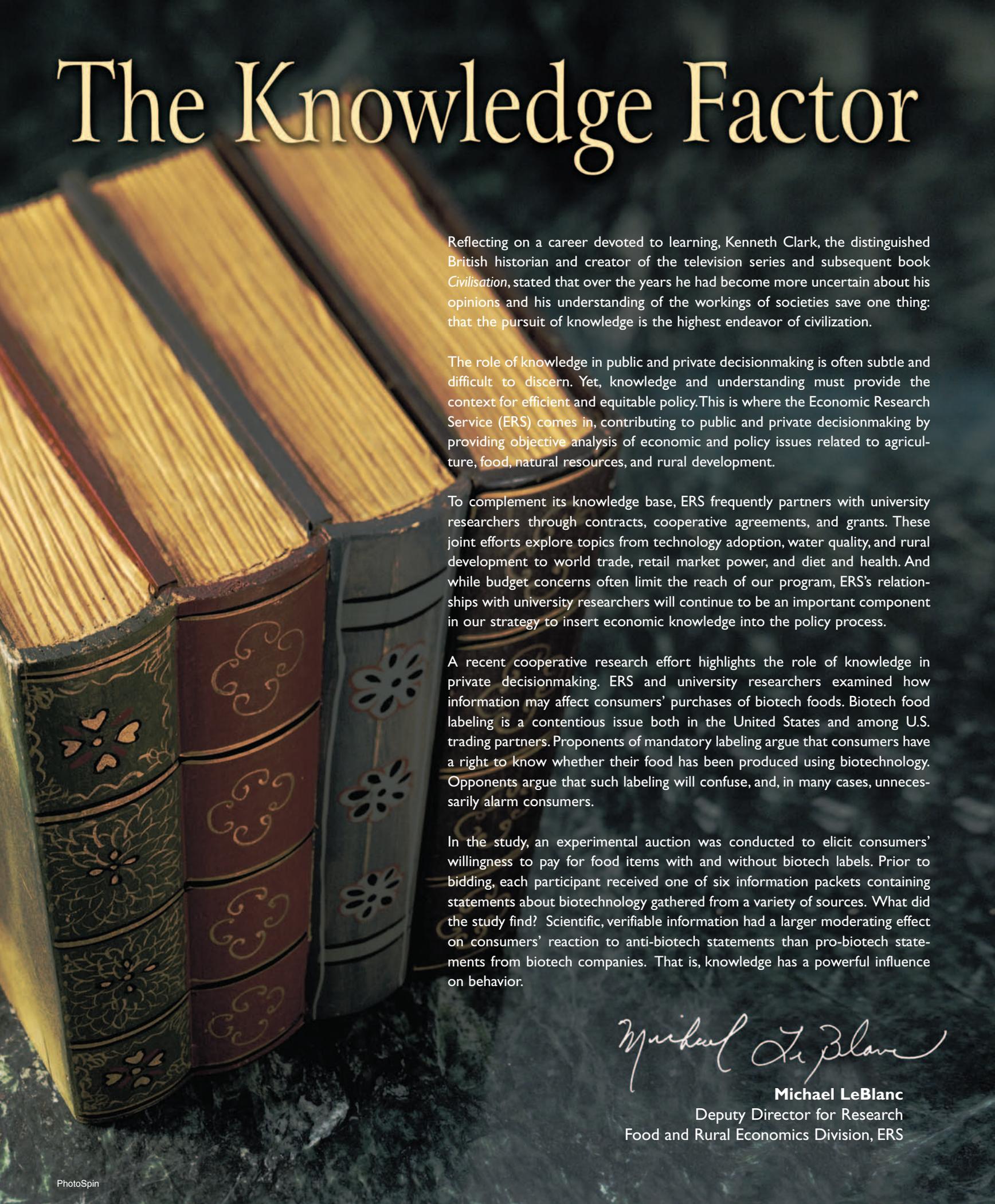


# The Knowledge Factor



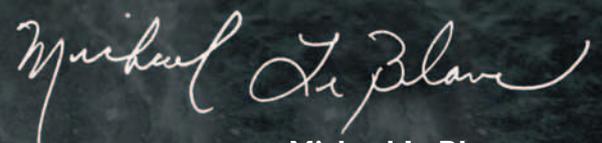
Reflecting on a career devoted to learning, Kenneth Clark, the distinguished British historian and creator of the television series and subsequent book *Civilisation*, stated that over the years he had become more uncertain about his opinions and his understanding of the workings of societies save one thing: that the pursuit of knowledge is the highest endeavor of civilization.

The role of knowledge in public and private decisionmaking is often subtle and difficult to discern. Yet, knowledge and understanding must provide the context for efficient and equitable policy. This is where the Economic Research Service (ERS) comes in, contributing to public and private decisionmaking by providing objective analysis of economic and policy issues related to agriculture, food, natural resources, and rural development.

To complement its knowledge base, ERS frequently partners with university researchers through contracts, cooperative agreements, and grants. These joint efforts explore topics from technology adoption, water quality, and rural development to world trade, retail market power, and diet and health. And while budget concerns often limit the reach of our program, ERS's relationships with university researchers will continue to be an important component in our strategy to insert economic knowledge into the policy process.

A recent cooperative research effort highlights the role of knowledge in private decisionmaking. ERS and university researchers examined how information may affect consumers' purchases of biotech foods. Biotech food labeling is a contentious issue both in the United States and among U.S. trading partners. Proponents of mandatory labeling argue that consumers have a right to know whether their food has been produced using biotechnology. Opponents argue that such labeling will confuse, and, in many cases, unnecessarily alarm consumers.

In the study, an experimental auction was conducted to elicit consumers' willingness to pay for food items with and without biotech labels. Prior to bidding, each participant received one of six information packets containing statements about biotechnology gathered from a variety of sources. What did the study find? Scientific, verifiable information had a larger moderating effect on consumers' reaction to anti-biotech statements than pro-biotech statements from biotech companies. That is, knowledge has a powerful influence on behavior.



**Michael LeBlanc**  
Deputy Director for Research  
Food and Rural Economics Division, ERS

## FEATURES

### U.S. Tobacco Industry Responding to New Competitors, New Challenges

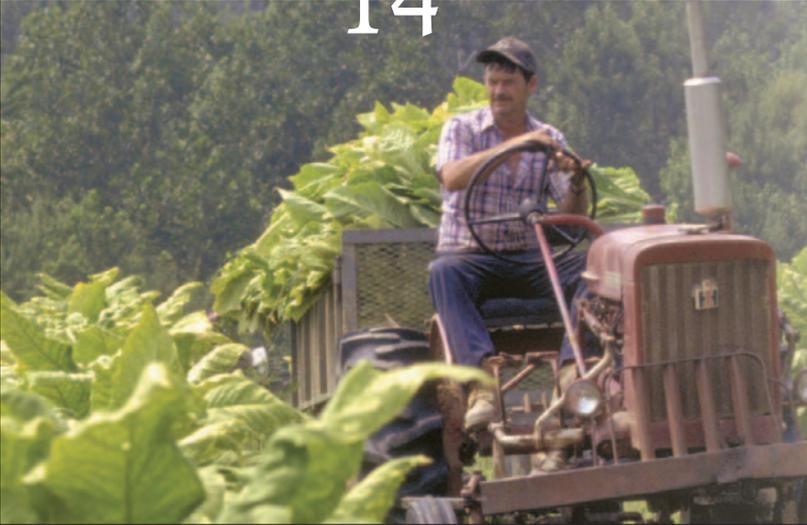
Thomas C. Capehart, Jr.

14

### Multilateralism and Regionalism: Dual Strategies for Trade Reform

Mary E. Burfisher and Steven Zahniser

22



U.S. tobacco, which is more expensive in part due to the Federal tobacco program, has been supplanted in many markets by cheaper foreign leaf of increasing quality. Can the tobacco program, after 65 years, be retooled to address this reality?

The U.S. is pursuing trade liberalization through regional agreements, such as the Free Trade Area of the Americas, and multilateral negotiations at the World Trade Organization. Why does the U.S. do both simultaneously?

## FINDINGS

### 4 MARKETS AND TRADE

Vegetable Consumption Away from Home on the Rise

North America: One Market, Big Payoffs, Many Challenges

Differences in Demand Help Shape Meat Trade

### 6 DIET AND HEALTH

What Weight Problem?

The Dynamics of Food Insufficiency

### 8 RESOURCES AND ENVIRONMENT

Balancing Conservation Costs and Benefits

What You Want To Know About Resources and the Environment...But Couldn't Find

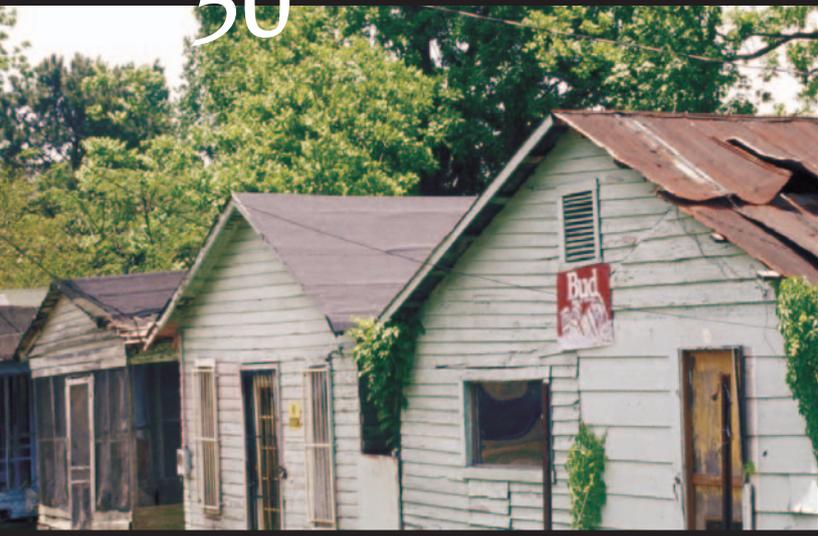
### 10 RURAL AMERICA

Rural College Graduates Make a Comeback

Exploring the Diversity of Rural America Through Interactive Mapping

**Nonmetro Poverty:  
Assessing the Effect of the 1990s**

Dean Jolliffe **30**



The 1990s ushered in unprecedented economic prosperity and major welfare system reforms in the United States. The nonmetro poverty rate fell, but inched back up in 2001. Will nonmetro poverty resume its downward pattern in the 21st century?

**Production Costs Critical to  
Farming Decisions**

William D. McBride **38**



Weather, breeding cycles, world stocks, and consumption swings can all make for uncertain farm income, but farmers make a host of production decisions that can affect costs and predispose them to weathering out rough patches. What are these decisions and to what extent are U.S. farmers covering costs?

**12 DATA FEATURE**

New Insights on Metro and Nonmetro Areas

**46 INDICATORS**

Selected statistics on agriculture and trade, diet and health, natural resources, and rural America

**50 GLEANINGS**

Snapshots of recent events at ERS, highlights of new publications, and previews of research in the works

**52 PROFILES**

Step inside the ERS offices, meet a few of our researchers, and learn about their work and accomplishments

**Amber Waves** **ONLINE**  
[www.ers.usda.gov/AmberWaves](http://www.ers.usda.gov/AmberWaves)

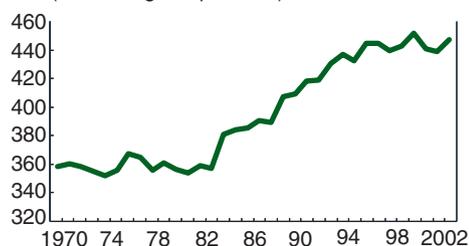
*See inside back cover*

## Vegetable Consumption Away from Home on the Rise

In a seemingly never-ending quest for convenience, a more affluent but time-challenged U.S. population is eating more meals away from home. As the share of total food consumption away from the home has risen over the last two decades, so, too, has the share of vegetables consumed outside the home. Per capita consumption of all vegetables averaged 445 pounds in 2000-02—25 percent greater than 1980-82—with about half the growth ascribed to the away-from-home market.

### Annual per capita vegetable consumption continues to rise

Lbs (fresh-weight equivalent)



Popular restaurant foods, such as sandwiches, pizza, salsa, and salads, helped boost away-from-home vegetable consumption over the past two decades, but none has influenced this increase more than frozen french fries. Processed potatoes (largely french fries and chips) accounted for 27 percent of the growth in total vegetable consumption since 1980-82. Per capita consumption of potatoes for

frozen products (largely french fries) increased 50 percent to 58 pounds per year. While the majority of chips are consumed at home, about 88 percent of all french fries are consumed outside the home, with three-fourths sold through fast food establishments.

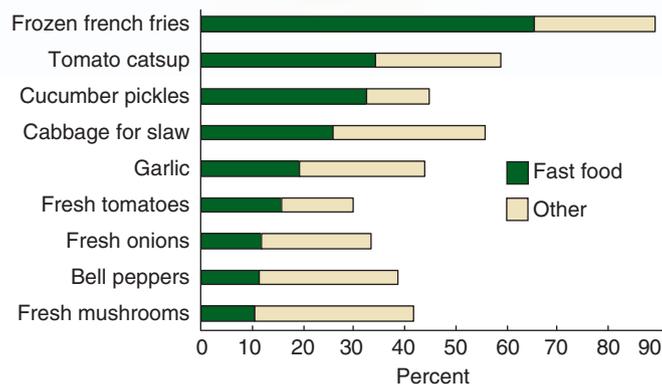
Although most tomato products are consumed at home, about 15 percent of tomatoes are processed into catsup, of which one-third is consumed outside the home with fast foods. With the advent of extra-large sized servings by the leading fast food chains in the 1990s, french fry consumption increased by one-third, which, in turn, increased catsup demand.

For similar reasons as catsup, about 45 percent of pickled cucumbers are consumed away from home. About a third of all pickled cucumbers are used in fast food sandwiches and in associated condiments, such as relish.

The increased use of onions, garlic (used widely in sauces, ethnic foods, and other items), mushrooms, peppers, and fresh-market tomatoes in the foodservice industry has also contributed to the growth in per capita vegetable consumption. Foodservice use accounts for at least

### Americans' vegetable consumption away from home reflects popular restaurant foods

Share of vegetables purchased away from home, 2000-02



30 percent of consumption for each of these commodities, with garlic at more than 40 percent. One-third of fresh onions are consumed away from home, with full-service restaurants accounting for 15 percent. The popularity of salad bars, various ethnic dishes, salsa, and whole-onion appetizers in these restaurants has likely helped push consumption higher. W

Gary Lucier, [glucier@ers.usda.gov](mailto:glucier@ers.usda.gov)

### This finding is drawn from . . .

Several articles by Gary Lucier, Biing-Hwan Lin, and others, which can be found at the ERS Briefing Room on Vegetables and Melons, at [www.ers.usda.gov/Briefing/Vegetables/Readings.htm](http://www.ers.usda.gov/Briefing/Vegetables/Readings.htm)

## North America: One Market, Big Payoffs, Many Challenges

Measures taken by the United States, Canada, and Mexico to integrate the North American food and fiber system have paid large dividends—lower prices and a wider variety of foods, increased real income, and easier access to each other's markets.

A unified North American market transmits more accurate price signals across national borders, information that better reflects continental supply and demand. With better information, farmers specialize in

production activities in which they are comparatively proficient, consumers pay lower prices, and societies benefit from technological innovations and economies of scale. The lure of such payoffs explains the genesis of the World Trade Organization, the European Union, and many regional trade agreements.

The interconnectedness of the three national markets is evident. U.S. agricultural exports to Canada and Mexico are five times greater than U.S. exports to the rest of the world. In addition, U.S. food processing firms are outsourcing more of their production in Canada and Mexico via strategic alliances, joint ventures, and foreign direct investment.

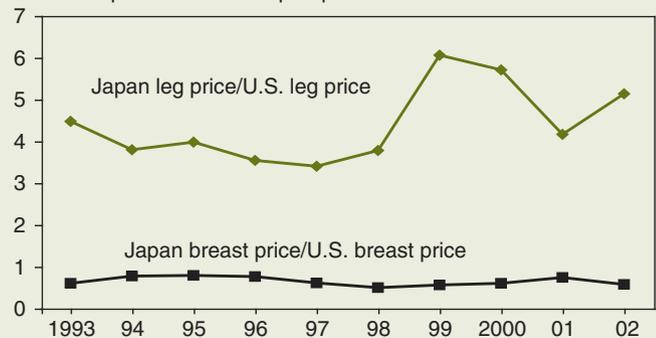
PhotoSpin

## Differences in Demand Help Shape Meat Trade

At a value of over \$40 billion (10 percent of global agricultural trade) and a volume of 20 million tons per year, global trade in meats is big business. Growing populations, rising incomes, and increased urbanization have all contributed to a boost in demand for meat. This demand has been supplied, in part, by low-cost meat from countries with good resources for meat production, such as abundant feedgrains. But other factors, such as numerous import tariffs and sanitary rules safeguarding the health of animals and humans, affect meat trade as well. Yet another dimension to global meat trade is differences in demand for meat cuts.

### When it comes to chicken parts, Japanese consumers demand legs more than breasts

Ratio of Japan/U.S. chicken part prices



Most meat trade is in the form of cuts. One cut, or part, of a slaughtered animal can be shipped to one place while other parts are sent elsewhere. Demand for the parts varies considerably, both within and among countries, depending on consumer tastes, whether cuts can be substituted for one another, and other factors. In the U.S., for example, consumers prefer beef steak to beef liver. Despite the greater abundance of steak meat (a steer yields about 16 times more steak than liver), the U.S. price of steak is much higher than that of liver. Chicken legs are prized in some countries but get a low price in others. Chicken legs are 4-5 times as expensive in Japan as in the U.S., but chicken breasts cost 25-40 percent less in Japan. The price differences reflect consumers' willingness to pay for these cuts.

Some trade seems to reflect these differences in demand, rather than competitiveness in producing the meat. For example, it is uncertain whether chicken and hog production costs less in the U.S. than in China. The large U.S. exports to China do correspond to



Photo by Fred Gale, USDA/ERS

demand for different cuts, however. The main U.S. chicken exports to China are feet, wings, and legs, while the main pork exports are organs, such as hearts.

The ability to mix and match cuts for different markets offers meat firms the opportunity to send each part of an animal to the market that will pay the highest price for it, thereby increasing the aggregate value of each animal. If lower tariffs or increased success in meeting sanitary standards allow meat trade among more countries in the future, trade in cuts is likely to proliferate as firms find higher valued matches for various cuts. **W**

**John Dyck**, [jdyck@ers.usda.gov](mailto:jdyck@ers.usda.gov)  
**Ken Nelson**, [knelson@ers.usda.gov](mailto:knelson@ers.usda.gov)

#### This finding is drawn from . . .

*Structure of the Global Markets for Meat*, by Ken Nelson and John Dyck, AIB-785, USDA/ERS, September 2003, available at: [www.ers.usda.gov/publications/aib785](http://www.ers.usda.gov/publications/aib785)

Payoffs from integration include:

- Under the North American Free Trade Agreement, many tariffs have been lowered or eliminated, widening access to all three markets. As a result, incomes increased in all three countries because producers were able to more fully respond to continental differences in tastes and preferences and to make better use of available resources in North America.
- Mexican farmers have gained more export access to U.S. and Canadian markets for fruits and vegetables. And American and Canadian farmers are meeting Mexico's relatively high demand for staple commodities, such as corn and oilseeds.
- Cross-border investment in processing facilities has lowered production costs, enabling food suppliers to more effectively satisfy consumer demand for convenience foods by offering a wider variety of low-priced products.

Though increased trade has clearly resulted in benefits to society, institutional obstacles continue to segment national markets, limiting the gains from trade. For example, nonuniform inspection, grading, and labeling standards raise production costs for meat in supermarkets in the U.S., Canada, and Mexico. North American agricultural markets also stand to gain from universal commercial laws, common antitrust and regulatory procedures, and better coordination of domestic farm, marketing, and macroeconomic policies. **W**

**Thomas L. Vollrath**, [thomasv@ers.usda.gov](mailto:thomasv@ers.usda.gov)

#### This finding is drawn from . . .

*North American Agricultural Market Integration and Its Impact on the Food and Fiber System*, by Thomas L. Vollrath, AIB-784, USDA/ERS, September 2003, available at: [www.ers.usda.gov/publications/aib784](http://www.ers.usda.gov/publications/aib784)



Corbis

Suppose you were asked to classify your weight as either underweight, healthy weight, overweight, or obese. Do you think your assessment of your weight category would square with that of public health officials?

If it does, you are more realistic than many of us. According to a recent ERS analysis based on 1994-96 data, many American adults misidentify their weight category. Forty-one percent of individuals whom health professionals would classify as overweight, but not obese, did not perceive themselves to be overweight. Among those individuals whom professionals would classify as obese, 13 percent said that their weight is about right or even too low.

ERS researchers used self-reported heights and weights to calculate survey respondents' Body Mass Indices (BMI—weight in kilograms divided by height in meters squared). Adults with a BMI of 30 or above are classified as obese by public health officials. Those with BMIs at or above 25 but less than 30 are classified as overweight. ERS researchers gleaned

## What Weight Problem?

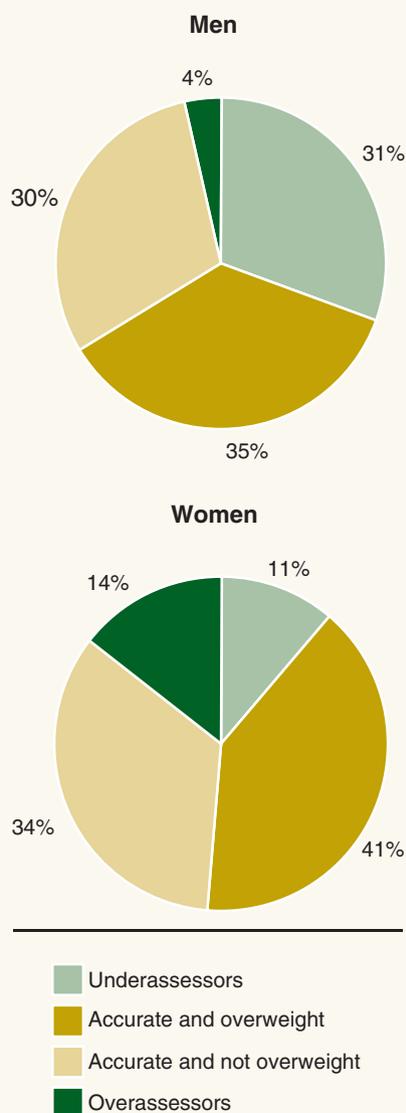
respondents' perceptions of their own weight category by their answer to the survey question: Do you consider yourself to be overweight, underweight, or about right?

Why would economists be interested in a potential mismatch between individuals' perceptions of their weight category and official classifications? It often falls

to economists to determine the cost-effectiveness of potential government programs, such as public information campaigns. This research suggests that designing a campaign to combat overweight and obesity may be difficult because the public may need to be educated not only about the linkage between weight and health, but also about whether they are considered overweight or not.

The design of information programs may be further complicated by the finding that misperceptions of weight category appear to vary by gender and other demographic characteristics. For example, women who were overweight or obese according to official measures were more likely to say they are overweight than men—41 percent of women respondents versus 35 percent of men. Fourteen percent of women respondents (versus 4 percent of men) perceived themselves as overweight when they were not. Individuals who were overweight or obese and perceived themselves to be a healthy weight were more likely to be non-Hispanic Black or Hispanic than Asian or non-Hispanic White. ERS researchers found that accuracy in assessing weight category also varies with education, age, income, and diet and health knowledge. <sup>W</sup>

### Women assess their weight more accurately than men



**Fred Kuchler**, [fkuchler@ers.usda.gov](mailto:fkuchler@ers.usda.gov)  
**Jayachandran N. Variyam**,  
[jvariyam@ers.usda.gov](mailto:jvariyam@ers.usda.gov)

#### This finding is drawn from . . .

"Misperceptions in Self-Assessed Weight Status Vary Along Demographic Lines," by Fred Kuchler and Jayachandran N. Variyam, *FoodReview*, Vol. 25, Issue 3, Winter 2002, pp. 21-27, available at: [www.ers.usda.gov/publications/FoodReview/DEC2002/frvol25i3c.pdf](http://www.ers.usda.gov/publications/FoodReview/DEC2002/frvol25i3c.pdf)

# The Dynamics of Food Insufficiency

The United States has an affordable and abundant food supply. Still, a small percentage of the American population experiences food insufficiency (sometimes or often not having enough to eat). Efforts to target assistance programs to meet the needs of this group can be improved through a better understanding of how people move into and out of food insufficiency, who is most vulnerable, and how long people are food insufficient.

Researchers from ERS and The George Washington University used newly available longitudinal data from the Survey of Program Dynamics to study the dynamics of food insufficiency in the 1990s. They found that under 3 percent of Americans in 1997 lived in households that were food insufficient. Moreover, a large number of people had escaped food insufficiency; four-fifths of those in households that were food insufficient in 1994-95 were food sufficient 2 years later. However, people who were in food-insufficient households in 1994-95 were 10 times more likely than others to be in food-insufficient households in 1997. Although food insufficiency was a relatively transient hardship in most



Photo by Ken Hammond, USDA

cases, people are indeed more likely to experience food insufficiency in the future if they experienced it in the past.

Food insufficiency among U.S. households varies along social and demographic lines. Female-headed households are more likely to experience food insufficiency and are more likely to remain food insufficient than are other households. Disability status and changes in household composition, such as a change in the number of household members, are both associated with

entry into food insufficiency. Completing high school increases the likelihood of exiting food insufficiency. ERS research found that food insufficiency depends on more than just poverty status, indicating that poverty and food insufficiency capture fundamentally different dimensions of economic hardship.

This evidence supports the effectiveness of the design of the Food Stamp Program and other food assistance programs as a safety net for low-income people, particularly those who experience unexpected income difficulties. However, for persistently food-insufficient households, more targeted assistance programs may be necessary. *W*

**Karen Hamrick**, [khamrick@ers.usda.gov](mailto:khamrick@ers.usda.gov)

#### This finding is drawn from . . .

*Dynamics of Poverty and Food Sufficiency*, by David C. Ribar and Karen S. Hamrick, USDA/ERS, FANRR-36, August 2003, available at:

[www.ers.usda.gov/publications/fanrr36](http://www.ers.usda.gov/publications/fanrr36)

## Food-insufficient households

Characteristics	1994-95	1997	Both years	Either year
	Percent			
All people	4.3	2.7	0.9	6.1
<b>Race/ethnicity/citizenship</b>				
White	3.7	2.2	0.7	5.1
Black	8.2	6.5	2.1	12.6
Hispanic	12.2	7.7	2.9	17.0
Noncitizen	11.8	6.6	2.8	15.5
<b>Education level</b>				
Less than high school diploma	6.5	4.6	1.7	9.4
High school diploma	3.5	1.9	0.4	4.9
College degree	0.9	0.5	0.2	1.2
<b>Household type</b>				
Married-couple with children	3.3	1.6	0.4	4.4
Female-headed with children	13.6	12.7	4.3	22.0
ABAWD	3.1	1.5	0.3	4.2

Note: ABAWD is able-bodied adults without dependents (whether or not food stamp recipient). Source: Calculated using data from the 1993 Survey of Income and Program Participation (SIPP) and 1998 Survey of Program Dynamics (SPD). SIPP is a national longitudinal survey conducted by the Census Bureau and designed to capture changes in income, labor supply, household composition, and program participation. SPD is a follow-on to the 1992 and 1993 panels of SIPP.



# Balancing Conservation Costs and Benefits

Photo by Cole, USDA

The growing role of natural resource conservation in U.S. farm policy is evident in the fivefold increase in funding for the Environmental Quality Incentives Program (EQIP) in the 2002 Farm Act. EQIP provides technical, financial, and educational assistance to farmers and ranchers implementing a wide range of agri-environmental practices on land used for farming. Recognizing the dearth of data concerning the installation of conservation practices on U.S. farms, ERS constructed a database using EQIP conservation practice data. The database offers a unique opportunity to better understand the demand for conservation practices across regions, the conservation practices being funded and implemented, and the unit costs (dollars per acre, dollars per foot, etc.) of implementing these practices.

The types of conservation practices that farmers use fall into two broad categories, each of which covers a wide range of practices. Structural practices, as their name suggests, are conservation activities that involve the installation of some sort of equipment or structure, such as a pond to provide water for livestock. Management practices are conservation methods or techniques that help farmers with the operational aspects of their work. Some examples are tillage techniques, integrated pest management, and conservation crop rotation.

The data reveal the range of costs farmers incur in implementing conservation practices. On average, structural practices tend to have higher fixed costs than management

practices because they typically require the use of heavy machinery. For many practices, producers realize economies of scale (lower unit costs) on larger conservation projects or installations. Not surprisingly, structural practices, because they have higher fixed costs, tend to show greater economies of scale. A comparison of small- and large-size installations shows that the average unit cost reduction for structural practices (from small to large installations) ranged from 14 percent to 70 percent, while for management practices, the range was 19 percent to 35 percent.

Now, with the creation of this database, researchers and policy analysts can examine the costs of conservation programs and policies in a comprehensive manner and identify opportunities to reduce costs. Policymakers can use such analyses to evaluate program performance. Combined with information on the farm structure of the rural economy, these data could also be used to target conservation programs more effectively. Given the growing but still limited budget for conservation, the database can help conservation program managers attain environmental goals while attending to farmers' specific conservation needs and minimizing costs. *W*

**Andrea Cattaneo**, [cattaneo@ers.usda.gov](mailto:cattaneo@ers.usda.gov)

**For more information** on Environmental Quality Incentives Program data, visit: [www.ers.usda.gov/data/eqip](http://www.ers.usda.gov/data/eqip)

# WHAT YOU WANT TO KNOW ABOUT RESOURCES AND THE ENVIRONMENT ... BUT COULDN'T FIND

Agriculture has always depended on soil, water, air, and other natural resources and has always had a profound impact on the environment. Despite the increased focus on environmental issues during the last half of the 20th century, it wasn't always easy to find basic facts about resource use in agriculture and environmental impacts associated with agricultural production. Nearly 10 years ago, ERS addressed that problem with the release of *Agricultural Resources and Environmental Indicators*, known as *AREI*. The third and latest edition of the report, available as an online document only, continues to expand on the information contained in the original and is updated as new data become available. Coverage includes land, water, and a variety of other resources, practices, and policies.

**Land resources**—Grassland pasture and range, followed by forest, each account for over 25 percent of U.S. land

use, while cropland comes in third with 20 percent. While urbanized land has quadrupled since 1945, it still makes up less than 3.5 percent of the U.S. land base and is not an overall threat to food production. Besides food, rural land provides many other amenities (such as open space, scenic views, wildlife habitat, and recreation) that are driving farmland preservation efforts. While land quality can be degraded by soil erosion, conservation efforts have substantially reduced the problem on agricultural lands.

**Water resources**—Irrigation of crops is the dominant use of fresh water in the U.S., but agriculture's share is dropping as urban and environmental demands for water increase. While only about 15 percent of U.S. harvested cropland is irrigated, this portion provides about 40 percent of the total value of crops produced.

Water runoff from agricultural lands often carries sediment and nutrients and other chemicals into water bodies and groundwater. Various Federal and State programs are directed toward water conservation and quality preservation.

**Biological resources**—Some biological resources affect agriculture (such as cultivated plants and pollinators), some provide scien-

tific input (such as genetic resources for plant breeding and biotechnology), and some are natural goods and services (such as wildlife, fish, and scenic beauty). While often difficult to value, these resources make an increasingly recognized contribution to society, and are the focus of national and international efforts to preserve and enhance that contribution.

*AREI* also has chapters on soil, nutrient, and pest management; agricultural productivity and research; domestic conservation and environmental policies; and U.S. agriculture and global resources. *W*

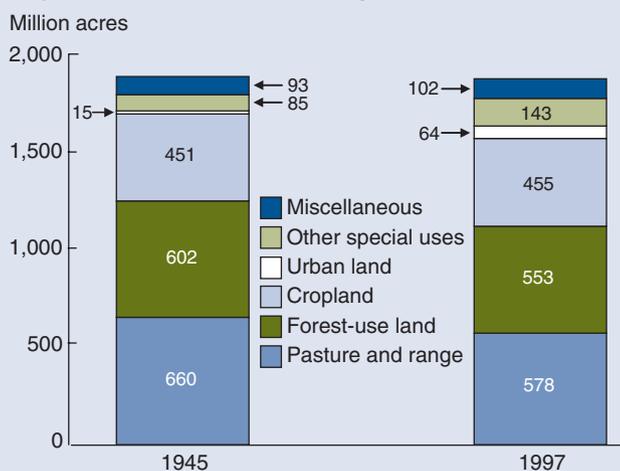
**Ralph Heimlich** (contact Richard Magleby, [rmagleby@ers.usda.gov](mailto:rmagleby@ers.usda.gov))

**For more information** on ERS's *Agricultural Resources and Environmental Indicators*, visit: [www.ers.usda.gov/publications/arei/arei2001](http://www.ers.usda.gov/publications/arei/arei2001)



Photo by Lynn Betts, USDA/NRCS

**Major uses of land in the contiguous 48 States**



Source: Figure 1.1.1 and Table 1.1.2 of *AREI 2001* at [www.ers.usda.gov/publications/arei/arei2001/arei1\\_1landuse.pdf](http://www.ers.usda.gov/publications/arei/arei2001/arei1_1landuse.pdf)

## Rural College Graduates Make a Comeback

The movement of better educated adults from rural areas to urban areas has a longstanding history in America. Data from the 2000 Census, however, show a departure from this trend, as rural areas held their own in the 1990s by attracting and keeping college graduates to work and raise families. In the 1980s, the number of college graduates grew about two-thirds faster in America's central cities and suburbs than in rural areas, but in the 1990s, rural and urban counties enjoyed similar rates of increase.

At the same time that rural America experienced robust growth in college graduates, the number of rural high school dropouts fell. As recently as 1980, there



Photo by John Oubre, Southern University

were six high school dropouts for every two college graduates in rural areas; by 2000, the ratio had improved to three to two. At the current rate of change, college-educated adults will outnumber high school dropouts in rural areas within a decade, and may reorient widespread perceptions about workforce skill levels in rural versus urban areas.

Can we soon expect a plethora of college graduates in every corner of rural America? No, the recent turnaround—the substantial growth in the college-educated population—was not evenly distributed across rural areas. In high-poverty areas in the rural South and Southwest, low-wage resource-based and manufacturing economies limit the kind of high-skill job growth that attracts college graduates. The rural Mountain West, on the other hand, experienced a 50-percent gain in college

graduates, in large part because graduates' greater income and wealth and wider job market networks enable them to settle more easily in highly desirable areas, such as those rich in natural amenities.

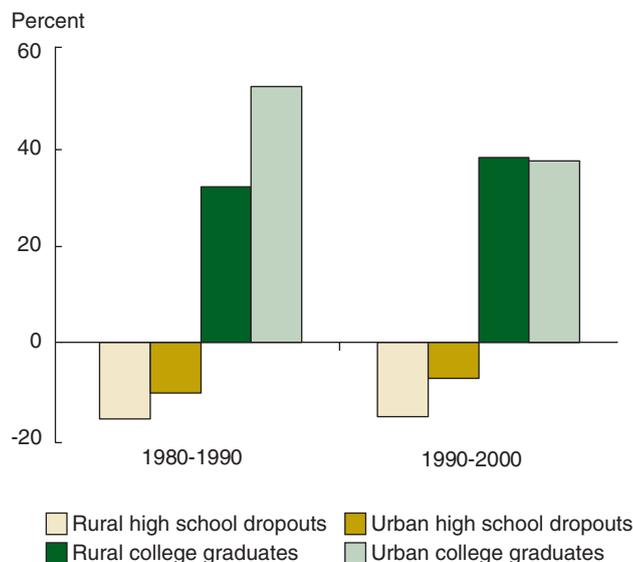
It is probably too soon to tell whether the rapid increase in rural college graduates in the 1990s is the beginning of a long-term narrowing of the rural-urban gap in human resources. Other ERS research found that rural population growth, particularly from college graduates, was much higher during the first half of the 1990s. And, many rural areas will continue to fall short in attracting highly educated workers. The recent improvement in rural educational attainment, nonetheless, is good news in an economy increasingly geared toward high-skill production. *W*

**Robert Gibbs**, [rgibbs@ers.usda.gov](mailto:rgibbs@ers.usda.gov)

### For more information . . .

The ERS Briefing Room on Rural Labor and Education: [www.ers.usda.gov/briefing/laborandeducation/ruraleducation](http://www.ers.usda.gov/briefing/laborandeducation/ruraleducation)

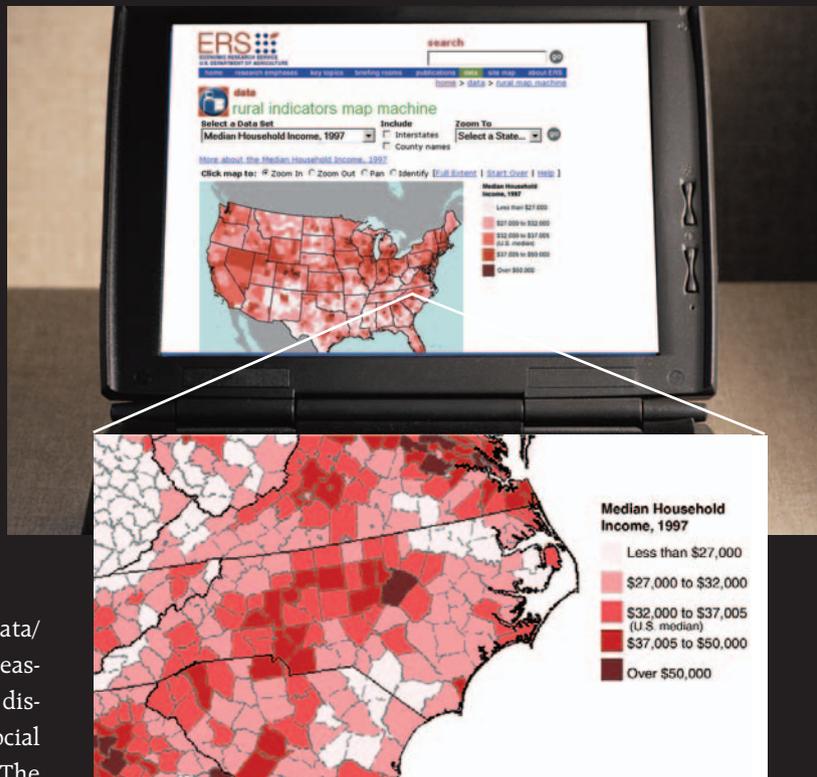
### Change in the number of high school dropouts and college graduates



## Exploring the Diversity of Rural America Through Interactive Mapping

Some rural areas depend on employment in farming and mining. Many of these communities face declining job opportunities and population loss. In contrast, other rural areas, particularly those rich in natural amenities, such as mountains and shoreline, have experienced positive economic transformation and rapid population growth. The Rural Indicators Map Machine, an Internet-based mapping program on the ERS website (available at [www.ers.usda.gov/data/ruralmapmachine](http://www.ers.usda.gov/data/ruralmapmachine)), makes it easier to visualize the geographic distribution of economic and social conditions across America. The program's graphic, user-friendly format enables one to map and explore such trends as rising Hispanic populations and increasing income disparities at the national, State, and county levels.

Maps generated through the program reveal overall population change, population change by race and ethnicity, unemployment rates, and median household incomes at user-specified geographic levels. Users can examine the distribution of these indicators across a variety of ERS classification schemes that categorize U.S. counties by size, degree of urbanization, and natural amenities, and rural counties by their primary economic activity. For example, a user interested in population change in farming-dependent counties can select the county typology codes data set, zoom in to the State or county to identify farming-dependent counties, and then select population change, 1990-2000. Each indicator's median value and range can be displayed on request. These values and ranges can be stacked to make comparisons with other mapped areas.



Unlike pre-generated "static" map images, this program allows users to examine data, get information about the features on the map, move to different geographic levels, and change data layers at their own pace. For example, a user interested in income variability in North Carolina can select North Carolina, zoom in to a rural county such as Halifax County, select the median household income dataset, and compare the income distribution of Halifax County to other North Carolina counties and to the State as a

whole. The program also displays for each indicator tabular data that can be downloaded into a text file for further analysis.

As more data are added to the program, its capabilities will expand. Future updates to the Rural Indicators Map Machine will enable users to map areas by high school and college completion rates, average commuting times to work, and other demographic variables. Additional features will give users more flexibility in generating maps and charts, along with the ability to download data in Microsoft Excel files.  $\forall$

**Timothy S. Parker**, [tparker@ers.usda.gov](mailto:tparker@ers.usda.gov)

**For more information** on rural America, visit: [www.ers.usda.gov/Emphases/Rural](http://www.ers.usda.gov/Emphases/Rural)

# New Insights on Metro and Nonmetro Areas

In recent years, nonmetropolitan (nonmetro) areas have become more socially and economically integrated with metropolitan (metro) areas. Still, newly released data from the 2000 Census of Population and Housing, along with new metropolitan area definitions, show nonmetro areas continue to lag metro areas in many respects. Nonmetro areas generally had higher poverty rates, fewer college graduates, lower average earnings, fewer full-time year-round jobs, and more low-skill jobs. Nonmetro areas, however, also have lower housing costs and more natural amenities.

The new metropolitan area classification (see Behind the Data, p. 47) divides nonmetro areas into two categories: micropolitan (micro) areas and noncore (other nonmetro) areas. Micro areas are nonmetro areas with urban clusters of at least 10,000 persons. Noncore areas have no urban clusters of 10,000 or more persons. The new classification highlights the diversity within nonmetro areas. For example, micro areas have more college graduates and full-time workers, higher average earnings, and lower poverty rates than other nonmetro areas.

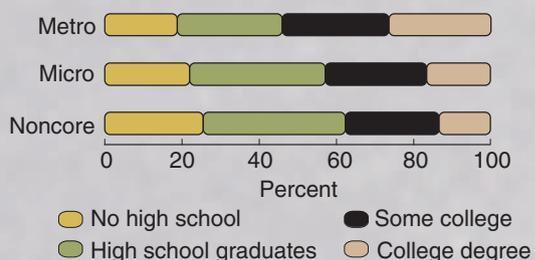
**Timothy S. Parker**, [tparker@ers.usda.gov](mailto:tparker@ers.usda.gov)

*This article is drawn from the ERS Rural Data Page: [www.ers.usda.gov/briefing/rural/gallery](http://www.ers.usda.gov/briefing/rural/gallery)*

## Nonmetro areas have fewer college graduates than metro areas

The share of persons with college degrees was almost twice as high in metro areas (26.4 percent) as in the most remote noncore areas (13.3 percent). Within nonmetro areas, micro areas had a slightly higher college completion rate (15.5 percent) than other nonmetro areas. Overall college completion rates have risen in the past decade, and the number of college graduates in nonmetro areas has increased nearly 40 percent. More college graduates implies a more highly skilled workforce and better paying jobs.

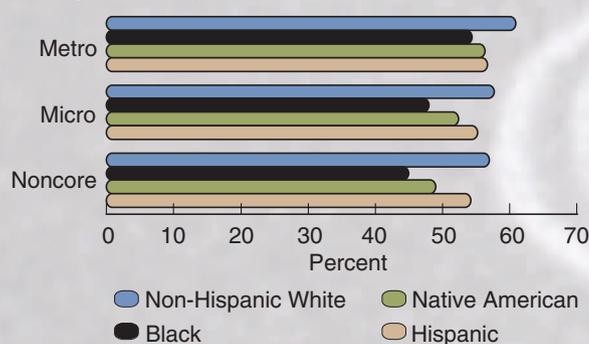
*Educational attainment for persons age 25 and older*



## A smaller share of nonmetro workers are employed full-time year-round

The share of workers with full-time year-round jobs is lower in nonmetro areas than in metro areas, for all racial and ethnic groups. The lower nonmetro share reflects higher unemployment rates than in metro areas. Among nonmetro areas, however, micro areas fared better than noncore areas, with a higher share of workers employed full-time year-round. In general, nonmetro areas have more part-time work and seasonal jobs in agriculture and tourism industries.

