We have now completed a 30-year attempt to restrain commercial agriculture within a market framework wherein supply has increased faster than demand. The task has not been an easy one, and it has been aided powerfully in recent years by our ability to use part of our farm output as international gifts, low cost aids to development and for similar purposes.

Fundamentally, our policy today, as it has been under both Democratic and Republican administrations in postwar years, is a simple variation of the short-run emergency program which we initiated in 1933. Then, as part of a depression mix, and given the knowledge of the time, it was perhaps an appropriate short-run emergency program. It supposed that if we could only "live out" a few years normalcy would be returned, with acceptable prices and incomes generated more through the market and less through public subsidy. This hope is still implicit in our sequence of variations of the same program; otherwise we would have turned from emphasis on short-run orientations aimed at "getting by" the next few years and more towards longer-run permanent solutions. As we will show later, the prospects over the next 20 years are simply a mirror of those over the last 20 years; the supply of basic farm products which could be produced is so large in comparison to the expected future domestic demand that prices and income generated in a completely free market would be unacceptable to the majority of farmers.

The important question is: Are we going to continue, over the next 20 years, with a sequence of short-run policies still aimed at "getting by over the next year," with the basic problem still remaining at that time -- even though we may have invested enough to solve it? The net cost of production control and price support programs over the 30 years since their initiation has been roundly $50 billion. This does not include foreign disposal, part of the cost of which should be added to domestic farm program costs. This $50 billion was enough to have purchased about 700 million acres of cropland at the average price prevailing over the period. It

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would have purchased 225 million acres at $200 per acre. In other words, the same funds could have been used to attain a permanent solution or containment of surplus capacity. But with the strategy used the funds were spent and the capacity and surplus problem remains more real and intense than 30 years ago.

The broad, aggregative physical and fiscal features of programs providing a long-run solution, actually or permanently containing or eliminating surplus capacity once the funds have been spent, can be outlined easily. It is more difficult to specify the details from the standpoint of the farm firm which allow such programs to be economically (and, therefore, politically) acceptable in the sense that they guarantee positive-sum gains particularly among farm families and rural communities, but also over the entire population. We have mentioned the negative side of our historic farm policies (namely, spending enough funds to solve the surplus problem while still having it with us in full scale). But we also need to mention the positive side. Farm policies of the last 30 years can be interpreted as instruments to help guarantee positive-sum gains from agricultural and economic development. Positive-sum gains refer simply, in a very broad sense, to providing conditions or supplementing income so that some people will not be made "worse off" in income or welfare as other persons gain. If some persons or communities sacrifice while others gain, we have no means to be sure that the negative outcomes for some can be added to the positive outcomes for others to provide a sum or net outcome which is either negative or zero. Without the farm programs of the last three decades we certainly would have had uncompensated losses to families of farms and rural communities for the benefit of the nation's consuming society generally. The great upsurge in farm productivity, catalyzed and implemented by public and private research and education for agriculture, has brought great gains to the consuming society in two ways. It has (a) reduced the real price of farm-produced foods and (b) released resources to produce other goods and services which consumers in a high income society desire more than additional food. But without the offsetting compensation provided through farm programs, the highly inelastic demand for farm products and the large and inflexible short-run supply would have brought income losses to farm and related families which cancel, or more, the immediate gains to the general society. In other words, the outcome promised to be negative sum, with the losses in rural communities being greater than the gains to general society. In this vein, policies of the last three decades have been based on sound economic logic. The important question, however, is whether this positive-sum outcome could have been attained with the same or smaller public outlay, while actually bringing more permanent solutions to the problems stemming from rapid technical advance and an oversupply of resources in agriculture. We have invested enough to have solved the problem, but it remains with us and as highly unsolved as three decades back. Shall we make equally large investments over the next two decades, only to have the problem as much unsolved as now?
Certainly we can set up a long-term goal, to provide appropriate and acceptable compensation programs and the conditions of positive-sum outcomes along the way. We can do this while still arriving at a permanent solution—cutting our agricultural plant down to a size consistent with modern technology and prospective demand—by means of public expenditures over (say) 15 years. We select a period of 15–20 years so that the rate of change will not exceed the ability of rural communities to absorb it and so that the annual public outlay to attain it is acceptable to the general public. We can attain this goal, however, only if we do now, in fact, institute a long-run plan to accomplish it. To attain it, and to provide the appropriate mix of policy instruments, we must face up with the extent, location and nature of implied changes in production. In the following sections of this paper some of the changes in prospect for the future are outlined. They could be brought about either through public policy fashioned to attain the particular goals, or through more dependence on market mechanisms. While both means could attain the same goal in the long run, they differ greatly in their distribution of gains and sacrifices over the farm and nonfarm populations.

