America's Changing Appetite: Food Consumption and Spending to 2020

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America's appetite, like its population, is always changing. Foods once favored are now rarely eaten. Foods once only dreamed about are a reality. Dining out, once thought to be a luxury, is now common. The Nation's population is wealthier, older, more educated, and more ethnically diverse than in the past. And these demographic changes are likely to become more pronounced in the next 20 years. Consumers will continue to demand new food products, new packaging, more convenience, new delivery systems, and safer and more nutritious foods. Consequently, USDA's Economic Research Service (ERS) has undertaken an extensive effort to project how population growth, an aging population, ethnic diversity, other demographic trends, and income growth will affect future food choices and how the food system will respond to such changes.

By 2020, the U.S. population will add between 50 and 80 million people—all becoming part of the food system. Based on an increase of 50 million food customers, U.S. food expenditures are projected to rise 26 percent between 2000 and 2020. With food spending already approaching $800 billion in 2001, the projected increase will boost food sales of supermarkets, restaurants, fast food outlets, and other retail food establishments by $208 billion.

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Increased food spending driven by population growth is just one way consumers will shape the future of the U.S. food system. Our research is also designed to understand how shifts in the demographic profile of the projected U.S. population in 2020 will affect what people will eat and how much they will spend, where people will eat, and what product characteristics will command the consumer's food dollar. These future food choices will have implications for the organizational structure of the food industry and for the economic well-being of farmers, food processors, retailers, and other participants in the food production and marketing system—our concept of "consumer-driven agriculture."

Models and Assumptions of Our Analysis

ERS's consumer-driven agriculture project involved separate but coordinated econometric model-based projections of per capita food expenditures and per capita demand for food quantities. The first step was to estimate the effects of a range of demographic variables and assumed income growth on per capita food expenditures and food quantities consumed. The demographic variables included region of country, race or ethnic composition, household type (for example, single adult with children, or dual-headed household), education level of household head, age distribution of household members, and an index variable designed to capture diet and health knowledge of the household head. The expenditure analysis was based on data from the Bureau of Labor Statistics' Consumer Expenditure Survey (CES), while the food quantity analysis was based on data from USDA's Continuing Survey of Food Intakes by Individuals (CSFII) (see box).

The second step was to convert the results into projections for 2020 based on projected changes in the demographic variables over the next two decades and assumptions about income growth. We assume that the U.S. population will grow from 281.4 million in 2000 to 331.9 million in 2020. Over the same period, the proportions of Blacks, Asians, and, especially, Hispanics will increase in relation to the proportion of Whites (see "Population Growth and Demographic Change, 1980-2020" elsewhere in this issue). The regional population distribution, expressed as shares of total U.S. population, will also change. The Northeast will decline from 19 percent of the population in 2000 to 17.4 percent in 2020. Likewise, the North Central will decline from 22.9 percent in 2000 to 21.1 percent in 2020. Over the same period, the South will increase from 35.6 to 36.3 percent, while the West will increase from 22.5 to 25.2 percent.

Lastly, age distribution, expressed as a share of the total population, will change between 2000 and 2020. The proportion of the population age 20-29 will decline from 13.5 to 13.3 percent, while the proportion of the population age 30-44 will decline from 23.5 to 19.2 percent. At the same time, the proportion of the population age 45-64 will increase from 22.0 to 24.6 percent, while the proportion of the population age 65-74 will increase

Income growth, rather than shifting demographics, will be the primary influence behind increases in per capita food expenditures.

Credit: Eyewire.

from 6.5 to 9.6 percent. Likewise, the population over age 74 will increase from 5.9 percent of the total population in 2000 to 6.9 percent in 2020.

Our analysis conservatively assumes that real per capita income—income adjusted for inflation and taxes—will grow at 1 percent annually between 2000 and 2020. This growth level compares with an observed average increase of 1.8 percent per year during 1978-88 and 1.2 percent annually during 1988-98.

Before presenting some of our results, it is appropriate to mention two limitations when such analysis is used for projection purposes. First, there is an implicit assumption that as any individual moves from one demographic group to another, his or her preferences immediately take on the characteristics of the new group. In other words, a 70-year-old person in 2020 is expected to have the same consumption pattern as a 70-year-old in 2000 with similar characteristics.

