

Introduction

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For decades, economists have proposed decoupled farm subsidies in order to support agricultural producers without distorting commodity production or trade. Decoupled payments provide income transfers of a fixed amount to producers while allowing them to make market-based decisions about whether, or which commodities, to produce.¹ The program design of decoupled payments breaks the link between a producer's actions and eligibility for or level of payment. In contrast, "coupled" farm support, which is based on current prices and production of specific crops, distorts production incentives. This can lead to overproduction, lower market prices, higher program costs, and an inefficient allocation of national resources, often with spillover effects on world markets.

In the 1996 Federal Agriculture Improvement and Reform (FAIR) Act, the United States revamped its farm subsidies with the introduction of a decoupled payment program. "Production Flexibility Contracts" (PFC) provided annual lump-sum cash payments to farm operators based on their historical program crop production.² PFCs were fixed payments announced in advance for the duration of the FAIR Act (1996-2002) and transferred a total of \$36 billion to eligible producers, with an average payment per eligible household in 2001 of about \$9,000. The FAIR Act also provided greater flexibility in planting decisions and terminated acreage reduction programs. Decoupled farm payments—now called "direct payments" under the 2002 Farm Security and Rural Investment (FSRI) Act—amount to about \$5 billion annually.

Has the introduction of decoupled farm payments in the FAIR Act helped improve the well-being of farm households—defined broadly to include their income, wealth, and their work choices? Have they increased the market orientation of U.S. agriculture, or do they distort production and trade as do coupled farm programs? The challenge in studying decoupled payments is that it calls for a broader analytical paradigm than that used for more traditional U.S. farm programs. For coupled programs, the main impacts can be observed in commodity markets. By changing the returns to production of specific commodities or to input uses, coupled payments create incentives that directly influence production decisions. Producer response to coupled programs can be mostly captured in a commodity or farm enterprise framework that focuses on these relative price changes. The main impact of decoupled payments, in contrast, is their effect on the income and wealth of recipient households. To assess the possible impacts of decoupled payments on U.S. agriculture, we need to know about recipient households' spending, saving, and working decisions—in agricultural and nonagricultural activities—and how these decisions may have changed with increased income and wealth. In addition, we can consider indirect links between decoupled payments and production choices that may exist due to risk preferences and market conditions.

¹ "Decoupling" is sometimes used to refer to the increased market orientation of farm programs, and the term "decoupled" payment is sometimes broadly used to refer to payments that have minimal impacts on production. Our study defines decoupled payments as subsidies implemented as direct income transfers to U.S. producers, that are not dependent on current production, input use, or prices. Implementation rules provide a context-neutral way to define a farm program as decoupled. This is because the actual production impacts of decoupled payments can vary across countries and different time periods for reasons that are not related to program design but are instead related to local market conditions, and household and producer preferences.

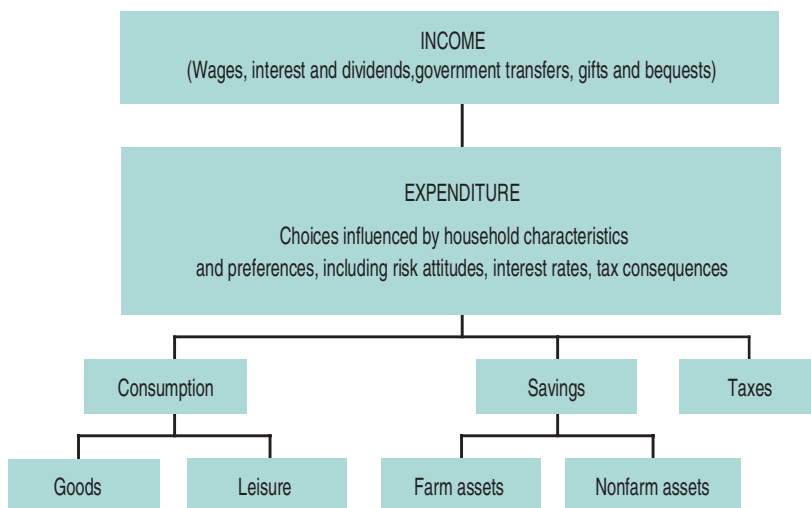
² For more information on farm and commodity programs covered by the 1996 farm act as amended, see <http://www.ers.usda.gov/briefing/FarmPolicy/19962001commodity.htm>. For information on farm policy terms, see the glossary at www.ers.usda.gov/features/farbill/2002glossary.htm.

Effects of Decoupled Payments on the Household

Decoupled payments’ effects on a household can be traced through the flow of its income and expenditure (fig. 1) (USDA, 2003). Payments contribute to total household income, along with other income sources that include nonfarm wages, interest, and dividends. Households decide whether to allocate income to current consumption or to savings. Age, preferences, wealth, and tax implications typically influence this decision. Income increases the ability to currently consume. Market expectations about future decoupled payments may be reflected in the household’s land asset values, and thus in increased wealth. So both current and expected future payments affect the household’s consumption decisions. Consumption of goods and leisure is often overlooked when assessing decoupled payments, but a household’s allocation of payments to current consumption is an important consideration that competes with the use of the subsidy in the farm operation. Furthermore, a change in consumption — such as food/household supplies, rent, mortgage, or leisure time – captures part of the subsidy’s effect on farm household well-being.

