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THE CHANGING STRUCTURE OF AMERICAN AGRICULTURE

HEARING

BEFORE THE

JOINT ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

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JOINT ECONOMIC COMMITTEE

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THE CHANGING STRUCTURE OF AMERICAN AGRICULTURE

MONDAY, APRIL 24, 1989

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m., in room 2359, Rayburn House Office Building, Hon. Lee H. Hamilton (chairman of the committee) presiding.

Present: Representatives Hamilton and Upton.

Also present: David Freshwater and Dale Jahr, professional staff members.

OPENING STATEMENT OF REPRESENTATIVE HAMILTON, CHAIRMAN

Representative HAMILTON. The Joint Economic Committee will come to order. Today we will be examining factors underlying the changing structure of American agriculture.

During the 1980's, American agriculture has been buffeted by severe economic shocks. One major issue may have slipped from sight: While we worried about saving farms, we ceased to focus on how the distribution of farm size was changing.

The high incidence of financial stress among farmers and a concern with the growing share of government payments going to large farms have once again raised questions about whether current farm programs are serving the public purpose. Now that conditions in agriculture have begun to stabilize, and as the time for the next generation of farm legislation approaches, it is timely that we examine both the current structure of agriculture and our policies, to see if they are appropriate for the needs of the future.

Agriculture continues to be a key factor in American trade. High farm program outlays in the past few years served a vital function in maintaining farmers. However, our current trade and budget deficits require that, while we continue to maintain exports, we must strive to keep future payments under control. In this regard, it is important that we assure that the future structure of American agriculture is one that allows us to achieve these goals. The committee is fortunate to have three outstanding witnesses today.

Bob Bergland is a former Secretary of Agriculture. He currently is executive vice president and general manager of the National Rural Electric Cooperative Association. During his time as Secretary of Agriculture, USDA undertook a major study on farm structure, which was published in a report entitled "A Time To Choose."

Bob Thompson is a former USDA Assistant Secretary for Economics. He is currently dean of agriculture at Purdue University. He is widely known for his work on agricultural policy, particularly trade policy.

J.B. Penn is a former Deputy Administrator for Economics at USDA, and is currently a vice president at Sparks Commodities. He was instrumental in the research efforts supporting Mr. Bergland's structure project.

So the committee is indeed fortunate to have witnesses with such a wealth of experience in agricultural policy, to testify before us today. I understand that each of you has a statement. Those prepared statements, of course, will be entered into the record in full. We will ask you to summarize the prepared statements within 5 minutes or 10 minutes—preferably 5, if we can keep it to that—before we turn to questions. We will open it up now for your statements.

We will begin with you, Mr. Bergland.

STATEMENT OF BOB BERGLAND, EXECUTIVE VICE PRESIDENT, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Mr. BERGLAND. Thank you very much, Mr. Chairman.

For as long as I can remember, it has been argued that we need to permit efficient farms to expand, and that the inefficient should be encouraged to do something else. This has been a rather common economic basis upon which advocates argue their point of view.

After about 2 years at the Department of Agriculture, it became apparent that farming was not so easily qualified, as to say the efficient or the inefficient should do thus or so. I was down in Mississippi, meeting with a group of persons, mostly black, involved in a problem surrounding a clouded title of land, and it involved the Farmers Home Administration that was trying to finance these people.

At that meeting were people mainly farming 40 acres or so. We got to talking about cotton and other crops. It was clear that even a substantial increase in cotton prices and income would not solve their economic problem.

I went from there to California, and met a fellow who presided over a corporation that farmed thousands and thousands of acres of irrigated cotton. It was clear that a big increase in cotton prices or income would produce enormous benefits to this big farm, and do little or nothing for the small farm in Mississippi.

I came back and talked about the politics of this with some people, and they said, "Well, every farm program that has ever been recommended, at least in memory, is prefaced on the presumption that we are going to save the family farm." Yet, that was not the way it worked.

So we launched this structure study, to find out a number of things. For example, what is the most efficient farm size? We were surprised to learn that efficiency was arrived at at a fairly modest proportion. It was not a straight line between efficiency and scale; in fact some of the very big farms lose efficient advantage as they gain in scale, because they cannot manage them as effectively.

The question of nonfarm income was looked at very carefully. It was clear that the millions of farms in the country at that time that were really not commercial scale were able to maintain a family income because of jobs. The Department of Agriculture has, each year since I was there, refined those numbers. I just would like to call your attention to a sheet which is drawn from USDA data. The numbers are from the last year for which records are available. This is the end of 1987.

There are about 2.1 million farms in the United States. A farm is identified as a place that sells more than $1,000 in produce a year. Of that 2.1 million, there are 29,000 that have annual sales of more than a half million, in fact have an average net income per farm of $738,000 each.

On the other end of the scale, there are 837,000 farms that have less than $5,000 gross farm income—actually lost money on the farm, some $1,400 each—but had off-farm income of $25,000. Indeed, we are seeing a major change in the structure of agriculture. Fifty years ago, when the rural electric program started, there were 8 million farms in the country, and each one was about like the next. Now, with modernization, with new technologies, we have seen this change drastically.

We have a small number of very powerful producers. We have a very large number of small farms whose income is from a job in town. We, in our business, the rural electric cooperatives, are doing some very interesting things to help create more jobs in rural places.

The lesson here, Mr. Chairman, is that you do not save the family farm by increasing farm income, necessarily. The large farms take proportionately much more than the small farms. To deal with the structure of agriculture means that we have to take into account more than commodity policy, we have to deal with credit matters, of course rural facilities like water and sewer, training, and education. Job opportunities generally do not come to rural places automatically, because we are beaten down by the law of large numbers.

The cities have the large numbers, and we come out second or third best in competition for public dollars for education or the other facilities so essential.

So, Mr. Chairman, the summary is that agriculture is a very complicated business, and that farm programs have to be much more specific in dealing with the social and economic problems arising in rural places. You cannot treat these problems with a simple title and a simple solution.

Thank you, Mr. Chairman.

Representative HAMILTON. Thank you very much.

[The prepared statement of Mr. Bergland follows:]

PREPARED STATEMENT OF BOB BERGLAND

Executive Vice President

National Rural Electric Cooperative Association

before the

Joint Economic Committee

United States Congress

April 24, 1989

I am honored to appear before the Committee today to discuss the structure of agriculture and the changes that have ensued in the last decade. It is my pleasure to testify on behalf the 1,000 consumer-owned, rural electric systems that provide affordable, central station electric service to 25 million rural Americans in 46 states, and I would like to thank the Committee for extending an invitation to appear.

As your Committee has requested, my remarks will be based on the study, A Time to Choose, which was compiled during my tenure as Secretary of Agriculture, and the changes that have occurred since the time of its publication nearly ten years ago.

The more things change, the more they stay the same. My basic concerns about the farm and rural infrastructure today are more pronounced than they were a decade ago, and the conclusions and recommendations that arose from the Structure Project ten years ago are just as valid and relevant today as they were then.

I will take a moment, if I may, to explain some of the reasons for the project. From my experience, many of the changes I had seen occuring in agriculture were the direct result of changes in its structure. "Structure" means many things to many people, but in essence, it refers to the basic characteristics of a system -- those that embody economic, social and political goals and values. Therefore, I decided that studying each of the basic components of the structure of agriculture would be the most useful way of finding some of the answers to the concerns that were troubling me and so many other Americans about modern agriculture.

In so doing, we veered from the conventional approach of concentrating our attention and efforts on the whole, the big numbers: total production, total exports, total income and the reliance on national averages.

It seemed the right time to examine the pieces that made up the big pie, to take a closer look at what is going on behind the totals and averages, where individual persons are living their daily lives under the influence of those larger forces.

In March of 1979, I used the annual convention of the National Farmers Union to inaugurate a national dialogue on the structure of American agriculture. The dialogue would question how and why the structure of American agriculture developed the way it had, whether or not this was what farmers and the general public wanted, and if not, whether the federal government should step in to help the citizens try to effect changes. And finally, if the federal government were to step in, how should it go about doing this?

In the fall of that same year, I convened day-long public forums in ten regions of the country -- I went outside the beltway -- and within reach of the farmers, rural residents, consumers, business men and women, clerics and others I wanted to hear from directly. Thousands attended. Thousands more wrote about their experiences in farming.

By mid-winter of 1980, we had more than 10,000 pages of information and testimony to digest and compile ... not counting the books.

As we anticipated, there turned out to be more questions than answers. But the public forums did confirm a widespread desire to learn more about agriculture and its structure, and, if we couldn't get the answers, a sincere attempt was made to at least hone in on the right questions. My agenda was designed to take us closer to the basic structural questions I felt had to be answered to bring direction to policy.

Although the issues raised at the forums were, on the surface, more oriented towards economics than anything else, everyone involved in the study realized that these were intimately woven into the fabric of our beliefs and values as Americans. The same basic beliefs and feelings were strongly represented in every meeting we held. I'd like to briefly sum up these basic tenets, as they were expressed to me and my staff:

- ** belief in the right to private property and the freedom of choice;
- ** belief in the equal dignity and worth of all;
- ** just reward in the quest for excellence provided it is not gained at the expense of another individual's dignity or does not pose a threat to his survival;
- ** promoting access to opportunity, and equity in the distribution of resources, rewards and burdens;
- ** cooperation and shared responsibility.

These beliefs and values, then, must be the basic guideposts of our policy.

However, it was also clear from the study that many individual forces affecting structure could not be fully understood and addressed without due regard to their interactions with other forces, such as policies involving taxes, credits, commodities, and development, inflation, new technologies and market forces. Policies which fail to recognize the inter-relationships of these factors will, at best, be of limited effectiveness and, at worst, generate undesirable and perhaps irreversible inequities and structural changes.

Time has passed, but questions remain. Two omnibus farm bills have been enacted. And, with the 1990 farm bill waiting in the wings, we are again at a crossroads as to the public policy decisions that will put us on the path we want our agricultural system to take.

I am fully aware of how difficult it is to change some of the very basic characteristics that led to what agriculture is today, but what was true at the time the Structure Project was completed is still very valid today.

We should seriously reassess each of the basic components of our agricultural system. Policies and programs that have been in effect over the last decade have only accelerated the trends we observed then, creating ever-larger, more concentrated farming operations. Present policies and programs do not need to be completely abandoned, but they must be modified.

Programs designed to protect the farmers from the economic and natural disasters are justified and must be maintained. But they also must be tailored to these farmers' needs.

Programs that seek to guarantee market prices or incomes in excess of those needed by fully efficient producers will only lead further to a nation of large and super-large farms. And surprisingly, "larger" does not necessary mean "more efficient." As the study revealed, " . . .few public benefits accrue from farms of sizes beyond those necessary to achieve the available cost economies."

Programs and policies should be carefully modified with farm structure clearly in mind so that they do not encourage economic cannibalism within agriculture or short-sighted exploitation of agricultural resources with no thought for their use over the longer term. They must recognize the costs to society that are the consequences of unnecessary concentration and be so modified that financial and technical assistance is made available to help those who, in its absence, will be adversely affected by economic forces and policies.

The resourcefulness, initiative and foresight of the American farmer is legendary. These characteristics, however, are evolved from a tradition of facing and coping with risks largely on one's own.

An environment which not only discourages individual risk management, but also actively encourages the convenient transfer of risk to the government and general public, endangers that tradition.

Central to the necessary modifications are policies and programs that help the medium-sized and smaller farm operators obtain credit, achieve production efficiencies and marketing opportunities, have access to off-farm employment opportunities, and offset the bias towards bigness in tax policies.

Finally, I submit that if a diverse farm sector is to be maintained, it is important that policies recognize problems peculiar to specific categories of farms -- that is, to rural farm residences, small-, medium-, or large-sized farms -- and address those problems directly.

We must take the reins in determining how best to lay the groundwork for a sound future for the coming generations. Errors are unacceptable. The questions remain, and they must be honestly addressed.

Thank you, Mr. Chairman. I would be delighted to respond to any questions you or the Committee might have.

Representative HAMILTON. Mr. Thompson, please proceed.

STATEMENT OF ROBERT L. THOMPSON, DEAN OF AGRICULTURE, PURDUE UNIVERSITY

Mr. THOMPSON. Thank you very much, Mr. Chairman. This hearing is extremely timely, I feel, as we approach the writing of the 1990 farm bill, when we will once again reevaluate what we are doing in agricultural policy. It is also timely because of what is going on in the international trade negotiations today in the GATT in Geneva. I think we often fail to recognize the close interrelatedness of these two forms of public policy, and the impact they have upon the agricultural sector.

It is important to remember the export side of the equation here, because much of the financial stress that we have been through in the 1980's has resulted from the fact that we geared up American agriculture and associated businesses to serve a strong international market. In 1981, we exported 40 percent of everything we produced in American agriculture. But over 5 years, those farm exports shrank by 40 percent, from $44 billion down to $26 billion, creating tremendous financial stress and reducing rates of return in agriculture and associated businesses.

Now, if we are to put those underutilized resources—both land and people—back to work and to have a farm sector comparable in size to what we have today, we are going to have to see those exports rebuilt.

So I think one of the important goals of future agricultural policy is to ensure that, while addressing the social problems of agriculture, we also ensure our international competitiveness. Much of the shrinkage in exports that occurred in the early 1980's resulted from the fact that we established rigid minimum loan rates in law in the 1981 farm bill 4 years in advance, without any regard for global market conditions. On top of that, we saw the dollar appreciate by almost 50 percent in real terms, and, through the combined effect of those two forms of public policy, we priced ourselves out of the world market.

The reason that this is so important to the structure of agriculture issue is that the size of the export market, more than any other single force, is going to determine how many people we employ in the farm sector and in associated agribusinesses. We must work on leveling the playing field and generating greater market access through the GATT negotiations and ensure in our future farm policy that we are price competitive in the international market. Otherwise, there is no alternative to significant further downsizing of the farm sector—not only in the amount of land we use in production, but also in the number of people employed on the farm and in associated agribusinesses.

The latter point is relevant because in today's agriculture in this country there are seven people employed off the farm for every person employed on the farm. There are more people employed in the input industries themselves than there are on the farm. Of course, there are several times more people employed in the post-farm marketing, transportation, and processing sectors.

As we consider future farm policy, in addition to maintaining international competitiveness, we need to address the question of rural community health. As former Secretary Bergland indicated, one of the things that every study of past farm policy has demonstrated is that we tend to distribute the benefits of the programs in proportion to sales: The larger producers tend to receive the larger proportionate fraction of the benefits.

But when we look at the farm sector, there are really three groups of farmers. There is the large, commercially viable group of farmers—perhaps 300,000 to 400,000 nationwide—who collectively, while they may account for only 15 to 20 percent of the farmers, represent perhaps 75 to 85 percent of the total output.

At the other end of the spectrum, we find close to three-quarters of the farmers, or of the people we count as farmers in the country, who are part time. They have at least one source of off-farm income in the family, and most, like the large group of farmers, also earn over the median family income of the United States.

But there is a group of people in the middle—small, full-time family farms—many in areas of the country where there are few off-farm employment opportunities, who do not have command over enough land and capital to generate enough output to provide parity of income with people they went to high school with but who went into other lines of work.

The most important factor driving the structural change in agriculture over time is striving for parity of income. Farm people want to enjoy as good a quality of life as kids they went to high school with who went into other lines of work. More than anything else that is what is driving the outmigration from agriculture that occurs. It is only reasonable to expect that the group of farms in the middle—several hundred thousand—too small to generate parity of income, but yet not having off-farm employment opportunities—are going to go one way or the other in the future. If they do not have opportunities to gain greater income in their local community, these people are likely to migrate out of those communities. Alternatively, if they have no opportunity to expand their farm operations, they are likely to migrate out of the community.

As we design our future farm programs, we need to focus on this question: What are we trying to accomplish with them? Clearly, we want a safe, efficient, low-cost, reliable food supply; we know that those are standard objectives of farm policy, and they should continue to be.

But if we are trying to assist that group of people in the middle, we are not achieving the goal with policies as presently designed which distribute the payments in proportion to the volume of sales.

I think that that is a question that has to be addressed in the future. Even more importantly, we need to address another question: Are we getting the biggest bang for our social buck by distributing all farm income support payments through the deficiency payments, as opposed to investing part of them in rural economic development which could generate more long-term economic health in rural America?

Deficiency payments are only a Band-Aid. In the short run, they can supply the income of people in agriculture—although they

even do a poor job with that, since the larger producers get the bulk of the benefits.

If our objective is to generate long-term economic health in rural America, we have to revitalize rural communities through investing in infrastructure, and through investing in human capital—doing a better job of educating the kids in rural communities so they will either be more productive as farmers or they will have greater opportunities to migrate into other employment possibilities. We need to make sure that adequate infrastructure is in place so that those rural communities will be attractive for economic diversification.

Farmers too are interested in rural economic diversification, because they are sick and tired of carrying the whole tax base of their rural communities. They like the notion of diversifying the tax base, as well as making sure that lower income farmers in their community have opportunities to supplement their farm incomes with off-farm employment.

So my message is that we need to make sure that we recognize not only the importance of addressing rural economic development and rural social issues with our agricultural policy. At the same time we need to ensure the international competitiveness of American agriculture in the world market, by shooting ourselves in the foot neither through macroeconomic policy that gives us too strong a dollar, nor by artificially pricing ourselves out of the world market by setting loan rates too high. If we are not competitive, we must down-size American agriculture, removing even more people than we have talked about to date. That is something that none of us wants to contemplate.

Thank you very much.

Representative HAMILTON. Thank you, Mr. Thompson.

Mr. Penn, please proceed.

STATEMENT OF J.B. PENN, VICE PRESIDENT, SPARKS COMMODITIES, INC.

Mr. PENN. Thank you, Mr. Chairman.

I, too, appreciate the invitation to appear before the committee today. Both of the previous speakers have done a good job in briefly characterizing the structure of the farm sector today. We do have a very concentrated farm sector.

We have about 587,000 farms that produce 90 percent of all the food and fiber, and not the millions of family farms that conventional wisdom perceives to exist in rural America.

We also have among that 587,000 farmers reasonably high incomes and wealth, compared to other people in American society. As Mr. Thompson said, we no longer have a social problem in agriculture concerning incomes of the commercial farmers, the 587,000 farmers. With those remarks on the structure of the farm sector today, I would like to take my time to briefly comment on a few issues and common themes throughout structure debate, and that have some relevance for the upcoming farm bill.

We have been concerned for years and years with the decline in the number of family farms. That has been one of the major concerns of agricultural policy. And that was a concern in part be-

cause it implied fewer rural people and the decline of rural communities. So the farm programs were justified in part not only for removing the income disparity between farm and nonfarm people, but also in providing economic support for rural communities.

But the economic studies are inconclusive as to the benefits of the commodity programs to preserving the family farm. They simply cannot say what the net effects are, whether they encourage farm consolidation or not.

Yet, one fact stands out. We have had the farm programs in place for well over 50 years now, and the one persistent trend in agriculture has been declining numbers of farms; from a peak of about 7 million, down to the 2.1 million today that was noted by Mr. Bergland.

Today, we see many rural areas facing severe difficulties. A stagnating rural America is one of the important national concerns. Yet, it is not clear that slowing the demise of the marginal farms today would have any major perceptible effect on the decay of rural communities.

This would suggest that, rather than continuing the focus on the commodity programs for trying to address rural economic concerns, we perhaps need to look elsewhere. Other approaches to rural revitalization likely will prove much more effective than trying to address this issue through the commodity programs.

A second common theme in past structure debates relates to the efficiency of the farm sector. The advent and adoption of new technology has been the major force over time propelling the concentration of the farm sector, the consolidation of farms. That technology has enabled, of course, greater outputs from fewer resources. It has allowed many people to shift out of agriculture to other endeavors.

Now, we long have applauded the efficiency of American farmers, and recognized the many benefits. When we use resources more efficiently, we get increased incomes for all people. And, we have enjoyed abundant food supplies that required a smaller and smaller proportion of our disposable incomes.

Since the early 1970's, efficiency has taken on a new aspect, one that Mr. Thompson referred to, and that is the competitiveness of our farmers relative to the foreign competitors. We have come to depend substantially on the foreign markets. If we are to avoid idling a substantial portion of our farm base in the 1990's, then we must remain competitive with the major foreign competitors.

In the future, the domestic demand for farm products will grow only slightly faster than the rate of population growth, so we must turn to the foreign markets if we are to avoid idling something on the order of a fourth to a third of our entire agricultural production. To utilize our capacity, it is absolutely essential that we remain competitive relative to the foreign producers.

That was one of the major points in the USDA structure initiative mentioned by Chairman Hamilton. Agricultural policies often have unintended and unforeseen, and sometimes adverse, consequences for the farm sector, as we saw in the early 1980's.

