Commercial radio spectrum licences

Valuation principles and review of past approaches

NZIER and Plum Consulting report to Radio Broadcasters Association (RBA)

16 July 2025

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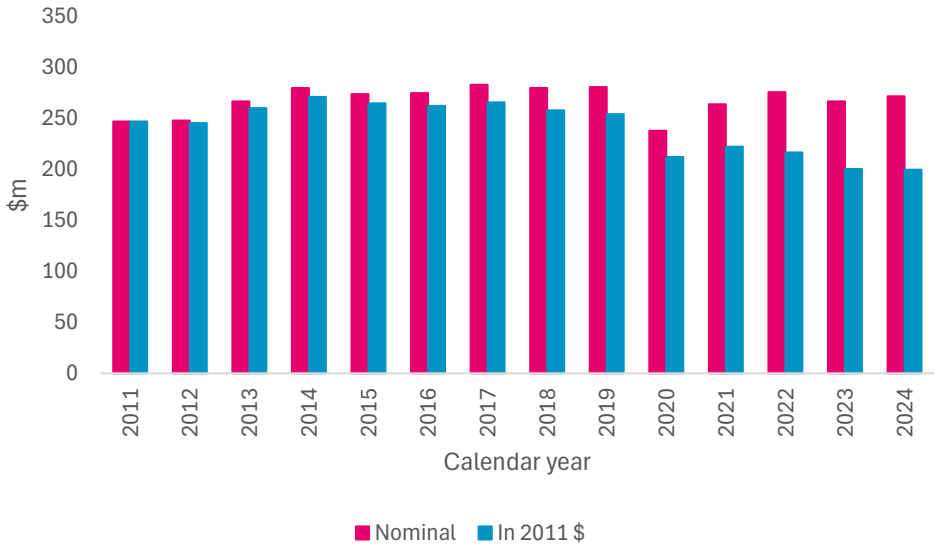
Key points

Radio advertising revenue has declined over the licence period, not increased

Commercial radio advertising spending has not grown over the period 2006 to 2024 but instead, in nominal terms, has fluctuated around an average of $265 million per year[1],. Advertising spend peaked in 2017 at $283 million (including estimated digital audio revenue of $4 million), and for 2024 was $272 million (including $17 million of digital audio revenue, which is growing slowly and putting further competitive pressure on AM and FM advertising).

While the nominal value is remaining steady, in real terms radio advertising has declined since 2014. The current licence period began in 2011, and there was only a short period of revenue growth after this point, followed by over a decade of decline. In 2024, advertising revenue adjusted for changes in the consumers price index (CPI) was 27 percent below 2014 levels (and 19 percent below the 2011 level).[2] The gap between real and nominal values has accelerated in recent years due to higher inflation rates.

Figure 1 Radio advertising revenue has fallen over the licence period



Source: Advertising Standards Authority (ASA) New Zealand Advertising Industry Annual Revenue Reports

The fall in real revenue is creating a cost squeeze in the industry. According to data from the RBA comparing the industry position for its members in 2011 and 2024:

[1] Revenue has fluctuated between $236 million (10.9 percent below the average) to $283 million (6.8 percent above the average.

[2] These revenue numbers include digital revenue which increased from less than an estimated $4 million in 2014 to $17 million in 2024. Assuming digital revenue was high in

- Commercial radio revenue[3] increased by 2.4 percent in nominal terms, compared with an increase in operating costs of 9.2 percent.
- Staff levels were reduced by 29 percent overall, with much larger reductions in the numbers of journalists and local hosts.

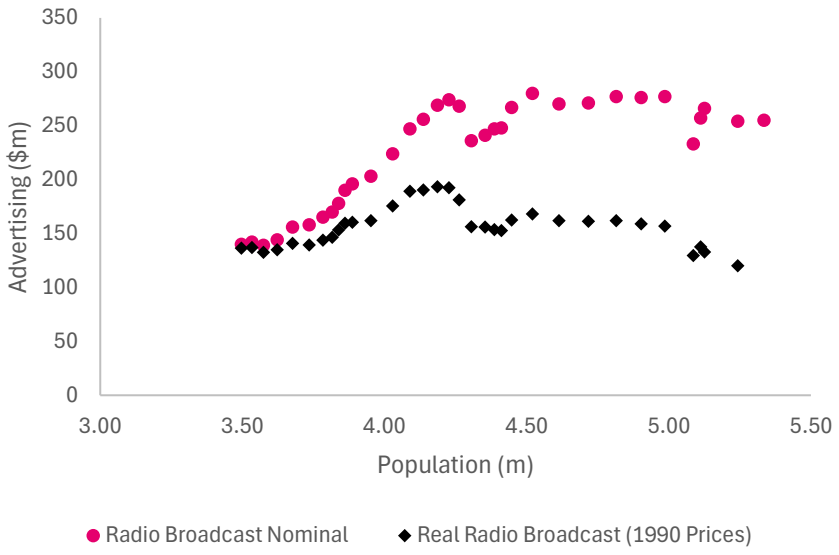
Overall, in order to cope with reducing real revenues, and increasing costs, the industry is not in a position to absorb increased costs or make large lump sum payments for licences.

The population model used to set licence fees does not reflect reality

The licence valuation models used in the 2011 round relied upon a relationship between population growth and advertising revenue, as estimated in a report by Covec (2003). A similar relationship between population and value is proposed for 2031 renewals

Population and advertising revenue growth began to diverge in 2008, and there no longer appears to be any useful correlation between population growth and nominal advertising revenue. (This is indicated in Figure 2 by the fact that 'Radio Broadcast Nominal' has remained almost constant from 2008 to 2024 while the population increased by 25 percent from 4.3 million to 5.3 million people.)

Figure 2 Radio advertising revenue and population are not correlated



Source: Advertising Standards Authority (ASA) New Zealand Advertising Industry Annual Revenue Reports

Population growth has been much faster than the population projections used in the Covec 2003 forecasts. Using the actual population data in 2024 of 5.3 million people, the Covec

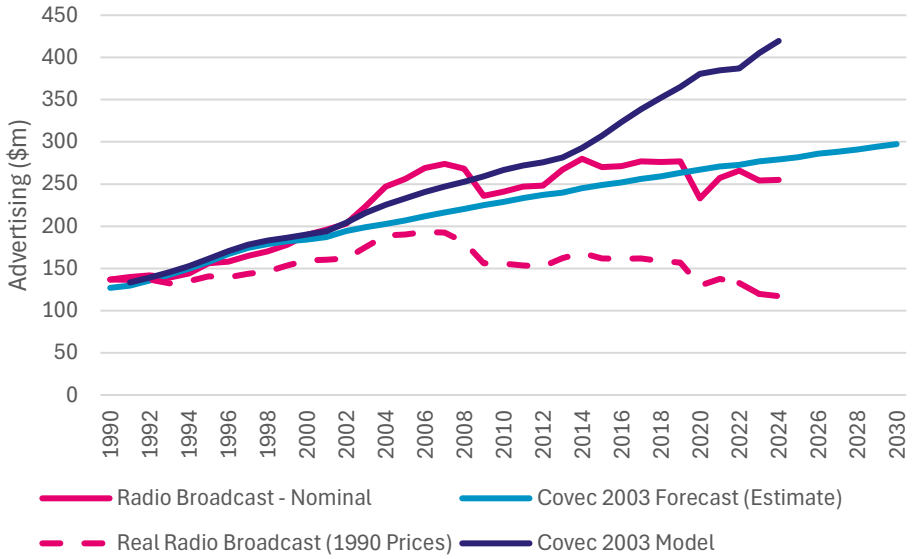
[3] The RBA reported advertising revenue of $255.2 million for 2011 and $261.2 million for 2024. These values differ slightly from the advertising revenue reported in the ASA Annual Revenue Reports of $247 million for 2011 and $272 million for 2024 comprising $255 million from 'Radio Broadcasting plus $17 million from 'Radio Digital'. The reasons for the difference are:

- 2011 ASA revenue does not include contra revenue for TRN (now NZME) which is included in the 2011 RBA revenue
- 2024 ASA revenue includes revenue for Sport Nation/Entain, Iwi Network and stations that are nor members of the RBA.

Accordingly the RBA comparison of revenue and cost changes over 2011 to 2024 is an estimate of the cost squeeze experienced by RBA members.

model would predict advertising revenue of at least $419 million compared with actual broadcast advertising revenue of $255 million – 64 percent below the predicted level.

Figure 3 COVEC Model comparison with actual revenue



Source: Covec (2003), NZIER analysis and projection of Covec (2003) model

As shown in Figure 3, nominal broadcasting advertising revenue diverged from the Covec model from about 2014 and has fallen below the Covec 2003 forecast in 2023 and 2024. The difference between the Covec model and the Covec 2003 forecast is due to the underestimation of population growth when the Covec 2023 forecast was prepared – a very good example of the risk of error in long-term forecasts.

Looking back before 2011 (the start of the current licence period), Figure 3 shows that broadcasting revenue has been declining in real terms, falling behind the increase in the CPI since 2006.

There are many reasons for this break in relationship between population and radio advertising. First, there are increasing numbers of alternative media for the population to consume, including close substitutes such as satellite and IP-based radio, as well as podcasts, streamed music services, and integration of portable music libraries (such as MP3 players, or music libraries stored on mobile phones) into radio systems. It is wrong to assume that the potential audience as measured by a covered population is in any way representative of the number of people who are likely to listen to a traditional commercial radio station.

The industry has started to project the shifts in audience from AM and FM to streaming and would anticipate there will be a point that the revenue curve will start to correlate with this.

The Covec population-driven model does not achieve spectrum valuation objectives

The Covec 2003 model describes its task as, *'Given government's policy mandate, the key task is to design a fair and transparent method for assessing renewal fees'* and describes

the task as *'a formula must be constructed that estimates a renewal fee for management rights and spectrum licences the value of spectrum rights as the discounted expected net cash flow (revenue less costs) from the rights over the period'*.[4]

However, we have commented above that:

- Based on RBA data, commercial radio costs have risen faster than revenue and radio broadcasters have reduced headcount by 29 percent over the past 13 years. This suggests revenue growth is not a reliable proxy for growth in net cash flow.
- In any case, growth in population is no longer a reliable predictor of growth in advertising revenue.

Accordingly, a spectrum licence fee for 20 years based on a per capita rate applied to the current or projected population is extremely unlikely to reflect the true value of the licence. A per capita rate is not a 'fair or transparent' method for valuing 20-year licences, primarily because the relationships it relies on are unstable over the period, and also because the value that can be obtained through the use of a licence depends on profit or return, not on an unrealistic audience number based on population.

