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Measures of Workplace Activity and Compensable Time from Multiple- Source Time-Stamped Data

Introduction

The now widespread practice of capturing and maintaining electronic, time-stamped data within a variety of company systems offers Labor Economists and data analysts unparalleled opportunities to assist in some of the more challenging Wage and Hour matters— namely, those where issues arise with alleged time spent in workplace activities that are not measured by a timekeeping system. In such matters, supplementary time-stamped records can sometimes inform about the timing of employee movements throughout the workday, can document employee building and/or parking garage exits and entries at the workplace. Computer networks and individual-user computers may reflect work or non-work activities with time-stamped records. Cell phone records can document work segments' beginning and ending times and of course e-mail records, although potentially voluminous, are capable of documenting work-related activity times.

While multiple sources of time-stamped data are potentially available, combining the data from systems in different data formats (and typically using different *identifying* information for the same individual) can be a torturous process; even within self-contained employee data bases, individuals can share similar names, source data from non-timekeeping systems sometimes use only partial names or nicknames and IDs that are unique at a point in time may not remain unique, as IDs are “recycled”. However, even with these road blocks facing an analyst, the promise of measuring otherwise unseen “off-the-clock” activities suggests

efforts should be put into identifying and manipulating available time-stamped data sources.

In two sections below I present several examples of using time-stamped data to provide empirical answers to issues that arise with compensable activities Wage and Hour matters. First, I examine the more straightforward exercise of using time-stamped data from a single source—in this case, “audit trail” records from a company timekeeping system—to investigate whether allegations of time-shaving, or other malicious edits by managers have taken place. Following this, I show three examples where combining data from multiple time-stamped data sources can provide compensable time estimates and/or inform about questions of liability.

A. Single-Source Time-Stamped Data

For some compensable time questions, a single source of time-stamped data (that is, a database that can be analyzed without integrating information from additional, stand-alone data systems) may suffice in responding to potential wage and hour questions. As an example, “audit trail” records from a timekeeping system can typically address questions about whether the editing behavior of managers has led to a loss of paid time to non-exempt employees. When audit records are properly organized to allow analysis of compensable work segments— that is, tracking time information from the original “raw” in and out time clock swipes of non- exempt employees through the manager review and editing process to the payroll processing steps—it is possible to quantify how much time has been added, or lost, to manager edits on a shift-by-shift basis.

Analyses of this kind can be done *proactively* to ensure managers are following policy and not subjecting the company to potential litigation from claims of “malicious editing.” To the extent problematic behavior is found, analyses can offer critical insights about whether time-removing edits are confined to one or a small number of managers, or whether such edits are observed only under unusual circumstances, such as when managers’ performance are under review. Time-removing edits may have occurred in some, but not all parts of the data when reviewed over a liability (or potential liability) period. Once refined, the results of “audit trail” analyses—either positive or negative, from a policy and practice standpoint—may be referred to Compliance or Human Resource personnel for follow-up action.

In *class action litigation* settings, analyses of system-wide audit trail data can isolate time

editing behavior that points to individual behavior of managers, rather than a class-wide pattern of edit behavior. Along the same lines, audit trail analyses can demonstrate policy and practice impacts that were restricted to only a subset of potential plaintiffs, or were observed in only part of an alleged class period. In addition to informing about avenues of challenge to class certification, these studies often provide valuable information when generating estimates of exposure arising from malicious editing claims.

B. Multiple-Source Time Stamped Data

When work activities are not directly measured through a timekeeping system (or only partially measured), it is wise to consider other sources of time-stamped data that may be informative about time spent in work activities. Below, I show three instances where combining data from multiple time-stamped source databases provided insight into wage and hour class issues: first in an inside sales environment, then in a call center setting and finally within trucking company drivers.