The loan rates in the 1981 farm bill were too high, based on inflationary expectations that did not prevail. They simply priced us out of a lot of markets, and led to extensive difficulties in the farm

sector. It is that kind of unintended consequences that we need to give more attention in the upcoming farm bill debate.

Another aspect common to the structure debates is the distribution of benefits. That has long been a concern associated with the farm programs. The farm programs have no means tests. The benefits are available to anybody who complies with the provisions, such as idling land from time to time.

A result is that large income transfers are made to a lot of people who do not need society's help, while at the same time a lot of people who do have need receive inadequate benefits, because the programs have no targeting provisions.

Another criticism of the programs is their inherent tendency to provide the greatest benefits to the larger farms, because the benefits are based on volume. One could argue that benefits provided in that way have enabled the larger farms to cannibalize the smaller farms, and to contribute to the growing concentration that we have seen.

Another continuing concern is the environment. One of the prominent concerns of the structure discussions of the late 1970's and 1980 was the linkage between agriculture and the environment. Questions were raised then about the direct and indirect effects of policies on surface and ground water contamination, on adverse consequences for wild life habitats, and on soil erosion.

Those questions at that point concerned soil erosion, to a large extent, and we have taken important steps in that area. The 1985 farm bill included the Conservation Reserve Program, swamp buster and sod buster provisions which protect the more fragile acreage.

But we are seeing a growing concern about the contamination of ground and surface water, and the question is whether the commodity programs are exacerbating the problem. Are the rigidities in the current commodity programs forcing farmers to farm in a way that is not environmentally sound? Do they prevent farmers from using rotations and from farming in ways that require less intensive usage of chemical pesticides and fertilizers?

Also, does continued use of the acreage reduction programs encourage farmers to farm more intensively the acreage that remains in production?

Another area that is a concern throughout all of these discussions is the progams' cost. The farm programs cost about $3 billion a year throughout the 1970's. Then, in the 1980's, they skyrocketed, they simply got out of control. The cost reached $26 billion in fiscal year 1986. Thus far, from 1981 to the current year, the farm programs have cost $120 billion. By the end of the current farm law, the programs for the decade will have cost $145 billion.

Now, there is no doubt that those large transfer payments helped a lot of farmers who were on the margin. And, there is no doubt that those transfer payments helped a lot of rural communities, helped stabilize them during the severe recession of the early 1980's.

Nevertheless, you can still raise questions as to whether such large cost is necessary, whether we could spend some smaller amount or whether we could spend the same amount in a much

more effective way, especially if we are interested in revitalizing rural America.

Finally, I would just note that, concerning structure and future farm policy, one of the primary characteristics of U.S. agriculture policy is that it is evolutionary. It is more evolutionary than revolutionary. We move from farm bill to farm bill, tending to incorporate modifications in each successive bill that make some improvement.

It seems that we are on a pretty well-defined trend now, and that trend is toward decoupling, decoupling with a small "d," not any particular proposal. It is definitely toward a greatly reduced role for government in the production, investment, and marketing decisions of farmers.

The 1985 farm bill made important steps in this regard. Subsequent legislation also has included provisions that move further in that direction. The concern now with the 1985 farm bill and possible modifications in 1990 has to do with removing more of the inflexibilities, giving farmers even greater latitude in their decisionmaking to respond to markets, so that we do not lose competitiveness, while reducing the environmental problems and the program costs.

I think the potential impacts and the implications for the structure of agriculture of moving along the path toward less and less government intervention is something that we do not know very much about. It is an area where we need to provide more information to inform the debate on the 1990 farm bill.

With that, I will stop. Thank you, Mr. Chairman.

Representative HAMILTON. Thank you, Mr. Penn.

[The prepared statement of Mr. Penn follows:]

PREPARED STATEMENT OF J.B. PENN

Introduction

I appreciate the invitation to appear before this Committee to discuss agricultural policy and the structure of the agricultural sector.

It soon will be ten years since the inauguration of the landmark USDA initiative on the structure of agriculture. That effort commissioned studies to improve our information base, sought out diverse views and opinions on all aspects of farming and rural life, and explored the policy issues in a different, more encompassing context. It made a substantial contribution to our understanding of structural change in agriculture.

With the task of developing new farm legislation soon before the Congress, this is an opportune time not only to revisit the USDA initiative, but also to reconsider the fundamental trend path of the farm sector in the context of decisions to be taken in conjunction with the new farm bill.

In my remarks today, I will begin by briefly reviewing the economic and policy environment of the 1970's, which gave rise to the USDA initiative, and the major policy concerns that emerged in the structure discussions. Then, I would like to note a few major indicators of farm structure today and suggest some of their implications for the upcoming policy discussions.

Structure has to do with people, acres, number and kinds of firms, relationship of on-farm to off-farm activities, and several other things as well which confuses the issue in most discussions. Concerns about farm structure are not new, and generally are framed very broadly. They arise from people's concerns about the sector's role in the overall structure of our society, and about the impacts of the successive stages of agriculture's development on our people and our communities. For the past 30 years or so, structural studies have focused on farms, their size and organization, their changing role in rural communities, and what these changes might mean for farm people and for the nation.

The most recent initiative was a series of studies of structure designed and undertaken in the late 1970's in response to important fundamental concerns.

This initiative brought together and analyzed the current statistics, and gave farmers and other groups the opportunity to voice their opinions of the causes and results of the new trends. The hearings and study results were available to policymakers and were widely publicized.

Structure Concerns a Decade Ago

The USDA initiative began at the end of a decade that saw an export boom.. The boom began suddenly with strong worldwide grain consumption growth, at rates considerably faster than the long-run historical trend. That demand strength emanated from rapid economic growth, especially in developing countries, a declining dollar, widely available petro-dollar credit, and import needs increased by poor crops, all of which combined to increase world and U.S. prices during much of the decade.

The United States captured growing shares of the expanding world trade during this period because of its improved competitiveness. Domestic farm program price supports in preceding years had been reduced to levels that did not interfere with market prices. Market infrastructure already in place was quickly expanded to enable rapid movement of high-quality products from farm to port to purchaser. Prices of U.S. commodities were increasingly attractive as the value of the dollar declined. The rapid and steady growth in exports from 1973 undergirded farm income, helped cut government costs, and contributed significantly to a positive U.S. trade balance.

While the export boom spanned most of the 1970's and continued into the 1980's, concerns about its impacts and its persistence began much earlier. By 1978, the economy was buffeted by a second oil embargo and inflation was headed toward double digits. Farms were being consolidated rapidly, farmland prices were booming, and farm debt was increasing along with other production costs. Even the relatively strong prices of the period worried many farmers, who feared a cost-price squeeze, should prices soften.

In the winter of 1977/78, with commodity prices weakening and costs climbing,. farmer demonstrators came to Washington with strident demands. The next year, they were better organized and returned with their tractors, and made an impression on us all. Their concerns ranged far beyond prices, and included program purposes, the distribution of benefits and their impacts. Others also were dissatisfied with current policy, wanting to get more control of the direction in which the sector was heading, raising concerns about farm concentration, about the more intensive farming system that was developing, about rural communities, about the environment, and about the safety and quality of the food supply. The USDA initiative emerged in this environment and attempted to address all these things.

In part because the issues were social and political as well as economic, the initiative was misunderstood by some, and it became politicized. Instead of being seen as a fact-finding effort with the potential to help everyone, it was seen as a tool that might be used to intervene. Some thought it was a veiled attempt to roll back the clock to the day when "40 acres and a mule" defined an important class of farm. Others thought it an attempt to remove or

redirect some of the support the sector receives, such as public research, concessional credit, or price support and income assistance.

The initiative helped develop the underpinnings of a much deeper understanding of agriculture, the character of farm businesses, and of farmers' responses to changing economic conditions. And, I believe, the studies broadened our understanding of the programs and their impacts on farmers, farm families and farm communities. They helped us appreciate the relationships between farms and the national and international economy.

This broader understanding led to no new programs directly, but did increase public awareness of the problems and may have been instrumental in a few changes in concept. By identifying some of the changes in farming during the long period since farm programs have been in effect, and by looking closely at the efficiency and equity of some of the main program tools, it raised serious questions regarding the long-term efforts to isolate agriculture from fundamental market changes. Looking at farm characteristics in new ways and with much greater detail also gave greater insights into trends in farm consolidations and farm size, and into the impacts of booms and busts on local communities, farmers, farm-related businesses, the local tax base, and the distribution of program benefits.

To an important degree, that study did what it was supposed to do: highlight trends, raise concerns where appropriate, and focus the debate on meaningful issues. I think it also reduced the potential for misunderstanding and increased national capacity to discern among real and subsidiary farm policy issues.

Farm Sector Structure Today

The issues that concern agriculture vary over time, but the importance of farm numbers, their organization, and their importance to their communities continues to undergird discussions of farm policy. Thus, it is useful to review quickly a few of the more prominent indicators of the current structure.

Farming and Rural America

I think it is instructive to note the role of farming in the rural sector of our country today.

In the 1930's when the farm programs began, 30.5 million people lived on farms, one-fourth of the total population. Another 24 million people who lived in rural areas depended on non-farm occupations. The total rural population (54 million) was 45 percent of the total; almost one of every two people lived in rural America, and one of every four lived on a farm.

Today, the farm population constitutes barely two percent of the total population, and hardly eight percent of the rural population. The rural population (at about 64 million) is considerably larger than in 1930, but is

just over one-fourth of the nation's total. Today, one of every four persons lives in a rural area, but only two of every hundred live on a farm.

U.S. Farm and Rural Population

Item	1930	1987
	- - millions - -	
Total Population	121.5	243.4
Rural Population	54.0	63.9
Farm Population	30.5	5.0
Rural, Percent of Total	44.5	26.2
Farm, Percent of Total	25.1	2.0
Farm, Percent of Rural	56.5	7.8

Source: USDA.

With fewer people remaining in farming, less of the employment and income of rural communities derives directly from farm employment. Today, less than five percent of the personal income of rural people is from farm work, substantially less than just 30 years ago. Non-farm employment provides most of the income of rural people, much of this from rural residents who commute to metropolitan areas for work. Investment income and transfer payments (social security, retirement income, unemployment compensation, etc.) have become increasingly important in many rural communities. More than 500 rural counties (more than one-fifth of all rural counties) had large influxes of retirement age people in the 1970's. Manufacturing employment accounts for a large share of income in nearly 700 rural counties, while government employment is a major income source in about 300 counties.

Farming was a major income source (accounting for at least 20 percent of labor and proprietors' incomes) in 514 rural counties in 1984 (less than one quarter of all rural counties). This is a substantial change from 1950, when over 2000 counties were farm-dependent. The declining importance of farming has been particularly pronounced in the South. The rural South has experienced a major shift in employment from agriculture to manufacturing as textiles, apparel, leather goods, and other low-wage industries have developed there. Most of the remaining farm counties are in the central and northern Great Plains region, although significant numbers still exist in the Corn Belt-Great Lakes region, in the southern Great Plains, in the Northwest, and the Southeast.

Farm Numbers and Sizes

The most pronounced characteristic of the structure of the farm sector is the long-term, persistent decline in farm numbers, and consequent increases in farm size (the number today is some 257,000 less than in 1980 when the USDA

structure discussions were taking place). The extent of the concentration is quite pronounced when the numbers are examined by size category.

Today, there are slightly more than two million farms, according to the official definition (sales of at least $1,000 of product). But, the definition is largely meaningless since it encompasses a large number of places that are little, if at all, related to commercial agriculture. At the other end of the spectrum, a very few, large farms account for a significant proportion of the total output.

- The smallest farms, less than $40,000 of sales, comprise 73 percent of all farms, but account for only nine percent of total sales.
- The largest one percent of the farms produce 38 percent of total output.
- The largest 4.6 percent of the farms produce 55 percent of the output.

Farm Numbers and Cash Receipts, by Size (1987)

Gross Sales ($ 000)	Number of Farms	Percent of Total	Percent of Cash Receipts
Under 40	1,589	73.0	9.4
40 - 100	286	13.1	13.1
100 - 250	201	9.2	22.0
250 - 500	71	3.3	17.9
Over 500	29	1.3	37.5
Total	2,176	100.0	100.0

Source: USDA.

It is quite clear that rather than a farm sector with millions of farms as we once had, the commercial farm sector of today is at most composed of no more than 587,000 farms that produce over 90 percent of the food and fiber.

Economic Status of Farms

The economic well-being of farmers and rural people was the primary motivation for the farm commodity programs in the 1930's. Farm families' incomes averaged less than one-half the incomes of non-farm people, and most lived in poverty.

Since farmers have made relatively steady progress in improving their economic situation, the consolidation of farms contributed greatly to improved incomes for the farmers that have remained, as has the rapid growth in income

opportunities for farm residents off the farm. Today, farm family incomes compare very favorably to those of their non-farm counterparts; in fact, the average for all farms is above the national average.

- o The bulk (95 percent) of the income of small farms is earned off the farm.
- o A greater share of total income comes from farming as farm size increases, and farm earnings become the major source for farms with sales over $100,000.
- o Most of the commercial farms have incomes well above the national average, and incomes for the larger farms are several times the national average.

Farm Income by Source, 1987

Gross Receipts ($ 000)	Percent of Farms	Average Income Per Farm			Farm Income as Percent of Total
		Farm	Non-Farm	Total	
		- - $ 000 - -			
Under 40	73.0	1.3	23.7	25.0	5
40 - 100	13.1	27.4	14.6	42.0	65
100 - 250	9.7	67.3	14.4	81.7	82
250 - 500	3.3	153.2	16.0	169.2	91
Over 500	1.3	786.3	29.1	815.4	99
Total	100.0	26.2	21.5	47.7	55

Source: USDA.

Income is only one aspect of the financial status of farmers. The old adage, "farmers live poor and die rich," refers to the appreciation of asset values, especially land, over time. But, the income figures suggest the extent to which farmers "live poor" is much less than it used to be. Despite the tremendous deflation in asset values in this decade and the restructuring of much of the large debt accumulated in the 1970's, the equity in the farm sector still is substantial.

The average net worth of U.S. families is less than $100,000. In contrast, the average equity of farm operator households exceeded $300,000 in 1987, and was greater at all income levels than the net worth of the general population. For larger farms, net worth is substantial, averaging well over $1 million for the group of farms with over $100,000 in annual sales.

Average Income and Net Worth of Farms, 1987

Gross Receipts ($ 000)	Percent of Farms	Average Income Per Farm	Average Net Worth Per Farm
		- - $ 000 - -	
Under 40	73.0	25.0	150.0
40 - 100	13.1	42.0	421.0
100 - 250	9.7	81.7	713.7
250 - 500	3.3	169.2	1,238.3
Over 500	1.3	815.4	2,403.7
Total	100.0	47.7	303.3

Source: USDA.

These data indicate that the economic status of farmers varies considerably among sizes and types of farms, and from year to year. They also suggest generally that farmers no longer are a disadvantaged group. Among the commercial farms that produce the vast bulk of the agricultural output, most are at least as well off as the average American, and many are quite wealthy.

Among these farms, substantial financial stress exists at times as a result of unstable and unpredictable conditions affecting commodity markets and land values. Much of the financial stress of recent years was due to a dramatic fall in exports and land values since 1980. Now that land values are improving (increasing for the second year in a row) and exports are expanding, however, the financial situation of the farm sector is markedly improved.

Distribution of Government Payments

Distribution of Direct Government Payments, 1987

Gross Receipts ($ 000)	Percent of: Farms	Percent of: Total Sales	Total Payments	Percent of: Total Payments	Average Payment Per Farm
Under 40	73.0	9.4	3.2	19.0	2,003
40 - 100	13.1	13.1	4.3	25.5	14,934
100 - 250	9.7	22.0	5.3	31.4	26,184
250 - 500	3.3	17.9	2.7	16.2	38,099
Over 500	1.3	37.5	1.3	7.9	45,690
Total	100.0	100.0	16.7	100.0	7,742

Source: USDA.

The distribution of direct government payments across farms by size is highly uneven, owing to the structure of the programs which largely tie benefits to volume. The very smallest farms received an average of $2,000 per farm in 1987, which amounted to a $3.2 billion income transfer and 19 percent of the total payments. The small commercial farms ($40,000 to $100,000 sales), with 13 percent of total output, received 25 percent of all payments ($14,943 per farm). The middle sized farms (up to $500,000 in sales) received 48 percent of the payments, compared to their 40 percent of total output. The very largest farms received eight percent of the total outlays, far less proportionately than their share (38 percent) of total output.

The programs still are operated as general entitlements, providing benefits without regard to need. Although attempts have been made to limit total payments per farm, large income transfers still are made from the taxpaying public to segments of the farm sector already financially well off.

Farm Income, Net Worth and Government Payments, 1987

Gross Receipts ($ 000)	Average Income	Average Net Worth	Average Payment
		- - $ 000 - -	
Under 40	25.0	150.0	2.0
40 - 100	42.0	421.0	14.9
100 - 250	81.7	713.7	26.2
250 - 500	169.2	1,238.3	38.1
Over 500	815.4	2,403.7	45.7
Total	47.7	303.3	7.7

Source: USDA.

Observations on Common Structure Themes and Current Issues

Having noted some of the more prominent of the structural trends, I want to comment very briefly on some common themes that have characterized the structure discussions of the past, and on come current issues.

Demise of the Family Farm

A major concern with having fewer and fewer farms was the belief that this meant fewer rural people, and the decline of rural communities. The farm programs originally were justified as a means of preserving large farm numbers, and indirectly, improving the welfare of rural people as well as the farm sector. The economic studies are inconclusive on the net effect of the commodity programs on farm consolidation. Yet, one fact stands out: In the more than 50 years the farm programs have existed, farm numbers have persistently declined. Moreover, we now see many rural areas facing real

difficulties, and a stagnating rural America is an important, national concern.

It is not clear, however, that slowing the demise of the marginal farms today would have any perceptible effect on rural areas; the numbers already are just too small. This suggests that rather than continued focus on the commodity programs, other approaches to rural revitalization likely will prove much more effective.

Efficiency/Competitiveness

The advent and adoption of new technology has been the major force propelling the concentration of the farm sector. That technology has enabled greater output from fewer resources, and allowed many people to shift out of agriculture to other endeavors.

We long have applauded the efficiency of the American farmer, and have pointed to the benefits of efficiency — improved resource utilization, ultimately reflected in higher incomes for all, and abundant food supplies that have required a smaller and smaller proportion of our disposable incomes over time. And, in recent years, that efficiency has taken on an important additional aspect. With the large and growing importance of the export markets after the 1970's, farmers must be concerned with their competitiveness relative to foreign competitors. The evidence is clear that American farmers can be highly competitive for a vast range of products, unless our own policies inhibit that competitiveness as they did in the early 1980's. That experience provides a striking example of how well-intentioned policies and programs can have unforseen, adverse consequences. Identifying such consequences, from the broad range of commodity, tax, credit, conservation, and other policies was a major focus of the earlier USDA structure initiative, and continues as important today as ever.

With new developments in agricultural science promising to emerge at least as rapidly in the future as in the past, and with domestic markets growing slowly (only slightly faster than our population growth rate), American farmers must continue to improve efficiency to remain competitive with foreign producers. Otherwise, the prospect is for idling a substantial and growing proportion of our agricultural production plant in the 1990's.

Distribution of Benefits

The distribution of farm program benefits long has been a concern, with respect to both fairness and economic issues. The programs have no means tests—the benefits are available to all who comply with the provisions (such as idling land from time to time). A result (as the data above show) is that large income transfers are made to a lot of people who are not in need of society's help. At the same time, with no targeting provisions, many farms may not receive adequate assistance.

Another continuing criticism of the programs is their inherent tendency to provide the greatest benefits to the larger farms, because benefits are based

on volume of production. Attempts dating to 1970 have been made to restrict the total payments per farm, but the limits generally have been circumvented to a considerable extent. This also has led to questions of whether the programs encouraged farm consolidation by increasing the ability of large farms to expand.

Environmental Concerns

A prominent concern of the structure discussion of the late 1970's was the linkage of agriculture and the environment. Questions were raised about the direct and indirect effects of policies on surface and groundwater contamination from fertilizers and pesticides, and from soil erosion, as well as about adverse effects on wildlife habitats and wetlands. Even then, questions were being raised about whether the programs were unintentionally exacerbating the problems.

The FSA of 1985 took some important steps concerning these problems, with the establishment of the Conservation Reserve Program for idling acreage most prone to soil erosion, and with the Swampbuster and Sodbuster provisions.