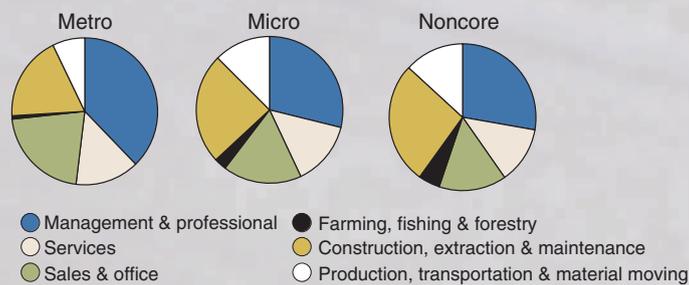
*Share of the population age 16 and older with full-time year-round jobs*



### Nonmetro areas have a lower share of jobs in management and professional occupations than metro areas

In metro areas, 37.8 percent of the workforce was employed in higher paying management and professional occupations, compared with 28.8 percent in micro areas and 27.8 percent in other nonmetro areas. Over 21 percent of metro workers were employed in sales and office occupations, compared with 17.4 percent in micro areas and 15 percent in noncore areas. Nonmetro areas have more jobs than metro areas in farming, construction, production, and transportation.

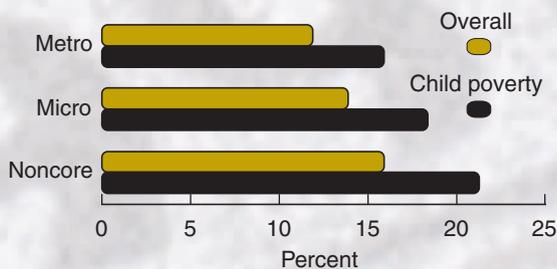
Share of the employed population age 16 and older



### Nonmetro areas have higher poverty rates than metro areas

The overall poverty rate is significantly higher in nonmetro areas than in metro areas. The new nonmetro classification shows that poverty in micro areas (13.9 percent) was 2 percentage points higher than in metro areas, while the rate in noncore areas (15.9 percent) was 4 percentage points higher than in metro areas. The poverty rate for children was also significantly higher in nonmetro areas than in metro areas. The micro-noncore distinction will help anti-poverty programs better target areas of high poverty.

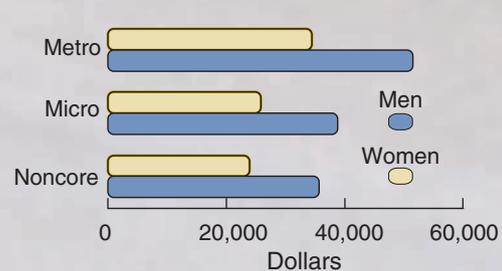
Share of persons living in poverty



### Average earnings are lower in nonmetro areas than in metro areas

Average annual earnings for full-time year-round workers are substantially lower in nonmetro areas than in metro areas for both men and women. Average earnings in metro areas (\$44,635) were 24.4 percent greater than in micro areas (\$33,738), and 30.3 percent greater than in noncore areas (\$31,121). The ratio of women's to men's earnings was fairly constant across all areas. Women on average earned about 67 percent of men's earnings.

Annual earnings for full-time year-round workers



### Housing expenses consume less of a household's budget in nonmetro areas

Housing costs for both renters and homeowners are generally lower in micro and noncore areas than in metro areas. For metro households, 32.3 percent of renters and 16.4 percent of homeowners had housing expenses exceeding 35 percent of their gross household income. In contrast, 27.8 percent of renters and 13.6 percent of homeowners in noncore areas were in that situation.

Share of households whose housing expenses exceed 35 percent of their income

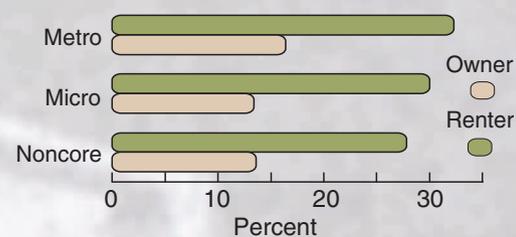




Photo by Ken Hammond, USDA

# U.S. Tobacco Industry Responding To New Competitors, New Challenges

Tobacco growers are facing tough times as cigarette consumption shrinks and foreign producers edge them out of formerly lucrative markets. Not only have U.S. exports of tobacco leaf declined, but cigarettes manufactured in the United States now contain more foreign tobacco than ever before—nearly 50 percent. Why is U.S. tobacco losing ground to other countries? Price, mainly. With cheaper tobacco available on the world market, U.S. tobacco is losing global and domestic market share.

U.S. tobacco imports have significantly increased due to price competitiveness and higher leaf quality by overseas producers—the result of improved cultivation and marketing techniques. In the past, the superior quality of U.S. tobacco compensated for its higher price. But the dramatic increase in the quality of foreign leaf during the past 25 years no longer “protects” U.S. tobacco.

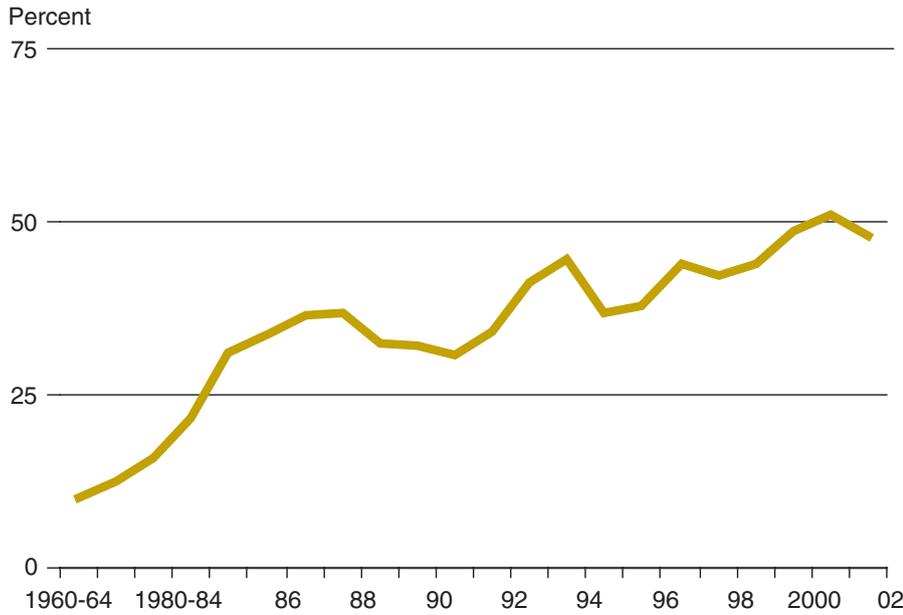
As the quality gap between U.S. and foreign produced leaf narrows, the price gap is increasing. In 2002, Japan, our leading and most loyal tobacco customer, purchased leaf from Brazil for the first time...and the U.S. share of world tobacco trade dropped to 8 percent, an all-time low.

Trade has always been an influential force in the global tobacco market. The U.S. is unique in that it is both a big tobacco-producing and consuming country. Countries that produce tobacco at low cost—Zimbabwe and Malawi, for example—tend to consume little tobacco and seek opportunities in lucrative markets, such as the European Union and Japan, where

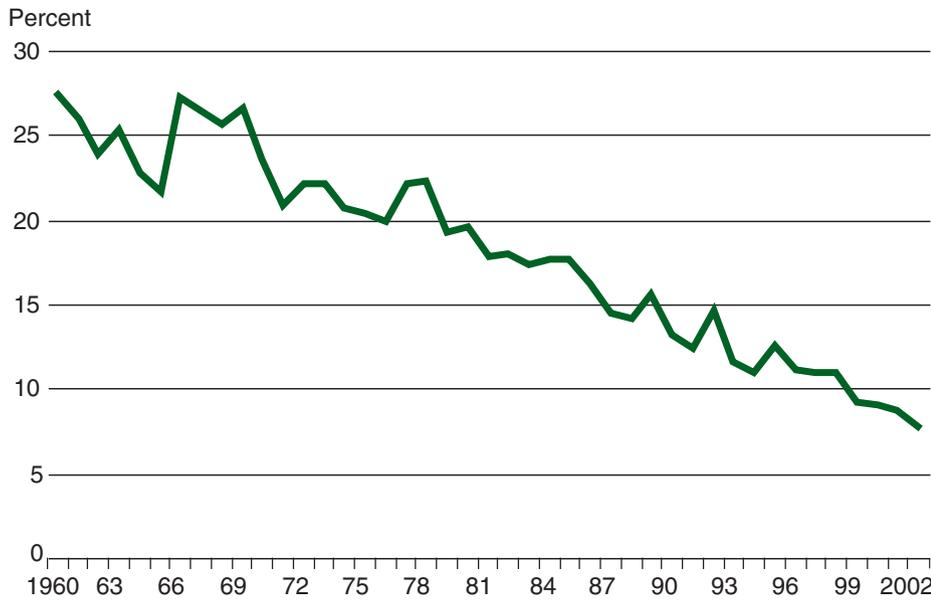
little tobacco is grown and production is costly. While trade policy reforms in the past decade have led to considerable shifts in trade for many commodities, tariffs on tobacco in major importing countries have always been relatively low.

**Thomas C. Capehart, Jr.**  
thomasc@ers.usda.gov

**Share of foreign tobacco in U.S. cigarettes**



**U.S. share of world tobacco trade**



**Tobacco Program, Now 65 Years Old, Ready for Change?**

This changing global environment—and the increasing competitiveness of low-cost producing countries—is putting pressure on the U.S. flue-cured and burley tobacco program. (These two types

account for 93 percent of U.S. tobacco output.) Created in 1938, the program was originally designed to provide a steady supply of high-quality leaf tobacco and to stabilize and support grower incomes through price supports and marketing quotas (see box, “The Tobacco Economy”).

**The Tobacco Economy**

Flue-cured and burley tobacco make up 93 percent of the 890-million-pound U.S. tobacco crop. In 2002, the value of the crop exceeded \$1.5 billion. Flue-cured tobacco is grown in North Carolina, Virginia, South Carolina, Georgia, and Florida. Burley tobacco is grown in Kentucky, Tennessee, Ohio, Indiana, Missouri, Virginia, and West Virginia. About 80,000 farmers produce these two types, using quota they own supplemented by leased quota. In addition to the 80,000 active producers, nearly all of whom own some quota, there are over 300,000 absentee tobacco quota owners. Quota, which is tied to a specific parcel of land, has economic value, so land with quota commands a substantial premium at sale.

For many years, the United States was the largest tobacco leaf exporter and importer by volume. U.S. leaf has always been considered of high quality and is in demand by foreign manufacturers. However, during the past decade, Brazil has become the largest leaf exporter, with the U.S. generally second or third. The U.S. is still the largest importer of leaf, much of which is manufactured into cigarettes that are then exported. Although exports are not as high as during the mid-1990s, the United States still exports more cigarettes than any other country. Between leaf and cigarettes, tobacco makes a significant contribution to the balance of trade. In 2002, tobacco leaf and products contributed \$1.7 billion to the trade balance. In the past decade, its contribution has been as high as \$5.9 billion.

Quota is the amount of flue-cured or burley tobacco leaf a producer can sell during a given season and is a requirement for marketing these two types of tobacco in the United States. That is, unless a producer either owns quota or leases it from a quota owner, the producer cannot sell these types. Quota levels are revised annually according to recent demand and have declined drastically since the 1990s, as U.S. cigarette consumption has dropped and imports of tobacco leaf have risen.

The program also guarantees growers a floor price and a market for flue-cured and burley leaf. But over the years, price supports have risen and the discrepancy between U.S. and world leaf prices has become steadily larger. In 1960, grower prices in the United States averaged 60 cents per pound for flue-cured tobacco, compared with 40 cents per pound in Zimbabwe. By 2000, the difference was 60

cents per pound. Likewise, in 1960, U.S. burley prices were 25 cents per pound above prices in Malawi. In 2000, the spread was \$1.40 per pound.

Because of the way the support price is calculated, the tobacco program nearly always results in annual price increases. The price depends on the average U.S. cost of producing leaf (which almost always goes up from year to year) and recent annual prices. Higher prices beget sliding demand (and greater imports), which results in smaller quotas, because expected domestic demand and export demand, significant factors in the quota calculation, are lower. The downward spiral caused by higher prices—prices rise, demand decreases, quotas shrink, but prices still continue to increase—is the cause of much of the tobacco farmers' woes...and their current interest in a buyout.

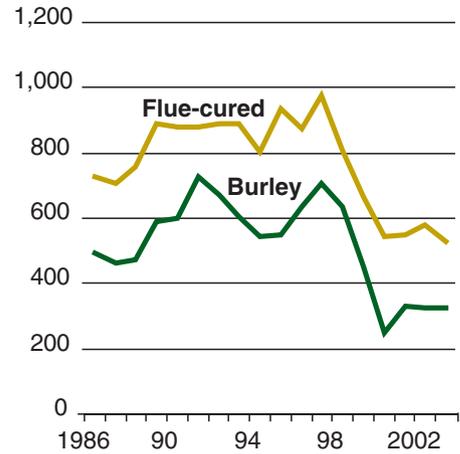
**The notion of quota buyouts is now more favorably received by growers at auction warehouses and country cafes in tobacco country.**



Photo by Ken Hammond, USDA

**Flue-cured and burley national basic quota**

Million pounds



In the late 1990s, legislators from tobacco-producing States proposed alternatives to the quota program. Many of these proposals included some form of buyout, in which the government would purchase the quota from the owner in order to move the tobacco industry toward a "free market" system. Quota holders would be compensated for the loss of future income from renting their quota to others or growing tobacco using their own quota.

At that time, the idea of a tobacco quota buyout program got mixed reviews from tobacco farmers. Many older farmers supported a buyout as a path to a secure retirement, but younger growers often preferred the stability and revenue the program guaranteed. Drastic cuts in quotas starting with the 2000 crop changed the picture. Quotas in 2003 are only 63 percent of 1999 levels. As a result, the notion of quota buyouts is now more favorably received by growers at auction warehouses and country cafes in tobacco country. This renewed interest has also united unlikely bedfellows: health advocates and tobacco grower organizations. These groups have aligned to promote legislation that couples a quota buyout with continued production controls for growers

and regulation of tobacco products by the Food and Drug Administration (FDA). How did this turnabout happen, what are options for reform, and what are the consequences of a traditional U.S. cash crop "cashing out"?

### Quota Buyout Seeks To Restore U.S. Competitiveness. . .

Most tobacco leaf grown by U.S. producers follows one of three paths. It can be sold to the domestic cigarette industry for cigarette consumption here, sold to the domestic industry for manufacture and export of cigarettes, or exported in its leaf form. No matter which path the leaf follows, it faces competition from foreign sources.

Cigarettes made by domestic manufacturers contain both U.S. and foreign

tobacco, with increasing amounts of the latter. High U.S. tobacco prices, competition from upstart cigarette companies making generic cigarettes, and large payments to States under the Master Settlement Agreement MSA, (see box, "Master Settlement Agreement") have made large cigarette manufacturers receptive to less expensive imported leaf—particularly given its increased quality.

The inability of U.S. growers to rapidly adapt volume and price to changing conditions puts them at a further disadvantage in the global market. For instance, when production in Zimbabwe plummeted due to political unrest and land reform, Brazilian producers were able to rapidly increase production and expand exports. But, because of the quota program, U.S. growers are unable to take advantage of

opportunities in the world marketplace. Tobacco quota adjustments are based on past, not current or future, market conditions.

### . . . And Boost Profitability

Despite increased foreign competition and the constraints of the quota program, American tobacco farmers still find tobacco a profitable crop—far more profitable than the alternatives. An average grower in North Carolina produced 27 acres of tobacco, about 54,000 pounds of leaf, in 1997, the latest year for which detailed production data are available. Those 27 acres yield about \$100,000 of tobacco leaf. In comparison, the same 27 acres yield about \$6,500 of corn. Corn isn't the only alternative, of course. Niche crops can be profitable, but often markets are limited.

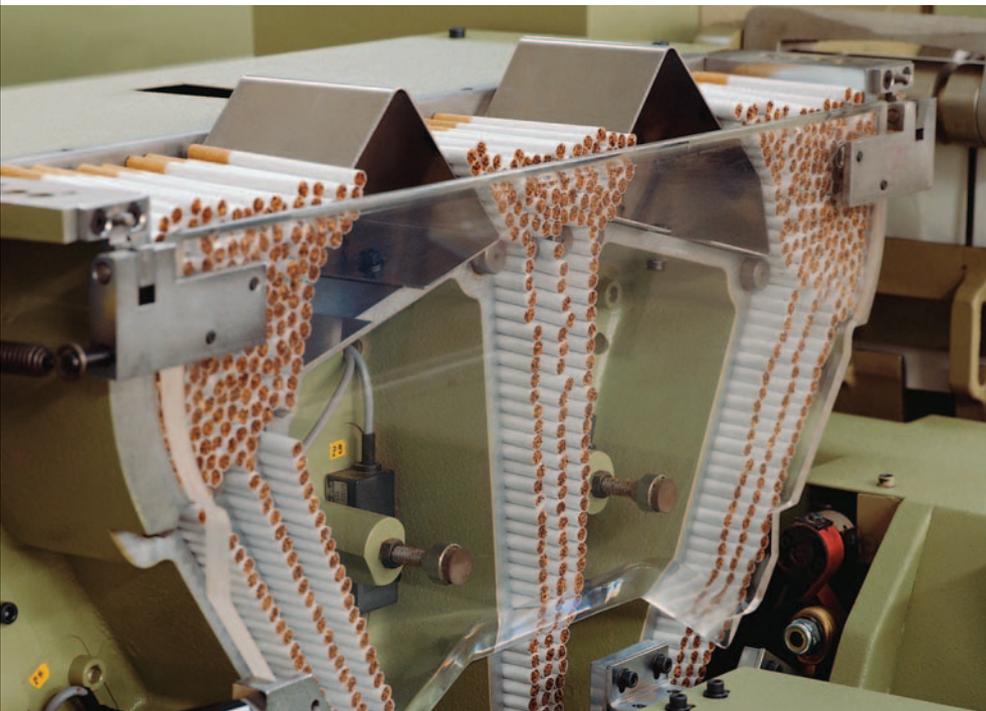
At the same time, growers are faced with shrinking quota. Without access to sufficient quota, growers are unable to maintain the economies of scale needed to keep their production costs down.

For those who farm using another's quota—through leasing, for example—growing tobacco is still profitable but less so, at least on a cash basis, because they must compensate the owner of the quota. Depending on the year, renting or leasing quota can add up to 75 cents per pound, or nearly 40 percent, to a grower's expenses. The elimination of the cost of renting quota would enable these producers to maintain profits at a lower price.

Those growers who own quota do not have the expense of renting quota, but they must consider the opportunity cost to owning it—they could sell it and use the money elsewhere. As the national quota shrinks due to lower demand for leaf, competition for rental quota further inflates the cost of growing tobacco, eating into producer profits.

For all these reasons, grower interest in a buyout is at an all-time high. Quota

**Cigarettes made by domestic manufacturers contain both U.S. and foreign tobacco, with increasing amounts of the latter.**



Corbis

## Master Settlement Agreement

On November 16, 1998, 46 State attorneys general and the major cigarette/smokeless tobacco product manufacturers signed a Master Settlement Agreement (MSA) to reimburse States for the cost of treating smoking-related illnesses. The companies also provided funds to reduce teen smoking. Previously, four States—Minnesota, Mississippi, Florida, and Texas—had signed separate agreements with the industry. One result of the settlement was an unprecedented increase—that very day—of 45 cents per pack in wholesale cigarette prices. Interest in the tobacco economy has broadened as States have become accustomed to payments from the MSA. Because of the size of the payments and the different ways they are used, States are now financially dependent, to varying degrees, on tobacco company payments. Key elements of the pact include:

- \$206 billion to be paid to States over 25 years.
- \$1.5 billion over 10 years to support anti-smoking measures, plus \$250 million to fund research into reducing youth smoking.
- Limitations on advertising.
- Ban on cartoon characters in advertising.
- Ban on “branded” merchandise.
- Limitations on sporting event sponsorship.
- Disbanding of tobacco trade organizations.

In addition to the MSA, sometimes known as Phase I, cigarette manufacturers agreed to pay \$5.15 billion to tobacco growers over a period of 12 years, known as Phase II. These payments were negotiated to compensate growers and quota owners for potential reductions in tobacco production resulting from the MSA.

The State of Maryland used part of its MSA payment as a tobacco buyout, by paying tobacco producers who promised not to grow tobacco. Because Maryland tobacco is a type not covered by the Federal quota program and the State program has substantively different objectives, this buyout experience is not relevant for the proposed flue-cured and burley buyout. The purpose of the Maryland buyout was to reduce tobacco production and keep land in agriculture, not to improve the viability of tobacco producers.

owners see an opportunity to exit the industry with a generous payment. Growers who are currently leasing quota anticipate a transition payment, elimination of quota rental payments if they continue growing tobacco, and the potential for lower per-acre production costs if they have greater flexibility to expand their acreage.

### What Might the Policy Future Hold?

A wide range of policy options exists. On one end of the policy continuum is the total dissolution of the program—letting market forces determine the location, volume, and price of tobacco production. In this scenario (and others discussed below), total U.S. acreage and acreage per farm would likely increase. Prices would drop, imports would likely decline, and the U.S. share of both domestic and global markets would increase. Land values formerly propped up by the value of quota

would decline during the adjustment to a free market.

At various points between the free-market end of the continuum and the restrictive end lie the buyout proposals currently being debated in Congress. Many of these proposals originate from the principles outlined in a 2001 Presidential Commission Report, *Tobacco at a Crossroad: A Call for Action*. Under such proposals, quota holders (owners) would typically receive a fixed payment per pound for their quota, paid over a period of years. Currently, there are about 400,000 quota owners, and they range from large, business-oriented holders to former tobacco farmers and retired people. Producers who do not own quota would be paid a transition payment to help them adjust to a free-market environment and to encourage diversification into other enterprises. During the mid-1990s, the 80,000 farmers who grew flue-cured and burley tobacco planted 60 percent of

their tobacco using others' quota (see box, “How a Buyout Proposal Might Operate”).