1. Inside Sales Persons

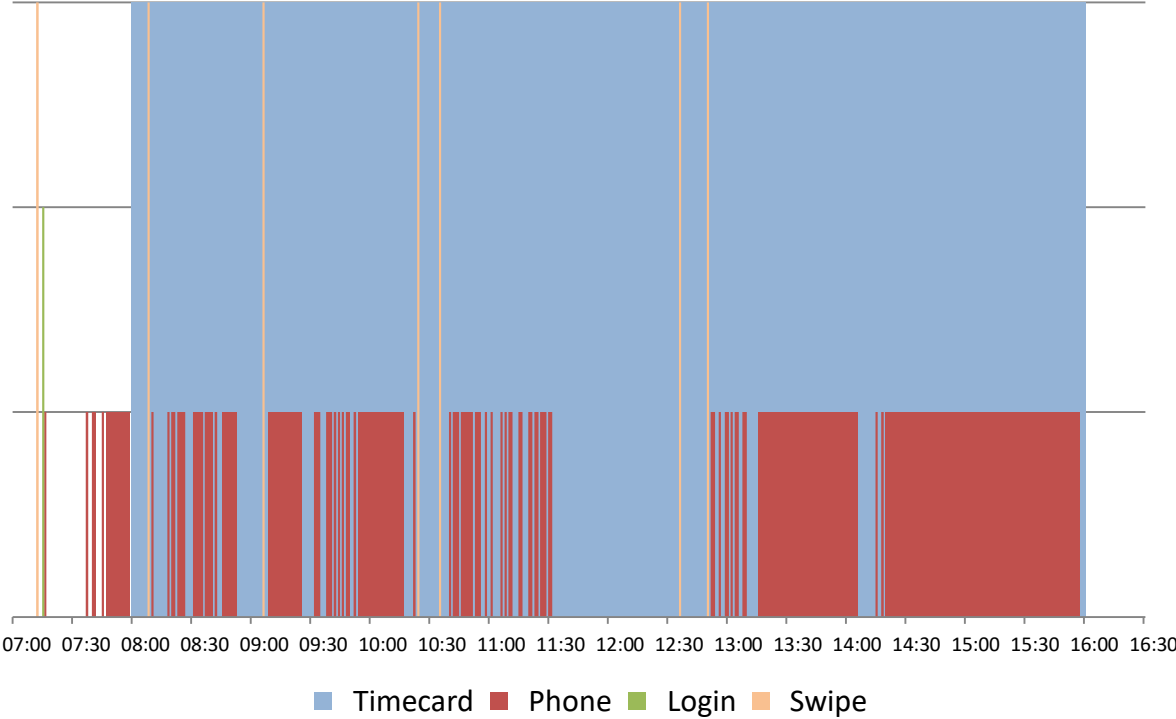
In a recent matter involving inside sales persons claiming they had been misclassified as exempt employees under California law, claims of meal break violations and unpaid overtime were put forward. The primary work activity of the plaintiffs involved telephone sales calls, both outgoing and incoming, where the begin/end times (and therefore duration) of each call was electronically recorded. The data on each call identified the sales person with a unique ID. In addition to the telephone system records, two other time-stamped data files were available for analysis: 1) employees “swiped” into the workplace area and had “in times” recorded with a time stamp and employee ID, and 2) a record was kept as each employee logged onto a computer network that worked in tandem with the telephone system. The log in and log out times from the computer system were time-stamped and identified individual sales persons by a unique ID as they entered and existed the system. Combining these data sources allowed analysis of several plaintiff claims. Below, in Figure 1, we show an example work day that emerges from combining the available time-stamped data information.

Two features of Figure 1 bear directly on the claims of this case: first, note that while the

scheduled start time that constituted the beginning of paid time and shown in the (blue) background as commencing at 8:00 a.m., telephone activity (shown in red) began prior to 8:00 a.m.. This is presumably evidence that pre-shift work may have occurred, although verification that work calls were being made might bolster or diminish the effectiveness of that observation. Second, there is a “gap” between approximately 11:30 a.m. and 13:00 p.m. (with a building entry, shown by the (gold) vertical line at 12:30 p.m.) which would be consistent with a meal break taken outside the building during the middle of the work shift. As noted, plaintiffs claimed they were denied the opportunity of taking meal breaks during the alleged liability period.

Analysis the matched building and computer activity time stamps showed instances of pre-shift telephone activity that differed by individual plaintiffs during the liability period. Similarly, observed “gaps” in telephone activity that could have allowed for an unpaid meal break also varied across individuals and during the liability period, allowing follow-up investigation to focus on specific employee activities of interest.

