

Piece Rates, Hourly Wages and Daily Farm Worker Income

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Seasonal farm workers are hired on a day-to-day basis to perform specific tasks, such as harvesting, planting, plant pruning, staking and tying. Federal laws require that any worker be paid at least the minimum wage per hour of employment. Currently, minimum wage is \$5.15 per hour and agricultural workers are entitled to this hourly rate for every hour they are on the farm. While minimum wage laws establish a floor for hourly earnings, piece rate hourly earnings are typically much higher since the worker's earnings are tied directly to individual productivity.

During the 1997/98 production season, data were collected on a sample of seasonal farm workers harvesting oranges and tomatoes in southwest Florida. Seasonal farm workers are organized into crews, and employers keep daily accounting records of crew performance. For harvesting crews who work by the piece rate, daily records include the size of the crew, total hours of harvesting, volume harvested, and dollars earned from harvesting. From these data, one can calculate average worker productivity, effective hourly wage and daily harvest income.

The purpose of this article is to summarize the harvest performance of crews from which data were obtained. This summary provides some evidence of average hourly and daily earnings. The interpretation of the data is limited, however, to only field workers harvesting during a peak production period in southwest Florida (January 1998). Not included were the work efforts of crew leaders, field supervisors, truck drivers, workers doing non-harvest field jobs, and packing house employees. Furthermore, data apply to whole crews and therefore mask individual earnings and performance. Actual hourly and daily earnings of individual farm workers depend on meeting minimum wage requirements and whether a farm worker was also employed doing other farm activities, such as weeding, pruning, staking, and field packing.

This summary includes thirty-one orange harvest crews from various employers, representing 1,313 workers who harvested 107,660 field boxes (90 pounds per box) of oranges. Collectively, these harvesters worked 11,066 total hours and earned \$78,720.

Similar information was collected on twenty-one tomato harvesting crews. A total of 810 workers harvested 98,660 buckets of tomatoes (approximately 30 pounds per bucket) over 4,543 total hours and collectively earned \$40,296. All orange and tomato harvesters were paid on the basis of a piece rate.

Piece Rates and Hourly Wage

Nearly half (49%) of the oranges harvested by the sampled crews were harvested at a piece rate of \$.70 per 90 pound field box. Rates ranged from \$.55 up to \$1.30 per 90 pound box. Piece rates for tomatoes ranged from 35 cents to 45 cents per 30 pound bucket. Nearly three-fourths (72%) of the tomatoes were harvested at 40 cents per bucket.

A worker's effective hourly wage depends on both the contracted piece rate and his or her productivity. Productivity per person of orange harvest crews ranged from a low of four boxes per hour to as many as 16 boxes per hour. Most orange harvest crews picked between nine and eleven field boxes per hour per person. The average productivity of a tomato harvester was 22 (30 pound) buckets per hour of harvest time. Tomato harvesters ranged between 15 and 27 buckets per hour. For a given set of field conditions, differences in productivity reflect differences in workers' abilities and physical stamina.

For a given crew, dividing total dollars earned by the total number of hours worked, provides a measure of effective hourly earnings within the crew. The number of hours worked reflect only hours spent harvesting. Since data were collected for an entire crew, the calculated hourly earnings is itself an average among all workers within the crew. Figures 1 and 2 present a distribution of hourly earnings for orange and tomato workers, respectively.

Hourly earnings of orange harvesters ranged from \$4.50 to more than \$11.00 per hour ([Figure 1](#)). Based on contracted piece rates and actual worker productivity, approximately 700, or six percent of harvest hours earned less than minimum wage, \$5.15 per hour. Since this research did not collect data on individual worker compensation, no conclusion can be drawn as to the hourly wage received by these lower end crews. Under federal minimum wage

laws, employers of these crews would have been required to compensate for the difference between what the workers earned and the minimum wage. More than 90 percent of the sampled orange crews earned well above the minimum wage. Forty-seven percent of the harvest hours earned more than \$7.00 per hour.