Some proposals include licenses as a substitute for quotas, in order to continue some form of control over production. Licenses would differ from quotas in several ways. Licenses would be issued to individuals and would stay with those individuals until the license holder dies and passes the license on to someone else. Licenses would not be bought, sold, or rented, and, therefore, would not add to the cost of growing tobacco. As such, licenses would negatively affect competitiveness less than quotas. Licenses would also carry geographic restrictions to prevent production from leaving traditional areas.

Price support at some level has also been proposed for a revised tobacco program—with or without licensing. Lower levels of price support would move policy along the continuum of policy options toward a free-market orientation, while

## How a Buyout Proposal Might Operate

While the various buyout proposals being considered carry different features, all of them include some sort of buyout of quota. At the time of this writing, all the proposals contain similar payment structures, in terms of the amounts that would be paid to quota holders and to producers.

The national flue-cured and burley tobacco quotas are determined, according to statute, by a formula that accounts for domestic and foreign demand for U.S. leaf. An adjustment in the national quota is then applied to each quota holder. For the purposes of a buyout, payments to individual quota owners are prorated by the share of each in the national quota poundage for the base period, multiplied by \$8. (The present value of the future income stream from a pound of quota is roughly \$8.) An active producer/renter would receive a transition payment of \$4 per pound of tobacco, determined by varying base periods depending on the proposal. (One proposal pays an additional \$2 a pound to those who stop growing tobacco.) A quota owner who also produces his or her tobacco would therefore be entitled to \$12 per pound.

Growers would receive payments that vary according to the proportion of quota they own or rent. In 1997, the last year for which we have detailed data, growers in North Carolina, the major flue-cured producing State, each produced an average of 27 acres of tobacco, about 54,000 pounds of leaf. During the 2002 season, that was about \$100,000 worth of leaf. To put it in perspective, the same 27 acres would have produced about \$6,500 worth of corn. Since North Carolina tobacco growers typically own about 33 percent of their quota and lease the remaining 67 percent, a grower would ultimately receive \$142,560 in quota payments and \$216,000 in transition payments, or \$358,560. The owner of the leased quota would receive \$289,440 in quota buyout payments. Quota was high in 1997, so payments may differ from this example.

A burley tobacco grower in Kentucky, where farms average about 6 acres of tobacco production, produces about 12,000 pounds of leaf. Based on an average quota rental of 56 percent, a grower would receive \$42,240 in quota buyout payments and \$96,000 in transition payments for a total of \$138,240. The owner of the leased quota would receive \$53,760.

### ***Peanut quota buyout***

Similar to the current tobacco program, the peanut program was, until last year, a system that relied on production limitations (quotas) to support prices of peanuts (destined for domestic food consumption) at levels generally well above those in international markets. The 2002 Farm Act eliminated the quota system—allowing domestic marketing of peanuts by any producer—and compensated the former quota owners with a quota buyout. Under the peanut quota buyout, peanut quota owners were compensated with 55 cents per pound for the loss of their quota rights—about \$37,000 for an average North Carolina peanut grower using 27 acres to produce his/her peanut quota.

Unlike tobacco producers, however, peanut producers, whether former quota owners or not, now may also be eligible for other types of support (such as direct payments, marketing assistance loans, counter-cyclical payments) and are protected by high import tariffs.

higher support levels would be more protective. Price support could be continued indefinitely, could provide a period of time for growers to acclimate to the new economic environment, or could terminate altogether at a sunset date. Price supports could be in effect for a producer's historical level of production, but not protect production above that level.

Some policy proposals toward the restrictive area of the continuum combine price supports and licensing with FDA regulation. These proposals combine goals dear to both tobacco growers and health advocates. From a health promotion perspective, a program that enhances quality control and health and safety standards for tobacco leaf is in the interest of the health community. Inspections for pesticides and other chemicals at all levels of the production chain is a goal that health advocates say would reduce harm from tobacco products. Health advocates also want future tobacco crops to be grown in traditional areas, where monitoring can be carried out by knowledgeable people.

The status quo—the program that currently exists—is at the most restrictive end of the continuum, where market forces are constrained by various types of interventions. Current levels of price supports are not competitive in world markets. Costs are higher, because some production rights are controlled by nonproducing quota owners. And, U.S. growers are increasingly noncompetitive as imports increase, quota levels shrink, and the price support level rises. Preservation of the status quo all but guarantees continued decline in quota levels to the point where the U.S. tobacco industry could become a minor supplier of tobacco.

### **Many Scenarios Are Possible**

Tobacco continues to be an important U.S. crop, but recent world market pressures on tobacco producers and continuing concern about the health effects of cig-



Photo by Ken Hammond, USDA

arettes have renewed interest in proposed buyout programs for tobacco quota holders. A buyout would eliminate quota restrictions on tobacco production, but in most proposals, some form of production control and price support would continue. Eliminating quota rental costs, which inflate the price of U.S. versus foreign leaf, would enhance U.S. competitiveness in domestic and foreign markets.

Part of the impetus for a buyout is to increase the competitiveness of U.S. tobacco by narrowing the gap between its price and that of other countries. In a post-buyout environment, as the U.S. price falls, purchases of U.S. tobacco would increase both domestically and by foreign customers. Growers would respond to this increase in demand as much as possible within the limits of the post-buyout program. In a free-market, no-program environment, production would increase rapidly. If constraints exist because of contin-

ued market intervention, any increase would be slower.

Although health groups do not necessarily want tobacco production to increase, they may accept smokers' consuming U.S. tobacco produced under a stringent regulatory environment with careful inspections for banned chemicals. Linking the goals of a tobacco quota buyout and FDA regulation of tobacco products has advantages for both producers and health interests. Tobacco buyout advocates can garner widespread support for an issue that affects only a handful of States, and health regulation watchdogs get support in States traditionally opposed to tobacco product regulation.

A post-program regime without geographical restrictions on tobacco production could upend the structure of the U.S. tobacco industry. Production may move to areas where larger, more efficient units could be assembled. Production in areas such as the Piedmont or hilly regions in Kentucky, where tract size is traditionally

smaller, likely would decline. Tobacco farms would grow bigger and the number of growers would drop. And, some production would likely shift to States that have never grown tobacco, along with attendant economic consequences. **W**

#### **This article is drawn from...**

*Trends in the Cigarette Industry After the Master Settlement Agreement*, by Thomas C. Capehart, Jr., TBS-250-01, USDA/ERS, October 2001, available at: [www.ers.usda.gov/publications/tbs/oct01/tbs250-01](http://www.ers.usda.gov/publications/tbs/oct01/tbs250-01)

*Tobacco Quota Buyout Proposals in the 107<sup>th</sup> Congress*, by Jasper Womack, Congressional Research Service, Library of Congress, August 2002.

*Tobacco at a Crossroad: A Call for Action*, by the President's Commission on Improving Economic Opportunity in Communities Dependent on Tobacco Production While Protecting Public Health, 2001, available at: [www.fsa.usda.gov/tobcom/reports.htm](http://www.fsa.usda.gov/tobcom/reports.htm)

See also the ERS Tobacco Briefing Room at [www.ers.usda.gov/briefing/tobacco](http://www.ers.usda.gov/briefing/tobacco)



# MULTILATERALISM and REGIONALISM

*Dual Strategies for Trade Reform*

SEPTEMBER 2003

23

AMBER WAVES

Mary E. Burfisher

[burfishr@ers.usda.gov](mailto:burfishr@ers.usda.gov)

Steven Zahniser

[zahniser@ers.usda.gov](mailto:zahniser@ers.usda.gov)

The United States is engaged in agricultural trade liberalization in two different types of venues. At the multilateral level, the U.S. is an active participant in the current round of world trade negotiations, called the Doha Development Agenda or Doha Round, at the World Trade Organization (WTO). The Doha Round opened in 2001 and is scheduled to conclude in 2005 (see box, "U.S. Proposal for Agricultural Reform in the Doha Round," p.29). At the regional level, the U.S. hopes to build upon the North American Free Trade Agreement (NAFTA) with Canada and Mexico by creating a Free Trade Area of the Americas (FTAA) that will include 34 countries in the Western Hemisphere. In addition, the U.S. has concluded free-trade negotiations with Chile and Singapore; is pursuing similar agreements with Morocco, Australia, Bahrain, and countries in Central America and Southern Africa; and has proposed an agreement with the countries of the Middle East (see box, "U.S. Engagement in Regional Trade Agreements").

Why does the United States pursue both multilateralism and regionalism? This dual trade strategy is grounded in two fundamental ideas: (1) trade reform at either level is beneficial to the U.S. economy, and (2) each venue for trade liberalization offers unique opportunities. Multilateralism is clearly beneficial in that it engages virtually every country in the world in a mutual process of trade reform. In contrast, regional trade agreements (RTAs) are exclusive and discriminatory, but they are capable of much deeper trade reforms since their adherents are fewer, more like-minded and committed, and often linked geographically.

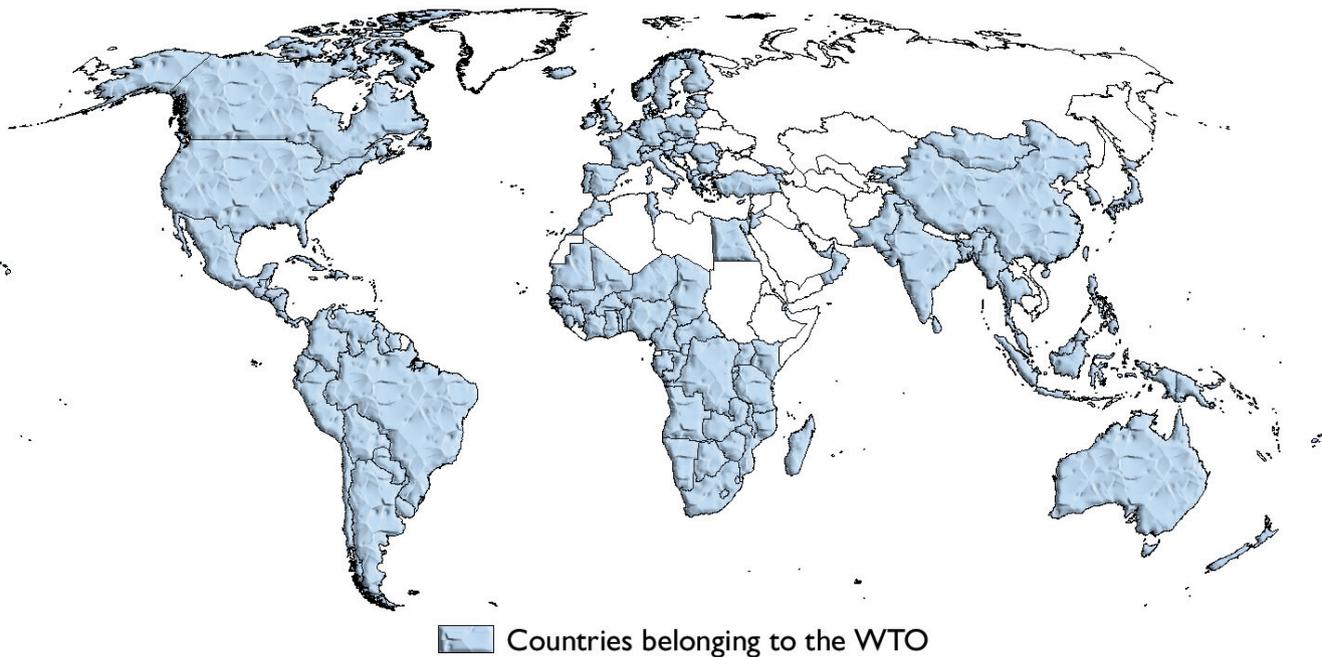
**Importance of Trade Reform to U.S. Food and Agriculture**

Roughly a quarter of the cash receipts of U.S. agricultural producers are derived from exports. Since expansion of the domestic market is largely constrained by the growth rate of the U.S. population, the international market has absorbed much of the growth in U.S. agricultural produc-

tion over the past decade. From 1994 to 2001 (the latest year for which data are available), the value of exports consistently grew faster than total farm cash receipts. Imports now constitute about 9 percent of U.S. food consumption (versus 7 percent in the late 1980s), although this proportion varies greatly by product. Imports have enabled U.S. consumers to enjoy more varied food at a lower cost. U.S. food processors also benefit from international trade, since it enables them to access the most useful and cost-effective inputs available, further lowering the cost of food.

Because of trade's growing importance to U.S. agriculture, trade policy is becoming an increasingly critical part of a comprehensive U.S. farm policy. U.S. trade policy is directed toward trade liberalization. Whether through multilateralism or regionalism, the basic rationale for trade liberalization is essentially the same: Free markets allow countries to specialize in the production of goods in which they hold a comparative advantage. Moreover,

**Members of the World Trade Organization (WTO)**



## U.S. Engagement in Regional Trade Agreements

Agreements and/or Members (in addition to the U.S.)	Status
<b>Israel</b>	Entered into force, 1985. Agricultural provisions subject to further negotiation.
<b>Canada-U.S. Free Trade Agreement (CUSTA)</b>	Entered into force, 1989.
Canada	Incorporated into NAFTA, 1994.
	Fully implemented, 1998.
<b>North American Free Trade Agreement (NAFTA)</b>	Entered into force, 1994.
Canada, Mexico	Full implementation scheduled, 2008.
<b>Jordan</b>	Entered into force, 2001.
<b>Chile</b>	Signed, 2003.
<b>Singapore</b>	Negotiations concluded.
<b>Free Trade Area of the Americas (FTAA)</b>	Negotiations underway.
Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela	
<b>Central American Free Trade Agreement (CAFTA)</b>	Negotiations underway.
Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua	
<b>Morocco</b>	Negotiations underway.
<b>Australia</b>	Negotiations underway.
<b>South Africa Free Trade Agreement (SACU)</b>	Negotiations underway.
Botswana, Lesotho, Namibia, South Africa, and Swaziland	
<b>Middle East region</b>	Proposed.
Countries not yet specified	
<b>Bahrain</b>	Proposed.

by allowing firms to serve customers across several countries, trade liberalization can enable greater economies of scale and other efficiencies. The resulting production efficiencies lower costs and thereby increase the welfare, or purchasing power, of consumers.

### Multilateralism: Broad Reforms With a Global Reach

The U.S. has backed multilateral trade reform since 1947, when it became one of 23 signatories to the General Agreement on Tariffs and Trade (GATT). Eight successive rounds of multilateral trade negotiations brought member countries together to negotiate the mutual reduction of tariffs and other trade barriers. Today, the GATT's successor organization, the WTO—which came into existence in 1995—boasts 146 members (as of April 2003). An additional 29 countries currently enjoy observer status, which obligates them to seek membership within 5 years.

Trade rounds under the GATT gradually lowered the average global tariff on manufactured goods to just 4 percent and helped to establish a rules-based global trading system. Trade rules that ensure predictability and fairness in trade relationships and contain a credible enforcement mechanism spur investment, promote the efficient conduct of business, and facilitate the expansion of trade and economic growth. While the first seven rounds of GATT negotiations did very little in the way of liberalizing agricultural trade, the Uruguay Round (1986-94) made three major contributions. It: (1) established upper limits on agricultural tariffs and converted nontariff barriers such as quotas to tariffs, capped at specified levels; (2) placed limits on the quantity and value of export subsidies; and (3) limited expenditures on the most distorting types of domestic agricultural subsidies, such as price supports and input subsidies.



Photo by Franco Mattioli, IFAD

Despite this progress, significant distortions in agricultural policy persist in virtually all parts of the world. Economic modeling conducted by ERS indicates that present levels of global agricultural tariffs and subsidies depress world agricultural prices by about 12 percent and lower the volume of world agricultural trade by 15 percent. Further reductions in the amounts of agricultural tariffs and subsidies that are allowable under the WTO form one of the key challenges facing the Doha Round.

U.S. producers and consumers alike have much to gain from further multilateral trade liberalization. If the agricultural tariffs and subsidies in effect today were completely eliminated, the annual volume of U.S. agricultural exports would increase by about 20 percent, U.S. agricultural imports would rise by about 9 percent, and the U.S. agricultural terms of trade (the price of agricultural exports rel-

ative to agricultural imports) would improve. U.S. exports would account for much of the resulting expansion in world trade, mostly due to the fact that U.S. producers face high agricultural tariffs in foreign markets, with a global average of 60 percent. Consumers would benefit from the removal of U.S. agricultural tariffs, which average about 10 percent, as well as the effects of global tariff reform, which would increase agricultural production efficiencies around the world and lead to lower prices. Full agricultural policy reform would increase the purchasing power of U.S. consumers by about \$13 billion annually.

Given the many benefits of multilateralism, why not pursue this trade strategy alone? The main strength of multilateral reform—its global reach—is also its primary weakness. Multilateralism requires reaching a consensus among a diverse, global membership that includes countries with different priorities and interests, as well as countries at different stages of development. This diversity of perspective and circumstance is particularly true of the multilateral agricultural negotiations, and it helps to account for the slow progress of these efforts. For many developing countries, the agricultural sector has a unique social and economic role as an engine for development and a source of income, employment, and security for a large share of their populations, including their most vulnerable citizens. To accommodate these special circumstances, developing countries have so far been allowed by the WTO to follow a more gradual schedule for agricultural policy reform than developed countries.

### Regionalism: Deeper Reforms With Key Trade Partners

In an RTA, a relatively small number of countries agree to mutually reduce their barriers on each other's exports. At one time, RTAs were mostly established by

geographic neighbors. Today, many RTAs encompass geographically distant countries, such as the U.S.-Jordan and EU-Mexico agreements, but the term "regionalism" is still commonly used. Over the past decade, there has been a rapid increase in the formation of RTAs. As of May 2003, over 180 such agreements were in force worldwide, over four times the level of a decade earlier, and at least 30 more are planned or under negotiation. Almost every country in the world has joined at least 1 RTA, and some have entered 20 or more.

Countries pursue regionalism for a number of reasons. Foremost, regionalism is a strategy to achieve comprehensive reforms with key trade partners. In the RTAs of the past decade, members have sought to implement deep economic and institutional integration by crafting agreements that address more than tariff reform. Many RTAs now deal with the reform or harmonization of regulatory practices, investment protection, labor issues, trade dispute resolution, and the development of common positions in other trade negotiation venues. Increasingly, RTAs are also viewed as a way to link developing and developed countries in a common project of economic development. By encouraging investment and locking in unilateral economic reforms, RTAs can facilitate productivity gains in participating developing countries and accelerate their economic growth.

Many developed countries offer non-reciprocal preferences as another way to foster exports by developing countries. Nonreciprocal preferences are arrangements between developed and developing countries that reduce tariffs or even allow duty-free access for selected products from developing countries. However, these arrangements often exclude products that are of the greatest importance to developing countries. In addition, nonreciprocal preferences do not require partici-

pating developing countries to adopt their own market access reforms. For these reasons, nonreciprocal preferences are now viewed by many as a less effective development tool, compared with RTAs.

Most of the RTAs that involve the United States have been successful in liberalizing agricultural trade. By 2008, NAFTA will have eliminated nearly all tariffs—agricultural and nonagricultural—among Canada, Mexico, and the United States. Although the U.S. free-trade agreement with Israel largely left agriculture as a subject to be negotiated later, the yet-to-be-ratified agreements with Chile and Singapore contain extensive agricultural provisions. In the Free Trade Area of the Americas (FTAA), now under negotiation, the United States has made an aggressive proposal for mutual agricultural trade liberalization. Every agricultural commodity would be included in trade reform, with tariffs to be eliminated immediately or within a specified transition period, depending on the state of development of the exporter.

Because the RTAs that involve the U.S. generally include agriculture, they have generated important benefits for U.S. farmers, ranchers, and consumers. Through extensive policy and economic analysis, ERS has identified NAFTA's impact in isolation from other factors.

NAFTA has had a large proportionate impact on several U.S. agricultural exports, as measured by an estimated increase in trade of 15 percent or more, relative to what would have occurred without the agreement. These exports include beef and processed tomatoes destined for Canada, as well as cattle, dairy products, apples, and pears destined for Mexico. NAFTA has spurred a similarly large proportionate increase in several U.S. imports, including Canadian beef and Mexican sugar and peanuts.

NAFTA will be consolidated with the Western Hemisphere's other RTAs, resulting in a single, comprehensive trade pact, the FTAA. As a result, U.S. products will no longer have to compete against the trade preferences given by agreements in which the U.S. is not a member, such as the Common Market of the South (MERCOSUR). Also, the FTAA countries outside NAFTA will no longer have to compete against the preferences that Canada, Mexico, and the U.S. currently give to each other. U.S. exports of processed foods, dairy products, oils and fats, and rice are expected to benefit particularly, while horticultural products and processed foods (including sugar) are likely to see increased U.S. imports.