**Figure 1: Timecard, Phone, Login, and Swipe Data
One Workday, Inside Sales Person**

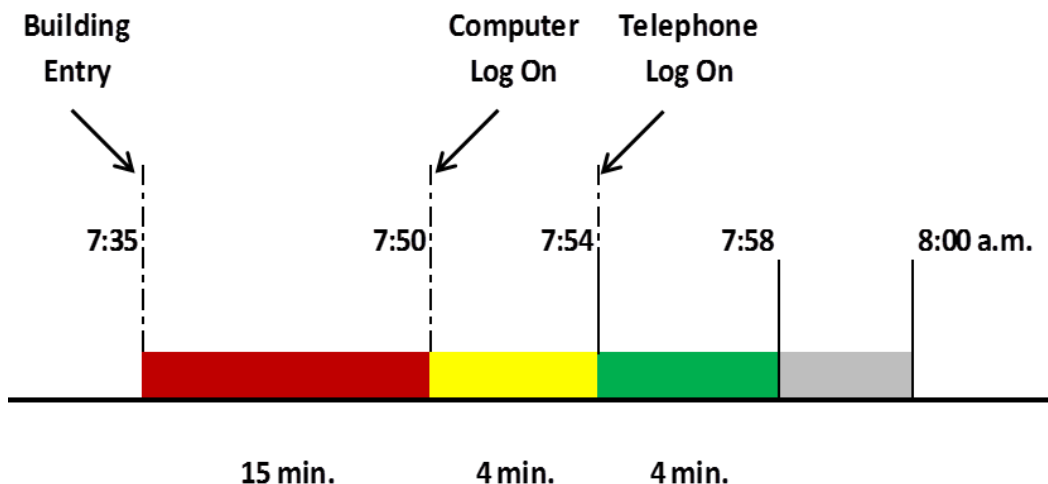


2. Call Center Employees

In a different matter, plaintiffs claimed that pre-shift and post-shift time spent at the worksite involved performing compensable activities for which they were (improperly) not paid. Empirically, one of plaintiffs' claims in this class action was that 20 minutes of daily pre-shift time was spent organizing work spaces, logging into the computer network and individual computer terminals, performing research prior to the first call, as well as physically logging into the telephone system—all of which was required before the scheduled start of a shift. Additionally, calls at the end of a shift were to be completed even after the scheduled end of paid time, computers were to be shut down, and paperwork potentially needed to be completed post-shift. Paid time began (and ended) on a schedule that required employees to be ready to work at all times, commencing with the first call of the day.

Data on scheduled (paid) start/end times, building entry/exit, computer log on/off and telephone system log in/log out data was joined to give measures of three time segments pre- shift: time from building entrance to computer log on, time from computer log on to telephone system log on and time from telephone system log on to start of paid time (scheduled start time), as shown below:

Figure 2: Compensable Off-the-Clock Time
Call Center, Pre-Shift Activity

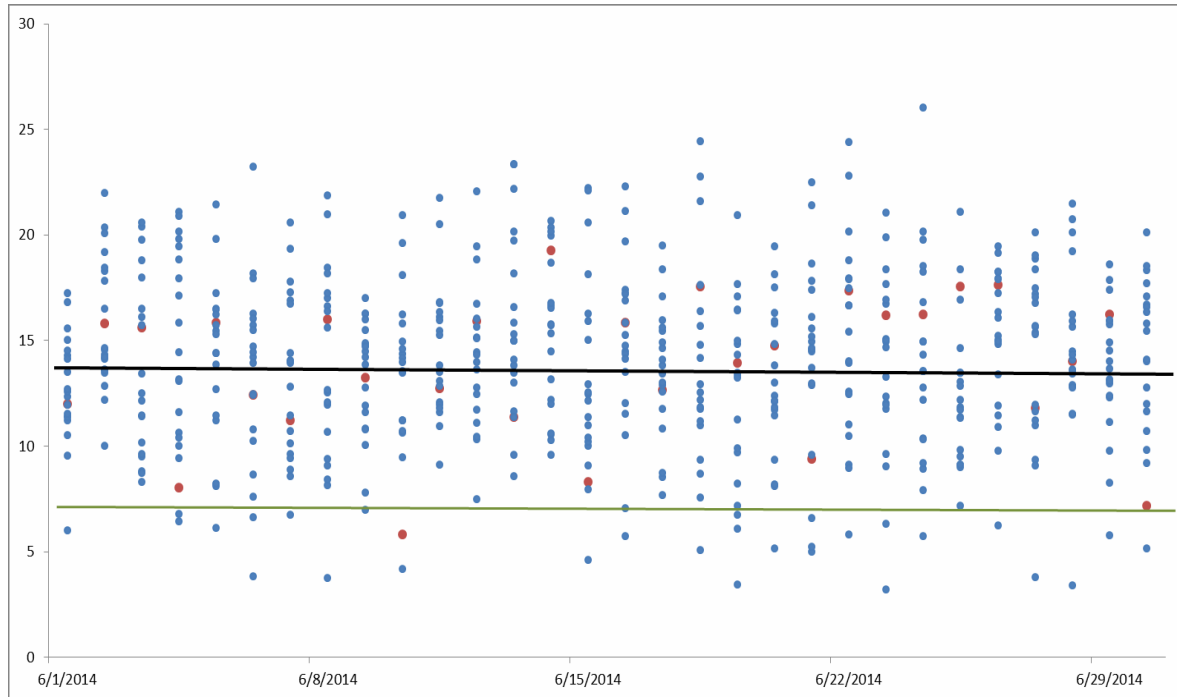


Each of the three colored segments of time may be a combination of productive and non-productive time (and therefore includes potentially compensable and non-compensable time); as such, each segment was analyzed separately to determine the variation of recorded durations of employees over time. From these durations, and knowledge from the data that a shift was begun on-time, it was statistically possible to estimate a reasonable minimum number of minutes that both allowed an on-time start of work for the employee but minimized the time arguably spent in non-work activities.

To demonstrate the point, consider the total time segment between when an employee entered the building and began their work day on-time. Figure 3 displays these recorded durations for all employees working over a one-month time period during June, 2014. The height of each “dot” in Figure 3 reflects the number of recorded pre-shift minutes extracted from the matched data. The “average” number of minutes (approximately 14 minutes in the Figure) is shown as a black line and is a statistic that has been used as “typical.” Below this line, drawn at approximately 7.5 minutes, is the fifth (5th) percentile of the distribution.

Arguably, because the data indicated an on-time beginning to each individual employee’s work day, it must have been possible for each person to have been ready for the work day in less minutes than an “average” (about the 50th percentile) would suggest, as an employee’s relatively late arrival at the work site might reduce non-essential activities pre-shift and focus time spent pre-shift activities to what was essential in achieving an on-time start. We computed and show a 5th percentile line, as opposed to the absolute smallest measured pre-shift time, in Figure 3 to reflect the possibility that some starts to the work day—although technically “on time”—may have left the employee less prepared than he or she was expected to be. Regardless of whether the 5th, 10th, or some other percentile was chosen, the analysis demonstrates that the plaintiffs’ estimate of 20 minutes being needed for pre-shift work activities was refuted by the data.

