional analysis showed that marginal value product for land was comparatively high, indicating the desirability of a moderate expansion in acreage per farm. Operating expenditures and machinery investments were high relative to the other inputs, as reflected by the low returns to these input categories. This suggests that (a) more care is needed in handling operating expenses and machinery investment, and (b) the need to expand farm size in order to use machinery and operating expenditures

more effectively. The earning power of farm labor was still not high enough to compete with industrial wage rates even at favorable 1973 farm product prices. Thus, off farm work and/or migration was justified. The low earning power of labor indicated the desirability of reducing its use relative to land and other inputs.

An increase in the use of land would tend to reduce its earning power at the margin but at the same time would increase the marginal earnings of machinery, operating expenditures and labor. Consequently, higher farm income would be generated due to better farm resource combination involving more land relative to machinery and, especially, labor. Near constant returns to scale beyond 150 tillable acres were found empirically in the functional analysis, but were assumed in the linear program; thus findings of the functional analysis confirm the assumptions of the linear programming analysis. Both functional and programming analyses indicated high returns to land and low returns to other inputs and investments.

The implications of the study were drawn in such a way as to exploit the complementarities between the linear programming and Cobb-Douglas analyses. Judging from the existence of considerable amounts of unused cropland and potential cropland found in the area studied and the fairly high returns to land, it was concluded moderate increases in farm size should be expected to continue in a foreseeable

future. The continued development and rapid adoption of larger and efficient machinery will probably give additional momentum to this trend, and creates some pressure on land prices.

However, farm size should not be expected to expand without limit. The programmed results indicated that labor (including managerial labor) is a major restriction on expansion of farm size. In addition, the trend toward increasing farm size would be offset by continual increasing inputs costs for machinery, fuel, herbicides, labor, and fertilizer etc.; reduced availability of both skilled labor and entrepreneurs; and product price uncertainty.

The results of the study imply that the possibility of establishing new farms is low due to: (1) the cost involved in establishing a new farm, (2) low returns to labor, cash expenditures and machinery even at 1973 farm product prices, (3) the scattered location of unused land, and (4) nonexistence of economies to scale beyond 150 tillable acres. As such, a continual decrease in the number of farms would be expected, as average farm size becomes larger and more efficient, larger machinery is substituted for increasingly expensive labor in the production process.

ABSTRACT

THE EFFECTS OF IMPORT RESTRICTION ON

JAPANESE AGRICULTURAL PRODUCTION

By

Susumu Hondai

Because its balance of payments surplus grew, the Japanese government changed its import policies and removed import quotas on 25 of 49 imported agricultural products. But the Japanese farmers, the farmers' cooperatives and the agricultural economists strongly opposed the removal of these import quotas. They also wanted to keep the quotas that remained on the 24 other agricultural products and argued that the removal of any additional quotas would destroy Japanese agriculture.

Many economists believe that import quotas on agricultural products protect domestic farmers from foreign competition. But in this thesis, we questioned this belief and we hypothesized that some import quotas may adversely affect farmers. To find out how strong import quotas protect agricultural products, we investigated the mechanism of import restrictions and used the Cobb-Douglas production function to estimate the degree of protection on the Japanese wheat, pork, beef and dairy products. We used 1970 data compiled by the Japanese Ministry of Agriculture

and Forestry. We then estimated the production changes caused by the changes in import policy for four products--beef, milk, pork and wheat.

Our results showed that the difference between nominal and effective protection rates originates from (1) smaller duties on imported inputs and (2) the substitution of imported inputs for nontraded inputs of production. Since three of the above four agricultural products used imported inputs which have protection rates smaller than those of the three products, the effective protection rates on the three products were therefore significantly higher than the nominal protection rates. Also, production of the products with a high effective rate expanded faster than the one with a low effective rate. This fact showed that production resources moved from the product with a low effective rate of protection to the product with a high effective rate. Moreover, due to large utilization of imported inputs, the supply elasticity of the products is rather large. The investigation of the effects of tariff reductions on the domestic production showed that a small decline in import protection on pork may reduce production drastically.