The proposals use outmoded and inconsistent approaches to spectrum valuation

Radio spectrum licences for commercial radio, television or telecommunications all provide the infrastructure for launching a revenue-earning service. Typically, the rights to the service are sold for a long 20-year period which is required to enable spectrum users to invest in efficient and large-scale broadcasting and transmission infrastructure. However, in the case of radio broadcasting, the majority of infrastructure already exists and the declining userbase makes such long-term large-scale investment unlikely. This longer period of licence effectively transfers the risk of the revenue (or profit) forecast from the Government to the purchaser.

The proposed prices for commercial radio (either reserve prices for auctions or renewal prices) do not appear to be explicitly linked to expected revenue from the allocation. In particular, MBIE has awarded a number of bands to mobile operators using auctions or other competitive awards, and the reserve prices for these bands have been set using values based on:

International benchmarking, which should theoretically reflect the profit that operators in other countries expect to obtain through use of the spectrum, since these comparators were sold at a market price – in fact, since most auctions are based on a second-price method, this value will reflect the opportunity cost of one operator using the spectrum compared to another;

Avoided cost, or optimal deprival models, which consider how operators can alternatively serve customers without spectrum, and find the cost for this alternative – this would be the value that operators would be willing to pay for spectrum to avoid the additional infrastructure; or

Economic values adjusted to reflect the need for subsidisation to increase social welfare.

[4] Covec (2003), page 16, 4.3. Candidate Approaches to Formula Design.

None of these methods directly considers the expected revenue of the service using spectrum, and (in the case of avoided cost modelling especially) explicitly considers how costs are likely to vary given different decisions (and over time).

The proposed up-front licence fee for commercial radio is excessive

The RSM 2031 AM/FM Licence paper[5] proposes a per capita licence fee of $1.16 for FM licences and $0.06 for AM licences. Based on RSM estimates of the relevant FM and AM audience size on the web page[6] which includes the link to the RSM 2031 AM/FM Licence paper, we estimate that the government expectation for total licence revenue from the 2031 licence renewal assuming a licence duration of 20 years at:

- FM at $37.12 million = population (32 million) multiplied by price per capita ($1.16).
- AM at $1.62 million = population (27 million) multiplied by price per capita ($0.06).

The RSM 2031 AM/FM Licence paper estimates are based on the past values of licences and a per capita charge. Both assumptions are flawed. The past value of licences is a poor indicator of their future value given the structural changes occurring in the industry and the certain decline for audiences on FM and AM. The per-capita formula implies that advertising revenue is proportional to population. We have demonstrated this relationship does not exist.

In addition the RSM 2031 AM/FM Licence paper revenue forecasts include an assumed nominal revenue growth of 0.8 percent per year. This compound annual growth rate (CAGR) is:

- Not supported by the historical revenue data, as it is highly sensitive to the choice of starting year.
- Inconsistent with RBA forecasts that project a decline in audiences of about 1.7 percent per year over 2024 to 2031 and 2.1 percent per year over the period 2031 to 2044[7].
- Based on projected growth for radio as a whole including digital revenue. The spectrum fee can only be related to the revenue derived from FM and AM directly.

Broadcasters have limited capacity to pay upfront for spectrum licences

The capacity of radio stations and other users to pay for spectrum licences in a large lump sum has always been limited, as illustrated by the following examples.

- Mediaworks had to take out a loan of $43.3 million (plus GST) in 2011 to spread licence spectrum payments over five years, at an interest rate of 11.2 percent.[8]
- MBIE made an offer of annual instalment payments for the renewal of 3G and 4G spectrum renewal in 2019.

5 Radio Spectrum Management, (2025), *'AM/FM radio spectrum: 2031 expiry of licences and potential reassignment, Discussion document, 8 May 2025'*.

6 RSM, 'AM/FM 2031 expiry and potential reassignment'. Downloaded on 6 June 2025 from https://www.rsm.govt.nz/projects-and-auctions/consultations/amfm-2031-expiry-and-potential-reassignment.

7 The RBA forecasts do not go past 2044, and so for this report we have assumed the decline continues at this rate over 2045 to 2050.

8 Eight broadcasters accepted the Crown offer of deferred payment. Mediaworks repaid its after 3 years. See 'MediaWorks repays 'Joyce loan' for radio licences', BusinessDesk, 4 Oct, 2012 downloaded from www.nzherald.co.nz/business/companies/media-marketing/mediaworks-repays-joyce-loan-for-radio-licences/2R42OOHSYX3QRWXANW4U3U2OEE/#google_vignette

- The payment for 5G allocations in 2023 were spread over two years.

This is not unique to New Zealand. The requirement to make a substantial lump-sum payment in anticipation of returns over a long period is financially very risky, and funds may not be available to pay for this.

The allocation framework did not specifically consider the impact of either the payment on the balance sheets of licence purchasers or the impact on their ability to invest in assets required to utilise the spectrum licence. However, there are indications that the contract for allocation of 5G spectrum may have considered the impact of high licence fees on the speed with which mobile network operators were prepared to invest in 5G networks. This recognition of the need for substantial capital investment is an important point.

Although there is no need for investment in new broadcasting networks, the costs of running commercial radio stations is steadily increasing, and the stagnation of radio broadcast advertising revenue over a long period of inflation has created a cost squeeze on the commercial radio broadcasters. This has reduced their capacity to make large upfront payments for long-term (20-year) licences, and requirements for this type of payment may have serious consequences.

The recent capital restructuring by Mediaworks has further eroded its ability to make large lump sum payments, potentially reducing competition for licences if lump sum or short-term (less than 5-year payment periods) are required for commercial radio spectrum licences.

The same issue impacts smaller independent broadcasters, many of whom are likely to be significantly more risk averse due to the nature of personal involvement in the enterprises. An unintended consequence of requiring large up-front payments is that some operators may not renew all or some of their spectrum licences, resulting in a loss of local services, a loss of choice in many local regional markets and unused spectrum in the regions in particular.

There are more appropriate pricing frameworks

The lack of correlation between population growth and broadcast revenue over the current licence period and the uncertain outlook for broadcast revenue indicate that an upfront payment based on a per capita value multiplied by population will not reflect the economic value of the licence

A more appropriate spectrum pricing framework an annual payment which could be set based either on projected audience levels or revenue.

Broadcasting services have an important social value

As noted above, when setting mobile service reserve prices, regulators worldwide are starting to make adjustments for social value rather than relying on pure economic benefits. Interventions have been occurring in spectrum awards for a number of years through the use of coverage obligations or quality of service requirements, which again impact on the value of spectrum.

We note the following observations about the decline of value in digital television licences in the following Treasury advice[9] to the Minister of Broadcasting:

> *11. When the digital licences were last issued, the cost of the twenty-year licence was under $2 million per entity. In part, the price reflected, at the time, the surrendering of analogue radio licenses and the fact that the digital network does not face the same capacity constraints as the FM network.*
>
> *12. Given that we are now nearly halfway through the term of the licence period, the value of the licenses will have likely reduced significantly. Combined with the relatively low issue price, there is little opportunity to release any significant value from digital TV licences.*

We understand from the RBA that television spectrum licences were supplied in 2013 at a figure less than $10 Million to support the changes the industry needed to make to be sustainable in the future. In 2013 television broadcast advertising revenues were in excess of $600 per annum, more than double broadcast radio advertising revenue. Even in 2024 advertising revenue from broadcast television was more than 50 percent higher than that for radio in 2024. This implies a very low revenue royalty rate for television spectrum licences compared to radio spectrum licences.

That this was done suggests the government looked at the wider spectrum policy objectives of maximising the use of spectrum for taxpayers and took into account factors of content choice and the sustainability of the sector during a time of significant change.

Overall the pricing for spectrum licence for radio and television does not seem to follow a consistent approach in basing licence values on their potential to generate revenue or operating profit or in how it measures maximisation of spectrum use for the New Zealand public.

Radio has a wider value

Through their broadcasts and interaction with listeners, radio plays a part in wider social activities. Listeners choose to engage with the stations for an array of reasons and respond to their experience in a variety of ways – often with multiple facets being in play at the same time. Radio provides access to news and cultural services which may otherwise be absent, and can also act as a warning system ahead of public safety issues.

Radio is proven itself to be the primary media used in all civil defence emergencies in New Zealand. This is demonstrated by NEMA and GFk Radio industry research each year, and the reason why NEMA have recently renewed and extended their MOU with all radio broadcasters. While Radio New Zealand is a lifeline utility, most New Zealanders listen to commercial radio so they are a critical partner for the government with this MOU.

Given the social benefits of radio, this should be taken into account in the discussions about the price of spectrum. Setting prices equal to the economic value will ignore the social welfare externalities that would be lost if radio broadcasters were forced out of the market.

[9] The Treasury (June 2020) 'Treasury Report: Spectrum License Update' page 3.

Contents

Appendices

Figures

Tables

1 Introduction and structure

This independent report has been commission by RBA to examine the current proposals over the pricing of spectrum used for FM and AM radio broadcasts in New Zealand.

The proposals, which would use benchmarks from twenty years ago, adjusted only for changes in population, fundamentally misrepresent the structural changes that have been seen in the industry over the past decade, and risk overpricing spectrum to the extent that it will make several existing broadcasters unable to continue.

In this paper we look at a number of different issues.

First (in Sections 2,3 and 4) we examine the methodology followed by RSM to determine an appropriate price for renewed spectrum licences. To do this we:

Look at how advertising revenues in the market have fallen over the last decade, which illustrates the need for a review of pricing;

Consider the population growth model and the assumptions it would rely upon to give an estimate of spectrum value; and

Look at how spectrum pricing decisions have been made in New Zealand previously.

Second (in Section 5) we look in detail at the discussion paper presented by RSM, and how this would apply to the radio sector.

Third (in Section 6) we consider if there is anything to learn from overseas examples bearing in mind the different structure and regulation of the New Zealand market.

Fourth (in Section 7) we analyse the economic and social impact of radio broadcasting, to identify if there is a way to quantify how social externalities can be adjusted for.

Finally we propose alternate methods of pricing spectrum, which recognise the high risk to broadcasters and seek to mitigate this.

2 Commercial radio revenue has declined in real terms

A fundamental cornerstone of the proposals for spectrum fees is that advertising revenues have increased, and will continue to increase in line with population – and this will lead to increasing spectrum value[10]. In the next section we look at the relationship between revenue and population, but first it is useful to consider how historical values can input to the valuation exercise.

