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# POLICY ISSUES PAPER

EXTERNAL INFLUENCES ON AGRICULTURE:  
SOCIETAL, ENVIRONMENTAL  
AND GLOBAL ECONOMY

AFPC Policy Issues Paper 90-2

Department of Agricultural Economics  
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**August 1990**

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## EXTERNAL INFLUENCES ON AGRICULTURE: SOCIETAL, ENVIRONMENTAL AND GLOBAL ECONOMY

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In 1975, Don Paarlberg composed his epoch essay titled "The Farm Policy Agenda" which contended that "The agricultural establishment had the ball for a hundred years, but sometime during the last 10 years, there was a turnover." The agricultural establishment, in political science jargon, is a subgovernment. The iron triangle of this subgovernment is composed of the agriculture committees, the agricultural appropriations subcommittees, and the House Ways and Means Committee, the USDA, and the farm organizations, including both the producer and agribusiness components (figure 1).

For years, the agricultural establishment controlled the agenda of farm policy issues considered by policymakers in USDA and in the Congress. As a result of controlling the issues that were placed on the policy agenda, the establishment thereby controlled the outcomes.

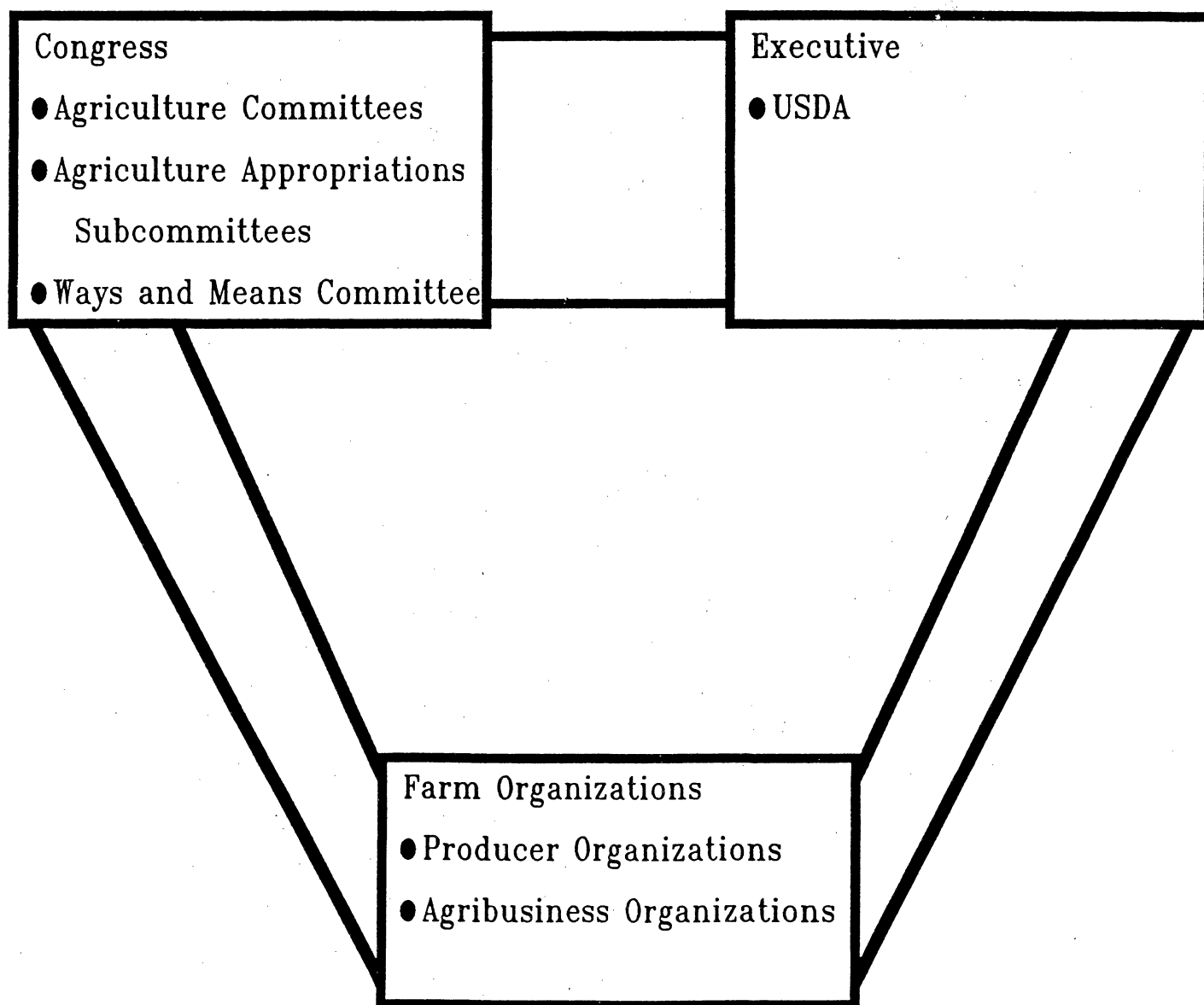
While Paarlberg concluded that the establishment relinquished, or maybe more accurately, began to relinquish, its control during the late 1970s, in its 1989 annual policy review, the National Center for Food and Agricultural Policy had as its theme the difficulty of reforming food and agricultural policy (Kramer). While the theme of the Center's annual review reflects a continuing degree of control by the agricultural establishment, the contents of the review reflect a myriad of external forces impacting upon the agricultural and food policymaking machinery. Since the completion of the Center's review, at least one major new external force -- market economies -- has been added to the agenda.

