



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

ALTERNATIVE FUTURES FOR THE UNITED STATES FOOD INDUSTRY

by
Jarvis L. Cain
Department of Agricultural and Resource Economics
University of Maryland
College Park, Maryland

Presents methodological guidelines to investigate alternative futures in the U.S. food industry.

Introduction

What does the future hold for the food industry? What will be the long range effect of energy and material shortages on the food industry? Can we continue the trend toward the massive substitution of capital for labor in the food industry? Are we expending too many resources to feed our people at current levels? Is there a better way?

These are but a few of the questions with long range implications which are receiving increasing attention, of late, in the food industry. In order to attempt to provide even partial answers to these and many other questions, man must have some sort of methodological guidance. One way of looking into these future oriented questions is to set forth a series of scenarios (alternatives) describing varying sets of conditions, behaviors, and results for a given industry, institutional level or governmental segment of society, and to look for consequences of each alternative.

The general approach is to (1) set forth major societal conditions or constraints for a given future period, (2) develop a series of alternative futures (scenarios), (3) analyze the situation to determine the effects of implementing each alternative within the future period, and (4) evaluate the results in terms of predetermined criteria for success.

Our purpose here will be to apply this bit of methodology in a limited way, to the United States food industry, and see what we come up with. We will (1) briefly discuss societal constraints in terms of food consumption in the United States for the year 2000 A.D., (2) determine criteria for evaluation of the alternative futures, (3) look at three brief scenarios (alternatives) relative to the food industry in 2000 A.D. and speculate concerning their effects on the total situation, and (4) evaluate the three alternative futures in terms of our criteria.. This paper is designed to demonstrate a concept and not to provide specific answers. However, specific wide ranging research project designed to provide at least partial answers to these and related questions are badly needed in the food industry today.

Food Consumption - 2000 A.D.^{1/}

Much has been written concerning the food consumer of the future. His or her incomes, tastes and preferences, and living and working patterns have been analyzed in great detail. However, unless there is a complete reversal of trends, several assumptions relative to future food consumption can be made:

1. There will be many more food consumers in the year 2000 A.D. than today.
2. Disposable incomes will be much higher.
3. There will be little change in the areas where people live, hence life will be more within the urban context than today.

4. The housewife will spend an increasing amount of her time in a myriad of activities away from the home.

5. The housewife will want as little personal involvement as possible in supplying the family with its food needs.

6. The place of the meal in the social structure will tend to be diminished to the level of a simple intake of nutrients necessary to sustain life.

7. Emphasis in the entire human feeding and eating operation will be speed and convenience.

Three items are of importance here. First, we start with food consumption. This is contrary to traditional agricultural thinking, but necessary if our goal is to serve the future food needs of our people.

Second, these seven assumptions are only a partial listing of conditions which might be true and have an effect on food consumption in 2000 A.D. The point here is that societal constraints must be studied and agreed upon so as to provide a general framework for analysis of alternative futures for a sub-section--the food industry.

Third, when we look at each alternative futures, we will be considering providing comparable nutritional levels in each case.

Criteria for Evaluation of Alternative Futures

Depending on an individual's point of view, a wide variety of criteria could be used for evaluation. One might look at maximizing total employment, minimizing pollution, or minimizing institutional change. However, as an economist, I will choose one traditional and one non-traditional criteria:

1. Maximize return on investment
2. Minimize energy use

Under return on investment, one would consider maximizing net dollar return to total dollars invested in all aspects of the food industry from production through consumption. For energy use, it would be minimizing total energy used over the same institutional areas.

Alternative Futures - 2000 A.D.

The three brief scenarios (alternatives) that will be discussed in this paper are:

A. Extension of present trends in institutional development providing commodities for human consumption.

B. Production and/or manufacture and distribution of complete meals for human consumption.

C. Nutrient delivery systems for human needs satisfaction.

These alternatives and their possible effects on the total situation will be examined in order.

A. Extension of Present Trends in Institutional Development Providing Commodities for Human Consumption.

What we have here is largely an extrapolation of what we have today into the future. With some allowance for minor improvements in technology, the major changes would be continuing increasing concentration at each institutional level both in terms of size of business and ownership. As in the past, we would be dealing with commodities. However, they would be produced by fewer and larger commercial farms--maybe as low as 150,000 compared with 1.1 million today. If processed, these commodities would be processed by possibly as few as 17,000 establishments compared with 29,000 today.²⁷ In terms of ownership, the degree of concentration would be much greater; both at the farm level through corporate and cooperative action and at processing level through increasing horizontal integration.

From the point of view of distribution of these commodities, we might be dealing

with 20,000 wholesalers, 150,000 retail food stores, and 400,000 eating and drinking establishments in 2000 A.D. This is compared to 40,000, 294,000, and 348,000 establishments, respectively, today. Again the concentration of ownership condition must be taken into account.