Despite regionalism's many benefits, there are many critics of this trade



Photo by Bill Tarpening, USDA

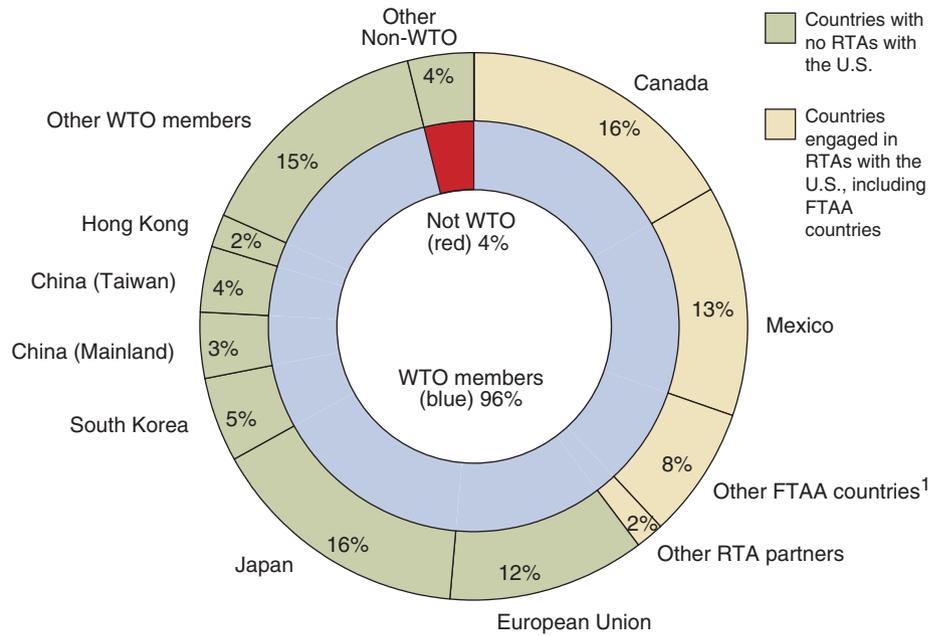
strategy. Perhaps the main reason for this criticism is the discriminatory nature of RTAs. By offering trade preferences to selected partners, they undermine a key principle of the GATT/WTO. Under the WTO's most-favored-nation principle, a country may not offer trade advantages to one country that it does not offer to all countries. Global trade rules grant an exception for the discriminatory preferences of RTAs, but only for those agreements that are on the whole trade-liberalizing.

RTAs can also be trade-diverting, as they can shift trade away from the lowest cost sources of imports and toward preferred trading partners. Trade diversion harms consumers in the importing country, and it can create or entrench special-interest groups that benefit from trade preferences and trade diversion. Trade diversion is more likely to occur when the RTA provides for selective, rather than comprehensive, liberalization or when the tariffs imposed by members on the rest of the world are very high.

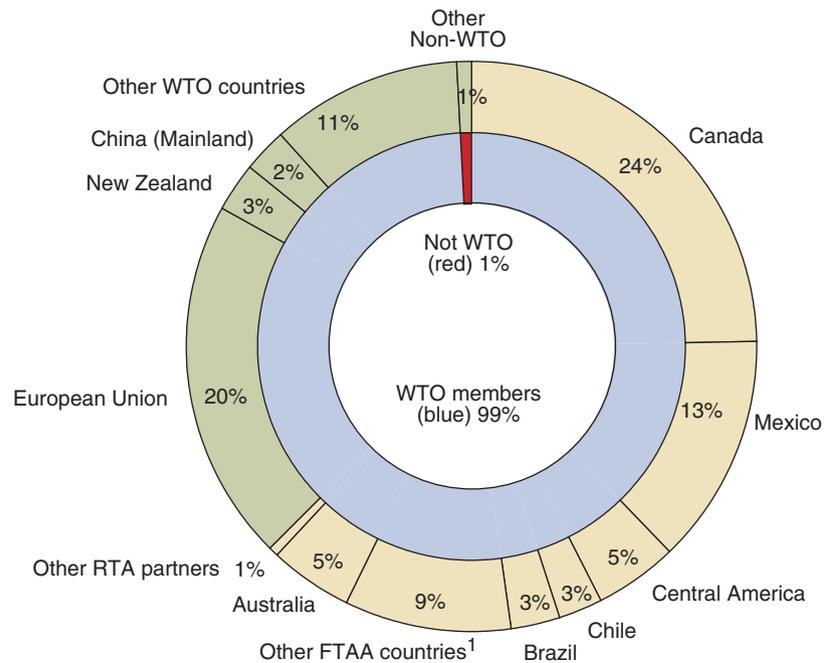
In addition, regionalism has a more limited geographical reach than multilateralism. For countries like the U.S., with widespread export markets, relatively modest reforms on a global basis can have larger trade impacts than deep reforms with a few trade partners. For example, the WTO signatories accounted for 96 percent of U.S. agricultural exports in 2002, while the countries that have either a current or proposed RTA with the U.S. accounted for just 39 percent. (Almost all the RTA partners of the U.S. are also WTO members.) Meanwhile, the WTO signatories supplied 99 percent of U.S. agricultural imports in 2002, compared with over 60 percent from RTA partners. For both exports and imports, Canada and Mexico were the two most important RTA partners in terms of their share of U.S. agricultural trade.

Finally, some types of agricultural policies have global dimensions that are

**U.S. agricultural exports by destination, 2002 (\$53.3 billion)**



**U.S. agricultural imports by origin, 2002 (\$41.0 billion)**



The outer circles classify all U.S. trading partners in terms of whether they are engaged in RTAs with the U.S. or not. The yellow portions of the outer circles include all the countries listed in the box on p. 25 ("U.S. Engagement in Regional Trade Agreements"), except for the Middle East region and Bahrain, as these agreements have not yet been defined clearly.

The inner circles classify those trading partners in terms of whether they are members of the WTO or not.

<sup>1</sup> The Bahamas is a member of the FTAA, but not a member of the WTO, although it has submitted a formal request for accession. It accounted for less than half a percent of U.S. agricultural exports and imports in 2002.



PhotoDisc

## U.S. Proposal for Agricultural Reform in the Doha Round

The U.S. proposal to the Doha Development Agenda contains three key elements:

- To enhance export competition, the United States has proposed that export subsidies be phased out over a 5-year period, that export taxes on agricultural products be prohibited (with some exceptions for developing countries), and that rules be established to govern export credits and state-trading enterprises.
- To foster improvements in market access, the United States has proposed comprehensive and harmonizing tariff reductions, with a tariff-cutting formula that lowers high tariffs the most. Additionally, the United States has proposed a 20-percent expansion in tariff-rate quotas—the quantity of imports subject to lower, within-quota tariff rates—and that within-quota tariffs be eliminated altogether over a 5-year period.
- To reduce trade-distorting domestic support, the United States has proposed the adoption of a single category of trade-distorting support, with expenditures capped at no more than 5 percent of a country's total value of agricultural production, and agreement on a specific date for the elimination of all trade-distorting support. Examples of trade-distorting domestic support include price supports like marketing loan benefits and subsidies for fertilizer, seed, and other inputs. The U.S. proposal allows countries to pursue domestic policy objectives, including environmental protection and support for rural communities, as long as they do so in a manner that does not distort production or trade. It also offers special consideration to developing countries so that they may use supports essential to development.

not easily addressed at the regional level. For example, domestic agricultural subsidies are difficult to include in an RTA unless the signatories are willing to adopt a common agricultural policy, as in the EU example. Production subsidies influence a country's total trade, not just its trade with its RTA partners, and their negotiation in a regional forum is likely to reduce the leverage of RTA members in multilateral negotiations. Likewise, it is difficult for an RTA to address export subsidies. Although the use of subsidies by members among themselves could be limited, it would be hard to monitor subsidies offered to RTA members by outside countries, and it would be difficult to design compensatory measures to protect regional exporters.

### Regionalism and Multilateralism: Mutually Reinforcing Strategies

Why then continue with RTAs? The current U.S. trade strategy for regionalism,

called "competitive liberalization," treats regionalism and multilateralism as complementary and mutually reinforcing approaches to trade reform. By partnering with countries that are ready to liberalize their markets through an RTA, the U.S. hopes to motivate other countries to seek additional trade reforms at both the regional and multilateral levels. Moreover, RTAs have been linked to increased investment and productivity gains in developing economies. These favorable developments contribute over the long term to the economic growth and stability of our trade partners and directly support growth in the demand for U.S. exports.

Multilateralism, in which the entire membership of the WTO engages in a sustained process of mutual trade liberalization, remains the ultimate goal for trade reform because no member country is excluded from the process or confronted with discriminatory regional trade preferences and because some policies—such as

domestic agricultural supports and export subsidies—are more effectively addressed in a global forum. While more elusive and gradual, continued progress in multilateral trade negotiations is critical to the world trading system. As regionalism becomes a larger and more embedded aspect of the international trading system, a sustained commitment to multilateralism can help to contain the potential divisiveness of regionalism while harnessing its energy for deeper and more rapid reforms. **W**

#### This article is drawn from...

*Agricultural Policy Reform in the WTO—The Road Ahead*, edited by Mary E. Burfisher, AER-802, USDA/ERS, May 2001, available at: [www.ers.usda.gov/publications/aer802](http://www.ers.usda.gov/publications/aer802)

*Effects of the North American Free Trade Agreement on U.S. Agriculture and the Rural Economy*, edited by Steven Zahniser and John Link, USDA/ERS, WRS-0201, July 2002, available at: [www.ers.usda.gov/publications/wrs0201](http://www.ers.usda.gov/publications/wrs0201)

# Nonmetro Poverty

## Assessing the Effect of the 1990s

**Dean Jolliffe**  
jolliffe@ers.usda.gov





Photo by Ken Hammond, USDA

The 1990s ushered in many changes in America that may have either aided or burdened the poor in nonmetropolitan (nonmetro) areas. The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 was designed to move poor people from welfare to work by imposing work requirements and a 5-year lifetime limit on Federal benefits. The law also limited who was eligible to receive assistance. These changes in welfare policy affected the poor both adversely (by reducing benefits) and positively (by providing stronger incentives toward achieving self-sufficiency). The overall effect of these two opposing forces on poverty is the subject of contentious debate.

Unprecedented economic growth and demographic shifts during the 1990s formed the backdrop for welfare policy changes. Between 1993 and 2000, the economy grew by 4 percent annually, versus 2.7 percent during the 20 years prior to 1993. As the U.S. economy boomed in the 1990s, so, too, did nonmetro population growth—over 10 percent during the

1990s, compared with 3 percent in the 1980s.

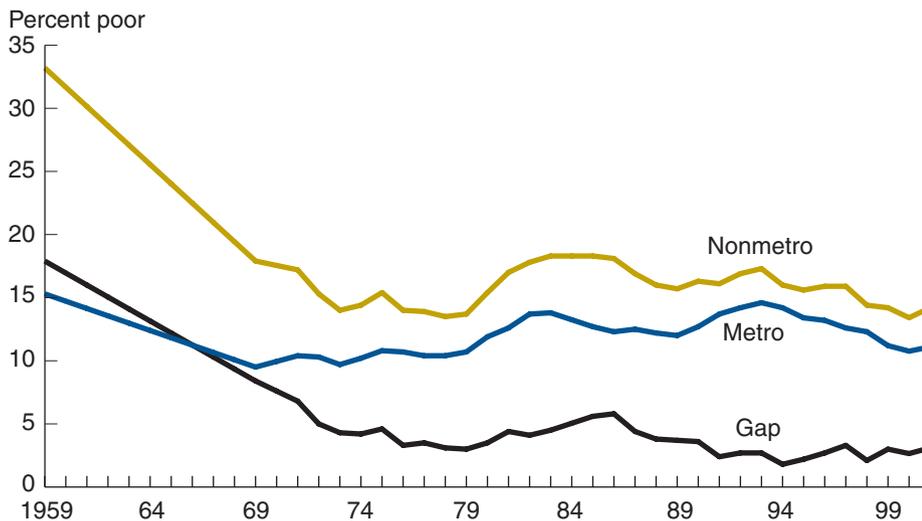
What effect did these major demographic and economic changes as well as government policy have on poverty? During the 1990s, the nonmetro poverty rate declined fairly steadily from a high of 17.1 percent in 1993 to a record low of 13.4 percent in 2000. However, with the end of the economic expansion, the nonmetro poverty rate crept back up to 14.2 percent in 2001. Poverty in metro areas followed a similar pattern, declining from a high of 14.6 percent in 1993 to a low of 10.8 percent in 2000, and edging up to 11.1 percent in 2001.

### Degree of Urbanization Aligned With Degree of Poverty

Metro counties are commonly characterized as densely populated central cities and suburbs, and nonmetro counties as sparsely populated small towns and open countryside. This distinction oversimplifies the many differences across metro and nonmetro areas. Some metro counties have relatively small populations and are

### Nonmetro poverty has been higher than metro poverty for the last 40 years

Poverty rates by residence, 1959-2001



Note: Metro status of some counties changed in 1984 and 1994. Metro and nonmetro rates are imputed for 1960-1968, 1970, and 1984.  
 Source: Prepared by ERS using data from the U.S. Census Bureau's Current Population Survey, annual March supplement.

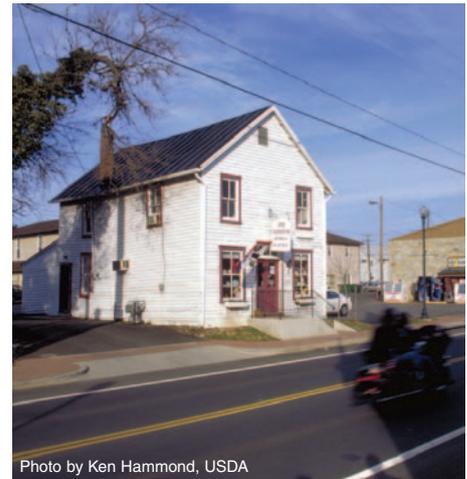


Photo by Ken Hammond, USDA

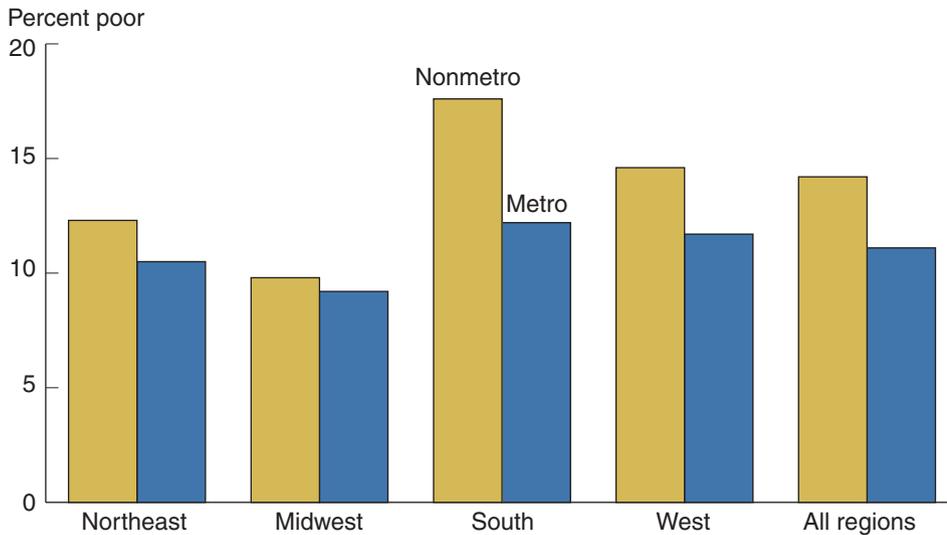
### What's Nonmetro?

The data from the Current Population Survey (CPS) used in this analysis identify metro and nonmetro areas according to the 1993 designation by the Office of Management and Budget (OMB). Metro areas are defined to include core counties with one or more central cities of at least 50,000 residents or with an urbanized area of 50,000 or more and total area population of at least 100,000. "Fringe" counties that are economically tied to the core counties are also considered as metro areas.

Nonmetro areas are all areas outside the boundaries of metro areas, and contain no cities with populations over 50,000. OMB is currently revising its metropolitan area classification system using new definitions and the 2000 Census data. A discussion of the revision underway is provided in "Behind the Data," p. 47. Unfortunately, the new nonmetro designations are not yet available in the CPS data and are therefore not incorporated in this article.

**Metro-nonmetro differences are largest in the South and West**

*Poverty rates by region and residence, 2001*



Source: Prepared by ERS using data from the U.S. Census Bureau's 2002 Current Population Survey, March supplement.

adjacent to rural areas, and some non-metro counties contain urban areas but still qualify as nonmetro (see box, "What's Nonmetro?").

A more comprehensive classification—separating metro areas into highly and less urbanized counties (using 1 million population as the cutoff) and non-metro areas into somewhat urbanized (with urban population of 20,000 or more) and more rural counties (with smaller or no urban population)—reveals important differences in poverty. Throughout the 1990s, highly urbanized metro areas had the lowest incidence of poverty and the more rural nonmetro areas had the highest, indicating that poverty is higher on average in the least populated areas. The greatest reduction in poverty in the 1990s occurred in the least populated rural areas. Poverty declined from 17.9 percent in 1989 to 14.9 percent in 1999 in the more rural nonmetro areas while it increased slightly in the more urban non-metro areas over this period.

**Nonmetro West Grows, As Do Its Poor**

In 2001, 7.5 million nonmetro people were poor (14.2 percent of the nonmetro population), as were 25.4 million metro people (11.1 percent) (see box, "Who's Poor?"). Nonmetro and metro poverty rates differ substantially across U.S. regions. In the Midwest, nonmetro and metro poverty rates differ by less than 1 percentage point. On the other hand, non-metro poverty is more than 5 percentage points higher than metro poverty in the South, where more than 40 percent of the U.S. nonmetro population live. More than one in six persons in the nonmetro South are poor, while less than one in eight persons living in the metro South are poor.

Over the last 10 years, the regional pattern of nonmetro poverty has changed significantly. At the beginning of the 1990s, nonmetro poverty in the West, Northeast, and Midwest was at or below 15 percent, while poverty in the South was around 20 percent. Throughout the rest of the decade, the nonmetro poverty rate declined on average in the South and

**Who's Poor?**

Any individual with income less than that deemed sufficient to purchase basic needs of food, shelter, clothing, and other essential goods and services is classified as poor. The income necessary to purchase these basic needs varies by the size and composition of the household. Official poverty lines or thresholds are set by the Office of Management and Budget. The 2001 poverty line for an individual under age 65 is \$9,214. For a three-person family with one child and two adults, it is \$14,255. For a five-person family (two adults and three children), the poverty line is \$21,135. Income includes cash income (pretax income and cash welfare assistance), but excludes in-kind welfare assistance, such as food stamps and Medicare. Poverty lines are adjusted annually to correct for inflation.

Comparisons of metro-nonmetro poverty rates pose some measurement difficulties. For example, U.S. poverty rates do not adjust for differences in cost of living across areas. If, as assumed, purchasing basic needs costs less in nonmetro areas, then the non-metro poverty rate would be lower. However, some costs—such as transportation to work—are likely to be higher in nonmetro areas. The poverty line also does not account for access to other "public goods," such as health care, schooling, and communication networks. And of course, indicators of quality of life, such as noise and air pollution, are altogether overlooked in measures of poverty.



Midwest, while the rate remained about the same in the West and Northeast. By the end of the 1990s, the gap between the South and the West in the level of nonmetro poverty had significantly narrowed, and their poverty rates were higher than the rates in the Northeast and Midwest. The relative deterioration of the economic well-being of the nonmetro West is noteworthy because its population grew significantly during most of the 1990s, fed largely by Hispanics. Between 1990 and 1997, the population of the nonmetro West increased 15.5 percent while the rest of the nonmetro U.S. increased 5.2 percent.

### Dimensions of Poverty

#### Race and Ethnicity

Poverty is more prevalent among some racial and ethnic groups than others. The nonmetro poverty rates in 2001 for non-Hispanic Blacks (31.4 percent) and Native Americans (28.8 percent) were more than twice the overall nonmetro poverty rate. The nonmetro-metro disparity is also greatest for these two groups,

with nonmetro poverty more than 10 percentage points higher. The nonmetro poverty rate for Hispanics was lower (25.4

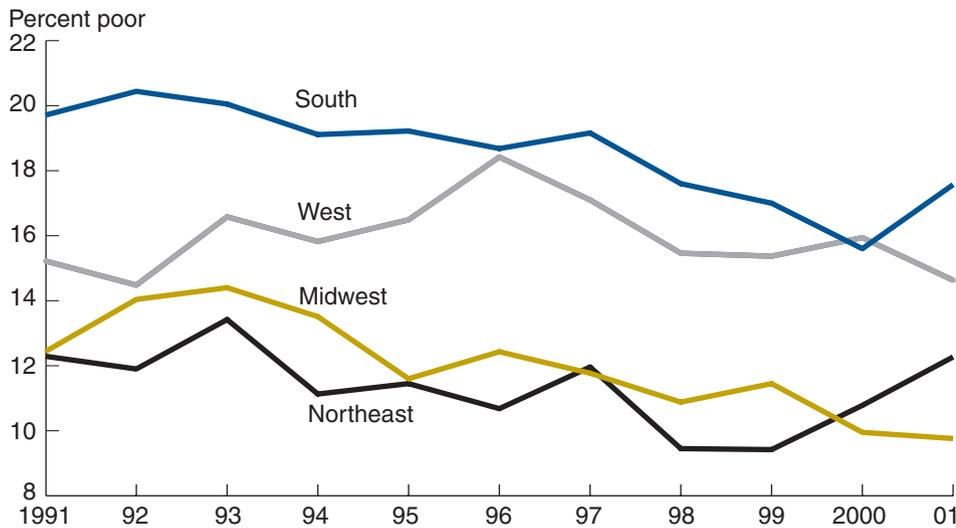
percent) than for Blacks or American Indians, but still more than twice the rate for non-Hispanic Whites (11.1 percent) in 2001. High Hispanic poverty is particularly compelling because Hispanics are the fastest growing minority group in the U.S., increasing 70 percent between 1990 and 2000 in nonmetro areas. Hispanic population growth results from both high birth rates and high migration rates into nonmetro areas during the 1990s.

According to the 2000 Census, racial and ethnic minorities comprise 17 percent of nonmetro residents and are growing more dispersed geographically. Because more than one out of every four nonmetro Hispanics, Blacks, and Native Americans live in poverty, understanding racial differences in poverty is becoming increasingly important in designing nonmetro programs and policies. Federal programs target assistance to these groups through outreach and community programs. For example, the Food Distribution



### The nonmetro South and West have the highest poverty rates

Nonmetro poverty rates by region, 1991-2001



Source: Prepared by ERS using data from the U.S. Census Bureau's Current Population Survey, annual March supplement.

Program on Indian Reservations provides food to low-income households living on Indian reservations as well as to Native American families living in designated areas near reservations. Additionally, the Food Stamp Program distributes informational brochures in Spanish and 19 other languages.