Forces from outside the agricultural and food industry have the potential for impacting agriculture, related industries, and related interest groups as much or more than forces indigenous to agriculture. The number of possible external forces affecting agriculture are numerous. This paper will concentrate on three which are clearly evident, although the quantitative magnitude of their impacts are yet indeterminant. The three external forces include:

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Figure 1. Iron Triangle Representing the Agricultural Establishment





- Increasing dominance of an international market economy
- Increasing concern about the environment and the safety of the food supply
- Increasing impacts of basic science on the more applied agricultural sciences.

Each of these forces will be discussed in terms of its impacts upon agriculture, the position of the agricultural establishment, and the implications for the agricultural research and extension establishment.

### Market Economies

From the 1930s through much of the 1960s, agricultural prices were supported at a sufficiently high level that U.S. farm products were not competitive in world markets. In the late 1960s, the substitution of income supports (direct government to farmer payments) for price support provided a basis for expanded U.S. competitiveness. The result was increased competitive pressure upon other countries to reform their policies in terms of greater market-orientation. In fact, the U.S. policy of lowering the support price (loan rate) while providing income protection to farmers was designed, in part, to accelerate the level of economic and political pressure placed on the highly producer-protective Common Agricultural Policy (CAP) of the European Economic Community. A more market-oriented U.S. agricultural policy became more firmly established with each successive farm bill since the late 1960s. The philosophical support for a market-oriented agriculture extended beyond USDA to Departments of State and Treasury.

To a degree, the concept of a market-oriented policy is a misnomer. True market-orientation implies that both supply and demand be more market responsive. Since the 1960s, U.S. market-oriented farm policy has mainly emphasized expanding export demand. Direct producer payments have allowed U.S. market prices to fall sufficiently to make them export competitive. Producer returns, however, were maintained until the 1985 farm bill when income support levels (target prices) were reduced by 10 percent over the life of the bill (1986-1990). An important test of whether the 1990 farm bill continues the trend toward a more market-oriented supply side is determined by whether the level of income supports (target prices) is increased,

decreased, or frozen. In other words, can the Congress continue to wean farmers away from income supports?

Complementing the trend toward a more market-oriented U.S. agricultural policy is the impending rise of market economics internationally. Events in the Eastern European countries were preceded by less well publicized moves in countries such as Argentina and Chile. If the Soviet Union continues on its more market-oriented course, the pressures on China to do likewise could become insurmountable.

Greater market orientation, in part, has been a result of the failings and inflexibilities associated with government regulation. Outside the United States, the move toward market orientation appears to have been the result of improved productivity resulting from market rewards, the development of telecommunication systems which have made those productivity gains more visible to the public, and the inherent compatibility of market economies with freer choice democratic systems.

### **Consequences**

The development of market economies in Eastern Europe will not be as rapid as the whirlwind conversions to elective democracies. Organized market institutions take time to develop. With high expectations, there will be a need for short-run aid in terms of commodities, technical assistance, and capital. Concurrent with increased technical assistance should come vast opportunities for scientific exchange in agricultural and nonagricultural endeavors.

In the longer run, there should be opportunities for vastly expanded trade. However, it needs to be recognized that trade is a two-way street. The U.S. will need to accept more imports in return for more exports. In other words, there will be gainers and losers from expanded trade.

Market economies introduce the realities of increased price fluctuation and greater market risk. Increased price fluctuation will be a major factor creating continuing pressure for farm commodity programs. Events of the past decade illustrate the point. In the mid-1980s, Congress came to the aid of farmers suffering low farm incomes and declining asset values. It has repeatedly provided farmers disaster assistance despite a vastly expanded crop insurance program.



With the combination of price and weather risk, at least temporary income protection appears inevitable.

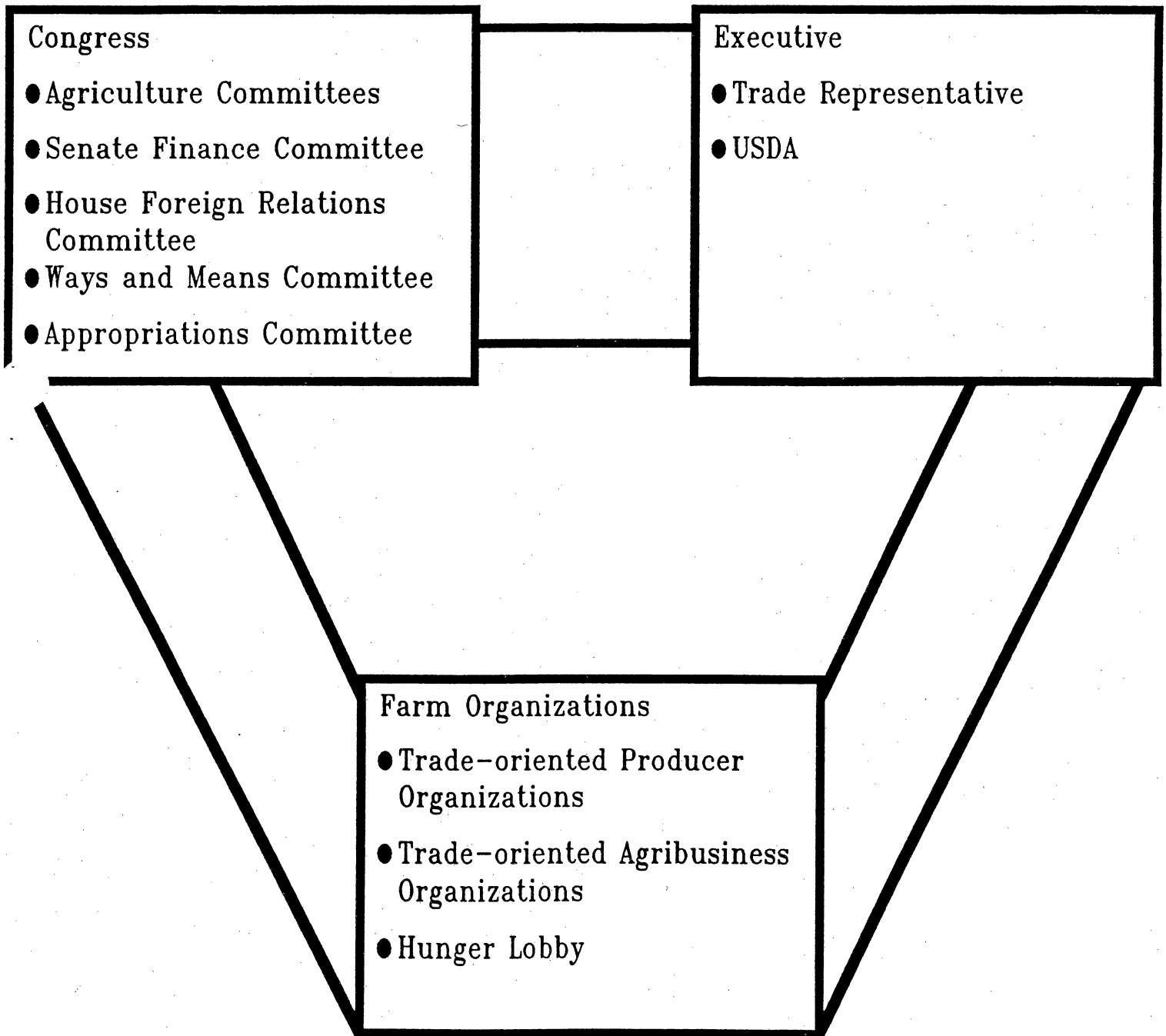
Depending on the sequence of economic events, the inherent instability in agriculture may effectively prevent the elimination of commodity programs. That is, while there may be continuing progress in the direction of a more market-oriented policy, for the foreseeable future, commodity programs may continue.

