AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

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

Help ensure our sustainability.

Give to AgEcon Search

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

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

United States
Department
of Agriculture

USDA

Economic
Research
Service

Whole-Farm Approaches to a Safety Net

Economic
Information
Bulletin
Number 15

June 2006

Robert Dismukes
Ron Durst

Electronic
Report

Visit Our Website To Learn More!

Want to learn more about farm income-stabilization accounts? Visit our website at **www.ers.usda.gov.**

You can also find additional information about ERS publications, databases, and other products at our website.

National Agricultural Library Cataloging Record:

Dismukes, Robert, 1950 –
Whole-farm approaches to a safety net.
Economic information bulletin) ; no. 15)
1. Farm risks—United States.
2. Agricultue and state—United States.
3. Insurance, Agriculture—United States.
4. Farm income—United States.
5. Income maintenance programs—United States.
I Durst, Ron. II. United States. Dept. of Agriculture.
Economic Research Service.
HG9969.U6

Cover photo credit: Cumulus

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and, where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

United States Department of Agriculture

Economic Information Bulletin Number 15

June 2006

Electronic Report from the Economic Research Service

www.ers.usda.gov

Whole-Farm Approaches to a Safety Net

Robert Dismukes and Ron Durst

Abstract

In recent farm policy debates, proposals for a whole-farm revenue safety net program have been put forward that could provide a farm-income safety net for a wide variety of farming activities. These proposals include income-stabilization accounts and whole-farm revenue insurance. Risk protection from income-stabilization accounts would depend on the reserves in individual accounts and the structure of program benefits. Experience with farm savings accounts in Canada and Australia suggests that lack of adequate account balances and buildup of balances beyond the level required for risk management can reduce program effectiveness. Whole-farm revenue insurance could overcome these problems since coverage would not depend on the farmer's ability to build an account balance and benefits would only be realized when the farmer suffers a drop in income. However, the complexity of factors affecting income variability raises questions about the feasibility of a whole-farm insurance plan.

Keywords: safety net, income variability, risk management, income-stabilization accounts, savings, tax, revenue insurance

Acknowledgments

The authors would like to thank: the Risk Management Agency, USDA, for funding part of this study; and Paul Ellinger, University of Illinois; Brent Gloy, Cornell University; Andy Swenson, North Dakota State University, and Jeff Williams, Kansas State University, for their contributions to the development of the study. Thanks also to the reviewers: Ashok Mishra and Ed Young, ERS; Nelson Maurice, RMA; Keith Coble and Corey Miller, Mississippi State University; Gordon Andrusiak, Agriculture and Agri-Food Canada; and ERS' Information Services Division: Priscilla Smith for editing; Juanita Tibbs for designing; and Anne Pearl for the cover design.

Contents

Summary

Providing a "safety net" for farmers is an often-cited objective of U.S. farm policy. Safety nets are policies intended to ensure a minimum level of economic well-being for a group of people or to provide protection against risks. Current U.S. farm programs form a safety net of coverage and support to U.S. farmers through direct and countercyclical payments, crop insurance, emergency and other loans, and disaster assistance.

Many farms and farm households are not directly covered by the current safety net. Commodity programs that provide direct income support reach only one in four U.S. farms. Although the Federal crop insurance program covers most of the acreage of major field crops, relatively few U.S. farms purchase such insurance. There is no broad program of income support or insurance for livestock. As a result, the safety net may reduce risk for some, but not all, farmers.

What Is the Issue?

In recent U.S. farm policy debates, several "whole-farm revenue" programs have been proposed as a new form of safety net that would be available to all U.S. farms. A whole-farm program is based on revenues from all farming activities added together and is not linked to the production of particular commodities. This report looks at the risk management potential for such programs and the obstacles to implementing such a whole-farm revenue approach to a farm safety net.

What Did the Study Find?

Two prominent whole-farm programs—*income-stabilization* (savings) accounts and *revenue insurance*—have the potential to overcome the disadvantages of current farm-safety-net programs because they could be applied to a wide variety of farming situations and would not be linked to the production of particular farm commodities. *Income-stabilization accounts* encourage farmers to manage risk by making deposits to special savings accounts in high-income years and making withdrawals, when needed, in low-income years. The government would provide incentives, such as tax deferrals and matching contributions. Risk protection from income-stabilization accounts would depend on the reserves in individual accounts, and those amounts could vary with farmers' levels of participation and distribution or concentration of program benefits.

While farm income-stabilization accounts could potentially extend the safety net to more farms than current programs, proposals that require a positive net farm income or a minimum level of farm business receipts would greatly restrict eligibility for many farmers. In addition, many eligible farmers would not have the cashflow capacity to fully fund their accounts after considering living expenses, taxes, and debt service requirements. In some instances these farmers could shift existing assets to capture tax or other benefits. However, since this would not increase overall savings, it would not add to their risk management capabilities.

Analyses of three income-stabilization account proposals suggest that a large share of income-stabilization account deposits could be concentrated among large farms, providing a distribution of benefits similar to current crop insurance and farm program payments. Thus, for many, income-stabilization accounts may not provide sufficient protection, especially in the early years of a program or when successive disasters deplete farmers' funds. At the same time, depending upon the structure of the program, some farmers might build subsidized balances beyond the levels necessary to satisfy risk management goals. Experience with farm savings accounts in Canada and Australia has confirmed that both the lack of adequate account balances and the buildup of balances beyond the level required for risk management purposes can reduce the overall effectiveness of income-stabilization programs.

Whole-farm revenue insurance has the potential to overcome those obstacles because coverage does not depend on the farmer's ability to build a balance but instead is purchased with a premium. Additionally, balances do not accumulate since there is no access to the risk management pool unless the producer experiences the required loss or drop in income. Whole-farm revenue insurance is currently available under the Federal crop insurance program through two pilot programs, but questions remain about the feasibility of making those programs the main U.S. farm safety net. One key concern is the complexity of the factors that determine farm income and how those factors vary from farm to farm and from year to year.

How Was the Study Conducted?