Second, the analysis is based on a cross-section of data collected over a short period of time. As such, we assume that relative prices are the same for all households. Thus, the observed consumption behavior is for a fixed set of food and nonfood prices. As supply and demand conditions change over time, relative prices will change and the consumption patterns suggested here could be quite different.

Shifts in Age Distribution Dominate Demographic Effects

Table 1 contains the projected changes in per capita food expenditures between 2000 and 2020 due to projected changes in the household age distribution, the regional distribution of the population, the racial distribution, and the assumed income growth, all other variables held constant. The combined, or net, effect of changes in these variables is labeled "net." The results indicate that changes in age distribution will have a bigger ef-

fect on per capita food expenditures than changes in region of residence or race, including both the level of per capita expenditures and the pattern of a person's expenditures among different food groups.

The shift toward an older age distribution, all other variables held constant, is projected to increase per capita food expenditures just 1 percent over the 20-year period. This effect can be divided into spending on food at home and away from home. Per capita spending on away-from-home food (food purchased from a restaurant, sandwich shop, or other foodservice establishment) will actually decline by 1 percent due to the aging of the population, other variables held constant, because older people tend to eat away from home less frequently than younger people. However, expenditures on at-home food (food purchased from a grocery store, supermarket, or other retailer) will increase over 2 percent by 2020. Interestingly, the expenditure model results suggest that regional

Surveys Look at Expenditures and Consumption

The U.S. Department of Labor's Bureau of Labor Statistics has conducted the annual Consumer Expenditure Survey (CES) since 1980. This survey provides a rich source of information on the spending patterns of American households. The CES is composed of two components, each with its own questionnaire and sample. The first component is an interview panel survey in which approximately 5,000 households are surveyed every 3 months over a 1-year period. The interview survey obtains data on large and infrequently purchased items, such as property, automobiles, and major appliances, as well as those which occur on a regular basis, such as rent, utilities, and insurance premiums. The second component is a diary survey of approximately the same sample size in which households keep an expenditure diary for 2 consecutive weeks. The diary survey obtains data on small, frequently purchased items that are normally difficult to recall. These items include food and beverages, tobacco, housekeeping supplies, nonprescription drugs, and personal care products and services. We used data from the diary survey in our analysis.

Household food expenditures in the CES are reported in two broad categories: at home and away from home. Away-from-home food expenditures are reported as breakfast, lunch, dinner, or snack, and by type of eating establishment. At-home food expenditures are reported for specific foods, such as beef, pork, and milk. We aggregated the at-home data into 14 categories.

Since the 1930s, USDA has conducted food-consumption surveys on a national scale in 1936, 1942, 1948 (urban only), 1955, 1965-66, 1977-78, 1987-88, 1989-91, and 1994-96. The survey data have been used to describe U.S. food-consumption patterns and to assess the nutritional contents of Americans' diets. The most recent survey—Continuing Survey of Food Intakes by Individuals (CSFII), 1994-96—uses 24-hour recalls to collect information on what, when, where, and how much 15,303 individuals ate and drank over 2 nonconsecutive days. Because each of the 7,300 food items in the CSFII is reported individually, CSFII data can be aggregated into various food groups for at-home and away-from-home food consumption. We modeled at-home and away-from-home food consumption in 2020 separately and then added the two categories together to project total food consumption in 2020.

population distribution changes and racial distribution changes will have virtually no effect on per capita food expenditures over the next 20 years.

Under the at-home food category, the shift toward an older age distribution has the most effect on expenditures in the food categories of fruits (up 3.7 percent), vegetables (up 3.6 percent), and fish and pork (both up 3.1 percent). This finding reflects current tendencies of older age groups to eat more of these foods than younger segments of the population. At-home food categories with the smallest projected effects on expenditures are poultry (up just 0.1 percent) and beverages (up 0.4 percent).