Savings represent, in part, a plan to pay for consumption in the future. And when a household’s income is variable year to year, precautionary savings can help smooth short-term consumption, allowing the household to maintain some threshold consumption when income is low. Households typically invest their savings across a portfolio. In general, households allocate investments based on a comparison of expected rates of return. Farm households can be expected to increase onfarm investment until its expected returns are no longer as great as those available from off-farm opportunities. Since lump-sum decoupled payments do not directly affect either onfarm or off-farm rates of return, they theoretically would not affect onfarm investment or production levels through capital market channels as long as these markets are efficient.

Figure 1
Flow of household income and expenditure



Increases in income and wealth may also change a household's tolerance for risk. Much attention has been given to how risk affects agricultural production, with mixed findings.³ However, a household can also adjust its savings and investment portfolio or its work choices, to suit its new risk tolerance, perhaps in lieu of changes in farm production.

Decoupled payments are more likely to influence production decisions when "market failures" exist. These include inefficiencies, rigidities, or incomplete information in factor (labor, capital, and land), insurance, or commodity markets in agriculture. Market failures may lead to links between decoupled payments to the household and its farm production decisions. For example, credit constraints are a market failure that prevents producers from making profitable investments in the farm. Decoupled payments may alleviate this constraint and enable the household to allocate the additional liquidity to the farm. Testing for the presence of market failures, such as credit constraints, is an indirect way to determine whether changes in household income and wealth from payments could influence production.

Analyzing PFC Payments, 1996-2001

The studies in this report analyze the direct effects of decoupled payments in the FAIR Act on household behavior, and assess land, labor, risk management, and capital market conditions that can lead to links between decoupled payments and production choices. Each study contributes a different perspective to understanding the response of U.S. farm households and production to decoupled income transfers. Some use new microdata on farm households collected through USDA's Agricultural Resource Management Survey (ARMS), initiated in 1996, and its predecessor survey. These data are used to compare household and producer behavior and outcomes before and after the FAIR Act. In this approach, attributing causation to program changes is difficult because it requires controlling for other factors that may also have affected the outcomes. Other studies use applied or conceptual models to characterize the impact of introducing decoupled payments relative to no payment, based on a stylized set of assumptions about economic behavior.

Westcott and Young (chapter 1) provide a conceptual introduction for the chapters that follow, describing and comparing the production incentives of coupled and decoupled payments. They consider policy and market conditions that could lead to links between decoupled payments and production, discussing four avenues through which effects could occur. Westcott and Young conclude that effects of decoupled programs on planted acreage are smaller than acreage effects of price- and production-linked coupled programs, which are typically not very large relative to total acreage because of the inelasticity of U.S. supply response. Thus, although no program appears to be completely without potential effects on agricultural production, they argue that effects of decoupled programs are likely to be small.

Full planting flexibility under the FAIR Act allowed producers to grow any crop or fallow land without affecting the size of or eligibility for decoupled payments. Westcott and Young provide evidence pointing to the increased

³ See for example, Roberts, et al. (2004).

market orientation of U.S. agricultural production. They compare 2001 actual plantings with PFC acreage, finding that farmers exercised significant flexibility in acreage allocations compared to their historically based PFC acreage.

Roe, Somwaru, and Diao (chapter 2) use a stylized model to simulate the longterm path of consumption, savings, and investment behavior of U.S. farm households receiving decoupled payments. They consider two scenarios regarding capital markets: one in which farm households are unconstrained in their ability to allocate the saved portion of their payment across an investment portfolio, and a second in which farm households are assumed to invest only onfarm, either due to preferences, liquidity constraints, or segmented capital markets. All other markets are assumed to be efficient. Because the payments do not increase returns to farm assets, the results for the first scenario shows no increase in onfarm investment or production. The results for the second scenario show a shortrun increase in agricultural capital stock of 0.3 percent. But in the long run, the payments are found to have almost no effect on farm investment or production, even with imperfect capital markets. This is because excess investment on the farm is self-correcting: increased onfarm investment drives down the returns to farm capital, reducing farm households' incentive to save and increasing their rate of consumption out of the payment until returns are equalized across all investments.

Households consume leisure as well as goods. Decoupled payments make leisure, like other goods, more affordable. They increase the value of leisure relative to the cost of leisure – the marginal value of additional wage earnings, which in theory may lead to a reduction in hours worked both on- and off-farm. **Ahearn, Harrington, Hoppe, and Korb** (chapter 3) estimate the impacts of decoupled payments on participating households' labor allocations on and off the farm. After controlling for various factors that may influence labor allocation, they report that decoupled PFC payments decreased the number of off-farm hours worked and on-farm work hours rose modestly. These results imply that farm households respond the same way to decoupled payments as they do to coupled payments. These findings call for further study of farm labor markets, particularly of the ways they may differ from nonfarm labor markets in, for example, their provision of nonmonetary benefits.

Changes in a household's income and wealth can also change its tolerance for risk. Farmers' risk aversion may affect production decisions because wealth-induced changes in their risk tolerance due to decoupled payments could influence production levels, input use, or crop mix. **Makki, Somwaru, and Vandever** (chapter 4) review empirical studies of risk aversion of U.S. farmers. These studies have generally found evidence of risk aversion for most U.S. farmers, but with a wide range of risk attitudes. Thus, although farmers who receive PFC payments likely display varying attitudes toward risk, it is certainly plausible that some such farmers are willing to assume more risk. Yet, Makki et al. conclude that the resulting effects on production are likely to be small for several reasons. Payments are on average low (less than 3 percent) relative to the net worth of participants. Farm production is only one of many outlets farm households use to

take on additional risk. Surveys find that producers use various tools—such as insurance, hedging, and management strategies—to mitigate risks. And, farm households can respond to changes in their risk attitudes with adjustments throughout their portfolio, such as off-farm employment and investing in nonfarm real estate or financial assets. Finally, they review the small empirical literature on risk-related production effects of decoupled payments, which finds minimal production impacts.

Financial capital markets are characterized by imperfections that can induce outside investors and creditors to ration capital or credit and impose other costs that could cause onfarm investment to be linked to farm household cash income. **Collender and Morehart** (chapter 5) examine empirical evidence of the extent to which these imperfections may affect farm investment and production. Previous research indicates that farm investment patterns do not rely on farm cash income except in relatively rare circumstances, both for the sector and for individual farms. In particular, during severe farm recessions, capital market imperfections are associated with inefficiently low investment, especially for farmers with limited credit histories or in weak financial positions. More recent data do not indicate patterns of capital investment or credit use that would be consistent with the presence of significant capital or credit constraints among commodity program participants. These observations, in turn, imply decoupled payments may move farm sector investment to more efficient levels during severe recessions in the farm economy.

Decoupled Payments, Land Values, and Land Rents

Land values and rents reflect expectations about future returns from both agricultural production and government payments. PFC payments were made on the basis of land enrolled in the program. PFC acreage was primarily land enrolled in supply management programs for wheat, rice, corn, barley, oats, sorghum and cotton at least once during 1991-95. PFCs were pre-determined lump-sum payments. In theory, the link between fixed and foreseeable program benefits and PFC acreage would allow the payments to be fully reflected in the market for PFC acreage (adjusting for tax considerations and the buyer's subjective discount rate on future benefits). In the case of land rental, the program-induced increase in profits-plus-payments will tend to be passed through to the land owner. If land rental markets are efficient, and if decoupled payments are completely nondistorting, one would expect rents to rise dollar for dollar with those payments. Some contend that higher land values and rents due to programs reduce the competitiveness of U.S. producers. However, these higher land-related costs simply reflect the capitalization of benefits into land values and the pass-through of benefits from tenants to landlords on leased acreage.

In a simulation of decoupled payments, **Roe et al.** (chapter 2) show a long-run increase in U.S. aggregate land values from PFC payments of 8 percent, under a scenario that assumes all markets operate efficiently. **Roberts** (chapter 6) examines the effects of government payments (excluding conservation) on 1997 cash-lease rental rates for base acres. He compares them to payments' effects on cash-lease rental rates prior to the FAIR Act, when

payments were more closely tied to production levels. The effect of PFC payments on land rents is important to consider because it reflects the division of payment benefits between tenants and landowners, and most acreage enrolled in the PFC program was rented. Roberts finds that approximately one-third of each payment dollar on leased acreage in 1997 was passed through to landlords via higher land rents. Although this rate is somewhat higher than the 22-percent pass-through rate prior to the FAIR act, it is far less than the dollar-for-dollar increase of a full pass-through, indicating that program benefits are shared between tenants and landlords. The incomplete pass-through rate could indicate that decoupled payments distort production activities and profits or that the land markets operate imperfectly, and adjust slowly. Further study is needed to trace out the full implications of this finding.

Farm Households: Changing Directions for Policy and Analysis

U.S. farm programs are changing. Since the mid-1980s, U.S. farm commodity policy has evolved from a program of price supports and controlled supply to include multiple objectives (most notably to include environmental protection) and the facilitation of freer markets in agriculture. The introduction of PFC payments in 1996 further weakened the links between commodity programs and production decisions by basing these payments to farm households on historical criteria.

The studies in this report explore aspects of the microeconomic behavior of farm households as it relates to the impacts of income transfers. The studies describe recipient households' consumption, savings, and investment behavior as their income and wealth increase. The studies include analyses of market conditions, testing for the presence of inefficiencies or market failures that would link changes in household income to production decisions. Collectively, the chapters represent an early stage in the empirical analysis of decoupled payments. The studies address many aspects of the payments' household impacts but other issues call for additional analysis. As the analytical paradigm changes with the evolution of farm programs, the development of appropriate data and models will improve our understanding of farm program impacts on the behavior and well-being of U.S. farm households, and the agricultural sector.