Next, using a simultaneous market equilibrium model, we empirically tested the effects of the import quotas on an oligopolistic market, the Japanese dairy market, and a competitive market, the Japanese beef market. The results of simultaneous market models showed that an import quota

on an oligopolistic market at the processing level does not protect farmers, but it does protect the oligopolistic processors. So if the Japanese government wants to attain higher economic efficiency and growth, it should remove some of the import quotas on its agricultural products.

ABSTRACT

AGRICULTURAL EXPORT POTENTIALS AND BALANCE OF PAYMENTS ASPECTS OF THE NIGERIAN ECONOMY

By

Robert Eugene Gray

Agricultural exports have played a fundamental but multi-faceted role in the economic development of Nigeria. They have provided a basis for income and employment for the country's two - three million small, export-oriented farmers and for related industries. Until very recently agricultural exports supplied a major portion of foreign exchange earnings and government revenues for the development of other sectors of the economy.

A major agricultural policy issue presently facing Nigerian Government administrators is whether to accept and encourage the smallholder export sector as a major development agent over the next 15 - 20 years. This dissertation analyzes the export potentials for selected Nigerian agricultural commodities over the 1970-1985 period under three alternative sets of export and agricultural policy strategies.

The commodities considered are the present principal export crops--cocoa, palm products, groundnuts, groundnut products, and rubber--as well as the import substitute and

minor export crops of cotton, rice, hard fibers, feedgrains, and beef.

The three broad strategies are:

Strategy I. A continuation of present export policies while allowing food production and marketing to be guided by market forces.

Strategy II. Movement to higher producer prices and improved services for export and selected import substitute crops; expanded research on high-cost staple foods.

Strategy III. Harsher strategy than at present for private producers; large public investments in agricultural production; cheap food policies; and heavy taxation of agriculture.

A theoretical framework comparing the Vent for Surplus and Comparative Costs models of international trade is developed for analyzing the export performance and for projecting export growth in countries similar to Nigeria. The theoretical framework also provides a reconciliation between the two models which give the same results as to quantities traded, resources employed, and returns to factors of production when the same general sets of assumptions are used for both models.

The most fundamental conclusion of the study is that the overall outlook for Nigeria's present and known potential export crops is generally favorable over the next 15 years and that agricultural export production should be increased.

The market outlook for Nigeria's principal import substitute and minor export crops is especially favorable.

Projected export earnings, government revenues, government expenditures, and farmers' incomes are calculated for each of the three alternative development strategies over the 1970-1985 period. Export earnings and farmers' incomes from export crops would be expected to increase dramatically with the favorable Strategy II policies and to decline from the 1970 levels with either a continuation of the present Strategy I policies or the harsher policies of Strategy III.

NARROWING TAIWAN'S PER CAPITA FARM/NONFARM INCOME GAP VIA INCREASED AGRICULTURAL PRODUCTION AND GUARANTEED PRICES: PROJECTIONS AND ANALYSIS, 1973-1984

By

Raphael Shen

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ABSTRACT

NARROWING TAIWAN'S PER CAPITA FARM/NONFARM INCOME GAP VIA INCREASED AGRICULTURAL PRODUCTION AND GUARANTEED PRICES: PROJECTIONS AND ANALYSIS, 1973-1984

