



UNRESTRICTED



2015 Regional Tourism Indicators Review

Final Recommendations Paper

Background

The Regional Tourism Indicators (RTIs) were developed in 2012 to meet the Tourism Data Domain Plan recommendation that a new series of regional indicators be developed to measure the value of tourism in the regions. As the indicators have now been published for over two years, MBIE's Sector Trends team has been reviewing the product in consultation with a reference group comprising industry and government representatives.

This paper summarises the various recommendations made in papers already presented to the Group, and briefly discusses and recommends action on a few review items not large enough to justify a standalone investigation.

Specific recommendations are grouped in to sets below based on the paper in which they were originally presented, with a brief discussion of the context. The document concludes with a list of issues for which no further action is our recommendation.

Recommendation set 1: Stop publishing indexes and start publishing provisional RTE spend estimates every month

Context: MBIE currently publishes the RTIs monthly, and uses the word "Indicator" to reflect the fact the RTIs do not estimate a spending figure. A separate-but-related exercise produces spend estimates annually as the Regional Tourism Estimates (RTEs), using RTI and other data to weight the total spent on tourism by the monthly activity indicators.

While the RTIs are provided to MBIE as spend measures (and transaction counts, which are published as-is), we transform these to indicators for several reasons: monthly measures are inherently more noisy and so the explicit indexing back to the average month in 2008 helps centre user interpretations of small movements; raw RTI spend represents only a sample of electronic spend which is difficult to conceptualise; other data to mitigate these problems is only produced annually.

Many users of the RTIs have expressed a strong preference that we publish a spend figure monthly, as they see it as more relevant to their needs, and easier to interpret. Up to this point MBIE has held off considering this for the reasons discussed above, but if we adopt other recommendations of the RTI review, the case becomes stronger.

Summary of potential benefits (more detail in "Proposal to output monthly spend estimates with RTIs" paper;

- Respond to a clearly-identified user need
- Improve comprehension of what the RTIs measure
- Further leverage improvements to underlying data spurred by development of Household Tourism Expenditure Estimates

Potential risks MBIE will need to mitigate:

- Spend estimates are too noisy to be useful
- Users treat spend estimates as definitive, are surprised by later RTE changes
- Users compare these to other spend estimates, find discrepancies

Based on preliminary investigation of one methodology MBIE could use to implement this, we are confident the benefits can be unlocked while mitigating the risks. We foresee some issues with the analysis and will consult further to decide these.

Specific recommendations from “Proposal to output monthly spend estimates with RTIs”:

1. MBIE develop our basic proof-of-concept in to a feasible prototype for producing a monthly, “Provisional RTE” product to replace the RTIs
2. MBIE develop and consult on clear and simple language to explain what these new estimates can and cannot be used for.

This set of recommendations is a logical conclusion of meeting user need for a spend estimate, and of the further recommendation sets that follow. As soon as we add a “dollar amount” to the RTIs there is a strong case for using the word “estimate” to reinforce the fact this is not a measure of actual total spend. As soon as we include the word “estimate” in the RTIs it could make most sense to combine the RTIs and RTEs from a product point of view: one monthly and “Provisional”, the other annual. This does open up a potential comparability problem with the IVS, which MBIE will investigate further in developing a feasible prototype.

Recommendation set 2: Utilise more robust data

Context: Errors that affect the accuracy and continuity of the RTIs can occur at both the classification stage (eg identifying merchant’s location or industry) and the selection stage (eg decision to include or exclude a merchant from the RTI sample). MBIE’s current approach for managing sample frame errors reflects a strong emphasis on maintaining a consistent, unbroken time series for the RTIs, but this allows the RTI sample frame to drift further and further from the ‘ground truth’. MBIE has worked with Marketview to fully document the inclusion criteria and understand this drift.

Marketview have also developed a new database called ‘Aspiring’ for the Household Tourism Expenditure Estimates, which makes significant improvements to the coding and coverage of merchant accounts and customer records. Shifting to the Aspiring database will provide long-term benefits of a larger and more stable domestic customer sample.