Concerns now are focusing on the structure of the commodity programs to determine if their rigidities are having adverse effects. For example, when acreage reduction programs are in effect, are the acres remaining in production farmed more intensively, involving perhaps excessive usage of fertilizers and chemicals? Or, does the use of commodity specific bases inhibit the use of agronomically sound crop rotation practices that could naturally bolster soil fertility and require fewer fertilizers and pesticides?

Program Budget Costs

Another concern with current policies simply is their cost. After averaging about $3 billion annually through the 1970's, farm program costs sky-rocketed in the 1980's, reaching an all-time high of $26 billion in FY 1986. Thus-far in the 1980's, farm programs have cost over $120 billion. When the decade ends, that cost is expected to have exceeded $145 billion, an average of $14.5 billion per year.

These large transfer payments helped bolster the farm sector during one of the most severe financial adjustments since the Depression, to be sure. And, the large payments undoubtedly helped stabilize some rural economies. But, in a time of severe fiscal restraint, the question looms as to the efficiency of the expenditures — could we have achieved more with less money by another approach? If we want to revitalize rural America, could some of the dollars now spent on farm programs be used more effectively, with longer lasting effects, through other approaches?

Future Farm Policy Directions

U.S. farm policy has several pronounced characteristics, one of which is its evolutionary nature. It tends to evolve slowly, with each successive farm bill typically a marginal refinement of the previous one. The present farm

policy trend is fairly well defined and long established, despite departures from time to time in response to economic circumstances. That trend is decidedly toward decoupling (with a small "d"), a greatly reduced role for government in the production, investment, and marketing decisions of farmers. The 1985 Food Security Act made important steps in this direction, as have certain provisions in subsequent legislation. And, removing more of the program inflexibilities and providing farmers greater latitude in their decisionmaking to respond to the markets are key considerations in the upcoming debate.

Movement along this path, to much less interventionist policies, undoubtedly has structural implications. Will such an environment encourage expansion of some farms and hasten the demise of others? Will it accelerate overall concentration? The implications are not easy to draw because of the large number of complex interactions, in addition to the program influences mentioned above. However, with the farm sector relatively healthy now, and expected to be in better balance in the near future at least, it is difficult to see why greater latitude to make required adjustments would pose problems for efficient farmers. However, the programs have reduced risk for some farms, and a less constrained environment would require greater risk management. Additional examinations of these and related issues is needed to inform the debate.

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The USDA structure initiative of 1979/1980 served many constructive purposes, not the least of which was setting forces in motion that greatly expanded our factual information base and allowed improved understanding of the structural dynamics of the sector. But, it also did more. It encouraged thinking about food and farm policies in broader perspectives than before, and it emphasized consideration of the collective impacts of policies as well as their unforseen and unintended effects. It also identified many issues confronting the farm sector. Many of those continue, although not identified directly as structural issues, and many will have to be addressed as a new farm policy is formed for the 1990's.

Thank you very much. I would be glad to answer any questions that you might have.

Representative HAMILTON. OK, gentlemen, you have us off to a good start here. Let's begin with this question. Do all of you think that farming is a kind of inexorable trend, a shrinking trend, so far as its share of the U.S. total economy is concerned?

Mr. BERGLAND. Are you talking about in the aggregate, Mr. Chairman?

Representative HAMILTON. In the aggregate. I am trying to get a view of the future and see where farming is going to be as a proportion of total economic activity in America. Is it going to continue to shrink?

Mr. BERGLAND. I would have to yield to my economist friends. I can tell you, though, Mr. Chairman, from our own experience in the rural electric program, we have about 11 million families served by about 1,000 consumer-owned cooperatives. Of that number, our people earn more money from salaries than they do from the farm. I am talking about our consumer population. That is growing rapidly.

Representative HAMILTON. Which would suggest that agriculture is shrinking. I want you to focus on farming now. Do you think that farming is going to be a continually shrinking portion of the American economic gross national product?

Mr. THOMPSON. More than anything else, that depends on how competitive we are in the world market, and how large that world market is. We sold 40 percent of the output of our crop sector in 1981 overseas.

If we can recover that level of performance, I think we can stabilize——

Representative HAMILTON. Do you think we can?

Mr. THOMPSON. I think it is possible, if we aggressively seek market access in the GATT round, leveling of the playing field so that we are permitted to compete where we have a cost advantage.

In addition, in terms of the number of people involved in farming, we have a real definitional problem. The Federal Government counts anybody who sells over 1,000 dollars' worth of produce per year as a farmer. In no sense is a person who sells 1,000 to 5,000 dollars' worth of produce able to generate any significant fraction of the family income from farming. We create a mockery when we calculate national average statistics on farms including so many people in that extremely small category.

Representative HAMILTON. So you think whether or not farming is going to maintain itself in its present proportion of GNP depends on the export market?

Mr. THOMPSON. Yes.

Representative HAMILTON. And are you optimistic, or pessimistic about our maintaining a large share of the export market?

Mr. THOMPSON. I am optimistic, as long as we are successful in the GATT round in gaining some reductions around the world in subsidies that stimulate overproduction in high-cost areas.

Representative HAMILTON. Now, look, they just zapped us in those agreements, didn't they? The effect of the agreement with the EC here recently was that the EC had the victory. They postponed the negotiations to reduce the subsidies. The European Community is not going to accept any reductions in the future. They are just simply not going to accept them.

In the recent rounds, the Europeans took the position that these subsidies are going to continue, and we accepted that. It was too tough a nut for us to crack. What we settled for was language which relates to the future. So how can you be optimistic that we will expand our exports and get agricultural subsidies down, in view of the recent agreement, which I consider, and which I think, has generally been interpreted as being quite a victory for the EC?

Mr. THOMPSON. Well, I think the important thing there is that we are still negotiating. We may not get the EC to eliminate all their subsidies—and it is going to be politically difficult for us to cut them back in some areas as well—but the EC is not the market that has great growth potential. The Pacific Rim and potentially some of the other Third World countries, if they can get their debt problems under control, are where I see a very great potential growth possibility.

The key is to contain the EC's subsidies, reducing them where possible—so that they do not expand their subsidized exports. That would permit us to compete on a more level playing field, or as level as possible, for those growth markets.

Again, I repeat, I think the Pacific Rim is where we have the greatest growth potential, as more economies move into the Taiwan and Korea level per capita income, and people have the ability to upgrade the quality of their diet.

Representative HAMILTON. I want to come back to that trade issue in a few minutes, but I would like to hear from Mr. Penn on this general question of how he views farming in the longer run. Is it going to be inexorably declining as a proportion of GNP?

Mr. PENN. I do not think so. As a proportion of GNP—of course, that is relative. It depends on how fast the total economy grows. I do not see any reason that it should not be at about the same percentage it is now, which would imply growing at about the same rate as the overall economy.

I do agree that growth any faster than that will depend on the rate of export growth. That is just going to be the key. We can produce far, far more than we can consume in this country.

Representative HAMILTON. Is future export growth going to depend on these GATT negotiations that Mr. Thompson was referring to?

Mr. PENN. They do in part, but they depend on a lot more than that. I do not think we have to put all of our hopes on the GATT negotiations. I think it depends in large part on our remaining competitive. That, in large part, depends on government not interfering artificially with our farmers.

I think the rate of technology growth from our agricultural science in the future promises to be as fast as it has been in the past. That means cost reductions for our farmers. To the extent that we do not interfere with that process of adoption, then we can remain competitive.

Representative HAMILTON. Let me get your impressions of how the 1985 farm bill is working, generally, and also in terms of its effects on the structure of American agriculture. Do you want to address that question in general? Or, I can be more specific, if you want.

Mr. PENN. I guess the 1985 farm bill gets a mixed review. On the positive side, it has contributed to the increase in exports. We lowered the loan rates, and removed some artificial impediments to competitiveness. And, we did some other things, the use of certificates and others, that greatly expanded export possibilities. That was a big plus.

We also continued income assistance to farmers. We implemented the Conservation Reserve Program, which eventually will idle up to 40 million acres of highly erosive land. That also was a positive action.

I think the negatives are two, primarily. One is the cost. It is difficult, it seems to me, to justify such massive income transfers to the farm sector at a time when we are looking for every possible way to hold down expenditures, to reduce the budget deficit.

The other aspect of the cost is the income assistance to farmers, critically needed in a time of adversity, but that time has passed. The farm economy now has greatly improved, reducing justification for continued large transfer payments.

Representative HAMILTON. Well, would you reduce target prices?

Mr. PENN. I think you have to reduce the payments. I am not sure about the mechanism; whether you want to reduce target prices, or you want to do it some other way such as reducing a proportion of the base on which you make those payments.

But I do think that we have a fundamental inconsistency in the farm law. On the one hand, the payments encourage farmers to produce, and on the other hand, we continue to idle large amounts of acreage. This has been characterized as driving with one foot on the accelerator and the other foot on the brake.

Representative HAMILTON. Yes.

Mr. PENN. It is an inherent flaw in that legislation.

Representative HAMILTON. Mr. Thompson, do you agree with these observations?

Mr. THOMPSON. Very much so. I think probably the two most important benefits of the farm bill were getting us back into an export-competitive position by dropping the loan rates 25 percent and more; and at the same time, maintaining the cash-flow of the farm sector and of rural communities, until those export revenues started to recover.

Representative HAMILTON. Which we did with deficiency payments.

Mr. THOMPSON. Which we did with deficiency payments, but we set them on a declining scale over time, so that they would fall as export revenues rose. I think it is important to recognize that, while the cost of farm programs expanded to $26 billion in fiscal year 1986, it has fallen by half in 2 years since then.

Representative HAMILTON. Yes, to about $13 billion now?

Mr. THOMPSON. It is down to about $13 billion now, and heading south—slowly.

Mr. BERGLAND. Well, I would disagree to some extent, Mr. Chairman. A good deal of the reduction in the cost to the U.S. Treasury this year can be laid at the drought. The drought curtailed the production of grains last year, and the prices improved proportionately, and that lessened the demand on the Treasury.

Two years ago, a friend of mine in Arkansas said that, for every dollar he got from the market, he got two dollars out of the U.S. Treasury for his rice crop. The cost of this program is unbelievable, in historical terms.

The question is, whether the country can find ways to finance the cost. This is part of a larger problem, of course.

A couple of things: One, I would comment briefly on the business of whether U.S. agriculture will maintain its position. One factor will be energy costs. One ship in Alaska goes on the the rocks, the gas prices jump 10 cents. Whether these two events were connected or not, it will be argued over; but the truth is that the U.S. energy sources and supply and price are very fragile.

The United States has the most energy dependent food and agriculture industry in the entire world. It is estimated that we consume about 15 petroleum calories for a food calorie. There is nobody who can equal that.

As energy prices climb, which they surely will, it is going to have an effect on agriculture. It takes 40,000 cubic feet of natural gas to make a ton of ammonia fertilizers, for example. That gas cost is beyond the producer's control.

I would say that that outlook is not very promising. The second event internationally is that yields are increasing everywhere. It is not just here in the United States; all of the developing countries of the would have discovered new seeds, new fertilizers, new farming techniques. Irrigation is growing rapidly—it has not caught up yet, but they have now learned how to do it. American industry is helping show them the way.

Representative HAMILTON. Do I understand that your view is generally that the deficiency payments ought to come down?

Mr. BERGLAND. I think they ought to be targeted.

Representative HAMILTON. Oh, more targeted. Well, let's get to that in a minute.

Mr. BERGLAND. Yes, sir.

Representative HAMILTON. But in general, should both deficiency payments come down, and loan rates come down, in order to make us more competitive? Is the direction right, to come down in both of those?

Mr. PENN. I do not think we need to take the loan rates down any more right at the present time. With the effects of the drought, market prices have moved well above those. Changing the loan rates only changes the way the budget costs are estimated. I do not think there is any problem with the loan rates at the moment.

Representative HAMILTON. OK.

Mr. PENN. I do think that the direct payment cost should be reduced. Again, I do not know whether you do that through target price reduction, or some other method.

Representative HAMILTON. All right. Mr. Thompson.

Mr. THOMPSON. Yes, the 1985 farm bill set the loan rates on a downward trajectory until they reach 75 percent of a 5-year moving average market price, dropping high and low. That will be the formula for setting loan rates in the future.

Representative HAMILTON. Yes, is that being implemented?

Mr. THOMPSON. Well, we are still moving toward the formula. The maximum annual adjustment is 5 percent per year, until you

get to that formula. Once we get to the formula, the loan rate will be a safety net.

If market prices trend upward over time, the loan rate will rise; if they fall over time, it will drop. But the loan rate will be there as a safety net under the market. That is where it ought to be, so that only in bumper crop years worldwide it is there to protect against downside price risk.

But I agree that we could get a lot higher social value from our deficiency payments if we expended the same resources by another means.

Representative HAMILTON. How about current levels of acreage controls? Have they worked pretty well?

Mr. BERGLAND. Well, the Conservation Reserve Program has been a very big success. Part of the problem, the environmental problem, that J.B. Penn referred to was, in 1972–73, the world had two bad crops back-to-back. We had the southern corn leaf blight in Indiana, and anything that could go wrong in the world did.

Prices jumped. Worldwide they doubled in 18 months, and then they doubled again. As a result of that, we saw massive amounts of American grassland plowed down, put to corn and soybeans, because they could make more money. Swamps were drained, trees were bulldozed.

It brought into production maybe 60 or 70 million acres of land, which should have been better left in conservation, such as had been the practice up until 1972. But when beans went to $10, people did a lot of things that were not in their long-range best interest.

The Conservation Reserve Program is getting that land back into conserving uses. It is a very effective device. It should be kept.

Representative HAMILTON. And as prices firm up, will there be more pressure to reduce the set-asides and bring more land back into production?

Mr. BERGLAND. Well, I would think so, but I would yield to the experts here.

Mr. THOMPSON. I would say so. But I think the real fallacy with the annual acreage reduction programs that we use is that we continue to be the only country in the world that unilaterally cuts back on supply.

This is a guaranteed formula for reduction in exports over the longer haul. It got us in trouble in the early 1980's, as we priced ourselves out of the market. We had to retire more land. But even now, we have a commitment to massive acreage reduction.

I think it was the correct decision to pass the conservation reserve; but we ought to put pressure on other countries to share in the burden of adjustment to the excess supply capacity of the world, by also carrying out some annual acreage reduction. It is suicidal for us to unilaterally cut back on crop acreage on nonerodible land when nobody else is doing it.

We are playing the Saudi Arabia role in the world grains market. You know, they did all the cutting back on petroleum production in the OPEC cartel for several years, in order to sustain the world market price of oil at a higher level than it otherwise would have been——

Representative HAMILTON. How can you put pressure on another country to have acreage set-asides?

Mr. THOMPSON. Threaten across-the-board marketing loans.

Representative HAMILTON. Spell that out for me.

Mr. THOMPSON. Well, in the 1985 farm bill, authority was provided to implement a marketing loan program on feed grains, wheat, and soybeans, similar to what was mandated for rice and cotton. Basically, this permits a farmer to repay his or her price support loan at the world market price, as opposed to the loan rate at which the loan was taken out.

Representative HAMILTON. Yes. We have that in rice——

Mr. THOMPSON. It was mandated in rice and cotton.

Representative HAMILTON. Cotton?

Mr. THOMPSON. Yes. But authorized for wheat, feed grains, and soybeans. It is an extremely expensive program; but I think the threat of a marketing loan in wheat would be credible enough to the competition—or at least, would have been in 1986—that it would have obtained their attention, and we would have probably received some cooperation. It may be too late now.

Representative HAMILTON. That is kind of a high risk for the Government, though; isn't it? I mean, in terms of the potential cost.

Mr. THOMPSON. That is why we did not do it. With an 8 billion bushel corn crop, 1 penny per bushel costs $80 million. That was the risk that we were unwilling to take when we were implementing the 1985 farm bill.

Representative HAMILTON. Well, we left a lot of threads here. I want to come back to some of them.

Congressman Upton.

Representative UPTON. Thank you, Mr. Chairman.

I did want to put a brief statement in the record.

Representative HAMILTON. Without objection, it is so ordered.

[The written opening statement of Representative Upton follows:]

WRITTEN OPENING STATEMENT OF REPRESENTATIVE UPTON

It is my privilege to welcome this distinguished panel before the Joint Economic Committee. I note with special interest the appearance of this Committee's good friend, Bob Bergland, who has shared his wisdom with us on many occasions.

I cannot stress enough the importance of American agriculture to our future. Not only has agriculture been a powerful engine of our economy throughout history, it also has been a source of our global leadership, as we have shared our bounty with other nations. Our chairman, Lee Hamilton, is to be commended for convening this morning's hearing.

The structure of American Agriculture is indeed changing these days, just as it has for decades. Several factors account for change, and the biggest factor of all is the application of new technology. Technology has made agriculture an extremely productive industry, and it also has contributed to increases in farm size and reductions in farm labor requirements.

A second factor has been the necessity of financial management skills to operate a farm and keep in profitable in the 1980s. Successful farmers today have to be as sharp with a spreadsheet as they are with their farm implements.

Related to finance is the issue of taxation. The 1970s and 80s saw a meteoric rise in tax shelters in agricultural endeavors, to the point where abusive tax sheltering was threatening the survival of farm proprietorships, according to some critics. The Tax Reform Act of 1986 closed most tax loopholes for all industries including farming. But this important issue warrants further investigation.

Federal farm policy obviously affects the structure and performance of agriculture, too. In recent years, some attention has been given on how farm-program commodities may affect non-program commodities. This area, too, deserves further study.

Finally, U.S. farm structure is increasingly affected by international considerations. We're facing formidable competition from the Canadians and the Australians. We're fighting against the unfair trading practices of the European Community. And we are aware that many countries that were major purchases of U.S. food exports are becoming more self-sufficient, like China and India.

These factors and more are putting intense pressure on the structure of American agriculture, and it is incombent upon the Congress to produce an agricultural policy that keeps us the world's number one food producer. Thank you, Mr. Chairman, and again, I welcome our panel.

Representative UPTON. I am very curious about a number of things. One argument that all three of you gentlemen are sort of indicating as we look toward the future after the 1985 farm bill expires—it seems like the general comment is, we would like to try and reduce dependence upon the Federal Government in terms of the dollars that have been put aside for the 1985 farm bill, particularly in the 1980's, as you indicated, Mr. Penn.

One of the ways out, I guess you could say, that would certainly protect rural communities, as well as the family farmers, is obviously by increasing exports. With the advent of the passage of the free-trade agreement with Canada, I would be most interested in getting your comments as to what that will do to the family farmer, and farming in general.

Mr. THOMPSON. My reaction to the free-trade agreement with Canada is that it is a relatively empty shell with respect to agriculture. It does indeed phase down tariffs over time, but most of what matters in agricultural protectionism is not tariffs. It is the Canadian Wheat Board; it is the dairy quotas in Canada; it is the U.S. dairy marketing orders, price support programs and import quotas; it is our target price and deficiency payment system.

The free-trade agreement with Canada did not get at what I will argue is much that mattered in agriculture. Virtually all of that was left for the GATT round. So I think that the free-trade agreement with Canada will be relatively neutral with respect to agriculture. We certainly gained greater access into the Canadian market for American wines, some specialty crops; but by and large, most of what matters were left for the GATT round.

Representative UPTON. Do you all say the same thing?

Mr. BERGLAND. I think so. The problem, I think, with much of the international discussions—and I have had a few of these myself—has been that we develop policy based on the presumption that our competitors will roll over and play dead; and they don't. The only question is, whether we starve out first, or they do.

The Canadians, for example, have no machinery to reduce the acreage of a crop, like wheat. They store it, they hold it back. They have a very aggressive Canadian Wheat Board, which is a quasi-government agency, that lands contracts with the People's Republic of China, government-to-government arrangements, long-term supply arrangements, that the United States stays away from, except in the case of the Soviet grain agreement—we make an exception in that case for political reasons.

But the truth is that most of our competitors in the world have a very aggressive state-run role in their exports, and provide their buyers with credit lines and with a host of services that the American system does not match entirely.

The Canadians do not have a supply control device, but they have certain other advantages. They have a Canadian-owned railroad. They have a highly subsidized freight rate, moving wheat from the Canadian prairies to the west coast at about half or a third of the American costs. So we meet competition in lots of ways.

Representative UPTON. With the drought that we had this last year, there are some new provisions that were written with regard

to the crop insurance program, which has been riddled, I guess you could say, with inefficiency and obvious problems.

Would all three of you support a basic revision of the crop insurance program?

Mr. BERGLAND. Well, I am not sure it can be fixed. It may be better junked. I would yield to my colleagues, to see what they think. [Laughter.]

