

## Promoting Productivity

by

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*Farmers want their employees to work hard. By constantly monitoring workers, a manager prevents shirking. However, extensively supervising workers personally is very time consuming. Consequently, farmers often hire managers or use pay incentives.*

Most farmers do not directly supervise workers. According to one study, nearly two-thirds of field workers are supervised by foremen and supervisors, 29 percent by farm labor contractors (FLCs), and only four percent by growers.

Farm labor contractors provide growers with labor and, if desired, supervision and other services. According to one study, 53 percent of FLCs are responsible for setting performance standards of workers, 14 percent share this decision with growers and the remaining third are not involved because the grower takes responsibility. One in nine hired agricultural workers nationally (and nearly one in three in the west) is employed by a farm labor contractor (FLC).

Only a little is known about which agricultural employers extensively supervise and which do not. Employers who can speak Spanish are more likely to supervise Spanish-speaking workers directly than those who do not, presumably because their monitoring and supervising costs are lower. Farmers who speak Spanish well are twice as likely to hire directly as to use FLCs, whereas those who do not speak Spanish at all are twice as likely to use (Spanish-speaking) FLCs as to hire directly. Thus, employers who do not speak Spanish are more likely to hire managers or to use pay incentives.

### Pay Incentives

Farmers use three types of pay incentives to encourage employees to work hard: piece rates and other direct productivity incentives, unusually high wages, and deferred bonuses and benefits.

### Piece Rates

Many farmers prevent loss of productivity from workers shirking by paying by the piece, a practice that is relatively uncommon in other labor markets. One in eight hired agricultural workers nationally (and one in four in the west, northeast and southeast) is paid by the piece rather than by the time worked. Compared to time-rate workers, piece-rate employees work much faster. Gregorio Billikopf, UC Cooperative Extension Specialist, reports that employees paid by the piece prune a vineyard in only 19 hours of work per acre compared to 26 hours for employees paid by the hour.

Monitoring problems differ across piece-rate and time-rate (hourly pay) jobs. Typically, the primary concern of a supervisor is increasing speed on time-

rate jobs and maintaining quality—especially when harvesting delicate crops—on piece-rate jobs.

### Efficiency Wages

By paying an unusually high wage (which economists call an *efficiency wage*), a farmer raises the cost to a worker of being fired. Even if there is only a small chance of being caught, a worker who is paid a high enough wage will not shirk because shirking is not worth the risk of losing such a good job. Thus, the higher the wage paid, the less monitoring needed to deter shirking. Moreover, workers may be grateful to employers who pay unusually high wages and hence work harder.

### Deferred Payments

Deferred payments work much like efficiency wages to discourage workers from shirking by raising

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the cost of being fired. If the wage is low for some initial period of employment and then rises, workers who are caught shirking are forfeiting relatively high future wages. Similarly, if the firm provides bonuses or pensions to only those workers who remain with the firm for a substantial period of time, a worker who shirks risks losing these future benefits. Both these types of deferred payments serve the same function: By raising the cost of being fired, the firm needs less monitoring to deter shirking.

### Farmers' Choices

Thus, farmers can prevent shirking by monitoring themselves, employing managers such as FLCs or providing financial incentives. Farmers choose the approach or combination of approaches that maximize their profits.

Because FLCs frequently provide monitoring services, employers who use FLCs may be less likely to use deferred wages and other indirect approaches. It is unknown whether FLCs supervise better or worse than direct-hire growers. If the FLC's contract provides no incentive to increase the productivity of workers, the FLC may provide minimal supervision. On the other hand, with appropriate incentives, a FLC speaking the language of workers may be a better supervisor than a direct-hire grower who speaks only English. Thus, one cannot predict whether or not efficiency wages or

deferred payments will be used more frequently for FLC employees than for direct-hire employees.

To determine which approaches farmers use, we turn to the National Agricultural Worker Survey (NAWS), which is a random sample of hired seasonal agricultural workers from across the United States. The Department of Labor commissioned the NAWS starting in 1988 in response to the Immigration Reform and Control Act of 1986, which required the Secretaries of Agriculture and Labor to annually assess the quantity and quality of agricultural workers in the United States.

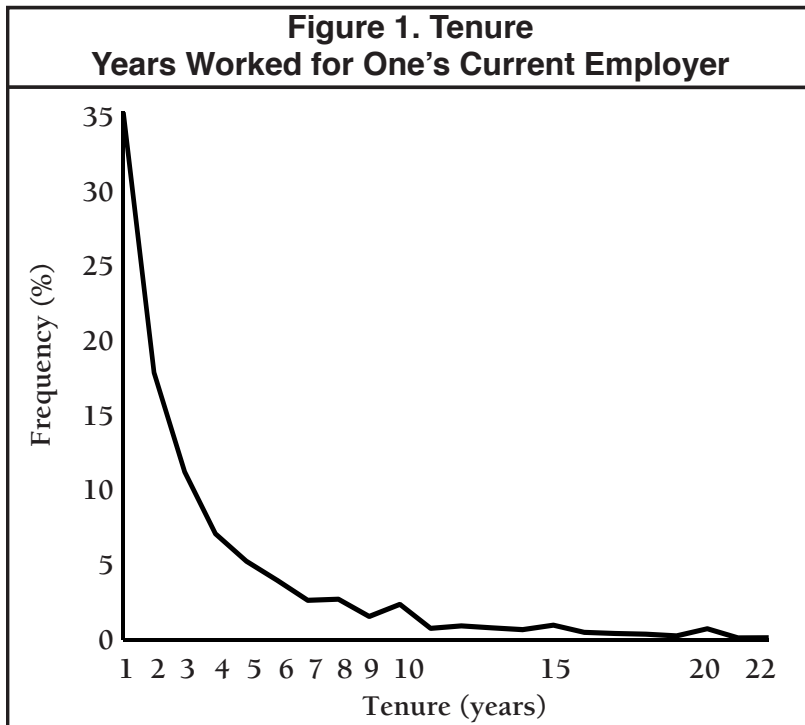
### Use of Efficiency Wages and Deferred Payments

The NAWS data is used in this study to determine whether FLCs or direct-hire farmers are more likely to provide pay incentives. Presumably, farmers that use piece rates or efficiency wages are less likely to also use deferred payments. Similarly, farmers may be less likely to provide financial incentives if FLCs provide good supervision.

