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IS SELF-SUFFICIENCY A LEGITIMATE GOAL FOR NORTHEAST AGRICULTURE?

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INTRODUCTION

In any society a loss of confidence in the capacity of contemporary institutions and leadership to deal with current problems creates anxieties and feelings of loss of control. A classical reaction to such stress is efforts to return to earlier, presumably simpler, institutional forms and lifestyles, thereby regaining control and the lost sense of purpose and direction. Today in the Northeast, as in much of the nation, many people are alarmed by the recent disturbances and shocks to the American way of life: the energy shortage, the threat of nuclear disaster, high unemployment and prices, faltering state and local finances, and a recurring credibility gap at all levels of government. The perceived inability of institutional forms to deal with these concerns has fostered a re-examination of individual, local and regional goals and a rediscovery of more traditional values based on self-reliance. One manifestation of this phenomenon is the promotion in the region by some professionals and laymen alike of a policy of self-sufficiency in agricultural production.

At the household level, this self-sufficiency ethic is manifest in "back to the land" movements, part-time farming and home gardening activities. Not surprisingly, this trend toward food self-sufficiency has engendered much state and regional debate. Often focusing on regional food competition between the "haves" and "have nots" or higher food prices associated with increasing transportation costs, a variety of economic and political interests in the Northeast have avidly promoted the concept of regional self-sufficiency in agriculture. Though occasionally at odds on regional policies and goals, farmers and food processors and land grant institutions, as well as politicians, perceive that self-sufficiency goals are beneficial to their respective constituencies.

This paper examines alternative concepts of self-sufficiency and their fundamental justifications. The goal of self-sufficiency can be associated with a wide range of policy implementation costs and economic opportunities foregone. The purpose here is not to assess whether or not the goal of self-sufficiency is attainable in the Northeast but rather whether or not the goal of self-sufficiency adequately reflects all the important issues which should govern the use of our land resources.

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DEFINING SELF-SUFFICIENCY

The term "self-sufficiency" has long been associated with the virtues of self-reliance, independence, frugality and thrift.¹ Prior to the nineteenth century, New England farmers produced almost everything they ate, drank and wore. However, after the industrial revolution, manufactured goods and imported foodstuffs could be purchased cheaper than they could be produced at home. Contrary to the rhetoric of the day, self-sufficiency at the farm level became unprofitable as farming for a living gave way to farming for profit. As a nation we are still self-sufficient in many goods, including most agricultural products, and it is also likely that future generations will never be seriously concerned about dependence on imported food. On the other hand, in the wake of the oil crisis of the mid-seventies, energy self-sufficiency has become a national goal.

These two examples illustrate the wide range of uses and interpretations of self-sufficiency. Most obviously, the intended meaning of the phrase varies with the level of aggregation or size of the community included in "self." At each level--farm, village, state, region, nation or hemisphere--a different set of issues becomes important.

Defining the "sufficiency" portion of the phrase is more difficult. Generally, we might say that "sufficiency" is defined as the quantity of a good or group of goods that guarantees a certain level of independence of a particular group of consumers over a specific period of time. The goods that are included, the quantities of these goods that guarantee independence and the time period over which these quantities are to be provided all further affect the meaning

¹ See the description of pre-industrial revolution farmlife in Bidwell (1920) or Russell (1976).

² Bidwell (1920) quoting an agricultural address of 1840: "The first of all rules in the domestic economy as far as the wants of his family are concerned, is for the farmer never to go abroad for what he can produce at home" (p. 699).

³ The change was gradual, however, and the readjustments were made reluctantly as described by Bidwell (1920).

⁴ Future international developments are discussed in Cochrane (1982).

⁵ Upham *et al.* (1979) state that "food is a community responsibility" and that "perhaps the community should be redefined into regions" (p. 8).

of the phrase from one application to another.

