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URBAN IMPACT UPON AGRICULTURE AND NONFARM ALTERNATIVES FOR LAND

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The United States is an urban nation, and is becoming more so. Today, more than two-thirds of the people, the jobs, and the capital investment are in cities, compared with half or less at the time of the first World War; and by the year 2000, we shall be five-sixths or more urban. The urban impact upon agriculture is about equivalent to the total nonfarm impact.

URBAN MARKETS FOR AGRICULTURAL PRODUCTS

Historically, agricultural output in the United States has been determined more by off-farm demand for agricultural products than by any other single force. Agricultural history shows that growth in agricultural output has closely paralleled growth in nonfarm consumption of farm commodities.

Moreover, during no periods except wartime has American agriculture been unable to meet all the demands upon it or has it been pushed to its limit to do so. Substantial excess productive capacity has typified our agriculture in the past, and does so today. If price and market incentives existed, we could move agricultural output up rapidly within a very few years. I hazard the judgment that total agricultural output could be doubled in a decade under a system of favorable long-term price guarantees and no production restrictions.

My first major conclusion, therefore, is that the urban market for agricultural commodities will be the most powerful single force affecting American farming during the next few decades. Demand for agricultural commodities at the farm is severely inelastic; total demand for agricultural output will be governed almost completely by growth in total population. Total domestic consumption plus exports will set a ceiling to agricultural output that can be marketed through normal channels.

ALTERNATIVE EMPLOYMENT OPPORTUNITIES

Alternative employment opportunities in cities for farm people is another major economic and social force affecting agriculture. Farm people have always reproduced themselves faster than agricultural

employment opportunities have expanded, and a continuous migration from farm to city has resulted. This migration has been accelerated during periods of shrinking farm employment, as at present, but it has been occurring for many decades. A continued migration has helped to relieve surpluses of rural labor force and to prevent rural wages and earnings from falling as low as they otherwise would have, but it has not brought and probably will never bring rural incomes to the level of city incomes, even when allowances are made for differences in living costs. Both costs and uncertainties of the move from rural areas, where conditions of life are well known, to the city, where uncertainty and unemployment exist, tend to keep migration below the point of income equalization.

What will happen to American agriculture when average per capita income rises to double its present level, as most economists predict it will by 2000 or thereabouts? If farms continue to produce a narrower range of economic services, buying more and more of their inputs from specialized agribusinesses, then gross output per farm must rise even more if real income per capita of those employed in agriculture is to be doubled.

My second major conclusion is that employment and income changes in cities will have a profound effect upon agriculture within the next generation. If urban unemployment does not increase seriously above present rates, and if per capita real incomes increase as commonly projected, then agriculture will lose the greater part of its present labor force. Major adjustments to meet these changes will be necessary.

THE CITY AS A USER OF LAND

The city has a more direct effect upon farming in its use of land. We can distinguish three general situations: use of land directly by the city, through occupancy; use of land indirectly by the city, for transport, water supply, and the like; and the demand for land for recreation purposes.

Cities obviously use some land. From the point of view of farmers, the city uses land when the land is taken away from agriculture; from the point of view of the city planner, the city uses land only when the land is put to some definable use. The first I have called "land withdrawn," and the latter, "land used," in each case applying to urban land use. As nearly as the imperfect statistics enable us to estimate, withdrawn area is nearly double used area. The withdrawn area includes vacant lots, leap-frogged larger tracts, and an idle ring around most cities.

A dominant aspect of urban growth in the past three or four decades has been the rapid growth of suburbs, as contrasted with the slower growth of older parts of cities. In part, this has been because the latter have often lacked land for residential expansion; but in large part it has been because people have preferred the suburban style of living to that of the downtown or in-town style. In the decade of the 1950's, many of the larger cities lost population, within their legal limits; but as metropolitan areas, they gained greatly, with all of the gain taking place in satellite cities or in unincorporated territory. Continuation of this trend seems highly probable, in spite of some reverse movement and in spite of much urban renewal designed to make the older parts of cities more attractive places to live.

The density of settlement, or the intensity of land use, is less in the suburb than in the older city. But there has been some confusion on this point. Suburban population density is almost always less than density in older cities; this is in part a definition of suburbs. But density within older residential areas may rise, as apartment houses replace single family dwellings or as older houses are converted to apartments. The loss in central city population has often been a result of large conversions of residential land to commercial or industrial or transportation use, with the rise in density of residential areas only partly offsetting such changes in land use. The fact that most urban occupancy is in older structures, where land use intensity is more likely to rise than to fall, tends to retard sharp changes in average density for the whole urban area. Moreover, much of the suburban growth of recent decades has in large part replaced the earlier growth of the very small cities and towns—those of less than 25,000 population—where land use intensity is even lower. As a result, average density of land use for all urban areas has changed very much less than the difference between older and newer residential areas in the same urban complex would suggest.

At the same time that residential density is decreasing, the intensity of commercial and industrial use is decreasing also. The spread-out shopping center, with its large parking lot, requires much more land per unit of business volume than does the old style many-storied department store. New factories, employing the most efficient materials handling methods, tend to spread out much more than their predecessors; and they, too, must have large parking lots.

The city will directly take more land in the future than it does today. The most popular population projections suggest a near doubling of total U. S. population from 1960 to 2000. This would mean a more than doubling of urban population, since almost all the net

growth will take place within a generally urban structure. The amount of land per capita in cities, for residential, industrial, commercial, transportation, and other uses, will certainly rise somewhat, perhaps a good deal. The total effect will be a more than doubling of total urban area from 1960 to 2000. We calculated the actual used urban area in 1950 at 11 million acres and the withdrawn area at 17 million acres, and we estimated the latter for 1980 at 30 million acres and for 2000 at 41 million acres.¹ The latter, which was based upon a population projection lower than is now most fashionable, may have been too low and may have resulted in a slight underestimation of the trend toward more land per person.

