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Primer on Wage Analyses for Antitrust Attorneys: Part II

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In response to the Department of Justice's increased focus on no-poaching agreements, we have compiled a two-part primer on wage analyses for antitrust attorneys. In part one, we provided a high-level comparison of pricing and wage models and identified data sources that will be useful in analyzing no-poaching claims. Here, we discuss common issues to address when modeling wages.

Modeling Wages

Wage determination models have been developed by labor economics experts for pay discrimination cases. Such wage models include worker and job characteristics such as prior labor market experience, time at the company (tenure), time in the job, measures of productivity, job performance evaluations, department, and job title, among others. Although the specific characteristic will vary based on company- and data-specific factors, below we discuss four challenges that often arise in modeling wages and explain how modeling wages across multiple firms in a no-poaching context further complicates matters.

1. Capturing and Measuring All Components of Pay

Measuring total compensation is not as straightforward as it seems. For hourly employees, shift differentials (additional pay for things like night or weekend shifts) and other premiums can result in regular rates of pay higher than the employee's base hourly rate. Overtime (and in some places, double time)

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premiums also impact total compensation. One solution is to use W-2 earnings, but for employees who did not work the full year (either due to hire/termination during the year or leaves of absence) or for those who worked in multiple positions within the year, that measure can be misleading.

Other payments, such as bonuses and commissions, are often paid after they are earned. For example, annual bonuses for performance in the calendar year may not be paid until the following calendar year.[1] In such cases, W-2 earnings are a mixture of compensation that was earned in both the current and the prior year. Also, if an employee leaves between the end of the calendar year on which such payments are based and when the payments are actually made, he or she will often not receive that bonus.

Multi-Firm Complexity: When examining possible wage suppression among multiple firms, nonwage compensation such as 401K matching contributions, health insurance, commuting benefits, on-site childcare or childcare subsidies, etc. may also be relevant. To the extent that some firms increase nonwage benefits (presumably at the expense of wage growth), understanding the cost of changes in nonwage benefits is important to ensure that decreases in wage growth associated with increases in the cost of nonwage benefits are not erroneously identified as wage suppression due to no-poaching agreements.

Stock options and other types of ownership-sharing awards present another complication. Even after options have vested, there is often a period of time over which the employee can decide when to exercise the option, and the value may change over that period. Even more challenging, when start-ups offer ownership shares to early employees, it is often with the anticipation that the company will grow and that ownership will become more valuable over time. For start-ups, there is not even a stock market trading ownership shares, let alone an option market. It is also likely that not all employees will choose to exercise their options but that does mean that unexercised options have no value.

2. Identifying the Factors That Determine Pay

The factors that determine pay may be different across jobs. For example, entry-level positions may require a college degree, but whether someone holds a college degree may not be relevant for more experienced employees and positions. On the other hand, sales revenue is likely an important determinant of pay in sales occupations, but not relevant for those in support functions.

Even if the factors impacting pay are the same company-wide, the relative importance of those factors may differ across groups of employees depending on characteristics such as job level, division, and/or location. For example, individual compensation is likely to be more closely related to overall firm performance for high-level executives than for employees in entry-level positions. Employees in higher cost-of-living areas may be paid more than those in lower cost-of-living locations for both entry-level and management positions. Understanding which factors impact pay consistently across all groups of workers and which factors vary by division or job level is necessary to accurately model pay throughout the firm.

1 For non-exempt employees, some bonuses will also require additional true-up premiums to be paid on all overtime earnings received during the bonus period.

Multi-Firm Complexity: Different firms may value and reward employees' qualifications and productivity differently and some firms may base pay on different attributes than others. Allowing for such differences between employers may be required for studies comparing pay across firms competing in the same labor market. However, even if firms rely on the same factors (e.g. job performance and qualifications), the way those factors are measured and calibrated can be quite different across companies. For example, Company A has annual reviews where employees receive an overall performance evaluation on a scale of one to ten, Company B rates employees on a quarterly basis and three skills, and Company C provides real-time feedback using a categorical (non-numeric) scale. Properly controlling for factors that are measured differently across employers is important, and the effect of these factors on pay may differ across employers as well. A model that allows for all of these differences across employers may be necessary to reliably model pay across firms competing for workers in the same labor market.

3. Identifying "Comparable" Employees

It is important to identify groups of employees who are comparable with respect to their job duties and responsibilities. Often job title, division, and pay grade are important controls to distinguish between such groups. However, sometimes simple groupings of jobs may not be sufficient. The same job title may be used in multiple divisions, but that job may function differently in ways that affect pay between divisions. In that case, controlling for job alone may not be sufficient. On the other hand, different divisions may have different job titles for the same function—and in these firms, it may be necessary to combine employees in different job titles into the same group. It is important to understand the corporate structure at the firm and how that influences pay.

Even among employees with similar duties and responsibilities, compensation depends on individual factors such as an employee's job performance. As noted earlier, job groups may need to be interacted with individual factors (qualifications and job performance) to allow for differences in the relative importance of individual factors across different parts of the firm.

Multi-Firm Complexity: Firms can be organized very differently. For example, Company A uses the job title Data Analyst, Company B uses Data Analyst and Senior Data Analyst, and Company C uses Data Analyst I, Data Analyst II, and Data Analyst III. If the pay factors or their relative importance vary between levels of the Data Analyst position, it does not make sense to combine those titles into a single Data Analyst job, but it's not immediately obvious which job titles at each company are directly comparable to titles at the other companies.

4. Addressing Unobserved Factors

Despite the range of firm and individual characteristics found in relevant data sources, not all differences between employees are captured by available data. Sometimes relevant information is not recorded. For example, one employee's prior labor market experience may be closely related to the current job while another employee's prior experience was not in similar work. If only the number of years of prior experience is included in the data, the model cannot capture differences across employees in the quality or relevancy of their prior work experiences. Other differences may not be quantifiable. Consider two employees who have the same credentials and qualifications, but one is a more effective collaborator. Their supervisor is aware of the difference and likely makes work assignments and pay decisions based on that information, but these skills can't be easily quantified and directly included in a wage model. The inability to quantify and control for important productivity factors that influence wages means that wage models might explain less of the variation in wages than would be explained by pricing models in more traditional price-fixing cases. The inability to control for important productivity factors is important because a regression model that does not accurately explain and predict wages may yield to incorrect or unreliable conclusions as to whether a no-poaching agreement caused wage suppression.

Multi-Firm Complexity: When analyzing pay across firms, which factors are measured or available in the data may differ between firms. Going back to the example above where one employee is a better collaborator, it may be that Company A includes collaboration as a skill that is rated on a scale of one to five in performance reviews, Company B has a free-form question about how well the employee works on a team, and Company C does not have any information about collaboration in its reviews. Addressing differences in the available information and properly calibrating that information across firms is important.

Class Certification

Many of the issues discussed in this article in the context of wage determination models are also particularly relevant for class certification issues in no-poaching cases. No-poaching agreements are likely to impact workers differently depending on their individual and job characteristics. For example, employees with specialized skills in certain job functions or departments may be more likely to be recruited by rival firms, while employees with more general skills may be less likely to be poached. In addition, firms are more likely to be concerned about losing their highest performing employees to a rival and would be less concerned if a low-performing employee received an outside job offer from a rival. ■

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