Radio advertising revenue has remained flat since 2011 and has not kept pace with either inflation (see Figure 4) or the growth in the New Zealand economy (see Figure 5) over the period 2011 to 2024.

Figure 4 includes the following:

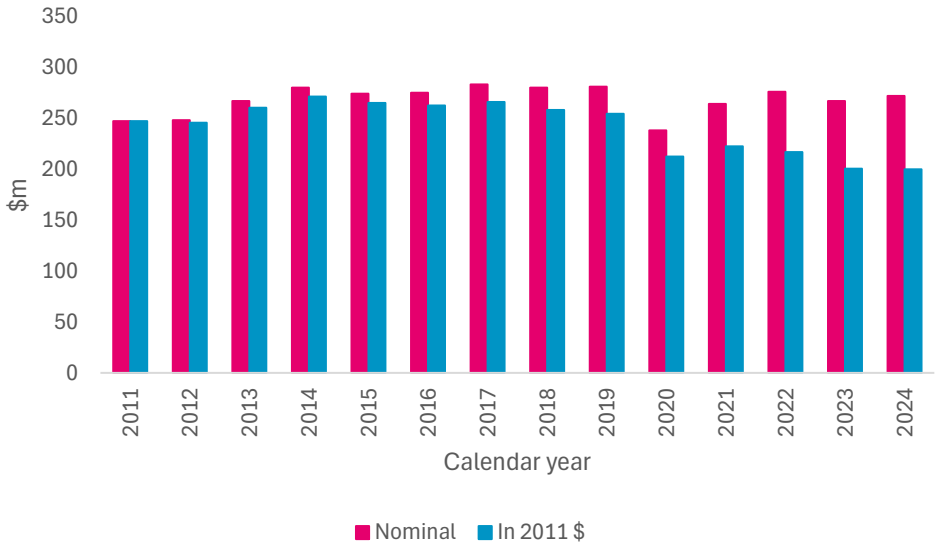
- 'Nominal' – total radio advertising revenue.
- 'In 2011 $' – total radio advertising revenue reduced by the percentage increases in consumers price index (CPI) since 2011.

The figure shows three distinct phases:

- 2011 to 2017: 'Nominal' and 'In 2011 $' advertising revenue were at or slightly above '2011 CPI Adjusted' revenue. In other words, advertising revenue was keeping pace with inflation but, after peaking in 2014, was equivalent to 2011 revenue after adjusting for inflation in 2016 and 2017.
- 2018 to 2019: 'In 2011 $' advertising revenue slipped below '2011 CPI Adjusted' revenue.
- 2020 to 2024: 'In 2011 $' advertising revenue fell sharply below '2011 CPI Adjusted' revenue and did not recover. COVID-19 economic disruption temporarily reduced 'Nominal' revenue, but it barely matched pre-COVID-19 levels from 2021 to 2023. Advertising revenue in 2023, after adjusting for inflation, is 19 percent below 2011 revenue and 26 percent below the peak achieved in 2014. With higher inflation rates, there is an increasing gap between nominal and real values.

[10] In fact, spectrum value will depend on profitability, and not just revenues. The ways in which spectrum prices are proposed to follow expected revenue implicitly implies that costs as a percentage of revenue are fixed. While detailed cost data on analogue radio operations is not available, we understand that operating costs continue to rise while (as shown in this section) revenues are static or falling, meaning that profitability is falling at a faster rate.

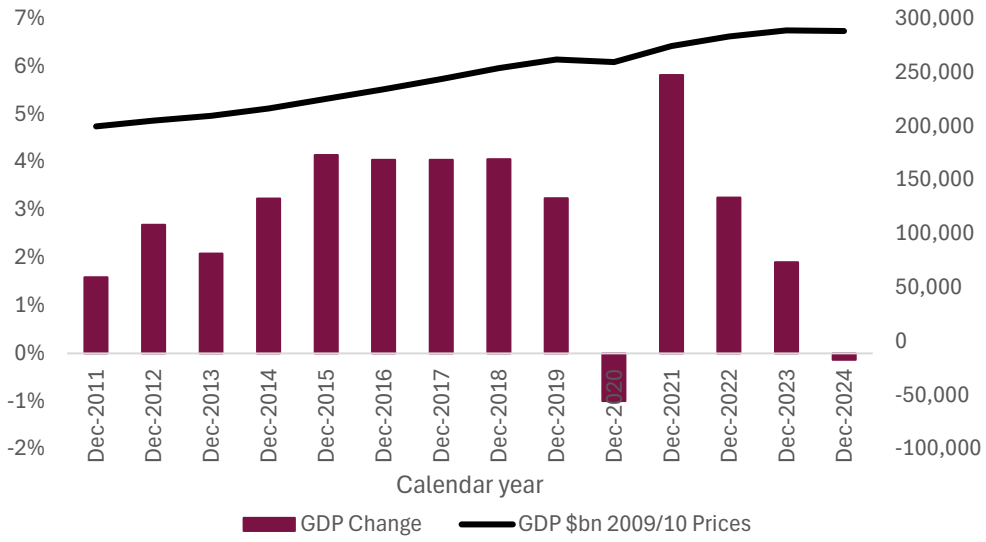
Figure 4 Radio advertising revenue has fallen over the licence period



Source: Advertising Standards Authority (ASA) New Zealand Advertising Industry Annual Revenue Reports

Over the same period, the New Zealand economy has grown significantly.

Figure 5 Change in real gross domestic product (GDP)



Source: NZIER analysis of Statistics New Zealand data on GDP

A comparison of Figure 4 and Figure 5 shows that radio advertising revenue has not experienced the same growth in real terms as the New Zealand economy over the period 2011 to 2024. Figure 5 also shows three distinct phases:

- 2011 to 2013: modest growth with annual growth rates at or below 2.6 percent as the economy recovered from the recession over 2008 and 2009 caused by the Global Financial Crisis

- 2014 to 2019: sustained quick growth with annual growth rates between 3.3 and 4.2 percent.
- 2019 to 2024: COVID-19 oscillation followed by a drift toward economic recession.

Over the period 2011 to 2019, real GDP grew by 31 percent and grew by a further 10 percent over 2019 to 2023.

The fall in real advertising revenue illustrates that it is not reasonable to set spectrum prices using benchmarks from previous years, given the significant structural change in the market. In the next section we analyse the link between population size and revenue, which is used in the proposed spectrum fees, which further illustrates the need for a new approach considering future revenue (and cost) predictions.

3 Population growth is not a predictor of revenue (and value)

Underpinning the proposed spectrum pricing framework is a model developed by Covec, which makes three key assumptions:

- The renewal price of licences in the 2011 renewal period could be based on the amount paid for licences in the previous auction multiplied by a growth factor compounded over the term of the renewed licence.[11]
- The growth factor could be calculated from a regression of growth in nominal advertising revenue against growth in population over the past 20 years and this relationship would be stable over the next 20 years.[12]
- The growth in revenue would be equivalent to a constant profit margin and achieve the modelling goal, which is:

  In its broadest terms, the value of rights over a given period equals the discounted expected net cash-flow (net present value or NPV) associated with its acquisition. The task of constructing a renewal fee formula then translates into prediction of NPV over a future period.

  So how do we estimate the NPV associated with spectrum rights for an incumbent licence holder over a future 20-year period? There are two general candidate approaches. First, we could attempt to predict the likely net cashflows for each year in the 20-year horizon and apply an appropriate discount rate to yield the NPV. Second, we could adopt a recursive approach, seeking to relate the future value of spectrum rights to their current value and to exploit this relationship to estimate the NPV.

  In this context we have chosen to pursue the latter.[13]

In this Section we investigate these assumptions and the relationships which are crucial to the spectrum valuation exercise.

3.1 The link between revenue and population growth used by the Covec 2003 model is broken

Comparison of changes in population with changes in radio advertising revenue shows clearly that the relationship assumed in Covec 2003 has broken, probably since 2008 when the population of New Zealand was just over 4 million. A chart of population and radio advertising is shown in Figure 6 below, which shows the following

- The Covec 2003 Forecast (Estimate)[14] underestimated the nominal advertising revenue before the start of the licence period in 2011, which meant that nominal advertising

[11] Covec (2003) page 18 Equation 7: $V_2 = (1+z)^{20} * V1$, where V_1 is the spectrum value from the last allocation, z is the revenue growth rate based on the estimated relationship between population growth and advertising revenue and V_2 is the value of the licence for the next 20 years.

[12] Covec (2003). Pages 32 to 35.

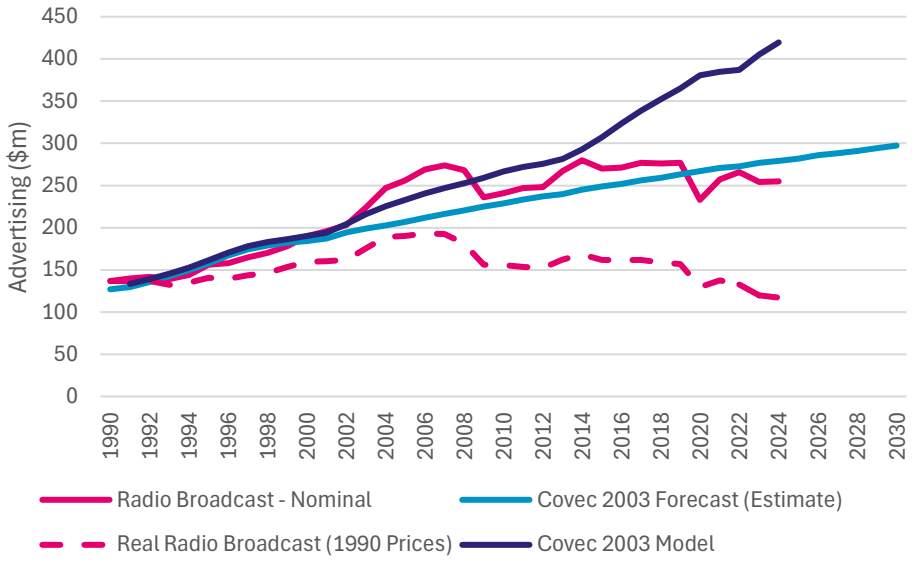
[13] Covec (2003) Page 16 '4.3. Candidate Approaches to Formula Design.

