APPENDIX: NEW PROJECT PROPOSAL

Bruce J. Sherrick, Warren F. Lee and Eddy L. LaDue

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Department of Agricultural Economics and Agribusiness
Dale Bumpers College of Agricultural, Food and Life Sciences
University of Arkansas
221 Agriculture Building
Fayetteville, AR 72701

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Appendix

New Project Proposal

Written by: Bruce J. Sherrick, Warren F. Lee and Eddy L. LaDue

Sub-Objective Contributors: Paul N. Ellinger, Timothy G. Baker and Allen M. Featherstone

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Project Number: **(new proposal)**

Title: Financing Agriculture and Rural America: Issues of Policy, Structure and Technical Change

Duration: October 1, 1998 to September 30, 2003

Justification: Several prominent changes have been identified that have significant implications for the financing and capitalization of agriculture and rural America. Among these are the shifting policy environment, changing structural organization of the agricultural production sector, and the need for new managerial responses to technical change and other environmental forces. One of the major policy changes at the federal level has been a shift in emphasis away from direct, producer-level support toward a broader food systems emphasis. Major legislative changes in the "farm program" are contained in the Federal Agricultural Improvement and Reform (FAIR) Act of 1996. Possible impacts of the removal of the "safety net" of commodity programs include increased income variability, and the need for appropriate private sector risk management responses. Additionally, potentially significant changes to federal income tax, capital gains tax, and estate tax provisions could have serious impacts on agricultural producers and owners of agricultural assets. In many states, various approaches to property tax reform have been adopted or discussed, again with serious implications for agricultural land use and tax burden/equity issues, but with little agreed-upon understanding of the level and distribution of consequences, especially to agricultural land owners.

In addition to FAIR, virtually all the lending from the federal government to agricultural producers, rural development projects, rural nonfarm enterprises, and rural housing has been shifted from direct to guaranteed loan programs. Little is understood about the costs and consequences of these changes. These changes have taken place in conjunction with a redistribution of parts of the responsibilities of the former Farmers' Home Administration (FmHA) to the new Farm Services Agency (FSA), with others going to Rural Economic and Community Development (RECD). The new division of responsibilities raises several concerns about the impacts of the reorganization on the costs and provisions of these services and products. In addition, access to Government Sponsored Enterprise (GSE) funding markets for agricultural debt capital providers continues to be challenged, suggesting that the historic status of agriculture as a favored sector is diminishing. Finally, the regulatory environment for financial institutions has cycled through periods of increased oversight and back through periods of reduced regulatory burden. Financial capital providers have responded both to structural changes in the production sector and to changes in the regulatory environment that affect branching, charter authorities, reporting requirements, and lending practices.

Increased integration and coordination at the farm level are becoming prominent for a number of farm types. Access to capital may depend critically on the size and organization of the production unit -- a fact that has led some to question the availability of capital for beginning farmers and startup rural nonfarm businesses. Large scale reorganization of the commercial banking sector will likely continue as the effects of banking and branching laws materialize completely. Likewise, continued consolidation of both Associations and Banks within the Farm

Credit System, has continued and even accelerated. And, several nontraditional lenders have increased in prominence, either in reaction to, or in conjunction with these other changes. In total, the reorganization of the lending sector undoubtedly has implications for the cost and availability of capital to farm and nonfarm rural businesses, yet these implications are not yet well understood. On one hand, increased competition may be fostered by removal of regulatory constraints. On the other hand, regionalized and more consolidated lenders may devote less resources to local agricultural lending markets which tend to have more specialized information and management needs.

Among firms providing financial capital, responses to policy, structural, and technological change affect the quality, pricing and quantity of financial products and services. The interface between the customers and financial institutions has undergone significant evolution as information technologies and customer needs become more sophisticated. These effects again raise concerns about the availability and access for the capital intensive agricultural sector.

Related, Current and Previous Work:

This is a new project that draws largely from the membership of NC-207 which expired on September 30, 1996. In organizing the proposal, a CRIS search was conducted and academic literature reviewed related to financing and capitalization of agriculture and rural nonfarm businesses. The results of each of these activities were presented at a special session of the Summer meetings of the American Agricultural Economics Association in 1996.