ERS researchers used special tabulations of Internal Revenue Service data to analyze the income-stabilization potential of three prominent farm income-stabilization account proposals. With those data and farm-management records from various State recordkeeping associations, the authors examined farm-level variability of income and issues that could arise in the development of whole-farm income approaches to an economic safety net for farmers.

Introduction

One of the main objectives of U.S. farm policy is the provision of a "safety net" for farmers. In the most general sense of the term, safety nets are policies that:

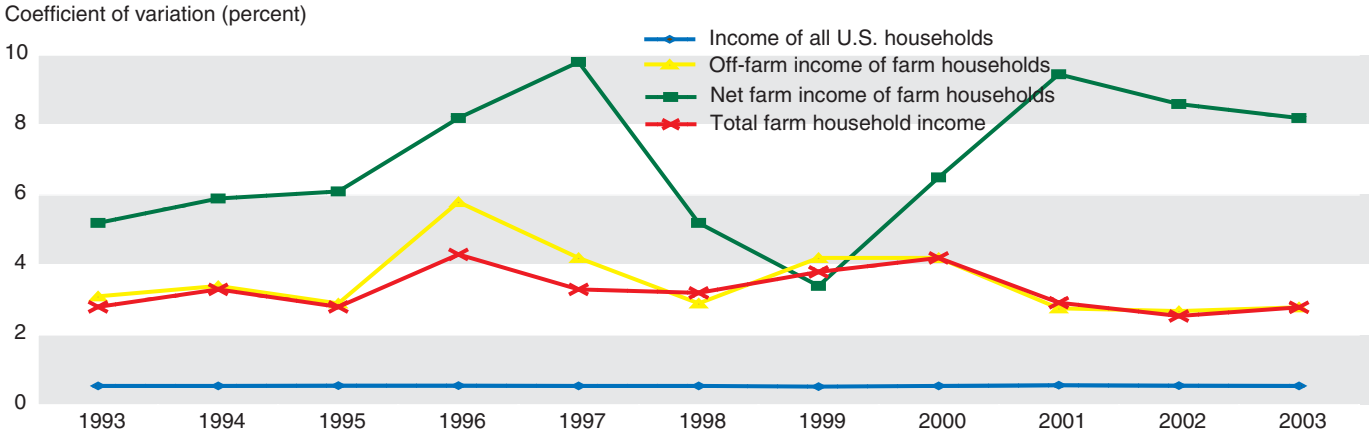
- aim to ensure a minimum level of economic well-being for a group of people or
- provide protection against risks (Gundersen et al.).

Current farm policies, which are often commodity based, form a web of coverage and support through programs such as direct payments, nonrecourse loans, countercyclical payments, crop insurance, emergency loans, and disaster assistance.

Commodity-based programs tend to direct benefits to certain segments of the farm sector. While program commodities account for a large share of U.S. farm output, many farms and farm households are not directly covered by the current safety net. For instance, commodity programs that provide direct income support reach only one in four U.S. farms (Dimitri, Effland, and Conklin). The Federal crop insurance program, which offers subsidized coverage on a crop-by-crop basis, has seen participation reach 75 percent to 80 percent of major field crop acres, but relatively few farms purchase crop insurance (Dismukes and Glauber). Moreover, although pilot programs have been initiated for several livestock enterprises, there is no general program of income support or insurance for livestock. As a result, the safety net may reduce risk for some farmers (Babcock and Hart, 2004), but not all.

One purpose of providing a safety net for farmers is to reduce year-to-year variability in farm income. Because of vagaries of weather, shifts in market conditions, and other events beyond a farmer's control, agricultural commodity production and prices can vary unexpectedly. The resulting

Figure 1
Income of farm operator households is more variable than income of all U.S. households



Note: Coefficient of variation is defined as the ratio of standard deviation of income to the mean of income from year to year.

Source: USDA. Economic Research Service,1993-2003 Agricultural Resource Management Survey; U.S. Census Bureau, Current Population Survey for all U.S. households.

changes cause instability in farm household income (Mishra, El-Osta, and Morehart) and are the main reason that farm household incomes tend to be more variable than the income of all U.S. households (Mishra and Sandretto).

Farm income variability affects the economic well-being of farmers because it can threaten the viability of the farm business and can hamper the farm household's ability to maintain consumption and build reserves for future needs. Farmers use a variety of methods to reduce or manage income variability (Harwood et al.). Strategies such as purchasing crop yield and revenue insurance, forward contracting, hedging, and participating in commodity loan programs reduce the chances that a farm's revenue will drop below a certain proportion of its expected level during a growing season. Management decisions such as renting land or custom-hiring field operations instead of borrowing to purchase land and equipment can reduce a farmer's risk exposure. During years with low net income, farmers also commonly delay the purchase of new capital equipment.

Off-farm income often provides a supplement to farm income and allows many U.S. farm households to maintain consumption when farm income is low. In fact, most farm households receive more than half of their income from off-farm sources. Even farm operator households associated with commercial farms ($250,000 or more in annual farm sales) receive about 25 percent of their income from off-farm sources (Jones et al.).

In addition to having other sources of income, many farm households have assets that may provide a buffer against occasional drops in farm income. Drawing on assets to offset declines in farm income may be problematic, however. About 70 percent of the assets of the average farm household are farm-related assets. For commercial farm households, the share of assets that is farm-related is nearly 85 percent. The largest asset of farm households is farmland, which accounts for about three-fourths of their farm assets. The value of farm-related assets, particularly farmland, tends to fluctuate with income. In addition, other farm assets, such as equipment, are not easily transferred to other uses (www.ers.usda.gov/Briefing/ARMS).

Another reason for considering whole-farm approaches to a farm safety net relates to trade issues. Programs providing protection based on current or historical production of covered commodities are problematic under international trade policy rules. They have been criticized as distorting farmers' production decisions by interfering with market signals, providing incentives to produce these commodities even when market prices indicate that production would not be profitable. Such programs can lead to excess production, which would depress prices.