What is to prevent a reinstatement of strict controls on farm prices and incomes during a period of economic decline? The answer lies in a persistent strengthening of the agricultural subgovernment favoring freer trade (figure 2). The origin of this subgovernment may be traced to those interests who stood to benefit most from expanded agricultural exports. Export merchants such as the multinational trading companies and export-oriented commodity organizations, such as soybean producers, were obvious early advocates of freer trade policies. As direct payment policies favoring expanded trade were implemented, more commodities (wheat, cotton, corn) became export dependent. The interest in expanded trade was not limited to agriculture. Nonfarm businesses persistently saw trade-distorting agricultural programs as barriers to progress in the Multilateral Trade Negotiations (MTN) under the General Agreement on Tariffs and Trade (GATT).

These developments in the private sector were complemented by corresponding changes in the public sector. In the Congress, the power of the House Ways and Means Committee was diluted by the demise of conservative Congressman Wilbur Mills and the instatement of an elective process on committee chairs. The near absolute jurisdiction of the agriculture committees, agricultural appropriations subcommittees, and Ways and Means Committee on trade-related farm policy issues were challenged by the Senate Finance Committee and the House Foreign Relations Committee.

The organizational structure of USDA places two of the most powerful agencies, the Agricultural Stabilization and Conservation Service (ASCS) and the Foreign Agriculture Service (FAS), under the same assistant/undersecretary. Since the early 1970s, the individuals occupying this position have had a strong international trade orientation -- at times having direct ties to

Figure 2. Iron Triangle Representing the Agricultural Trade Subgovernment



export interests, before and/or after their USDA tenure. Notable among these individuals were/are Palmby (Continental Grain); Brunthaver (Cook Industries); and currently, Crowder (Pillsbury). This placed a trade-oriented individual in charge of ASCS which manages commodity programs.

In addition, the executive branch has placed increasing importance on agricultural trade. The best evidence lies in the elevation of agriculture's role in the Trade Representative's office, including the appointment of Yeutter to the Trade Representative position, and, subsequently, to Secretary of Agriculture.

An important piece of detracting evidence from the increased importance of agricultural trade within the executive branch lies in the imposition of three export embargoes during the 1970s -- a formative period for the dominance of the agricultural trade subgovernment. A test of the strength of the trade subgovernment will come in its ability to prevent a quota program from appearing in the dairy title of the 1990 farm bill. A quota production control program is sought by the powerful dairy lobby but should be strongly opposed by the trade subgovernment who would see quotas in dairy as a foothold for expansion into other commodities.

The conclusion can readily be drawn that Paarlberg may have correctly predicted the demise of the agricultural establishment controlled by protectionist commodity program-oriented farm organizations. However, it may be equally plausible to argue that the agricultural establishment has been replaced by a perhaps equally strong subgovernment having a vested interest in expanding trade. Such a subgovernment could have a vested interest in perpetuating commodity programs designed to foster production for an expanding export market.