There are currently no other active regional research projects that deal with the financing of agriculture and rural America. The NC-207 project was narrowly focused on financial issues related to production agriculture. The new project is significantly broader in its inclusion of financing issues related to other rural enterprises and firms beyond the farm gate, and draws from more diverse academic and industry participants. Furthermore, the NC-207 project placed heavy emphasis on performance of financial institutions. The new project encompasses structural, policy, and management issues related to farm and non-farm rural businesses and to providers of capital to these businesses. The linkages and interactive effects of the changing operating environment among users and suppliers of financial capital is a primary focus of the new project. Like NC-207 however, the new project continues to monitor policy changes, and examines the effects of federal and state credit programs. Finally, the project provides a unique forum for the discussion of contemporary issues in financing agriculture by a broad representation of the academic community, the financial services industry, and government.

There has been a lack of research addressing these issues that would permit a deeper understanding of the economic, social, and policy consequences of the changes noted above. The use of the regional committee structure to investigate these issues permits more efficient use of increasingly limited resources at individual institutions. Because these issues are frequently regional or national in scope, addressing their impacts requires coordination among participants from the states that are affected. And, the integration of academic, industry, and government participants provides a true interdisciplinarity that could not be achieved through combinations of academic interests alone. The following objectives have therefore been identified to guide the activities of the proposed regional project. Each of the objectives are further developed with procedures that reflect both production level, and capital market effects, and examine the changing management responses in these evolving sectors.

Objectives:

1. Determine the effects of changes in federal and state policies affecting agriculture on the financial and economic performance of farm and rural nonfarm businesses and rural financial markets.

2. Identify and evaluate the costs and benefits of structural changes in production agriculture, rural nonfarm businesses, and rural financial markets.

3. Measure the effects of technical change on rural financial products, services, and firm decision making.

Procedures and their expected outcomes:

Procedures for Objective 1: Determine the effects of changes in federal and state policies affecting agriculture on the financial and economic performance of farm and rural nonfarm businesses and rural financial markets.

> *a. FAIR - Analyze the effects of greater reliance on the market and transitory payments for risk management strategies, investment decisions, asset values, and financial health.*

Researchers from each state involved in the proposed project plan to participate in this sub-objective (Illinois, Ohio, Indiana, Kansas, Kentucky, North Dakota, Iowa, Michigan, Texas, New York, ERS, Arkansas, and Minnesota). Several participants (Indiana, Arkansas, Illinois, and ERS) will collaborate on the development and use of risk management simulation models. One aspect of the objective is to determine the differential effects of FAIR on different sectors. For example, in addition to considerable focus of the participants on farm financial health, researchers at Texas will use event study methodology to investigate the impacts of FAIR on input suppliers. Research at Minnesota and ERS will focus on the implications of changes in the level of credit risk of borrowers for various lenders (i.e., Farm Credit Institutions, Commercial Banks). In response to the removal of commodity programs, researchers will examine risk management strategies employing options and futures markets in price and yield, crop insurance, revenue insurance, diversification in operation and investments, leasing (land and other assets), inventory management, contracting, liquidity management, and leverage levels. Outcomes include the jointly developed education model to assist individuals in evaluating insurance options available and proposed by FCIC in the absence of traditional commodity programs. Furthermore, attention will also be given to the effect of FAIR on asset values (primarily farm land) by each of the states participating.

b. Tax policies and reform - Quantify the effects of tax policy changes on tax burdens and on financial organization and location decisions of farm and rural businesses and households.

Proposals to modify tax policy continually surface. For example, recent proposals include: single rate flat tax, reductions in the capital gains tax, and modified tax treatment of deferred pricing. The purpose of this sub-objective is to be in the position to respond to these and other proposals as they arise over the five years of the project. Researchers at Illinois will develop a tax impact model which will be used by several other participating states (Michigan, North Dakota, Ohio, ERS, New York, and Indiana). The emphasis will be on the distributive effects of tax changes, the effects on decisions of producers, structural implications, and effects on asset values (especially farm land).

c. Identify the role of public and quasi-public institutions [Farm Service Agency (FSA), Rural Economic and Community Development (RECD), development banks and credit unions, Small Business Investment Companies (SBICs), Community Development Institutions (CDIs), Revolving Loan Funds (RLFs), etc.] in delivering financial services to farm and rural businesses, rural communities and low income households.

Several new or re-targeted programs have been proposed to "fill" potential gaps that result as traditional lenders reorganize and undergo structural change. Work examining interest rate differentials as a measure of competitiveness will be undertaken utilizing a survey and Call Report data. Researchers in Ohio, Arkansas, ERS, New York, Michigan, and Indiana are coordinating the phases in this procedure. The direct participation of those involved in the associated policy debate is critical both for dissemination of the results and for them to have access to qualified research products that address the relevant policy questions.

d. Government Sponsored Enterprises (GSE) and securitization - Determine the effects of changes in GSE status and the impacts of alternative securitization opportunities. And, determine the effects of charter authority and safety and soundness regulations on products and services of financial institutions.

