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The Changing Organization of U.S. Farming

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Innovations in farm organization, business arrangements, and production practices have allowed farmers to produce more with less. Fewer labor hours and less land is used today than 30 years ago, and practices such as the use of genetically engineered seeds and no-till have reduced machinery, fuel, and pesticide use. Likely aided by shifts in government policies and the use of new risk management tools such as contracts and crop insurance, U.S. agricultural productivity has increased by nearly 50 percent since 1982. Future innovations will be necessary to maintain, or boost, current productivity gains in order to meet the growing global demands that will be placed upon U.S. agriculture.

What Is the Issue?

If global population and energy demands grow as expected, and if prices continue to fluctuate—or even undergo larger swings, which might cause farmers to underinvest in capital-intensive technologies—current productivity gains will not keep pace with the increasing demands placed upon U.S. agriculture. Recognizing where to devote limited resources to ensure that continuing innovation takes place to meet these future demands requires understanding how production, managerial practices, business arrangements, and productivity interact.

What Did the Study Find?

Over the past 30 years, a series of inter-related changes in input use, business arrangements, farm structure, and production practices combined to expand output without increasing the use of total inputs. Moreover, by allowing farmers to increase U.S. agricultural production through increased productivity instead of expanded land and chemical use, many of these innovations helped to limit the impact of agricultural production on the environment.

- Use of two major inputs, land and labor, has decreased over time. From 1982 to 2007, land used in agriculture dropped from 54 to 51 percent of total U.S. land area, while farming used 30 percent less hired labor and 40 percent less operator labor. Meanwhile, new technologies (such as precision agriculture)—often requiring new or advanced management techniques—have been increasingly adopted by farmers.

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- Farmers have altered how they manage their risk, including a heavier reliance on contracting (the value of production under contract increased roughly 10 percentage points between 1991 and 2007) and a shift of production to farms organized as partnerships and corporations (from 34 percent of all farm product sales in 1982 to 43 percent by 2007), allowing risks to be spread over a wider set of stakeholders. Federal crop insurance has also become a major risk management tool (farmers insured 100 million acres in 1989; by 2007, over 270 million acres were insured).
- Larger farms receive the bulk of commodity payments while most conservation payments accrue to smaller farms. Overall, payments are smaller yet make up a larger share of gross cash farm income for smaller farms, which often rely heavily on off-farm income, while larger farms receive larger payments that make up a much smaller share of their gross cash farm income. Over the past three decades, government policies have shifted from a concentration on supply management to focus on income support, with a growing emphasis on environmental concerns—most recently via working-land programs.
- Despite declines in the use of land and labor, agricultural productivity has maintained a linear growth pattern. Driven by the increased use of technology, production practices have changed. For example, the use of no-till increased from 5 percent of all planted acres in 1989 to 23 percent by 2004, and pesticide use has declined on many crops. Many of these changes have also lowered labor requirements, which have allowed some farms to increase the size of their operations. Although production has shifted dramatically to larger farms over the past 25 years, 97 percent of all farms remain family farms, generating more than 85 percent of the total value of U.S. agricultural production.

How Was the Study Conducted?

This study drew upon data from various sources. The National Agricultural Statistics Service (NASS) and the Economic Research Service (ERS) jointly design and administer multiple surveys annually, known collectively as USDA's Agricultural Resource Management Survey (ARMS), which covers U.S. farming operations and their operators in the 48 contiguous States. The ARMS Phase III 1996-2008 surveys provided detailed information on farm business organization, contracting, operator demographics, government payments, and production practices.

The census of agriculture provides comprehensive historical data on consolidation and specialization trends. Data on trends in government payments came from the U.S. and State Farm Income series (the sector accounts) maintained by ERS. Various NASS publications, such as the Acreage reports, provided additional data on genetically engineered crop adoption and other crop production practices. National Resources Inventory (NRI) data provided land use estimates, and administrative data concerning program payments are from the agencies issuing them.