Changes in age distribution will also have a significant effect on per capita quantities consumed (table 2). In general, as adults age, they tend to eat less. The quantity model suggests the largest consumption declines will be fried potatoes (down 5.8 percent), cheese (down 2.7 percent), and sugar (down 1.6 percent). The shift in age distribution, all other variables held constant, is also likely to put downward pressure on per capita quantities consumed of beef and poultry. On the other hand, the age distribution effect is likely to result in an increase in per capita consumption of "other potatoes" (up 3.2 percent), "other fruits" (up 2.0 percent), fish (up 1.8 percent), and eggs (up 1.5 percent).

Growing Ethnic Diversity Has Mixed Implications for Consumption

The United States—always a nation of immigrants—today receives twice as many newcomers each year as any other country. The current high tide of immigration began with new laws in the mid-1960s that opened entry to relatives of U.S. residents and tilted the preference system toward countries outside Europe. Immigration now accounts for one-third or more of annual U.S. population growth, and those entering the country are

more culturally diverse than in previous times.

Future immigration levels are difficult to predict because they are determined largely by Federal policy. However, it is easy to believe high immigration will continue, given large world population growth and the increased demand for U.S. workers as the baby boom generation nears retirement age—now less than 10 years away. If immigration follows the pattern used by the Census Bureau to project the U.S. population, the U.S. foreign-born population will rise from 28 to 38 million by 2020.

Over the next two decades, the U.S. Hispanic population is expected to grow by 1.2 million annually, compared with annual increases of 500,000 for non-Hispanic Whites and 400,000 each for Blacks and Asians. Population growth among Whites, Blacks, and Native Americans will come largely from natural increase (births minus deaths), while growth among the Hispanic and Asian populations will come from a combination of natural increase and immigration.

The shift in racial and ethnic composition of the U.S. population will effect some changes, though minor, in per capita quantities consumed between 2000 and 2020. Based on current consumption patterns, the increasing diversity of the population is likely to increase per capita consumption of fruits, nuts and seeds, eggs, poultry, and fish, all other variables held constant. Growing ethnic diversity, particularly increases in the Hispanic population, is expected to decrease per capita consumption of dairy products unless tastes and preferences of these population groups change to embrace dairy as a more integral component of their diets.

The largest per capita increase in consumption resulting from the shift in racial composition will occur in citrus fruits (up 2.5 percent), while the largest decrease will occur in "other potatoes" (down 2.2 percent). The model results suggest that growth in U.S. ethnic pop-

Table 1—Per Capita Expenditures on Fruits and Vegetables Will Have Highest Increases as U.S. Population Ages, 2000-20

| Food group | Per capita effects on food expenditures | | | | | Total effect of income, demographics, and population growth |
	Age distribution	Regional distribution	Racial composition	Income growth	Net	
	Percent					
Total food	1.0	0	-.01	6.2	7.1	26.3
Away from home	-1.0	0	-.02	9.7	8.1	27.5
At home	2.2	0	-.01	3.0	5.4	24.3
Cereals and bakery products	2.0	0	.00	2.4	4.3	23.0
Meats, poultry, fish, and eggs	2.5	0	.01	1.3	4.1	22.8
Beef	2.1	0	.00	.1	2.6	21.1
Pork	3.1	0	.00	.1	3.8	22.5
Poultry	.1	0	.00	1.6	3.4	21.9
Fish	3.1	0	.00	1.9	6.2	25.2
Dairy	1.3	0	.00	2.6	4.0	22.6
Fruits	3.7	0	.00	4.2	8.1	27.5
Vegetables	3.6	0	.00	3.3	7.2	26.5
Sugars and sweets	2.4	0	.00	2.3	4.7	23.5
Beverages	.4	0	.00	2.6	2.7	21.1
Fats and oils	2.9	0	.00	.1	4.3	23.1
Miscellaneous prepared foods	1.1	0	-.03	3.8	5.3	24.2

Note: Net effect is the combination of age, region, race, and income changes. Total effect is the net effect multiplied by changes in the U.S. population.
Source: USDA's Economic Research Service.

ulations will increase per capita beef consumption, but increase fish and poultry consumption even more. (Race's effect on beef consumption contrasts with that of age, which tends to decrease per capita beef consumption.) All of these results depend on the assumption that the immigrant-based populations in 2020 will have similar eating preferences to immigrant-based populations today.

