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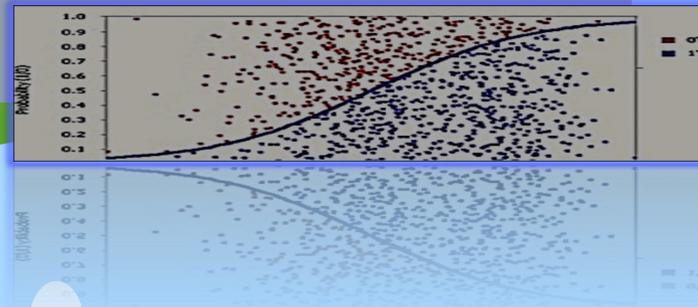
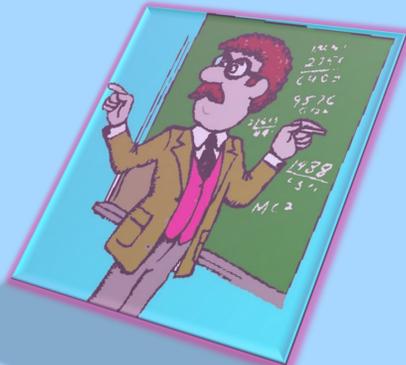
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Australian teachers' intent to leave teaching profession through logistic regression analysis

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3 Results

In terms descriptive statistics for the response variable: 75% teachers intend to stay and 25% teachers intend to leave the teaching profession prior to retirement. Descriptive statistics for the independent variables include: About 13% teachers are from ATSI focus school, 87% from non ATSI focus school. Teachers' age are spreading from 21 to 78 years old.

A ROC curve is the global logistic regression performance indicator,. We found an area under the ROC curve (figure 2) of around 70% (0.6829), which means the model correctly classified 68.29% of the cases (leave or stay) based on observations, thus the logit model can be regarded as an acceptable (Hosmer,2000).

The summary of final logistic regression model and maximum likelihood estimations of parameters are showed in following **table 1**.

ATSI focus: aboriginal and Torres strait islander focus school

Q1a: Age has been recoded to 3 levels: less than 30, 30-50 and over 50

Q3: aboriginal and Torres strait islander origin

Sector: School Sector

Q2: gender

Q7: Highest qualification

Q19: hours spent per week for face to face teaching

Q29a: how long is first school

Q13: Full or part-time employment

Q50g: Satisfaction with salary

Q50n: Satisfaction with work relations

Q50i: Satisfaction with student behaviour

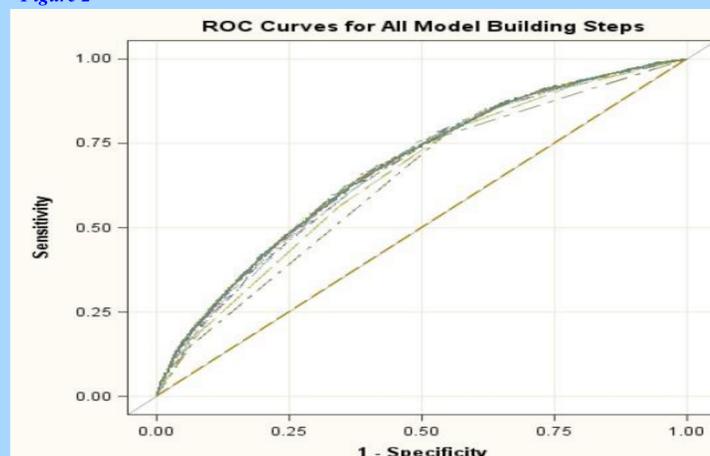
Q33: first school in which sector

Based on Wald tests, all the predictors are statistically significant (<.05).

Table 1:

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.0942	0.0429	4.8122	0.0283
ATSIFocus	1	0.2656	0.0274	94.2560	<.0001
Q1a	1	0.9972	0.0376	701.8880	<.0001
Q1a	2	0.2002	0.0233	73.8549	<.0001
Q3	1	-1.3128	0.1719	58.3242	<.0001
Sector	1	-0.2972	0.0159	349.4888	<.0001
Sector	2	0.2194	0.0176	154.6570	<.0001
Q2	1	-0.4401	0.0237	345.4271	<.0001
Q7	1	0.3308	0.0164	406.7543	<.0001
Q19	1	-0.00801	0.00117	46.8413	<.0001
Q29a	1	-0.0218	0.00244	77.9145	<.0001
Q13	1	-0.2820	0.0209	182.5973	<.0001
Q50g	1	-0.4874	0.0274	315.7592	<.0001
Q50g	2	-0.1403	0.0141	99.4134	<.0001
Q50g	3	0.1931	0.0152	161.7305	<.0001
Q50n	1	-0.6111	0.0264	534.1697	<.0001
Q50n	2	-0.3190	0.0258	152.9160	<.0001
Q50n	3	0.3277	0.0342	91.8408	<.0001
Q50i	1	-0.4157	0.0199	437.3002	<.0001
Q50i	2	-0.2681	0.0126	453.7655	<.0001
Q50i	3	0.2651	0.0146	331.5726	<.0001
Q33	1	-0.0587	0.0144	16.6225	<.0001
Q33	2	0.0523	0.0170	9.4788	0.0021
Q1a*Sector	1	0.0685	0.0235	8.5214	0.0035
Q1a*Sector	1	-0.2570	0.0268	91.7093	<.0001
Q1a*Sector	2	-0.0564	0.0161	12.3120	0.0005
Q1a*Sector	2	-0.0851	0.0185	21.1048	<.0001
Q2*Q1a	1	-0.1214	0.0411	8.7114	0.0032
Q2*Q1a	2	-0.1312	0.0264	24.7778	<.0001