For example, the Office of Civil Defense estimated in the late 1960's that in the state of Rhode Island, the inventories of retail stores, warehouses and away-from-home eating establishments together could have provided the residents of the state with food for 27 days and beverages for 7 days (using the daily minimum requirements of 2,000 calories of food and 32 ounces of liquid). Thus, by using daily caloric consumption compared to food inventories (regardless of where produced) as a measure of sufficiency, the state could have been considered totally "self-sufficient" in food and beverages - although for a short time period.

The use of "self-sufficiency" in recent state and regional agricultural literature more commonly assumes a longer time period (usually a year or more). In this longer period, "self-sufficiency" is associated with the capacity to meet regional food needs solely from regional farm production. In another example, food production in the state of Rhode Island, was recently estimated to be adequate to satisfy average consumption levels (in pounds of food) only in fish and shellfish. Production of fresh vegetables was 40 percent of consumption levels and production in all other major food groups was less than 20 percent of consumption levels (Tyrrell and Wallace, 1982, pp. 25-30). Thus, using annual consumption in pounds of particular foods compared to their production in the state, a very different kind of result is obtained about "self-sufficiency" in Rhode Island.

In general, as in these examples, only current inventories are counted in supplies for short term sufficiency, regardless of where produced. For longer time periods local production is usually compared to consumption; inventories are not counted.

The selection of the goods to be included in the definition and the quantities which satisfy sufficiency requirements can be the most arbitrary elements in the application of the phrase "self-sufficiency." In order to classify further its uses along this line it is necessary to consider various degrees of potential insufficiency. In the extreme case, food would not be available at any price. In a less severe case, people would willingly substitute between types of foods and levels of processing and quality in order to meet the minimum caloric or nutritional requirements for survival. Except in instances where food prices are prohibitive, availability of food is a more important concern. Regional food inventories, regardless of where produced, would be welcomed. The concern about this degree of insufficiency might therefore be more appropriately termed the concern about "self-subsistence."

⁶ These results represent the summary of three studies, one on each type of establishment conducted in 1957, 1963 and 1964 described in Tyrrell and Wallace (1982).

⁷ See, for example, Bahn and Christensen (1979, p.1).

At a less severe degree of insufficiency, food would be available but very expensive and would become an unacceptably large component of household consumption expenditures. Households would substitute foods to minimize expenditures while trying to maintain near-normal diets. If at the same time, the region's comparative disadvantage in producing its own food were reduced because of higher interregional transportation costs, regionally produced foods would be expected to replace the more expensive imported foods. It seems appropriate to refer to this case as a movement toward agricultural "self-sufficiency."

Much of the recent literature on agricultural self-sufficiency in the Northeast can be roughly classified in terms of concerns about "self-subsistence," "self-sufficiency,"⁸ or some intermediate degree of insufficiency. Thus, these two cases serve as useful bases from which to assess the relevancy of the general notion of "self-sufficiency" as a legitimate regional goal.

SULF-SUFFICIENCY AS A REGIONAL GOAL

By almost any definition the adoption of a self-sufficiency goal implies severe restrictions on economic forces. If such a goal is accepted, factors of production are fixed in exogenously determined uses regardless of their opportunity costs. Even so, a modest economics literature has developed which employs the phrase to justify the promotion of regional agriculture.

An evaluation of the goal of regional self-sufficiency can be structured around three important questions:

- 1) What are the probabilities that the events which might lead to insufficiency or lack of subsistence will occur?
- 2) How and to what extent could the attainment of self-sufficiency mitigate the negative impacts of these uncertain events? and
- 3) What are the costs of attaining some degree of self-sufficiency?

To limit the scope of the answers, assume that the "self" portion of the definition refers to the Northeast region and that the time period will be one year or longer.

The first two questions can be addressed in the context of the aforementioned two degrees of concerns about sufficiency. The third question must be treated separately because its answer raises fundamental issues about the objectives of the goal of self-sufficiency which can seriously affect regional well-being. Consider first the events associated with each of the two degrees of concerns.