Shifts in the regional distribution of the U.S. population, all other variables held constant, will have a slight negative effect on per capita food consumption. Most changes will be well under 1 percent.

Income Is the Most Important Driver of Per Capita Food Expenditures

Our analysis shows that projected income growth overshadows projected shifts in demographic characteristics, such as age, race, and region, as an influence on food expenditures (table 1). Income growth will also drive up future per capita food expenditures more rap-

idly than it will increase per capita quantities consumed for virtually all foods. The reason is simple: Americans are already well off and well fed. Consumers will spend extra discretionary income on quality and convenience, rather than quantity.

Our analysis also indicates that income growth will spur faster growth in per capita expenditures on dining out than in per capita expenditures on food for at-home preparation and consumption. By 2020, away-from-home food expenditures are expected to increase almost 10 percent on a per capita basis due to income growth alone, whereas at-home food expenditures are expected to increase just 3 percent due to income growth. Forces shaping preferences for where and what to eat are complex and uncertain. Away-from-home food consumption should increase due to the increase in per capita income and the continuing shift to smaller households, including more "empty-nester" and single-person households. Yet, these increases could be offset by the aging U.S. population

and the rise in the proportion of ethnic groups, particularly Hispanics and Asians, who tend to dine out less than Whites of similar means and family size. These proclivities for dining at home could change, however, as the eating preferences of new and recent U.S. immigrants evolve with their immersion in the U.S. culture and economy.

By 2020, per capita expenditures for at-home food influenced by income growth will likely shift somewhat in favor of fruits (up 4.2

As the U.S. ethnic population continues to grow, supermarkets and food retailers will likely increase product offerings tailored to appeal to the preferences of their diverse customer base.

Credit: Ken Hammond, USDA.

percent), miscellaneous prepared foods (up 3.8 percent), and vegetables (up 3.3 percent). Other changes in per capita food expenditures due to income growth are positive, but smaller in magnitude.

Income growth is also likely to result in some shifts in per capita quantities consumed. Higher incomes, all other variables held constant, are likely to boost the consumption of fruits and vegetables (except potatoes), cheese and yogurt, and fish, while lowering the consumption of pork, beef, other meat, and eggs (table 2). These shifts are expected to be small, relative to the shifts for expenditures, and are based on differences in current consumption patterns that we observe today among income groups.

Educational Attainment Enhances Dietary Knowledge

Increases in education level reinforce the shifts in consumption expected to occur with income growth. The 2020 U.S. population will achieve higher levels of formal education, with 86 percent of the population having a high school degree and 26 percent finishing college, versus 83 and 23 percent, respectively, in 2000. More years of schooling enhances consumer awareness and knowledge of diet and health issues, which favors consumption of some foods over others (see "New Health Information Is Reshaping Food Choices" elsewhere in this issue).

The effect of increased education levels is projected to increase consumption of fruits and vegetables, except fried potatoes (table 2). On the other hand, the projected rise in education levels is expected to have a small, negative effect on per capita consumption of beef, pork, other meats, and eggs.