Figure 2



1 Background

Staff in Australia's Schools (SiAS) 2010 is the second national survey of approximately 17,000 teachers and school leaders funded by the Australian Government, conducted by the Australian Council for Educational Research (ACER); the first being conducted in 2006-07. It collected data on a wide range of teacher characteristics and workforce issues including: demographic items, professional learning, qualification, future career intention, and career path. One of the major purposes of this national survey was to provide relevant data to inform teachers staffing issues and teacher workforce planning. (McKenzie, Rowley, et al., 2011). The data is self-reported and data quality generally regarded as good.

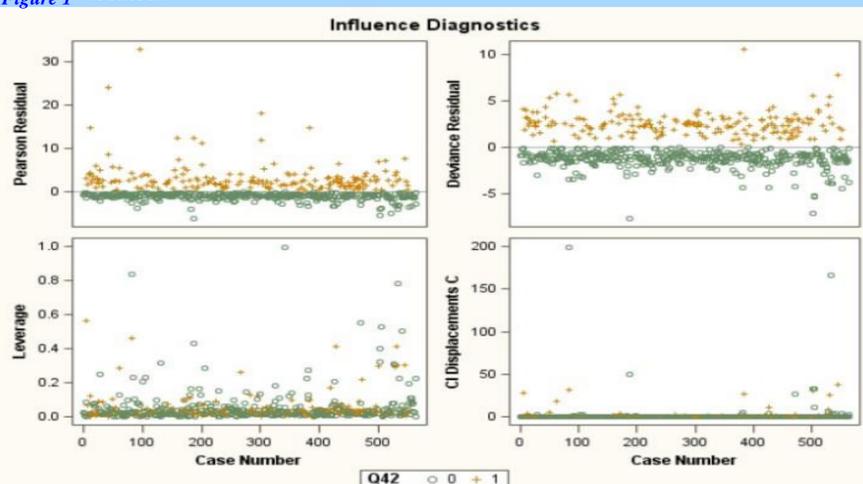
The first aim of this project was to use logistic regression to estimate Australian teachers' Intent to permanently leave teaching profession prior to retirement. Another aim was to identify the factors (or independent variables) that could most accurately predict teachers' intention to leave.

2 Methods

We used logistic regression model as the analysis method, and SAS software to perform the data analysis. Logistic regression analysis predicts the values on response variables from one or more independent variables when the response variables are dichotomous (Foster, 2006). Maximum Likelihood and Least Squares are two proven successful point estimate methods. (Panik, 2005). A computer program can't judge the validity or appropriateness of the methods used; in order for the model to accurately explain the data, making some assumptions about the data is necessary (Zelterman,2000). In terms of assessing the fitness of the logit model, using a single statistic would not be sufficient, as the model is multidimensional by nature with the need of residual analysis (Pigeon & Heyse, 1999). We used Likelihood Ratio statistics and a series of residuals/influential diagnostics plots. The diagnostic graphs are used for the purpose of detecting influential points against predicted probability, and against case number.

The example plots in Figure 1 show the influence diagnostics for the model described below, predicting Q42 (which is *Planning to leave teaching permanently prior to retirement*), against case number. If Pearson Residuals or Deviance Residuals are greater than ± 2 in magnitude, it indicates potential outliers (Zelterman, 2010). So, there would be a number of influential points in the diagnostic plots which can be easily located.

Figure 1



4 Conclusions

◆ Younger age teachers (less than 30 years old) are around 9 times more likely to leave teaching profession compared to more than 50 years old teachers.

◆ If teachers are very unsatisfied with the salary, working relationship and student behaviour, she or he will be highly likely to leave.

◆ Middle age teachers (30-50 years old) are 4 times more likely to leave compared to more than 50 years old teachers.

◆ An aboriginal teacher is roughly only a quarter chance to leave compared to non-aboriginal teacher .

◆ Female teachers are 36% less likely to leave compared to male teachers.

5 References

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Acknowledgements

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