Empirical Study of Extent and Location of Surplus Capacity

As a basis for long-range planning and programs, we have estimated the extent and location of surplus land, both as of the present and with projections to 1975. These projections have to be made, of course, against some level of prices. The levels of prices used in the analysis assumes a real price equal to that of the last 5 years. For projections to 1975, a population of 230 million and a 50-percent increase in per capita real income are used. Exports for 1975 were assumed to be 25 percent above the 1956–62 level for grains and soybeans. We estimated the amount and location of land needed to meet domestic and export demand, if real prices of the above level were attained. The estimates suppose that the above price levels would be attained in the market if the specified amounts of land were shifted from crop production to noncompetitive uses; or, they would allow a price support level which would cause no loss in treasury funds.

The figures presented are directed at the most efficient national pattern of crop production. In other words, acreage for various crops is distributed among regions in a manner to provide the lowest national costs of production and transportation, considering the location of demand. We do not suppose, however, that every farm in each region is "most efficient." The estimates for 1965 assume average costs of production within each region, while those for 1975 are based on the input–output relationships and cost estimates outlined later. The acreage and patterns specified are for the major crops—wheat, cotton, soybeans and feed grains (corn, oats, barley and grain sorghum). While some surplus capacity also exists for other crops, it is small as compared to that for the basic crops.
The most efficient production pattern estimated assumes that production would not be held in one region, by programs or institutional restraints, when it could be achieved at lower national costs in another region. For this analysis, 150 producing regions and 31 consuming regions are used. Considering the number of crops concerned, this is about the maximum that we could handle under the linear programming models used. (More recent models are somewhat larger.) If the nation were detailed into more regions and soil groups, even somewhat fewer acres would be needed to meet the domestic and export requirements; under lower prices, somewhat more land would be used.

First, we determined the amount and location of land needed to meet domestic and export needs in 1965 if crop supply were to balance demand at the specified levels. Next, we estimated the amount and location of land needed to meet domestic and export needs in 1975 if supply and demand were again balanced to give the real prices mentioned earlier, and if improvements in farming for each region were to follow the trend of the past two decades. Finally, we made the same projections, but assumed that farming in the Southeast would be as efficient as the rest of the country in crop production by 1975. Historically, Southern agriculture has made some improvements, but it has been restrained by small, low-income farms depending mostly on labor and handicapped in mechanization and new practices by lack of capital. Our suppositions for the South are modest; namely, that it only catches up to the current status of the rest of the country in mechanization and that it uses fertilizer (and corresponding crop varieties) in modestly profitable amounts. The region could, of course, forge much further ahead in light of its climatic advantages and potential in other farm practices.

To simplify the discussion, we will call the first set of figures "1965 estimates," the second set (assuming current trends in technical improvement for all regions) "1975 projected technology." Since the third set assumes that the Southeast will "catch up" on some practices, it will be called the "1975 potential technology."

Our estimates show roundly 50 million acres of surplus land, for the crops mentioned, in 1965. The surplus land, of course, includes land which is under conservation reserve contracts, the feed grain program and other acreage diversion programs. To meet requirements, the following acreages are required under the efficient production pattern: 45.8 million for wheat, 96.7 million for feed grains, 21.3 million for soybeans and 11.5 million for cotton. The distribution of this efficient production pattern, by areas of land which would be devoted to these crops, is shown in figure 1. The distribution of surplus land, which is now in these crops or under acreage diversion programs which could be shifted to other uses, is indicated in figure 2. Under the most efficient distribution of production among regions, the central producing regions (figure 1) for each commodity would become more specialized in their major crops than currently
holds true.