**Figure 3: Compensable Off-the-Clock Time
Call Center, Pre-Shift Activity**



3. Delivery Drivers

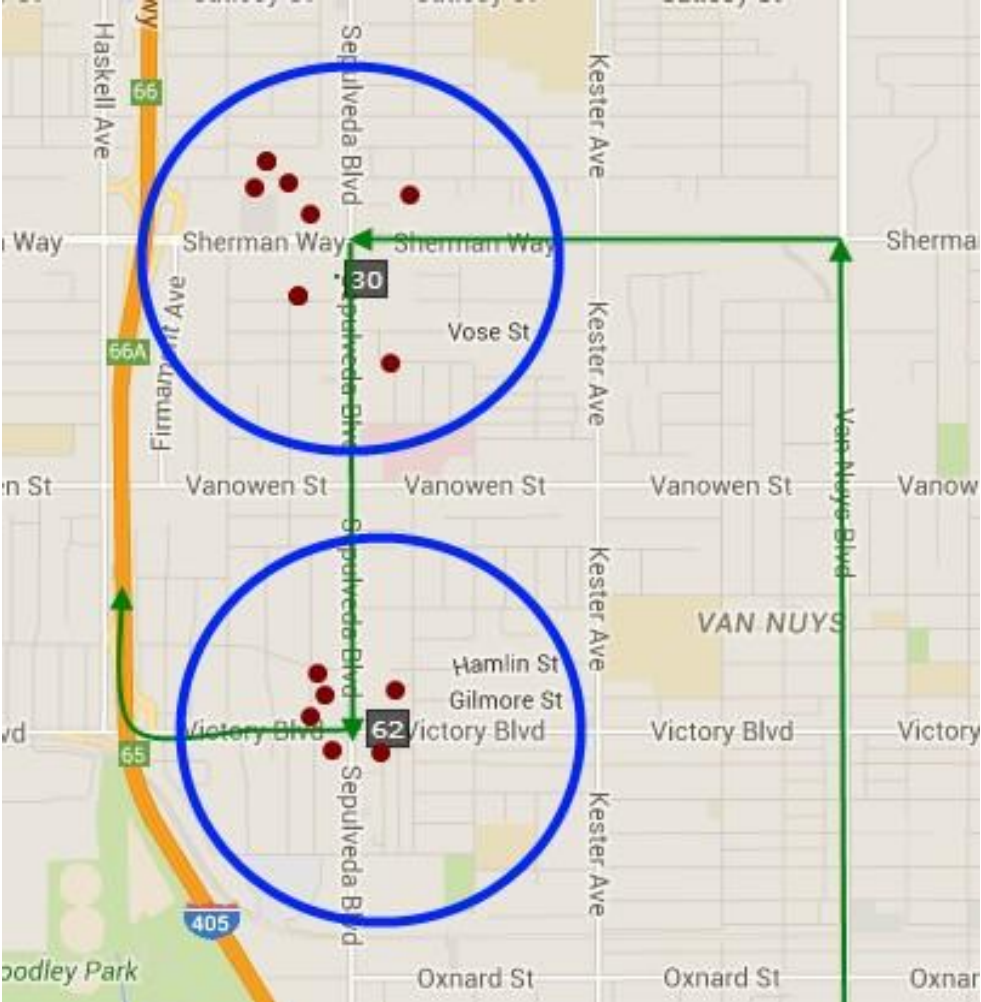
In a recent case under California law, it was alleged that delivery drivers on assigned routes could not take a timely, uninterrupted 30-minute meal break because a restriction on deviation from their assigned route of not more than one-half mile, prohibited them from driving to a restaurant or other eating place. Plaintiffs asserted that they should therefore receive a one-hour penalty as compensation for each work shift of more than five hours (where a meal break under California law would be indicated).

To address these claims, we matched data on the location of each Plaintiff's scheduled delivery stops and used GPS records to trace the route actually driven each day. We then constructed a circle with a radius of one-half mile around select stops on the route, when drivers could have potentially taken a meal break. Finally, we overlaid the location of restaurants around the potential stopping points and verified these stops occurred before the end of the fifth hour of

work, as dictated by California law.

One such set of matched data is shown below in Figure 4. In that Figure, the two hypothetical delivery stops (numbered “30” and “62”) are shown in black, a portion of driver’s route driven that day is shown in green, circles outlining a one-half mile radius around the two stops are shown in blue and dots showing restaurants in the area of the potential stops, are shown in red.

**Figure 4: Opportunities for Meal Breaks
From GPS, Route, and Stop Location Data**



The activity illustrated In Figure 4 suggests that, had he or she chosen to stop at one of two highlighted locations, the driver arguably could have taken a meal break without violating a distance restriction. In the same vein, from locations where GPS records indicated that an actual stop of approximately 30 minutes had occurred, matched records of eating locations suggested the likelihood that a meal break may have taken place. Further, the relatively complete set of route location points from on-board GPS records allowed any distance between stops (or potential stops on the route) to give a very complete picture about the credibility of plaintiffs' claims that no meal breaks were available while routes were being driven.

Conclusion

Time-stamped data can allow investigation of a variety of Wage and Hour class action claims, even when direct measures of activity are not be present. It is critically important that a set of records for a group of employees, when matched, capture the behavior of similarly-situated employees, as this allows grouped data analyses that can substantially increase sample sizes and the likelihood of drawing statistically meaningful conclusions. But even when the behavior of a single individual is at issue, matched data from alternate, time-stamped data sources can give important information that allows verification, or criticisms, of wage and hour claims that fall outside the realm of standard, time keeping data systems.