Table 2—Growth in the Amount We Eat Will Be Less Than What We Spend, 2000-20

Commodity	Age distribution	Regional distribution	Racial composition	Household type composition	Education distribution	Income growth	Net	Total effect of income, demographics, and population growth
			Per capita effects on quantities consumed					
				Percent				
Meats:								
Beef	-1.36	-.06	.58	-.58	-.48	-.67	-2.80	14.65
Pork	.09	-.50	-.09	-.42	-.67	-1.17	-3.07	14.33
Poultry	-1.26	-.21	1.29	-.21	.03	.50	.38	18.41
Fish	1.76	.30	2.17	.66	.26	1.11	6.58	25.71
Other meat	-1.01	-.30	-.81	-.36	-.54	-.79	-3.76	13.52
Eggs	1.48	.12	1.75	-.28	-.67	-1.89	.33	18.35
Dairy:								
Milk	-.73	-.05	-1.19	.05	.54	-.15	-1.19	16.54
Cheese	-2.73	-.01	-1.38	-.08	.83	1.67	-1.44	16.26
Yogurt	.40	-.18	-1.56	.50	1.04	1.39	2.08	20.41
Vegetable oils	-.78	.00	-.19	.21	.29	.77	.40	18.42
Fruit								
Citrus	.48	-.62	2.48	.60	2.13	1.87	7.40	26.68
Apples	.95	-.55	2.42	.47	2.14	1.93	7.84	27.20
Grapes	.59	-.45	1.35	.31	1.69	1.23	5.13	24.00
Other fruit	1.96	.06	1.33	.06	1.61	1.48	7.00	26.21
Nuts and seeds	.18	.42	1.67	-.05	.47	.42	2.94	21.43
Vegetables								
Fried potatoes	-5.76	.06	-1.72	-.21	-.82	.19	-8.60	7.81
Other potatoes	3.18	-.76	-2.19	-.94	.12	-1.86	-2.97	14.45
Tomatoes	-.75	.11	.88	-.10	.18	.86	1.25	19.43
Lettuce	.68	.10	.37	.84	.71	2.12	5.09	23.96
Other vegetables	1.34	-.04	.54	.41	.57	.65	3.61	22.21
Grains	-.74	-.04	.88	.16	.45	.63	1.49	19.72
Sugar	-1.58	-.06	-.81	.04	.24	.34	-1.68	15.98

Note: Net effect is the combination of age, region, race, income, household type, and education. Total effect is the net effect multiplied by changes in the U.S. population.
Source: USDA's Economic Research Service.

Economic Research Service, USDA

Income and Demographic Effects Boost Fruit, Vegetable, and Fish Consumption

By combining the projected demographic shifts with an assumed annual increase in real income of 1 percent, we can determine how both per capita food expenditures and per capita consumption will change between 2000 and 2020. Per capita food expenditures will increase 7.1 percent (table 1). Away-from-home food expenditures will increase more, 8.1 percent, while at-home food expenditures will increase 5.4 percent.

The largest increases for per capita expenditures on at-home food are anticipated for fruits (up 8.1 percent), vegetables (up 7.2 percent), fish (up 6.2 percent), miscellaneous prepared foods (up 5.3 percent) and sugars and sweets (up 4.7 percent). The largest increases for per capita quantities consumed are expected for fruits, with apples, citrus, and other fruit increasing 7 percent or more (table 2). Per capita vegetable consumption will also increase, with the exceptions being fried potatoes (down 8.6 percent) and other potatoes (down 3.0 percent). Decreases are expected in per capita consumption of beef (down 2.8 percent) and pork (down 3 percent), but per capita consumption of fish is expected to increase (up 6.5 percent).

Population Growth Drives Total Food Demand

The most important factor behind the growth in total food demand is the expansion of the U.S. population. To derive the "total effect" of U.S. population growth on food demand, we multiplied the net projected per capita expenditures and quantities consumed in tables 1 and 2 by the assumed increase of 50 million people by 2020.

Total food expenditures are projected to increase 26.3 percent by 2020. Away-from-home food expenditures are projected to increase 27.5 percent, compared with 24.3 percent for at-home food expenditures. Because the individual food groups in table 1 represent at-home food expenditures only, projected expenditures understate total food expenditure growth for the individual food groups to the extent that the away-from-home market grows for particular foods.

One effect of the slow but steady growth of the population is that there is little variation on a national level among expenditure growth levels of food groups. The largest projected increase is for fruits, up 27.5 percent, while the smallest is for both beef and beverages, up 21.1 percent.

Slightly more variation exists among quantities consumed. For example, while consumption of beef and pork is expected to increase by 14.7 and 14.3 percent, respectively, fruit consumption will increase 24-27 percent, depending on the type of fruit. The smallest projected increase is for fried potatoes (up 7.8 percent), and the largest increase is for apples (up 27.2 percent).

Tomorrow's Food Consumer Will Demand More Quality, Not More Quantity

The effect of demographic and income changes on demand for food can be separated into two components—demand for quantity and demand for quality. The demand for quantity typically describes the demand for undifferentiated basic commodities, while the demand for quality describes the demand for a wide array of food characteristics, such as taste, nutritional content, safety, and convenience.