**Family Structure**

Family structure has a significant bearing on poverty. Over three-quarters of all nonmetro families are headed by a married couple, and about 15 percent are headed by a single female. Nonmetro families headed by a married couple have the lowest incidence of poverty (7.6 percent), while more than one out of every three nonmetro persons living in female-headed families is poor. In contrast, metro family structure is comprised of more female-headed families (18 percent) and a lower percentage of married-couple families (76 percent).

There are certainly many reasons for the differences in poverty rates by family structure, but one reason for the low poverty rates for married-couple families is the greater likelihood of having at least one wage earner. However, that factor alone does not fully explain the lower incidence of poverty in married-couple families. When only working families (at least one working adult present) are considered, female-headed families still have a poverty rate that is more than four times greater than the poverty rate for families headed by a married couple.

This stark difference in poverty rates across these two types of families may even understate differences in economic well-being. Consider two families, both with three people, where one family is headed by a married couple with one child, and the other is headed by a single mother with two children. Both have approximately the same poverty threshold. However, the married couple heading

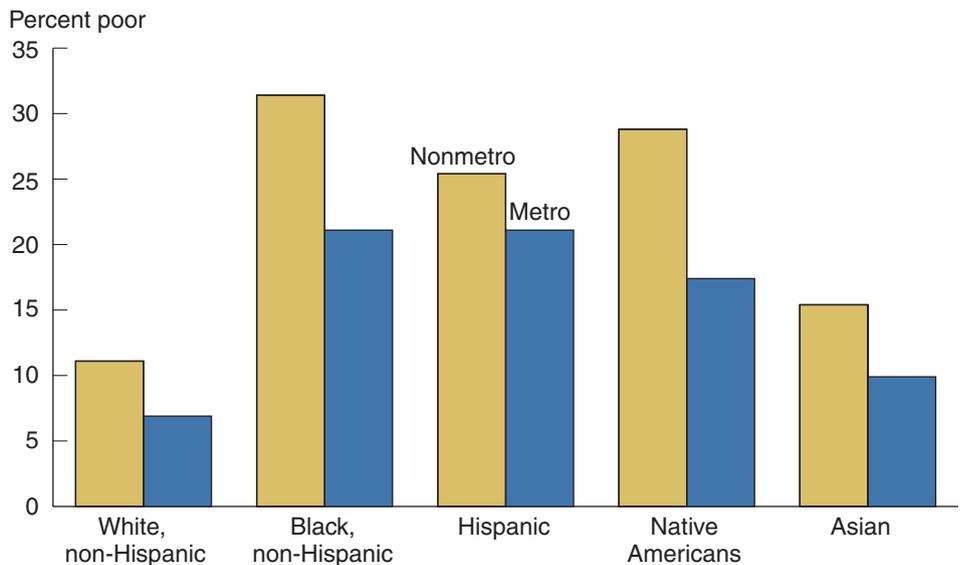


Photo by Ken Hammond, USDA

Herding sheep on the Navajo Reservation in Ganado, Arizona.

**Nonmetro Blacks, Native Americans, and Hispanics have the highest poverty**

Poverty rates by race and ethnicity, 2001



Source: Prepared by ERS using data from the U.S. Census Bureau's 2002 Current Population Survey, March supplement.



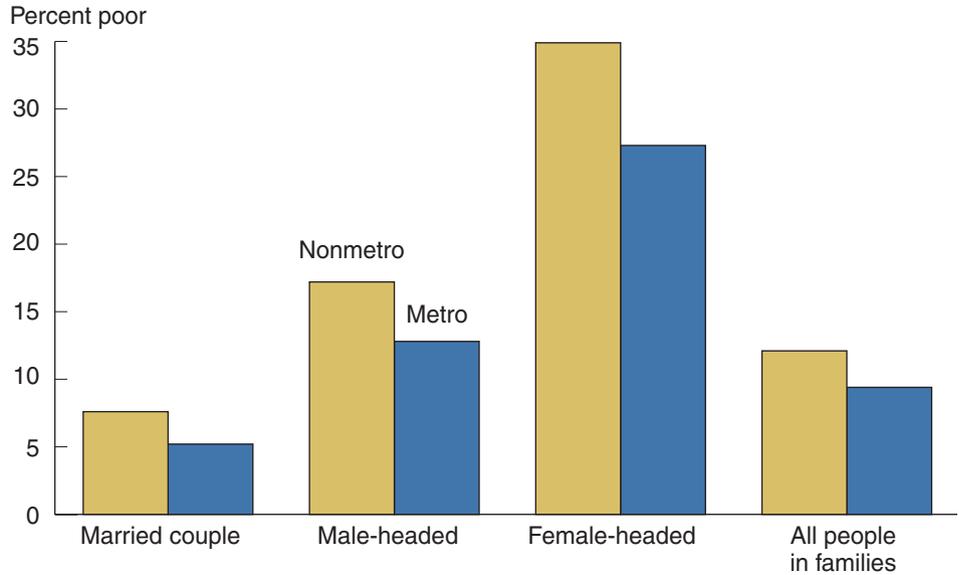
USDA photo

a poor family can share the responsibilities, anxieties, and scheduling burdens of raising their child under difficult financial conditions. The single mother, who needs to care for twice as many children, will likely bear the difficulties alone or with help from relatives and friends.

Now assume that no one is employed in either of the two families. Access to even a low-paying job might well lift the poor married-couple family out of poverty, as one adult could work while the other could tend to the child and housework. In contrast, if the single mother were to become employed, she would then need to manage her housework during non-working hours and incur the costs of child care during her working hours. The costs of child care might well prevent this family from escaping poverty. Hence, programs to alleviate poverty must be mindful of these circumstances.

**More than a third of persons in female-headed nonmetro families are poor**

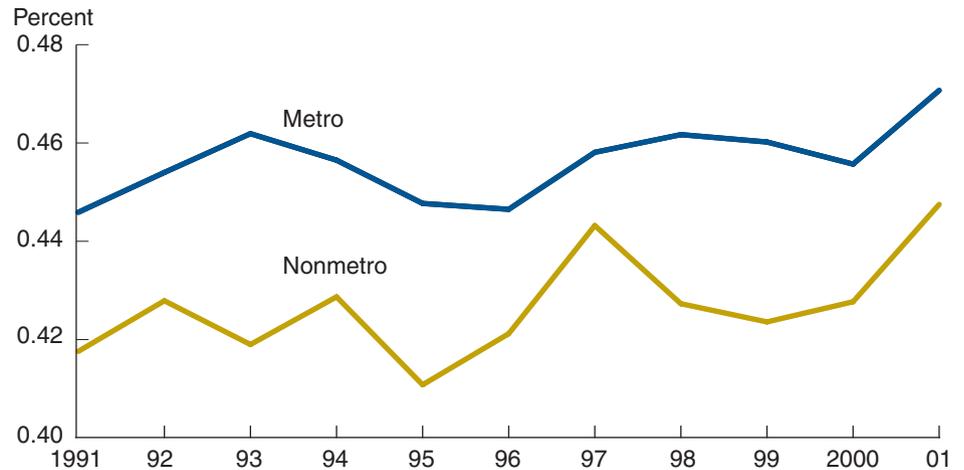
*Poverty rates by family type, 2001*



Source: Prepared by ERS using data from the U.S. Census Bureau's 2002 Current Population Survey, March supplement.

**Metro poor have a greater income shortfall as a percent of the poverty line**

*Gap between income and poverty line, 1991-2001*



Note: Income gap of the poor is measured as: (Poverty line – Income) ÷ Poverty line.

Source: Prepared by ERS using data from the U.S. Census Bureau's Current Population Survey, annual March supplement.

**Ability To Work**

Different age groups require different types of assistance and/or services. The elderly poor are more likely to need assistance with nutrition, health care, and medical expenses, including elder care and medications. Poor working-age adults

are the most likely to benefit from job training programs, food stamps, and tax credits. Nonmetro poverty rates for adults and the elderly have been similar throughout the last decade, and in fact were the same in 2001 (12.2 percent).



Photo by Ken Hammond, USDA

### Free school breakfast programs assist poor children.

Nonmetro child poverty rates, in contrast, stood at 20.2 percent in 2001 and eclipsed adult and elderly rates throughout the 1990s. Federal programs targeted to assist poor children include free school breakfasts and lunches and larger tax credits for households with children (the Earned Income Tax Credit). In addition, educational programs like Head Start are intended to help poor children attain a quality education and increase the likelihood of high school graduation and college attendance. Such programs may pay long-term dividends since children from poor families are less likely to graduate from high school, and low educational attainment increases the chance of their remaining poor as adults. In 2002, 41 percent of poor adults in nonmetro areas had not completed high school, and only 23

percent had any schooling after high school. In comparison, only 18 percent of nonmetro adults above the poverty line had not completed high school while 43 percent had some schooling after high school.

#### Depth of Poverty Often Hidden From View

Up to this point, all poor people have been grouped together without regard to their relative level of poverty. This ignores the fact that a poor family with income equal to half the poverty line has more extreme needs than a poor family just a few dollars short of the poverty line. The latter family is more likely to have sufficient assets and personal skills to right itself with a modest amount of assistance. On the other hand, a family living in severe poverty, with income less than half

the poverty line, might require a more significant infusion of help to acquire work and socialization skills, child care, and care with daily activities like transportation in addition to financial assistance. In 2001, 37.7 percent of the nonmetro poor had incomes less than half the poverty line, versus 41.8 percent of the metro poor.

Another way to examine the relative well-being of the poor is to measure their average income shortfall (or the average difference between income and the poverty line). Since the poverty line is adjusted by family size, the income shortfall is expressed as a percentage of each family's poverty line. In 2001, the nonmetro poor had an average income shortfall equal to 44.8 percent of the poverty line, while the average shortfall for the metro poor was greater at 47.1 percent. This gap persisted throughout the 1990s and widened at times, suggesting that the metro poor are worse off on average than the nonmetro poor.

Still, throughout the history of recording poverty rates, the incidence of nonmetro poverty has been consistently higher than metro poverty rates. As such, poverty reduction programs and policies would be well served to include components that focus on nonmetro areas. An additional focus suggested by data would be on people living in the South and West, racial/ethnic minorities, children, and female-headed families.  $\mathcal{W}$

#### This article is drawn from...

*Comparisons of Metropolitan-Nonmetropolitan Poverty During the 1990s*, by Dean Jolliffe, RDRR-96, USDA/ERS, June 2003, available at: [www.ers.usda.gov/publications/rdr96](http://www.ers.usda.gov/publications/rdr96)

See also the ERS Briefing Room on Rural Income, Poverty, and Welfare, [www.ers.usda.gov/briefing/incomepovertywelfare/ruralpoverty](http://www.ers.usda.gov/briefing/incomepovertywelfare/ruralpoverty)

# Production Costs Critical to Farming Decisions

**William D. McBride**  
**wmcbride@ers.usda.gov**

Photo by Doug Wilson, USDA



Policymakers and producers grow nervous when commodity prices dip, as they did during 1998-2001. Weather, breeding cycles, world stocks, and consumption swings can all make for uncertain farm income, and a surefire buffer against fluctuations is impossible. However, farmers make a host of decisions that can predispose them to weathering out rough patches. Farmers make daily decisions about input use, seasonal decisions about what to plant, annual decisions about farmland rental, and multi-year decisions about ownership and upkeep of land, machinery, and facilities. Farmers' decisions affect agricultural production, prices, and costs; the quality of the environment; the demographics of rural areas; and more. Farmers' decisions, in turn, are affected by how production costs compare with expected returns and nonmonetary benefits (such as a rural lifestyle) and by the characteristics of the farm (such as type, size, specialization, and location) and farm operator (age, education, and off-farm employment).

Analysts can evaluate such decisions to identify perennially high-cost and low-cost producers and thereby anticipate industry trends. Based on information from the annual Agricultural Resource Management Survey (ARMS) (see box),

this article examines the extent to which U.S. producers are covering costs and why costs vary among farms.

### Are Producers Covering Costs?

Short-term production decisions are mostly based on the relationship between operating costs and expected product prices. Producers have already incurred the cost of owning farm assets, and so give asset cost little consideration. However, as the planning period stretches to 5-10, or even to 20 years and capital assets have to be replaced, producers consider both operating and asset ownership costs in relation to expected prices (see box, "Enterprise Production Costs"). Replacement of farm assets requires substantial investments, so farmers often make that decision in conjunction with determining whether to continue with a commodity or with farming altogether. Low-cost producers are generally better able to survive periods of low prices and thrive when prices improve, while high-cost producers are often the first to exit farming when prices are low.

While production costs can be used as an indicator of the financial success of farm enterprises, they are not the complete story. Commodity prices and revenue from all sources—commodity sales, contracts in futures markets, production



Photo by Scott Bauer, USDA/ARS

## The Agricultural Resource Management Survey (ARMS)

The ARMS is USDA's primary vehicle for data collection on a broad range of issues about agricultural resource use, production practices and inputs, farm costs and financial conditions, and well-being of farm households. ARMS data provide the only national perspective on annual changes in the financial conditions of the farm sector. The ARMS is a flexible data collection tool with several versions and uses. Specifically, the ARMS is conducted annually by USDA's National Agricultural Statistics Service to:

- (1) Gather information about production practices used to manage pests, soil, nutrients, and other aspects of plant growth, as well as the management tools and equipment utilized in the production process.
- (2) Determine what it costs to produce various crop and livestock commodities.
- (3) Determine farmers'/ranchers' net farm income and provide data on the financial situation of farm/ranch businesses.
- (4) Determine the characteristics and financial situation of farm/ranch operators and their households, including information on their off-farm income.

Annual production cost estimates are based on data collected in the ARMS every 5-8 years for each commodity and updated each year with estimates of annual price, acreage, and production changes. More information about the ARMS can be found at [www.ers.usda.gov/briefing/ARMS](http://www.ers.usda.gov/briefing/ARMS)

contract fees, insurance indemnity payments, and government program payments—are needed to put the costs into perspective. All of these sources can contribute to the price producers effectively use as the basis for production decisions.

Arranging farms by production costs per unit shows how many producers of a given commodity are able to cover costs at various prices. For example, at \$2.59 per bushel of wheat (the average price 1998-2001), most wheat-producing farms (85 percent) covered operating costs. Similarly, most producers of corn (82 percent) and soybeans (96 percent) also covered operating costs, despite low crop prices, during 1998-2001. This helps to explain why most producers continued to produce wheat, corn, and soybeans despite the relatively low prices.

However, when asset ownership costs are factored in, the picture changes. Nearly half of U.S. corn and wheat producers and one-fourth of soybean producers were unable to cover both operating and ownership costs at average commodity prices during 1998-2001. Because corn, soybean, and wheat producers use machinery that is mostly interchangeable among crops, some producers responded to the low prices by changing their crop mix. Also, this cost-price squeeze has put an emphasis on enhancing revenues through a variety of sources, such as government programs, and on controlling or cutting costs. Government program support has likely helped many producers remain in business and may explain why structural adjustments in these industries have been gradual. Improved prices for most crops in 2002-03 have also eased the financial pressure on many high-cost producers.

Hog and milk producers have faced even more divergent prices and costs in recent years. While 13 percent of milk producers and 41 percent of hog producers were unable to cover operating costs between 1998 and 2001, more than half of

### Enterprise Production Costs

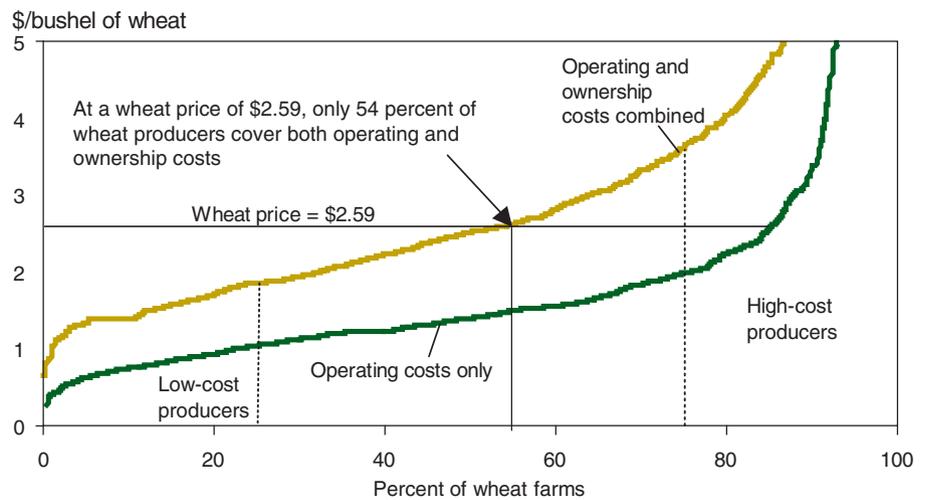
The costs of monetary inputs provided by all participants in the production process—farm operators, landlords, and contractors—are included in either operating or asset ownership costs.

Operating costs include the costs for items used in the production process, such as seed, fertilizer, pesticides, fuel, feed, veterinary and medicine, and hired labor.

Asset ownership costs include the annualized cost of maintaining the capital investment (depreciation and interest) in machinery, equipment, and facilities, and costs for property taxes and insurance.

Not included in operating and ownership costs are the opportunity costs for other resources, such as the farmer's labor and land. For example, the time spent by a farmer in the production of a commodity could have been spent producing other commodities or working at an off-farm job. Land has a cost equal to its rental rate, whether the land is actually rented or owned by the farmer. Costs for these resources may affect the business decisions made by some farmers, but many farmers are willing to accept a return to these resources that is less than their opportunity cost in order to remain in farming.

**The distribution of unit production costs reveals the share of wheat producers able to cover costs at various prices**



Low-cost producers are the 25 percent of producers with the lowest combined operating and ownership costs. High-cost producers are the 25 percent with the highest combined costs.

Source: USDA's Agricultural Resource Management Survey-1998 Wheat.

milk producers and nearly three-fourths of hog producers were unable to cover both operating and asset ownership costs. Not surprisingly, many producers exited these industries and continue to do so as farm milk prices (under \$12 per hundred-

weight) and hog prices (below \$40 per hundredweight) remain low.

The distribution of operating and ownership costs also reveals differences between low- and high-cost producers. Low-cost producers, representing the 25 percent of wheat farms with the lowest



Photo by Ken Hammond, USDA

total costs, produced wheat at \$1.86 per bushel or less in 1998. In contrast, high-cost producers, representing the 25 percent of wheat farms with the highest costs, produced wheat at \$3.62 per bushel or more. Differences in the characteristics of low- and high-cost producers and their farming operations provide insight into why costs vary among farms and indicate factors that may influence financial success.

### How Do Low- and High-Cost Producers Differ?

ARMS data indicate that low-cost producers are generally younger and more educated than high-cost producers. For example, more low-cost producers of corn, soybeans, and wheat are under 50 years of age than are high-cost producers of these crops. Likewise, low-cost producers of corn, feeder cattle, and milk are more likely to have attended college than are high-cost producers. Research has indicated that younger and more educated producers are more likely to adopt production practices and technologies that may reduce unit costs and enhance farm productivity.

Over half of U.S. farm operators work off the farm, and only about 40 percent of farm operators consider farming their primary occupation. Low-cost production of

### Many hog and milk producers were unable to cover costs during 1998-2001

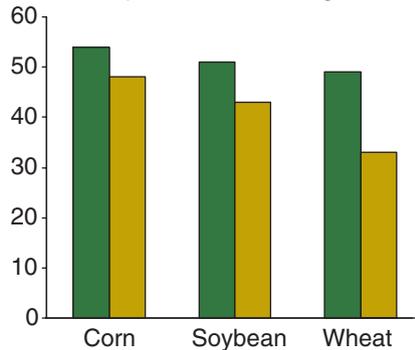
Commodity	Average market price 1998-2001	Percent of producers unable to cover:	
		Operating costs	Operating & ownership costs
Corn	\$1.92/bushel	18	46
Soybeans	\$4.63/bushel	4	23
Wheat	\$2.59/bushel	15	46
Hogs*	\$38.40/cwt	41	74
Milk	\$14.32/cwt	13	56

\*Farrow-to-finish hog producers.

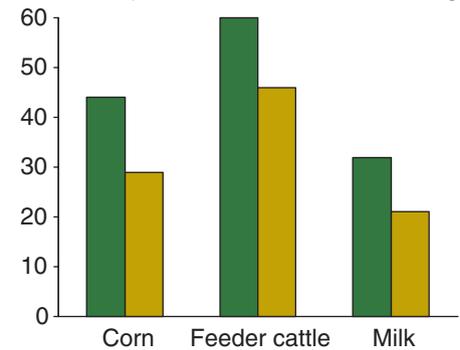
Source: USDA's Agricultural Resource Management Survey—1996 Corn, 1997 Soybeans, 1998 Wheat and Hogs, 2000 Dairy.

### Low-cost producers are generally younger and more educated than high-cost producers

Percent of producers under age 50



Percent of producers who attended college

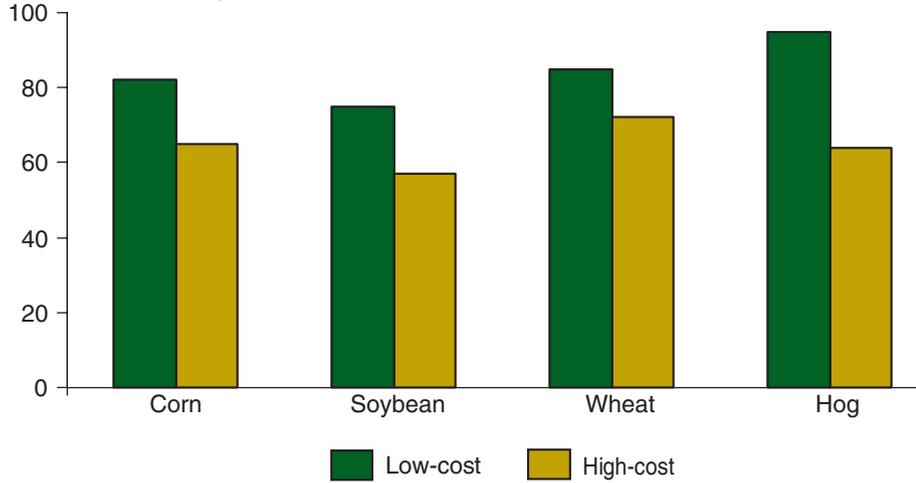


■ Low-cost ■ High-cost

Source: USDA's Agricultural Resource Management Survey—1996 Corn and Cow-calf, 1997 Soybeans, 1998 Wheat, 2000 Dairy.

