



**Government
of South Australia**

TRS19D1105

Hon Stephen Mullighan MP
Member for Lee
Unit 1, 62 Semaphore Road
SEMAPHORE SA 5019

lee@parliament.sa.gov.au

Treasurer
Level 8
State Administration Centre
200 Victoria Square
Adelaide SA 5000
GPO Box 2264
Adelaide SA 5001
DX 56203 Victoria Square
Tel 08 8226 1866
treasurer.dtf@sa.gov.au

Stephen
Dear Mr Mullighan

APPLICATION UNDER THE FREEDOM OF INFORMATION ACT 1991

I refer to your application made under the *Freedom of Information Act 1991* (FOI Act), dated 9 May 2019.

Your application seeks access to:

"All minutes, briefings and correspondence titled 'Use of Seasonally Adjusted and Trend Data in Economic Briefs' as described on the Objective document management system, between 12 July 2018 and 9 May 2019."

The legislative prescribed timeframe to determine this application has expired and is now deemed to have refused you access to all documents relevant to your application. I refer to my letter dated 26 May 2019 where I sought additional time to make my determination.

The purpose of this letter is to advise you of my determination. An extensive search was conducted within this office. A total of 1 document was identified as answering the terms of your application.

I grant you access in full to 1 document; a copy of which is enclosed.

Please note, in compliance with Premier and Cabinet Circular PC045 - *Disclosure Logs for Non-Personal Information Released through Freedom of Information* (PC045), the Department of Treasury and Finance is now required to publish a log of all non-personal information released under the *Freedom of Information Act 1991*.

In accordance with this Circular, any non-personal information determined for release as part of this application, may be published on the DTF website. A copy of PC045 can be found at the following address: <http://dpc.sa.gov.au/what-we-do/services-for-government/premier-and-cabinet-circulars>. Please visit the website for further information.

As I am determining this application as Principal Officer, Section 29(6) of the Act does not provide for an internal review. If you are dissatisfied with my determination you are entitled to exercise your rights of external review with the Ombudsman.

Alternatively, you can apply to the South Australian Civil and Administrative Tribunal. If you wish to seek a review, Section 39(3) of the Act states you must do so within 30 calendar days of receiving the determination.

If you require any further information, please contact Vicky Cathro on 8226 9769.

Yours sincerely

A handwritten signature in black ink that reads "Rob Lucas". The signature is written in a cursive style with a large initial "R".

Hon Rob Lucas MLC
Principal Officer

4 July 2019

MINUTE

MINUTE

Rec'd 4/2/19

File No: T19/017

Physical ID: TRS190224



MINUTES forming ENCLOSURE

File T&F18/0525

Doc No A996524

To The Treasurer

USE OF SEASONALLY ADJUSTED AND TREND DATA IN ECONOMIC BRIEFS

Timing: ROUTINE — For information only

Recommendations/Issues: It is recommended that you note:

- DTF Economics Section intends to amend the format of some economic briefs to provide greater emphasis on seasonally adjusted rather than trend estimates, in particular series such as State Final Demand, new business investment, private new capital expenditure, real retail turnover (quarterly) and dwelling commencements (quarterly).
- From February 2019, the regular economic brief on housing finance commitments will be amended to include new data on investor housing finance (which has not previously been available at the state level.)

Noted

Hon Rob Lucas MLC
Treasurer

19/2/19

BACKGROUND

For many years, the Department of Treasury and Finance (DTF) has produced regular briefings to inform South Australian Government ministers and officials of the highlights of economic data releases, as they occur. Many of these briefs are also published on the DTF website.

These briefs aim to provide a concise summary of the data, including key figures that are likely to appear in the media or be mentioned in Parliament, with further analysis as appropriate. The format of these briefs is adjusted from time to time, to ensure the presentation and analysis is useful and to reflect new developments in the source data - largely published by the Australian Bureau of Statistics (ABS).

Following a request from your office, some amendments have been made to briefs prior to the commencement of Parliament.



