The Printer Case

Your firm is located in a five-story building[1]. Each floor has its own printer/copier in a copy room. The firm owns these machines but must pay for paper, toner and occasional maintenance. Each employee has a key that opens the copy room door on their floor only and does not have access to machines on other floors. Because the printer/copiers are "free goods" right now, you suspect that the firm's printing costs could be cut drastically. To test this, you performed an experiment. The third and fifth floors were chosen because these two floors have had about the same usage rates in the past. Each person on the fifth floor was given a card to operate the fifth floor machine. These employees were told that their card would generate a daily accounting of their printer activity. Fifth floor employees have also been told that they will not be *charged* for their use of the machine, but they certainly know that *someone* will have some sense of individual usage patterns. To establish a basis of comparison, the group on the third floor has not been converted to the card system. The third floor machine has an internal mechanism that totals the number of pages used each day, but you do not know *who* is doing *what*, and the third floor employees have no reason to believe that they are being monitored.

You collected data from the machines over the last 50 working days. The data are in the table below and can be downloaded from the web in the **`printer.csv`** file. There are three variables: `DAY`, which indicates the day; `FIFTH`, the number of pages used on the 5th floor; and `THIRD`, the number made on the 3rd floor.

Will the card accounting system effectively lower usage if implemented across the firm?

Day	Fifth	Third	Day	Fifth	Third	Day	Fifth	Third	Day	Fifth	Third
1	750	340	14	570	370	27	390	270	39	270	400
2	710	540	15	570	720	28	420	670	40	250	130
3	700	210	16	560	670	29	380	660	41	210	440
4	720	530	17	500	460	30	370	240	42	240	130
5	690	550	18	480	320	31	370	500	43	190	250
6	670	350	19	550	370	32	360	480	44	160	330
7	660	590	20	510	570	33	350	560	45	130	300
8	640	520	21	520	120	34	330	310	46	120	110
9	670	360	22	460	190	35	280	390	47	180	740
10	620	420	23	470	710	36	300	610	48	150	700
11	580	160	24	440	620	37	310	690	49	110	150
12	590	470	25	400	180	38	290	410	50	100	580
13	610	380	26	410	640						

[1] This example is based on a case in Bryant, P. G. and Smith, M. A. (1995). *Practical Data Analysis: Case Studies in Business Statistics*, Vols. I and II, Chicago, Ill.: Richard D. Irwin, Inc.