⁸ Authors who reference quantity shortages with little or no reference to the future price, include Upham et al. (1979, p. 10) and Gingrich (1979, p. 180). Future prices appear to be the major concern of Chickering (1979, p.5). Both concerns are mentioned by other authors: Bahn and Christensen (1979, p. 1) and Fellows and Cody (1979, p. 2). Even farm preservation literature (not referenced here) which doesn't mention self-reliance issues directly can be roughly classified in this way.

Food will not be available at any price

This degree of insufficiency could only be the result of a major natural or economic catastrophe. In such a situation, the lives of residents of the region, if not the nation, would be seriously disrupted. Many goods and services in addition to food would be in short supply. Three possibilities, in order of increasing likelihood, include:

- 1) National disasters, e.g., war;
- 2) Regional disasters - drought, earthquake, hurricanes, etc.;
- 3) Industrial disruptions - transportation strikes or other work stoppages.

All of these events could occur with little or no warning. Buffer stocks would provide the only viable means of reducing short-term impacts. In the longer term there would probably be a complete recovery from an industrial disruption or a regional disaster so that the relative advantages of regional agriculture gained as a consequence would be short-lived. A national disaster would probably effect all agricultural regions similarly and, again, only buffer stocks could provide the desired food self-sufficiency.

Some political possibilities which might lead to food shortages are:

- 4) Other regions unilaterally stop exporting food;
- 5) Other nations unilaterally stop exporting food.

It seems very unlikely that other regions in the U.S. could unilaterally stop shipping food to the Northeast. Food might be prevented from entering the Northeast by local authorities because of pests or diseases, but there is no authority that could prevent interstate commerce generally. We therefore believe this event is highly unlikely. If it did occur it would be without much warning. If it didn't result from a war, conditions would probably be much the same as those of a war.

That other nations could stop shipping food to the U.S. is a political possibility, given international tensions of today. If this occurred, the variety in specific diets might be affected but the general caloric or nutritional food situation of Northeastern U.S. residents would be largely unaffected. Many of the food items which might be affected are not those which could be grown in the Northeast anyway. Again, only buffer stocks would be capable of reducing potential negative dietary impacts.

Food may be available but will not be affordable

Partial or incomplete occurrences of most of the above mentioned events could lead to this less-severe degree of regional food insufficiency.

cy. To the extent that current economic conditions have already resulted in high food prices we are already experiencing some degree of the level⁹ of insufficiency suggested by this concern.

As energy prices have increased, production, transportation and distribution costs of almost all goods have likewise risen. At the same time a serious recession has resulted in widespread unemployment and falling real wage rates. Caught in an income-cost squeeze, many consumers have reduced food costs by substituting cheaper for more expensive foods and increasing home food production.

At the regional level, there is a belief that food imported to the Northeast is rapidly losing its comparative advantage over regionally produced foods because of transportation costs. If true, the reduced dependence on imported foods brought about by market forces implies benefits for consumers in the region. However, recent studies fail to support the hypothesis of a shifting comparative advantage for the Northeast. Dunn (1981), for example, concluded that higher energy prices will not "bring about an agricultural renaissance to the Northeast." Christensen (1980) found that a 50¢ per gallon increase in fuel prices would add only 1/2¢ per pound to beef shipped from Nebraska. Hence, it is possible that the pursuit of self-sufficiency goals would create inefficiencies in the regional economy and aggravate, not mitigate, the household income-food cost squeeze.

THE COSTS OF SELF-SUFFICIENCY

The generally recognized potential benefits of regional self-sufficiency include revitalization of farming and its supporting infrastructure, the provision of some degree of security in food supplies, the preservation of open space and the promotion of ¹⁰ agrarian spirit of economic self-determination. However, there are significant costs of increasing food production levels which must be entered on the other side of the ledger. The most apparent of these costs are the financial costs of implementing self-sufficiency policies:

1) Farmland Preservation Programs.