If wage earnings are deferred, wages should increase with tenure or the number of years of employment. As Figure 1 shows, most farm workers have been employed in their current job for relatively brief periods. Over a third of all workers are employed for only a year or less. Over half are employed for no more than two years, and two-thirds are employed for no more than three years.

A statistical model is used to examine how wages vary with tenure controlling for experience, gender and other factors that might affect wages. Figure 2 shows the estimated relationship between tenure and wage for four cases: direct-hire farmers who pay by the piece, direct-hire farmers who pay by the hour, FLCs who pay piece-rates and FLCs who pay by the hour. In all four cases, the wage rises with tenure.

If FLCs provide less supervision of workers than do direct-hire farmers, one would expect wages to rise more rapidly with tenure for FLC employers. However, Figure 2 shows that hourly wages rise virtually at the same rate for both types of employers. Thus, apparently both employers use deferred payments similarly to encourage workers.



The wage for hourly employees of direct-hire farmers is above that of hourly FLC employees for any given tenure: FLCs pay 7.5 percent less than do direct-hire growers. One interpretation of this differential is that direct-hire growers pay an efficiency wage that is higher than the wage paid by FLCs, the employer of last resort.

As expected, piece-rate compensation provides an incentive for employees to work harder. Controlling for other factors that affect wages, piece-rate workers earn 26 percent more than time-rate employees.

The steepest of the four wage-tenure lines in Figure 2 is that of the piece-rate, FLC workers. Apparently FLCs are more likely to defer (large) payments for piece-rate rather than for time-rate employees. The piece-rate, FLC wage-tenure line crosses the piece-rate, farmer wage-tenure curve at about five years. As the mean tenure is 2.9 years and the median is two years for this group (and very few of them have more than four or five years of tenure), most piece-rate FLC employees earn less than comparable workers employed directly by farmers.

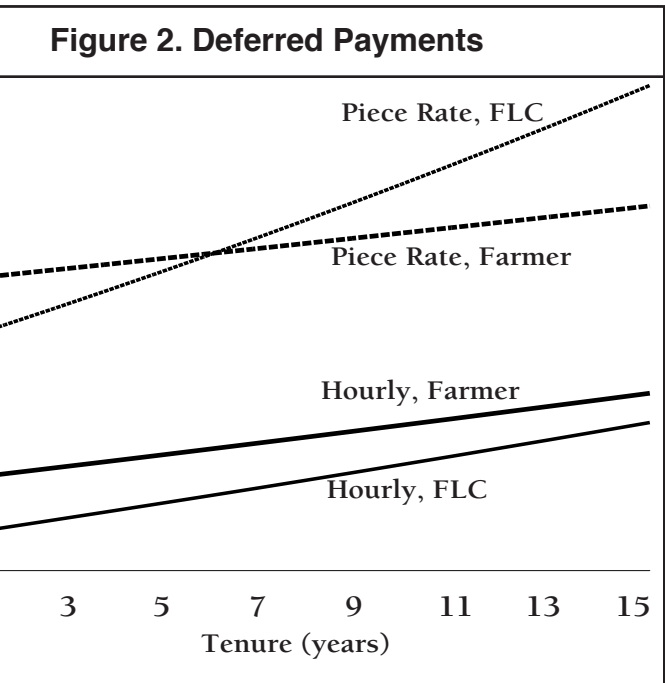
This study also examines how farmers defer fringe benefits. The greater a worker's tenure, the more likely is that worker to receive deferred fringe benefits of paid holidays and end-of-season bonuses. FLCs are more likely to provide paid holidays than are direct-hire growers.

However, the effects of greater tenure on receiving these bonuses are small. For example, as tenure increases by 10 percent, the probability that a time-rate paying farmer provides paid holidays increases by only a 0.1 percentage point.

### Summary

Farmers use a variety of methods to encourage employees to work hard. In addition to using FLCs and others to supervise employees, farmers use pay incentives. Some of the main findings in this study are as follows:

- Direct-hire farmers pay 7.5 percent higher wages than FLCs for comparable workers. This higher wage may be an efficiency wage that is offered so that the direct-hire farmer can get the same work from employees with less supervision.
- Paying by the piece induces employees to work



quickly. Piece-rate workers earn more than hourly workers for any given number of years of tenure on the job.

- All groups of employers use deferred payments and benefits. FLCs who pay by the piece are particularly likely to defer payments.
- Workers with more tenure have a higher chance of getting deferred bonuses and holiday benefits, but extra tenure does not raise this likelihood by much.

For additional information,  
the author suggests the following reading:

Enrico Moretti and Jeffrey M. Perloff, "Efficiency Wages and Deferred Payments in Agriculture," *American Journal of Agricultural Economics*, 84(4), November 2002:1144-55.

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