[14] The Covec 2003 report did not include a table of the radio revenue but did include a chart 'Figure 6 Forecast Radio Advertising Revenue to 2030' on page 35 and the comment*: 'According to these forecasts, television advertising revenue is expected to reach $782 m by 2030 and radio advertising is expected to reach $296 m. These forecasts represent average growth rates between 1990 (the start of the current licence period) and 2030 of 2.02% and 1.95%, respectively. These are the revenue growth figures that will be*

revenue was above the Covec 2003 Forecast (Estimate) over 2011 to 2019. Since 2020, nominal advertising revenue has been below the Covec 2003 Forecast (Estimate).

- The Covec (2003) estimate of the relationship between radio advertising revenue and population is Revenue ($m) = 155.5 x Population (millions of people) – 410.2. This relationship is shown in Figure 6 as Covec 2003 model and has exceeded nominal advertising revenue since 2009. The Covec 2003 model diverged sharply and conclusively from actual radio advertising revenue from 2014 onwards – the Covec 2003 model forecast steady growth in advertising revenue while actual revenue declined over the nine years 2015 to 2024 and shows no signs of recovery.

Figure 6 Radio advertising revenue actual compared to Covec (2003) models



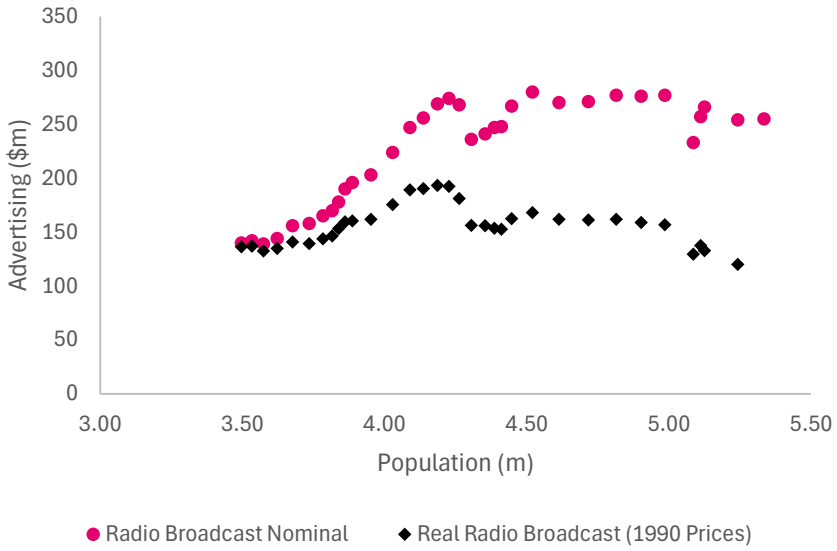
Source: NZIER

Broadcast revenue adjusted for changes in the CPI since 1990 peaked in 2007. Since 2007, radio broadcast revenue has grown more slowly than general inflation, steadily reducing the capacity of radio broadcasters to meet increases in the costs of staff, equipment and other inputs required to produce and broadcast content. Broadcast advertising revenue in 2023 was 13 percent below 1990 levels after adjusting for inflation.

The scatter plot in Figure 7 shows the change in the relationship between population and advertising revenue (from 1991 onwards) much more clearly (particularly as population increases steadily over time).

used for the value of z.'' on pages 35 to 36. The Covec 2003 Forecast (Estimate) is based on physical measurement of Figure 6 in Covec (2003). We have not been able to mathematically reconstruct the forecast in Figure 6 of Covec (2003) using the information in the report.

Figure 7 Radio advertising revenue and population correlation



Source: NZIER

From 1991 to 2002 (population of 3.95 million), advertising revenue seemed to grow roughly in proportion with population. From 2003 to 2009 (population 4.30 million), advertising revenue surged at a faster rate than population growth. From 2010 onwards (population of 4.35 million), advertising revenue did not increase with population.

3.2 Population and audience growth fallacy

There is little evidence that population growth in the commercial radio target population is correlated with an increase in listener number or time spent listening to commercial radio. To illustrate this point, in 2018[15]RBA audience surveys, estimated an audience of about 3.40 million listeners aged '10 +' with an average listening time of 17.5 hours per week. In 2024[16]RBA audience surveys estimated an audience of about 3.420 million listeners aged '10 +' with an average listening time of 15.2 hours per week.

Over the same period, the population aged '10 or older increased by 10.2 percent from 4.23 million in 2018 to 4.71 million in 2024. The number of terrestrial listeners (which is by far the main source of commercial radio revenue) and the population of the target audience moved in opposite directions over the last five years.

3.3 Population-based licence pricing persists without a clear rationale

The basis for the population value of $1.15[17] is not explained.

The RSM policy rules[18] refer to P(area) value set at $1.15 per head of population for all FM licences. A formula for the price of a modified licence suggests that this value is based on

15 Total NZ Commercial Radio – Survey 2018 completed for the RBA by Growth from Knowledge (GfK). The values stated are averages for Surveys 1, 2 and 3.

16 Total NZ Commercial Radio – Survey 2024 completed for the RBA by Growth from Knowledge (GfK). The values stated are averages for Surveys 1, 2 and 3

17 This value is increased to $1.16 per capita in the RSM 2031 AM/FM Licence paper.

18 Radio Spectrum Management (April 2024) 'Spectrum Licence Policy Rules for Crown Management Rights (PIB 59) Issue 4.5' page 13.

the population count when the licence is issued and applies for the 20-year term of the licence.

> *If the initial applicant is the only party interested, the frequency will be sold to them at the higher of the minimum reserve price or the price calculated using the P (area) values in table below.*
>
> *Price = [(Pm – Po) x V(area) x (T/240)] plus GST*
>
> *Where:*
>
> *Pm is the population count of the modified licence*
> *Po is the population count of the original licence*
> *V(area) is the value per head as listed in 4.1.1.1*
> *T is the tenure in number of months before expiry of the modified licence assuming a 20 year original licence term. See also Note 11 below.*[19]

3.4 Conclusion

The Covec 2003 model is based on adjusting licence prices for the period 1990 to 2010, expecting that growth patterns from 1990 to 2003 would continue until the end of the licence period – 2030. This is a very long period over which to assume stable growth rates and ignore the prospect of structural change, which has eventuated and led to the growth in population not being reflected in the growth in advertising revenue as previously assumed.

Assuming radio advertising revenue remains at current levels over 2025 to 2030, the Covec 2003 analysis will not overestimate the net present value of the radio broadcast advertising revenue over the licence renewal period. This is primarily because the model did not anticipate a surge in advertising revenue over 2004 to 2009. The surge meant that advertising revenue was above the forecast level for the first nine years of the licence period.

The link between population growth and advertising revenue assumed in the derivation of the Covec 2003 model has not operated since 2009.

[19] Radio Spectrum Management (April 2024), pages 18-19.

4 There has been an inconsistent approach to valuing spectrum licences

Over the past 20 years, the Government has allocated radio spectrum for the following commercial uses.

- Commercial radio licences to the entities that have now become NZME and Mediaworks.
- 4G in 2013 – 80 (MHz) of spectrum for commercial mobile operators, awarded through an auction.
- 3G and 4G 'partial' renewal in 2021 –230 MHz of spectrum in the 1800 MHz and 2100 MHz bands. The prices were based on officials' recommendation of a balance between optimal deprival (lower) and international benchmarking (higher) valuations completed by Plum.
- 5G in 2023 –240 MHz of spectrum across a number of bands. The price-setting process was not explained in the decision, but the Government will use the sale proceeds to improve rural connectivity.

The setting of the prices for commercial radio spectrum in the early 2004 – 2006 and 4G sale in 2013 were both based on auctions, with the bids presumably based on the revenues that the bidders expected to be able to earn. While reserve prices are used in both cases, these were kept low to encourage participation.

Since then, the frameworks for allocating spectrum and setting licence fees appear to have become more ad hoc and have diverged for mobile network operators (MNO) and commercial radio.

The allocation of the 5G 20-year spectrum licences to Spark[20] in exchange for payment to the Crown of $24 million will increase its annual licence amortisation by $1.2 million (0.08 percent of mobile revenue in 2023). The allocation cost and method rationale are a marked departure from previous spectrum allocation decisions for the following reasons.

- It was offered for a much lower price than the renewal of 3G and 4G networks in 2019 to 2021. The 3G and 4G spectrum was offered at a price of $720,000 per MHz compared with $300,000 per MHz for the 5G allocation, even though the population had increased. This was accompanied by significant coverage obligations.
- From an international perspective most 5G has been (eventually) offered at no additional price, and instead it's the reduction in cost in the network that drives adoption and use.

Typically, these buyers of spectrum licences value the licences at historic cost and amortise them on a straight-line basis over the term of the licence. Table 1 below compares the annual gross revenue from the spectrum use to the amortised cost of the spectrum for Spark (as a proxy for mobile network operators (MNO) and commercial radio). Essentially, licence costs are a smaller proportion of revenue for Spark than for commercial radio; Spark

[20] In May 2023 the Government announced the allocation of 80 MHz of spectrum in the 3.5GHz band to each of the three mobile network operators (Spark, One New Zealand and 2Degrees) downloaded from www.rsm.govt.nz/projects-and-auctions/current-projects/preparing-for-5g-in-new-zealand#bookmark2 see 'May 2023 update' .

revenue is growing while commercial radio revenue is not, and the historic cost of licences is a much smaller proportion of Spark equity and assets than for commercial radio.

Table 1 Revenue compared to licence costs

Spark, NZME and Mediaworks

Description	2017	2018	2019	2020	2020	2021	2022	2023	2024
Revenue									
NZME	114.9	110.1	106.9	111.9	99.6	106.5	113.9	113.6	116.6
Mediaworks			185.7	177.6	172.9	202.4	211.9	202.8	
Spark	1,197.0	1,280.0	1,271.0	1,288.0	1,311.0	1,351.0	1,470.0	1,474.0	1,197.0
Licence amortisation									
NZME	3.0	3.0	3.0	3.0	3.1	3.2	3.2	3.2	3.2
Mediaworks			2.7	2.7	2.7	2.8	3.4	3.4	
Spark	15.0	16.0	16.0	17.0	16.0	18.0	17.0	18.0	15.0
Revenue share									
NZME		2.7%	2.8%	2.6%	3.0%	2.9%	2.8%	2.8%	2.8%
Mediaworks			1.7%	2.0%	2.1%	1.8%	2.2%	2.3%	
Spark	1.3%	1.3%	1.3%	1.3%	1.2%	1.3%	1.2%	1.2%	1.3%

Source: NZIER

The financial data in Table 10 and Table 11 below are the source data for comment on the comparison of spectrum licence cost with the revenue earned from the use of spectrum.

