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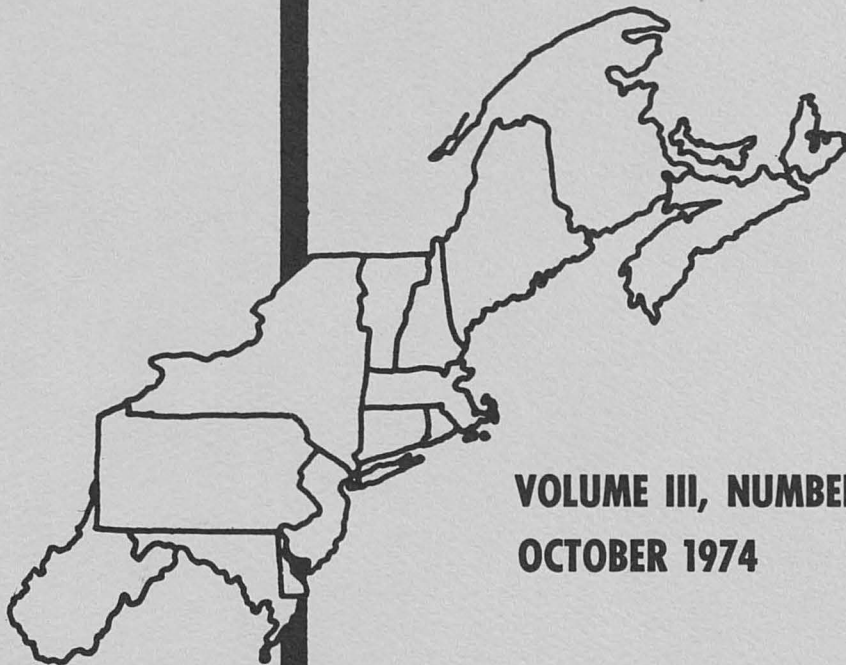
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AGRICULTURE IN AN UNSTABLE ECONOMY--REVISITED

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Like having a child, a book is labor intensive and, if it survives infancy, it takes on a life of its own. People tell you it looks like you, which is no compliment. You can't disown it when it gets into trouble. Admittedly, Agriculture in An Unstable Economy is a good name to have; it got through six printings and, for all I know, because of its name. Now that it looks as old as its parent, I am asked to talk about it with no assurance that what gets said can be erased.

When the book was six years old, I started to revise it to remove its blemishes. But I soon decided to leave it to fend for itself, and turned instead to my Economic Organization of Agriculture, filling it with more economic jargon so becoming to our profession. When Will Cochrane saw what I had done, he loudly proclaimed that I had been a traitor to my robust Agriculture in An Unstable Economy, to which he had taken an affectionate fancy. I got Will to come to the University of Chicago for a year as a visiting Professor, but it was too late to save him.

You should have invited George Brandow, and not me. He has done all of the necessary home work and he is obviously more objective than I can be. In his AAEA survey, Policy for Commercial Agriculture, covering the period from 1945 to 1971, he examines and evaluates at considerable length "Schultz's 1945 model." I long knew he had excellent judgment and I shall draw upon what he says as I proceed, although I am uneasy by his reference to it as a model. I say this because models have become very cheap; our literature is flooded with models that debase our coin. They drive out solid economic thinking because they omit most of the precious metal of economics and thereby evoke Gresham's Law.

What I put together in 1945 has a simple motor and on the unpaved roads of that time it was capable of good mileage.

I The Analytical Part

My purpose was to investigate the transition of U. S. agriculture from its all-out wartime production back to peacetime conditions. To do this called for some of the elements of a theory of development. It is this part that is applicable to our problems today and also to a wide array of agricultural problems throughout the world. It is an approach to particular processes that shape the demand for and supply of farm

products not only here but also in other parts of the world as well. It is an endeavor to distinguish between short run fluctuations and longer run developmental factors that affect agriculture.