### **Environment and Food Safety**

Greatly increased concern has arisen over the impacts of soil erosion and the use of agriculture chemicals on the environment. The concern is reflected in at least four dimensions:

- The impacts of chemicals on wildlife resulted in the initial policy decision to ban DDT and the subsequent enactment of the Endangered Species Act.
- The combination of soil erosion and excess production capacity led to the establishment of a conservation reserve program which retired over 30 million acres of land for a 10



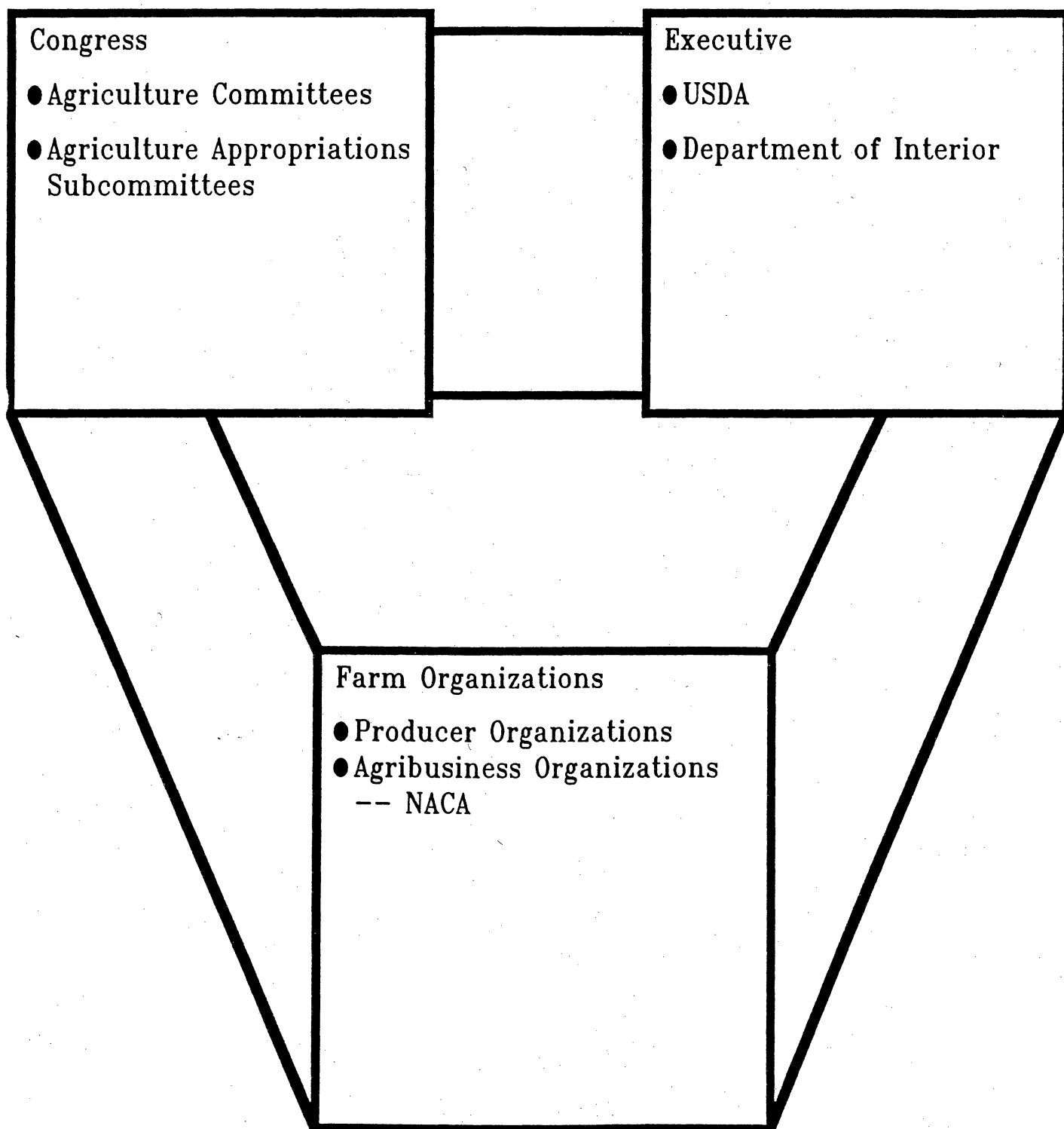
year period and required that farmers file and implement a soil conserving plan as a condition for receiving farm program benefits.