Mr. PENN. I think that is probably right. I do think something needs to be done. We have come to the point where every time there is some kind of major adversity, society steps in to assume the risk, to try to make people whole for these calamities. You know, the Congress is certainly a major factor in that.

It is going to be difficult to ever develop an actuarially sound crop insurance program, as long as the Congress has the tendency to step in and to bail people out.

Representative HAMILTON. You think it ought to be junked?

Mr. PENN. Pardon.

Representative HAMILTON. Do you think crop insurance ought to be junked?

Mr. PENN. Probably, in the form that it is in now, maybe. I do think we need some mechanism whereby, in the case of widespread, tremendous natural disasters—to provide assistance to agriculture, simply because of the inherent nature of agriculture.

Representative UPTON. But that would occur anyway, though.

Mr. PENN. Pardon.

Representative UPTON. If we had some widespread disaster like we had this last summer, Congress will intervene just as it did last year.

Mr. PENN. Then you can never have an actuarially sound crop insurance program. Nobody is going to buy crop insurance, if they can get the same assistance for free.

Mr. THOMPSON. That is what happened when we revised the crop insurance program last time. The legislation said, as soon as crop insurance is available in a county, there will never again be disaster payments in that county. Because farming is a risky business, farmers ought to pay a premium and buy crop insurance, just as they pay a premium for fire insurance on their barn.

The first time a drought came along, what happened? And it was not this one in 1988, it happened already the year after that new program was put in place. There were disaster payments. Nobody in their right mind is going to waste their money paying a premium for crop insurance, if they can depend on the Government to come in and bail them out in the time of disaster. We cannot have it both ways.

Representative UPTON. Mr. Thompson, you mentioned in your testimony a little bit about rural development and its importance. My district is along the Indiana-Michigan line, and we have a number of rural communities that are truly dependent upon the agriculture economy. In fact, we have seen a number of individuals that have left those areas and gone to the "big city."

You talked a little about improving education, improving infrastructure. I am sure that we are going to see a number of rural development pieces of legislation later on this year. Do you have

any general guidelines that you thnk that we ought to follow in Congress, to look at some of the problems associated with that?

Mr. THOMPSON. I am concerned that block grants for rural development in the past have not been very effective. A lot of those block grants merely supplanted local tax collection. They went to pay the sheriff, to buy a fire truck, and to do some of the things that the real community should have been taxing itself to do. Instead, it substituted the Federal transfers to the community for local tax collections.

There are two things that all of the studies of rural development show are necessary conditions for it to happen. One, you have to have an adequate transportation and communications infrastructure; and, second, you have to have education.

Without those two, rural development does not happen. Education is particularly important; one, because of its impact on the quality of the labor force available to a company coming in, and second, and not inconsequential is, would the people that a company might move into the community want to put their kids in the local school? There are a number of times that they have said "No." That has been a deciding factor in some cases.

We have underinvested in public education in rural communities. We have had a longstanding social commitment in this country to universal public education. We were very forward thinking in that, but we have tended to underinvest in rural communities relative to urban areas. That creates a disadvantage for rural communities.

So, these are the two really important things for society to make sure are in place: infrastructure and education. The private sector generates the jobs, but without infrastructure and education, that is not going to happen.

Representative UPTON. One of the primary problems—and I am sure it is the same way in Indiana as it is in Michigan—with the local school systems is that they are financed solely through either the State or through property taxes. I cannot tell you how many small communities in farm communities have said "No" to recent millage increases, or even keeping the same amount of the millage that they have on their property and their homes.

Would you suggest that a larger State role, or a Federal role, to help supplement, when in fact those communities have said "No"?

Mr. THOMPSON. It may be particularly appropriate for States to put more resources into rural community education, particularly when those rural community educational systems are financed principally through local land taxes. When there is a large capital investment by the community in the youth, but most of those youth then leave the community, this results in a net capital transfer out of the community in the form of the human capital that the kids take with them when they migrate.

Now ideally, one hopes to see more jobs created in a community, so that capital drain does not happen; but you can see one of the reasons why local taxpayers may not be terribly interested in investing their money in people who are going to move out and take their capital with them.

So I think it is appropriate for State governments to put a larger proportion of the resources into local community school systems.

Representative UPTON. Mr. Bergland.

Mr. BERGLAND. Congressman Upton, we are experimenting with something new in education. It is called "star schools." The rural areas are being beaten by this, what I call "law of large numbers."

We have a coal mine in Wyoming and a powerplant in Kansas, and only one railroad between, unregulated—I mean, we just get beat to death by this. Communities have lost bus service, lost air service. The record is complete, or is being completed, and it follows with schools, and hospitals, and a show host of facilities which the rural areas do not have the dense population to support, and do not have the competition out in the rural places.

So, we have seen a decline in rural schools where they cannot afford a teacher to train four kids in calculus, so they do not train them. The program we have endorsed has been started by Oklahoma State University. Our cooperatives are installing hardware in schools. Eventually, it will be taken over by State departments of agriculture, tied into their own university.

But the technology works, Congressman Upton. That is the important thing. It is where they can teach kids in a classroom by television. We are using either long lines or satellites, but it does work.

I think that we are going to see more of this, using electronics to cover the distance gap, and we can upgrade the quality of support in schools, but we have to be more innovative.

Representative UPTON. How many of those do you have online already?

Mr. BERGLAND. About 200.

Representative UPTON. Do you need any more applicants?

Mr. BERGLAND. Yes, sir. We probably have—there are probably 2,000 that would like to experiment with this service.

Representative UPTON. OK. Thank you.

Representative HAMILTON. Let me go back to the trade issue for a minute. Mr. Thompson, you were talking about the importance of that. I guess all of you agree on the key role that exports play.

Now, if I understand the agreement correctly, what happened was that, according to Mrs. Hills' testimony, the ministers have agreed to begin implementation of long-term reform in 1991; that is, they have put it off. But for the short term, what happens is that everybody is to hold overall domestic and export support and protection at, or below, current levels in 1989.

So it seems to me, what has happened with regard to the negotiations is that, in the short term, agricultural subsidies are going to go ahead at current rates. Is that your understanding? And we have this commitment in the future to reduce subsidies; but nobody knows how firm that commitment is. Is that approximately right? Is that your understanding?

Mr. THOMPSON. Yes. I think the key thing, though, is that the agreement we got kept the negotiations going. Last December, in Montreal, there was some doubt whether that would even happen. By agreeing to cap present levels of assistance to agriculture, our negotiators can keep talking about an across-the-board formula reduction.

Representative HAMILTON. Do you think there is any hope at all that agricultural subsidy reduction, substantial reduction, will be

agreed to by the countries in the European Community, given the political clout their farmers have?

Mr. THOMPSON. Farmers around the world have political clout. They do in Japan. Our dairy and sugar producers are pretty powerful as well.

So it is not going to be easy. It is going to take leadership from heads of state, ministers of finance and foreign affairs, as well as the ministers of agriculture, to make it happen.

But I am not willing to give up.

Representative HAMILTON. No.

Mr. THOMPSON. I believe we can get an across-the-board reduction, as long as we hang tough that all commodities in all countries should have some reduction. The zero option was a political nonstarter. Nobody is going to fully phase out all agricultural subsidies over a decade.

If we could get 25 or 33 percent over 5 to 10 years, I would take it, and then come back in 5 to 10 years in the next GATT round and do it again.

Representative HAMILTON. All right. Let's suppose we are successful in those negotiations. What impact does that have on American agriculture? Our system is shot through and through with a lot of subsidies, too.

Suppose we are successful? Then what happens to American agriculture?

Mr. THOMPSON. We would remove the incentive to overproduction in high-cost areas. We probably wouldn't be growing row crops under irrigation in Midwestern States, for example. We are pumping water out of the Ogallala Aquifer, pulling that aquifer down, putting it on crops at a cost of production that probably cannot compete in the world market.

So we would do some adjusting back at the margin just as other countries would as the incentive to high-cost production falls.

So we would see some redistribution of production. I expect we would see the world market price of both sugar and dairy products rise significantly because the world market is a dumping market for those two commodities now. Everybody is dumping——

Representative HAMILTON. Sugar and what?

Mr. THOMPSON. Dairy.

Representative HAMILTON. Dairy.

Mr. THOMPSON. Butter, cheese, and powdered milk.

The world market is a dumping market for sugar and dairy products because everybody subsidizes them relatively more than other commodities and dumps the surplus out in the world market. If all countries cut their subsidies a bit, we would see world market prices rise a significant part of the way toward current support prices.

Representative HAMILTON. Mr. Bergland, how do you think the American Congress would respond to agricultural policy being determined by trade ministers sitting in Brussels?

Mr. BERGLAND. I don't think they would take too kindly to the notion. Their constituents may be affected in a bad way by a person over whom they have little control.

Representative HAMILTON. This is an unusual way to set American agriculture policy, isn't it? I see all kinds of political problems here if we do it that way.

Mr. BERGLAND. We are not the world's lowest cost producer on every commodity, not by a long shot. I am told that Brazil can deliver soybeans to a vessel for less than $3 a bushel. I don't know what our costs on soybeans are, but they are substantially higher than that.

New Zealand is regarded as the world's most efficient dairy producer. Enormous grassland reserves in that country. They can grow dairy products for less than half of what it costs in the United States.

And so the question then is should we systematically dismantle our restraints and over time encourage the production of dairy products in New Zealand?

It makes some economic sense, but the political problems here in the United States are significant.

Representative HAMILTON. What about agricultural research? How has it contributed to the structure of agriculture today, and should we make any adjustments in the way we spend our money for agricultural research?

Mr. BERGLAND. Well, just a general observation, Mr. Chairman.

The research has mostly been in increasing the yields of commodities or in a few cases trying to reduce costs, but increasing yields and controlling pests, inventing a new fertilizer or growth hormones or stimulants is where I think most of the research money goes.

The benefits from that research clearly go to the 300,000 largest farms in the country who have 87 percent of the net farm income. I don't think there is much doubt about that, and we tried to make some changes in that when I was at the Department. I just got stopped. We tried to focus on organic agriculture, and it was hooted out of the hall.

Representative HAMILTON. Mr. Penn.

Mr. PENN. Well, I was going to say that I think that in terms of influencing structure, structure as defined by numbers, there is not any doubt that technology has been the major force behind the consolidation of farms. Farms had to adopt new technology as it came out in order to be competitive with their neighbors, in order to keep their costs down. If they didn't, they weren't in business very long and their farms would be absorbed by somebody else. That has been the major driving force.

Now, the question is whether that research, that technology, has been structure neutral or not. Has it all been oriented toward a particular size of farm or particular type of farm? Could we have been doing research on techniques and practices that would have enabled smaller farms to remain competitive?

This is a big controversy in the research establishment. Regardless, one thing we shouldn't forget is that the ultimate beneficiary of all this research has been the population at large, the consumers. We now pay about 12 percent of our per capita disposable income for food, and that continues to decline, and at the moment is among the lowest of any country in the world.

Representative HAMILTON. Should our research continue to focus on increasing yields, as Mr. Bergland said? Is that where the agriculture research dollar ought to go?

Mr. PENN. I am not certain. I am not certain that I can comment on that.

Representative HAMILTON. Mr. Thompson, do you have a view on that?

Mr. THOMPSON. I would say the most important objective of agricultural research in the future is reducing cost of production by whatever avenue is available.

Representative HAMILTON. And that is a significant shift, right, from the historic emphasis on increasing yield?

Mr. THOMPSON. Probably, but you know one of the things that has caused that historic pressure to increase yields is that we have overpriced our farmland by creating artifical scarcity for it. We have run farm programs that got capitalized onto the value of farmland. So we in effect sent the signal to the scientists that land was scarcer than it is in reality. We acted as if land was as scare in this country as it is in the Common Market, and this provided the incentive to apply more chemicals to maximize yield per acre, and there have been some negative externalities associated with that.

But the most important thing in the future is making sure that we are cost competitive in the world market, and research can help that.

As Mr. Bergland indicated, other countries are outinvesting us today in agricultural research. We are falling behind on the global agricultural technology treadmill.

Representative HAMILTON. They are outinvesting us in research?

Mr. THOMPSON. That is right. In relative terms, Western and Eastern Europe, the Soviet Union, Asia, and Latin America have all expanded their public investments in agricultural research at a proportionately more rapid rate than we have. In the last decade in this country we have experienced a 20-percent reduction in the real Federal investments in agricultural research. And so we are cutting back at the very time other countries are expanding their investments in agricultural research.

Representative HAMILTON. Again relating to structure, are we going to continue to see an increasing proportion of total production coming from the larger firms? Is that trend going to continue?

Mr. BERGLAND. I think so. I think it will, yes, sir.

Most of the concentration, Mr. Chairman, is in about eight crops—chickens, turkeys, fruits and vegetables, dairy is increasing, pigs are increasing rapidly. These are commodities in which the risks can be hedged and shared somehow, and we are seeing heavy investments into those commodities. I see nothing to stop it.

Representative HAMILTON. All of you agree on that pretty much. How much are we now putting into export subsidies? Do any of you have a rough idea of that?

Mr. THOMPSON. I think the Export Enhancement Program is costing around $2 billion per year. A lot of those payments are in kind, that is, paid in commodities, so they don't show up on budget in the year in which the outlay has occurred, but I think we started at about $2 billion in fiscal year 1986.

Representative HAMILTON. Now, most of us, at least a few years ago, including myself, would have taken the view that we ought not to be subsidizing exports, but the world keeps changing on us and these export enhancements in the Congress are broadly popular as far as I can see.

Are you all comfortable with that? Do you think in the world market today with the competivite pressures that exists that we have to have export enhancements in order to keep a share of the market?

Mr. BERGLAND. Well, it is a cost factor. Two years ago we shipped wheat to the Soviet Union for less than the variable cost of production, and you have to wonder where the public advantage rests in the scenario. But on the other hand, if we don't subsidize our exports, we lose volume and then our railroad companies and our farm suppliers and all kinds of folks lose jobs.

Mr. THOMPSON. In the early 1980's, the European Community took away a number of our markets with their export subsidies, especially for wheat, and I feel it was appropriate that we fought fire with fire. But in the GATT round negotiations I think we ought to be willing to give up the Export Enhancement Program if we can get something for it.

Representative HAMILTON. Yes. But right now, in view of the fact that we don't have an agreement in GATT, you would support them?

Mr. THOMPSON. It is very helpful for the Secretary of Agriculture to have that tool in his hip pocket.

Mr. BERGLAND. I would agree with Mr. Thompson.

Representative HAMILTON. Yes; Mr. Penn.

Mr. PENN. But there is another consideration now, and that is, as you said, Mr. Chairman, the world keeps changing. It is one thing to have an EEP program and to use it when you have large Commodity Credit Corporation stocks. But we don't have such large stocks any more, especially of wheat. More than 50 percent of the wheat since 1985 has been exported under EEP subsidies, and the proportion is even higher if you throw in Public Law 480 and other concessional sales.

But the question is whether you continue using it now when you have such relatively low stockpiles. I agree it is a nice club to have to threaten somebody, but the question is whether you keep using it at the present time or not.

Mr. BERGLAND. The economists at the Department of Agriculture published a study on this a year and a half or so ago, and they raised serious doubts and questions about the efficacy of the Export Enhancement Program purely from a cost effective standpoint.

Representative HAMILTON. I see.

What about world food stocks? Are current levels of food stocks too low?

Mr. PENN. No, I don't think we are in any danger at all at the present time. The stocks have been drawn down considerably, from levels most people would agree were excessive, excessive beyond what you would want to have as normal insurance.

We are coming into a closer supply-demand balance around the world and in the United States, at the present time more so for wheat than for other crops. With the current drought in the wheat

area, our wheat stocks are right at pipeline levels and are projected to remain so for the coming year.

So, I think we have to be cautious in what we do, especially for that crop, but I don't think we are in any danger otherwise.

Representative HAMILTON. Secretary Bergland, let me go back. You say the Export Enhancement Program is criticized by the economists at the Agriculture Department as not being cost effective?

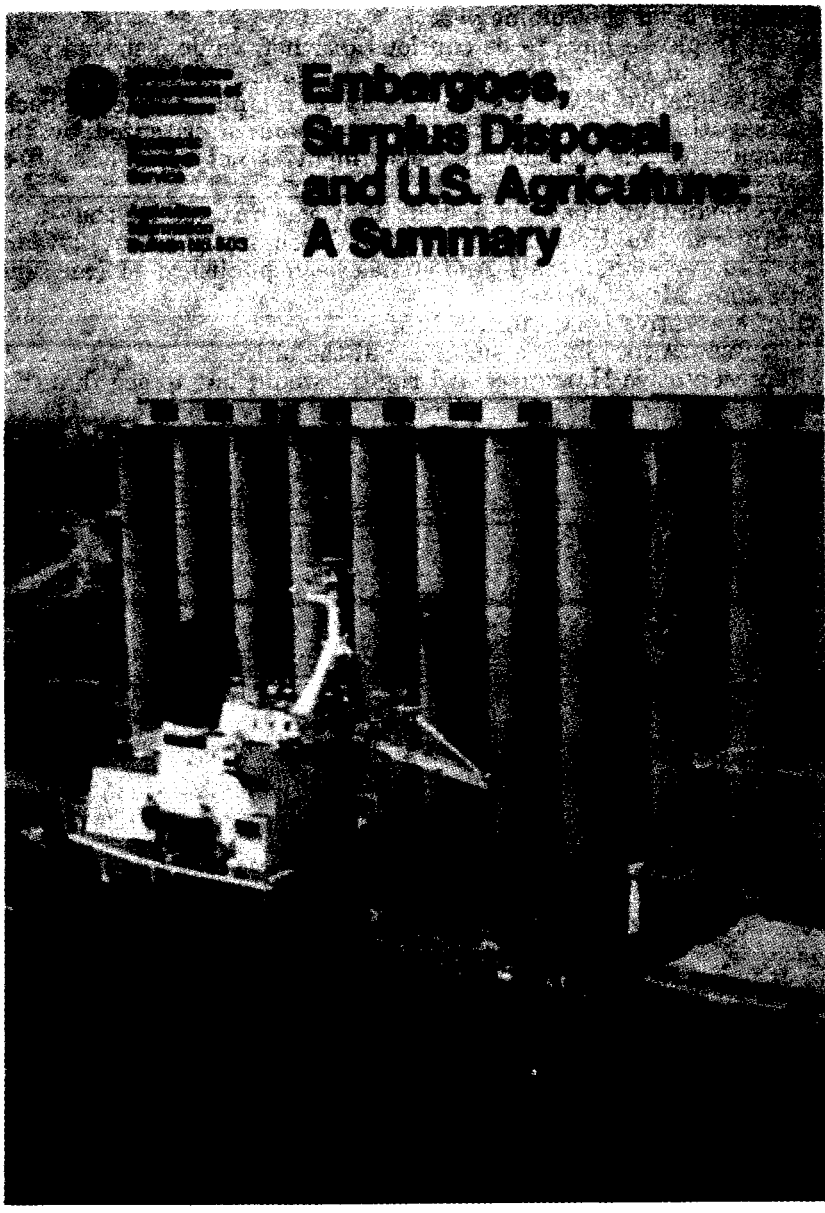
Mr. BERGLAND. They did a study that was directed by the—I believe it was the House Appropriations Committee about 2 years ago. You remember that? And it has been published—I can send you a copy, Mr. Chairman.

Representative HAMILTON. All right.

Mr. BERGLAND. I have a summary at the office.

Representative HAMILTON. All right, I would like to see that, if I may.

[The following publication was subsequently supplied for the record:]


Embargoes,
Surplus Disposal,
and U.S. Agriculture:
A Summary

EMBARGOES, SURPLUS DISPOSAL, AND U.S. AGRICULTURE: A SUMMARY. Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin Number 503. November 1986.

ABSTRACT

Embargoes did not cause the farm crisis of the 1980's, and an aggressive export subsidy program to reduce surplus commodity stocks would not have prevented it. The cause more likely rests with radical changes in such worldwide economic conditions as recession, high interest rates, and the value of the dollar. The short-term embargoes of the 1970's, implemented to correct short supplies and high prices, stabilized markets and had little lasting effect on trade, prices, and farm income. The longer term 1980 USSR embargo, implemented for foreign policy reasons, barely changed U.S. and world trade levels, but did alter trade flows as the USSR replaced lost U.S. exports from other sources. U.S. policies to protect farmers from the cost of the embargo more than offset any immediate damage. A general export subsidy to dispose of stocks would be more expensive than existing programs although farm income would remain basically unchanged and world price variability would increase. If the subsidy's goal was to maximize income minus subsidy costs, targeted subsidies could do so at lower costs than current programs but would be difficult to implement and would not eliminate stocks. If the goal was to eliminate stocks, then targeted subsidies could not improve income sufficiently to offset Government costs.

