

Build a model (micro)

[Literature](#), [Russian Literature](#)



Model: Academic Performance of a school and socioeconomic indicators.

Academic Performance Index (API) is a single number which ranges from 200 to 1000 reflecting a school's performance level in a year. The calculation of API is based on student's performance on multiple assessments.

Socioeconomic indicators affect the academic performance of a school. Few such factors are:

Average Parent education

Percent of students participating in free/reduced- price meals

Percent of students who are English learners (ELs)

Percent of students with disabilities

Percent of teachers with full/emergency credentials

Average class size in specific grades

Year round school

Analysing the relationship between the factors and academic performance we can say,

The academic performance will rise if the average years of parental education rise. Students belonging to such a family generally perform well due to the educational guidance they get at home.

The higher the percent of students participating in free or reduced price meals program, the better the school will perform as the attendance in school will increase.

Higher the percentage of students who are able to adapt the English language fast, the higher the API for that school.

Generally students with disability have to be trained and educated in special schools which are in accordance with their ability and provide certain

facilities for them. In regular schools such facilities are not provided. So in such schools people with disability won't be able to perform well thus bringing down the API. Therefore higher the percentage of students with disability, lower will be the API.

API is highly dependent on the credential of the teachers. Higher the percentage of full time teachers in a school the better will be the API. In other words higher the dependence of a school on part time teachers, lower will be its API.

The lower the average class size of a school the better will be the teacher student ratio and better will be the performance of a specific student which will lead to higher API.

A school which is open year round will have higher performance than the school which is not open year round.

Therefore we can specify a relation between these variables;

$$Y = aX_1 + bX_2 + cX_3 + dX_4 + eX_5 + fX_6 + gX_7$$

Where $Y = \text{API} \rightarrow$ Dependent variable;

$X_1 =$ Average Parent education

$X_2 =$ Percent of students participating in free/reduced- price meals

$X_3 =$ Percent of students who are English learners (ELs)

$X_4 =$ Percent of students with disabilities

$X_5 =$ Percent of teachers with full/emergency credentials

$X_6 =$ Average class size in specific grades

$X_7 =$ Year round school

X_1 to $X_7 \rightarrow$ Independent Variable

Plotting the above variables we get a positively sloped curve. In the x axis parental education in years has been plotted while API is recorded in Y axis. Now in this model we want to see how the API gets affected if we introduce a third variable say average class size. If the average class size increases, given the average parental education factor unchanged, then the API will fall and the curve will shift downwards. Due to increase in class size, given a fixed number of teachers, the teacher student ratio will fall leading to a poor academic growth of the students and lower API. The data and the diagram below show the effect. Here API 2000_revised is the API with new variable introduced.

Similarly if the average class size falls, then the API curve will shift upward as shown below:

Thus we see how the API varies with the socioeconomic factors.

Work Cited

Understanding the Academic Performance Index. Web. 2014, September 23, 2014 from: