

Assessment Report

New Zealand Scholarship Statistics 2018

Standard 93201

Part A: Commentary

Many candidates were able to demonstrate statistical insight over a range of statistical concepts and contexts. Most students were able to finish all questions in the given time. Many candidates were able to describe key features of statistical graphs, and to calculate probabilities. Interpretation of statistical concepts frequently lacked clarity, and errors in understanding of concepts were common. Some candidates attempted the exam but seemed unfamiliar with the statistical concepts covered, especially re-randomisation and bootstrapping. These candidates did very poorly. Many candidates gave general statistical answers to questions rather than using their observations of the given data or applying statistical concepts to the specific context of the question. Few candidates demonstrated understanding that a time series model is formed from both trend and seasonality.

Few candidates demonstrated understanding that percentage point difference is not the same as percentage change.

Part B: Report on performance standard

Candidates who were awarded Scholarship with **Outstanding Performance** commonly:

- consistently understood what a question was asking for and gave all parts of the required response
- were able to link their understanding of statistical concepts to a variety of contexts
- gave responses that were grounded in the context, linking statistical concepts to their observation of the given data
- were able to apply theoretical knowledge to a context, e.g. discussing how both sample size and proportion affect the margin of error in 4biv)
- understood proportional reasoning and the difference between percentage change and percentage point difference
- communicated their understanding clearly and fully and/or succinctly.

Candidates who were awarded **Scholarship** commonly:

- correctly used statistical terminology
- related statistical concepts to their observations of data in context
- were able to describe key features of a statistical graph in context
- usually understood what a question was asking for and were able to link it to their statistical knowledge e.g. in 3a ii) used the mean of the given data for $N - 1$ to calculate the Poisson parameter for the model, and in 5a understood that the data was seasonally adjusted and what that meant in terms of the analysis
- communicated understanding of both re-randomisation and resampling analysis in the given contexts, including appropriate detail in their response
- were able to calculate a proportion using conditional probabilities
- supported their statements with numerical evidence
- generally demonstrated a good understanding of statistical concepts, but could not always apply that understanding in context and/or had gaps in their knowledge
- sometimes gave only partial responses to questions.

Other candidates

Candidates who were **not** awarded Scholarship commonly:

- didn't use, or misunderstood, important details when reading the question such as "relationship" implying bivariate analysis in 1d) and "as it ages" implying change over successive time periods in 2e)
- lacked understanding of important statistical concepts, such as re-randomisation and resampling
- left out key elements when describing statistical outputs
- did not relate their answer to the given context
- were unable to choose an appropriate approach when asked to explore a statistical context
- resorted to rote learned passages on a regular basis
- focused on unimportant details rather than being able to identify the statistically important elements of a question or response e.g. in 2a) focused on Table 3 rather than Figure 3.

Performance standard specific comment

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Previous years' reports

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