PREFACE

This study fulfills a congressional mandate contained in the 1985 Supplemental Appropriations Bill. The bill directed the Economic Research Service (ERS) to conduct:

> ...a study to determine the losses suffered by U.S. farm producers during the last decade as a result of embargoes and the failure to offer for sale on world markets commodities surplus to domestic needs at competitive prices.

ERS enlisted the best academic authorities in a joint research effort to produce this study. The International Agricultural Trade Research Consortium, of which ERS is a member and sponsor, was used to identify and solicit participation of university faculty who are experts in international trade. This study, then, is the product of a team of agricultural economists from ERS, 14 universities, and one private research institution.

EMBARGOES, SURPLUS DISPOSAL, AND U.S. AGRICULTURE: A SUMMARY

Economic Research Service
U.S. Department of Agriculture

CONTENTS

This is a summary of a comprehensive study analyzing the effectiveness of export embargoes and surplus disposal programs. A listing of the contents of the full report appears on the inside back cover of this summary. Copies of this summary and the full report are available while supplies last from ERS Information (S), Room 208, 1301 New York Avenue, N.W., Washington, DC, 20005-4788. Or call (202) 786-1512.

FOREWORD

What effect have export embargoes had on U.S. agriculture? The many answers available to us demonstrate the great divergence of perceptions of policymakers, the general public, and agricultural economists. The popular perception is that embargoes, especially the 1980 embargo against the USSR, have been a major cause of declining exports, low prices, and the farm financial crisis. On the other hand, some economists have argued that, given the nature of world agricultural markets, embargoes are ineffective and that they have been a minor contributor to the problems faced by U.S. agriculture.

A second issue over which there is serious difference of opinion is whether the Commodity Credit Corporation, by not using available authority to sell surplus commodities on world markets at subsidized prices rather than accumulating stocks, has economically harmed the agricultural sector and increased the costs of price support programs. The argument is that CCC and farmer-owned reserve stocks have a price-suppressing effect on markets and reduce farm income and that this effect would be removed if surpluses were instead sold on world markets even at subsidized prices. Another argument is that it costs Government more to hold stocks than it would to subsidize disposal on world markets.

These debates must be correctly resolved, not to resolve an academic debate but because these issues underlie an important part of the debate on future U.S. farm and agricultural trade policy. Policies based on incorrect assumptions about the causes of current farm sector problems or about the effects of a new direction in management of surplus production can introduce new distortions in both domestic and international markets and create new and even more serious problems.

In 1985, Congress mandated that the Economic Research Service conduct analysis to resolve these two issues. Recognizing the importance of the issues and the necessity that the analysis be as comprehensive and objective as possible, ERS solicited participation of the best academic authorities in a joint research effort. The International Agricultural Trade Research Consortium (IATRC), of which ERS is a member and sponsor, was used to identify and solicit participation of university faculty who are experts in international agricultural trade. The findings presented here represent the most comprehensive, indepth analysis of these issues that the agricultural economics profession could provide, given constraints imposed by time, data, and analytical methods. The consistency and robustness of results derived from

alternative analytical approaches lend a degree of confidence to the conclusions that could not have been achieved with any single approach.

This analysis places export embargoes in perspective as one (and a relatively minor one) of several factors that converged to make the first half of the decade of the 1980's so disappointing and painful for U.S. agriculture. It also shows that subsidized export disposal of surpluses causes very different distortions in world markets, will not necessarily increase domestic prices, and under many conditions would have been more expensive to operate than the existing stocks program.

The process employed in this research may well be as important a contribution as the research findings themselves. A large team of agricultural economists from more than a dozen universities, one private research institution, and the Economic Research Service successfully defined and executed a research plan resulting in a comprehensive and, we hope, credible, published report on an important current problem on schedule and within about 9 months. It demonstrates what a cooperative effort among agricultural economists can accomplish given a defined goal, resources, and leadership. It should be used as a model for future efforts.

Many individuals contributed to this endeavor. Names, institutional affiliations, and role of contributors to the project follow. One individual deserves to be singled out for his contribution to the project. Alex McCalla was one of the three co-principal investigators and executive director of the project steering committee. In these roles, Alex provided the intellectual spark and the field generalship that kept the team moving toward the objective of a high-quality, useful research report. Without this kind of leadership, the process would not have worked.

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This report uses metric units throughout. Metric tons are referred to as tons. 1 metric ton = 2,204.6 pounds

EMBARGOES, SURPLUS DISPOSAL, AND U.S. AGRICULTURE: A SUMMARY

PRINCIPAL FINDINGS

This study presents results of comprehensive analyses of four U.S. export embargoes and possible programs of general and targeted export subsidies for 1970-84. It focuses on wheat, feed grains, oilseeds, and dairy products. Principal findings are:

- ***Embargoes of the 1970's.*** The general oilseed embargo of 1973 and the targeted sales suspensions of 1974 and 1975 did not last long and had predictable, short-term results. That is, they moderated high futures prices but generally had little effect on trade volumes, world prices, U.S. exports, and U.S. farm income. Foreign country response was limited. In fact, the embargoes were viewed as positive, market stabilizing forces by other countries.

- ***The 1980 Embargo Against the USSR.*** The 1980 embargo was a foreign policy action to punish the USSR. It was not meant to reduce high prices. Its longer duration (16 months) meant that success depended on cooperation of grain companies and competitive exporters. Early cooperation waned, and the effect on USSR meat consumption was minimal. The embargo did not significantly reduce USSR imports (at most, 3 million tons) or world trade. The USSR altered trade flows by replacing lost U.S. exports with the same or substitute commodities from other sources. Therefore, world prices and trade volumes changed little. Because of changed USSR behavior, the United States lost USSR market shares after the embargo. The United States also lost market shares throughout the 1980's, but likely more as a result of world economic conditions and foreign country response rather than the embargo. Policies implemented during the embargo to prevent U.S. farmers from bearing the cost of the embargo were more than successful.

- ***General Export Subsidies.*** The Commodity Credit Corporation (CCC) is authorized to sell surplus commodities on world

markets at competitive prices. This would require export subsidies. The United States has chosen not to go this route, relying instead on land set asides, commodity storage, and support prices. A dynamic analysis of the period beginning in 1973 was conducted on potential effects of a general subsidy program for wheat and feed grains which disposed of farmer-owned reserves (FOR) and/or CCC stocks. U.S. disposal of stocks would have cost more than existing programs, and farm income would have been basically unchanged. World prices would have been much more variable. A static analysis of dairy stock disposal reaches similar conclusions; disposal could be done, but it would be more expensive than current programs and would have little effect on dairy farmers' incomes.

- ***Targeted Export Subsidies.*** General subsidies apply equally to all destinations. The alternative is to determine if different subsidies targeted at particular destinations are preferable. It pays to subsidize price-responsive markets when other countries do not change their behavior. If the subsidy goal is to maximize farm income, minus subsidy costs, then targeted subsidies could do so at lower cost than general subsidies. If, however, the goal is to eliminate all stocks, then targeted subsidies do not raise farm income enough to offset government costs.

  In both cases, effectiveness and cost of subsidy programs depend critically on two responses: How much importers respond to changing prices and whether competitive exporters retaliate. If the former is unresponsive and exporters retaliate, export subsidy programs are very expensive and move limited quantities. A range of assumptions is analyzed to illustrate the importance of these issues.

- ***Macroeconomic Effects.*** Embargoes did not cause the farm crisis of the 1980's and an aggressive export subsidy program to reduce surplus commodity stocks would not have prevented it. The cause more likely rests with radically altered macroeconomic conditions: The rising U.S. dollar, global recession, and high real interest rates. Our analysis suggests that if world economic conditions of 1979/80 had prevailed throughout the 1980's, U.S. exports, world prices, U.S. farm prices, and U.S. farm incomes would have been much higher and program costs would have been significantly lower. U.S. farm income depends heavily on national and global developments far removed from the U.S. farm sector.

BACKGROUND

U.S. agriculture faces its worst economic crisis since the Great Depression. The rapid growth and relative prosperity of the 1970's have faded to widespread stagnation and financial stress in the 1980's. Depressed international markets for U.S. farm products have replaced the strong export-led growth of the 1970's. Despite large increases in Government payments, many farmers face severe financial problems. The deteriorating economic position of U.S. agriculture is reflected in substantially reduced agricultural asset values.

Many factors have contributed to the change in U.S. agriculture's economic fortunes, and many remedies for agriculture's problems have been suggested. We have not attempted to analyze all factors leading to the present agricultural situation. This study analyzes one of the possible causes of agriculture's distress: U.S. agricultural export embargoes since the early 1970's. The study also analyzes a suggested solution: Disposal of surplus U.S. agricultural commodities by subsidizing exports in foreign markets. Given the operational methods of U.S. domestic agricultural price support programs, such price-competitive disposal would require some type of export subsidy. We also evaluate the effects of the changing macroeconomic conditions facing agriculture.

The study concentrates on the effects of export embargoes and surplus disposal on exports, farm prices, farm income, and Government program costs. It describes the four embargoes implemented since 1970 and determines their international and domestic effects in the short and long terms. In assessing implications of surplus disposal, the study evaluates the national and international effects, including costs, of major disposal options available to or through the CCC.

We focus on the commodities primarily affected by the embargoes (wheat, feed grains, and soybeans) in the embargo part of the study. We consider wheat, feed grains, and dairy products in the surplus disposal analysis because of their importance in CCC stocks.

The study covers 1970 to 1983/84 or 1984/85, depending on data availability. This period includes all four embargoes and is long enough to permit detailed assessment of the effects of alternative surplus disposal policies.

We used widely different methods of analysis to provide a com-

prehensive assessment of effects of U.S. export embargoes and surplus disposal. Such diversity is necessary because no single methodology can determine the short-, medium-, and long-term effects of embargo or disposal actions. A range of analytical methods allowed us to compare results and determine whether they provide a consistent assessment of the embargoes' effects. Such consistency adds weight to the conclusions drawn about effects of embargo or disposal actions. Finally, the limited time we had to conduct the study forced us to draw primarily upon existing economic models.

Numbers cited here need to be interpreted within the context of the model used to derive them. As in all quantitative economic analyses, results depend on the structure of the model employed, its assumptions, statistical validity of estimated parameters, and ultimately on data quality. Although this does not mean that selection of the model predetermines conclusions, it does imply that interpretation of results should be conditioned by how they were derived.

Estimates should be interpreted not as precise point projections but rather as indicators of general tendencies and orders of magnitude. Changes in prices, trade volumes, or farm income were derived from models that capture how economic actors respond to the changes in market conditions created by embargoes or surplus disposal. But these are all models in which a substantial number of other variables are assumed to be constant. Conditionality of the results must be recognized. Nevertheless, our results indicate the direction of the changes produced by embargoes and surplus disposal, and the general order of magnitude of these changes.

THE ECONOMIC SETTING

The effects of changes in world agricultural structure and policy and in the general economic environment must be isolated from effects of embargoes and the potential for surplus disposal. During the embargoes, other changes also influenced agricultural trade, prices, and U.S. farm incomes. Disentangling effects of the embargoes from effects of other forces is difficult, but vitally important. These other forces may have either compounded the embargoes' effects or offset them. Changes in market conditions also complicate historical analysis of the potential for surplus disposal. We place effects of embargoes and surplus disposal in perspective by simultaneously considering effects of the changing economic environment upon U.S. agriculture.

Changes in the economic environment facing U.S. agriculture fall into four general areas: (1) Structure of the agricultural sector, (2) world markets, (3) relevance and importance of macroeconomic conditions, and (4) farm policy.

Structural Changes in the U.S. Farm Sector

Increased specialization, growing reliance on purchased inputs, and greater dependence on foreign markets since the early 1970's have made farm income much more subject to influences from outside the agricultural sector. In the 1970's, agriculture became more productive, and incomes rose through the growth of larger, more specialized farms relying increasingly on capital-intensive production methods. Greater specialization means that farmers no longer have the diversity of onfarm enterprises to cushion a fall in prices of one commodity. Greater reliance on purchased capital inputs and debt accumulation has increased interest costs as a proportion of total production expenses, thereby linking farming more closely to factors affecting the entire economy. Exports in the past 10 years have accounted for 25-30 percent of farm cash receipts, compared with 10-15 percent in the 1950's and 1960's.

Changes in World Markets

U.S. agriculture benefited from rapidly expanding agricultural trade in the 1970's. This expansion was driven by income growth in developing countries and Eastern Europe and by changes in Soviet and Chinese policies that put greater reliance on imports to meet domestic food needs. The relative importance of traditional U.S. agricultural trading partners, such as Japan and Western Europe, declined as exports to developing and centrally planned countries increased. Variations in economic conditions or import policies of these countries are now vitally important to U.S. grain and oilseed producers.

Domestic and trade policies of importing and exporting countries increasingly influence world grain prices. Some policies attempt to protect domestic producers from foreign competition; others attempt to achieve "food security." The trend toward greater public intervention has especially affected the international wheat market. Because of some policies, domestic prices of many importing and exporting countries are largely disconnected from world prices. For example, a fall in world wheat prices is not passed to Japan's consumers because government border policies prevent it. Such policies can greatly inhibit effectiveness of an export subsidy policy. Public intervention also has increasingly

affected coarse grain markets, but soybean markets have remained relatively open.

Despite the importance of government policies and intervention, international grain marketing is a highly flexible, fluid, and technologically sophisticated system dominated by efficient transnational firms. Ability of private firms to use futures and forward markets for commodities, transportation services, and currencies permit the market to manage natural instability and to adapt to impediments of national governments. International markets are able to adjust quickly to changes from domestic economic conditions and government policies, such as an embargo affecting trade flows between two or more countries.

Changes in Macroeconomic Conditions

Two major factors affecting U.S. agricultural exports have been the rate of economic growth in importing countries and the value of the U.S. dollar. The dollar's value has varied substantially since the move from fixed to floating exchange rates during the early 1970's. Shifts in domestic macroeconomic policies have influenced exchange rates. The two oil price shocks of 1973/74 and 1979 were important factors in the domestic and global economies and in international trade.

During the 1980's, U.S. fiscal and monetary policies have affected the economic well-being of the U.S. farm sector. A combination of restrictive monetary policy and expansionary fiscal policy resulted in high real interest rates and an appreciation of the international value of the dollar. The restrictive monetary policy helped reduce the rate of inflation but contributed to domestic and global recession. Lower economic growth and high real interest rates precipitated a debt crisis in developing countries. Reduced economic growth and world liquidity problems depressed demand for imports of agricultural and other products. High value of the dollar depressed demand for U.S. exports. Weak demand and higher production expenses generated by increased interest costs squeezed agricultural earnings. High real interest rates made land a less attractive investment and contributed to a decline in the value of agriculture's most basic asset. U.S. agriculture was caught in economic circumstances resulting in major financial stress.

Changes in Farm Policy

Although U.S. farm policy legislation has changed in the past 15 years, the basic thrust of commodity programs has been con-

stant. Effect of these programs has varied with the changing economic environment. In the early 1970's, flexibility of U.S. price support programs allowed U.S. farmers to respond rapidly to expanding world demand for grain and livestock feed. During the early 1980's, reduced international demand, a strong dollar, and relatively high U.S. loan rates contributed substantially to reduced U.S. agricultural exports. The Government acquired grain stocks to support domestic prices. But, because of the importance of the United States in international markets, this Government stock accumulation effectively meant supporting world prices. The appreciating U.S. dollar and high and rigid loan rates provided an incentive for importers and competing exporters to produce more grain and oilseeds. Mechanisms for providing price and income support for the U.S. farm sector ultimately contributed to the loss of the very markets responsible for the sector's prosperity.

Changes in the setting within which agriculture operates significantly influenced effects of export embargoes and potential effects of surplus disposal. The four embargoes happened in different market contexts. Feasibility of the subsidized disposal of grain surpluses depends upon the prevailing market environment. Hence, economic setting is of paramount importance to this study.

TRADE EMBARGOES

The United States has used both general and targeted export embargoes for agricultural products. The 1973 general embargo on oilseeds and oilseed products restricted shipments to all foreign markets. The remaining embargoes were all targeted; that is, restricted to specific importers. The 1974, 1975, and 1980 actions were targeted against the USSR. The 1975 action also covered Poland.

A wide variety of analytical approaches was used to determine effects of the embargoes. We used economic theory to determine effects expected from the restriction of U.S. exports. For the analysis of the embargoes of the 1970's, which were of relatively short duration, we examined trade and price patterns to determine what trends were already underway and how these changed following the embargo. Public policy statements, embassy cables, and press reports during each action were analyzed. We interviewed individuals in key positions of authority at the time to determine how countries responded to the embargoes. We used the same methods for the 1980 embargo, but its longer duration permitted us also to use quantitative economic models based on

annual or quarterly data to predict economic effects. These predictions were then evaluated in the light of actual events. We obtained estimates of the effect of the embargoes upon U.S. exports, prices, and farm income. To provide the fullest possible evaluation of likely effects, we employed models using alternative assumptions about price formation and the determination of trade flows and compared their results.

By drawing upon a range of methods using different economic assumptions, we determined whether alternative models lead to similar conclusions about implications of U.S. embargoes. Study results are broadly consistent. While each method provides a slightly different quantitative estimate of embargo effects, the general picture is the same. We are, therefore, confident in our qualitative conclusions.

The 1973 Oilseed Sales Restriction

The 1973 embargo of high-protein feedstuffs resulted from several global economic and policy changes that significantly altered the environment in which U.S. agriculture operated. The sector changed from one characterized by excess productive capacity and low, stable prices to one engaged in full production with high, unstable prices.

Despite record-high world soybean production in 1972/73, strong foreign demand and a sharp decline in world fishmeal production tightened protein meal supplies and caused soybean prices to rise rapidly. In June 1973, the domestic price of soybean meal was more than three times its year-earlier level. The rapid rise in prices threatened to disrupt domestic livestock production and to thwart the President's anti-inflation efforts. Political pressure to limit agricultural exports to control prices was considerable.

The sales restraint was announced on June 27, 1973, after months of rising soybean prices and increasing concern about the adequacy of domestic supplies. The embargo prohibited all U.S. exports of soybeans, soybean meal and cake, soybean oil, cottonseed, cottonseed meal and cake, and cottonseed oil. The embargo was replaced 5 days after the announcement with an export licensing procedure that lasted until October 1, 1973. Licenses were initially issued for 50 percent of the unfilled balance for verified soybean export contracts and for 40 percent of the unfilled balance for soybean cake and meal contracts. However, licenses for 100 percent of the volume called for in soybean meal contracts were issued from August 1, and licenses were issued for 100 percent of the volume called for in soybean contracts from

September 1, 1973. Hence, export restrictions were in place for about 1 month for soybean meal and 2 months for soybeans.

The U.S. decision to embargo apparently was not influenced by possible foreign repercussions to the action, and U.S. foreign policy advisors were not consulted before sales were restricted.

Short-Term Effects

The immediate results of a total sales restriction by a major exporter are to raise prices on the world market where supplies are reduced and to lower prices in the domestic market where supplies are increased. Following the 1973 sales restriction, prices for soybeans and meal in such major international centers as Rotterdam rose and domestic U.S. prices fell sharply. The divergence between U.S. and Rotterdam prices was short-lived, however. After July, Rotterdam soybean and soybean meal prices declined. The persistent decline in both U.S. and Rotterdam prices implies that the market was already weak before imposition of U.S. export restraints. Uncertainty and speculative pressures fueled rapidly increasing prices before the embargo. The embargo broke the cycle of panic buying and speculation in the spring 1973.

Although overseas sales were restricted for several weeks, the restriction had little effect on U.S. soybean and soybean meal exports for the 1972/73 marketing year. Export sales in 1972/73 were smaller than in 1971/72, largely due to limited supplies and high prices rather than to restricted exports. Short-term effect of the embargo on U.S. trading partners was minimal. Japan, the largest U.S. customer, changed the seasonal pattern and product composition of its oilseed imports, but the overall volume of Japan's trade was unaffected. Possibly anticipating shortages, Japan purchased above-normal quantities of soybeans in the 6 months preceding the embargo. The restrictions also minimally affected other U.S. customers. Foreign buyers benefited from the lower prices resulting from the embargo.

If we assume that the decline in world soybean prices was entirely due to the embargo, the export restriction reduced cash receipts to U.S. soybean producers less than 1 percent. The sustained decline in prices after the embargo suggests that income would have dropped anyway; the embargo was merely the catalyst. Onfarm soybean stocks were so low that, even if prices had remained high until the September harvest, few farmers would have been able to take advantage of them. Cash receipts to U.S. soybean producers would have been less than $52 million greater

if they had been able to sell the soybeans they had on hand between July 1 and September 1 at pre-embargo prices. Livestock producers and consumers gained from the embargo to the extent that prices for protein feedstuffs and food were lower as a result.

