

## **Managing the Impact of Floods in Eastern Australia on Australian Official Statistics**

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The 2010-2011 floods and following cyclone in eastern Australia caused extensive damage and devastation across a large area of the country, leading to significant disruption to both data collection and operational activities of the Australian Bureau of Statistics (ABS). Suspension of data collection activities affected non-response rates to varying degrees in many surveys. Moreover, impacts of the natural disasters on reported data had the potential to affect the trend and seasonally adjusted estimates across many ABS collections. This paper describes the response taken by the Methodology Division of the ABS. A Methodology task force was set up to evaluate potential impact to ABS statistics, monitor impacts across survey cycles and to ensure a consistent and coordinated response to flood impacts in ABS surveys. An ABS-wide forum was established to facilitate communication between Methodology and ABS collection areas. The extent of possible non-response bias and the appropriateness of current imputation techniques were investigated across key business and household collections. Imputation and estimation processes were examined closely to identify potential issues due to the increased amounts of imputation required and, where possible, impact assessments were carried out. Potential impacts on time series and possible solution strategies were explored to anticipate courses of action required to stabilise seasonal factors and prevent biased trend estimates. Quality assurance tools were developed to manage the high volume of monthly and quarterly time series requiring flood impact assessment. Decisions to intervene in time series were based on existing ABS time series intervention principles and were made in close consultation with collection areas. Over the following six month period, 1500+ series were evaluated each month and, where necessary, technical updates were supplied for inclusion in ABS publications.

**Key Words:** non-response bias, imputation bias, estimating seasonality and trend, real-world shocks to time series