5 The Radio Spectrum Management (RSM) discussion paper contains some other specific issues

As well as the overall concerns over the reduction of advertising revenue and the loss of a link between revenue and population, which fundamentally damages the proposed spectrum fees framework, there are some specific issues included within the discussion paper which must be addressed.

5.1 Scope

This section is focused specifically on the following sections of the '1.5 Proposed policy objectives' and '3. Approach to pricing commercial licences'. In addition we have relied on the following comment[21] from an RSM webpage about the consultation:

> *The total industry estimated population counts are 32 million for FM and 27 million for AM. These estimates are the aggregate of the estimated population coverage for each individual licence – which is why the estimated total industry figures are higher than the New Zealand population of 5.3 million people. For instance, in Wellington the main FM transmission site at Mount Kaukau has 20 active licences contributing to the aggregated Wellington population coverage (20 x 209,000 = 4,180,000).*
>
> *These estimates are based off existing coverage and population estimates, which used older census data. We have adjusted these by regional population growth rates to provide the current estimates. There are also some licences (community and iwi radio) for which we do not hold data, so the populations covered by those licences, are not captured in these figures. Of the 896 FM and 155 AM spectrum licences, we do not have data for 276 FM and 53 AM licences respectively.*

This comment is material to our submission because we have used it to estimate the proposed total licence revenue from the 2031 licence renewal assuming a licence duration of 20 years at:

- FM at $37.12 million = population (32 million) multiplied by price per capita ($1.16).
- AM at $1.62 million = population (27 million) multiplied by price per capita ($0.06).

This proposed total of $38.74 million compares to total of $96 million realised from the 2011 renewal of licences[22]. The population coverage (the sum of the population covered by each licence) is not stated within the RSM 2031 AM/FM Licence paper but the paper does state '*The average per capita offer price for the 2011 renewals, which used regional prices, was $2.47 for FM and $0.10 for AM.'*[23]. Combining the per capita prices ($2.57 per capita)

[21] RSM, 'AM/FM 2031 expiry and potential reassignment'. Downloaded on 6 June 2025 from https://www.rsm.govt.nz/projects-and-auctions/consultations/amfm-2031-expiry-and-potential-reassignment#:~:text=The%20total%20industry%20estimated%20population,and%2053%20AM%20licences%20respectively.

[22] We have identified two sources to support this estimate. The first is*: 'If all offers are accepted, a total revenue at the level of and not more than $96 million (in 2010 dollars) is anticipated.*' See Cunliffe D (4 August 2005) 'Certainty for broadcasters with AM/FM Licence renewal offers' downloaded from https://www.beehive.govt.nz/node/23892 . The second is: '*14. The FM (and AM) licences were last renewed in 2011 for a twenty year period. In aggregate, this process generated approximately $90 million in proceeds. Since 2011, further licences have been issued generating approximately $20 million.'* See: 'Treasury Report: Spectrum License Update Date: 11 June 2020 Report No: T2020/1838' page 3

[23] RSM 2031 AM/FM Licence paper, page 12.

with the range for total proceeds of $90 million to $96 million suggests a total population coverage of 32 to 37 million in 2011. Radio Broadcasters Association (RBA) data for the 2011 FM licence renewals reported the population coverage of 38.2 million for 488 FM licences.

5.2 Proposed policy objectives

The proposed allocation objectives and the description (criteria) do not clearly explain how the proposed setting of fees for licence renewals recognise and adapt to the uncertain outlook for future advertising revenue from commercial broadcast radio. The RSM 2031 AM/FM Licence paper includes a step reduction in the per capita licence rate between the 2011 and 2031 licence renewals from $2.47 to $1.16 for FM licences and $0.10 to $0.06 for AM licences. However, the rationale for this approach is analysis of past licence renewal fees. This approach assumes that history over last licence period is a reliable guide to future revenue despite the evidence of structural change over this period.

Table 2 Proposed allocation objectives and criteria

Radio Spectrum Management, (2025), page 7, Table 1

Objective	Description	Comment
a) Support the continued use of this spectrum by AM/FM radio broadcasters	The allocation process will support the ongoing use of this spectrum by providing certainty to users, including by non-commercial users.	The outlook for the use and value of spectrum is biased toward falling listenership and revenue as broadcast audiences switch to other channels. The RSM paper combines digital and broadcast revenue into a single figure
b) Balance the financial value of the asset with the economic context	The allocation process will recognise where demand for spectrum exceeds supply. It will acknowledge that the sector is affected by uncertainty.	Rolling over the per capita allocation formula and setting a fixed price for 10 or 20 years assumes that revenue can be predicted at the start of the licence period . This assumption was proven wrong for the 2011 licence renewal.
c) Foster market competition	Both the allocation process and the resulting sound broadcasting sector will foster market competition to support the efficient use of the spectrum.	This criterion is only applied narrowly to radio spectrum. Treatment of spectrum valuation for telecommunications and television broadcasting are inconsistent with radio broadcasting.

Source: NZIER

5.3 Proposed licence cost

The proposed licence cost is based on 'previous prices' multiplied by adjustment factors for revenue growth and timing differences between the duration of the previous and future licence terms.

5.3.1 Price formula – adjustment factors

The price formula sets the renewal price for the licence V_2 as the price for the 2011 renewal (divided by the original population count) V_1 multiplied by two adjustment factors:

- The primary adjustment factor 'A' which is an assumed growth compounded over the term of the licence. This factor is an estimate of the increase in advertising revenue in

the last period of the licence relative to the revenue in the first period of the licence period. It does not provide any information on the present value of those revenue streams. Multiplying the starting valuation V_1 by the factor 'A' is not an estimate of the future value of the broadcast revenue streams.

- The timing adjustment factor 'B' which alters the value for differences in the old and new licence terms and under or overlaps between these terms. For licences expiring in 2011 and being replaced with a licence expiring in 2031, this factor is one. We expect this factor to be one for most of the renewals.

5.3.2 Pricing formula – previous licence value

The value V_1 is based on the median of per capita values of previous licences described as:

> *'Using all previous prices paid for sound broadcasting licences will allow for a large sample of market value data.'* [24]

However, the scope of the sample is not clearly defined in the RSM 2031 AM/FM Licence paper and therefore it is difficult to comment accurately on the extent to which the sample represents licence transactions that reflect current market conditions or how it relates to the original licence renewal in 2011.

We have not been able to match the description of the sample in 'Table 3: Key values from AM and FM price data.'[25] with the list of auctions for radio licences published by RSM at https://www.rsm.govt.nz/projects-and-auctions/auctions.

RSM Table 3: Key values from AM and FM price data

The data in in 'Table 3: Key values from AM and FM price data.' Includes the following:

- A sample of 613 FM licences and 119 AM licences
- An average population count of 46,500 per FM licence and 172,000 per AM licence
- An average licence V_1 of $78,000 per FM licence and $13,000 per AM licence.

In combination this data implies the following coverage of the sample:

- Total population of 28.5 million for FM licences and 20.5 million for AM licences.
- Total licence value of $48.30 million for FM licence and $1.55 for AM licences.
- Per capita values of $1.69 for FM licences and $0.08 for AM licences.

2011 licence renewal data

RBA data for the FM licence renewal in 2011 reported total revenue of $95.3 million for 488 licences covering a population of 38.2 million and a per capita value of $2.50. This is much larger than the estimated value of licences and population coverage for the sample used in RSM Table 3 above but covers a smaller number of licences.

[24] RSM 2031 AM/FM Licence paper, page 11

[25] RSM 2031 AM/FM Licence paper, page 12

Radio spectrum auction data

A list of the radio spectrum licence auctions from 2008, in Table 3 below, shows a licence value of $23.2 million for a total of 246 licences. More importantly the data in Table 3 indicates that a sample of auction is not a good indicator of current licence value as:

- A substantial share of the licences were auctioned before the 2011 renewal – 31.3 percent by number and 18.4 percent by value.
- Most of the licences were auctioned in 2014 – 54.1 percent by number and 74.9 percent by value.

Table 3 Radio spectrum auction data

Number and purchase value ($) of licences ana

Auction number	Date	Number	Share of number	Value	Share of value
10	22-May-08	51	20.7%	3,186,600	13.8%
10a	30-Oct-08	1	0.4%	30,000	0.1%
11	31-Mar-09	25	10.2%	1,041,000	4.5%
13	27-Nov-14	124	50.4%	17,208,262	74.3%
13a	20-Dec-14	9	3.7%	127,550	0.6%
14	03-Nov-17	5	2.0%	249,450	1.1%
15	05-Jul-18	2	0.8%	9,640	0.0%
16	15-Oct-18	1	0.4%	4,252	0.0%
17	03-Apr-19	5	2.0%	184,414	0.8%
18	30-Oct-19	1	0.4%	1,150	0.0%
19	04-Mar-20	3	1.2%	55,050	0.2%
22	21-Oct-20	4	1.6%	131,050	0.6%
23	04-Aug-21	5	2.0%	248,010	1.1%
25	15-Mar-22	1	0.4%	256,100	1.1%
24	11-May-22	3	1.2%	360,250	1.6%
21	15-Jul-22	1	0.4%	10,200	0.0%
27	04-Oct-23	2	0.8%	20,299	0.1%
28	14-Aug-24	3	1.2%	23,811	0.1%
Total		**246**		**23,147,087**	

Source: NZIER analysis of RBA collation of RSM auction results

5.3.3 Industry growth factor "z" value

This section includes:

- An estimate of historic long term growth in revenue that we think is over-stated and a poor forecast of future growth potential
- A tacit admission that the link between population growth and audience is broken based on the decline in radio audiences as a share of population since 2016.

- A conclusion that the benchmark range of *'-2.0 per cent to 2.0 per cent'*[26] supports point estimate for the growth factor of 0.8 percent.

Historic revenue growth does not support 'z' at 0.8 percent

The estimate of the compound annual growth rate of 0.8 percent[27] includes digital revenue and is not representative of recent changes. The CAGR excluding digital revenue over the period 2003 to 2023 was 0.63 percent and over the period 2004 to 2023 was only 0.15 percent. Delaying the start of the measurement period by one year reduces the CAGR by three quarters– which highlights the instability of the CAGR measure and the importance of judgement in choosing the starting point for the measurement period.