Increased demand for quality can be manifested through purchases of higher valued items within a food group or through purchases of new food types. For example, within the red meat food group, more affluent consumers may choose steaks instead of hamburgers. More affluent consumers may also expand their food choices to include luxury items, such as lobster or truffles, or new convenience foods, including away-from-home foods. Consumers may also increase their demand for processed foods that meet particular safety requirements, such as pasteurized eggs, or foods with preferred nutrition attributes, such as leaner meats. Food expenditures may also increase if food choices begin to reflect more complex desires, such as "fair-trading" practices, environmental protection, or animal welfare, if these desires add to the cost of producing or marketing foods, and thereby increase retail prices. Previous studies have found that as U.S. incomes rise, consumers increase their expenditures on more expensive fresh foods, more pro-

Fruit consumption is likely to increase due to changes in U.S. demographics, such as increased education levels and an older age distribution.

Credit: PhotoDisc.

cessed food, and more dining away from home.

Our analysis supports the hypothesis that consumers may demand quality over quantity, especially as real incomes increase. Among the major food groups, the net effect of income growth and demographic change is projected to have its largest percentage effect on per capita expenditures for fruits, vegetables, and miscellaneous prepared foods—a category that captures a vast array of processed foods.

Consumption and expenditure projections for beef provide a striking illustration of quality versus quantity. In 2020, the U.S. population is projected to consume about 15 percent more beef (in quantity terms) than in 2000. This increase is driven almost entirely by population growth but is supported by a slight increase in the proportion of beef eaten away from home.

Several factors put slight downward pressure on per capita beef consumption, including the aging population, educational attainment (which heightens awareness of the health risks of excess saturated fat), and income growth (which the model suggests favors a shift toward poultry and fish and away from beef and pork). In fact, because of these effects, per capita beef consumption is projected to be about 3 percent lower in 2020 than in 2000 and just 3 percent higher in per capita expenditures over the same time period.

Nonetheless, total U.S. expenditures for beef are expected to increase 21 percent by 2020. The gap between the projected increase (21 percent) in total expenditures for beef and the projected increase (15 percent) in total consumption of beef can be explained by a shift in consumption toward a higher quality, more expensive product. Quality may include better cuts or more expensive grinds of beef, restaurant grade beef, and semi-prepared (such as pre-marinated and dressed) fresh beef meals offered by some supermarkets.

Will Americans in 2020 Prefer To Eat at Home or Away From Home?

Over the past 30 years, eating out has become increasingly popular for Americans. A number of factors contribute to the trend of increased dining out, including a growing number of women employed outside the home, more two-earner households, higher incomes, and the smaller size of American households. However, the aging of the U.S. population raises questions about the future of eating at home versus eating away from home. As noted earlier, the age effect (isolated from other effects) will actually decrease per capita expenditures on away-from-home food 1 percent, while raising per capita expenditures on at-home food over 2 percent. Aging, therefore, is projected to slow the trend toward increased importance of away-from-home foods in the American diet. This finding assumes, however, that seniors (those age 65 and older) in 2020 will mimic the eating habits of seniors today.

Rising incomes and population growth are expected to continue to fuel the growth of the away-from-home market. Our analysis indicates the growth in at-home and away-from-home markets will vary by commodity, in terms of total quantity consumed (table 3). We

Table 3—Away-From-Home Food Markets Will Grow Faster Than At-Home Food Markets, 2000-20