All states in the Northeast have established preferential tax assessment programs which theoretically afford owners of farmland some property tax relief. Because these programs do not generally work in and around urban areas, maintenance of the agricultural land base requires either restrictive controls limiting the landowner's development options or purchase of those options. Both restrictive controls and purchase of development rights (PDR) programs involve substantial financial costs. Agricultural zoning is usually tied to some form of compensation for affected landowners. In New Jersey and Montgomery County, Maryland, compensation is paid by developers receiving development rights from "zoned" landowners. PDR programs have been established in

⁹ In 1972 the average household in the Northeast spent more on food than the average household in any other region in the U.S. - 14% higher than the national average (U.S. Dept. of Labor, 1976). Between 1970 and 1978, the U.S. price index for food consumed at home doubled. Among major expenditure categories, the food price increase was second only to that of fuels and utilities (Economic Report of the President, 1979).

¹⁰ See, for example, Bahn and Christensen (1979, p. 1).

several Northeastern states.¹¹ Even though millions of dollars have been allocated for PDR, only a small percentage of threatened farmland has been protected using this method.

2) Keeping farmers farming when the comparative advantage is absent.

a) One means would require some sort of assistance such as tax breaks or regional price supports in order to ensure food production. Farm policy might also include programs to educate consumers about the availability of locally grown produce.

b) Alternatively, the land may be idled or used for non-food purposes such as woodlot, nursery, turf, or Christmas trees. To bring this land into food production would require additional aid or modified incentives.

3) Maintaining the availability of agricultural inputs.

This could be a major problem depending on the circumstances leading up to a need for regional production. Since the Northeast is relatively poor in terms of the types of energy needed for agriculture (oil for fuels and gas for fertilizers), energy supply shocks would pose severe problems. The capacity to stockpile inputs would also be very expensive to develop.

Other, potentially more important costs include the losses incurred because of economic opportunities foregone for land, labor, and capital.

4) Land opportunities foregone.

Because of restrictions on its use or incentive programs which discourage development, land would be kept out of higher valued uses. The future differences between such higher valued uses and farm use will depend on how tastes and preferences in the Northeast change for housing services and how commercial and industrial technologies develop. For example, a residential shift back to cities spurred by higher commuting costs would reduce the opportunity costs of existing farmland.

5) Capital opportunities foregone.

Because of restrictions, investment capital would not be allocated efficiently in the sense that investment in agricultural buildings and equipment would generate greater economic returns in other activities.

6) Labor opportunities foregone.

Similarly, labor would be diverted from higher valued employment because of subsidies to agriculture.

Finally there will be a variety of transfers within the region because of reallocation of resources. Secondary and induced effects of a redistribution of expenditures, sales, employment, investment and taxes can all affect regional welfare.

¹¹ PDR programs in the Northeast which have acreage under easement include Suffolk County, NY, Maryland, Massachusetts, Connecticut and Burlington County, NJ. Southampton, NY, Rhode Island and New Hampshire have established programs but not purchased development rights to date (National Agricultural Lands Study, 1980).

SUMMARY AND CONCLUSIONS

It would be a mistake to write off the notion of self-sufficiency as economically irrational and physically unobtainable since all those advocating the goal are not using the same definition of the phrase. Those individuals who have chosen household food self-subsistence as a goal are implicitly considering the associated costs to their household and are in a very good position to judge the tradeoffs. On the other hand, many who refer to regional food self-sufficiency are imprecise about the objectives of this goal, sometimes fail to mention the regional costs and are generally in a poor position to value the tradeoffs for the residents of the region. In fact, available evidence indicates that as a regional goal, self-sufficiency is a poor one as emphasized by the Northeast Agricultural Leadership Assembly executive board in stating, "No rational person anticipates that the Northeast will, or should become self-sufficient in food and fiber production." (1979). If this is so, are there any positive purposes for use of the term as a regional goal? And what should be its role in agricultural policy?

As a phrase to stimulate interest and rally support for agriculture, "self-sufficiency" can be a useful piece of rhetoric. Even though all ramifications are not pursued, the support generated for regional agriculture may thereby provide important societal benefits. For example, Way (1982, p. 18) suggests "arguments to preserve agricultural land are misdirected toward preservation of agriculture as a business. Farmscaping is the least costly landscaping a society can provide, [and that] it's the scenic beauty we want to preserve." Self-sufficiency goals will definitely help meet such objectives.