- EPA and state findings of agricultural chemicals in groundwater have resulted in appeals for increased regulation.
- The banning of the chemical alar from use on apples has precipitated calls for additional restrictions on chemical use as a food safety concern, including the potential modification of the Delaney zero tolerance provisions to include all chemicals applied to a crop with a specific parts per million tolerance level.

In an earlier era (the 1950s and the 1960s), the pesticide subgovernment had effectively prevented such concerns and/or actions from appearing on the agenda (Reichelderfer and Hinkle, Bosso) (figure 3). In the absence of the Environmental Protection Agency (EPA), there was no clear regulatory spokesperson for environmental protection. Although the Department of Interior had raised the issue of the hazards of pesticides for fish and wildlife (the Delaney Clause was enacted in 1958, and Silent Spring was published in 1962), the pesticide iron triangle was clearly in control of the agenda.

The turning point came in the late 1960s with the creation of "... a new breed of environmental activists..." including the Environmental Defense Fund (Reichelderfer and Hinkle, p. 151), the enactment of the National Environmental Policy Act, and the subsequent establishment of EPA. Since 1970, the initiative for environmental policy has come from an array of widely recognized environmental advocates including the Environmental Defense Fund, National Resources Defense Council, Audubon Society, Wildlife Federation, and Sierra Club. These forces have resulted in fragmentation, if not disintegration, of the pesticide subgovernment. At least four congressional committees outside the agriculture committees are involved in debate relating to the environmental and/or food safety impacts of agricultural chemicals. The House Committee on Energy and Commerce as well as the Senate Environment and Public Works Committee are both involved in the consideration of legislation restricting chemical use.

Figure 3. Iron Triangle Representing the Pesticide Subgovernment



## **Consequences**

On environmental issues, both public opinion and the policy process appear to be driven more by perception than by facts. This is the case on either side of the chemical use issue. For example, there is relatively little scientific information on the impacts of reduced chemical use on yields, productivity, and on unit costs of production. There is also little hard data on the extent of chemical residues or their effects on health.

Therefore, the greatest need is for facts and information on the current levels of chemical use in both the agricultural and nonagricultural sector. The most recent information on the level of pesticide use by crops is for 1982. That data are available only for the major crops. For other crops, including fruits, vegetables, and sugar beets, the data base on total pesticide use is not available after 1971 (Osteen and Szmedra). Facts and information are needed on the potential for, consequences of, and tradeoffs involved in reduced chemical use.

Research in progress at Texas A&M indicates 30 percent to 70 percent reductions in yields are associated with the elimination of pesticides and nitrogen fertilizer -- the chemicals which advocates indicate involve environmental and food safety hazards. These reductions translate into even larger percentage increases in crop prices due to the inelastic aggregate demands for agricultural products. The result is increased costs for livestock producers, reduced exports, and increased costs for domestic consumers. The research indicates that the following important tradeoffs exist on the issue of chemical use reduction which need to be more fully understood and quantified before policy decisions are made:

- The perceived and/or real environmental costs need to be clarified with recognition of potential tradeoffs of reduced production, increased food costs, reduced competitiveness, and increased production and price risk.
- Increases in costs of production and higher commodity prices with reduced chemical use suggest tradeoffs with current U.S. policies designed to expand trade and open markets to foreign competition.



- Policies designed to internalize the costs of potential or real environmental hazards need to be weighed against the market incentives created for other countries to use more chemicals, thus exporting the environmental problem.
- Current low food costs benefitting all segments of the population need to be weighed against the potential for increased food costs and their impacts, particularly on poorer segments of the population.
- Environmental and food safety concerns directly related to the use of chemicals include a tradeoff involving expanded use of cropland and greater cultivation holding the potential for increased soil erosion.
- Differential impacts of reduced chemical use indicate tradeoffs within agriculture among crops, regionally, and between crop and livestock producers.