Proposals for Whole-Farm Risk Management Assistance

In recent farm policy debates, several proposals for a whole-farm revenue safety net program have been put forward. Such programs would be based on revenues from all farming activities combined, would not be linked to the production of particular commodities, and could offer a safety net to all farms. Prominent among these are farm income-stabilization (savings) accounts and whole-farm revenue insurance.

Income-Stabilization (Savings) Accounts

Farm income-stabilization (or savings) accounts are designed to encourage farmers to manage risk by making deposits to special accounts in high-income years and making withdrawals, when needed, in low-income years. The government would provide incentives, such as tax deferrals and/or matching contributions, to encourage farmer participation and to help farmers accumulate reserves. Thus far, the farm income-stabilization account proposals have been put forward as supplements to other farm programs, but none of the proposals has been enacted. Examples of proposed farm income-stabilization account programs include:

- **Farm and Ranch Risk Management (FARRM) Accounts.** FARRM accounts would allow farmers to take a Federal income tax deduction for a deposit of up to 20 percent of eligible farm income (defined as taxable net farm income from Schedule F, plus net capital gains from the sale of farm assets including livestock but not land). Deposits would be made into interest-bearing accounts and earnings would be distributed and taxed annually. Withdrawals from principal would be at the farmer's discretion and taxable in the year withdrawn. Deposits could stay in the account for up to 5 years, with new amounts added on a first-in, first-out basis. Deposits not withdrawn after 5 years would incur a 10-percent penalty. FARRM accounts were first proposed following the passage of the 1996 Federal Agriculture Improvement and Reform Act to encourage farmers to save a portion of the transition payments during the relatively high-income years of 1996-97. FARRM accounts were introduced in Congress in 1998, have been reintroduced several times, and were part of the administration's budget proposals in 2001 and 2002.

- **Counter-Cyclical Accounts (CCAs)**. With CCAs, the government would match farmer deposits to special savings accounts—up to a limit. The producer could deposit such amounts as the producer considered appropriate, but government contributions would be limited to 2 percent of the producer's 5-year average adjusted gross revenue and could not exceed $5,000 for any applicable year. Funds in the accounts would earn interest at commercial rates. A farmer would be allowed to withdraw from the account only when his or her adjusted gross revenue fell below 90 percent of its average over the 5 previous

years. The withdrawal amount would be limited to what would be needed to raise current adjusted gross revenue up to 90 percent of the 5-year average gross revenue. CCAs were proposed in the initial version of the 2002 farm bill that passed the Senate, but were dropped from that bill by the House-Senate conference committee (Library of Congress, H.R. 2646).

- **Individual Risk Management Accounts (IRMAs)**. The IRMA program would offer both tax deferrals and government matching contributions as incentives for producers to make deposits to special accounts. Producer deposits would be deductible from pretax income; deposits and interest would be taxable only upon withdrawal. The government would make matching deposits of 2 percent of Schedule F gross farm income. IRMA balances would be limited to the equivalent of 150 percent of a producer's annual average Schedule F gross farm income over the previous 3 years. Producers would be allowed to withdraw from their IRMA only when income fell below 80 percent of its average over the previous 3 years. The withdrawal amount would be limited to what would be needed to raise current income to 80 percent of the 3-year average.

  IRMAs were proposed in 1999 by the Alabama Farmers Federation study committee. The Alabama proposal tied IRMA to Federal crop insurance and implied that funding for IRMA would come in part from crop insurance subsidies. Under the proposal, a producer who deposited at least 2 percent of gross farm income in an IRMA would receive catastrophic crop insurance (CAT) coverage at no cost, but additional insurance purchased would not be subsidized.

Table 1
Proposed income-stabilization accounts offer tax deferrals, matching deposits

Program	Eligibility	Incentives	Limits on deposits	Conditions on withdrawal of funds
Farm and Ranch Risk Management Accounts	Positive net farm income	Federal income tax deferred on amount of deposit	Annual deposit cannot exceed 20% of net farm income	Funds can be withdrawn at anytime, must be withdrawn in 5 years
Counter-Cyclical Accounts	Average gross farm income greater than $50,000 or limited-resource farm	Government matching deposits, tax deferral on earnings	Up to 2% of gross income, maximum matching deposit of $5,000	When annual gross income falls below 90% of its 5-year average
Individual Risk Management Accounts	None specified	Government matching deposits, tax deferral	Up to 2% of gross income, additional deposits allowed in high income years, balance cannot exceed 150% of average gross income	When annual gross income falls below 80% of its 3-year average

Source: ERS analysis of proposed programs.

Potential Eligibility, Benefits, and Costs of Income-Stabilization Account Proposals

Income-stabilization account proposals vary in benefits and program costs. While all three proposals used a tax-based measure of income to determine eligibility to make deposits to and, in some cases, make withdrawals from the accounts, they differed in the types and levels of government incentives to participate and in the potential benefits to farmers and costs to the government.

Eligibility to participate in the FARRM accounts program would be limited to individual taxpayers—that is, sole proprietors, partners, and Subchapter S shareholders—who reported positive eligible farm income. To benefit from the tax deferral, the farmer also must owe Federal income tax in the year of the deposit. Based on Internal Revenue Service (IRS) tax data for 2000, we estimate that about 37 percent of all farmers would be eligible to deposit an estimated $3.5 billion resulting in tax deferral costs of about $0.9 billion per year. Some of this cost could be recovered as farmers pay taxes on FARRM account withdrawals in subsequent years.

To be eligible for the CCA program, a producer would either have to earn average gross income over the previous 5 years of $50,000 or be a limited-resource farmer. Based on 2000 IRS tax data, we estimate that about 25 percent of farm sole proprietors would be eligible and would receive an average government matching deposit of about $2,100. Total potential annual matching government deposits for farm sole proprietors would be $1.2 billion.