Over 2011 to 2024 total radio advertising revenue has fluctuated between $238 million and $283 million, peaking in 2017 (including $6 million of digital revenue) and reducing to $272 million in 2024 (including $17million of digital revenue). Digital revenue has increased from $4 million in 2015 to $17 million in 2024. The pattern of broadcast advertising revenue since 2011 up until the latest licence period is erratic and does not support the assumption of sustained revenue growth for the remainder of this licence period, let alone the 20 years after 2031.

Broken link between population and audience

The proposed licence pricing formula is based on a per capita licence value multiplied by the licence population count. However RBA analysis of the relationship between population and radio listeners suggests population growth does not translate into increased listener numbers:

> *Weekly listener share has shown a slow but steady decrease from 82 per cent share in 2016, to a 73 per cent share in 2023*[28]*.*

The decline in listener share quoted above almost exactly matched the increase in population over 2016 to 2023[29]. If this data represents a trend it means that per capita prices for licences that are set before or at the beginning of the licence period are exposed to a decay in audience numbers and potential advertising revenue over the life of the licence. In other words – at the very least the licence cost per audience member will increase over the term of the licence. The RSM 2031 AM/FM Licence paper is silent on how this risk is addressed in the proposed pricing formula and barely acknowledges the risk at all:

> *As a result, some decrease in listener share may be offset by population growth in some regions of New Zealand.*[30]

This disconnect between the RSM model and both the recent history of advertising revenue and RBA projections of shrinking broadcast radio audiences is particularly important where spectrum prices are to be set to be paid as a lump sum at the start of the licence period. Increased risk of a decline in future audience numbers and revenue will reduce the future

[26] RSM 2031 AM/FM Licence paper, page 14

[27] Radio advertising revenue reached $224 million in 2003 and $27 million in 2024. The CAGR between 2003 and 2023 was 0.88 percent while the CAGR between 2004 and 2023 was 0.41 percent

[28] RSM 2031 AM/FM Licence paper, page 13

[29] The population aged 10 years and above increased from 4.095 million in 2016 to 4.624 million in 2023. Applying the listener shares quoted in RSM 2031 AM/FM Licence paper, suggested a radio audience of 3.358 million in 2016 and 3.376 million in 2023.

[30] RSM 2031 AM/FM Licence paper, page 13

value of spectrum, and this must be reflected in substantially lower spectrum prices. This adjustment is not made in the current proposals.

Puzzling conclusion that 'z' should be 0.8 percent

The RSM 2031 AM/FM Licence paper does not clearly state the source of the benchmark range *'-2.0 per cent to 2.0 per cent'*[31]. We infer that the upper end of the range is based on:

> *The NZME 2024 Annual Report forecasts that audio revenue will have a compound average growth rate of 2.2 percent for the 2025 to 2029 period.*[32]

If this assumption is correct it is a very poor source for an upper benchmark for growth in the total broadcast radio advertising revenue for the following reasons:

- The forecast is for audio revenue growth which includes both digital (which is growing rapidly from a low base) and broadcast (which is flat or declining).See: '*Total audio revenue for the year was $116.6 million, a 3% improvement on last year with digital audio revenue increasing by 32% to $10.8 million.* '[33]
- The forecast is for NZME only and incudes an expectation of increased market share: '*NZME has increased total audio revenue market share to 44.6% year on year, versus an audience share of 36.6%. A small reduction in audience share recently has seen consumers moving to less ad-accessible channels.*'[34]
- NZME audio revenue has generally fluctuated in a narrow range ($110 million to $117 million) over the past nine years (for which comparable NZME financial data is available) as shown in Table 4 below. Over the three years 2022, 2023 and 2024 the assumed CAGR for audio revenue for the next five years were 2.9 percent, 3.6 percent and 2.2 percent.

31 RSM 2031 AM/FM Licence paper, page 14

32 RSM 2031 AM/FM Licence paper, page 13

33 NZME Limited Annual Report for the year ended 31 December 2024, page 14

34 NZME Limited Annual Report for the year ended 31 December 2024, page 14

Table 4 NZME audio revenue

$ million by source

Revenue	2016	2017	2018	2019	2020	2021	2022	2023	2024
Radio[1]	108.7	103.7	100.0						
Other[2]	6.2	6.4	6.9						
Radio[1]				108.5	91.6	101	105.6	103.8	104.2
Digital				1.7	2.4	4.5	6.8	8.4	10.8
Other				1.8	5.6	1.1	1.5	1.4	1.5
Audio	**114.9**	**110.1**	**106.9**	**111.9**	**99.6**	**106.5**	**113.9**	**113.6**	**116.6**

Notes:

1 Radio is broadcast advertising revenue. Over 2016 to 2018, this category was called 'Radio & Experiential'. Over 2019 to 2024, this category was called 'Radio advertising'

2 Over 2016 to 2018, this 'Other' included 'iHeart' and 'Events'.

Source: NZME Annual Reports 2016 to 2024

The RSM 2031 AM/FM Licence paper assumption of 0.8 percent annual growth in audience/revenue is also inconsistent with RBA commissioned forecasts of audience numbers which project a decline in the broadcast FM audience of about 1.97 percent per year over 2024 to 2031 and 1.96 percent per year over the period 2031 to 2051.

5.4 Conclusion on per capita V_2 value and proposed licence fee formula

While the proposed per capita value of V_2 at $1.16 for FM licences and $0.06 for AM licences are much lower than the 2011 renewal values or the levels of implied by the sample in RSM Table 3, we cannot find any evidence in the RSM 2031 AM/FM Licence paper that they reflect the current commercial value.

In other sections we argue that:

- Broadcast advertising revenue has not increased in line with population growth as assumed in the modelling for the 2011 renewal
- The growth rate analysis in RSM 2031 AM/FM Licence paper does not support an estimate of a recent CAGR of 0.8 percent for audio revenue let alone extrapolation of this rate into the future.

Accordingly we cannot find any credible argument that the approach proposed by the RSM in the section '3. Approach to pricing commercial licences' that the proposed pricing formula meets either of its objectives of '*supporting the ongoing use of spectrum*' or '*acknowledging the uncertainty faced by the sector*'.

6 Radio broadcasting faces similar challenges overseas

The audience/revenue growth and licence valuation assumptions described in previous sections are also inconsistent with the experience of key overseas markets. A report[35] on radio platform use in Australia, the United Kingdom (UK) and the United States of America (USA) makes the following observations.

- Australia, the UK and the USA all show a clear long term decline in audience sizes with a trend in the UK and the USA pointing to switch-off of analogue radio in the early 2030s.
- Evidence from the UK shows its audiences do not grow into radio listening as they age.
- Analysis of the USA audio market indicates that over 2019 to 2021, AM/FM radio share of the audio market fell from 42 percent to 36 percent while Spotify and You Tube combined increased their share by a similar amount.

A summary of market licence valuation fees prepared by the RBA indicates much lower FM values than in New Zealand.

- In the USA FM stations (and licence fees) are classified by population band. The implied per capita are a few cents rather than the NZD 1.16 proposed for New Zealand.
- In the UK [36] National and Local Radio Licence Fees are calculated as a percentage of 'Radio Relevant Turnover' (advertising and sponsorship revenue) at the rates of:
  - 0.105 percent for licences with turnover of up to GBP 1 million.
  - 0.157 percent for licences with turnover of GBP 1 million to GBP 5 million.
  - 0.236 percent for licences with turnover above GBP 5 million.
- Australia FM broadcasters are charged a commercial broadcasting tax which is currently suspended and is being reviewed as to whether it continues as is quoted by the industry as a super tax on Australian Broadcasters that does not apply to the international media companies they now compete against.

These examples highlight that:

- The past and proposed New Zealand charges for broadcast radio licences are very high by international standards and are out of step with the market media organisations now operate internationally
- Annual rather than 20 year lump- sum upfront fees are the norm for spectrum licences.

[35] Cridlland James (2025), '*Radio - platforms used and future of AM/FM around the world*' ,available form RBA.

[36] Ofcom (2024),*'Ofcom Tariff Tables 2024/25'*, Table 10: National and Local Radio Licence Fees, page 12

7 Broad economic and social impact to be considered

7.1 Economic footprint

The direct contribution of commercial radio spending on gross domestic product (GDP) is measured as the sum of payments to staff, depreciation (as a proxy for the average rate of capital formation) and operating surplus (equivalent to earnings after depreciation and amortisation but before finance costs and taxation). This represents the total value directly added to the economy through the sector. It excludes commercial radio spending on intermediate goods and services as required for the calculation of contribution to GDP.

The contribution of commercial radio to GDP is small and has declined over the period 2020 to 2023. The estimated contribution is shown in Table 5.

Table 5 Commercial broadcasting contribution to GDP

All numbers in $million

Description	2020	2021	2022	2023	2024
Mediaworks					
Personnel related expenses	58.2	57.1	63.3	57.7	56.0
Depreciation and amortisation	20.0	20.3	21.2	20.5	20.1
Operating surplus	4.1	7.3	4.2	4.5	10.2
Total Mediaworks[1]	**82.4**	**84.7**	**88.7**	**82.7**	**86.2**
NZME					
People & Contributors	50.0	52.3	55.6	55.8	56.2
Audio EBITDA[1]	20.9	22.8	22.8	23.3	21.9
Total NZME	**70.9**	**75.1**	**78.4**	**79.1**	**78.1**
GDP (nominal)	323,898	353,051	385,588	412,606	426,925
Share of GDP					
Mediaworks	0.025%	0.024%	0.023%	0.020%	0.020%
NZME	0.022%	0.021%	0.020%	0.019%	0.018%
Mediaworks and NZME	0.047%	0.045%	0.043%	0.039%	0.038%

Notes:

1 Personnel expenses, depreciation, amortisation and operating surplus reported in the Mediaworks accounts were prorated by the share of revenue from radio advertising. NZME Audio EBITDA combines 'Depreciation and amortisation' and 'Operating surplus'.

Source: NZIER

This direct economic impact is not the only consideration for the contribution of the radio broadcasting industry. Further economic impacts will be felt:

- On the wider supply chain, in terms of equipment purchases, maintenance costs (which in turn are a revenue for contractors), and other supplies; and
- On the economy as a whole, through a multiplier effect.

Nevertheless, the overall economic impact of the sector will remain a small and diminishing part of overall GDP, reinforcing the view that spectrum prices should not be increasing at the proposed rates.

7.2 Wider social impacts

The social aspects of the radio industry are wider than the areas listed above. All radio stations have a role, and through their broadcasts and interaction with listeners, play a part in wider social activities. This includes all the stations broadcasting in New Zealand, whether they are commercial or not (see discussion below for non-commercial stations), and whether they are members of the RBA or not.[37] In addition radio stations play an important role in maintaining communications when other media are disrupted by natural disasters. This significant role is explained in more detail in section 7.3.