In combination with this change we recommend making full use of all the improved data by reloading the full history of the measures every month. This will further minimise drift between sample and ‘ground truth’ by incorporating any changes or corrections to coding as they occur. There is an administrative cost to this monthly reload, which will decrease over time with increasing automation, and a penalty to the integrity of the series in that data about a given month may change in the future. We consider this price worth paying for the long-term benefits described above and in the referenced paper.

Specific recommendations from “Sample Frame Improvements” paper:

3. MBIE adopts the use of the ‘Aspiring’ database for the RTI series in order to reduce the incidence of sample and coverage errors.
4. MBIE shifts to a policy of reloading the full history of the RTI series (ie from January 2008 to current month) each month, to ensure that changes or corrections to business or customer information (geolocation or ANZSIC) are applied across the full history of the measure.

Recommendation set 3: Improve business rules to expand coverage

Context: The initial construction of the business frame and sample for the RTIs took place under significant time pressure and led to several compromises for the sake of delivery. These made sense during the initial life of the product but have contributed to the compounding of difficulties maintaining the series over time, which ultimately contributed to this review.

MBIE has worked closely with Marketview to fully understand those “as built” business rules used to construct and maintain the sample and has produced two documents: an internal-only description of the choices made in filtering merchants for inclusion in the RTIs that includes commercially sensitive information, and a publishable description of the same. The latter should help clear up confusion among internal and external users over what the RTIs cover, while the former provides a basis for documenting any changes to the business rules instigated by any of the other recommendations in this document.

A key finding across much of the review work, including the industry classifications paper discussed below, is the need to change the business rules so that as little data as possible is excluded at each step of the process. Applying and maintaining complex rules for inclusions and exclusions is increasingly difficult as the ‘ground truth’ of the marketplace changes. A safer position is to allocate RTI spending for which key attributes (eg card-holder location) are uncertain to explicitly-defined “Unknown” categories. This means the RTIs are built off data that more completely describe the total size of the market, and reduce dependence on potentially-sensitive adjustment and imputation techniques. This approach also aligns neatly with full reloading of the series each month: corrections to coding improve the quality of RTI measures at lower levels of aggregation with reduced impact on higher levels of aggregation.

Specific recommendations from “Documenting Marketview’s ‘as built’ business rules” paper:

5. Seek Marketview approval to publish the commercially sensitive guide internally, and a sanitised version on the MBIE website for interested data users (achieved already).
6. Use this documentation as a starting point for the construction of explicit, default “Unknown” categories for each step of the data preparation process in which merchants, cards, and/or transactions are currently excluded.

Additional recommendations:

7. Establish revised business rules that minimise human intervention in the inclusion/exclusion of merchants, cardholders, and transactions from the RTI sample frame. These revised rules should include the inclusion (and classification of) non face-to-face transactions (online, phone order) and of domestic business cards.

Recommendation set 4: Use a better definition of domestic tourism

Context: The RTIs currently use a relatively coarse definition of domestic tourism. If a BNZ cardholder’s address is in the same modified TLA as a merchant, or if the customer-merchant pair is on a list of “fluid” boundaries (such as those around cities), a transaction is categorised as “Local” spending and not tourism.

This conflicts with the official definition of tourism, which defines a tourist as “any person travelling to a place other than their usual environment for less than 12 months and whose main purpose is other than the exercise of an activity remunerated from within the place visited”.¹ While the modified-TLA based rule applied currently is a reasonable proxy for whether an individual is travelling while spending, it has no concept of a “usual environment”.

¹ Statistics New Zealand (2014). *Tourism Satellite Account: 2014*. p.37

Substantial variance in size of modified-TLAs means that cardholders can travel substantially greater distances than 40 km without leaving their 'home' TLA, and travel across TLA boundaries without exceeding 40 km at all.