By

Raphael Shen

Over the past nineteen years, Taiwan's industrial production has been increasing at a steady annual rate of 14.7 percent. Agricultural production over the same time period saw a meager annual growth rate of 4.8 percent. Agriculture has fallen in relative importance within the economic structure in Taiwan. A succession of four-year economic development plans has been focusing its attention more on the expansion of secondary and teriary sectors. As a result, the farmer's share of the rapidly increasing national per capita income has been steadily falling relative to a nonfarmer. The increasingly unfavorable income differential between farm and nonfarm people not only limits the purchasing power by farmers of industrial products, it also curtails the reinvestment ability of persons on farms. The main objective of this study is to provide decision makers with alternative per capita farm income consequences to various policy measures in the form of price support for selected major agricultural products. More specifically, this study: 1) constructs the hitherto unavailable time series data

on per hectare cash expenditures for the production of major crops in Taiwan, 1959-1972; 2) establishes projective relationships for yields of nine major crops and then projects the consequences of alternative production possibilities for the year 1973-1984; 3) projects through time four alternative per capita farm income streams and four resulting farm/nonfarm income ratios for the years 1973-1984; and, 4) makes recommendations concerning ways of closing the income gap between the farm and nonfarm populace through price support programs.

Due to the lack of detailed knowledge and data needed to construct structural equations, the projective equations set forth in this study do not weave into a system of "n" equations with "n" unknowns which can be reduced. Rather, the projective equations used in this study are probably partially reduced forms of unspecified and unknown structural equations. Each of the equations is distinct, and the endogenous variables are expressed as functions of exogenous, lagged endogenous or policy variables. Their strength is not in their individually estimated parameters as in their nonmonetary parameters and in having the estimated results fed into structural identities in a later stage.

In the projective equations, the per hectare yields of crops in time period "t" are the functions of their corresponding per hectare cash expenditures in "t", which are in turn the functions of policy determined prices of these respective crops in "t-1". Via structural identities, per hectare yields of these crops, together with their corresponding hectareages cropped and their respective prices during the time period, result in their contributions to total value product of crop productions. Incomes from cropping actitivites, in conjunction

with incomes from livestock raising activities constitute farm incomes from farming activities. The latter, added onto projected farm income from nonfarming activities, represents the total farm income. A comparison through time is then made of the per capita farm and nonfarm incomes to determine whether a given price support policy is adequate in its attempt to raise crop/livestock productions and to close the per capita farm/nonfarm income gap in Taiwan.

From the four projected per capita farm incomes consequent upon four alternative policy measures, it is concluded that policy alternatives I and II do not achieve the stated objective of closing income gaps between the two sectors of Taiwan's population. Policy alternative III projects rapid narrowing of the said income gap. But whether consumers of farm products will accept the proposed level of price support for selected agricultural products is subject to further consideration by policy makers. Projection results from alternative IV promise to raise agricultural productions and agricultural incomes in a more moderate pace than alternative III. Yet, policy alternative IV projects the narrowing of income gap between farm and nonfarm population in Taiwan during the period of projection. The study results suggest that the perennial problems of inability to consolidate/mechanize farms in Taiwan may "resolve themselves" in time as a by product of implementing policy alternatives III or IV. This study also points out the need for more detailed farm input data for future studies.

ABSTRACT

POTENTIAL LIVESTOCK PRODUCTION ADJUSTMENTS
ON FAMILY FARMS IN CENTRAL MACEDONIA, GREECE

By

Loukas Ioannis Ananikas

The dominant problem of the livestock industry in Greece is the growing imbalance between demand for and supply of livestock products. Livestock production has increased during recent years but has failed to keep pace with rapidly increasing consumption. Consequently, Greece has been forced to turn to imports of livestock products to meet growing consumer demands. In addition, the relative consumption among different categories of meat has changed significantly over the past decade. There is a trend toward increasing beef consumption primarily due to an increase in per capita income, urbanization, and education of the people concerning the nutritive qualities of beef.

Various suggestions have been made for increasing livestock production. These suggestions call for introduction of new technology, for reallocation of the existing resources on family farms, for acquisition of more land and

capital, for large scale specialized operations, and for group farming.

In response to the national goals of increasing domestic livestock production, minimizing imports, and improving farmers income relative to other sectors, the main objective of this study were:

(1) To assess the capability of the small family farms to increase livestock production through increased efficiency in resource use.