This advice proposes some changes to the reporting in certain DTF briefs, specifically in regards to the use of seasonally adjusted and trend estimates.

In late 2016, in the interest of consistency, a decision was taken in the Department of the Premier and Cabinet to focus reporting on trend figures in all economic briefs, with less attention given to the seasonally adjusted figures which display greater volatility. Nevertheless, for certain data items (for example, the 'headline' unemployment rate) the seasonally adjusted series is most often quoted in the media.

For some quarterly data releases (such as the ABS published figures on State Final Demand and its components), the ABS media releases (published on its website) also tend to focus on seasonally adjusted rather than trend figures (see Attachment 1). This has prompted a review of the choice of figures highlighted in DTF economic briefs.

DISCUSSION

Time series presentation of data is useful to identify patterns and trends, but there is often general confusion as to which series to use for a particular purpose (original, seasonally adjusted or trend).

Changes in a time series typically reflect three components;

- Cyclical factors (including calendar-related seasonal patterns)
- Irregular fluctuations
- Underlying trend movement.

The contribution of each of these can vary from series to series, and over time. This is illustrated at Attachment 2.

Cyclical factors (systemic calendar-related seasonal patterns)

The most commonly observed type of systematic calendar related behaviour is the cyclical pattern that develops as a result of changes in the seasons, or regular events such as Christmas shopping. Other calendar related patterns of behaviour include trading or working day patterns, payday effects, the effects of moving holidays (such as Easter), or seasonal weather patterns (which affect offshore petroleum exploration and agri-food exports, for example).

As these influences have a relatively predictable impact on the behaviour of time series, analysts have removed their effects from the original data in order to determine the underlying behaviour of the series. When the systematic calendar related effects are removed from the original data, the resulting series is said to be seasonally adjusted.

Where figures are only published in original terms (for example, monthly commodity exports) but seasonal factors are known to exist, the impact is reduced by reporting a 12-month moving annual total.

Even so, following seasonal adjustment, the series still contains two remaining behaviours—the irregular fluctuations and the trend behaviour.

Irregular fluctuations

The irregular fluctuations result from unpredictable or random activities, as well as from the sampling and non-sampling errors that occur as a result of the way the data is collected. These fluctuations are sometimes referred to as "statistical noise" and often contribute to a large proportion of the non-systematic volatility observed in the behaviour of a given series. For those series derived from sample surveys, there will be the impact of sampling error — the variability that occurs by virtue of the fact that a sample, rather than the entire population, is surveyed.

There will also be non-sampling statistical error, which represents the inaccuracies or inconsistencies that may result from imperfections in reporting by respondents, errors made in collection, such as recording and coding of data, and errors made in processing the data to its final form.

Trend

The trend of a series represents the underlying behaviour of the series. It captures the long-term behaviour of the series as well as the various medium-term business cycles. In contrast to the irregular fluctuations, the trend does not frequently change direction from period to period. It is the result of influences such as population growth, price inflation and general economic changes.

The trend process used by ABS for monthly series involves applying a weighted moving average (known as the 13-term Henderson centred moving average) over 13 consecutive observations of the seasonally adjusted series, to produce a "smoothed" trend figure at the centre of the 13 observations. The most recent 6 monthly observations in a time series can not be centred, and instead are smoothed in a different manner. These most recent 6 observations are more liable to revision (in subsequent publications) than seasonally adjusted figures. Quarterly series typically use a 7-term Henderson average, with the most recent 3 quarters of data being subject to potentially larger revisions than trend estimates for prior periods.