| | Market growth: 2000-20 | | Commodity market share | | | |
| | | | 2000 | | 2020 | |
Commodity	At home	Away from home	At home	Away from home	At home	Away from home
	Percent					
Meats:						
Beef	13	19	67	33	65	35
Pork	13	21	79	21	77	23
Poultry	19	18	68	32	69	31
Fish	23	30	66	34	64	36
Other meat	13	18	77	23	76	24
Eggs	17	23	78	22	77	23
Dairy:						
Milk	17	18	87	13	87	13
Cheese	18	18	63	37	63	37
Yogurt	18	0	97	3	97	3
Vegetable oils	18	20	68	32	67	33
Fruit:						
Citrus	28	20	89	11	90	10
Apples	28	20	91	9	92	8
Grapes	24	20	91	9	91	9
Other fruit	27	22	90	10	90	10
Nuts and seeds	21	24	80	20	80	20
Vegetables:						
Fried potatoes	5	10	49	51	48	52
Other potatoes	13	20	82	18	82	18
Tomatoes	19	20	76	24	76	24
Lettuce	22	26	57	43	56	44
Other vegetables	21	26	80	20	80	20
Grains	19	22	77	23	77	23
Sugar	16	17	77	23	77	23

Source: USDA's Economic Research Service.

expect the growth in the away-from-home market to continue outpacing the growth in the at-home market for meats (except poultry), eggs, vegetables, and grains. For example, the away-from-home market for fish is expected to grow 30 percent, compared with 23-percent growth for the at-home fish market. However, we expect the at-home consumption of fruits to rise faster than away-from-home consumption of fruits.

The differing growth rates for the at-home and away-from-home markets would affect their shares of the total commodity market. Over the next two decades, we expect the away-from-home market share to rise for beef, pork, fish, other meats, eggs, fried potatoes, and lettuce. However, the at-home market share of fruit would rise.

A Well-Off and Ethnically Diverse Nation Will Demand Variety

Immigrants from Asia, Africa, and Latin America are causing widespread increases in food choices offered in American supermarkets and restaurants. The variety of foods in the American marketplace is likely to continue to grow as the U.S. ethnic population grows from 28 percent of the population in 2000 to 36 percent in 2020.

Increases in income, especially when coupled with exposure to new and different foods, will also stimulate Americans' continuing quest for increased variety in their diets. As income rises and the consumption of any one good increases, the pleasure that the consumer derives from that good decreases (a process called "diminishing marginal utility" by economists). For example, the enjoyment of eating the tenth "crispy on the outside, creamy on the inside" donut does not match that of eating the first. As a result, other goods become relatively more desirable and the variety of foods consumed increases. Indeed, the most successful food companies in 2020 are likely to be those that tap most effectively into Americans' ap-

preciation for diversity in their lives, especially the possibly insatiable desire for new and different food choices.

Total food expenditures by the U.S. population are projected to increase 26 percent between 2000 and 2020, driven mainly by population growth. Projected higher incomes will reinforce Americans' tendency to eat more meals away from home, although the larger numbers of seniors and recent immigrants may work against this trend. Higher incomes, higher education levels, and an aging population will all reinforce recent shifts in the composition of Americans' increasingly varied diets toward more fruits, vegetables, and fish. Expected increases in per capita income and, to a lesser extent, the aging population will contribute to a 7-percent increase in per capita expenditures for food as well. However, the effects of higher per capita incomes will be largely realized in the form of increased demand for quality, convenience, and variety, rather than quantity

The anticipation that increases in income are likely to have a larger impact on demand for quality and variety than on demand for quantity has two important implications for agriculture. First, growth in demand for value-added

food products will increase the share of every food dollar that goes to processors and retailers, diminishing still further the value of the basic commodity as an input in the final product. This trend also has ramifications for the food processing and retailing industries (see "Innovation by Food Companies Key to Growth and Profitability" elsewhere in this issue). If expenditures on prepared foods and away-from-home foods continue to grow, the food system will become more service oriented—a development that would echo trends in the general economy.

Second, with increased demand for variety and quality-differentiated products come new markets for high quality or specialty crops, such as tofu-grade soybeans and vine-ripened tomatoes. These new markets can open up opportunities for farmers (see "Farm Business Practices Coordinate Production With Consumer Preferences" elsewhere in this issue). Market differentiation also provides opportunities to better price discriminate, that is, to tailor products and prices to the differing demands and pocketbooks of subgroups of buyers. Farmers thereby earn higher profits than possible in undifferentiated product, uniform-price markets. **FR**

The expansion of the U.S. population—50 million people will be added to the food system by 2020—is the most important factor behind the growth in total food demand.

Credit: EyeWire.