The analytical part is a loose federation of selected major variables in an open, competitive economy. It is an apparatus that encompasses too much to have the elegance of the class of models that are now professionally popular. Even so, it is not comprehensive enough for I realize now that I gave too little attention to particular entrenched institutions. The economic forces that gradually alter such institutions should not have been omitted.

Among the important long run, economic variables that I omitted is the contribution of off-farm income to the personal income of farm people. By 1972, before the 1973 farm commodity price explosion, fully 45 percent of our farm family income came from off-farm activities. It is this variable that links the so called non-commercial part of agriculture to the more highly commercial part. Brandow also neglects this linkage in his survey. It is a major omission. I find it inexplicable why agricultural economists, in view of the increasing importance of this off-farm income, have not attempted to explain its occurrence and to show its implications for the agricultural sector.

I also neglected the symmetry in the instability that is associated with movements in the general level of prices. I concentrated on the effects of deflation and the accompanying industrial underutilization of resources and I was, no doubt, influenced all too much by Keynesian thinking and by the inordinate mass unemployment of the thirties. Although I mentioned the possibility of inflation, the instability caused by chronic inflation that now plagues us and the rest of the world received all too little attention.

Although I devoted a chapter to agricultural imports and exports, my analysis of the role of international trade in farm products is not what it should have been. I should have done better on this score, if for no other reason than the fact that the first good course that I taught was "International Economics." Clearly, international trade has been a major source of much of our recent farm price instability, an issue to which I shall return.

Nevertheless, despite these omissions, the analytical core of Agriculture in An Unstable Economy is by no means obsolete. Let me indicate why I believe this to be true.

Well over a hundred pages of the book are given over to a treatment of the fundamentals of the agricultural problem in an expanding and fluctuating economy. I argued that the fluctuations of the economy were concealing strong expansionary forces in the economy. Specifically, the depressed economy of the thirties followed by the World War II boom were distortions that covered up longer run developmental factors. The 1973-1974 price distortions, notably in primary products and in fuels are once again concealing from us the same basic developmental factors.

What I wrote three decades ago on this issue is fully as applicable to the current distorted economic circumstances as it was for those that prevailed following World War II.

To see the developmental factors determining the unequal rates of growth in the demand relative to that of the supply of farm products, I continue to find my 1945 classification of economic circumstances useful. One of these classes consists of countries in which the demand pushes hard against the supply. The other major class is where the supply tends to out distance the demand. The current obsession with global statistics is a real analytical loss because they tell us very little about the economic options and the economic behavior within these respective classes of countries. The physical, spaceship view of the earth based on space, depletion of energy and on a virtually fixed land area suitable for growing crops are producing all manner of doomsday projections. The rhetoric that emerges is bleak and much in fashion. It is basically wrong because it is devoid of any analysis of human behavior as it responds to changing economic conditions.

It will be convenient for me to follow Brandow's survey of the components in my 1945 conceptual framework for dealing with "the effects of persistent, long term forces causing major changes in agricultural resource use, related prices, and farm income." Brandow lists and examines critically ten components. I shall restrict my comment to the more important components on his list.

1. Technology is a strong dynamic force. It consists of improved methods of farm production that are generated outside of agriculture, "mainly by publicly supported research institutions." The new technology causes "the supply of farm products (in the schedule sense) to increase." Brandow then mentions the more dramatic technical changes that I featured in 1945. In view of events and the analytical work since 1945, I would not subtract but add to the economic importance of this component.

Several comments are called for. I have become increasingly wary of the term "technology." It has become the bane of many economic growth models which treat capital and labor as scarce resources and then proceed to introduce something called a change in technology as if it were a class of free inputs made available to the economy as manna from heaven. These new, superior inputs have price tags attached; they are not free in the important sense that they are products of research; and, research has become a large and expensive activity. Accordingly, the research sector is an endogenous part of the economy and the size of this sector depends on the amount of resources we allocate to it. Furthermore, these new man-made inputs are exceedingly heterogeneous over time and space (economic locations) and to assume that they can be specified and treated as an aggregate for an economy or even for an industry, leads to a waste of time on the part of economists. Our ignorance of what is concealed in the residual is not reduced by calling it "technology."

Another important point to be made is with respect to the limitations arising out the uses we make of one of our major analytical tools, namely, the production function. We derive estimates of the value of productivity of the factors entering into production by this means and we appear to be unaware that these estimates are as a rule obsolete by the time they are published for the simple reason that new inputs have been adopted which consist of dynamic events that have changed the then current real production function.

The real pay-off for me from my 1945 and 1953 books has been the impetus they gave to investigations of the return to investment in agriculture research. My debt to graduate students is very large for they did the real work--Zvi Griliches, Willis Peterson, Nicolas Ardito-Barletta and Robert Evenson. The list is now much longer and by no means any longer restricted to work at Chicago. Robert Evenson's recent studies at Yale, so it seems to me, break important new ground in this area.

The now available evidence is, in my view, strong and clear that in reducing the scarcity of food in the world measured in terms of the fraction of personal income that people spend on food over the long pull, a high priority should be given to investment in agricultural research. The international perspective of Hayami and Ruttan on this issue adds additional support to this evaluation of priorities.

2. What I said on land development in 1945 is still valid, but it is not the whole story. I featured the uneconomic attributes of our federal and state appropriations for irrigation, drainage and the clearing of land. What is needed and continues to be neglected is a worldwide view of cropland, which is in large measure man-made. There is a woeful lack of investigations of the returns to investments in the improvement of farmland. Cropland, as a factor in production, is neither Ricardian nor fixed by nature. Although only about one-tenth of the land area of the earth is cropland, if it were still raw land in its natural state, it would be vastly less productive than it is today. With incentives to invest to improve this land, the low state of productivity of most of the cropland in poor countries could be made several times as productive as it is now.

The original soils of western Europe, except for the Po Valley and some parts of France, were, in general, very poor in quality. They are now highly productive. The original soils of Finland were less productive than most of the nearby western parts of the Soviet Union, yet today the croplands of Finland are far superior. The original croplands of Japan were inferior to those of Northern India. Presently, the difference between them is greatly in favor of Japan. It has been "estimated" that the Gangetic Plains of India could, with appropriate investments, produce enough food for a billion people. The potential productivity of the soils of the Congo are also rated high. Argentina has excellent natural soils for growing corn and it has a lot of good wheat land. But its productivity is far below that of Iowa and Kansas,

states in which farming began with raw farmland comparable to that of parts of the Argentine.

3. The production behavior of farmers occurs in a highly competitive context, aside from the effects of government programs. Farmers do not curtail their output in order to influence prices. Competition makes it necessary for farmers as producers to adopt new and superior inputs or they will lose out relative to other farmers who do so. They also stay in "full" production in bad times that are caused by the instability of other parts of the economy. This economic attribute is still characteristic of the agricultural sector.

4. With respect to the demand, my 1945 endeavor was an attempt to get at the combined effects of three developmental factors, i.e., better nutrition, higher incomes, and population growth. The application of advances in knowledge about nutrition, I argued, could (a) change the food habits of consumers and (b) increase the efficiency of food. The first of these "may either increase or decrease the demand for food; the second, however, definitely points to a curtailment in demand." This is not what I learned from my oleomargarine experience! How nutrition is put to use is not predetermined by what nutrition is as new knowledge or what occurs when better nutrition becomes a political objective. My analysis in 1953 is more complete in showing that the farm price effects on the advances in nutrition are very small.

The income elasticity of the demand for farm food (raw) was already low in 1945 and it has declined since then. Our knowledge of this elasticity is strictly empirical in the sense that theory cannot even tell us whether it should be positive or negative. Nevertheless, we know what it is with more assurance than we know the value of the other major economic variables that affect development despite the fact that it is very difficult to untangle the effects of price and income.