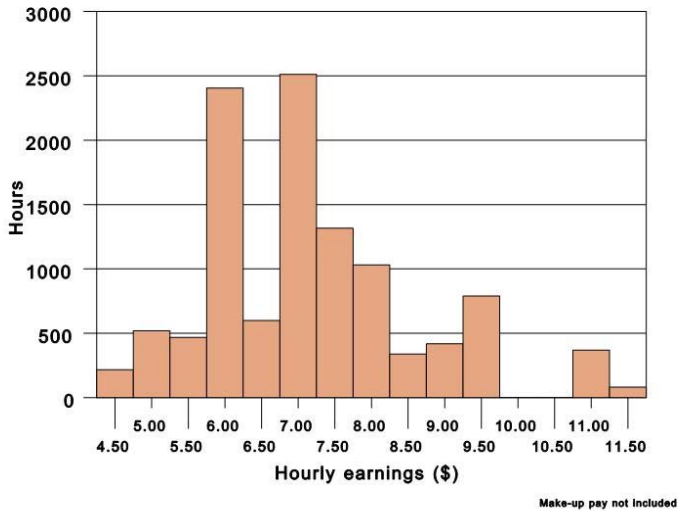


Figure 1

Hourly earnings of tomato harvest workers range from \$6.50 per hour to \$11.00 per hour (Figure 2). The overall average hourly earnings were \$8.87 per hour. One-third of the tomato harvesters earned more than \$9.50 per hour.

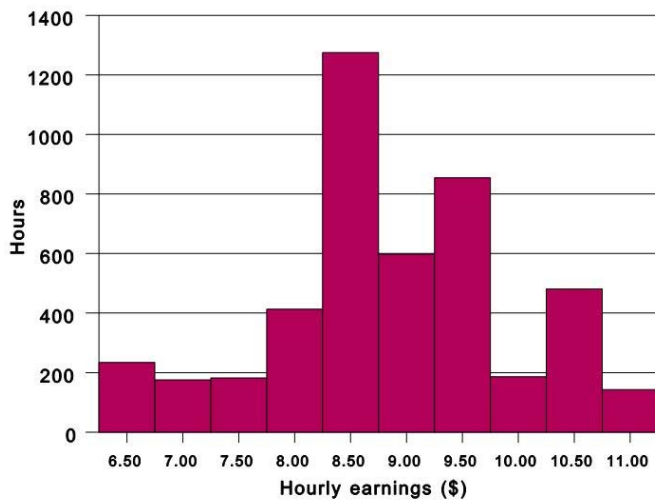


Figure 2

The piece rate can be used to influence productivity of workers doing repetitive tasks. However, productivity measures in agriculture are also influenced by field conditions. Low yielding citrus groves or tomato fields require harvesters to travel greater distances to pick the same volume of fruit, thereby reducing worker productivity. Taller citrus trees require more time on ladders, thereby slowing down picking speeds and reducing overall harvest productivity. Research at the University of Florida has shown very little correlation between citrus harvesting piece

rates and hourly earnings of citrus harvesters (Emerson et al.). The research results suggest that piece rates adjust for varying field and labor supply conditions. In cases where the number of workers have been limited and the volume of fruit within a grove has been light, citrus harvesters apparently have been able to negotiate higher piece rates.

Daily Earnings

Figure 3 and figure 4 present average daily earnings of orange and tomato harvesting crews. Daily income from harvesting was calculated by dividing total daily harvest earnings by the number of workers in a crew.