The pervasiveness of these tradeoffs indicates the complexity of the chemical use reduction issue. Science bears a major responsibility in quantifying the magnitudes of these tradeoffs as a basis for informed public policy decisions.

Regardless of the outcome of the debate regarding agricultural chemicals, opportunities clearly exist in research to discover substitutes for chemicals. This type of research needs to be seriously considered in setting research priorities.

### **Science**

A third major external force influencing agriculture is science itself. Of course, science has always been a driving force in agricultural research. But in the new technology era led by biotechnology, basic science including, for example, cellular physiology, microbiology, biochemistry and genetics, has become considerably more important. In addition, clarification of the law regarding the ability to patent the products of biotechnology has drawn expanded public and private sector interest and investments in biotechnology research.

A result of the increased influence of science and the extension of patent rights to biotechnology products is a potential shift in the leadership in cutting edge agricultural research (U.S. Congress, OTA, 1190, p. 11). That is, until the 1970s, the agricultural research and extension subgovernment was clearly in control of the agricultural research and education agenda

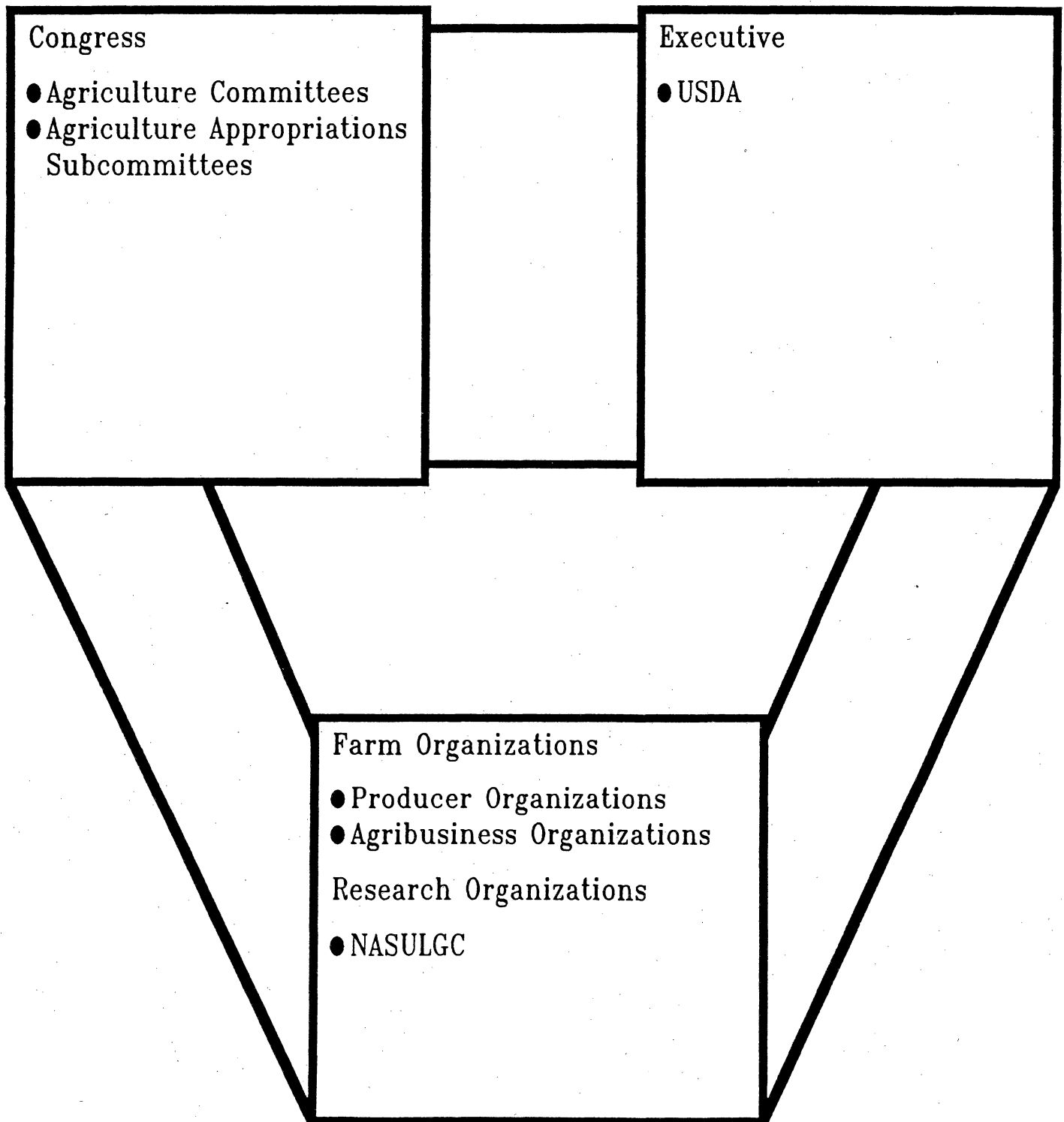
(figure 4). The control was sufficiently pervasive that this subgovernment is often cited in political science literature as classic illustrations of the subgovernment concept (Hinckley, pp. 234-236).