ABS USE OF TREND AND SEASONALLY ADJUSTED

The ABS generally recommends that those using its time series for business or policy decisions concerned with non-seasonal and non-irregular matters, should give the greatest emphasis to the relevant trend series. This is particularly relevant for series such as labour force survey data, where volatility between periods may be largely due to survey sampling or non-sampling errors.¹

However, the following considerations are relevant for the purpose of economic briefs:

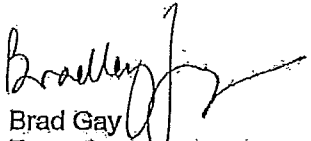
- For quarterly or less frequent releases, the use of trend in place of seasonally adjusted could mean that turning points in the data/economy are not identified in a timely way (for example, in a quarterly series where trend movement has been positive, it could take two or three quarters of negative seasonally adjusted movement before the trend figure turns negative).²
- Media reports on ABS releases tend to highlight the "headline" seasonally adjusted figure rather than the trend; commentary sought from ministers will often need to respond to the seasonally adjusted figures.
- Statistics reflect the performance of the real economy which is influenced by significant events (for example, severe weather events, some government policy changes, the timing of very large investment projects, geo-political or trade tensions, etc). Where the irregular fluctuation of a time series can largely be explained and understood by reference to a known event (as opposed to statistical error), cautious reference to the seasonally adjusted series (where the impact of the event is reflected) may be arguably more useful than the trend series (where it might be masked, at least for a period of time, and/or its significance diminished).

¹ The ABS has estimated that over a five-year period, 70% of the time the irregular fluctuations contributed more than the trend to the monthly movement in the seasonally adjusted unemployment rate series.

² Annual data series e.g. State Accounts (Gross State Product) are not seasonally adjusted or trended. The nature of the frequency, being annual, accommodates seasonal impacts during the course of the year and the resulting estimates are, for most practical purposes, 'seasonally adjusted'. Annual data, where substantial volatility still exists, can be trended over a period of years using more specialist econometric filters such as the Hodrick-Prescott filter.

This is particularly relevant for series such as State Final Demand and its components (including new business investment), private new capital expenditure, real retail expenditure (quarterly) and dwelling commencements (quarterly).

For these reasons, DTF now proposes to return to providing greater focus on seasonally adjusted data in economic briefs, including in the 'further analysis' section, particularly for the above-mentioned data series. The headline figures will continue to be reported in both seasonally adjusted and trend terms, for all series.

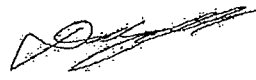


Brad Gay
Executive Director, Commercial and Economics

31 January 2019

Contact Officer:	Matthew Winefield
Telephone:	8429 3485
Email address:	matthew.winefield@sa.gov.au