**More low-cost than high-cost producers report farming as their primary occupation**

Percent with farming as major occupation



Source: USDA's Agricultural Resource Management Survey—1996 Corn, 1997 Soybeans, 1998 Wheat and Hogs.

farm commodities is more often associated with farmers whose major occupation is farming. For example, 94 percent of low-cost hog producers report their primary occupation as farming, versus just 63 percent of high-cost producers. Producers dependent on farming as their primary income source likely have different goals and expectations from farming and may place more importance on controlling costs. In contrast, producers primarily

retired or part time have a shorter planning horizon and are more likely to use facilities and equipment closer to the end of their useful life and at less than full capacity, which contributes to higher costs.

Only on cow-calf operations were the production costs of retirement and residential farms competitive with those of full-time (occupational) farms. These cow-calf operations tend to use fewer inputs

and stock fewer cattle than do other operations. Many retirement and residential farms raise cattle because of the low labor and management required, using acreage that would otherwise be idle.

Cost advantages for certain commodities also accrue to regions due to more productive climate or soils. For example, low-cost producers of corn and soybeans are more often located in Corn Belt States where high-quality soils produce higher yields than in the Southeast, and where ample rainfall reduces costs relative to irrigated crops in the Great Plains. Low-cost cattle producers are more often located in Southern and Western States with a milder climate that reduces cattle feeding costs during the winter. However, technological and organizational advances in hog and milk production have offset much of the cost advantage enjoyed by traditional production areas. As a result, hog and milk production is growing more dispersed.

**Size Matters, Particularly for Livestock Operations**

Operating costs (per-unit) may be lower on larger farms because of their ability to negotiate volume discounts on inputs, better management, and other factors. Asset ownership costs may also be



Photo by Larry Rana, USDA

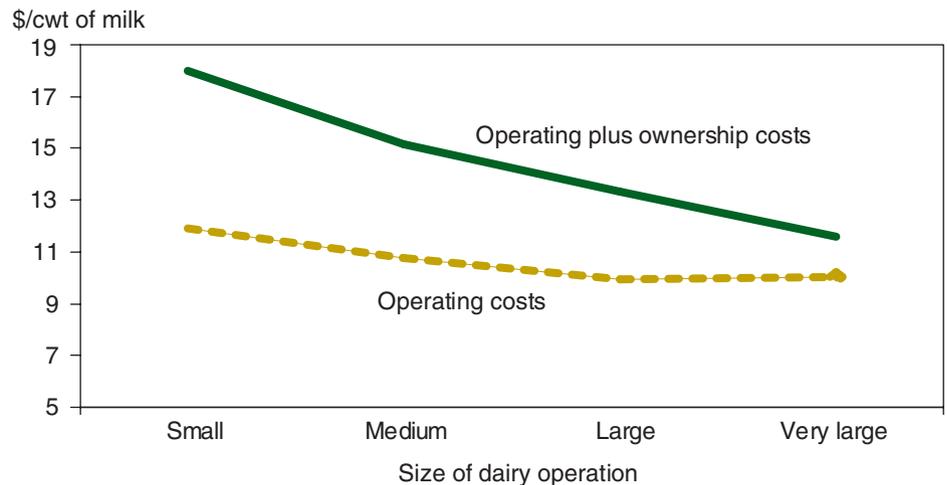
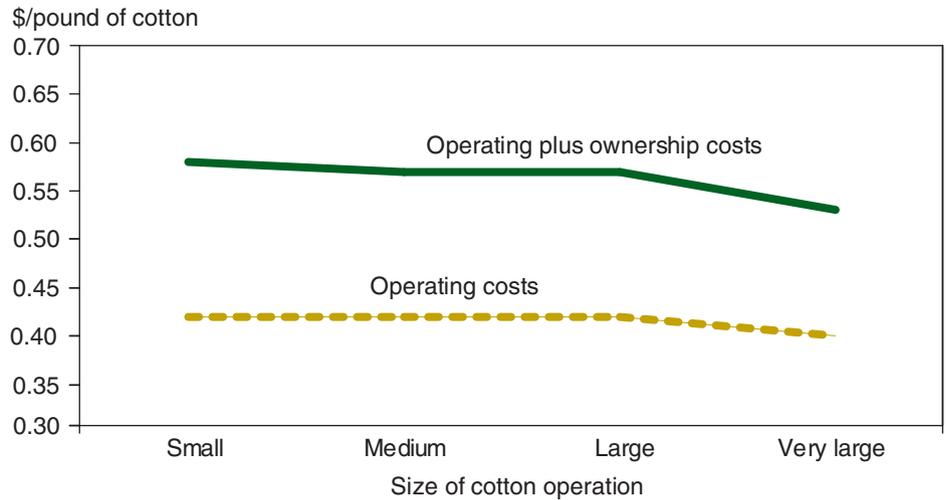
less because capital items—such as machinery, buildings, and equipment—are spread over more units of production.

Cost-size relationships differ among commodities. Unit costs generally decline as size increases, but the rate of decline is much greater for livestock than for crop enterprises. For example, total operating and ownership costs average about 10 percent lower on very large cotton farms than on the small farms, but over 30 percent lower on very large versus small dairy farms. This difference is mainly due to asset ownership costs on large hog and dairy farms that are 60 percent less than those on the smallest farms. Unit costs for the highly specialized facilities and equipment used in livestock production fall rapidly as production increases and these fixed costs are spread over more units.

The influence of size on production costs is also evident in that low-cost operations tend to be larger than high-cost operations. Low-cost corn producers averaged 206 corn acres in 1996, compared with 134 acres for high-cost producers. Low-cost soybean producers averaged 281 acres in 1997, versus 161 acres for high-cost producers. This difference was even more pronounced among hog and cattle producers. Low-cost farrow-to-finish hog producers sold 2,180 head, on average, per farm in 1998, compared with 370 for high-cost producers. Cow herds on low-cost cow-calf operations averaged 144 head in 1996, compared with only 35 head on high-cost operations.

Farm size has been increasing in the U.S., and this trend has been accompanied by greater specialization in production. Greater specialization is depicted by a higher average share of farm production derived from a single commodity. The relationship between costs and specialization has been most apparent among livestock producers. Low-cost hog and cattle producers were more specialized, on aver-

**Costs decline with size more rapidly for dairy than for cotton enterprises**



Source: USDA's Agricultural Resource Management Survey—1997 Cotton, 2000 Dairy.



PhotoDisc



Photo by David Nance, USDA/ARS

age, than were high-cost producers of these commodities, generating more than 50 percent of the value of farm production from these commodities (compared with less than 30 percent on high-cost operations). This relationship was not as strong for cotton producers and was hardly apparent for corn, soybean, and wheat producers. The agronomic benefits of crop rotations may offset cost advantages of specialization, plus most machinery investment on crop farms can be spread over several different crops. The greater average specialization of low-cost cotton farms reflects the need to spread the cost of specialized cotton machinery over more cotton acres.

### Management Makes a Difference

Crop and livestock producers possess varying management abilities, and this too affects costs. Although unit costs of hog production decline significantly with size of operation, many well-managed small hog operations rival large operations in production costs.

The managerial ability of farm operators is difficult to quantify by farm and operator characteristics. However, management practices provide a clue. Low-cost crop and livestock producers used practices that enhance input productivity (such as crop rotation) more often than did the high-cost producers. No-till and reduced-tillage practices—which reduce fuel and capital requirements—were used more often by low-cost than by high-cost producers of corn, soybeans, and wheat.

Low-cost livestock producers also tend to manage their operations more efficiently than high-cost producers. The production facilities on low-cost hog and dairy operations were operated much closer to capacity than on high-cost operations. The managerial skills of low-cost hog producers resulted in more pigs weaned per litter. Low-cost milk producers more often favored innovative technologies, such as automated milking facilities and supplemental (milk stimulating) hormones, to achieve higher production with fewer inputs.

### Premium on Cost Control

The recent economic pinch encountered by the farm sector has put a premium on cost control among crop and livestock producers. Prices for many field crops have been low relative to the "boom" years of 1996 and 1997, although recently prices have increased. Livestock prices have been highly variable, with hog and milk prices near historic lows at times. To make matters worse, increased energy prices have caused spikes in fuel and fertilizer costs. Also, some farms may have to absorb the costs of complying with increased environmental regulation, such as new rules limiting the amount of manure nutrients that large livestock operations can apply to land.

In response to this cost-price squeeze, many producers will attempt to maintain profitable operations by trying to control costs. Others may opt out. Policymakers have been concerned about what this cost-price squeeze means for the future of family farms and the structure of the farm sector in this newly volatile setting. ARMS data indicate that, at recent commodity prices, nearly half of corn producers and up to three-fourths of hog producers are caught in this cost-price squeeze. If large numbers of these operations go out of business and their production is mostly taken over by other existing firms (as opposed to new entrants), concentration of production in the hands of fewer producers would further increase. **W**

### This article is drawn from . . .

*Characteristics and Production Costs*, by various authors, SB-974 (a series of commodity reports), Sept. 2001-July 2002, available at [www.ers.usda.gov/publications/sb974](http://www.ers.usda.gov/publications/sb974)

*Economic and Structural Relationships in U.S. Hog Production*, by William D. McBride and Nigel Key, AER-818, February 2003, available at [www.ers.usda.gov/publications/aer818](http://www.ers.usda.gov/publications/aer818)

**Farm, Rural, and Natural Resources Indicators**

	1990	1995	2000	2001	2002	2003	Annual percent change		
							1990-2000	2001-02	2002-03
Cash receipts (\$ billion)	169.5	188.0	193.7	202.8	193.5f	200.5f	1.3	-4.6	3.6
Crops	80.3	100.8	94.1	96.4	97.6f	101.6f	1.6	1.3	4.0
Livestock	89.2	87.2	99.6	106.4	95.9f	98.9f	1.1	-9.9	3.2
Direct government payments (\$ billion)	9.3	7.3	22.9	20.7	13.1f	17.6f	9.4	-36.6	33.7
Gross cash income (\$ billion)	186.9	205.9	230.4	238.5	222.5f	234.9f	2.1	-6.7	5.6
Net cash income (\$ billion)	52.7	52.5	58.4	59.7	46.3f	51.3f	1.0	-22.5	11.0
Net value added (\$ billion)	80.8	74.8	92.1	90.9	76.5f	90.8f	1.3	-15.9	18.7
Farm equity (\$ billion)	702.6	815.0	1,022.3	1,059.0	1,086.6f	1,099.7f	3.8	2.6	1.2
Farm debt-asset ratio	16.4	15.6	15.3	15.4	15.7f	16.0f	-0.7	1.7	2.2
Farm household income (\$/farm household)	38,237	44,392	61,947	64,117p	62,515p	65,095f	4.9	-2.5	4.1
Farm household income as a percentage of U.S. household income (%)	103.1	98.8	108.6	110.2p	na	na	0.5	na	na
Nonmetro-Metro difference in poverty rate (%)	3.6	2.2	2.6	3.1	na	na	-3.2	na	na
Cropland harvested (million acres)	310	302	314	311p	307p	na	0.1	-1.3	na
USDA Conservation Program expenditures (\$ bil.) <sup>1</sup>	3.0	3.5	3.4	3.7	3.5q	na	1.3	-5.4	na

**Food and Fiber Sector Indicators**

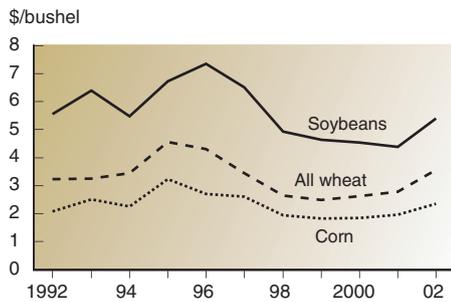
U.S. gross domestic product (\$ billion current) <sup>2</sup>	5,803	7,401	9,825	10,082	10,446f	10,843f	5.4	3.6	3.8
Food and fiber share (%)	15.1	14.2	12.6	12.3	na	na	-1.8	na	na
Farm sector share (%)	1.4	1.0	0.8	0.8	0.8	na	-5.4	0.0	na
Total agricultural imports (\$ billion) <sup>1</sup>	22.7	29.8	38.9	39.0	41.0	45.5	5.5	5.1	11.0
Total agricultural exports (\$ billion) <sup>1</sup>	40.3	54.6	50.7	52.7	53.3	56.0	2.3	1.1	5.1
CPI for food (1982-84=100)	132.4	148.4	167.8	173.1	176.2	179.0f	2.4	1.8	1.6
Personal expenditures on food as a percentage of disposable income (%)	11.2	10.6	10.2	10.2	10.1p	na	-0.9	-1.0	na
Share of total food expenditures for at-home consumption (%)	55.4	53.9	53.3	53.8	53.9p	na	-0.4	0.2	na
Farm-to-retail price spread (1982-84=100)	144.5	174.5	210.3	215.4	221.2	na	3.8	2.7	na
Total USDA food and nutrition assistance spending (\$ billion) <sup>1</sup>	24.9	37.9	32.6	34.2	38.0	na	2.7	11.1	na

f = Forecast. p = Preliminary. q = 2002 Administration request. na = Not available.

<sup>1</sup> Based on October-September fiscal years ending with year indicated.

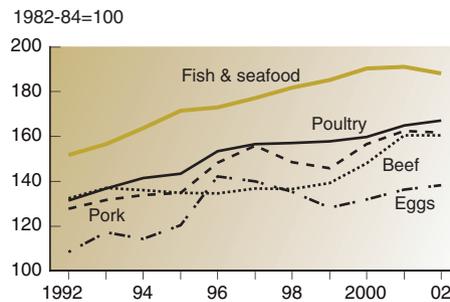
<sup>2</sup> Forecast for 2003 based on March 2003 forecasts from the Office of Management and Budget.

**U.S. average prices received by farmers for wheat, corn, and soybeans, 1992-2002**



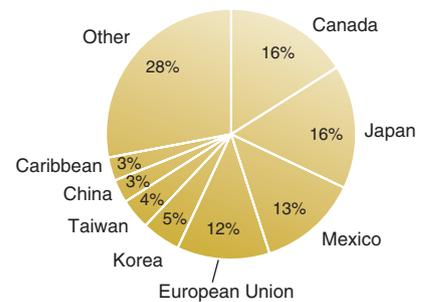
Source: National Agricultural Statistics Service, USDA.

**Consumer price indexes for high-protein foods consumed at home, 1992-2002**



Source: Bureau of Labor Statistics.

**Major markets for U.S. agricultural exports totaling \$53.3 billion in 2002**



Source: Foreign Agricultural Trade of the U.S.

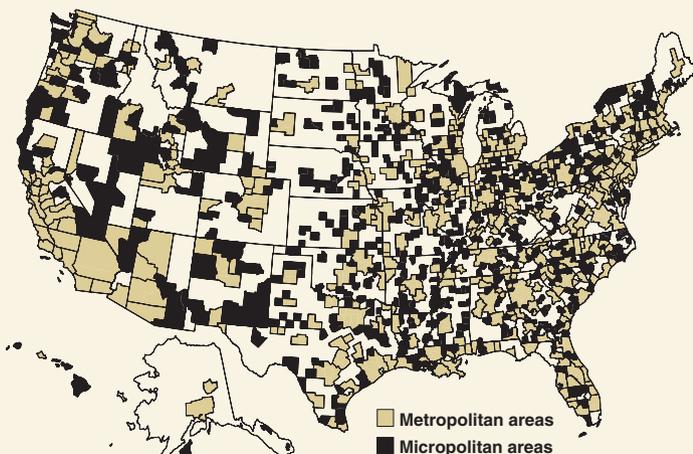
For more information, see [www.ers.usda.gov/AmberWaves](http://www.ers.usda.gov/AmberWaves)

## Behind the Data

## Defining Rural Areas Based on New County Classifications

- Analysts and policymakers who refer to "rural" America are often referring to nonmetropolitan (nonmetro) areas. In conjunction with Census 2000, the Office of Management and Budget (OMB) has made far-reaching changes to the classification system it uses to define nonmetro and metro areas, simplifying criteria that determine status and adding a new "micropolitan" classification (see box). Up until now, nonmetro territory was undifferentiated; the new micropolitan (micro) category subdivides nonmetro areas into two distinct types of counties. This change may help target rural-based programs to those areas most in need.
- Under the previous system, areas were classified as metro if they included central counties with one or more cities of at least 50,000 residents or urbanized areas of 50,000 or more residents and total area population of at least 100,000. Outlying counties were classified as metro if they were economically tied to the central counties, as measured by daily commuting to work, and displayed a level of "metropolitan character" based on population density, urbanization, and population growth.
- Under the new "core-based statistical area" system, metro areas include central counties with urbanized areas of 50,000 or more residents, regardless of total area population. In addition, the classification includes outlying counties with commuting thresholds of 25 percent, with no metropolitan character requirement. Streamlining the criteria in this manner results in approximately 2 million fewer residents covered by metro areas. However, actual expansion of metro territory during the 1990s added 9 million persons. The net effect reduces the 2000 nonmetro population from 56 million to 49 million.
- Micro areas include central counties with one or more urban clusters of 10,000-50,000 persons. As with metro area designations, outlying counties are classified as micro if commuting levels are 25 percent or higher. Because they are county-based and include outlying counties, micro areas can have total area populations that reach well beyond 50,000. The inaugural set of 560 micro areas

## Metropolitan and micropolitan areas, 2003



Source: Prepared by ERS, using data from the U.S. Census Bureau.

## How the New County Classification System Differs From the Old System

## Metropolitan (metro) areas

## Old system used prior to Census 2000

## Included central counties with:

- Cities of 50,000 or more residents, or
- Urbanized areas of 50,000 or more residents and total area population of 100,000 or more.

Also included outlying counties that had at least 15 percent of the population commuting to central counties daily and that displayed metro character based on population density, urbanization, and growth.

## New core-based system starting with Census 2000

Includes central counties with urbanized areas of 50,000 or more residents, regardless of total area population.

Also includes outlying counties with 25 percent or more of the employed population commuting daily, with no requirements for density, urbanization, or growth.

## Nonmetropolitan (nonmetro) areas

## Old system used prior to Census 2000

All counties not classified as metro.

## New core-based system starting with Census 2000

Divides counties not meeting the new metro classification into two categories:

Micropolitan (micro)—counties with one or more urban clusters of 10,000-50,000 persons. Includes outlying counties with 25 percent or more commuting.

Noncore—all nonmetro counties not meeting the new micro classification.

includes 674 counties and range in size from 13,000 (Andrews, TX) to 182,000 (Torrington, CT).

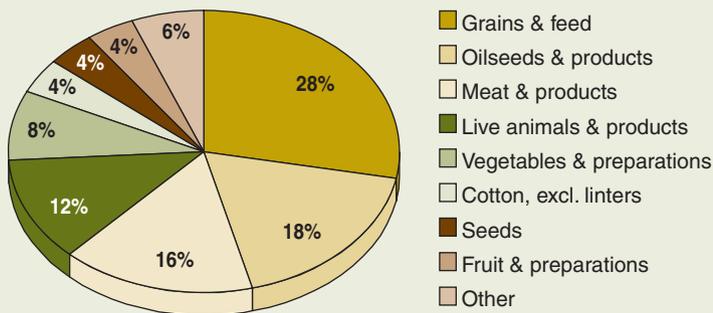
- Of the 49 million nonmetro residents counted in Census 2000, 29 million live in micro areas. The remaining 20 million nonmetro residents live in 1,383 "noncore" counties, which lack urban clusters of 10,000 or more residents. In general, lack of an urban core and low overall population density may place these counties at a disadvantage in efforts to expand and diversify their economic base. However, the population in noncore counties grew by 7.9 percent during the 1990s, compared with a growth rate of 9.9 percent in micro areas and 14 percent in metro areas.

John Cromartie, [jbc@ers.usda.gov](mailto:jbc@ers.usda.gov)

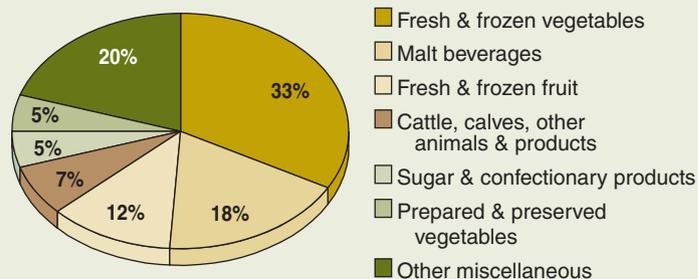
**Markets and Trade**

The U.S. exports more agricultural products value wise to Mexico than it imports, but the mix of products is much different

*U.S. agricultural exports to Mexico totaling \$7.3 billion in 2002*

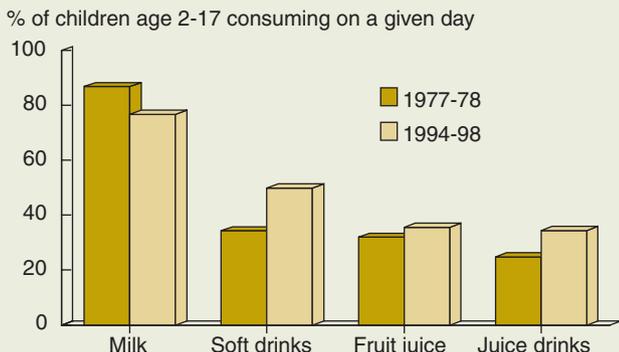


*U.S. agricultural imports from Mexico totaling \$5.5 billion in 2002*

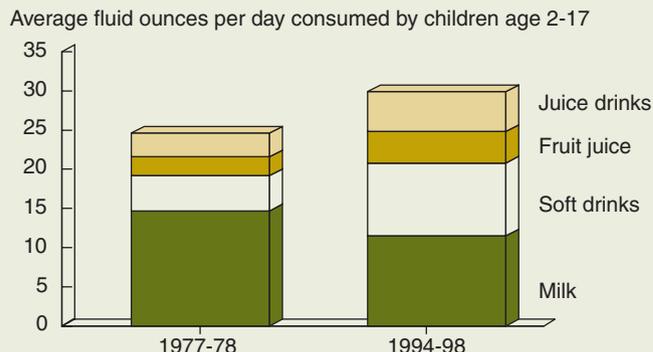


**Diet and Health**

Although most children still consume milk on a given day, the share has dropped while the share for other beverages has increased



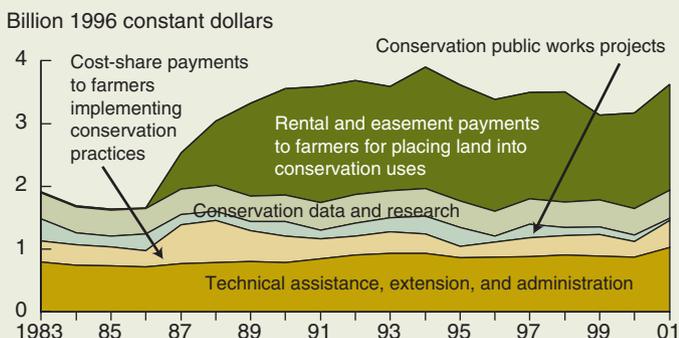
Milk consumption by children has also dropped by one-fifth since 1977-78 while that of other beverages has jumped



Sources: USDA's Nationwide Food Consumption Survey 1977-78 and Continuing Survey of Food Intakes by Individuals 1994-98.