Researchers at ERS, Illinois, Indiana, and New York have indicated their intent to participate in this activity. Researchers will investigate alternate funding channels and develop alternate models of access to estimate costs differentials associated with the various proposals that have been suggested. Because the policy debate on this issue is very dynamic, it is impossible to anticipate the eventual legislative outcome, thus the intent is to be able to provide meaningful debate across the wide variety of options being considered at this time.

The Farm Credit System and commercial banks are somewhat territorial about their authorities. Whatever the outcome of the debates on their authorities and access to GSE funds, there are serious implications for each of the players. A significant outcome of this proposed committee would result from direct participation by these and other institutions (i.e., Federal Reserve Banks) directly involved in financing agriculture and rural America. For example, a current, hotly debated issue involves the new risk-based capital requirements for both farm credit institutions and commercial banks as well as the new insurance funds that exist for the major categories of banks, thrifts and savings and loan institutions, and farm credit system institutions. The committee anticipates holding meetings in locations with hosts that are involved in these kinds of debates and including sessions with presentations by the industry participants in addition to the academic contributors. The direct inclusion of the industry participants also facilitates relevance, applicability, and the timeliness of the research outcomes and their dissemination.

e. Identify the impacts of changes in monetary, fiscal, and other policies on rural financial market participants.

A variety of policies affect the markets for rural financial capital. These include federal and state fiscal policy, monetary policy, regulation of financial institutions, corporate farming laws, and state credit programs for farmers and rural development. Researchers from ERS, New York, Minnesota, North Dakota, Arkansas, Michigan, and Ohio have proposed the administration of a multi-state survey on corporate farming laws, federal and state programs for financing rural development, and state credit programs.

Procedures for Objective 2: Identify and evaluate the costs and benefits of structural changes in production agriculture, rural nonfarm businesses, and rural financial markets.

a. Identify the financial structure and resource needs of bi- or tri-modal agriculture and increasingly vertically coordinated and integrated agriculture.

Integration within agriculture continues to be a force of change. With integration, the sources for capital become more diverse. For example, many large firms can access the capital markets directly bypassing traditional lenders. In addition, mega-farms that cross traditional Farm Credit System district lines are causing adjustment within the system. Purdue, Minnesota, Arkansas, North Dakota, Michigan, Ohio, and the Economic Research Service will cooperate in addressing this objective. Included are the roles of value-added cooperatives and the use of "real-option" models to examine the investment in integrated production facilities. In addition, economic decisions models will be constructed to examine the relative attractiveness for various capital sources.

Work will also examine the resource needs of the small traditional family farms. Arkansas, New York, and the Economic Research Service will cooperate to determine capital sources and the financial viability for beginning farmers and for financial rural nonfarm businesses. Farm planning models will be used to examine the financial viability of new entrants under various funding strategies. In addition, current capital sources will be analyzed. Arkansas and the Economic Research Service will also monitor new legislation affecting entrants as it is enacted.

b. Identify the effects of structural changes on loan price and availability, operating efficiency, risk bearing capacity, lender-borrower relationships, operating policies and practices.

Major structural changes have occurred in the lending industry. For example, the number of banks in Indiana alone has decreased by roughly 50 percent over the last few years. Indiana, Illinois, Minnesota, Arkansas, Kansas, Ohio, and the Economic Research Service will analyze the various effects of structural change in the sector. Banks' post acquisition performance will continue to be monitored to determine whether the supply of capital available to agriculture declines as banks roll out of current relationships. Dynamic models under the assumption of asymmetric information will be adapted to agricultural lending institutions to provide testable formulations of these hypotheses. Efficiency analysis techniques will be used to examine whether mergers within the banking sector have led to increased efficiency within the sector. Asset-liability practices used by the Farm Credit System institutions and the banking sector will be monitored to determine whether practices adjust to the new structure.

c. Nontraditional Lenders- Identify practices, effects and importance for input suppliers, individuals and other unregulated lenders to gain a growing share of the agricultural credit market.

Several product vendors have developed lending operations in conjunction with the sales of their products. Many traditional lenders have noted that these essentially unregulated lenders have become highly competitive in specialized lending markets and have taken significant market share away from traditional lenders. A multi-state coordinated survey will be lead by Illinois with other participants from Indiana, Kansas, New York, North Dakota, Arkansas, Michigan, and the Economic Research Service. The objective of this survey is to provide a clear picture of the current practices and the importance of nontraditional lenders. Associated with this objective, theoretical and empirical research will be undertaken to determine the advantages unregulated lenders may have compared to regulated agricultural lenders. Analysis will also be undertaken to determine whether or not nontraditional lenders would remain in the market during cyclical downturns, and how production agriculture would be affected in either case. Agency theory models and econometric approaches will provide the analytical framework. Industry participation in this procedure is especially valuable for gaining access to otherwise sensitive and largely private data, and for providing direct channels for disseminating findings and research products.