Partners in farm partnerships and shareholders in small business corporations (Subchapter S) also would be eligible. Average matching government deposits would be higher for Subchapter S shareholders, since such entities are generally larger and fewer shareholders would be excluded from the program by the $50,000 gross farm income requirement. Potential matching deposits for farm partners and Subchapter S shareholders would be $306 million and $56 million, respectively. Thus, the total annual potential cost

Table 2
Estimated annual eligibility, potential deposits, and benefits vary by proposed income-stabilization account program

Proposed program	Eligible farmers[1]		Potential deposits[2]	Potential benefits to farmers	
				Tax deferral	Matching deposits
	Number	*Percent*	*Billion dollars*		
FARRM Accounts	1,088,546	37	3.5	0.9	n/a
Counter-Cyclical Accounts	688,943	24	3.2	n/a	1.6
Individual Risk Management Accounts	2,714,000	93	5.4	0.7	2.7

[1]Number of farmers is the number of taxpayers reporting farm income or loss.
[2]Farmer deposits plus Government matching deposits.
n/a = not applicable.

Source: ERS analysis of 2000 Internal Revenue Service tax data.

for all participants in CCAs would be about $1.6 billion; with the government's matching of the farmers' contributions, the total amount deposited in CCAs could be in excess of $3.2 billion.

The IRMA proposal did not contain specific eligibility requirements. Assuming that participants would only have to have some gross farm income, we estimate that potential matching deposits under IRMA, according to 2000 tax data, could be as much as $2.7 billion. Since farmers could deposit more than the 2 percent of gross income the government would match, the total potential account balance could exceed $5.5 billion. Although nearly all farmers would be eligible for IRMA, many of the accounts are likely to be small and therefore would provide little risk protection. Average potential deposits across all forms of organization would average only about $1,000. Potential matching deposits would be largest for Subchapter S shareholders (about $3,400) and partners in farm partnerships (about $2,500).

Income-Stabilization Account Programs in Australia and Canada

For several years, Australia and Canada have each operated whole-farm income-stabilization account programs. Their experiences provide information about likely farmer participation and program operation in the United States.

Australia has had an income-stabilization account program, the Farm Management Deposits (FMD) program, since 1999. The incentive for farmers to make deposits under the program is a tax deduction for deposits. As long as the funds remain in the account for at least 12 months, taxes are deferred until the funds are withdrawn. In this regard, the FMD program resembles the farm savings account proposals that have been considered in the United States, particularly FARRM accounts.

Despite implementation of the program in a period of relatively favorable farm income, participation has been low. By the end of 2002, only about 10 percent of dairy farms and 15 percent of all other farms were participating in the program. Still, participating farm operators had accumulated large balances in a relatively short period. By the end of 2002, there were nearly A$2 billion in 39,500 FMD accounts, for an average account balance of about A$48,000. The primary reason that farmers have been able to accumulate such balances in a short period of time is that there is no annual deposit limit, only a maximum total deposit cap of A$300,000. The only limit on the annual tax deduction is that it cannot exceed the primary production income for the year. As a result, during the record year of 2001-02, farmers deposited about 10 percent of the net value of farm production or about A$1 billion.

Since 2002, widespread drought in Australia has sharply reduced income and slowed the growth of deposits. By 2004, the accounts had grown to A$2.6 billion with the number of accounts increasing by about 10 percent to 43,309. Participation in Australia's FMD program is highest for the largest and most profitable farms. An analysis of Australian farms found that farms with FMD accounts were larger, had higher rates of return and more liquid

assets, even without considering the FMD accounts, than farms without such accounts (Martin).

Canada has had an even longer experience with an income-stabilization program. The Canadian Net Income Stabilization Accounts (NISA) program began operation in 1992. This program provided generous incentives for farmers to make deposits, including matching government contributions and a 3-percentage-point interest rate bonus on account balances. After over a decade of operation, over half of all Canadian farms participated in the NISA program. Participation varied considerably, however, by the size of the farming operation. In 2001, only about a third of farms with farm business receipts under C$10,000 had a NISA account. Given the administrative costs to participate, many farmers with low sales may have felt that there was little or no net benefit from participating in NISA. Participation for farms with sales above C$10,000 was significantly higher, at about 57 percent.

After several years of operation, a number of farmers had accumulated little or no NISA balances while some farmers had accumulated large balances but chose not to withdraw funds when eligible. In 2001, for example, 113,000 NISA participants were eligible to make withdrawals totaling C$1.5 billion, but only 49,500 of eligible producers (44 percent) withdrew a total of C$536 million (35 percent of the available funds). Further, one in eight NISA participants had chosen either not to access their accounts or accessed their accounts only once in 6 years, although funds were available for withdrawal in every year (Strain and Andrusiak, 2003). This suggests that the economic incentives of the interest rate bonus and potential tax liability on withdrawn funds encouraged farmers to borrow or use other techniques to cover shortfalls in income rather than draw down their NISA accounts. Beginning in 1998, NISA was supplemented by disaster assistance programs: the Agriculture Income Disaster Assistance (AIDA) Program in 1998 and 1999 and the Canadian Farm Income Program (CFIP) for 2000 through 2003. These programs were designed to cover losses beyond a 30-percent drop in income by supporting income up to 70 percent of a producer's historical average.

In 2004, NISA, along with CFIP, was replaced by the Canadian Agricultural Income Stabilization (CAIS) program, which combines both income stabilization and disaster assistance. CAIS was designed to address major shortcomings identified with the NISA program. With CAIS, coverage is immediately available to participants and does not depend on the accumulation of an account balance. Also, a participant does not receive a government contribution until the participant experiences a drop in income. This avoids the situation under NISA in which some participants continued to accumulate balances but did not withdraw funds during low-income years. In this situation, the government continued to make matching deposits and pay interest rate bonuses even though the income stabilization objectives of the program were not necessarily furthered by such outlays.

CAIS has several characteristics of a fully subsidized whole-farm income insurance program. CAIS allows participants to shift the risk of drops in income to an insurer, the government in this case, rather than using the accumulation of funds in individual accounts. Participants establish insured amounts of income based on recent history. Unlike insurance, participants are not charged a risk-based premium. Instead, they make a deposit, which in the

first years of the CAIS program was a proportion of the amount of income insured. It was recently changed to a flat fee per C$1,000 of margin insured. Because CAIS makes immediate and ongoing protection available to all participants, beginning farmers can access stabilization and disaster coverage in their first year and coverage can continue in situations where a stabilization account balance might be exhausted, such as back-to-back disasters.