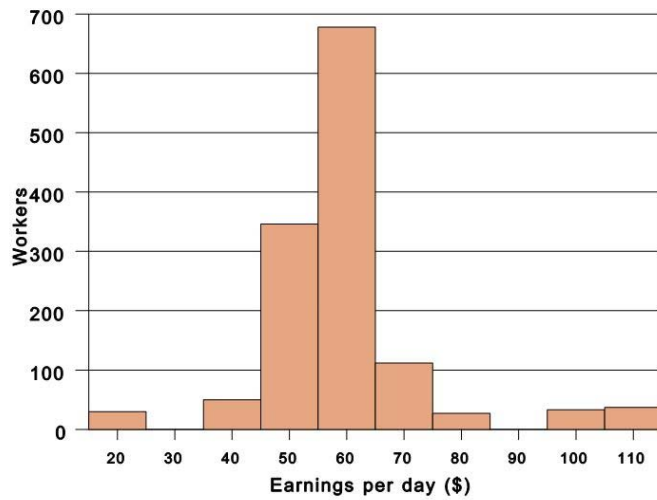


Figure 3

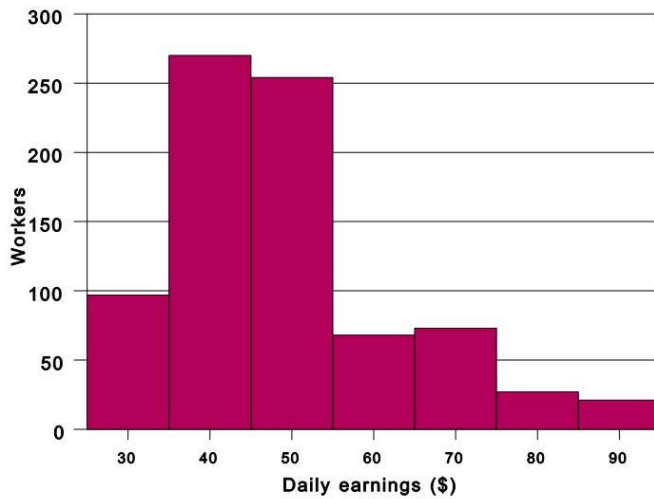


Figure 4

During the first week of January 1998, orange harvesters earned an average of \$60 per day. Average daily earnings from tomato harvesting were \$50 per day. It is important to restate that the reported averages are only from harvesting. Additional daily employment opportunities on the farm or in a packing shed would supplement a worker's total daily earnings.

It is interesting to note that the income picture of farm workers changes as focus shifts from piece rate to hourly earnings to daily income. Using the piece rate as the sole income criterion, orange harvesters seem to enjoy an economic advantage over their counterparts in tomato fields. However, when the focus shifts to average hourly earnings, tomato harvesters appear to be earning more income. Finally, when one considers daily income, orange harvesters earned more per day than did tomato harvesters.

The difference in daily earnings was primarily due to more hours worked by orange harvesters than by tomato harvesters. Harvesting hours were calculated for each crew by dividing total hours worked per day by the number of workers in the crew. Orange crews averaged more than eight hours per day of harvest time while a tomato crew averaged slightly fewer than six hours per day of harvest time.

Some farm worker advocacy groups have targeted the level of piece rates as a principal reason for low farm worker incomes. Specifically, there have been requests for a 50% increase in the tomato harvesting piece rate, from 40¢ to 60¢ per bucket. All things being equal, a 50% increase in the piece rate will increase farm worker income by 50%. However, annual farm worker income is dependent on more than just the piece rate, and it is not clear that simply increasing the piece rate will necessarily increase a farm worker's overall annual income. A one cent increase in the harvest piece rate translates into a one cent increase in unit costs. In the case of a tomato grower who harvests on the basis of daily market conditions, higher unit costs make it less likely that a second and/or third picking from a given block would be profitable. Fewer harvests mean less harvest time for farm workers and thus lower overall income. In addition to the piece rate and a worker's productivity, total number of hours of available work is another, perhaps most important determinant of a farmworker's annual income. The seasonality of agricultural production and vagaries of markets and weather are powerful factors that govern available field hours. These factors, for the most part, are beyond the control of individual growers.

Seasonal farm workers have been, and will continue to be important to growers who produce fresh fruits and vegetables. Agricultural leaders have expressed concern that the number of available farm workers is falling and that in the near future the number of seasonal farm workers may not be adequate to support current production levels of Florida's fruit and vegetable industries. Finding ways to increase farm worker income would help insure a reliable supply of farm workers. However, at the same time, Florida growers are under constant pressures from global competition to lower unit production costs. Long term sustainability of Florida's fruit and vegetable industries depends on growers' ability to reduce unit costs.

Increasing farm worker income while lowering overall unit costs are dual goals that will require creative thinking by all parties interested in agriculture's long term viability. Simply increasing a piece rate will have limited, and potentially counterproductive consequences on the net economic health of the agricultural community of growers and farm workers. New farm management and human resource management practices need to be explored which could enhance worker productivity and provide for more available hours of farm work. Such strategies could have positive benefits on levels of both farm worker income and unit production costs.

Reference

Emerson, R.D., R. Chung, and L.C. Polopolus. *Harvest Labor Market Efficiency*. Staff Paper 94-11, Food and Resource Economics Department, University of Florida, Gainesville, FL. August 1994.