

Pay and Time of Day

Is when we work an important part of total rewards? Total rewards are important to workers and organizations.

Salary, bonus, health insurance, paid time off, flexibility and working conditions matter. Is time of day also important? I have been working on a research project with Darren Lubotsky (University of Illinois at Chicago) and Douglas Webber (Temple University) that we are calling

“The Night Shift.” This column is based on that work.

Wages Vary by Time of Day

There is considerable variability in wages and salaries based on when people work. There are many reasons people work at different hours; some of these are at the urging of employers (e.g., want to keep the machines running 24 hours a day, need police and fire protection around the clock) and some are at the urging of employees (e.g., families with two earners who may want to have one home with children). Lubotsky, Webber and I used a sample of more than 3 million workers from the American Community Survey to create Figure 1, which plots two distinct bits of information for workers in the United States.

First, the figure shows the percent of people who start work at various times of the day, on a 24-hour clock. Second, Figure 1 shows wages by time of day that people start work. While the vast majority (84 percent) start work between 6:30 a.m. and 8:59 a.m., almost one in five (18 percent) starts work between midnight and 5:59 a.m. The red line in the figure (right-hand scale) shows that the average wage by time of day peaks at just after 8 a.m. at more than \$27 per hour and the trough is just under \$16 per hour for those workers starting work in the afternoon.



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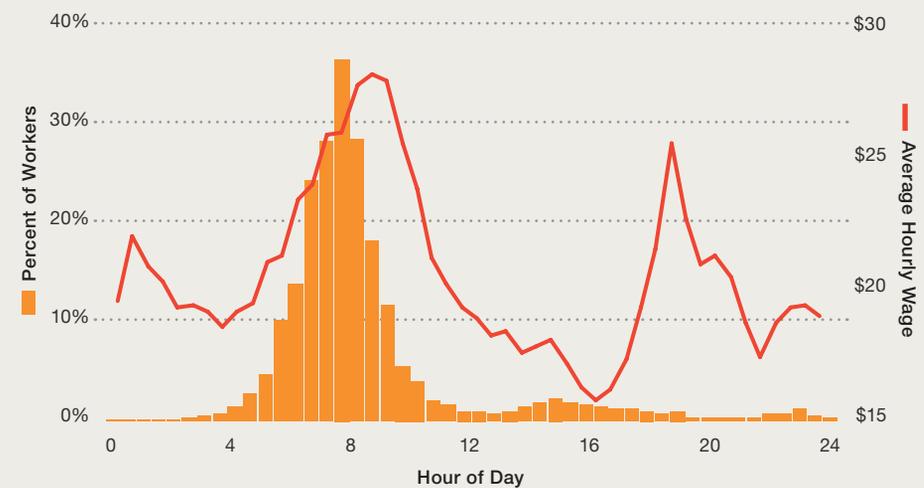
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Slicing the data further, we find that even within occupations, wages vary considerably by time of day. For example, production jobs that start between midnight and 5:59 a.m. pay about 10 percent more than production jobs that start between 7:30 a.m. and 8:59 a.m., quite consistent with a “shift differential” or what economists call a “compensating differential” for a disamenity of a job. At the same time, management jobs that start between midnight and 6 a.m. are paid about 12 percent less than those that start between 7:30 a.m. and 8:59 a.m., inconsistent with the compensating differential idea. We find variation in pay by time of day within some occupations even after controlling for a host of other worker characteristics.

Figure 1 | **Wages and Percent Starting Work by Time of Day, U.S. Full-Time Workers**

Full-time workers (ages 16-65 and not in school) only. From sample of 3,442,960 workers from American Community Survey waves 2005-2011, expressed in 2011 dollars.



Source: Hallock, Lubotsky and Webber, “The Night Shift,” work in progress, 2014.

Some Possible Explanations for the Differences in Pay by Time of Day

Many jobs don't have to happen at night, but some do. Because of coordination and communication issues, it is reasonable that my undergraduate class meets twice a week for a full semester at 10:10 a.m. (not 2 a.m.), while our institute's professional seminars are condensed into one day-and-a-half-long session starting at 8:30 a.m. each day. On the other hand, opening a restaurant for dinner, one may quickly realize that, because rent and the start-up costs of a kitchen are fixed costs, it may make sense to also be open for breakfast. Or, because lots of crime happens at night, it is only natural for police to be on the ready at all hours, every day of the week. But what of the differences in pay?

There is a wide variety of possible explanations for why there are wage differences by time of day even for those within the same occupation. To note just a few: compensating differentials (noted above), “quality” of the specific tasks needed differing by time of day, or higher-skilled workers scheduled for certain shifts (perhaps rewarding your best workers with their preferred starting time). Peter Kostiuik examined this in 1990 in an article titled “Compensating Differentials for Shift Work” (*Journal of Political Economy*, 98(1)). He found large nighttime wage premiums in a manufacturing setting and evidence of workers selecting into such work. In “The Timing of Work Over Time” (*Economic Journal*, January 1999), Daniel Hamermesh documented a

large decrease in the fraction of workers working at night. He argued, on the other hand, that night work is a disamenity where rising incomes over time lead workers to move away from such work.

Start Time on Which Day?

Given the dynamic workplace changes taking place because of new technologies allowing more and more workers to put in their necessary work hours wherever and whenever (within boundaries) they want, will it be increasingly hard to define the start of the workday? Will such flexibility be more of a reward (offset by lower pay) or burden (compensated with higher pay)? And what about freelancers and independent contractors who may have more individual control over when their work hours start and stop? Wages differ by time of day — even more than I expected before working on this. Going forward, I expect the complexity of this issue to increase and welcome any stories or explanations you have.

How do you consider the trade-offs of pay and time of day? **WR**



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