(2) To evaluate the potential and conditions under which livestock production on small family farms can be expanded by acquiring additional land and capital.

(3) To evaluate the impacts of present and potential price policies on livestock output on individual farms.

Linear programming techniques were used to determine the organizations that would maximize farm income under existing resources, varying land and capital resources, and under varying milk and beef prices. The objective function to be maximized in the model was the farm gross margin. Data concerning the resources, enterprise organization and technology were accumulated from a survey of family farms in Central Mácedonia, using stratified random sampling. Data related to input-output coefficients and prices had to be assembled and synthesized from the survey personal interviews with technical specialists, statistical bulletins, and research publications related to the studied area. An

average farm was selected for the purpose of estimating optimum plans, which was assumed to be representative of the small family farms in the area.

The main conclusions of the study were as follows:

(1) Allocative efficiency promises only small improvements given the existing level of resources, technology and farm prices.

(2) Land and capital were the most limiting resources. Returns to land and capital were high in comparison with land rent rates and the opportunity cost of capital.

(3) At the assumed low level of capital the expansion of livestock enterprises was limited by capital, while at the higher level of capital (unlimited credit) the expansion of livestock enterprises was restricted by fall, spring and summer labor.

(4) Since labor resources were not fully utilized, it would be profitable for the farmer and family members to work off the farm providing employment opportunities were available as assumed. The expansion of capital with no expansion in land generated more livestock production and less unemployed labor. On the other hand, expansion of land with no expansion in capital brought about less livestock production and more unemployed labor.

(5) Farm enterprises were sensitive to price relationships. Corn entered the optimal plan only when a milk price of 5.6 to 6.1 Dr/kg was applied. Beef production activity

entered the farm organization when the farm price of beef exceeded 69.0 Dr/kg.

(6) The current level of feed grain subsidy was insufficient to bring about the changes in livestock production desired by the government.

It should be emphasized that the above conclusions are dependent upon the assumptions made in the model. Therefore, farmers and policy makers should not rule out consideration of alternative plans.

ABSTRACT

AN ECONOMIC ANALYSIS OF COTTON
PRODUCTION, MARKETING AND PROCESSING
IN NORTHERN ZAIRE

By

Eric Frans Tollens

Presently, cotton production in northern Zaire is less than half the 1960 level when Zaire gained independence from Belgium. Production has declined because of a reduction in the number of cotton farmers, cotton acreage per farm and reduced yields per hectare.

The Government of Zaire is now committed to develop northern Zaire based on agricultural and industrial development of the third growth pole centered in Kisangani. Cotton production will play an important role in a comprehensive strategy for developing the rural areas as ecological conditions favor the production of cotton and domestic and export demand is favorable for cotton lint.

The purpose of this study is to describe the cotton subsector in northern Zaire, identify barriers to expanding cotton production, evaluate alternative strategies for increasing cotton production and formulate policy prescriptions for expanding cotton production and for improving the performance of the cotton marketing system. This study utilizes the concept of a subsector study and focuses on cotton production, marketing and processing in northern Zaire, including both the vertical and horizontal relationships for this subsector.

Eric Frans Tollens

The major features of the agricultural economy in Zaire were reviewed and the essential economic characteristics of the cotton subsector in northern Zaire and of its environment were described in order to understand how the subsector operates. A farm business survey of 160 randomly selected cotton farmers was conducted in northern Zaire over the 1972-1973 cotton production year. Enumerators visited each farm twice a year, once before harvest and once after harvest. The survey generated information on the characteristics of cotton farmers, cotton production practices, the "crop imposition system," the agricultural extension service, farm size, yields, incomes, marketing of seed cotton, and the major constraints on expanding cotton production.

The survey of 160 cotton farmers revealed that seed cotton yields were low, 399 kg. per hectare, cotton acreage per farm was 0.36 hectares, and the gross income per farm from cotton production was 8.79 Zaires (17.58 dollars). There was a large variation in cotton acreages and yields between farms. Generally, farmers were not following simple but recommended agronomic practices such as time of planting, spacing, etc. In addition, there were no farmers in the survey using chemical fertilizers, pesticides, tractor mechanization or agricultural credit. However, some cotton fields were treated with insecticides by the agricultural service of ONAFITEX, the national cotton marketing office.

An analysis of the returns to labor for cotton and for other selected commodities in northern Zaire revealed that the returns for cotton were comparable with those for the major food crops but were below the legal minimum wage of unskilled workers in rural areas. The returns for perennial crops, cocoa, coffee and oil palm, were more than

three times higher than for cotton and were well above the legal minimum wage.

A multiple linear regression model was used to explain the variation in cotton yields and in cotton acreages between farms. Dummy variables representing the major differences in ecological conditions and in agronomic practices between the four subregions in the North were among the most important variables explaining the differences in cotton production between farms in northern Zaire.

Alternative strategies for increasing cotton production in the North were analyzed and evaluated. These strategies must be examined in the context of increasing regional commodity specialization within northern Zaire and in a political economy framework of developing the North. In the immediate future, the most promising avenues for expanding cotton production are a revision of cotton pricing policies, diffusion of improved agronomic practices, an overhaul of the cotton extension service, a pilot cotton development project in Bas-Uélé, and accelerated research on new varieties.

Although the government has raised the producer price of seed cotton a number of times since independence, the real purchasing power of seed cotton in December, 1973 was only about half the June 1960 level. Local fiber prices are kept low to protect the Zairean textile industry and Zairean consumers. A substantial increase in the price from 6.5 Makuta to 10.0 Makuta per kg. for the first grade seed cotton is needed to provide adequate incentives for farmers to expand cotton production. An increase in the domestic lint price of 15 to 20 K. per kg. would generate enough revenue to enable ONAFITEX to raise the producer price.

A price increase of 15 to 28K. per kg. of cotton lint for domestic spinners would raise the price of domestic lint to about 60 to 65K. per kg. of lint, still well below the price they would have to pay for imports of the same quality and grade. Higher producer prices would, in turn, reduce per unit cotton marketing and processing costs and will provide ONAFITEX with substantial export earnings. When more favorable producer pricing policies are adopted, the cotton "imposition system" can be removed and the cotton extension service can gradually shift from its traditional regulatory role to an educational level.

There is a large opportunity for increasing cotton yields in northern Zaire by introducing improved agronomic practices. However, a major overhaul of the cotton extension service is needed in order to create the administrative structure and leadership for effective small farmer extension programs. Extension reforms include retraining and upgrading of extension workers, creation of regional cotton extension committees and the establishment of an extension department at the National University of Zaire and at the National Institute for Agronomic Studies and Research. Extension agents should focus on assisting farmers in adopting simple agronomic practices such as timely planting and harvesting, correct spacing, frequent thinning and weeding, etc. We also recommend that the extension service encourage farmers to purchase locally made hand powered sprayers or dusters. Farmers should be taught how to protect their crops from cotton pests instead of relying on the cotton extension service to apply pesticides to their fields.

There is a strong case for establishing a pilot cotton development project in Bas-Uélé, centered in Bambesa. Such a project, focusing on

an extension of improved agronomic practices, would have a great potential for increasing cotton production. Moreover, specialization of production in this area would substantially reduce per unit assembly, transport and ginning costs.

Research on new varieties for the North should also be accelerated and improved varieties should be imported from neighboring countries. Chemical fertilizers, tractor mechanization and agricultural credit are less promising strategies for increasing cotton production in northern Zaire in the immediate future. More technical and economic research is needed at the farm level to determine the profitability of alternative rates of fertilizer application, selective mechanization and agricultural credit. When the cotton producer's price is raised and when the extension service is upgraded, these strategies may become feasible.