Long-Term Effects

The 1973 embargo had little effect on U.S. agriculture and no detectable effect beyond the start of the 1974/75 crop year. Its short duration occurred under such tight market conditions that it precluded a long-term response by other countries. Even Brazil, the other major supplier, protected its domestic market by restricting soybean exports rather than taking advantage of the situation to increase its market share.

The embargo possibly altered importers' attitudes toward the reliability of the United States as a supplier, but probably did not significantly alter long-term import behavior of foreign purchasers. Japan's response, the most visible and vigorous, was mostly symbolic. A small Japanese Government stock of soybeans was established, but this stock has remained only large enough to satisfy demand for about 8 days. Japan's Government also financially supported trading companies' investments in overseas soybean production, but the amount of this investment and its results have been insignificant. Japan still relies heavily on the United States for soybean imports. But, Japan has used the embargo as a food security justification for continuing protective domestic agricultural policies.

Some members of the European Community (EC) have used the embargo to lobby for increased domestic production of oilseeds and the imposition of restrictions on soybean imports. However, the principal impetus for the EC measures is the problem created by soybean imports for the EC's high-priced grain policies rather than concerns about food security.

There is little evidence that U.S. competitors in the soybean market significantly altered their domestic or export policies to take advantage of the embargo. Prices were so favorable to exporters, even without the embargo, that the embargo could have added very little extra incentive to increase exports. Even with this incentive, Brazil's agricultural trade policies focused more on maintaining adequate domestic supplies and low domestic prices than on consistently encouraging exports of soybeans or meal. Brazilian export policy apparently did not change to take advantage of the 1973 embargo. On the contrary, Brazil imposed

its own restrictions on exports during the period and was an even less reliable supplier than the United States. Argentina's emergence as a soybean exporter in the mid-1970's also appears unrelated to the 1973 embargo. High prices, favorable growing conditions for soybeans, and Argentina's more liberal export policies were responsible for the increase in its exports.

Long-term effect of the 1973 soybean embargo on the competitive U.S. position in world markets and on U.S. exports was negligible. Supply and demand responses to the embargo were small. No significant policy response by a major soybean or soymeal trading country can be traced to the U.S. action. Main factors affecting international trade in soybeans and soybean products during the mid-1970's were strong demand in the face of reduced supplies of protein feeds and the consequent responses to high prices. The U.S. soybean embargo was only a minor disturbance in a highly volatile market.

The 1974 and 1975 Grain Moratoria

The USSR was a major source of the variability in grain market prices in the early 1970's. The 1974 and 1975 moratoria were targeted at this perceived source of the market disruptions. In this sense, the grain moratoria were surgical attempts to deal with the uncertainty of grain supplies without undermining confidence in the United States as a reliable supplier in the eyes of longstanding trading partners.

The 1974 sales moratorium was linked directly to deteriorating crop prospects in the United States and several other large grain trading countries and to extremely low U.S. stocks. Unfavorable weather in the United States reduced corn production and placed upward pressure on prices. Major U.S. trading partners were consulted extensively; they voluntarily agreed to restrain their purchases from the United States. The 1974 sales moratorium went into effect in October, when as a result of an attempted major purchase by the USSR, the President requested U.S. grain exporters to suspend contracts for delivery of 2.3 million tons of corn and 900,000 tons of wheat to the USSR.

Less than a year later, on July 24, 1975, a second sales moratorium was instituted to reduce effects on the grain market of the uncertainty generated by deteriorating grain production prospects in the USSR. The poor 1974/75 crop had resulted in low carryover stocks and left the U.S. and world grain markets highly vulnerable to supply shocks in 1975/76. Markets reacted strongly to reports in the summer that the USSR grain crop was deterio-

rating. Continued inflationary fears and disclosure of significant purchases by the USSR prompted the Secretary of Agriculture to call on the major grain companies to withhold sales first from the USSR and then from Poland. The 1975 moratorium was lifted after the United States signed separate 5-year, long-term trade agreements with both countries in the fall 1975.

Short-Term Effects

The 1974 and 1975 grain moratoria combined with several other developments to calm the cash and futures markets for grain. The 1974 suspension lowered Kansas City average monthly prices of wheat 11 cents per bushel between October and November. As the 1974/75 marketing year progressed, the supply situation eased with the weakening of feed demand in the United States and abroad. This was reflected in wheat prices declining from their presuspension level of $5.47 per bushel to $3.81 in June 1975.

The 1975 moratorium and a proposed U.S.-USSR long-term sales agreement in September 1975 also reduced pressure on prices. September 1975 wheat and corn prices at the farm level averaged $4.11 and $2.76 per bushel, but fell to $3.58 and $2.33 per bushel by November.

The effect of the moratoria on total U.S. exports was negligible. Although only 2.2 million of the 3.2 million tons of corn and wheat contracted for shipment to the USSR before the 1974 action were shipped in the 1974/75 crop year, the United States increased its sales to third-country markets. The 1975 moratorium did not hinder U.S. exports of wheat and coarse grains in 1975/76. Rather, sales reached an all-time high.

The effect of the moratoria on U.S. farm cash receipts also was negligible. The higher prices at the time the moratoria were announced would probably not have persisted in any case.

Long-Term Effects

Long-term effects of the 1974 and 1975 moratoria are difficult to measure precisely but appear to be limited. The USSR imported large volumes of U.S. products after the moratoria until the 1980 embargo. From 1976/77 to 1978/79, the United States supplied an annual average of 71 percent of USSR grain imports. USSR grain purchases averaged over 10 million tons, well in excess of the 6-million-ton minimum specified in the long-term grain agreement.

The most obvious policy change resulting from the 1974 and 1975 moratoria was the signing of the U.S.-USSR long-term grain agreement in October 1975. This began an era of greater U.S. Government management of export quantities, at least with Eastern Bloc countries, which had become substantial sources of uncertainty and instability in Western grain markets in the early 1970's. This agreement provided greater information about production and import demand in the USSR, key areas of uncertainty in the international grain market. The agreement helped importers and exporters make long-term production, consumption, and trade plans.

The moratoria raised questions about long-term reliability of the United States as a supplier, as did the 1973 embargo. But, because the moratoria were imposed after substantial consultation with other countries, U.S. trading partners generally saw the actions as part of a set of positive initiatives to stabilize markets. By stabilizing its domestic market, the United States really stabilized the world market by restoring world confidence in the United States as a reliable supplier. Moreover, in signing the USSR and Poland to long-term agreements, the United States helped reduce market uncertainty.

The 1980 Embargo to the USSR

Circumstances surrounding the 1980 U.S. embargo differed greatly from the earlier three actions. The 1980 embargo was a foreign policy action motivated by the USSR invasion of Afghanistan. Unlike the trade actions of the 1970's, concern about adequate domestic supplies was not a factor in the decision. Because it was a foreign policy action, conditions needed to lift the embargo, short of a USSR withdrawal from Afghanistan, were unclear.

The embargo, lasting nearly 16 months from January 4, 1980, to April 24, 1981, included a wider range of products (wheat, feed grains, soybeans, meat, dairy products, poultry, animal fats, and agrichemicals) than preceding embargoes. Grain was most important, accounting for almost 80 percent of the value of U.S. agricultural exports to the USSR in 1979. Yet, the embargo was only partial for grains because the United States honored the 1975 U.S.-USSR agreement. The USSR was allowed to import the 8-million-ton obligation specified in the fourth (1979/80) and fifth (1980/81) years of the accord.

President Carter wanted to make a strong statement that the

United States would not allow USSR aggression to go unanswered, according to our interviews with key officials of the period. Military responses were considered inappropriate, and diplomatic protests were considered inadequate. An agricultural embargo emerged as the most plausible alternative when a report by the Central Intelligence Agency (CIA) showed that a grain embargo would reduce USSR meat consumption 20 percent. The report assumed full cooperation from other exporters in not filling the void left from the withdrawal of U.S. grain from the USSR market and that USSR port capacity constraints and low domestic grain harvests would contribute to reduced livestock production. In contrast, a U.S. Department of Agriculture (USDA) analysis done at the time, but which, according to our interviews, probably did not enter into the decision to embargo, predicted only a 2- to 4-percent decline in USSR meat consumption assuming full cooperation from other exporters.

The embargo decision was based on two important conclusions from the analysis at that time. First, cooperation of other exporters and grain companies was essential. Second, grain companies and U.S. farmers would have to be compensated. If the embargo effect was to be as large as estimated by the CIA report, the decline in world grain trade would be significant and compensation to the U.S. farm sector would need to be large.

All but two trading firms agreed to cease shipping grain to the USSR in exchange for financial compensation. After a meeting with officials from other major exporting countries, only Argentina announced it would not cooperate. Australia, Canada, and the EC agreed to ship no more than "normal and traditional" amounts to the USSR during the embargo. In practice, "normal and traditional" provided considerable latitude for interpretation. For example, Canadian officials interviewed indicated that they thought Canada's commitment was for only the remainder of the 1979/80 crop year.

U.S. actions to compensate U.S. farmers for losses caused by the embargo included increased loan rates for wheat and corn. Call and release prices for grain in the FOR were also raised. First-year interest payments on corn entering the reserve were waived, and reserve storage payments were increased. The Government agreed to purchase 4 million tons of wheat, including 3.7 million tons withheld from the USSR, and to assume contractual obligation for up to 10 million tons of corn. In March, noneligible 1979 crop corn was allowed into the FOR, and the emergency loan program was extended to September 1981, making farmers eligible for $2 billion in loan assistance. In July, loan rates were

increased again, an additional $300 million of emergency funds were made available to farmers, minimum prices on FOR-held grain were made mandatory, and interest payments on FOR loans were waived.

The embargo's effect is difficult to assess even 6 years after its announcement. The United States clearly received less than full cooperation from other exporters, and USSR meat consumption did not decline by the amount the CIA predicted. Demand for U.S. agricultural exports also weakened in the years after the embargo, placing pressure on farm incomes. A number of simultaneous events and policy changes also affected world agriculture and U.S. trade. Assigning precise weights to causes of changes in trade or farm income is difficult, even after the fact. We used a variety of methods to examine effects of the 1980 embargo in order to gather as complete a picture as possible.

Short-Term Effects

We approached short-term effects of the 1980 embargo in two ways. First, from data, we examined changes after the embargo went into effect. We emphasized what happened to international trade, prices, and USSR agriculture during the early 1980's rather than the importance of the embargo as a source of the changes. Then, we presented what the embargo effects would have been if all other unrelated changes, such as crop shortfalls, policy shifts, and exchange rate changes, were held constant. This approach allowed us to isolate embargo-related trade and price effects from other factors.

The 1980 embargo denied the USSR 10-17 million tons of U.S. grain during the first year, representing the amount the USSR needed to obtain from other sources to prevent a decline in domestic consumption. The ultimate effect on the world market and the United States depends on the extent to which the USSR made up for the reduction in U.S. imports.

Two alternative responses were open to the USSR to reduce the effect of the embargo. Both would have had major implications for world grain trade and U.S. farmers. One alternative was to internally absorb the loss by reducing stocks as much as possible, slaughtering livestock in the short run, and cutting meat consumption in the longer run. These actions would have reduced the demand for grain in the world market and, without a compensating reduction in U.S. exports, would have depressed world prices. The other alternative was to replace embargoed U.S. grain with imports of grains and substitute commodities from

other exporters. If the USSR could replace all the grain simply by switching suppliers, world trade volume would not be affected and world grain prices would remain unchanged, except for some increase in transport costs. To the extent that the USSR substituted livestock products for grains, world grain prices would fall and livestock product prices would rise. The USSR primarily pursued the option of replacing U.S. grain with that from other suppliers and increasing imports of substitute commodities.

The embargo had little effect on USSR grain use. USSR wheat and coarse grain imports in the first year of the embargo were consistent with levels that might have been expected given previous import trends and estimated USSR grain stocks at the time. USSR feed use declined marginally, partly because of a policy initiated before the embargo to promote use of forage and nongrain feeds in livestock rations. Hence, reduced U.S. supplies were met largely by increased imports from other sources and reduced stocks.

The embargo did not significantly affect the volume of world grain trade. An examination of actual trade, and that predicted on the basis of trends before the embargo, does not reveal a strong embargo effect. At most, world grain trade fell 3 million tons, or less than 2 percent. Subsequent changes in volume of world grain trade appear to be due more to the supply/demand balances of major grain-trading countries and to economic factors unrelated to the embargo.

Grain-trading patterns realigned in 1980. The magnitude of this realignment for the wheat and corn markets is estimated in table 1, which shows the difference between actual 1980 trade flows and those that would have been expected if trends from the 1970's had continued. All major U.S. competitors sold more-

Table 1--Estimated change in exports between 1970-79 and 1980

Exporter	Wheat			Corn		
	USSR	Others	Total	USSR	Others	Total
			Million tons			
Argentina	1.7	-1.6	0.1	1.7	-4.2	-2.5
Australia	2.2	-1.9	.3	NA	NA	NA
Canada	2.2	-.8	1.4	NA	NA	NA
EC	.6	.3	.9	NA	NA	NA
United States	-3.2	0	-3.2	-7.1	11.5	4.4
Other exporters	.9	-.6	.3	1.8	-3.7	-1.9
Total	4.4	-4.3	NA	-3.6	3.6	NA

NA = Not applicable.

than-expected quantities to the USSR. Argentina and Australia did this by diverting exports from other markets. Canada and the EC also increased their export volume to provide the additional supplies to the USSR.

The EC continued to ship some grain to the USSR after the embargo was imposed because previously issued export licenses could not be revoked. With this exception, the EC apparently complied during the embargo with its commitment made to the United States. Canada also complied with the embargo but only until the 1979/80 crop year ended in June. In the following crop year, Canadian exports to the USSR increased sharply. The Canadian Government officially announced its withdrawal from participation in the embargo at the end of November 1980. Australia substantially increased its exports to the USSR in 1979/80, but this increase was already specified in an existing long-term supply agreement between the two countries.

The United States reduced wheat sales to the USSR by 3.2 million tons and corn sales by 7.1 million tons. The United States was unable to make up its loss in the wheat market with larger sales to other markets. Increased U.S. corn exports to other markets helped to offset the decline in corn exports to the USSR. The reverse was true for the USSR; that is, the USSR made up the loss of U.S. wheat but could not replace U.S. corn.

The embargo changed the commodity composition of imports in the USSR and its sources of supply, trade data suggest. USSR imports of wheat, barley, and livestock products (grain-equivalent) sharply increased in 1980 (table 2). USSR corn imports dropped 4.4 million tons from 1979. The increase in livestock product imports was equivalent to an estimated 3.4 million tons of feed grains.

Table 2--USSR grain and livestock product imports

Commodity	1977	1978	1979	1980	1981	1982	1983	1984
				Million tons				
Wheat	6.4	9.0	9.6	14.9	17.3	21.1	23.0	28.0
Barley	.1	.6	1.3	2.4	4.8	2.7	1.6	1.4
Corn	4.0	13.3	14.6	10.2	16.5	11.5	6.4	12.4
Other grains and livestock	.1	0	3.5	3.5	7.8	3.1	2.1	4.0
Livestock products 1/	8.0	2.5	8.8	12.2	13.2	12.0	13.6	11.9

1/ Livestock products in grain equivalents.

U.S. market prices dropped immediately after the embargo was announced but returned to pre-embargo levels in less than 2 weeks. Prices declined again when harvests in the Southern Hemisphere hit records but rebounded as the weather worsened in the Northern Hemisphere that summer. Nevertheless, some farmers suffered a loss because they had to sell at temporarily depressed prices in order to get needed planting funds.

The embargo did not cause major short-term changes in world grain prices. The export prices of the two most affected exporters, the United States and Argentina, were remarkably stable during the embargo. However, comparison of quarterly wheat and corn export prices for the two countries reveals that Argentina obtained a price premium for its wheat and corn during 1980.

The USSR succeeded in replacing most of the embargoed U.S. grain, according to data on trade, supply, and use in the USSR. However, the USSR had to change its commodity mix of imports and had to pay a premium for Argentine grain to replace embargoed grain. World wheat and barley trade to the USSR increased at the expense of corn trade, and world livestock trade to the USSR increased at the expense of all grain trade. Our best estimate is that the embargo reduced USSR grain imports by no more than 3 million tons during 1980, after adjusting for the grain equivalent of higher imports of livestock products.

Although the most likely effect of the embargo was a 3-million-ton reduction in USSR grain imports in 1980, we also estimated minimum and maximum effects. We chose two extremes which bracket the most likely case: zero and 11-million-ton reductions in USSR imports.

A key determinant of the magnitude of the embargo's effect upon world trade and prices was the ease with which importers could shift their sources of supply of grains in the world market. Quality differences, political ties, contractual arrangements, and long-term agreements can inhibit trade adjustments to the shock of an embargo. Hence, two sets of computations were made: One assumes that wheat or coarse grains from one exporter substituted perfectly for wheat or coarse grains from another exporter, and the second assumes that wheat or coarse grains

from different exporters were less than perfect substitutes. Table 3 shows simulated effects of the 1980 embargo on U.S. prices, exports, and export earnings under both these assumptions and for the three assumed levels of USSR import reductions.

Estimates derived from models of world grain trade suggest that, even under the most pessimistic assumptions about the embargo's effects on U.S. exports, export prices of U.S. wheat fell no more than $11-$12 per ton, or 7 percent, in 1980. The embargo lowered coarse grain prices $8 per ton, or 6 percent, in the same year. U.S. wheat exports declined 2.4 million tons, and U.S. coarse grain exports fell 6.3 million tons. These reductions would have generated a loss of export earnings of $2.2 billion. These estimates were derived using two extreme assumptions: USSR grain imports fell 11 million tons as a result of the U.S. action, and grain available from alternative suppliers was an imperfect substitute for U.S. grain.

Under the most plausible assumption, that the USSR was deprived of 3 million tons of grain imports, the embargo lowered U.S. export prices of wheat 2-4 percent and export prices of coarse grains 1-3 percent. U.S. wheat exports fell 0.6-1.3 million tons, or 1.5-4 percent. Coarse grain exports dropped 1.4-2.9 million tons, or 2-4.5 percent. U.S. export earnings declined 3-8 percent, depending upon assumptions made about the degree of substitution between U.S. wheat and coarse grains and those of competitors.

The gross cost of the embargo to the U.S. Government was $2.2 billion, but the net cost was lower due primarily to the subsequent resale of contracts purchased from grain companies. Immediately following the embargo, the Government spent $500 million on buying and retendering sales contracts from exporting firms, $1

Table 3--Effects of 1980 embargo on U.S. prices, exports, and export earnings under alternative assumptions

Assumptions		Wheat change in--		Corn change in--		Trade
Market structure	Effect on USSR imports	U.S. prices	U.S. exports	U.S. prices	U.S. exports	value
	Million tons	$/ton	Million tons	$/ton	Million tons	Mil. $
Perfect substitute:						
	0	-0.94	-0.19	-0.19	-0.14	-98
	-3	-2.70	-.56	-1.85	-1.40	-498
	-11	-7.90	-1.64	-6.24	-4.71	-1,621
Imperfect substitute:						
	0	-4.98	-1.03	-2.44	-1.89	-756
	-3	-6.48	-1.34	-3.82	-2.89	-1,096
	-11	-11.45	-2.37	-8.31	-6.28	-2,232

billion on directly purchasing grain, and $700 million on moving commodities into the grain reserve.

We used a model of the U.S. agricultural sector to estimate the effects of the embargo on U.S. farm prices, incomes, and Government program costs. The advantage of this model was that it could incorporate changes in farm policy and U.S. export levels in the wake of the embargo.

Changes in domestic farm programs as a result of the embargo put upward pressure on prices. The CCC expanded U.S. grain demand by purchasing and isolating 154.8 million bushels of wheat and 159.7 million bushels of corn from the market. The release price for wheat in the FOR was increased, and the loan rates for both wheat and corn were raised. Both these actions increased grain prices at the farm level in the years after the embargo.

When we incorporated these policies along with the trade effects of the embargo into the model of the U.S. agricultural sector, domestic policy changes dominated the trade effects. Even when we assumed the most extreme embargo-induced reduction in world trade (11 million tons), farm prices for wheat and corn were still 12 and 1 percent higher than with no embargo and no compensating change in farm programs in the 1979/80 crop year. A 3-million-ton reduction in world trade, with no compensating policy changes, did not affect wheat prices and it reduced corn prices by less than 3 percent in 1979/80.