Under CAIS, the amount of income to be covered is based on a producer's margin. The margin is defined as income minus expenses directly related to the primary production of agricultural commodities on the farm. In particular, income is the sale of agricultural commodities and proceeds from production (crop) insurance but excluding other government payments; expenses are costs such as feed, fertilizer and pesticides. CAIS payments are made when a farmer's claim-year margin falls below his or her reference margin, which is an Olympic average of the producer's margin for the previous 5 years. (An Olympic average is a 5-year average that "drops" the highest and lowest values.)

The CAIS participant annually selects a level of protection, that is, a proportion of his or her margin, and makes the appropriate deposit. Substantial government benefits are paid if the participant experiences a decline in income. As the producer's loss deepens, government assistance increases. The first 15 percent of a producer's loss (the part between 100 percent and 85 percent of the margin) would be shared 50-50 with the government. For the next 15 percent of loss, the government's share is 70 percent of the drop in margin. For the portion of the decline less than 70 percent of the reference margin, the producer would receive 80 percent from the government.

CAIS does cover negative margins. If the producer satisfies certain criteria, the producer is eligible to receive 60 percent of the program-year margin decline that falls within the negative margin. However, the maximum total government contributions that a farmer can receive under CAIS in a given year is capped at the lesser of C$3 million, or 70 percent of the margin decline of the program-year margin, relative to the reference margin. Any negative portion of the program-year margin is included in the calculation of the 70-percent cap.

Whole-Farm Revenue Insurance

Insurance, particularly crop yield and revenue insurance, is a large part of the farm safety net in the United States (Glauber). In 2005, about 200 million acres of cropland—including 75 percent to 80 percent of the planted acres of corn, soybeans, wheat, and cotton—were insured under federally subsidized crop insurance. The total amount of insurance coverage, or liability, was about $44 billion in 2005, or 40 percent of U.S. farm output. Farmers paid about $1.7 billion in insurance premiums for this coverage, while the U.S. Government paid about $2.5 billion, 60 percent of total premiums. Federal crop insurance coverage is available for more than 100 different crops; corn, soybeans, wheat, and cotton account for about 75 percent of total insurance premiums. Federal crop insurance offers revenue-insurance plans, an alternative to yield-insurance plans, for several major field crops. The revenue-insurance plans, first offered in 1996, accounted for

more than 60 percent of insured acres of corn, soybeans, and wheat in 2005.

For nearly all Federal crop insurance, including revenue insurance, coverage is on a farm-level crop-by-crop basis. Some have suggested that a modified crop-by-crop revenue-insurance program, which would use target prices instead of market prices to determine insurance coverage, could replace parts of the farm safety net for major field crops (Babcock and Hart, summer 2005). Others have suggested that whole-farm revenue insurance, which would cover the combined income of all farm enterprises, be considered as a safety net for a wide variety of farming operations (American Farm Bureau Federation).

Insurance, which is based on transferring and pooling individual risks, differs from stabilization or savings accounts, which rely on the accumulation of reserves in individual accounts. Under the Federal crop insurance program, farmers obtain coverage by paying a portion of an insurance premium that is based on estimates of the probability and magnitude of drops in revenue. The Federal crop insurance program currently has two pilot programs, Adjusted Gross Revenue (AGR) and Adjusted Gross Revenue-Lite, which operate on whole-farm revenue-insurance principles. Although experience with these pilot programs is limited, they provide some indications as to how a whole-farm revenue-insurance program could be developed.

AGR and AGR-Lite participants insure against drops in adjusted gross farm income, measured from historical filings of the Internal Revenue Service Form 1040 (Schedule F). A producer can insure at a coverage level of 65 percent, 75 percent, or 80 percent of farm-average gross revenue over the previous 5 years. Indemnities are paid if a producer suffers a shortfall relative to the revenue guarantee. The amount of the loss covered by the insurance is the difference between actual revenue and the guarantee, multiplied by the payment rate selected in advance. Under the pilot programs, the payment rates are 75 percent and 90 percent. Both AGR and AGR-Lite require a producer to submit annual farm plans so that coverage can be adjusted to account for changes such as farm size and enterprise mix that would result in less income.

The AGR and AGR-Lite pilot programs have limits that keep them from being full-fledged whole-farm insurance programs. AGR and AGR-Lite are intended to be used by producers of commodities for which commodity crop yield and revenue insurance—such as Multiple-Peril Crop Insurance yield coverage, Revenue Assurance, Crop Revenue Coverage, and Income Protection—are not available. AGR limits the share of farm income that can come from animals and animal products to 35 percent and limits total insurance liability to $6.5 million per policy. AGR-Lite does not have a restriction on income from animal and animal products. The maximum limit on AGR-Lite is $1 million.

The AGR and AGR-Lite pilot programs are very small compared with other types of Federal crop insurance. About 1,000 AGR and AGR-Lite policies have been in effect each year from 2003 to 2005, versus about 1.2 million policies of all types of Federal crop insurance. Annual premiums for AGR and AGR-Lite average about $12 million, versus $3.8 billion for the entire crop insurance program.

The actuarial experiences of AGR and AGR-Lite are short. AGR was first offered in 1999 and AGR-Lite in 2003. The AGR program underwent substantial changes beginning with the 2001 insurance year in attempts to make it more attractive to producers. The number of AGR policies reached 944 in 2003 but declined to 864 in 2004 and 708 in 2005. In 2005, total premiums for AGR were $11.9 million, of which $6.5 million were premium subsidies. The number of AGR-Lite policies reached 165 in 2005. During 1999-2004, farmers received $56.5 million in indemnities under AGR and AGR-Lite policies, about 140 percent of total premiums and 325 percent of the producer-paid premium amounts.