In a more general sense self-sufficiency in agricultural policy can be viewed as a link between individual concerns and regional objectives. There is a clear role for public policy education in informing the public and policy makers of the realities of transportation costs, relative production efficiencies between regions, the potential price and quality of locally grown produce and so on. This information should not be expected to mute the enthusiasm or change the direction of households which have set their own food self-sufficiency goals. On the contrary, the information provided serves instead to promote reasoned regional planning and indirectly aid the household in attaining its goal.

As a consequence, the joint actions of all parties (households, agriculturists, and policy makers) are likely to be complementary and supportive of traditional agriculture and land use legislation. Larger, more efficient input markets could be created and land could be kept in open space at minimal cost. The task of the professional establishment might, therefore, be to value the complementarity between the goals of each of the parties and develop an agricultural policy which would serve the objectives of all within the region.

REFERENCES

Bahn, Henry M. and Robert L. Christensen. "Regional Self-Sufficiency in Food Production--the New England States." Journal of the Northeastern Agricultural Economics Council 8(1), pp. 1-5, April 1979.

Bidwell, P. W. "The Agricultural Revolution in New England." American Historical Review 26, 1921. Reprinted in American Farmers and the Rise of Agribusiness, D. C. McCurry, ed. New York: Arno Press, 1975.

Chickering, Ann Marie. "Toward Greater Self-Reliance: An Assessment of Massachusetts Food Production Potential." Cooperative Extension Service, University of Massachusetts, Amherst, MA, August 1979.

Christensen, Robert L. "Estimating the Impact of Rising Transportation Fuel Costs on the Competitive Position of New England Agriculture." Journal of the Northeastern Agricultural Economics Council 9(1), pp. 7-11, April 1980.

Cochrane, Willard W. "Will Scarcities and World Events Send Food Prices Soaring?" The Providence Journal, Providence, RI, March 21, 1982.

Dunn, James W., "The Effects of Higher Energy Prices on Interregional Competition in Agriculture," Journal of the Northeastern Agricultural Economics Council, 10(2), pp. 83-86, October, 1981.

Fellows, Irving F. and Patrick H. Cody. "A Food Production Plan for Connecticut, 1980-2000." Storrs Agricultural Experiment Station Bulletin 454, The University of Connecticut, Storrs, CT, March 1980.

Gingrich, Neil B. "Trends in Agricultural Self-Sufficiency in the Northeast." The Proceedings of the Northeast Agricultural Economics Council 10(1), pp. 17-21, April 1981.

National Agricultural Lands Study, Executive Summary: The Protection of Farmland, Washington, DC, Dec. 1980.

Northeast Agricultural Leadership Assembly Executive Board. "Agricultural Policy." The Proceedings of the Northeast Agricultural Leadership Assembly, Vol. 1, University of Massachusetts, Amherst, MA, 1979.

Russell, Howard S. A Long Deep Furrow: Three Centuries of Farming in New England. Hanover, NH: University Press of New England, 1976.

Tyrrell, T. and W. Wallace. "Food Production and Consumption in Rhode Island: 1636-1980." Department of Resource Economics Staff Paper, University of Rhode Island, Kingston, RI, January 1982.

Upham, E. F., H. W. Corrown, C. M. Courser, J. F. Damon, G. W. Howe, B. A. Marriot and R. N. Weldon. "And When We Went There the Cupboard was ..." Cooperative Extension Service, University of New Hampshire, Durham, NH, 1979.

U.S. Department of Labor, Bureau of Labor Statistics. "Average Annual Expenditures for Commodity and Service Groups Classified by Nine Family Characteristics, 1972 and 1973." Consumer Expenditure Survey Series: Interview Survey, 1972 and 1973. Report 455-3, Washington, DC, 1976.

U.S. Government, Economic Report of the President, 1979 edition, Washington, DC.

Way, Winston. "How is Agriculture?" New England Farmer (6)(3), pp. 18-19, March 1982.