The Household Tourism Expenditure Estimates (HTEEs) are based on Marketview's 'Aspiring' database which has greatly improved geocoding, down to X,Y coordinates for a meshblock in most cases, rather than to modified TLA level in the current RTIs. This improvement in the granularity of information allows Marketview to calculate a distance measure between Customer and Merchant, and then exclude transactions taking place fewer than 40 kilometres away from a cardholder address (these are local by the official definition).

Finally, a behavioural filter is used to determine whether spending further than 40km from a cardholder address is also outside her usual environment (eg, the cardholder is not simply commuting to their work location). It uses the level of supermarket spending and whether transactions occur on weekdays to exclude transactions unlikely to meet the official definition of tourism.

Adopting this definition (and by necessity the Aspiring database underlying it) will further harmonise the RTIs, and the Regional Tourism Estimates that use the RTIs, at the cost of breaking the series. Stakeholders need to recognise that adopting the Aspiring database and its greatly improved definition of tourism spending will come at a cost: estimated spending levels will change significantly across the series. The impact of this one-time cost can be minimised by aligning it with any other changes recommended as part of this review.

Specific recommendations from "Domestic Tourism Definition" presentation:

8. The RTIs adopt the improved definition of tourism implemented in the HTEEs.

Recommendation set 5: Improve management of Paymark merchant changes affecting the international RTI series

Context: Purchases made by international credit cards at a merchant using the Paymark network are included in the International RTI series. However, the number of merchants using the Paymark network (and by consequence, included in the RTI sample) is constantly changing. Most of these merchant transfer cases have been left unaltered, under the assumption that leavers will largely balance out joiners given the stability of Paymark's overall share of the market.

While taking a case-by-case approach to dealing with merchant transfers has been sufficient thus far, this approach is inherently risky and time consuming. It is preferable to establish set procedures for dealing with these situations going forward. More standardised systems and rules should also limit the number of cases missed by the data suppliers and/or MBIE that could adversely affect the validity and reliability of the international RTI series.

Beyond improved identification of problem cases, Marketview will cover the gap between their sample frame (about 70% of merchants) and full coverage by imputing a non-Paymark spend at an agreed sub-national level, which will mitigate the effect of disruptively large changes in market share. Marketview used imputation for a similar purpose when constructing the Household Tourism Expenditure Estimates (HTEEs).

An alternative strategy suggested by the RTI review reference group was to purchase the balance of international transaction data, held by Verifone NZ (previously EFTPOS NZ). MBIE began investigations into this option but is reluctant to recommend this approach over an imputation of non-Paymark, for several reasons. The first is cost: MBIE needs to consider the

benefits gained from the additional expense (both financial and nonfinancial) of integrating a different source of data. The second relates to the construction of the RTIs as a whole: even with the Verifone data we would not have every transaction because there is always missing data, and if a third payment provider were to emerge we want our methods to be robust to a change in market share of whoever we purchase from. As a result of these considerations, we prefer to develop an approach that is flexible enough to deal with inevitable missing data, whatever the reason. MBIE will continue conversations with Verifone, if only to allow for checks of imputed data against actual non-Paymark spending.

Specific recommendations from “Managing Paymark Merchant Changes” paper:

9. Summary information about merchants identified as joining or leaving the Paymark network should be included in the monthly marketplace review meeting between MBIE and data suppliers. This should include (at least) the number of merchants and the sum of average monthly spend, reported by direction (joining or leaving Paymark), category (transfers, births/deaths), and if possible broken down by ANZSIC code. More detailed information on births, deaths and transfers of those merchants processing transactions/spending over an agreed threshold should also be provided and discussed, without revealing commercially sensitive information.
10. MBIE should engage data suppliers to develop an enhanced version of the international RTIs that adjusts for (or imputes) spending at non-Paymark merchants. This could remove the necessity of treating merchant transfers altogether, while preserving series continuity. It is MBIE’s preferred option and we will work with Marketview to assess the impact in advance of applying any changes.