For example, the central Corn Belt would concentrate more intensely on production of corn, although fringe corn areas around the edge of the Corn Belt and elsewhere would recede from feed grain production. Wheat would be more intensely concentrated in the central winter and spring wheat areas but large areas of land would be shifted from this crop in the Great Plains and other areas. Cotton, under the existing technologies of the two regions, would continue to shift from the Southeast to the Southwest under a production pattern not restrained by acreage quotas and allowing national needs to be produced in the most efficient or competitive manner. The patterns outlined above are those which we would expect to be approached in the long run under allocations of a competitive market which reflect the modern state of technology, the magnitude and location of demand and without restraints which continue the distribution of production in line with the historic mold.

This 1965 "efficient pattern" would require the shift of a large acreage to other uses in the entire South, although the concentration would be especially in the Southeast. Similarly, a large acreage would be shifted permanently from field crops, mainly wheat, over the entire reaches of the Great Plains stretching from Montana and North Dakota to Texas and New Mexico. Not needed for crops, this land would be a candidate for such uses as grazing, forestry and recreation.

In 1975, under projected technology, we estimate that the surplus capacity, as compared to national needs under the most efficient production pattern described previously, would increase to 66 million acres. As figure 3 illustrates, the distribution of surplus land over the nation would largely parallel that already outlined for 1965. However, even more land could be shifted from the crops to other uses in the Northern Plains, the Southeast and the Southern Plains. A larger acreage also could be shifted in the southern Corn Belt and Lake States regions. The central Corn Belt, the Pacific West and the most highly specialized wheat areas would concentrate fully on crop production.

The surplus acreage, in the absence of some unexpected or enlarged foreign demand, is projected to grow over 10 years. This is because technological improvement (with the trends in each region extended to the future) has been increasing more rapidly than demand. The rate of improvement is more rapid in such regions as the central Corn Belt and parts of the winter wheat regions such as western Nebraska and Kansas, northeastern Colorado, the Pacific Coast, etc. Thus the relative amount of surplus land is projected to increase in such geographic regions as the Southeast, the northern Great Plains, north and east Oklahoma, eastern Wyoming, etc. The term "surplus acreage" refers, as previously, to land not needed for field crop production and which could be shifted to grazing, forestry or recreation.
Under the potential technology for 1975, supposing simply that the Southeast catches up with the rest of the country in the vein mentioned above, (1) the amount of surplus land would be increased and (2) the location or distribution of surplus land among regions would be changed (figure 4). Under this simple change in technology, one easily attainable even if over a slightly longer period of time, the surplus acreage to be shifted from wheat, cotton, feed grains and soybeans would increase to 73 million acres.

Under the potential technology for 1975, the amount of surplus land to be shifted in the Southeast would decrease importantly and the region would become more highly competitive in cotton, feed grains and soybeans. The increased acreage of these crops and a corresponding decrease in surplus land (figure 4) to be shifted in the South, would cause the amount of surplus land in the latter region to decline. The total or national acreage of surplus land for the specified crops in 1975 would increase from 66 million to 73 million acres under the potential technology as compared to the projected technology. However, the surplus acreage in the South would actually decline, thus causing a greater surplus in many other regions because of (a) the better competitive position of the South and (b) the greater total surplus land under the potential technology.

Under the potential technology, feed grain production would be added to the Delta and Southeast states and would expand in the Pacific Coast states. Soybean production also would increase in the Southeast and Delta states. Feed grain production in the Corn Belt would decline by 7 million acres under the potential technology as compared to the projected technology, with much of the land shifted to soybeans. Soybean output in the Lake States and Northern Plains would contract with the improved competitive position of the South in soybeans and feed grains and the consequent shift between feed grains and soybeans in the Corn Belt. Perhaps the most striking change would be the increase in cotton acreage in the Southeast and Delta states at the expense of the Southwest. As compared with the projected technology wheat acreage and production under the potential technology would increase in regions of Montana, Colorado, New Mexico, the Dakotas and in similar locations. Such a decrease would be caused by the improved competitive position of the South in feed grains, its "second round effects" on land use in the Corn Belt and the shift of cotton east from the Southwest, with feed grains moving in as a replacement in the latter regions.