As economists, we are woefully ignorant about population growth. My treatment of it in 1945 is typical of that ignorance. I treated it as an exogenous variable and simply projected the then declining current trends in Western countries. These trends promptly reversed themselves and since then have made a full cycle up to a peak in the mid-fifties and then down at a rapid pace to less than a replacement rate currently in the U.S. If I were to up-date my 1945 analysis the most important change that I would make would be to treat the growth in population as an endogenous variable along the lines of my paper, "High Value of Human Time: Population Equilibrium," (JPE, March/April 1974.) The studies appearing in the two recent supplements of the J.P.E. which I edited, "New Economic Approaches to Fertility" and "Marriage, Family Human Capital, and Fertility" lay an important part of foundation for the treatment of population growth as an endogenous economic variable. The contributions of these studies are wholly analytical; they are not as yet sufficient to be used in policy.

5. I argued in 1945 that agriculture is subject to a persistent maladjustment mainly because modern agriculture tends to be burdened with excess labor as out migration lags in equating job opportunities in agriculture with well paying new jobs in the rest of the economy. Our experience since then is dramatic evidence in support of that proposition. I was correct in drawing the inference that the effects of World War II, and specifically of the large shipments of food abroad were temporarily concealing this long run tendency. This picture is again flashed on our economic canvas by the 1973 farm price explosion and the recent exceedingly large exports of grains. Within a few years, the out migration of agricultural labor will again manifest itself as the further modernization of agriculture proceeds.

6. Brandow then treats three components in my 1945 federation of variables that pertain to the mobility of labor, land and capital. I have little to add or subtract from what I said about land and capital, except that a much fuller treatment was warranted. On labor, however, the impediments to mobility out of agriculture have been reduced since then. I then stressed the general lack of education and non-farm skills, poor health, lack of information about non-farm job opportunities, racial discrimination, employment barriers created by organized labor, and restrictive government regulation. I noted also that the relative high birth rate of farm families added to the mobility burden in achieving an equilibrium. Most of these impediments have been modified for the better since 1945. The flourishing growth of off-farm jobs for farm people is a part of this story.

II Unsolved Economic Instability

The basic long run developmental factors tend to be relatively stable. Agricultural research and its contributions are not a fluctuating variable. The accumulation of human capital on the part of farm people occurs steadily. Improvements in farmland and the introduction of man-made substitutes for land and labor (farm tangible capital) are made gradually over time. The effects of rising per family income on the demand is also a slowly changing variable. There are, however, serious short run economic fluctuations that burden and reduce the efficiency of agriculture and affect the economic welfare of farm people.

In my 1945 analysis, I gave much weight to four short run attributes of the economy in this context: (1) the tendency of the industrial sector not to stay fully employed; (2) the fluctuations of off-farm opportunities for farm people; (3) the low price elasticity of the demand for farm products coupled with shifts in the demand schedule caused by sudden movements in family income; and (4) on the supply side, I saw the inputs that farmers allocate to agricultural production as highly stable from year to year, although the output of particular products in some regions varies a good deal because of weather, insects, and diseases.

The first two of these attributes remain with us essentially as I formulated them three decades ago. With respect to the third, the effects of temporary declines in earnings on the demand has been much reduced by unemployment benefits and related public income transfers and more importantly by consumers treating such declines in income as transitory changes thus reducing their effects on expenditures for food. The price elasticity of demand for food and feed grains, the current price distortion aside, may have become more elastic because of increases in foreign demand for these grains.

Two sources of instability must now be added. I did not anticipate the event of general inflation. As already noted, I concentrated on the effects of deflation with only passing attention to inflation. Inflation is now virtually world-wide with a lot of two digit annual inflation. It is a serious burden on the basic development process. It is still unclear to what extent this inflation is causing agricultural distortions. Farmers holding financial assets are experiencing losses on them. I would expect the major distortion to occur from the rising prices of farmland.

The second source of instability has been the result of the overvaluation of the dollar in foreign exchanges followed by the shock that occurred when at long last we opted for floating exchange rates. Although we are now on the right track, the adjustments within agriculture to this correction of the foreign value of the dollar are still far from complete.

Meanwhile, as expectations generally became attuned to more inflation, the marked shift of investors (speculators) toward primary products has greatly distorted the prices of most farm products. While we appear to have passed the peak of the effects of this shift toward commodities, the downward adjustment in the prices of primary products now underway is also far from complete.

The oil producing Arab countries have given fuel prices a special twist, acting as they did when primary materials were riding high as a consequence of the emergence of inflationary expectations. The immediate responses in Wall Street circles, by the public in general, and by our government were hysterical, virtually devoid of economic reasoning. No allowance whatsoever was made in these early reactions to the oil embargo to the coefficients of substitutions in the utilization of energy. These Arab countries will learn as we are learning that the sudden tripling or quadrupling of the price of oil is an event that has a short life. Natural gas was underpriced; a lot of useful coal was undervalued because of public policy. With respect to these and other fronts we are beginning to re-price our energy supplies and as this occurs the price of Arab oil, like Humpty Dumpty, will come tumbling down--although not to pre-embargo level.

III Policy Part

On policy I am less sanguine than I was in 1945, partly because of more doubts about economics and partly because of the fragmentation of policy. Economic policy is a tricky business. The demand for it is ever so fickle; what is in fashion today is old hat tomorrow, be it price control, supply allocations, income maintenance, negative income tax, elimination of poverty, outlawing discrimination, making capital and labor more productive with investment credits and manpower programs. Add to this changing list, we have saving the environment, eliminating pollution, authorizing only drugs that are free of all risk, and making life absolutely safe. Each new public agency has a claim to a small fragment of economic policy and old agencies with their entrenched programs seldom fade away. Both demand justification for their respective programs and economists promptly supply models to satisfy these demands.

Nor is economics stable, robust and free of fashion. Consider the rise and fall of Keynesian economics, the shifts between fiscal and monetary approaches to "full" employment and economic stability, the weak bubble of imperfect competition and of welfare economics. In the development of poor countries, the supply of underemployed labor is assumed to be unlimited and industrialization is to be subsidized by import substitution leaving agriculture to fend for itself. The disutility of economics from this lack of stability and lack of robustness has cost us dearly.

Young economists have a marked comparative advantage as suppliers of policy proposals. They are bright and adjustable to the changes in demand; they are well equipped to produce the models that are demanded; and entry into this business is easy.

Looking back on what I wrote when I too was young, I note that it also consists of many different fragments specific to the agricultural programs and to the array of production and income problems facing farm people at that time. I argued against any "back to land" policy such as was popular following World War I. I argued for more investment in farm people particularly in the young. I made a strong case for what is obvious to any economist, namely, that specific absolute prices are not an appropriate policy goal but that stabilization of the general level of prices was proper and good. I urged that farm price supports should be converted into a viable system of forward prices.

Out of my analysis of economic fluctuations, there emerged the idea of compensatory payments for agriculture. It was a new idea. It is a simple and a logical way of dealing with the instability in farm income that is caused by fluctuations in the demand for farm products. I presented it as the second line of defense when business becomes depressed and unemployment spreads. The first line of defense should be monetary-fiscal measures to stabilize the industrial-urban economy at high production with high employment. These compensatory payments called for two requisites, (1) they should be counter cyclical, and (2) they should

not disturb trade and production in agriculture.

Although the underlying economic analysis is solid, it has not been a feasible policy proposal. Herein lies an important lesson about policy. I was fully aware that my compensatory payments entailed governmental intervention. I devoted several pages to three difficulties that could be anticipated. One of these pertains to our government viewed as an institution. I noted, "there is always the question whether in our democratic form of government such a proposal can be put to good account. Will not pressure groups use compensatory payments to raid the public treasury?" I argued that compensatory payments were less vulnerable than alternative policies. Although experience since 1945 is ambiguous on this point, what I said reveals the naivete of my youth. The moral is clear: economists are like mice putting a bell on the cat. The cat has its own taste for mice and economists are caught by their commitment to preferences as given.

I have enjoyed this opportunity. As you see, I did not come to disown Agriculture in An Unstable Economy. Despite a few omissions, it has a good set of analytical genes. Its developmental factors reveal a strong bone structure. Its balancing ability in a unstable economy is moderately good. Its compensatory payments are both brilliant and naive. Had you invited George Brandow, I would not have had this enjoyment.