**Impact of class attendance on student’s SAT score**

The experiment will be held with seniors in high school applying for collages. The students will be split into two groups, group one will be students with attendance record rate equal to or higher than 80% and second group will be students that do not apply for group one. This will allow us to learn the impact of attending classes in high school affects the SAT scores. The *hours* variable will be counted for by number of hours attended to class and *sat* score will be recorded after the test is done. There are other factors like productivity of the student, background of the student, if there is return for the test for the student, health of the student etc.

Some of the factors that can affect number of hours for the student studying is if the student is working and if the student lives on campus or home. If the student is working while attending school, the student is less likely to put more time into studying compare to someone who is not working, this is a negative relation. If the student lives on campus, the student wastes less time on travel time and has more time to study for the SAT, this is positive relation.

β1 can be rewritten as β {a constant and is greater than 0} (hours). It will be the slope of the function where β is value that is affecting the number of hours spent studying, for example hours spent in class and hours is the variable that is changing for each student or the mean.

β0 is the vertical intercept of the function. It states the must have number of hours studied that can lead the student to a test score. This value can not be negative and can be greater or equal to 0. For example, of β0 is the minimum number of classes the student must attend to do the test.

The average is 957.9455 and the average IQ is 101.28. The standard deviation of IQ is 15.05264, which is only 0.05264 away from population standard deviation and the difference can be ignored due to its small value.

The function for wage can be written as E(wage) = 116.9916 + 8.3030IQ, number of observations are 935, R2 is 0.0955 and the adjusted R2 is 0.0946.

If IQ increases by 15 then the result is E(wage)=116.9916+8.3030(15) =241.5366 and normally it is 116.9916 (IQ=0), the difference is 124.545. The IQ of workers only explains 0.0955 (9.55%) of the variations in wage.

The function for lwage can be written as E(lwage) = 5.8869 + 0.0088IQ, number of observations are 935, R2 is 0.0991 and the adjusted R2 is 0.0981. If IQ increases by 15 then the results is E(lwage)=5.8869+0.0088(15) = 6.0189 and normally it is 5.8869 (IQ=0), the difference is approximate 0.132 (13.2%).

The model is rd which is annual expenditure = the interecept β0  + the slope β1 \* the changing variable (sales) + the error variable u, rd = β0 + β1 (sales) + u and to make this function log the changing variables (as shown in lecture 7 slide 19) => log(rd) = β0 + β1 log(sales) + u.

The function for log(rd) can be written as log(rd) = -4.1047 + 1.0757log(sales), numbers of observations are 32, R2 is 0.9098 and adjusted R2 is 0.9068. The intercept is -4.105 and the estimated elasticity is 1.0757.

The coefficient of the function is 0.312, which tells us that it is a positive relation between price and distance from garbage incinerator. If the there is an increase in distance from garbage incinerator, there will be increase in prices, assuming no other factors are affecting it.

The simple regression would not include factors that city can change. For example, if the city choses to locate the incinerator in an area away heavy populated area, then the distance cost is higher. Another example is the distance between incinerator and expensive housing area, which changes resident quality. This would make OLS estimation be biased.

Any of the house features inside or around the house can influence the price. Size of the house, number of bedrooms, how old the house is, if there is local school near by, how close the stores are and many other factors. One major factor that can affect house price is the distance from incinerator.