Recommendation set 6: Improve usability and comprehension of RTIs

In a separate paper “RTI dissemination: Summary and recommendations” we outline our approach to direct consultation with RTI users and the lessons learned from this engagement.

The specific recommendations emerging from the “RTI dissemination” paper are:

11. Build awareness of the RTIs in key user groups.
 - a. Develop a small number of case studies with examples of how stakeholders have used the RTIs (e.g. RTO example, product development example, policy example). This would demonstrate to users how the RTIs can be used.
 - b. Provide training to key stakeholders on how to use the RTIs. This could be in the form of workshops, webinars and/or video instructions with voiceovers.
 - c. Whilst not in the scope of the RTI review recommendations, it was apparent from stakeholder interviews that users (even sophisticated ones) are confused about the variety of data sources available to them and how they can be used. MBIE could improve their communication strategies to assist with explaining what data sources are available and for what purposes.
12. Publish estimates of spend (covered in Recommendation set 1 above).
13. Improve user interaction with RTIs by developing interactive web applications.

- d. Provide an interactive web application directly to users, where they can see all RTI data in one place and manipulate it according to their needs (e.g. region, industry sector, market). Enable downloadable data and graphics.
14. Introduce more interpretation and story-telling around the RTIs.
- e. Ad-hoc pieces of work for policy teams (e.g. regional economic growth story; China visitor market research). Where appropriate, produce in collaboration with industry to ensure a well-rounded interpretation of the data.
 - f. Improve web commentary, for example, automated interpretation incorporated into RTI interactive web application. For example, 'top growth regions were x, y, z'; 'visitor markets showing most growth were x in region y etc.
 - g. Updating the regional summaries monthly (these are currently only updated annually, when the RTEs are published).

Additional recommendations:

- 15. To maintain confidentiality of cardholders and individual businesses, MBIE will not supply raw RTI tables (ie at the level of disaggregation provided by the vendor) to the public.

Recommendation set 7: Improve ability of users to compare performance across months

Context: MBIE wish to move away from the 12-month rolling average technique currently used to smooth seasonal effects: it is a very blunt instrument that does not deal well with one-off and permanent changes to the levels of a measure (it magnifies the effect of these through the following year, after which they vanish, changing the series markedly).

Despite MBIE's concern at these issues, feedback from the reference group strongly indicated that most RTI users do not see these as important, and in fact would prefer the RTIs remain not seasonally-adjusted. A key reason for this is the potential for confusion between the two series if both are published. As a result, MBIE has modified the recommendation below and deprioritised this aspect of the implementation.

Work on this should wait until after most other recommendations in this paper are implemented, as these will change the underlying data used by any seasonal adjustment model.

- 16. Towards the end of the implementation phase, MBIE may implement a long-standing plan to seasonally adjust the RTIs, primarily for internal purposes, to improve the robustness of RTIs as an input to other work. We will not generally publish this series unless it is requested by particular users.

Recommendation set 8: Build consistency across datasets

Context: As part of the RTI review, MBIE investigated the current industry and industry group classifications used in the RTIs, to decide whether these are adequate and to investigate the feasibility of providing more detail on particular industries.

The primary driver of this investigation was continued growth in card spending under the "Non Tourism-related industry group" category, which includes ANZSIC06 codes for industries not

characteristic of (nor related to) tourism, but which tourists nevertheless spend on. Best practice for producers of data products is to closely monitor changes in such “residual” categories as these can indicate threats to overall data quality.

Another driver of our examination of industry codes was a desire to harmonise the RTIs with other products built off the same microdata, the most relevant being the Household Tourism Expenditure Estimates (HTEEs). During the development of the HTEEs, Statistics NZ reviewed the list of ANZSIC06 codes included in the RTIs and provided a revised list of specified ANZSIC06 codes they considered to be relevant to tourism. MBIE accepts their reasoning in all cases and is in favour of harmonisation of the ANZSIC06 codes used across both products.