The improved technology for the South assumed under the potential technology model does not represent practices which are impractical or unreasonable. The practices are already well known and are widely adopted in other regions. Generally, they require only more capital and larger farms--and perhaps a step up in education. They would place the South not only in an improved competitive position but also would bring it a larger income.
Figure 1. Regional location and acreage of crop production with balanced demand and efficient production, 1955.
Figure 2. Amount and location of surplus land under efficient allocation and distribution of crops among regions, 1965.

x-250 thousand acres
x-Less than 250 thousand acres

Total land to be shifted =
40.5 million acres
Figure 3. Amount and location of surplus land under projected technology, 1975.
Figure 4. Amount and location of surplus land under potential technology, 1975.

x = 250,000 Acres Idle Land
× = 250,000 Acres Idle Land

Total land to be shifted = 72.6 million acres
Surplus Capacity in 1975

Demand for food is projected to increase under an expected increase in population and per capita income. Despite this, however, a growing surplus capacity for American agriculture is foreseen, either under the projected or potential technology. Perhaps even the estimates for potential technology are conservative (since technology may increase more rapidly in the future, although large increments in foreign demand could offset this).

The results, which would show a similar outcome if they were extended even another 10 years, suggest the futility of our historic policy in attempting to solve the surplus capacity problem of commercial agriculture. In year-to-year programs designed to "stall for time," we only postpone facing up to reality. We could have solved the problem permanently with the $50 billion spent on control and price supports over 30 years (excluding any charge for surplus disposal programs). At the rate of $4.5 billion per year, we can spend $45 billion over the next 10 years, or $90 billion over the next 20 and still have the very same problem with us as today unless we change the nature of our programs. At the end of one or two decades, the money will have been paid out but the problem still won't be solved. This procedure was acceptable at the outset of surplus control programs, or even desirable as a short-run emergency measure during depression and postwar readjustments. Likewise it was acceptable in an earlier period when we lacked sufficient knowledge of the persistence over time and the geographic magnitude of the problem. But it can no longer be so justified.

The long-run or permanent solution of the problem would involve a shift of marginal production areas from field crops to grass, forestry or recreational uses in the manner outlined previously. The surplus land would be concentrated in particular regions and communities as suggested in figures 2, 3 and 4. Of course, this is the general pattern of long-run adjustment which the free market would bring, as painful as it might be on particular communities or for agriculture in aggregate at the outset.

The same long-run solutions and shifts could be aided by programs designed for this purpose, but they also would require concentrated adjustments and land use shifts in the same particular regions and communities. The major problem in achieving a long-run solution through the free market is how to distribute the costs or sacrifices among different groups of farmers. While the immediate impact would be lower returns for most all producers, incomes would be depressed most in marginal areas where high costs relative to yields and income cause low margins. Businesses and other sectors which serve agriculture in these communities also would be hit hard.
Programs could be designed to cause all participating farmers to be as well or better off after the long-run interregional shifts, and solve the long-run problem in the manner illustrated by the regional production patterns in figures 2, 3 and 4. The program could be voluntary and of delayed nature over an adjustment period of (say) 15 years. As a voluntary program, farmers would not need to participate unless they judged themselves to be bettered economically in doing so. With the $4.5 billion annually now spent on farm programs, we could buy up 45 million acres per year at $100 per acre (or 22.5 million acres at $200 per acre), although the rate would not need to be this rapid. Quite obviously, annual expenditures of the magnitude now being used for farm programs would provide funds for permanent retirement of sufficient land, even in a 10-year period, to provide long-run solutions which would shift land which is marginal in field crop uses. Such land could be retired in a manner consistent with the demand, technology and efficient resource use of the current and future economy. Even in 10 years, using our funds accordingly, and on the basis of voluntary participation and appropriate compensation rates, practically all of the land in marginal areas or regions of low advantage in location and technical conditions could be shifted. Older families lacking alternative skills may prefer not to participate at the outset. But a system of retirement benefits and compensation payments could gradually remove even this block.

Thus, we have an important choice before us, given the annual outlay we make for controlling surpluses and supporting farm income: Should we continue the present mold for another 10 or 15 years, with the problem being as bad or worse at the end of the period, or should we shift to a method which does provide a solution by investing over this time span? At the rate of $4.5 billion over 10 years, or certainly over 15 years, we could provide a framework in which participating farmers and landlords in the marginal areas, those regions which would shift under market directives and nationally efficient production patterns, would be equally well or better off. On the other hand, farmers and land owners in regions not required to shift could similarly approach equality with present income and welfare under the existing structure of programs. Thus, over all major farm groups and the taxpaying public in general we could approach a positive-sum change in income or welfare -- positive in the sense that no major one of these groups need to be made worse off and some could be made better off, with the result that the sum is positive.