Long-Term Effects

Procedures used to compute the short-term embargo effects are appropriate for comparing one state of the world with another, but they do not capture the possible long-term embargo effects. To analyze long-term effects, we used procedures to trace effects of the embargo on trade, stocks, and farm income over time.

In 1981, the year following the embargo, increased sales to other markets offset effects on U.S. exports of reduced grain sales to the USSR. Higher wheat sales to China helped compensate for loss of the USSR market. Argentina and other exporters increased corn shipments to the USSR, resulting in greater U.S. exports to Mexico and others. The U.S. share of the USSR market would probably have contracted even without the embargo as the period of detente faded and production capacity of competing exporters expanded.

The embargo has been at least partially responsible for a long-term change in the mix of USSR grain and feed imports. Wheat is substituted for corn as a feed grain because wheat can be obtained easily from other suppliers. The United States is the world's largest corn exporter, and a USSR return to the pre-embargo expansion of corn use would mean a return to U.S. sources of supply. The quarterly pattern of USSR wheat imports has changed to take advantage of greater Argentine grain availability in the first quarter. Oilseed imports have increased steadily, probably reflecting an attempt to improve livestock feed rations rather than the embargo's effects. USSR feeding practices now rely less on grain, with a 27-percent increase in use of nongrain feed supplies between 1979/80 and 1985/86. Given USSR grain production problems, this may have been the trend even without the embargo.

The USSR's shift away from U.S. supplies weakened after the embargo was lifted in 1981, although imports from the United States have not recovered to levels that could have been expected based on trends during the 1970's. The USSR is a price-conscious buyer. Statistical analysis suggests that the embargo increased USSR responsiveness to changes in the prices of corn and wheat. The embargo probably made the USSR more aware of the possibility of diversifying its supply sources and the cost savings this might produce. However, high U.S. grain prices in recent years have been as much a factor in the failure of the USSR to purchase U.S. grain as any residual effect of the embargo.

U.S. farmers were overcompensated for the shortrun embargo effects, which is not surprising since the offsetting policy measures were enacted in early 1980 when estimates of the embargo's effects were large. Depending on the economic assumptions made, net farm income increased between $0.2-$2.2 billion over 1979-84 as a result of U.S. policies to compensate producers.

Despite its immediate cost to the Government, the embargo reduced long-term costs of price support operations. Higher loan rates lowered the amount of deficiency payments to farmers. Higher feed costs reduced dairy production and costs of price support operations for dairy products. Although Government storage costs increased as a result of changes in the reserve program, the net effect of policy changes due to the embargo was to reduce long-term Government outlays an estimated $0.3-$1.5 billion.

Changes in domestic and international economic conditions had a

far greater long-term effect on the costs of Government support for agriculture and the financial health of the farm sector than did the 1980 embargo. Appreciation of the dollar against other major currencies and the reduced rate of world income growth during the early 1980's dramatically lowered U.S. grain and soybean exports. In the unlikely event that macroeconomic conditions existing at the end of the 1970's, such as higher income growth, lower inflation, and lower exchange rates, had continued, U.S. wheat exports would have averaged an estimated 18 percent higher between 1982 and 1984. U.S. soybean exports would have risen 20 percent, and corn exports would have risen 35 percent. As a result, export prices would have increased an estimated 16-20 percent over actual prices. Despite an average reduction in Government payments of $7 billion per year, annual net farm income would have risen by an estimated $1 billion. Effects of export embargoes on the U.S. agricultural economy have been minor compared with effects of changes in the global economic environment.

SURPLUS DISPOSAL

One suggested solution for the U.S. agricultural crisis is the disposal of Government-held stocks into the world market at competitive prices. In other words, subsidize U.S. exports from Government-owned or controlled inventories. Legal authority exists to sell stocks at competitive prices by using either general export subsidies or targeted export subsidies. General subsidies directly or indirectly reduce costs of U.S. exports to all importers. Targeted subsidies reduce costs to one or more selected importers.

The second part of this study, exploring whether using export subsidies during the 1980's could have increased farm income and reduced farm program costs, concludes that such subsidies would not have effectively accomplished these tasks. The study particularly assesses the potential for expanding disposal of stocks acquired or controlled by the CCC as the result of U.S. price support programs. Two major issues are addressed: The CCC's legal authority to increase its stock disposals over the past decade, and the consequences of such a policy. Effects on farm income reported here refer to the effect due to the disposal program only. Since it is a disposal of public stocks overseas, the effect on farm income is not great. The major farm income effect comes from the domestic price support program, not the export surplus disposal program.

As in the embargo analysis, a variety of theoretical and empirical

models were used to determine the domestic and international implications of U.S. subsidy programs. Estimates of the potential effects of surplus disposal on exports, prices, farm income, and Government program costs were derived. Based on these estimates, qualitative conclusions are drawn about the implications of increased use of U.S. agricultural export subsidies.

CCC Operations and Legislative Authority

The CCC has the primary role of supporting and stabilizing prices of a number of key commodities, including grain and dairy products. The CCC stabilizes and supports grain prices by making loans to farmers against their crops. When market prices fall below the loan rate plus the interest owed on the loan, farmers can pay their loans off to the CCC with the commodities instead of cash. The CCC also stabilizes and supports dairy prices by purchasing dairy products at announced prices to place a floor under the milk price.

When market prices remain below legislated loan rates for long, the CCC accumulates stocks of wheat, corn, and dairy products. When prices are low, inventories also accumulate in the FOR, a Government program to ensure greater stability of domestic and international supply. Combined CCC and FOR wheat stocks have exceeded a billion bushels several times in recent years. Corn stocks reached 2.5 billion bushels in 1982/83, and are much larger now. At times in the past 15 years, CCC butter purchases have reached 30 percent of production, 10 percent of cheese production, and 50 percent of nonfat dry milk production.

Stocks buffer price swings created by crop failures at home or abroad. But, when market prices remain low relative to support prices, inventories become large. Government inventory costs rise as storage costs rise. Furthermore, excessive Government stocks can overhang the market, depressing farm prices.

The CCC is authorized but not obligated to reduce its commodity stocks with a variety of programs, including domestic and international food aid, emergency relief programs, barter arrangements, and subsidized exports or export credits. The CCC operates many export subsidy programs that fall under two general categories:

- General subsidy payments, in cash or in-kind, on overseas sales to lower the cost to foreign buyers.

- Targeted subsidies in particular markets to offset subsidies offered by other suppliers or to satisfy some other need.

The CCC had the legal authority to implement a more aggressive program of stock disposal, particularly of CCC-owned stocks, during the late 1970's or early 1980's. Congress limited the CCC's ability to dispose of surplus stocks between 1982 and 1984. During those years, Congress removed the CCC's long-standing authority to competitively price inventories in foreign markets. This change did not affect export volume, however, because the authority was not being used at the time of its removal and was not used when reinstated. The CCC had other alternatives (including direct credit, loan guarantees, donations, export subsidies, and payment-in-kind (PIK) export enhancements) that permitted more aggressive use of Government aid for exports.

Options Considered

This study evaluates general and targeted subsidies to dispose of Government stocks of wheat, coarse grains, and dairy products in export markets. The period 1977/78 to 1984/85 was analyzed and, therefore, includes the recent years of substantial accumulation of Government stocks. The following disposal options were considered:

- An across-the-board, uniform export subsidy on all wheat, coarse grains, and dairy products that would lower the costs of U.S. exports to all foreign buyers, increase demand, and eliminate Government stocks.

- A set of targeted subsidies on wheat and coarse grains to increase farm income the largest possible amount using the smallest subsidy cost (hereafter, referred to as the option to maximize farm income).

- A set of targeted subsidies on wheat and coarse grains to dispose of all publicly-held stocks.

We considered four critical factors in analyzing export disposal options: Importer response, competitor response, surplus size, and farm program constraints. Importer response embodies how consumers and producers in importing countries react to lower prices and the extent to which trade policies permit transmission of lower world prices to the domestic market. If a small price decline substantially increases the quantity of U.S. products imported, then a small subsidy would be extremely effective in eliminating U.S. surpluses. However, if a large price decline

needed to increase U.S. exports, then very large subsidies would be required to be very effective. Increased export quantities resulting from subsidies must at least compensate for reduced prices to make the policy cost-effective for the United States.

This study assumes that grain importing countries are moderately responsive to reduced import prices. This is a middle-ground assumption made by the study group after extensive discussion, since some economists argue that relatively rigid trade policies make these markets highly unresponsive to price changes, particularly in the short run. Others, however, argue that these importers are very responsive to price changes.

The second critical factor in the analysis is the response of competing exporters to U.S. subsidies. Exporters could respond in one of two ways, each with different implications for the United States. First, other exporters could allow their domestic and export prices to fall along with the decline in world prices resulting from the U.S. subsidy. In this case, subsidies would improve the competitive U.S. position and increase U.S. market shares at the expense of other exporters. The extent to which this happens will depend on how much producers in other countries reduce production in response to lower prices. Second, competitors could retaliate with subsidies of their own. If they merely choose to match U.S. subsidies in order to maintain their own export volume, the result would be a smaller expansion in U.S. exports because the United States would not displace shipments from other countries in foreign markets. To the extent that subsidized prices expand world imports, U.S. exports would increase. If, however, competitors retaliate against U.S. subsidies by offering larger subsidies of their own, a trade war could break out. The outcome of such an action is uncertain. U.S. exports could fall, and market share could be lost.

Our research led us to assume that most competitors would pursue the first option: They would do nothing and allow their exports to decline. However, we assumed that the EC would maintain fixed internal prices and increase its export restitutions (subsidies) throughout the study period in order to allow its export prices to follow the world price decline. We assumed that other competitors would not retaliate by changing their policies.

A third factor is the size of the surplus to be sold relative to the size of the world market. The larger the U.S. volume for disposal on the world market, the larger the subsidies needed to induce importers to purchase the quantity available. This has a number of implications for the disposal options considered. First, the year

in which a surplus disposal policy begins can affect the operation and results of the program. A disposal program initiated in a year when surplus stocks are not large could prevent further surplus accumulation. It would avoid the need to dispose of large quantities in a short period of time. Program costs are likely to be lower because the level of subsidy required will be less.

The final factor is the effect of farm program constraints on surplus disposal options. Government stocks are a function of legislated loan rates, release prices, and target prices. Relationship of these prices to the market price determines the size of the surplus and the rate at which it accumulates.

This study assumes that there would have been no PIK program in 1983/84 and 1984/85, but that other elements of U.S. farm programs would have been unchanged. Surplus disposal programs in the mid-1970's would have prevented stock buildup in the early 1980's. PIK, a stock reduction program, would not have been required had there been no stocks. Because stocks held by the CCC and in the FOR are considered public stocks, we analyzed the disposal of both CCC and FOR stocks.

General Export Subsidies

We examined effects of a general subsidy program for grains by evaluating a stock disposal program which did not allow surplus stocks to accumulate. Crop years 1977/78 through 1984/85 were examined. We present results for disposal of CCC stocks alone and for CCC and FOR stocks combined.

We examined effects of a general subsidy program for dairy stocks by considering two alternatives: The disposal program beginning in a year of low surplus stocks and the program beginning in a year of large stocks.

U.S. export subsidies to all markets would have raised U.S. export volume and market shares, but would have lowered world market prices and made U.S. exports more price competitive. In the short run, increased U.S. export volume would have increased the volume of the commodity moving into world markets. Because the United States is a significant supplier of grains and dairy products, world prices would have declined. As a result, the United States would need to pay a subsidy on all exports, commercial and Government. Without the subsidy payment on all exports, exporting companies would be unable to profitably acquire grain for export at the loan rate and compete with subsidized U.S. Government grain exports.

The general subsidy needed to eliminate all CCC wheat stocks over 1977/78 to 1984/85 would, in effect, cut world prices from $0-$38 per ton each year, an average of almost $10 per ton (table 4). The subsidy needed for corn would have ranged from $0-$22 per ton, an average of $6.30 per ton. The average annual cost of the subsidy program would have been $418 million for wheat and $376 million for corn. Note that 1977/78 was a year in which public stocks were low relative to recent years. Therefore, cost estimates are lower than if the program began in a year with high stocks.

Average subsidy costs per ton of exports in a disposal program is important in judging effectiveness of that program. Even more important to subsidy decisions is the mounting subsidy cost of each additional ton exported. A disposal program shipping 3.56 million tons of additional wheat per year from CCC surplus stocks would have cost an average of $160 per ton annually (table 4). Additional corn exports of 7.61 million tons would have cost $49 per ton. At a 1977-84 average price of $124 per ton, wheat surpluses cost more to subsidize for export than they are worth. It would have been cheaper to give the surplus away or destroy it.

If both CCC and FOR stocks were included in the program, the average subsidy required would have increased to $17 per ton for

Table 4--Average annual exports, subsidies, and net subsidy costs for the 1977/78-1984/85 crop years for the disposal of CCC and combined CCC and FOR stocks

Item	Units	Response of importers to lower prices			
		Medium response		High response	
		CCC stocks only	CCC and FOR stocks 1/	CCC stocks only	CCC and FOR stocks 1/
Wheat:					
Increase in exports	Mil. tons	3.56	5.99	3.66	6.02
Total exports	do.	42.14	44.57	42.24	44.60
Subsidy rate	Dol./ton	9.92	16.53	5.88	10.66
Net subsidy cost 2/	Mil. dol.	571.00	715.00	365.00	405.00
Cost per additional ton of exports	Dol./ton	160.30	119.36	99.70	67.35
Percent of annual price ($124.52)	Percent	129	97	80	54
Corn:					
Increase in exports	Mil. tons	7.61	10.06	7.77	10.03
Total exports	do.	59.71	62.16	59.87	62.13
Subsidy rate	Dol./ton	6.30	10.63	4.72	8.66
Net subsidy cost 2/	Mil. dol.	371.00	554.00	278.00	414.00
Cost per additional ton of exports	Dol./ton	48.76	55.03	35.81	41.27
Percent of annual price ($103.19)	Percent	47	53	35	40

1/ This case is not currently feasible since, under current law, farmers retain marketing rights for their FOR stocks.
2/ Gross subsidy costs net of storage costs and sales losses of the CCC if the sales price is less than the loan rate, adjusted for the value of inventories at the end of the period. Costs do not take into account any savings due to the elimination of the PIK program.

wheat and $11 per ton for corn (table 4). When we assume that importers are more responsive to lower export prices, the subsidy required to dispose of CCC stocks would have been smaller, averaging $5.90 per ton for wheat and $4.70 for corn.

Assuming importers are only moderately responsive to price changes, we found that CCC stock disposal would have increased the export volume of wheat and corn approximately 9 and 15 percent compared with the export volume without the subsidy. The disposal would have reduced CCC stocks to zero, lowering total U.S. stocks 10 percent for wheat and 15 percent for corn. CCC stock disposal would have increased the U.S. share of the world wheat market 2.4 percent and the U.S. share of the world corn market 3 percent. Disposal of both CCC and FOR stocks would have increased U.S. wheat exports 15 percent and corn exports 20 percent. Wheat stocks would have fallen 50 percent, and corn stocks would have fallen 52 percent. U.S. share of the world wheat and corn markets would have increased 4 percent.

CCC stock disposal under the moderate price response assumption would have reduced the annual average value of U.S. wheat exports over the 8-year period $44 million, but increased the value of corn exports $341 million. The net effect of the changes would have been an increase in annual average export earnings of $297 million. World wheat demand is only moderately responsive to a fall in price. In many countries, policy measures such as import quotas restrict trade and block the fall in world prices from consumers. As a result, a general subsidy program would probably lead to a greater decline in wheat export prices than an increase in export volume. Only if importers are highly responsive to price change would the value of U.S. wheat exports increase. Because world corn demand is more price responsive, both the volume and value of U.S. exports would increase with a general subsidy program.

A general export subsidy program would have reduced Government-owned stocks. But the program would not have significantly raised producer incomes because the assumed reduction in Government stocks through surplus disposal was simulated in such a way as to not significantly affect farm prices. Domestic market prices would have remained close to actual levels over the 8-year period, but export prices would have been lower and more volatile under the subsidy program. Loss of payments from the PIK program would have lowered net farm income $3.5 billion over the period with the alternative disposal program in effect.

Additional net cost to the Government of disposing of all CCC stocks, after including savings from reduced storage costs, would have averaged $571 million per year for wheat and $371 million for corn. If FOR stocks were included, average cost to the Government would have increased to $715 million for wheat and $554 million for corn. Expenditures would have been as high as $2.9 billion for wheat and $2 billion for corn in some years.

The nature of the world dairy market severely limits the extent to which export subsidies could be used for dairy products. Unlike wheat and coarse grains, only a small proportion of dairy production enters world trade. The number of regular importing regions is small, and many countries have highly restrictive dairy-import policies, such as high price supports and nontariff trade barriers. In this market, the irregular disposal of surplus stocks presents particular problems. Disposing of surplus dairy stocks on the export market at whatever price they would bring would be more costly than accumulating stocks when world prices are low and expanding exports when prices are high.

A dairy surplus disposal program was evaluated for two periods: One beginning in 1974, a year of low surplus stocks, and one beginning in 1980, a year of high stocks. Table 5 compares annual average exports and budget outlays for 1980/81 to 1984/85 for the actual program and the two disposal alternatives. Dairy disposals increased under both simulated programs. Disposal of all dairy products in the 1974 program increased 123,000 tons, nearly 20 percent over the combined domestic and export disposals of the actual dairy program. Disposals in the 1980 program increased 234 million tons, or 33 percent. These programs cost more than the actual program, however. The 1974 program cost 9 percent more than the actual program, and the 1980 program cost 19 percent more. Only if Government

Table 5--Average annual disposal and budget cost of actual and simulated dairy disposal alternatives, 1980/81-1984/85

Commodity	Disposal programs					
	Actual		Initiated in 1974		Initiated in 1980	
	Disposal 1/	Budget cost	Disposal	Budget cost	Disposal	Budget cost
	1,000 tons	Mil. dol.	1,000 tons	Mil. dol.	1,000 tons	Mil. dol.
Butter	138	266	137	275	165	315
Cheese	236	545	292	595	312	616
Nonfat dry milk	287	362	355	410	418	464
Total	661	1,173	784	1,280	895	1,395

1/ Includes domestic as well as export disposals.
Note: Budget outlays are in 1977 dollars and assume inventories are valued at the world price and surplus disposal occurs at the price the residual importer is willing to pay.

stocks were valued at zero would disposal be cheaper than the existing program.

We probably underestimated costs of the two alternatives, particularly for the program started in the high stock year of 1980. For nonfat dry milk disposals in 1980, the United States needed to expand its share of the world market, excluding intra-EC trade, from 31 percent to 84 percent to dispose of the accumulated surplus. The United States probably could not have found buyers for this great an increase in export quantities without substantially lowering prices below those used in the computation of subsidy costs. Program costs could be reduced if surplus disposal is managed so that stocks are released if market conditions are favorable, not necessarily in the year stocks are accumulated.

Retaliation by other exporters probably would increase U.S. costs of a general export subsidy program and reduce its effectiveness. Figures given above are low estimates because they assume that competing suppliers do not retaliate to maintain their market shares and because the surplus disposal program began in a year of low surplus stocks. Competitors would be likely to respond to a more aggressive U.S. export policy. Competitive subsidization would reduce the gain in U.S. market shares and reduce effectiveness of a general export subsidy in disposing of surplus U.S. stocks. Similarly, disposal of surpluses would be considerably more expensive if the program were initiated in a year after there had been substantial stocks accumulation.

Targeted Export Subsidies

Targeted subsidies to increase U.S. export volume likely cost less than general subsidies because a targeted approach captures the more price-responsive importers. Consumer demand in some countries is more sensitive to price changes. In other countries, government policies reduce import responsiveness to price changes. Markets also differ in the amount of U.S. competition from other exporters. Orienting the subsidy program toward those markets more responsive to price changes increases U.S. export volume more per dollar of subsidy than does a general subsidy.

A targeted export subsidy program can be used for different objectives. By exploiting differences in price responsiveness of importers, targeted export subsidies can increase U.S. exports to price-responsive countries. Such subsidies can also force the United States to subsidize its exports in other markets to defend its market shares. If the United States subsidized wheat sales to

Egypt, for example, Egypt would buy more wheat from the United States and less wheat from other countries. Other exporters would be forced to find other markets for their wheat. Export supplies available to these markets would rise and prices would fall. The United States consequently would be forced to subsidize sales to importers in the rest of the world to protect its market shares from the displaced grain of other exporters.

