## Conclusions

The objective of this study was to project U.S. commodity consumption for the period 2000-2020, using data from USDA's 1994-96 and 1998 Continuing Survey of Food Intakes by Individuals. An econometric system was estimated (1) to explain consumers' eating-out habits as well as their diet-health knowledge, and (2) to relate food consumption, both at home and away from home separately, to consumers' eatingout habits, diet-knowledge knowledge, income, and their social and demographic characteristics. Using projected values of economic, social, and demographic factors for 2000-2020, we projected at-home and away-from-home food consumption for the same period. Then we used a unique food-commodity translation database to convert food consumption to commodity consumption. Twenty-five food groups and 22 commodity groups were analyzed in this study.

The total consumption of all 22 commodities is predicted to rise during the period 2000-2020, mainly due to the projected addition of 50 million consumers in the Nation. But, the per capita consumption of many commodities is predicted to fall. The results suggest that fruits will lead all commodities in terms of growth in both total and per capita consumption. Certain vegetables, such as lettuce and tomatoes, are predicted to grow substantially, while per capita potato consumption (fried and other) is predicted to decline, retarding the growth in total U.S. potato consumption. The increase in meat, poultry, and fish consumption varies. Per capita fish and poultry consumption is predicted to rise while per capita consumption of beef, pork, and other meat is predicted to fall. Per capita consumption of milk and cheese is predicted to fall, while per capita consumption of yogurt and eggs is predicted to rise. The consumption of nuts and seeds and grains is also predicted to rise over the next two decades.

Both at-home and away-from-home fruit consumption are predicted to grow substantially over the 2000-2020 period, with at-home growth ranging between 24 and 28 percent and away-from-home growth between 20 and 22 percent. Fish consumption is expected to grow by 30 percent away from home and 23 percent at home. The growth of away-from-home fish consumption exceeds the growth of at-home consumption for other commodities, including beef, pork, other meat, eggs, milk, vegetable oils, nuts and seeds, all vegetables, grains, and sugar. The separation of at-home and away-from-home consumption in our analysis points out that food and commodity consumption is affected by a host of economic, social, and demographic factors. Some of the factors, such as income, have opposite effects on these two market segments. In addition to its direct, positive effect on fruit consumption, for example, rising income boosts eating out and hence dampens fruit consumption away from home. But, rising income also contributes to improved diethealth knowledge and hence results in more fruit consumption at home.

## References

- Amemiya, T. "Multivariate Regression and Simultaneous Equation Models When the Dependent Variables are Truncated Normal." *Econometrica* 42(6): 999-1012. 1974.
- Blisard, N., B.H. Lin, J. Cromartie, and N. Ballenger. "American's Changing Appetite: Food Consumption and Spending to 2020." *FoodReview*, Spring 2002, Vol. 25, No. 1, pp. 2-9.
- Day, J.C., and K.J. Bauman. Have We Reached the Top? Educational Attainment Projections of the U.S. Population, U.S. Census Bureau, Population Division Working Paper No. 43. 2000.
- Day, J.C. Projections of the Number of Households and Families in the United States: 1995 to 2010, U.S. Census Bureau, Current Population Reports, pp. 25-1129. 1996.
- Environmental Protection Agency, Office of Pesticide Programs, 2000. Food Commodity Intake Database. CD-ROM.
- Heien, D., and C.R. Wessells. "Demand Systems Estimation with Microdata: A Censored Regression Approach." *Journal of Business and Economic Statistics* 8(3): 365-371. 1990.
- Hollman, F.W., T.J. Mulder, and J.E. Kallan. *Method*ology and Assumptions for the Population Projections of the United States: 1999 to 2100. U.S. Census Bureau, Population Division Working Paper No. 38. 2000.
- Lee, L.F. "Multivariate Tobit Models in Econometrics." In Maddala, G.S., C.R. Rao, and H.D. Vinod. (eds.) *Handbook of Statistics*, Vol. 11, Chap. 6. Amsterdam: North-Holland, pp. 145-173. 1993.
- Lin, B.H, J. Guthrie, and E. Frazao. Away-From-Home Foods Increasingly Important to Quality of American Diet. Agricultural Information Bulletin No. 749,

Economic Research Service, U.S. Department of Agriculture, January 1999.

- McDonald, J.F., and R.A. Moffitt. "The Uses of Tobit Analysis." *Review of Economics and Statistics* 62(2): 318-321. 1980.
- Perali, F., and J.P. Chavas. "Estimation of Censored Demand Equations from Large Cross-Section Data." *American Journal of Agricultural Economics* 82(4): 1022-1037. 2000.
- Shonkwiler, J.S. and S.T. Yen. "Two-Step Estimation of a Censored System." *American Journal of Agricultural Economics* 81(4): 972-982. 1999.
- Tobin J. "Estimation of Relationships for Limited Dependent Variables." *Econometrica* 26(1): 24-36. 1958.
- Wales, T.J., and A.D. Woodland. "Estimation of Consumer Demand Systems with Binding Non-negativity Constraints." *Journal of Econometrics*, 21(3): 263-285. 1983.
- U.S. Department of Agriculture, Agricultural Research Service, 2000. *Continuing Survey of Food Intakes by Individuals 1994-96 and 1998*. CD-ROM.
- U.S. Department of Agriculture, Agricultural Research Service, 2000. Pyramid Servings Database. Accessible at http://www.barc.usda.gov/bhnrc/cnrg/intro.html
- U.S. Department of Agriculture, Economic Research Service. Food expenditure tables, Food CPI, Prices, and Expenditures briefing room. *http://www.ers. usda.gov/briefing/CPIFoodAndExpenditures/Data/*
- Variyam J.N. and E. Golan. "New Health Information Is Reshaping Food Choices." *FoodReview*, Spring 2002, Vol. 25, No. 1, pp. 13-18.
- Variyam J.N., J. Blaylock, D. Smallwood, and P. Basiotis. USDA's Healthy Eating Index and Nutrition Information. Technical Bulletin No. 1866, Economic Research Service, U.S. Department of Agriculture, April 1998.