Challenges in Developing a Whole-Farm Safety Net

Whole-farm revenue insurance and farm income-stabilization accounts could provide a safety net to a broad range of farms. Because they would not be tied to the production of any particular commodity, such approaches could be more favorably regarded under trade agreements. The concept is simple—save when income is high, withdraw when income falls (in the case of stabilization accounts) or pay a premium based on the risk to guarantee a certain level of revenue (in the case of insurance). Still, important questions remain about the method and effectiveness of these approaches.

Use of Tax-Based Measure of Income

Both the major farm savings-account proposals and the whole-farm insurance pilot programs use a tax-based measure of farm income. While this measure is readily available, its use can have a significant impact on both the potential number of eligible farmers and the measured level and variability of farm income.

For tax purposes, an individual may be considered a farmer if he or she has either farm income or expenses related to a farming operation. Many taxpayers who meet these criteria have low or negative farm income but file a Schedule F Federal income tax return. Therefore, in the absence of a minimum-income threshold, these farms would be eligible for a tax-based farm-savings-account or insurance program. For instance, in 2000, there were about 2.1 million sole proprietors of farms who filed a Schedule F. Nearly 60 percent reported farm business receipts less than $10,000, with an average just over $2,700. These farmers on average reported a net farm loss of about $600, but earned other income, primarily off-farm, of nearly $72,000.

Because the Schedule F farm income measure is tax-defined, it may deviate substantially from an accrual measure of income or a measure of profitability. Since most farmers are eligible to use the cash method of accounting, farm income for tax purposes is generally recognized when money is received or paid. This flexibility with regard to the timing of income recognition, as well as other tax rules, especially those related to the recovery of capital investments, can greatly influence the level and variability of both gross and net taxable farm income. Farmers can accelerate or defer income or expenses to smooth income and avoid potentially higher marginal income tax rates. This would reduce apparent farm income variability. Thus, eligibility to contribute or withdraw funds based on Federal income tax data, especially if the eligibility criteria are based on net farm income rather than gross receipts, may not be a good indicator of the ability to contribute or the need to withdraw funds from an account. Despite the potential drawbacks of using farm income tax data, the administrative convenience is often viewed as an overriding advantage. Tax records might also facilitate targeting of benefits based on total or off-farm income.

Capacity To Make Deposits and Build Balances

A major concern with savings account programs is whether sufficient deposits would be made to stabilize income. The analysis of deposits presented thus far is based on potential deposits. It excludes factors that are likely to be important in determining actual deposits. For example, family living expenses, debt repayment, nonfarm income, returns to alternative savings accounts or investments, and levels of risk aversion are all likely to influence actual behavior.

Analysis of a term debt-repayment margin is one way to evaluate whether household net cashflow is a factor in limiting deposit ability. This approach combines cash net farm income (excluding depreciation) and nonfarm income, then subtracts family living expenses, income and self-employment taxes, and scheduled debt repayments. A positive amount indicates that the farm household generated cash in excess of living expenses, cash farm expenses, and scheduled debt repayments. This cash would potentially be available for deposits.

An analysis of North Dakota farms from 1998 to 2002 suggests that under the FARRM proposal, producers would be eligible to deposit far more often than they would be able to based on current cashflow (Swenson). For example, farms with gross farm income between $100,000 and $250,000 were eligible 82 percent of the time, but only were able to deposit in 52 percent of the time. Moreover, they were only able to deposit the full amount eligible under FARRM 45 percent of the time. However, if incentives for making deposits—such as tax advantages, matching contributions, or interest-rate bonuses—are strong, producers could hypothetically be encouraged to make deposits regardless of cash availability. Such deposits could be funded by borrowing or by shifting other assets into such accounts.

Another factor affecting the ability to build account balances is withdrawals. Our analysis of IRS farm tax returns suggests that between 1998 and 2000, farmers would have had the potential to build stabilization-account balances to cover shortfalls, even after allowing for withdrawals. For instance, under the IRMA program, farmers would have been able to accumulate as much as $3.8 billion in deposits and matching contributions over the 3-year period. Nearly 70 percent of all farms in the panel would have had an account balance. However, IRMA balances would have averaged only about $3,300. Under the FARRM account program, annual contributions would be more variable. Nevertheless, farmers could still have accumulated an estimated $2.5 billion in deposits over the 3-year period. Since the FARRM account proposal is more narrowly targeted, only about 30 percent of all farms would have an account balance to draw upon in a low-income year.

While some farms could build positive account balances, many that experience a drop in income sufficient to trigger a withdrawal would have no account balance to draw upon or would have less than needed to raise income up to 90 percent of the 3-year average. Although the short period of analysis limits any conclusions about the building of adequate balances, some trends are clearly evident. While significant shortfalls in individual account balances remain, with each passing year the amount of the shortfalls (the difference

between current income and 90 percent of the 3-year average and the amount in the account) consistently declined. This is true for all farm sizes, but especially for commercial farms with gross receipts over $250,000. By the end of 1998-2000, most farms had the potential to accumulate sufficient balances to fill an income gap below 90 percent of their 3-year average. This supports the view that protection from income variability under a savings-account approach is limited in the early years but can improve as farmers build account balances.

Ability To Generate New Savings

Would a subsidized savings-account program enhance farmers' ability to manage risk by creating new savings? If deposits came from existing savings or from borrowing, they would serve more for tax management, benefit maximization, or wealth development than for risk management.

New savings—if deposited in income-stabilization accounts—must come from reduced household consumption or from funds that would have been invested in the farm business or off-farm investments. IRS data suggest that, at least initially, many farmers who are eligible to contribute to a farm savings account program would have ample resources to shift existing savings into a new farm savings account instead of creating new savings (Monke and Durst). Shifting is especially attractive if benefits can be captured without restricting the availability of funds, as is the case with the FARRM account proposal.

Saving for a rainy day is not a new concept for farmers. Nearly three out of four farmers keep liquid assets in reserve to meet unexpected expenses (Monke). To the extent that farmers are able to shift these assets to a farm savings account, the effectiveness of the program will be reduced. Shifting assets from one account to another would provide little if any additional protection from variability in farm income. The extent to which this actually happens is dependent upon a number of factors including the availability of existing savings, the incentives or benefits available for depositing funds into an account, and the accessibility of the funds actually deposited to a farm savings account.