In the 1970s, however, the agricultural research and extension subgovernment began to fragment. Some of the fragmentation was from within the research and extension subgovernment as major agricultural states such as California contested the distribution of formula funds for agricultural research and extension on the basis of farm population. But the more important fragmentation resulted from the more traditional basic science arena as the National Science Foundation (NSF) and the National Institute of Health (NIH) expanded their interest in research in areas such as cellular physiology, biochemistry, microbiology, and genetics -- the scientific foundations of biotechnology. NSF and NIH grants were normally much larger than USDA grants, which tended to be distributed among the land grant universities as opposed to being concentrated in a few universities. The science-oriented non-land grant universities naturally had a comparative advantage in bidding for the larger NSF/NIH grants, while land grants were favored in competing for the USDA grants.

Fragmentation within the land grant system and increased outside funding for biotechnology research has resulted in sharply expanded interest and influence in agricultural research outside the traditional research and extension iron triangle. In the House, the Science and Technology Committee and the Education and Labor Committees have both developed an interest in agricultural research. In the Senate, research interests lie in the Environment and Public Works Committee as well as in the Labor and Human Resources Committee. These committees outside the traditional agricultural establishment represent science and higher education in a broad sense -- certainly not limited to land grant universities. They also represent some of the same public interest groups that are concerned about the environment and food safety. Thus, there is a link between the demise of the pesticide subgovernment and the potential collapse of the agricultural research and extension subgovernment.

USDA has built a world renowned reputation on the superior performance of its agricultural research and extension system. Yet, the implications of these developments for USDA either

Figure 4. Iron Triangle Representing the Agricultural Research and Extension Subgovernment





have been received with alarm or have not been realized. The land grant universities, speaking through the National Research Council, believe that the answer to their problems lies in a \$500 million competitive grants program administered by USDA. Instead, OTA suggests a need for major structural changes in the USDA research and extension planning system (U.S. Congress). Agricultural research and extension could be moving toward a market economy -- without strong USDA leadership. Agricultural research as a significant USDA component will probably survive but Extension's future is in doubt. This doubt arises because of the uncertainty of its mission, its propensity to try to serve all needs, and the perception that commercial farmers no longer need Extension services (Siebert, Knutson, U.S. Congress).

### **Conclusions and Implications**

Over the past two decades, outside forces affecting agriculture have become much more important. These forces hold the potential for transforming USDA and its influence on agriculture. The agricultural establishment iron triangle, to the extent that it exists, has become an agricultural trade subgovernment. Policies will be oriented toward the needs of that subgovernment. The outside forces create increased risk and uncertainty regarding future levels of agricultural output and prices. Their impacts may be motivated more by perception than by hard facts. They do not suggest the need for an abandonment of policy, but potentially for a redesign of policy, with emphasis on means of reducing risk.

In this process of change, there are substantial pitfalls for USDA and those institutions associated with the achievement of its mission. For example, while farmers may recognize the need for problem solving research and extension, they have difficulty identifying with the potential longer-run gains from biotechnology. Without astute leadership, USDA and related institutions could not only lose control of a broad range of functions such as agricultural research and extension, it could lose the support for these programs from its traditional clientele. This suggests the need for strong visionary, politically astute leadership.

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