The city, or at least the urban way of life, leads indirectly to the use of a good deal of land outside of the city boundaries, primarily for transportation, water supply, and related purposes. About 30 percent of the land within the city is used for transportation, as streets and alleys, railroads, etc. Highway, railroad, and airport land serves agriculture as well as the city, but land use data are often included with data on city use. Certainly improved transport has greatly extended the direct influence of the city. People can live many miles out in the country, and still drive to and from a city job. The private auto has been a major force in the suburbanization process discussed above.

Much attention has been focused upon the major new interstate highways and their liberal use of land. They can indeed be impressive, but this is only a small part of the total picture of highway use of land. Surprisingly enough, the total mileage of all roads in the United States, or even in the area of their rights of way, has changed little since 1920, in spite of some widening of the latter. The quality of roads, especially width and surfacing, has improved enormously. We often overlook the many thousands of miles of back-country roads in comparison with the relatively few miles of superhighway. Some of the unimproved roads have been abandoned in recent years, and allowed to revert to grass or trees; and many thousands more miles could be abandoned, without severe hardship on anyone and with some economies.

Railroads have already passed their peak of land use; some slight abandonment seems probable. Airports expand rapidly, especially in capacity but also in area; yet their total area is relatively small. In total, land used for all forms of transportation may increase by roughly a fourth in the next forty years.

The rising demand of the cities for water supply, and for other water regulation, may well lead to a doubling or greater increase in

¹Marion Clawson, R. Burnell Held, and C. H. Stoddard, *Land for the Future*, Johns Hopkins Press, 1960.

the land area for this purpose by 2000. These increases will take place primarily in the East, where urban demands for water are the greatest. Pollution abatement through maintenance of low season flows will constitute the chief demand. Irrigation development in the West has about run its course, since available water supplies are now in nearly full use; hence, additional storage facilities there will take but little land.

In total, transportation, water control, and other city-directed land uses may move upward from perhaps 35 million acres in 1950 to 50 million or more by 2000—not a large increase, compared with national total areas, but often strategic in local situations.

Outdoor recreation requires land and water resources. Urban people participate in outdoor recreation much more than do rural people, as far as we have been able to learn. Many kinds of areas and of activities are included under the general heading of “outdoor recreation.” We find it helpful to distinguish three broad kinds of areas: user-oriented, intermediate, and resource-based.

The user-oriented areas must be close to where people live, where they can be used after work or after school or for short intervals during the day. Individual areas are not large, but each tends to be intensively developed and used. City parks are the prime example of this type. About 750,000 acres are publicly owned areas of this type.

Intermediate type areas are primarily used for all-day outings, must be located not more than one to two hours’ travel time away from users, are usually larger but less intensively used than the former type. The most popular intermediate type areas have water bodies, where the people can engage in one or more of the many kinds of water recreation. State parks, including 5 million acres, and federal reservoir areas, including 6 million acres of land and water, are the chief publicly owned examples of this type.

Resource-based areas include the finest natural resource areas, are usually located relatively distantly from most users, and hence tend to be used primarily during vacations. Individually they often include quite large areas, much of which is lightly used. Twenty-four million acres in the national park system and 188 million acres in national forests, as well as some other federal areas, fall in this general category.

Use of these various kinds of outdoor recreation areas has increased steadily and rapidly for many years. Use is rising at a roughly constant 10 percent rate for most areas. No clear signs of a slowing down in the rate of growth are visible. Obviously, a 10 percent annual growth rate cannot continue indefinitely; the time would come when more than 24 hours a day would have to be spent by everyone in outdoor recreation.

The four major factors underlying this major and sustained increase in use of outdoor recreation areas have been population growth, rising income, increased leisure, and improved travel facilities. The upward trend in each of these four factors for the past fifty years or more has been remarkably similar—an annual increase of something like 1.5 to 2 percent. This compares with the increase in recreation visits of about 10 percent annually. The trend in each of the basic factors in the future will probably continue upward, at roughly the same rate as in the past. All evidence points to a sustained increase in use of outdoor recreation areas. Balancing desirable increases to meet demand with our estimates of what is politically probable, we estimated that the area of outdoor recreation land and water (outside of cities, but including recreation pools and land around reservoirs) would rise from 46 million acres in 1950 to 72 million by 1980 and to 95 million by 2000.

Special attention should be focused, I believe, on the need and opportunities for expansion of state park systems. This is the one major area in which expansion can take place in proportion to need, without serious interference with other land uses. Within one to two hours' driving time from where most people live are thousands of tracts well suited for state park development. User-oriented areas can and should be expanded, but at best this meets only one kind of need for outdoor areas. Resource-based areas, by definition, are unique natural areas, the supply of which is definitely limited—and most of which are already in public ownership, available for recreation use. But the acreage of intermediate type outdoor recreation areas can be expanded greatly, if we have the will to do so and if we make available the necessary money.

In summary, agriculture in the United States during the next generation will be influenced and changed primarily by changes in economic and social conditions in cities. In making this statement, I am well aware of the great scientific, technological, and managerial changes taking place, and likely to take place, within agriculture. These changes will be highly important, but their effect will be overshadowed, I believe, by the forces originating in the city. Certainly the within-agriculture forces must work themselves out within the economic and social framework imposed by the city.