Supported / Not Supported



David Reynolds

CHIEF EXECUTIVE

Department of Treasury and Finance

Date 4.2.19

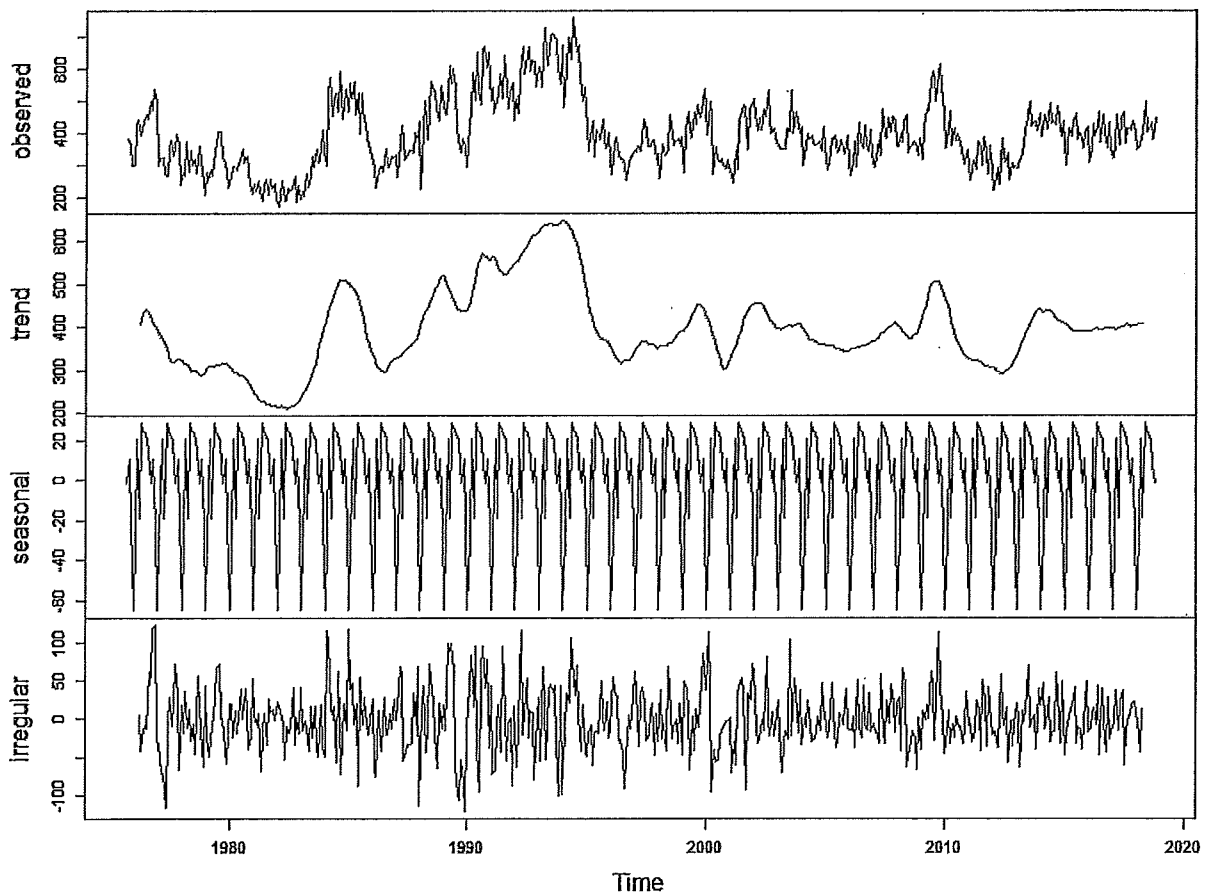
**Attachment 1:
Series used in ABS headline reporting and media releases**

The "Main Features" section of ABS reporting generally emphasises the trend series for monthly releases and the seasonally adjusted for quarterly time series (see table below)—although increasingly, analyses are presented across a combination of series types.

ABS Publication	Frequency	Main ABS reporting features
Australian National Accounts (5206.0) (State Final Demand and its components)	Quarterly	Analysis is in <u>seasonally adjusted</u> terms
Balance of Payments and International Investment Position (5302.0)	Quarterly	Analysis is in <u>seasonally adjusted</u> terms
Building Activity (8752.0)	Quarterly	Both <u>trend</u> and <u>seasonally adjusted</u> are reported, with former taking precedence
Building Approvals (8731.0)	Monthly	Both <u>trend</u> and <u>seasonally adjusted</u> are reported, with former taking precedence
Housing Finance (5609.0) - soon to be replaced by a new series combining Housing Finance and Lending Finance (5601.0)	Monthly	The current reporting is a combination across all 3 time series
Labour Force (6202.0) (Employment, unemployment, under-employment, participation)	Monthly	Both <u>trend</u> and <u>seasonally adjusted</u> are reported, with former taking precedence
Mineral & Petroleum Exploration (8412.0)	Quarterly	The reporting is a combination across all 3 time series types
Private new capital expenditure (5625.0)	Quarterly	Both <u>trend</u> and <u>seasonally adjusted</u> are reported, with former taking precedence
Retail Turnover (8501.0) (Nominal/current price turnover and real turnover)	Monthly and quarterly	ABS provides analysis in trend, seasonally adjusted and (on some occasions) original terms. Some

Attachment 2:
Illustration of time series components

Decomposition of commitments for construction of dwellings



Original data (“observed”) reflects three components: **seasonal** factors, **irregular** movements and the underlying **trend**.

A seasonally adjusted time series removes the seasonal component, but leaves the trend and irregular movements.

A trend time series removes the irregular movement as well, leaving just the underlying trend.