However, while this possibility exists, the problem is more than one of farm groups and the general taxpaying public. In the context of the long-run solution pointed out above, it is more one of the numerous other groups oriented economically to the rural community. In regions which would have to make major or complete shifts for the long-run solution, merchants and others would suffer a decline in income with a thinning of the population under an extensification of farming.
Hence, while payments to farmers for permanent shifts in land use could leave them better off, the result would be negative for the rural community sectors which provide services to farm families. Although we cannot measure the "subjective magnitude" of (1) the positive gains to farmers and (2) the negative outcomes for merchants of "shifting regions," the sum of outcomes could well be negative. (This is potentially more so with the free market as the adjusting instrument, since it also would leave broad groups of farmers with a decline in both income and capital assets.)

The major task in farm policy is to find a collection of instruments or program elements which provides a reasonable approach to a positive-sum outcome over all groups under a long-run solution. Various groups oriented to the rural region, including congressmen who do not want to see their districts eliminated, resist regional adjustments of the type posed because they imply a smaller population and reduced support for business and institutional sectors of the agricultural community. The nonfarm population of agricultural regions is no less important than the farm population. Hence, we need to consider compensation means which makes long-run regional adjustments just as acceptable to the former as to farmers and land owners. Perhaps this is the most important single need or restraint to be overcome in devising programs which will in fact provide permanent solutions, in the vein suggested above, to the surplus capacity problem of commercial agriculture.

The task is more complex than in finding equitable means for compensating farmers and land owners, however. In farming, the capital or rental value of land can serve as the basis for payments which permanently retire land from crop production (through means such as outright public purchase of land, the purchase of "rights" to produce specific crops or other means), and prevention of capital losses. Comparable "handles" do not exist for compensating rural merchants and similar groups. However, we certainly have numerous means which could serve

2 Perhaps a means to make congressmen "as well or better off" after adjustment, is to create a "House of Lords" made up only of those whose district is eliminated by population shifts. It would be a self-liquidating House, since while members would have life tenure, thinning of population in rural regions would eventually cease.

3 Under the public purchase of "rights" to produce specified crops, farmers would still own the land and be allowed to devote their land to other particular uses. Should the need arise later, the "rights" held by the public could be relaxed or released, thus allowing the land to shift back into crop production.
as a substitute. These include long-term income tax averaging, extended state and federal assistance for schools, public subsidies for retraining, transportation subsidies and even a lowering of the age at which social security payments begin -- a type of "mustering out" pay for those who cease farming. 4 Using our present annual outlay for production control and farm income support over the next 15 years, we could undoubtedly go far in devising a mix of policy instruments to attain these conditions for the nonfarm population while guaranteeing assurance of positive-sum outcomes for farm families.

We are less imaginative and bold in these respects than a small nation such as the Netherlands, where a combination of public land purchase, subsidized retraining and a lower qualifying age for old age benefits is being used to retire farm units which are marginal in size and income and to syphon surplus labor from agriculture. When we face up to the fact that (1) programs of the current nature, or of the last 15 years, only provide year-to-year relief and provide no promise of long-run solution and (2) the over-all need is to provide positive-sum programs across both the nonfarm and farm populations of rural regions, we can be just as imaginative.

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4 As an example, for those too old for retraining who might stay in a qualified adjusting area, the age might be shifted back 5 or 10 years. However, with the rescheduling for this group only, all persons would eventually "graduate". The eligible age then would be the same for all persons in the nation. (See Earl O. Heady, "Agricultural Policy Under Economic Development," Iowa State University Press, Ames, 1962, pp. 467-478; and Earl O. Heady, "Adaptation of Extension Education and Auxiliary Aids to the Basic Problem of Agriculture," Journal of Farm Economics, Vol. 39, 1957). etc. In the Netherlands where a similar method is used, persons accepting the option of the earlier age receive a lower payment rate up to the usual age for retirement.