Two targeted subsidy cases were examined: One to dispose of all publicly held stocks and another to maximize farm income, or gross sales, minus subsidy cost whether stocks are depleted or not. These alternatives were analyzed with a reference year of 1980 and compared with a global, uniform subsidy (table 6).

The amount of a targeted subsidy varies by destination. For wheat, subsidies to maximize U.S. producer incomes are not very effective because the demand for wheat is relatively unresponsive to price. Therefore, wheat subsidies are small because using large subsidies, even when they are targeted to particular markets, barely increases imports. In 1980, subsidies of $8.70 per ton would be needed for shipments to centrally planned countries, where our analysis shows demand was the most responsive and markets were shared with competitors. The largest subsidies to major importers were given to North Africa and the Middle East, $13.60 per ton, because these markets were price sensitive and shared with the EC. Virtually every purchaser would receive some subsidy, but these would be small on average. Because of the higher demand responsiveness, export subsidies needed for coarse grains would exceed $50 per ton, considerably larger than for wheat. The most price-responsive markets, where a shortage of foreign exchange limits imports or where the United States

Table 6--Subsidy rate and cost comparisons using higher elasticity and spatial equilibrium price discrimination model, 1980/81

Item	Unit	Global subsidy	Targeted subsidy for income	Targeted subsidy for disposal
Wheat:				
Increase in exports	Mil. tons	12.10	0.87	13.00
Total exports	Mil. tons	48.00	36.77	48.90
Subsidy rate	Dol./ton	59.22	5.17	63.40
Total subsidy cost	Mil. dol.	2,840.00	190.00	3,100.00
Cost per additional ton of exports	Dol./ton	234.71	218.39	238.46
Corn:				
Increase in exports	Mil. tons	19.96	21.23	25.80
Total exports	Mil. tons	83.50	84.77	89.34
Subsidy rate	Dol./ton	32.55	52.85	44.10
Total subsidy cost	Mil. dol.	2,720.00	4,480.00	3,940.00
Cost per additional ton of exports	Dol./ton	136.27	211.02	152.71

faces stiff competition, would receive subsidies of as much as $70 per ton.

A targeted subsidy program to maximize income of U.S. grain producers would increase wheat exports 1 million tons, from 36 to 37 million tons, in 1980, and coarse grain exports 20 million tons, from 64 to 84 million tons. The larger increase in coarse grain exports reflects the greater price responsiveness of the coarse grain market. Most increased wheat and coarse grain exports would go to developing countries.

The targeted subsidies required to eliminate all public stocks would be larger (for wheat, considerably larger) than those needed to maximize income of U.S. grain producers. The amount of stocks available for disposal exceeds the export volume that would maximize farm incomes. Disposal of the additional quantity would require large subsidies. The smallest subsidy required to eliminate Government wheat stocks in 1980 would be $59 per ton, and the largest subsidy would be $79 per ton. In the coarse grain market, the subsidies required to eliminate Government stocks would range from $35-$79 per ton. Cost per additional ton of exports would be $238 for wheat and $152 for corn.

If the objective is to eliminate public stocks, U.S. wheat exports would increase 13 million tons, from 36 to 49 million tons, in 1980, while coarse grain exports would increase 25 million tons, from 64 to 89 million tons. The disposal program would allow the United States access to wheat markets in the developing countries and coarse grain markets in the Middle East. Coarse grain exports also would expand to Western Europe and other developed countries. In terms of reduced wheat stocks, this program would be more effective than the income-maximizing alternative. But the increase in coarse grain exports of the disposal scenario would be only slightly greater than the income-maximizing scenario because of the more price-sensitive behavior of importers and competitors.

Targeted export subsidies would increase U.S. export earnings from wheat and coarse grains. If targeted subsidies were used to maximize income of grain producers, export earnings for wheat would rise $200 million, from $6.2 billion to $6.4 billion. Coarse grain earnings would rise from $8 billion to almost $9 billion. If subsidies were used to eliminate public stocks, export earnings for wheat and corn would increase $8.5 billion for wheat and $10.8 billion for coarse grains because exports would be larger.

Stock disposal under a targeted subsidy program would increase

farm prices and producer income. A policy to maximize producer income would increase producer receipts for wheat and coarse grains almost $7 billion in 1980. However, if targeted subsidies were used to dispose of all Government stocks, income would increase much less, just over $2 billion. Increased grain prices from a targeted disposal would reduce income of livestock producers, and the net effect on farm income, therefore, would be lower than these figures suggest.

Export subsidies would involve substantial Government expenditures. Thus, export subsidies are an expensive way to reduce surpluses. In 1980, the subsidies to maximize producer income would require Government expenditures of roughly $4.7 billion. If the stock disposal objective were pursued, the expenditures in 1980 would total $7 billion. Only when a set of income-maximizing subsidies is used would the increase in producer income exceed the surplus disposal cost to the Government.

Summary of Export Subsidies

Although some types of export subsidy schemes to reduce Government grain stocks might increase producer incomes, all options examined involve substantial Government costs. Estimates of Government expenditures given above likely underestimate substantially the costs, particularly under current conditions, where surplus stocks are large.

The cost of export subsidies is likely to be higher than estimated because other exporters would probably retaliate against U.S. export subsidies. Results presented above assumed that other exporters would match the decline in world prices caused by U.S. subsidies and allow the United States to increase its market shares. Most other major exporters would not react passively to U.S. subsidy programs, according to our interviews with key individuals in other countries. Competitors are likely to use countersubsidies to protect their market shares, particularly the EC which is unlikely to allow the United States to gain market share at its expense. The EC probably would retaliate against U.S. subsidies, particularly if these were targeted to EC export markets. Retaliation by other countries, such as Australia and Canada, is also possible. At the very least, competing exporters would be slow to reduce their exports in response to lower world prices created by subsidized U.S. exports. If competitors' exports did not fall, cost of disposing of U.S. surplus stocks would increase.

Although the results suggest that income gains for U.S. grain

producers might exceed the cost of targeted disposal, implementing a program that would achieve this result would be extremely difficult. Only with a complex set of subsidies to maximize returns to U.S. grain farmers would producer income gains exceed Government costs. Such a set of subsidies requires substantial information about likely responses of importers and U.S. competitors to alternative subsidies. It also requires that these subsidies be carefully chosen and timely applied. This analysis assumed that such information was available and that implementing an appropriate set of subsidies was possible. In reality, this would be an extremely difficult task.

A further factor is that the size of the stock disposal problem is currently greater than that considered in the period considered above. The United States has extremely large grain inventories and faces a worldwide climate of surplus and increased productive capacity. In this climate, the cost of surplus disposal would probably be much greater than that suggested by the above figures. As of May 1985, CCC and FOR wheat stocks amounted to 28.1 million tons, or 72 percent of last year's exports. Corn stocks in September 1985 stood at 15.5 million tons, or roughly 33 percent of exports. In recent years, world grain trade has stagnated. Disposing of this stock volume in the current international market environment would be difficult and expensive.

MACROECONOMIC EFFECTS

A major cause of the deterioration in the export market for U.S. grains and in the accumulation of surplus stocks has been the unfavorable macroeconomic environment: Rising U.S. dollar, global recession, and high real interest rates. U.S. grain export subsidies to dispose of surpluses would not have been considered if national and global economic conditions had not worsened in the early 1980's. If economic growth rates of the 1970's had continued into the 1980's and the dollar had not appreciated substantially, surplus stock accumulation would have been much more modest. In 1980-84, FOR corn stocks would have been eliminated in an estimated 3 out of 5 years, and CCC stocks would have been zero in the last 2 years. Although more favorable economic conditions would not have had the same effect on wheat stocks, exports and export prices would have been substantially higher. As a result, the need for export subsidies likely would have been reduced substantially. Changes in the world and national economies have significantly affected the income position of U.S. agriculture and have been major factors in the buildup of surpluses and program costs.

Following is a contents listing of the full report available from ERS Information (S), Rm. 208, 1301 New York Avenue, N.W., Washington, D.C. 20005-4788. (202) 786-1512.

EMBARGOES, SURPLUS DISPOSAL, AND U.S. AGRICULTURE

Representative HAMILTON. Mr. Penn, you mentioned targeting in your opening comments, and perhaps, Mr. Thompson, you said something about targeting as well. Much of the debate that occurs in the Congress relates to targeting whenever we have a farm bill before us.

Why aren't these targeting provisions better constructed? What is the matter there? I don't understand why targeting is so difficult to accomplish.

Most people agree better targeting would be helpful, don't they? Why is it we can't do it?

Mr. BERGLAND. Well, I think, if I may take a crack at openers, Mr. Chairman.

Representative HAMILTON. Yes, sure.

Mr. BERGLAND. I think it is because of the rigidities in the law. As Mr. Thompson has said, the law is much too restrictive and too rigid.

Representative HAMILTON. What do you mean, "rigidities"?

Mr. BERGLAND. Well, each commodity——

Representative HAMILTON. Farmers don't have enough flexibility in what they plant?

Mr. BERGLAND. Yes, sir. That is an example. Let me give you a recommendation that Secretary Block and I are working on to present to the Congress during the hearings. It is an issue on which we are in total agreement.

We think the time has come to eliminate the commodity-by-commodity approach to agriculture, that you can't average these commodities. They mean nothing. You have to be much more specific, and so what we are working on is a proposal that would eliminate wheat allotments and acreage controls and these devices which have been based on historical averages.

My son-in-law operates our farm and he has land of his own, and he plants crops to protect his base. This makes no sense, and what we are talking about is a program where there is no historical feed grain base or wheat allotment, and the commodities that might join that list can be argued over, but what we are looking at is that these would be combined and a farm, instead of having a series of these historical allotments, would have a cropland base.

If there is a need for grain acreage reduction, the reduction would come off the top of the farm and there would be a permitted acreage within which that farm operator could grow anything that made sense and any combination that made sense, taking into account local climate, transport advantages or disadvantages, and other such factors.

Representative HAMILTON. Mr. Thompson, you mentioned rigidities early on.

Do you agree with this kind of an approach Mr. Bergland is spelling out?

Mr. THOMPSON. Absolutely. Last year, for example, the market was telling us we needed to grow more soybeans and oats in this country. Farmers couldn't afford not to plant their corn base because they had to protect that base. It made no sense at all.

Representative HAMILTON. And they would have been better off if they had had soybeans?

Mr. THOMPSON. They sure would have.

Representative HAMILTON. Yes; Mr. Penn.

Mr. PENN. I agree with that, but I don't think that is targeting. I don't think that is answering your question.

Representative HAMILTON. I understand.

Mr. PENN. That continues the program as a general entitlements program, and I think those changes are certainly good ones.

But, there have been two reasons that we haven't had more interest in targeting. The first one is a political reason. If you are going to target benefits and you have to take away benefits from some people or deny benefits to some people, those people won't like it. I mean, it is OK to have reform, but don't reform——

Representative HAMILTON. Don't we keep putting caps on?

Mr. PENN. We do, but those caps have proved largely ineffective. We started payment limits in the farm bills in 1970, and we have raised them and we have lowered them and we have excluded things and included things and defined farms and redefined farms. By and large, I think everybody would agree that they have been generally ineffective.

Representative HAMILTON. Farmers get around them?

Mr. PENN. That is right.

Mr. BERGLAND. The law limits the payments to a person, and lawyers have become rich in this town redefining the term "person."

I think there has to be complete change in the approach to payments. I don't see any reason why the U.S. taxpayers should subsidize a farm that is big enough to achieve economies of scale. If they want to farm a great deal more than that, they should do so but at the risks of the marketplace.

The way that could be done——

Representative HAMILTON. Well, how do you design a program, then, that achieves what we would call fair targeting? How do you do it?

Mr. BERGLAND. Well, I am in favor of graduated payments, that if you combine these crops you can deal with the——

Representative HAMILTON. What do you mean, graduated payments?

Mr. BERGLAND. Well, the first 5,000 bushels or units——

Representative HAMILTON. Oh, I see.

Mr. BERGLAND [continuing]. Has a payment structure higher than the next 5,000.

Representative HAMILTON. It gets complicated.

Mr. BERGLAND. And eventually you don't have any.

Representative HAMILTON. Yes; Mr. Thompson.

Mr. THOMPSON. With all due respect, Mr. Bergland, I think that if you had graduated payments you would only increase the likelihood of carving up farms into more and more smaller units in order to have a larger fraction of their production qualify for the larger payments on the first 5,000 bushels.

You know, in the 1985 farm bill there was a $50,000 payment limit, but it was riddled with loopholes already in the law. Then Congressmen insisted that USDA delay the date by which farms had to be reconstituted in response to interest desire to circumvent the payment limitation.

Representative HAMILTON. Mr. Thompson, do yo think we ought to cap payments?

Mr. THOMPSON. I think we need more targeting of payments to people who need the help or to programs where we get a larger payoff, like rural development. But I am convinced that if we try to do it through graduated payments we will only get even more carving up of farms. You know, we had a big increase in the number of wheat and corn producing farms in 1986, not because there were more farms out there but because of the problem of reconstituting.

Representative HAMILTON. How would you design a targeting program?

Mr. THOMPSON. I would probably take a fraction of the money distributed in deficiency payments or I would lower the target price further, but then I would take the savings and apply them to the objectives we are discussing, such as rural development.

For example, in 1986 financial stress was the important problem. There are still some people with financial stress out there. If we really wanted to help people who were suffering from severe financial stress, we should have retargeted some of those payments out of the deficiency payment stream into a debt restructuring program or perhaps an interest rate buydown program for people who were already financially stressed.

The rhetoric said that was what we were trying to do, but the numbers show that less than $1 out of $4 deficiency payments went to the people who were severely financially stressed.

So we must first figure out what it is that we are trying to do. Is it to reduce financial stress? Is it rural development? If so, rechannel some of the farm program payments into those objectives.

Representative HAMILTON. I haven't heard you fellows talk about supply management very much or production controls. You know, that is always a part of the debate in agriculture in the country. None of you seem to buy onto that.

Mr. BERGLAND. Well, as I said, we are the Saudi Arabia of the grain world. About half of the world's trade in grain comes from the United States, and the other countries carve up the rest. We provide the umbrella. Whether we like it or not, what we do the Canadians will do 10 cents cheaper, and they are always under us by enough to have the advantage.

That is why, as Mr. Thompson talked about, the need for tougher negotiations. I am not sure it can be pulled off, but I know this, that if we were to effectively surrender our export business and raise price supports and control supplies accordingly, the whole world would increase production by unbelievable amounts because if they have the price incentive to do it they will invest.

And that is not just in Canada. That would be in developing countries like Mexico and India and China.

Mr. THOMPSON. There are over 100 countries in the world that grow wheat, and farmers are price responsive everywhere in the world. If we provide an artificial umbrella and unilaterally withdraw from the market, we will guarantee the demise of the United States as a large exporter.

Mr. BERGLAND. No question about that.

Representative HAMILTON. Do you all support decoupling?

Mr. BERGLAND. I don't know what it means, Mr. Chairman. It has been defined so many ways.

Representative HAMILTON. Don't expect me to define it here. [Laughter.]

I think generally we are talking about breaking the links, aren't we, between the Government farm payments and crop production. That is what I understand by decoupling, but maybe there are more refined views of it. But is the concept one that is worthwhile?

Mr. THOMPSON. Absolutely, because when a country links payments to production and sets its support price or target price too high, this stimulates overproduction in high-cost-producing areas. That is the biggest problem we have in agriculture around the world. If we could back away from that, I think we would have a far healthier world market for our farmers to compete in and we would have greater market access.

Representative HAMILTON. Mr. Penn, what do you think about decoupling?

Mr. PENN. Well, Mr. Bergland is right. You have to define exactly what you mean by decoupling.

In general, the notion of reducing the influence of the Government programs on farmers' production decisions, investment decisions and marketing decisions, is a generally accepted notion, but then you have to go beyond that and decide what you do about such things as income assistance. At what level do you provide that for farmers?

Representative HAMILTON. If you do have decoupling, what is the impact of that on the particular classes of farmers, Mr. Bergland? Does decoupling help one group of farmers more than others?

Mr. PENN. I think we simply don't know that. I don't think there are any studies around that can say what the effects would be. We simply haven't had any experience with that.

You are getting close to talking about a free market, or a world in which there are no government programs, and we haven't been in that situation in 55 years. So we don't have much experience.

Undoubtedly, I think some farms would be helped and some farms would be harmed. We simply don't know which ones.

Mr. BERGLAND. Senator Boschwitz from my State of Minnesota has been an advocate of decoupling, and as he explains it, it would be an arrangement whereby a producer could receive the Government payment to which he or she would otherwise be entitled and not plant any crop. It would eliminate this business of having to plant to protect.

Here again, no evidence——

Representative HAMILTON. So a farmer could do nothing and get paid, right?

Mr. BERGLAND. Sir.

Representative HAMILTON. So a farmer would do nothing and get paid.

Mr. BERGLAND. That is correct.

My guess—and I am purely guessing in this—is that we would probably see more traffic in that provision among small- and medium-sized farms than we would large commercial operators. Somebody who has a small farm and finds this is a convenient way

of not planting and they can devote full time to their job. I think that would be the group that would use it most extensively.

The business of combining these crop allotments and having no historical base is decoupling of sorts, too.

Representative HAMILTON. Let me ask you about an item that pops up in my conversations with constituents more and more, and that is food safety and labeling. People are—at least better educated people, are getting very interested in labeling, and they are also concerned about food safety. We have about one scare a week on food safety.

What are your reactions to that, and how does it affect agriculture? Can you just give me your general reactions to the growing concern about food safety, on the one hand, and food labeling?

Mr. BERGLAND. Well, I had one experience I can bring to the record, Mr. Chairman.

During my time at USDA we had a big argument about the use of nitrates as a curing agent for meats.

Representative HAMILTON. Yes, I remember.

Mr. BERGLAND. The nitrates when used in the curing of certain meats; for example, ham, when fried hard will form nitrosamines which there is some evidence may contribute to cancer.

The real problem we had was that the alternative to the use of nitrates is food poisoning, botulism. There was no way, no clear-cut choice here. This is not a matter of this one being good and this one bad. The risk was whether there is some risk in cancer through the nitrosamine phenomenon or food poisoning, which is a real threat, and mostly the public really doesn't pay any attention to the real alternatives.

Representative HAMILTON. Yes; Mr. Thompson.

Mr. THOMPSON. I agree with Mr. Bergland that it is unfortunate that the media has been able to play so effectively on public fears because the United States does enjoy a very safe food supply and many of the things we use, like the nitrates, are there to protect us against some of the problems that exist in the safety of the food supply in so many other countries of the world.

But nevertheless this is a high visibility concern of the public today, and I think we have to do everything possible to reassure the public of the safety of the food supply.

Where there are problems we need to address them, but I think we have seen cases that the media has played on the public's fears using half-truths, falsehoods on occasion, and they have done an injustice to the American food supply in the last couple of years with some of these scare tactics.

Mr. BERGLAND. Mr. Chairman, generally speaking, I am in favor of labeling, though. I think the consumer should know what he or she is buying, and I think the content of the materials in the package should be labeled.

I am on a strict diet under a doctor's orders, and I look very carefully at contents. Sometimes I can't find it, and if I can't I don't buy it.

Representative HAMILTON. Are we geared up administratively to handle the food safety scares properly? I mean organizationally can the Government handle this properly?

Mr. PENN. That is one of the concerns. Mr. Thompson said that we need to reassure the American people. We have heard so much about the budget cuts in the inspection areas over the last 8 years that a lot of people need reassuring. I mean, are we really doing all that we can?

Representative HAMILTON. Have we cut too much on food inspectors?

Mr. PENN. I think we need to be reassured that we haven't. Everybody looks to society to play a role.

Representative HAMILTON. Do any of you have any reaction at this point to the 1987 Farm Credit Act in terms of how well it is working, and how it is affecting American agriculture?

Mr. BERGLAND. I know very little about it, Mr. Chairman.

Mr. THOMPSON. I am in a similar boat. I perceive that the farm credit system is working its way through the problems and is getting back on its feet as a viable provider of credit to the farm community. It has been a difficult adjustment from the severe stress that that system was in.

Representative HAMILTON. Yes.

So far as you are aware, Mr. Thompson, the 1987 act is working reasonably well?

Mr. THOMPSON. I think the act is working, perhaps slower than some people would like to see, but there were a lot of problems to be worked through.

Representative HAMILTON. OK, gentlemen, I think this has been a good hearing. Your comments and your statements have been excellent, and I have enjoyed having you with us this morning.

Thank you very, very much.

Mr. THOMPSON. Thank you, Mr. Chairman.

Representative HAMILTON. And we stand adjourned.

[Whereupon, at 11:30 a.m., the committee adjourned, subject to the call of the Chair.]

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