Procedures for Objective 3: Measure the effects of technical change on rural financial products, services and firm decision making

> *a. Identify the effects of improved information processing and technological changes (including electronic funds transfer, ATMs, phone loans, and Internet services), on availability of financial products and services and credit relationships*

A combination of surveys, econometric procedures and firm-level models will be used to: address the effects of technology on the quality, quantity and pricing of financial products and services; develop credit scoring and risk rating methods and implementation strategies; identify the impacts of improved technology on the economic performance of financial institutions; assess the effects of automation and technology on lender-borrower relationships; and analyze the impacts of the new tools and technology on the ability of firms to manage risks. First, a multi-state survey of lenders will collect primary information on the current use of technology by financial institutions, costs associated with using the technology, the degree of partnering with other institutions to access technologies, and the lender's perceptions on the impacts the technology has on institution-customer relationships. Evaluating the wide variations in the sizes of banks, legal structures, regulations and competitive environments among the states is essential in assessing the effects of technical change on financial products and services across different institutional and environmental characteristics. The survey results will be combined with Call Report and Summary of Deposit data. Illinois will take the lead in coordinating the other states involved in the surveys.

> *b. Evaluate the effects of improved management information systems on firm level decision making.*

Separate projects will use portions of the combined data set to address specific issues outlined above. For example, the effects of specific types of technology on the financial performance and economic efficiency of institutions can be evaluated with the econometric models jointly developed by participants in the previous NC-207 project. Another project using the data set would investigate how lenders evaluate potential trade-offs between use of technology to process information and traditional customer relationships. The perceptions of lenders and differences that may occur across different types of institutions should provide considerable insight on the adoption and implementation of technologies as the financial services industry continues to consolidate.

c. Develop improved credit scoring and risk rating methods and implementation strategies.

A major hurdle in developing, assessing, and comparing credit scoring models is access to borrower loan performance data. As institutions expand their geographical scope, there is considerable interest in a credit scoring model or sets of models that could be implemented on national basis. Historically, data used in credit scoring studies are specific to a geographic region or specific lender. Furthermore, the data are often biased due to existing underwriting standards in place by the institution. That is, there is no information on performance of borrowers that the institution rejected. There is a need to develop an alternative source of data that can be applied and tested on a national basis. The second activity from this objective will include the development of state-specific case borrower situations. These situations will provide inputs into a multi-period stochastic simulation model that estimates borrower performance. The output of the stochastic simulation model will be used as an input in the credit scoring development.

Alternative and innovative models such as neural networks, fuzzy logic, case-based reasoning, recursive math programming models will be compared to traditional credit scoring techniques such as logit and probit. The local expertise of each of the participants will aid in the development of state-specific cases. The development of the cases will provide a rich data set that can be used in evaluating alternative credit evaluation procedures on a national basis. Ohio, New York, and Illinois will work on this procedure with input and applications from other states.

d. Evaluate the role of new financial products such as derivatives in risk management and the pricing of financial services.

The third activity will be the joint development of computerized models of lending institutions. The models will be used to analyze the effects of alternative strategies and the roles of financial products on the management of interest rate risk, liquidity risk, credit risk and capital risk. The models will incorporate institutional components, demand and supply components, regulatory factors and accounting balancing. Strategies investigated include comparing alternative funding sources, asset and liability portfolio composition, applications of financial derivatives and asset securitization. The institutional strategies can be modeled and evaluated under alternative economic scenarios. These scenarios can range from local supply and demand variability to national issues such as unexpected changes in inflation and interest rates.

Computer technology has enhanced the ability to construct the computationally intensive models. They will be developed using Call Report data, macroeconomic sector model output data, Federal Reserve statistical data, and local market and institution data collected by participants. The models developed within this portion of the project will also have specific applications to objectives 1 and 2.

The multi-state coordinated approach is essential to the quality of the research performed with each activity under objective 3. The quality of the survey instrument, enhanced response rates, and wide cross section of responses are direct consequences of a multi-state approach with activity one. Knowledge of local farming conditions and ready access to state-level data sources enhance the quality of case borrowers with activity two, while the combined modeling experiences and abilities of the participants enhance the models and resulting research under activity three. Participants from Illinois, Texas, Kentucky, Minnesota, and Iowa will jointly participate in this objective.