Specific recommendations from “Industry Classifications in the RTIs” paper:

17. We recommend that MBIE renames the industry code T999999 (Not Stated) to a dummy code of Z999999 (Other industries not further defined) to distinguish it from the official ANZSIC code T999999, and use it to cover merchants with no ANZSIC code.
18. We recommend naming the overall industry group discussed in this section (“non tourism-related”) to simply “Other industries”, to reduce the potential for confusion given this is a tourism data series..
19. The list of specified ANZSIC06 codes included in the RTIs should be revised to match the industry codes used in the HTEEs. Spending outside of this list of specified codes can be included in the proposed Z999999 industry code.
20. MBIE request from data suppliers a quarterly summary of top contributors and largest growth in ANZSIC06 codes included in the Z999999 “Other industries not further defined” industry code.
21. Due to the difficulty in establishing and maintaining accurate custom sub-ANZSIC06 classifications, MBIE should not pursue custom categories for the RTIs.

More detail on recommendation 5 is provided at the end of this document under Recommendation set 9: No Further Action.

Recommendation set 9: No Further Action

Context: A number of issues raised or discovered during the review will not be progressed further as part of any RTI redevelopment. In most cases, this is because preliminary investigation found low impact on the RTIs. Some require ongoing monitoring by MBIE.

1. **Continue to monitor RTI coverage of Chinese spending.** MBIE thoroughly investigated the trends in Chinese card spending captured by the RTIs, and found the existing card coverage (which excludes many China Union Pay transactions) to be an excellent proxy for Chinese spending as estimated by other sources. In the paper presented to the reference group, we recommended that Marketview provide quarterly updates on Chinese visitor electronic card spending split by card type. This will allow us to re-run the same analysis and monitor RTI coverage of this important market.
2. **ANZSIC industry codes below the currently published level of aggregation.** In the “Industry Classifications in the RTIs” paper discussed above, we investigated the feasibility of splitting level 4 ANZSIC06 codes with broad scope (eg H440000 Accommodation) in to sub-categories. While we recognise the demand from some stakeholders for this more detailed view, the necessary detail is not widely available in Marketview’s existing database, and would be costly to include. Furthermore, agreeing

on appropriate splits is likely to be resource-intensive and increase the administrative burden of maintaining the RTIs. We will not pursue this further.

3. **Standalone anomalies paper.** Early in the planning for this review, MBIE envisaged publishing a paper on standalone anomalies over the history of the RTIs. Scoping this has proved difficult given the wide range of issues encountered in the past, some of which prompted this review. Furthermore, after implementing our recommendations above to move to the Aspiring database for increased coverage, and to reload the full series each month, the long-term impact of these and future anomalies is minimised.
4. **Detailed analysis of data quality at the merchant level.** Ideally, an MBIE Sector Trends team member would be seconded to Marketview to conduct detailed analysis of the microdata used to construct the RTIs. Given our relative success in uncovering and providing recommendations to mitigate the core issues affecting this product, as well as the significant expense, we view this as no longer necessary. Marketview have been responsive to our concerns, a relationship we expect to continue as the contract comes up for renewal later in 2015.
5. **Detailed examination of online tourism-related spending.** In our initial scoping of the issues with the RTIs, a key concern was accounting for “missing” spending under a variety of categories: Chinese spending missed because it occurs through China Union Pay cards; spending missed in general due to Paymark and BNZ’s less-than-full market share; online spending on tourism merchants with a detailed location but excluded from the RTIs due to its inclusion of face-to-face transactions only. Many of the recommendations above, including the set pertaining to increased use of explicit “Unknown” categories and inclusion of non face-to-face transactions, mitigates the overall problem driving our investigations of “missing” spend. In the particular case of online spending at tourism merchants, spending at such merchants should be included due to the recommended revision to business rules, discussed above.
6. **International banking settlements.** The reference group brought to MBIE’s attention the prevalence of online payments directly to overseas agents as commission on the sale of NZ tourism products. These have the net effect of reducing what some providers “see” in returns. MBIE acknowledges this concern and will consider the impact of this on data products including the RTIs and RTEs in the future.