Few professions exist in which in-state experience, politics, unions, and standardized testing all play a role in determining compensation. It is not hard to see why the aforementioned factors are kept out of most industries’ salary decisions. The factors used to determine educator salaries are complex and can be lacking in clarity. However, being an educator in the public school system requires one to conform to state standards in the classroom and on pay-day. The goal of this study was to find the the most influential factors that determine educator compensation in the state of Illinois and assess the fairness of those factors given ten years of self-reported data from educators across the state.

The method for discovering the influential factors was five-fold: (1) extensive processing of the data, (2) in-depth feature analysis, (3) feature selection, (4) validation, and (5) evaluation.

1. The data used for this analysis was survey data collected from Illinois educators from 2003-2012. Approximately 62 features were included in the set. The 62 features included salary, educator information (i.e. highest degree achieved, grade level(s) taught, etc.), and location information. The data was reduced (to eliminate errors and redundant information) and fortified with engineered features.
2. The remaining features were analyzed for distributional properties and inequalities.
3. Linear modelling was used to determine the most influential features as well as to gain insights from the model coefficients.
4. Classification models and Bayesian Nets were implemented to validate the feature selection of the linear model.
5. The final features were further analyzed to assess fairness.

The feature selection process determined that the most influential factors in determining an Illinois educator’s compensation were: year, percent of administrative duties, experience in the state of Illinois, experience out of the state of Illinois, gender, race, the highest degree achieved, primary work assignment, school being located in an urban or rural area, and county of the school district. From just a cursory look at these features, it is clear that some, like county and work assignment, are relatively standard practice while others, like race and gender, are clearly discriminatory. However, the fairness of each of the final features was assessed in the report through an in-depth breakdown of said feature.

It is clear from the final analysis that there are some inequalities present in the way compensation is dictated in Illinois. For instance, although women make up approximately 75% of Illinois’s educators, they have a lower mean and median salary in every year of the provided data compared to their male counterparts. Not only are the obviously unequal factors problematic, but the weight of state experience in determining salary regardless of teaching outcomes or school success looks to be a burgeoning problem. Creating a holistic and fair compensation system for all types of educators is a major task, especially when considering factors outside of the education system like budget cuts, politics, and unions. However it is clear from this report that, although not as discriminatory as it could be, the educator compensation system in Illinois requires some changes to its decision making process especially when it comes to equal pay across all genders.