Listeners choose to engage with the stations for an array of reasons and respond to their experience in a variety of ways – often with multiple facets being in play at the same time.

So, an individual can be listening to a station:

- For the choice of music or other programme material.
- To enjoy the way the presenter is commenting on the material.
- Feeling the empathy of being part of a group with other listeners.
- Appreciating the feedback and interchanges with other listeners being reported.

This is because the listener is a social animal and capable of engaging in different activities at the same time. It also reflects the 'trading post' nature of stations. Once in being, they form a 'location' to assemble 'like-minded' listeners.

All stations have an underlying programming philosophy. This might be a type of music , a need for news and information or a specific cultural attachment. Whatever it is, it links with a subset of the community who will become its listeners. So, they 'gather round' the station because they are interested in the programmes. This content is usually supplemented by the presentation style – tailored to the group of listeners that has emerged.

In a straightforward way, these listeners form a community. Indeed,

> *"A radio station is not simply a vehicle for recorded music, but part of a broader cultural scene.".*[38]

This is socially valuable – as indicated in the literature. The listeners reassure one another that there are many who are similar to them – at least in terms of taste in radio, and possibly more.

[37] There are 13 members of the RBA: Mediaworks, NZME, Best News Entertainment, Sport Nation, Peak FM Raetihi, Radio Tarana, Brian FM, RNZ, Pacific Media Network, Radio Samoa, 95bFM, Free FM Hamilton, and Southland Community Broadcasters. Another 18 stations are not members., not including Access, iwi and student stations.

[38] Joyce (2018).

7.2.1 Radio Overview – radio has a wider value

We have argued that the wider social and cultural impact of commercial and other non-public radio is significant. It is largely an outcome resulting from the characteristics of the way radio is set up and operates – particularly its specific mix of programming and presentation.

While there has been much talk of convergence and the associated development of the personalised station – that is, internet streaming of one's own individual particular preferences in programmes (music or podcasts). But there may be reasons why listeners do not opt for this. These include:

- Price – all streaming services are costly, with regular subscriptions being necessary. Though the sums involved are not necessarily large, they are regular and unavoidable.
- The bundle of attributes – streaming services typically are 'pure' just music or just a podcast. Many listeners like the combination of the content material and how it is situated in a presentation by a DJ.
- The feeling of wider community – the streaming services are tailored to the individual so there may be no other person listening to the same material at any time. The 'sharing of experiences' is a social effect that many are keen on – it is part of the motive for people seeking to go to large concerts and sports events.
- The cultural affirmation – this is shared experience with other individuals with specific (cultural) attributes like a common indigenous heritage or language.

These effects suggest that radio's social and cultural value is not only different, but likely greater than that of the internet as a medium. In addition radio plays a significant role in maintaining communications during civil disasters as described in the following section.

7.3 Radio is the most used media in an emergency

NEMA and Radio Industry research conducted every year highlights that Radio Is the most used media in an emergency in New Zealand. Radio New Zealand is a lifeline utility, but NEMA have an MOU in place with all radio in New Zealand as they acknowledge more New Zealanders listen to commercial radio than Radio New Zealand. The MOU is one of the areas RNZ and the Commercial sector work together to ensure the safety of all New Zealanders is served by the whole industry.

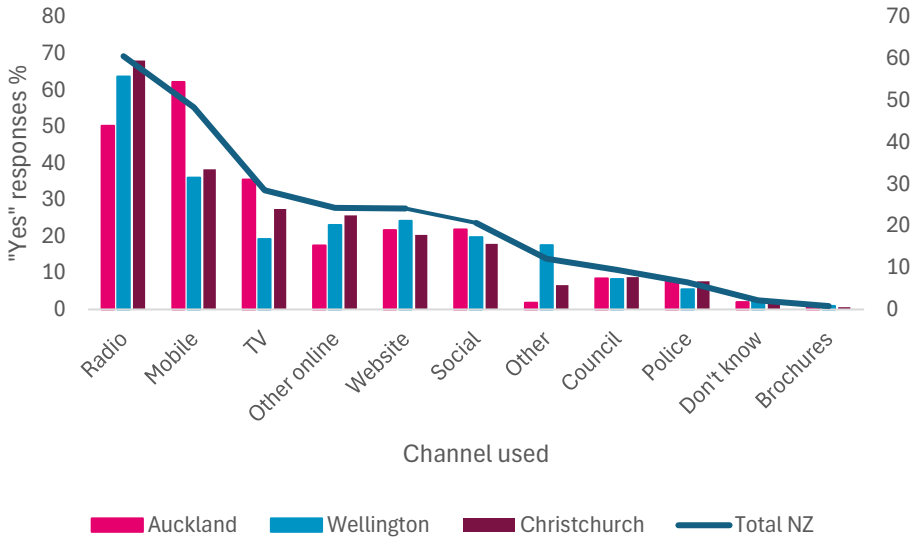
> *Radio matters in an emergency because it gets the right messages to the right people at the right time[39]:*
>
> *3.72 million people - 78% of New Zealanders aged 10 years and over listen to Radio every week.*
>
> *3.5 million people - 73.5 % of them listen to a commercial radio station every week.*
>
> *557,000 - 11.7% of them listen to RNZ every week.*
>
> *Radio is still overall the most relied on media in an emergency.*

[39] Source: GfK RAM, S1/25, Total NZ, Cume, AP10+, M-S 12mn-12mn

61% of respondents nationwide say radio is where they can get information about what to do during or immediately after a disaster.

The major networks and newsrooms are live 24/7.

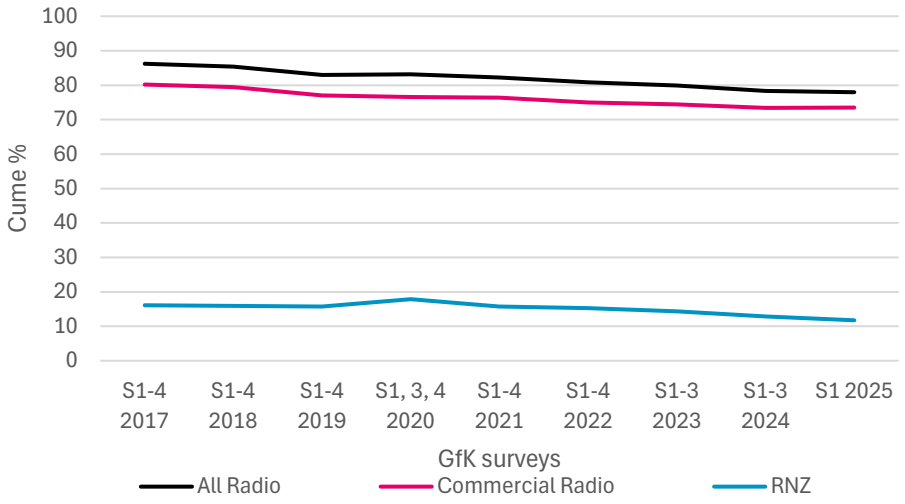
Figure 8 Why Radio Matters in An Emergency - Which medium provides information about what to do during or immediately after a disaster



Source: GfK RAM S1/2025, Total NZ

While Radio New Zealand (RNZ) is an official lifeline utility and has a statutory obligation to broadcast information during civil emergencies, most New Zealanders get their information from commercial radio.

Figure 9 Radio audience trend 2017 to 2025



Source: GfK RAM S1/2025, Total NZ

NEMA Official advice for being prepared for a civil emergency is:

> *"If the power goes out, a solar- or battery-powered radio (or your car radio) can help you keep up to date with the latest news. In an emergency, tune to these stations:*
>
> *Radio New Zealand (radionz.co.nz)*
>
> *The Hits (thehits.co.nz)*
>
> *NewstalkZB (newstalkzb.co.nz)*
>
> *MoreFM (morefm.co.nz)*
>
> *Check with your Civil Defence Emergency Management Group to find out what local stations they recommend you should listen to during an emergency."*[40]

This advice reflects the aspects of radio (including commercial) that are relevant in crises:

- **Accessibility** – most people have a battery-powered radio or one available in a car. This means they can be kept informed even when their power and/or the local phone/ internet network is out of commission.
- **Locally based** – many commercial and all iwi stations are strongly locally based, even if they take advantage of national content supply. Thus, in an emergency, they can gather local information and report on what is happening in people's immediate vicinity. Given many disasters are heavily concentrated by area, this is usually vital.

7.3.1 Where radio fits in

The process of an unexpected calamity striking a community has three stages:[41]

[40] See https://getready.govt.nz/prepared/stay-informed

[41] See NZIER (2015).

- Before the event – preparation and warnings
- During the event – advice and information about what is happening and what to do
- After the event – follow up including stocktaking and coping with a damaged environment.

Radio – especially localised radio – contributes at each of these stages.

Before the event – issuing warnings of what is going to happen, being a trusted source of advice about the impending threat, and broadly contributing to people's preparation by tailoring helpful advice.

During the event – radio is current, so it can be a real-time information source and provide specific advice by location or population subgroups (the young, the elderly or the infirm) alongside information about the wider picture. It can even be an information exchange linking those in need with their rescuers.[42]

After the event – keep the community informed about the situation in some detail, advise about the emerging picture of damage and likely path of recovery, and provide community cheer and support for sections of the population.[43]

7.3.2 Case study – Cyclone Gabrielle in Hawkes Bay[44]

When Cyclone Gabrielle was causing havoc in Hawkes Bay on 14 February 2023, Adam Green and Megan Banks at The Hits radio station became a lifeline for thousands of listeners in the region, many of whom had little other way of knowing what was going on.

No electricity, no phones, no internet, and sometimes no practical way of touching base with family, friends, and even close neighbours. Radio became the crucial link between Civil Defence Emergency Management and the community. They spent several days broadcasting crucial messages.

Initially they had little idea who or how many were listening or were even able to. Practically all of Napier was without electricity for days (Tuesday–Friday).

Their station's diesel-driven generator kicked in when power cut out, but it was enough to keep the station operating. Others were also fortunate enough to have generators for as long as the fuel held out. But most relied on candlelight or gas cookers, kept phone and radio use to a minimum to conserve battery power (if they even had reception) or ran outside on the hour for news bulletin updates on the car radio.

They were able to relay the plight of one woman to emergency services as she was trapped on a rooftop, unable to get phone reception to call, but could text-message her location to the radio hosts.