Organization:

This project outline was developed by a subcommittee of regional project NC-207 with endorsement from the whole. The objectives were discussed and developed at both a special session during the annual Summer meeting of the American Agricultural Economics Association, and during the final meeting of the NC-207 committee. In addition, a web site was developed and numerous communications with interested participants solicited input into the objectives and organization. A writing committee was used to collect and prepare this submission.

Upon authorization, the participants will hold annual meetings, and elect an executive committee comprised of Chair, Vice Chair, and Secretary. The committee will involve personnel from Farm Credit System institutions, Federal Reserve Banks, government agencies, industry participants, and experts related to the objectives of the group. These affiliations help maintain a contemporary focus, encourage applicability of results, and continue the tradition of providing a forum for groups that would otherwise not have the opportunity for dialogue and interchange.

The direct academic participants come from a broad set of social science sub-disciplines and, in aggregate, hold substantial extension appointments in addition to their research responsibilities.

Each objective will be administered via a subcommittee, as will annual programs, publications, submissions to affiliated professional society meetings, and any as-needed operational subcommittees. Reporting will include annual proceedings and minutes, and other items deemed appropriate by the publication committee. For more general dissemination, special sessions at the Annual Meeting of the American Agricultural Economics Association will be sponsored with annual thematic focus on the individual objectives. And, considerable joint research output is anticipated from within each subcommittee to be distributed through jointly authored professional journal publications, and via the project's web site.

SIGNATURES

Regional Project Title: Financing Agriculture and Rural America: Issues of Policy, Structure and Technical Change

Administrative Advisor ________________ Date ________

Chair, Regional Association of Directors ________________ Date ________

Administrator/ CSREES ________________ Date ________

________________ Date ________

Project Leaders

Institution	Individual	Specialization
Cornell University	Eddy L. LaDue	Public Credit Policies, Financial Institutions
Federal Reserve Bank of Kansas City	Mark Drabenstott (director)	Financial Policies, Rural Credit Markets
Iowa State University	Sergio Lence	Risk Management, Financial Markets
	Robert W. Jolly	Financial Institutions and Management
Kansas State University	Allen M. Featherstone	Financial Markets and Management
Michigan State Univ.	Steven D. Hanson	Financial Management, Asset Valuation
North Dakota State University	Cole Gustafson	Financial Markets, Institutions, Policy
	Marvin Duncan	Credit Policies
The Ohio State University	Warren F. Lee	Financial Institutions, Financial Mgmt.
	Gary Schnitkey	Financial Management
Texas A&M University	David J. Leatham	Financial Management
University of Arkansas	Bruce L. Ahrendsen	Capital Structure
	Bruce L. Dixon	Financial Efficiency, Econometrics
	David Neff	Financial Institutions, Management
Purdue University	Timothy Baker	Financial Management, Asset Valuation
	Freddie Barnard	Financial Management, Policies Financial
	Michael Boehlje	Markets, Management
University of Illinois	Peter J. Barry	Financial Markets and Management
	Paul N. Ellinger	Financial Institutions and Management
	David A. Lins	Financial Management, Asset valuation
	Bruce J. Sherrick	Asset Valuation, Risk Management
University of Kentucky	David Freshwater	Credit Policies, Financial Markets
University of Minnesota	Glenn Pederson	Financial Institutions, Management
USDA Economic Research Service	Jerome Stam	Financial Markets, Policies
	Robert Collender	Financial Institutions, Performance
	Ted Covey	Risk Management
	Charles Dodson	Financial Markets, Management
	Robert Dubman	Public Credit Programs, Markets
	Ronald Durst	Public Credit Programs, Markets
	Ken Erickson	Public Credit Programs, Markets
	John Jinkins	Public Credit Programs, Markets
	Steve Koenig	Financial Markets, Policies
	Pat Sullivan	Financial Markets, Policies

Resources

Institution	Scientist Years	Professional Years	Technical Years
Cornell University	.25	.15	
Federal Reserve Bank of Kansas City	.2	1	
Iowa State University	.5	1	
Kansas State University	.4	.3	.5
Michigan State University	.25	.15	.5
North Dakota State University	.4	.5	
The Ohio State University	.3	.2	
Texas A&M University	.4	.3	.2
University of Arkansas	.75	.5	
Purdue University	.9	.5	
University of Illinois	1.4	4	
University of Kentucky	.1	.5	
University of Minnesota	.25	1	
USDA Economic Research Service	.7		
Total	6.8	10.1	1.2