In addition is the rapidly growing trend toward non-traditional forms of food distribution (eg. variety and discount stores, vending machines, and mobile feeding units) for which there are no hard data to make projections.

In sum, we are looking at fewer and larger units offering commodities for human consumption. The major potential efficiencies to be gained are in terms of economies of size. The major problem has to do with use of monopoly-like power in price manipulation or limitation of assortment of goods.

B. Production and/or Manufacture and Distribution of Complete Means for Human Consumption.^{3/}

This particular scenario, contains elements of the first alternative, but provides some significant changes. Similarities have to do with decreasing numbers of establishments, increasing size, and increased concentration in terms of ownership. Differences are (1) we are dealing with complete meals and not commodities; (2) the pressure for concentration will be even greater than under scenario one due to increase in vertical and conglomerate integration.

As meal preparation is pushed "downward" in the distribution channel, away from the home, retail store and restaurant it will move toward the processors, wholesalers, and yes even to the farmers. Meal components (commodities) will be produced to rigid specifications by farmers for huge meal manufacturer--distributors. In economic terms, there is a real possibility of forming a completely vertically integrated, oligopoly which will handle production and/or manufacture and distribution of complete meals for human consumption.

Potential economic gains include: (1) economies of size; (2) combination of functions once performed at several institutional levels; (3) elimination of overhead from many establishments; (4) movement of meals or meal components in mass rather than individually as commodities; (5) potential simplification of the entire distribution structure for food.

The potential danger in this scenario comes from possible exercise of oligopoly or monopoly power in price manipulation and assortment selection as in alternative A. However, the dangers are much stronger. For with big meal manufacturers and distributors comes big farmers and big labor, and if these forces are not counter-balanced by big consumer and/or big government effectively, representing the consumer; then the little guy can really get hurt.

C. Nutrient Delivery System for Human Needs Satisfaction^{4/}

This third scenario departs radically for the first two in that it concentrates on nutrients for human growth and sustenance without reference to existing commodities, institutions or technology. In essence, it says that we must agree upon nutrient compliments to keep our people healthy and then organize to supply these nutrients using a minimum of resources (physical, capital, and human) in the process.

Such a food (nutrient) industry concept would require abandonment of today's food industry and its attendant governmental and educational institutions. The economic impact of such a drastic change would be astronomical and the social impact is difficult to visualize in detail.

One might ask, why even consider such a radical move? The answer is simple on the surface and immensely complicated underneath. Our population-resource ratio is rapidly approaching the place when we cannot continue to spend resources to feed our people as lavishly as we are now. In such a resource-rich country as ours, it is difficult, if not impossible, for most

to realize that we could even reach the point when there wouldn't be enough resources to go around. The writer is not a "prophet of doom". However, we must seriously question our methods of resource use and not be afraid to abandon the less efficient for the more efficient. We can survive, possibly at a reduced level of resource use, indefinitely. However, we must control our population growth and not proceed with business as usual in the food industry.

Evaluation of Alternative Futures

Since this is not a quantitative study, evaluation will be in very general terms as outlined in Table I.

Admittedly, the results shown in Table I won't win any scientific prizes. However, hopefully it demonstrates the principle.

Summary

The exercise just completed is but one way of looking into the future and trying to find answers for complex problems. It is quite useful because it affords the opportunity to apply an almost endless variety of societal constraints, industry alternatives and criteria to the problem solving process. In addition, it affords one the opportunity to look at several alternatives at the same time, rather than just one.

The real challenge is for us to use this and other tools to aid in anticipation of the future for the food industry in the United States.

Table I

Evaluation of Alternative Futures for United States Food Industry

| Alternative Futures | Criteria | |
|--|---------------------------------------|-----------------------------------|
| | Maximize Return on Investment | Minimize Energy Use |
| A. Extension of present trends in institutional development providing commodities for human consumption. | Possible for existing structure | No |
| B. Production and/or manufacture and distribution of complete meals for human consumption. | Possible for altered structure | Potentially less wasteful than A. |
| C. Nutrient delivery system for human consumption | Possible for completely new structure | Yes |

Footnotes

- 1/ "Food Industry - 2000 A.D., Revisited", J. L. Cain, Journal of Food Distribution Research, Contributed Papers Issue, Volume 1, No. 1, September, 1971.
- 2/ Estimates in this section are based upon work done in "Regional Changes in Food Processing, Wholesaling, and Retailing in the U.S., 1929-1967, With Projections to 1983", Cain and Ahern, Misc. Pub. _____, Agricultural Experiment Station, University of Maryland_____, 1973.

- 3/ Footnote 4, Ibid.
- 4/ "Nutrient Delivery System: A Human Feeding Concept for 2000 A.D. and Beyond", J. L. Cain, Journal of Food Distribution Research, Vol. IV, No. 3, September, 1973.