Part 2

2.1

In this section, we analyze the relationships between some factors and response variables. The likelihood of filing a state claim can be seen as a response variables, and its relationships with 15 explanatory variables are tested. Contingency tables are used in most analysis, while we use Spearman test when analyzing the relationship between number of years lost with the response variable, since the number of years lost is continuous. Before doing this, data cleaning is done, which deletes cases that states don’t have a statue and premature cases. Moreover, we test the relationships between the likelihood of filing a civil rights claim with 18 variables. The methods are similar. This time the premature cases are also removed. Results are shown in the following table.

Table 2.1.1

|  |  |  |
| --- | --- | --- |
| p-value of… | Filing a state claim | Filing civil rights |
| Race | <0.0001 | 0.0092 |
| Date of exoneration | <0.0001 | 0.12 |
| Number of years lost | <0.0001 | <0.0001 |
| Gender | <0.0001 | 0.0112 |
| Guilty plea | <0.0001 | <0.0001 |
| IO | <0.0001 | <0.0001 |
| Crime | <0.0001 | <0.0001 |
| DNA | <0.0001 | <0.0001 |
| Death penalty | 0.8039 | 0.0033 |
| Geographic area | Not being tested | <0.0001 |
| Red/Blue State | Not being tested | <0.0001 |
| CIU | Not being tested | <0.0001 |
| **M-R** |  |  |
| FC | 0.0027 | <0.0001 |
| MWID | <0.0001 | 0.7322 |
| FMFE | 0.0715 | 0.3747 |
| PFA | 0.5375 | <0.0001 |
| OM | 0.8248 | <0.0001 |
| ILD | 0.4808 | 0.1095 |

According to the table above, for the variable ’the likelihood of filing a state claim,’ most explanatory variables are statistically significant since the p-values are quite small, except death penalty, FMFE, PFA, OM and ILD. In other words, many variables have a significant relationship with the likelihood of filing a state claim, such as race, gender, IO and so on. Obviously, 4 tags among M-R are insignificant statistically, thus these tags are possibly useless.

The results of filing civil rights are quite different. Race, date of exoneration, MWID, FMFE and ILD are insignificant since the p-values are too large, while other variables are statistically significant. Generally speaking, M-R tags have little effects on the likelihood of filing claims.

Table 2.1.2

|  |  |
| --- | --- |
| StateClaimMade, N = 1438 | Years Lost |
| Spearman Correlation Coefficients | 0.42308 |
|  |  |
| CivilRightsMade, N = 1677 | Years Lost |
| Spearman Correlation Coefficients | 0.33788 |

Some results of Spearman test are shown in the above table. It can be seen that years lost has a positive correlation with both two response variables, because the Spearman correlation coefficients are more than zero.

2.2

This section is similar with the part 2.1, especially the methods we use to analyze the data, but the two response variables that we are interested in are the likelihood of prevailing a state claim and the likelihood of prevailing a civil rights claim. The relationships with the first response variable with 15 explanatory variables are tested. Before doing this, data cleaning is done, which deletes premature cases and pending cases, as well as people who don’t make a state claim. Exonerees in states where don’t have a claim statue are also deleted.

In addition, we test the relationships between the likelihood of filing a civil rights claim with 12 variables. Likewise, this time the premature and pending cases are removed.

In these two steps, contingency table is used when the explanatory variable is categorical, but Spearman test is used when the explanatory variable is continuous. Results are shown in the following tables.

Table 2.2.1

|  |  |  |
| --- | --- | --- |
| p-value of… | Prevailing a state claim | Prevailing civil rights |
| Race | 0.0025 | 0.4871 |
| Date of exoneration | 0.0005 | 0.0007 |
| Number of years lost | <0.0001 | 0.0003 |
| Gender | 0.592 | 0.1342 |
| Guilty plea | 0.59 | 0.0009 |
| IO | <0.0001 | 0.0035 |
| Crime | <0.0001 | 0.5603 |
| DNA | <0.0001 | 0.0003 |
| Death penalty | 0.4935 | 0.241 |
| Geographic area | Not being tested | <0.0001 |
| Red/Blue State | Not being tested | <0.0001 |
| CIU | Not being tested | 0.1782 |
| **M-R** |  |  |
| FC | 0.522 | 0.0003 |
| MWID | 0.0029 | 0.1047 |
| FMFE | 0.1033 | 0.7202 |
| PFA | 0.2587 | 0.0033 |
| OM | 0.5281 | 0.0025 |
| ILD | 0.0091 | 0.0001 |

According to the table 2.2.1, for the variable ’the likelihood of prevailing a state claim’, 7 explanatory variables are statistically significant since the p-values are smaller than 0.05. That’s to say, these variables, like race and date of exoneration, have a significant relationship with the likelihood of filing a state claim. In particular, the p-values of IO, crime, and DNA are less than 0.0001. Thus these three variables are highly correlated with the likelihood of prevailing a state claim. Obviously, 4 tags among M-R are insignificant statistically, which is as same as the last part. What’s totally different that is the gender and guilty plea are insignificant, but their p-values are smaller than 0.0001 when we test the relationship with the likelihood of seeking a state compensation.

The results of winning a civil rights claim point out that race, gender, CIU, crime, MWID and FMFE are not statistically significant since the p-values are too large, while other variables are statistically significant.

It should be noticed that race is not correlated with the likelihood of seeking or prevailing a civil rights claim. However, people in different states really have a huge difference about the probability of filing or prevailing a civil rights claim, as geographic area and red/blue states are significant in two analysis.

Table 2.2.2

|  |  |
| --- | --- |
| StateClaimAward, N = 696 | Years Lost |
| Spearman Correlation Coefficients | 0.22457 |
|  |  |
| CivilRightsAward, N = 617 | Years Lost |
| Spearman Correlation Coefficients | 0.14388 |

Some results of Spearman test are shown in the above table. It can be seen that years lost has a positive correlation with both two response variables, because the Spearman correlation coefficients are more than zero. Now we can safely draw a conclusion that the probability of seeking or winning any claim will be bigger when the years lost increases. The possible reason is that the exoneree should be likely to be compensated if he or she served more time in prison.