While U.S. farm households on average have incomes roughly comparable to nonfarm households, they typically have much greater levels of wealth (Mishra et al., 2005). For 2004, average farm household wealth (defined broadly to include the household's current value of farm and nonfarm assets less the current value of farm and nonfarm debt) was $747,000, compared with average nonfarm household wealth of $448,000. The difference is mostly attributed to the concentration of business equity held by farm households. The portfolio of assets held by farm households is heavily weighted towards farm assets relative to housing and other nonfarm assets. However, farm households also have significant amounts of nonfarm assets, about $240,000 on average in 2004. Of these assets, liquid assets represented about 16 percent of total nonfarm assets while stocks, mutual funds, and other financial assets accounted for an additional 17 percent of nonfarm assets. Thus, on average, farmers have considerable capacity to fund new farm savings accounts from existing assets.

Development of Whole-Farm Insurance Policies

Accurately measuring the risks that would be covered under a whole-farm income insurance policy is essential to the transfer of risks that justifies insurance. The complexity and variety of U.S. farm operations suggest that, though farm income is a simple concept, the factors that determine income for a particular farm are complex.

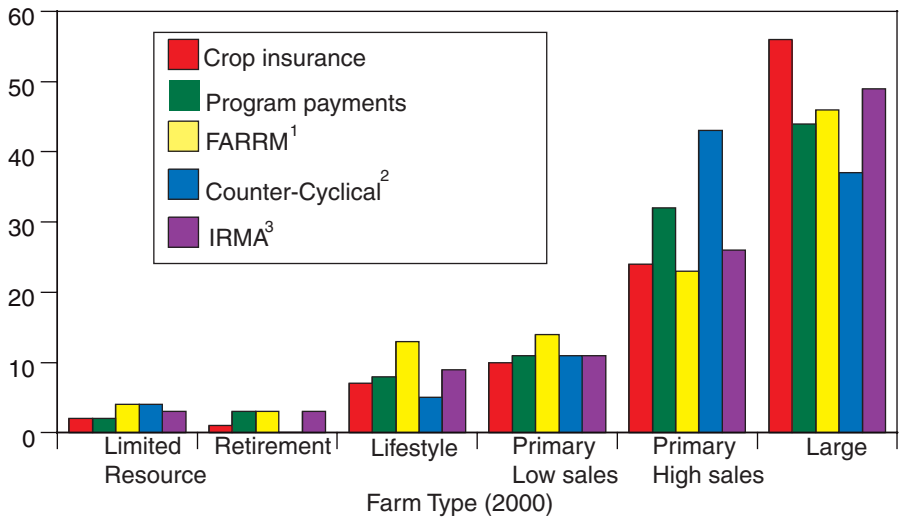
The measurement of insured income under the AGR and AGR-Lite policies starts with a farm business's tax records, Form 1040 Schedule F filings. Adjustments are made so that the income data reflect production activities in a single year and exclude income from farm product processing activities. Adjustments are also made to account for changes in farm income that are due to changes in farm size and or commodities produced. The adjustment procedures and the data that are used tend to make the underwriting rules of AGR and AGR-Lite complex.

Expanding the AGR and AGR-Lite pilot programs to become a major farm safety net program would require covering income risks from more farm enterprises, which would likely add complexity. While such complexity is necessary for the accurate risk classification and measurement that underlies insurance contracts, it may make it more difficult for producers and insurers to understand the coverage, which could hamper participation. Given the large development and administrative costs of whole-farm insurance policies, a whole-farm income insurance program may be infeasible without government subsidies.

Figure 2

Distributions from proposed accounts parallel distributions from existing programs

Percent of payments/benefits



[1]Farm and Ranch Risk Management Accounts
[2]Counter-Cyclical Accounts
[3]Individual Risk Management Accounts

Source: ERS analysis of Internal Revenue Service (IRS) 2000 tax data.

Distribution of Program Benefits

While universal coverage is often identified as an advantage of farm savings accounts and whole-farm insurance, is farm-income stabilization important for farms where farm income is an insignificant component of total household income? For instance, for farms with less than $10,000 in farm business receipts, variability in farm income has only a minor influence on total household income. These farms—which represent 58 percent of all U.S. farms—account for about 4 percent of total farm business receipts, typically report a loss in farm income for tax purposes, and have business expenses nearly four times their gross farm-business receipts. But because of nonfarm income, these small farms have adjusted-gross-household income that, on average, exceeds that for all other farm operators and also for all other U.S. households.

As the size of the farm increases, so does the proportion of household income from farming. Fluctuations in farm income are responsible for more than half the variability in farm household income for farms whose operators' primary occupation is farming and for commercial farms. Other sources of income are of equal or greater importance in explaining household-income variability for all other farm types.

Comparing the distribution of benefits under savings-account proposals with the current distribution of farm program and crop insurance payments illustrates the potential for such plans to supplement or replace current programs. Based on 2000 IRS tax data, we estimate that about 90 percent of all program payments and crop insurance indemnities are received by primary-occupation and commercial farms. The distribution of potential farm savings account deposits would be very similar. The distribution of potential farm savings account program benefits, however, reflects only potential deposits. Experience with similar savings account programs suggests that actual deposits would be well below potential deposits, and that large farms and primary-occupation farms are more likely than other farms to make deposits. Higher participation by primary-occupation and large farms would result in a larger share of benefits accruing to these farms.

Concentration of benefits would not necessarily be inconsistent with the objectives of an income stabilization program. While the proposed programs would provide income support through a tax subsidy or matching deposits, their primary expressed purpose is to reduce the variability of income. To accomplish this, deposits in proportion to the size of variability of annual income would be necessary. While less than 10 percent of total benefits would accrue to farms other than primary-occupation and large farms, a program for stabilization of farm income for these farms would need to consider that most of these farm households rely on nonfarm income for essentially all of their household income.

Conclusions

Income-stabilization accounts and whole-farm revenue insurance may overcome some disadvantages of current farm-safety-net programs. They could be applied to a wide variety of farming situations. Risk protection from income-stabilization accounts would depend upon the reserves in individual accounts, which could vary with the level of participation and the distribution or concentration of program benefits. Such accounts may not provide sufficient coverage to compensate for income losses in the early years of a program or when successive disasters deplete account balances. At the same time, depending upon the structure of the program, some farmers may build subsidized balances beyond the levels necessary to satisfy risk-management goals. Farm savings accounts in Canada and Australia have shown that both the lack of adequate account balances and the buildup of balances beyond the level required for risk-management purposes can reduce overall program effectiveness.

With whole-farm income or revenue insurance, coverage is not dependent upon the farmer's ability to build a balance but can be secured by paying a government-subsidized fee or premium. Additionally, there is no accumulation of balances since there is no access to the risk management pool unless the producer experiences the required loss or drop in income. The Canadian Agricultural Income Stabilization (CAIS) program is an insurance-like program, but it is not structured in a way that it could be delivered as a commercial product and, depending on the breadth and depth of coverage, it could be costly. While whole-farm revenue insurance is currently available under the Federal AGR and AGR-Lite programs, the feasibility of making these programs the main farm safety net is uncertain.

References

American Farm Bureau Federation. "Making American Agriculture Productive and Profitable." Accessed February 9, 2006, at www.fb.org/maapp/index.html.

Babcock, B.A., and C.E. Hart. "Judging the Performance of the 2002 Farm Bill," *Iowa Ag Review*, Center for Agricultural and Rural Development. Vol. 11, No.2, spring 2005.

Babcock, B.A., and C.E. Hart. "Safety Net Design for the New Farm Bill," *Iowa Ag Review*, Center for Agricultural and Rural Development. Vol. 11, No.3, summer 2005.

Babcock, B.A., and C.E. Hart. "Risk-Free Farming?" *Iowa Ag Review*, Center for Agricultural and Rural Development. Vol. 10, No.1, winter 2004.

Dimitri, C., A. Effland, and N. Conklin. *The 20th Century Transformation of U.S. Agriculture and Farm Policy*. Economic Information Bulletin No. 3, Economic Research Service, USDA. June 2005.

Dismukes, R., and J. Glauber. "Why Hasn't Crop Insurance Eliminated Disaster Assistance?" *Amber Waves*. Economic Research Service, USDA. June 2005.

Glauber, J. "Crop Insurance Reconsidered." *American Journal of Agricultural Economics.* December 2004.

Gundersen, C., M. Morehart, L. Whitener, L. Ghelfi, J. Johnson, K. Kassel, B. Kuhn, A. Mishra, S. Offutt and L. Tiehen. *A Safety Net for Farm Households*, Agricultural Economic Report No. 788. Economic Research Service, USDA. December 2000.

Harwood, J., R. Heifner, K. Coble, J. Perry and A. Somwaru. *Managing Risk in Farming*, Agricultural Economic Report No. 774. Economic Research Service, USDA. March 1999.

Jones, Carol A., H. El-Osta, R. Green, *Economic Well-Being of Farm Households*, Economic Brief No. 7. Economic Research Service, USDA. March 2006.

Martin, P. *Australian Farm Survey Results—2002-03 to 2004-05.* Australian Bureau of Agriculture and Resource Economics, Canberra, Australia. March 2005.

Mishra, A., R. Durst, and H. El-Osta. "How Do U.S. Farmers Plan for Retirement?" *Amber Waves*. Economic Research Service, USDA. April 2005.

Mishra, A.K., H. El-Osta, and M. Morehart. *Income, Wealth, and the Economic Well-Being of Farm Households*. Agricultural Economic Report No. 812, Economic Research Service, USDA. July 2002.

Mishra, A.K., and C.L. Sandretto. "Stability of Farm Income and the Role of Nonfarm Income in U.S. Agriculture." *Review of Agricultural Economics*. Vo1. 24, No. 1, spring/summer 2002.

Monke, J. and R. Durst. "Tax Deferred Savings Accounts for Farmers: A Risk Management Tool." *Agricultural Outlook*. Economic Research Service, USDA. May 1999.

Monke, J. *Do Farmers Need Tax-Deferred Savings Accounts to Help Manage Income Risk?* Agricultural Information Bulletin No. 724-07. Economic Research Service, USDA, June 1997. Accessed at: www.ers.usda.gov/publications/AIB724/Aib72407.pdf

Strain, G. and G. Andrusiak. "Canada's NISA Experience and the Next Step," paper presented at Workshop on Farm Savings Accounts sponsored by Economic Research Service, Farm Foundation, and Risk Management Agency, Washington, D.C., June 2, 2003.

Swenson, Andrew L. Department of Agribusiness and Applied Economics, North Dakota State University. Personal communication. June 25, 2003.

U.S. Dept of Agriculture, Economic Research Service, *Farm Business and Household Survey Data: Customized Data Summaries from ARMS*. Accessed Feb 6, 2006, at: www.ers.usda.gov/Data/ARMS

U.S. Dept. of Agriculture, Economic Research Service, *Farm Household Economics and Well-Being.* Accessed February 6, 2006, at: www.ers.usda.gov/Briefing/WellBeing/

Appendix: Data Sources

The information presented in this report primarily relies upon Internal Revenue Service (IRS) tax data. The estimates regarding contributions and other variables for the various savings account proposals were estimated from the Statistics of Income (SOI) Individual and Sole Proprietorship Tax File for 2000 by IRS based on specifications provided by ERS for the various features of the savings account proposals examined in this report.

A panel of Internal Revenue Service farm tax returns was also used for tax years 1998-2000. This panel was also drawn from the SOI tax file and contains only those farms that filed a farm tax return and reported some farm income for each of the tax years in the panel. Overall, this panel represents about 80 percent of all farm returns filed in a single year. This panel was used to simulate contributions, withdrawals, and account balances for the same farms over a 3-year period.