**Natural Resources and Environment**

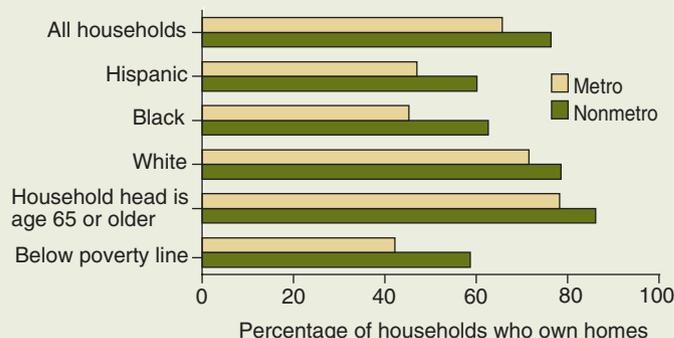
Rental and easement payments have been the largest category of USDA conservation expenditures since 1988



Source: Derived from data provided by USDA's Office of Budget and Program Analysis.

**Rural America**

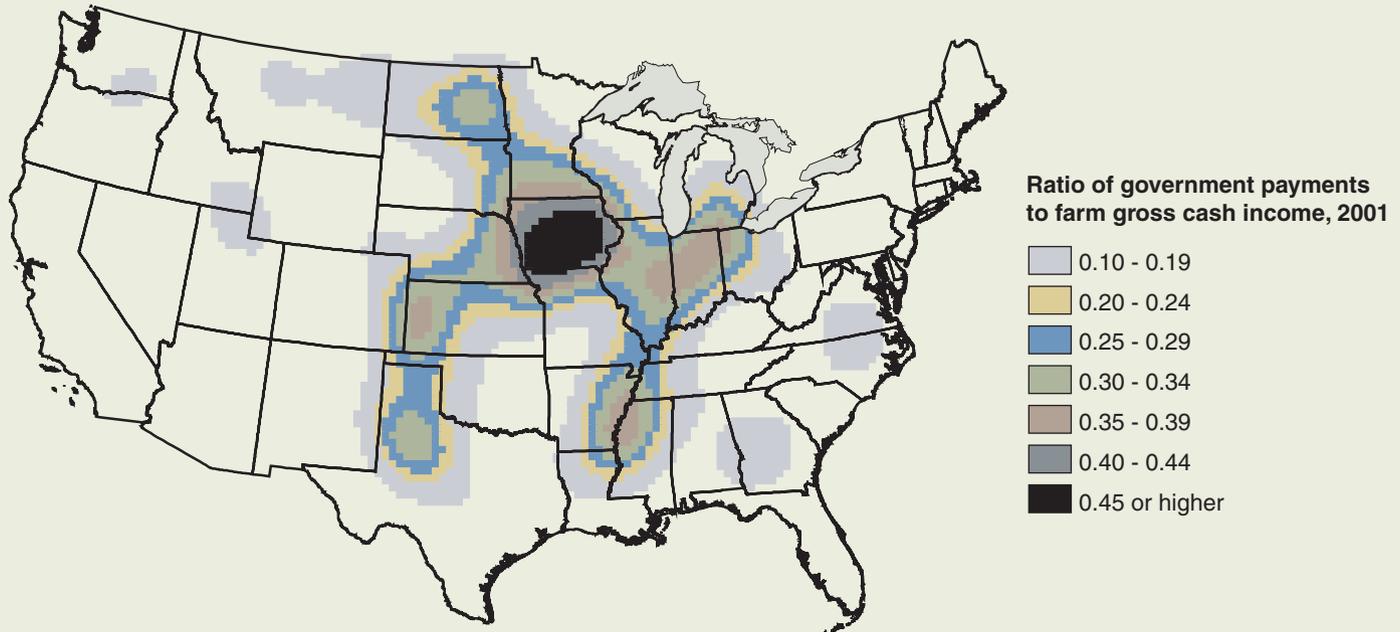
More nonmetro than metro households own homes, with poor and minority households the least likely to be homeowners



Source: Calculated by ERS using data from the 2001 American Housing Survey.

**On the Map**

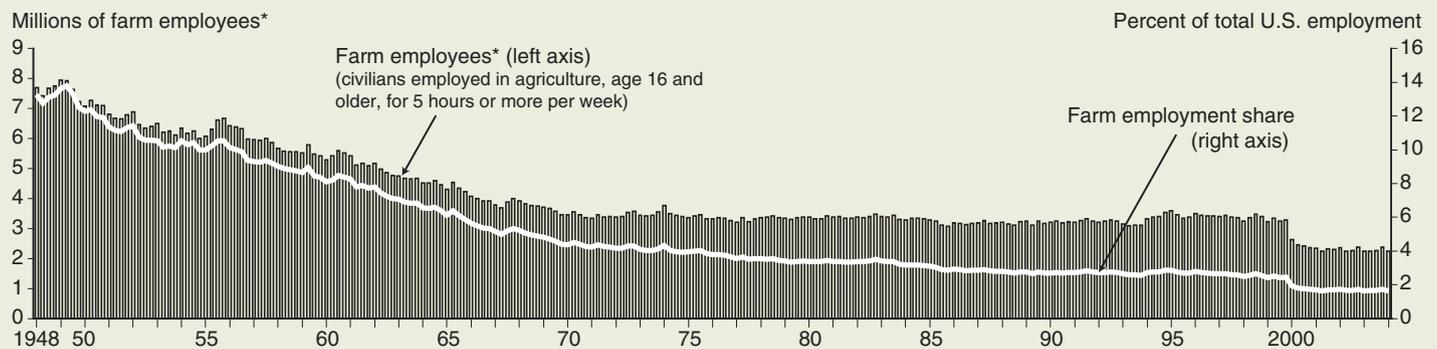
**Geographic distribution of government payments as a proportion of gross cash income from farming.** A substantial proportion of government payments to farmers is based on historical production of specific commodities, such as corn, oilseeds, wheat, rice, and cotton. Thus, payments represent a higher share of cash income in those areas of the country where production of these commodities is concentrated. When commodity prices are low, as they were in 2001, these payments become even more significant as components of farm income.



Mitch Morehart, morehart@ers.usda.gov

**In the Long Run**

**Farm employment.** Sharp increases in labor productivity—from rising efficiency due to the use of farm machinery, pesticides, fuel, and fertilizers as well as technological improvements in plant breeding and animal husbandry—are largely behind the dramatic decline in farm employment relative to total U.S. employment between 1948 and 1970. In contrast, during 1970 to 1995, when total employment grew faster in the U.S. than in any other major developed country, farm employment was relatively stable. Farm households have become increasingly dependent on off-farm income (keeping people in farming that would otherwise have left) and expanded use of hired farm labor (as the average age of farm operators increased). Changes in population estimates (with the 2000 Census) and accelerated emigration out of farming may account for the recent sharp drop in farm employment relative to total employment.



\*Employment statistics include the self-employed.  
Source: Bureau of Labor Statistics household employment series/Haver Analytics.

David Torgerson, dtorg@ers.usda.gov

# Current Activities



PhotoDisc

## A Market for Ideas

The scientific method that underpins ERS research necessarily requires that analysts be actively engaged with their disciplinary peers in agricultural and other fields of applied economics. The test of quality for a research project is whether it meets disciplinary standards in problem definition and in the application of appropriate theory and empirical methodology. Each ERS researcher, therefore, has a role to play in the scientific community, seeking review from research peers but also providing that review and working with colleagues on advancing disciplinary knowledge. While, these days, much of the collegial interaction occurs via electronic communication, there is no substitute for face-to-face conversation and debate with one's colleagues, who are located across the country and the globe.

The primary forum for real (as opposed to virtual) gatherings of peers is the annual meeting of the American Agricultural Economics Association. This year's meetings were held in Montreal jointly with the Canadian Association of Agricultural Economists and Rural Sociological Society. ERS researchers contributed more than 100 papers and presentations to the two and a half day meetings attended by some 1,800 professionals. The ERS program contributions spanned the range of the agency's subject matter, including:

- Diet and health issues with a focus on economic incentives to design more effective health policy to address obesity.

- Policies and farm practices to manage manure and improve water quality, with ERS staff analyzing farm level, regional, and national impacts of decisions to apply manure on cropland at agronomic rates so as to reduce runoff and leaching of nitrogen and phosphorous into surface and ground water.
- The effect of farm programs, including new counter-cyclical payments, on farm households and agricultural markets, analyzed in papers applying different approaches, including general equilibrium modeling and experimental economics.
- Measurements of social and economic diversity among U.S. counties, including results from research on definitions of farming-dependent counties.

Every 3 years, the International Association of Agricultural Economics convenes, and this summer the meeting was in Durban, South Africa. There, ERS organized and financially sponsored a workshop drawing on ERS research on the economics of food security to cover both domestic and international issues. In this learning workshop, titled "Food Security Measurement in a Developing World Context with a Focus on Africa," speakers described and assessed various techniques used to measure food security in the U.S. and across the globe. Included were survey-based methods ERS helped develop to assess the food security of U.S. households by asking questions about specific behaviors and conditions known to characterize households having difficulty

meeting their food needs. ERS researchers also described collaborative work with social scientists in several low-income countries to adapt the U.S. methods for use in those countries. A panel of experts on data collection in low-income countries wrapped up the workshop with a lively discussion on concrete steps that could be taken to improve current methods.

## Liberalizing World Trade in Textiles and Apparel

International trade in textiles and apparel has been governed by quantitative restrictions under the Multi-Fiber Arrangement (MFA) and earlier agreements for more than 30 years. One of the major accomplishments of the Uruguay Round was the Agreement on Textiles and Clothing, which phases out the MFA over a 10-year period that ends in 2004. Beginning in 2005, the economic landscape for global textiles and apparel will change, with implications for the cotton-producing countries around the world as well as for the economies of major yarn, fabric, and clothing exporters and importers. ERS is examining the likely impacts of textile trade liberalization on developing countries, U.S. cotton farmers, and U.S. textile workers in rural communities. Freer textile trade is expected to provide tremendous opportunities for some developing countries (such as China), but may have negative implications for countries with existing preferential trade relations with the U.S. and the European Union (such as Mexico and countries in northern Africa).  
**Stephen MacDonald, [stephenm@ers.usda.gov](mailto:stephenm@ers.usda.gov)**

# Recent Meetings

## Competing Policy Issues and Agendas for Agricultural Trade

In September 2003, ERS and the Farm Foundation are cosponsoring a 1-day agricultural trade conference: "WTO: Competing Policy Issues and Agendas for Agricultural Trade." The conference will bring together researchers, policymakers, and industry representatives to discuss issues surrounding the WTO trade talks. Topics include reforms to the European Union's (EU) Common Agricultural Policy, EU enlargement, analytical tools for trade agreements, effects of trade liberalization, and emerging issues in trade policy. The conference will be held immediately prior to a general trade policy conference at the Woodrow Wilson International Trade Center sponsored by various U.S. Government agencies, including

ERS, the U.S. Department of Commerce, and the U.S. International Trade Commission.  
**Suchada Langley, [slangley@ers.usda.gov](mailto:slangley@ers.usda.gov)**

## ERS Hosts Water Resources Research Coordinating Committee

In June 2003, ERS hosted a meeting of the interagency Water Resources Research Coordinating Committee, attended by representatives of the U.S. Geological Survey, NASA, the National Oceanic and Atmospheric Administration, and the Forest Service. Carol A. Jones, Marcel Aillery, and Marc Ribaud presented an overview of ERS research on water, highlighting areas in which ERS research complements the natural science research conducted by the other agencies represented at the meeting.  
**Carol A. Jones, [cjones@ers.usda.gov](mailto:cjones@ers.usda.gov)**

## Workshop on Farm Savings Accounts and the Farm Safety Net

In June 2003, ERS, USDA's Risk Management Agency, and the Farm Foundation sponsored a workshop on farm savings accounts and their potential to assist farmers in managing variability in farm income. Workshop attendees examined existing farm savings account programs in Canada and Australia and interacted with others currently researching the role of farm savings accounts in the U.S. farm safety net. Workshop sessions also included an assessment of current saving and investment behavior of farm households, an analysis of the variability of farm income for various farm types and sizes, and a perspective on various proposals for farm savings accounts in the U.S. **Ron Durst, [rdurst@ers.usda.gov](mailto:rdurst@ers.usda.gov)**

### Contracting Takes Over Flue-Cured Tobacco Sales

In 2002, 79 percent of flue-cured tobacco was sold under contract—a dramatic change from just 4 years earlier, when virtually no tobacco production was contracted. A new ERS report, *Contracting in Tobacco? Contracts Revisited* (TBS-254-01), traces this shift to Philip Morris—the largest buyer of U.S. leaf—which indicated in a 1999 press release that tobacco sold in auction markets did not satisfy its quality requirements, necessitating a shift to contracting. Contracts typically provide farmers with incentives for producing high-quality output via higher prices. In 2001, contract prices for high-quality tobacco exceeded auction market prices, and contract prices for low-quality tobacco were less than auction market prices. **Carolyn Dimitri, cdimitri@ers.usda.gov**

### Sugar Increasingly Enters U.S. in Imported Products

Demand for U.S. and imported sugar by food manufacturers has flattened since 1999, following robust growth over most of the preceding decade. For the largest sector—bakery and cereal manufacturing—sugar deliveries in 2002 are down 9 percent from 2001. Sugar consumption on a per person basis has also stagnated, reflecting a slowdown in the economy and changing dietary preferences and resulting in increased industry competition. As detailed in a recent ERS study, *Measuring the Effects of Imports of Sugar-Containing Products on U.S. Sugar Deliveries* (SSS-237-01), additional competition is coming from products that contain sugar. The economic incentive to import products that contain a high percentage of sugar can be enormous, as U.S. sugar is far more expensive than sugar from sources outside the United States. Sugar appears to be increasingly entering the U.S. in manufactured products that are not subject to tariff-rate quotas, such as items packaged for retail sale. **Steve Haley, shaley@ers.usda.gov**

### Tracking Livestock Shipments

Because shipping animals is often cheaper than shipping the feed needed to raise them to slaughter weight, moving livestock from growing

areas to finishing areas results in a more efficient use of feed and forage (grass or hay) supplies, which vary in availability by region and season. *Interstate Livestock Movements* (LPDM-10801) analyzes factors influencing animal shipping patterns and provides web

access to over 300 maps illustrating State-to-State movements by species, compiled from never-before-assembled veterinary certificates issued by USDA's Animal and Plant Health Inspection Service. Information on the volume and direction of livestock movements has many uses. The effects of potential disease outbreaks, for example, are highly dependent on livestock movements. By better understanding such movements, potential outbreaks can be contained regionally, perhaps minimizing their economic impacts. **Ken Mathews, kmathews@ers.usda.gov**

### Low-Income Households Spend Less on Food

*Exploring Food Purchase Behavior of Low-Income Households: How Do They Economize?* (AIB-747-07), a comparison of purchases by U.S. households of different income levels, finds that low-income shoppers spend less on food purchases despite facing generally higher purchase prices. Households can economize on food spending by purchasing more discounted products, favoring private-label products over brand name products, pursuing volume discounts, or settling for a less expensive product within a product class. These economizing practices allow the poor to spend less for food, despite the slightly higher prices that other studies have shown they face, on average, when shopping for food, while possibly choosing a less nutritious combination of food products to consume. **Ephraim Leibtag, eleibtag@ers.usda.gov**

### USDA Food Assistance Programs in 2003: How Are We Doing?

Nearly 1 in 6 Americans is served by 1 or more of the 15 domestic food assistance programs administered by USDA at some point during the year. These programs provide needy persons with access to a more nutritious diet, provide opportunities to improve the eating habits of the Nation's children, and help America's farmers by creating an outlet for the distribution of food purchased under farmer assistance authorities. *The Food Assistance Landscape*, September 2003 (FANRR-28-3) summarizes trends in USDA food assistance programs through the midpoint of fiscal year 2003, and discusses two recent ERS studies on WIC cost containment practices and the USDA Fruit and Vegetable Pilot Program. **Vic Oliveira, victoro@ers.usda.gov**



USDA photo

### Research on Child Nutrition

A new ERS publication series, *Food Assistance Research Briefs* (FANRR-34), highlights, summarizes, and explains key findings from research literature related to food assistance and child nutrition. The research briefs are topical and relevant to current debate on child nutrition, child obesity, and the role of USDA child nutrition programs in addressing child health issues. The initial 13 briefs provide analysis and information related to costs, participation, eligibility, and other aspects USDA's food assistance programs. Each issue brief within the series provides a succinct summary of ERS research on a policy-relevant topic, as well as a short resource list identifying relevant ERS research publications, web addresses, and subject matter specialists. **Joanne Guthrie, jguthrie@ers.usda.gov**

### Analyzing Fertilizer Trade

ERS has developed an interactive database on fertilizer imports and exports, by fertilizer type, country, and year. This unique data source is now available on the web for the first time. Data on quantities of fertilizers exported and quantities and values of fertilizers imported are currently available for 1990-2002 and will be updated each year. The data are compiled from U.S. Department of Commerce Foreign Trade Statistics. **Wen Huang, whuang@ers.usda.gov**

### Commodity Markets and Trade

ERS Outlook reports provide timely analysis of major commodity markets and trade, including special reports on hot topics. All reports are available electronically and can be found at [www.ers.usda.gov/publications/outlook](http://www.ers.usda.gov/publications/outlook) along with a calendar of future releases. **Joy Harwood, jharwood@ers.usda.gov**



Digital Stock



Comstock Images

## Food Assistance and Nutrition Research Program

Legislative changes made to USDA's Child and Adult Care Food Program as part of the landmark 1996 welfare reform act have succeeded in focusing the benefits of this program on the intended recipients: low-income children. Findings like these—based on objective, rigorous research—help policymakers to make informed decisions.

Policymakers are increasingly interested in the efficacy of the Nation's food assistance programs—the Food Stamp Program, the Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the child nutrition programs—which represent over half of the USDA budget. One in five people in the U.S. uses at least one of the programs during any given year. Seeking to assess and improve the effectiveness of these programs, Congress directed ERS to study various aspects of their design and implementation. In 1998, ERS launched the Food Assistance and Nutrition Research Program (FANRP).

The FANRP team, composed of Margaret Andrews, Elizabeth Frazao, Joanne Guthrie, Victor Oliveira, and Tina Terry and led by David Smallwood, a senior economist with over 20 years' experience in studying food assistance issues, manages an impressive amount of research through a large network of experts. In partnership with USDA's Food and Nutrition Service, the agency that administers the food assistance programs, David and his staff developed a comprehensive research program that addresses such questions as whether benefits are going to the right people, whether the people who should benefit from the programs have access to them, and whether the programs are serving their intended purposes.

To answer these questions, FANRP funds research by public and private research institutions through grants, cooperative agreements, and contracts that are competitively awarded through a tightly run peer review process. It also relies on the expertise of ERS staff. The FANRP team now manages a research portfolio of over 100 projects and makes all the research findings publicly available through the ERS website (see [www.ers.usda.gov/Briefing/FoodNutritionAssistance](http://www.ers.usda.gov/Briefing/FoodNutritionAssistance)). David says that the FANRP research "helps policymakers ensure the programs are having a positive effect on the lives of ordinary individuals."



Dana Rayl West

Back row (l to r): Victor Oliveira, Joanne Guthrie, David Smallwood.  
Front row (l to r): Elizabeth Frazao, Tina Terry, Margaret Andrews.

## Charles Barnard



Dana Rayl West

Many factors—urbanization, rural amenities, government payment programs, and others—contribute to the value of land in rural areas. As an expert on these issues, especially the effects of urban influence on farmland values, **Charles Barnard** was recently recognized as USDA Economist of the Year by the USDA Economists Group for his outstanding leadership in producing significant

research on land values issues. Charles' research has covered all aspects of rural land economics, including farm real estate assets, farm commodity program payments, urban influence, farmland protection programs, and rural amenities. Most recently, he led the team that wrote *Farmland Protection: The Role of Public Preferences for Rural Amenities* ([www.ers.usda.gov/publications/aer815](http://www.ers.usda.gov/publications/aer815)).

## Marc Ribaldo

Last month, the American Agricultural Economics Association recognized **Marc Ribaldo** with its Distinguished Policy Contribution Award. Marc's research and economic advice on water quality and policy analysis have shaped national conservation and environmental policy for over 20 years. The Clean Water Act, the Conservation Reserve Program, the Environmental Quality Incentives Program, and the National Water Quality Assessment Program are just a few of the policies that are and will continue to be influenced by his contributions to resource economics. More recently, Marc co-led a team effort that resulted in the report, *Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land* ([www.ers.usda.gov/publications/aer824](http://www.ers.usda.gov/publications/aer824)).



Dana Rayl West