"We were trying to build a picture of what was really going on," Adam says, recalling wondering how long they could remain on the air, knowing there was only limited fuel left for the generator.

"It was really getting pretty desperate," he says. "*So, we put a call out for diesel. People started turning up with cans, and then we were contacted by a guy who had been on*

42 See Laing (2024) and One News with more below.

43 See Z Joyce (2019) for a discussion of the way student radio operated after the Christchurch Earthquake of 2011 as a particular support for fans of alternative music.

44 Drawn from Laing (2024).

[diesel] deliveries in Napier. He was stuck in Napier, he wasn't going anywhere, but he had drums of diesel on the truck."

That one contact became the source of fuel for many, including some of the services' needs, but also highlights some of the roles behind the scenes.

Some stations were thrown off air, and Adam and Megan were switched frequencies, but word of mouth got around, and people found which frequencies to turn to.

7.3.3 Case study – Gisborne[45]

At the same time, a radio presenter helped keep Gisborne locals connected, informed and updated on the airwaves 24/7 after Cyclone Gabrielle wiped out telecommunications in the district.

More FM host Bevan Chapman spent several nights sleeping on a mattress in the studio while broadcasting.

"I just went on air and did what I do, just local radio passing on messages and hopefully keeping everyone informed as best as I could," he said. With no phones or internet to rely on, people started delivering hand-written notes for Chapman to read out on air like a constant community noticeboard.

"Notes started coming under the door. One, two and suddenly, we just had note after note," he explained.

Local listener Sheree Gallacher called the updates every 30 minutes *"the best"*.

"I found out that I had a staff meeting on Monday because of the radio. Otherwise, there was no way of getting any of that information out."

While telecommunications returned following Chapman's marathon stint, and colleagues arrived as backups, the notes kept on coming.

"I've kept some because after this I'd like to think that I'm able to go and catch up with these people and just thank them. Just incredible notes, messages. I felt that everyone was important to somebody in its own way."

7.3.4 General examples

The comments in this section 7.3.4 are quoted from Schulz (2023). The comments in normal text are from the author Chris Schulz. The comments in italicised text are quotes in included by Chris Schilz in his article.

Transistor radio fanatics abound. *"We depended entirely on it,"* one survivor posted to Facebook recently. *"It was our lifeline,"* said another. "*Glad I have a hand-held one at home,"* wrote a third. "I*'m listening desperately for info on Wairoa. I still have no power at my house, so no wifi.*"

They're raving about this simple, ancient, but essential piece of tech for a reason. When Cyclone Gabrielle arrived, it knocked out power stations around the North Island. When the power went out, cellphone reception soon followed.

[45] Drawn from One News (2023).

Despite the doomsayers, radio – the medium – keeps on going. Transistor radios – the delivery method – do as well.

During a natural disaster, a battery-powered radio is a crucial source of information. "*It's certainly something that in the lead up to the cyclone, we've been encouraging people to have,"* emergency management minister Kieran McAnulty said.

So, he listens to his customers who have been there before. *"The smart elders who have been there, done that, they've lived through the Cyclone Bolas. They know what's coming … they understand what a cyclone is,"* he says. "I*t's proper planning, right? We definitely get people who are organised because they are thinking about [surviving] for days."*

7.3.5 Overview

Radio's advantages in these situations start with its relatively robust operation and reception mechanisms. It is also typically well-connected in the community and can use these established links to gather and disseminate useful detailed information.[46]

Unlike other mechanisms, its robust ability to update promptly and thus always provide current information is a real boon during fast-moving disasters.

[46] Moody (2009) provides an example of how local radio contributed during a crisis in New Orleans.

8 There are alternative charging models which reduce risks

The previous sections of this report have set out the issues with the proposed pricing framework and resulting spectrum fees, based only on forecasts of population growth. Rather than imposing these assumptions on the industry, we believe there are more appropriate valuation and pricing methods. In this Section we discuss the characteristics of models that would more efficiently and effectively allocate the risks of more volatile [situations] between Government and private broadcasters. We also describe how these models could better meet both Government and commercial broadcasters' objectives for delivering valued services from the use of commercial radio spectrum.

8.1 Stylised problem

The commercial radio sector is subject to a range of disruptive and other changes. This situation is undermining its traditional business model and creating ongoing uncertainty/ volatility of returns beyond the usual business risks.

What this means is that the spectrum relicensing process is subject to high levels of future risks. Depending on the form of the royalty payments, these risks will fall on different sides.

So, if there is a classical 'high powered contract' – with fixed prices – say $x per head of the accessible population, then the way the risk falls will be entirely on the commercial operators – their outcome is contingent and rests on what happens to the various elements that make up their return. On the other hand, the Government's return is fixed to the population.

So, if the commercial return is the classical profit function

Profit = Revenue – Costs – Spectrum Royalty or

$P = R – C – SR$

$SR = x.N$ with N the relevant population and 'x' a Royalty

The volatility is likely to occur in the Revenue. There may be some room for the operators to tweak the costs to dampen the impact, but given current experience with a rising cost base, that would be minimal. The smaller operations such as provincial or minority interests stations will be particularly vulnerable to reductions in local content and staffing. Thus, in general, the change in the Profit is likely to directly reflect the changes in the Revenue.

So, if we take the population as fixed and we take Δ to indicate a change in a value, once the volatility works through:

$\Delta P = \Delta R$ (as C and SR are assumed fixed) (1)

Previous negotiations and discussions suggest that the industry and the government are not great at predicting the future fortunes of the industry – especially at this time, with both listener numbers and advertising revenues moving around in ways that are not easy to forecast. In other words, while there seems to be a lot of debate and public statements about what is happening by people claiming to know or understand the business, the upshot has been a far less rosy outcome than was predicted at the time of the last fixing.

As the Spectrum Royalty (SR) was driven upwards by autonomous growth in population, the cost of this error in forecasting has been felt solely by the industry. The Government, on the

other hand, reaped the population growth – which had little to do with the radio industry or the spectrum.

8.2 What has been the actual result?

Eyeballing the charts suggests a steady fall in the total revenue (RR) of say rate 'a'– in money terms. While the way the population has grown means the SR was subject to continual steady growth of say 'b'.

Thus, the formula above (1) becomes

$$\Delta P = \Delta R - \Delta SR = -a - b = -(a + b)$$

So, the industry has not only had its revenue decline, but the false assumption linking the value of the spectrum to the population growth (which did eventuate) has meant further impacts from the working of the chosen SR mechanism.

This is related to the adage known as Goodhart's Law, *"Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes."* [47]

In this case, little evidence suggests that the spectrum pricing contract was putting pressure on the relationship between the population and the value of radio advertising. But it does show that such regularities need to be considered carefully before using them in contracts, as they have inherent risks.

So that means two separate initial assumptions/forecasts were wrong:

- The likely future revenue stream
- The way population would generate revenue (whatever the course of its growth).

These realised instances of volatility have both fallen on the industry.

8.3 What might be reasonable?

Without getting enmeshed in notions of fairness and equity[48] we might think about a mechanism that 'shares the risks' – that is, reducing the risk to the broadcaster, while reducing the certainty of payments for the regulator. Even with significant changes to the prices paid for spectrum, it should be noted, will have a very small impact on the regulator's overall budget, meaning that the risks here are still heavily weighted on broadcasters.

A simple way of sharing the risk is to decide on a formula for the SR that covers the factors likely to be affected by the volatility. A straightforward one might be that the SR is y% of the Revenue[49] for each radio business. Each year, there would be a declaration by each spectrum holder of the Radio Revenue (RR) and that business would then be liable for $(y/100 x RR) as SR.

Obviously, many issues are yet to be resolved like the value of y and what is included in RR. But this would mean that in a year of low revenue, the SR would reduce exactly proportionately. This would then absorb some of the 'hit' due to the poor RR outturn.

47 Goodhart (1975).

48 A quick overview which shows the complexity is in the table in Appendix A.

49 Economic theory would prefer that royalties were based on profits, to reflect changes in the cast base, but cost numbers which are solely related to AM/FM broadcasts are not available, due to common costs on broadcast sites, shared programming costs, and so on. As a result, it is reasonable to use revenue as a proxy.

Table 6 Quick summary of pros and cons of the simple proposal

Issue	Pro	Con	Comment
Annual payment	Reduces cash flow upfront for industry	Reduces cash flow upfront for government	Is any party more deserving?
Unpredictable	But tied to Revenue forecasts for industry	Will fluctuate year by year for Government	Small in the scheme of public things
Choosing y is a problem	No worse than previous negotiations	Will government use the downside 'mitigation' to drive a hard bargain?	Might make agreement easier to reach?
Assures the Crown a share of the good times if they return	Helps with the 'social licence' aspect of royalties.	Unlikely – this is realistically more about sharing the declining RR.	

Source: NZIER

8.4 Royalty estimates

A simplistic application of the royalty analysis is:

- The implied royalty rate on commercial FM broadcast revenue (i.e. excluding digital) with the MBIE RSM assumed growth rate of 0.8% is 1.448 percent of commercial FM broadcast revenue.
- The expected licence value would be $27 million ($10 million lower) If we apply this royalty rate (1.448%) to commercial broadcast revenue, but use the RBA projection of a declines in audience of 1.969 percent per year over 2024 to 2031 and 1.956 percent per year over 2031 to 2050[50].

Examples of the calculations of these royalty rates and licence values is provided in Appendix A.

8.5 Further adjustments

These calculations do not take into account the following.

- Social welfare of radio provision, which would imply that some sort of subsidisation or reduction in spectrum fee is warranted.
- Over time the radio model is increasingly more risky, meaning that future revenues are less valuable to the business. Any upfront payment would need to be significantly reduced to compensate for this.

[50] The audience projections were provided by RBA in 'RBA_Listener Projections_2025_2044_Updated July 2025_.xlsx . We have used the projections for 'All 10+ Cume FM' in our calculations.

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Appendix A Revenue royalty payment calculation examples

A.1 Method used to calculate royalty equivalent to $37m licence fee

This section is included to explain the process used to calculate a royalty equivalent to the 20 year upfront FM licence fee proposed by RSM ($37.12 million = population (32 million)[51] multiplied by price per capita ($1.16) [52]). The key assumptions are:

- Commercial broadcast radio revenue of $255m for 2024 is allocated between FM and AM based on their respective shares of the radio spectrum licence renewal fee proposed by RSM - $37.12m for FM and $1.62m for AM[53]. The shares are 95.82 percent for FM and 4.18 percent for AM.
- The estimated starting radio broadcast advertising revenue for FM in 2024 is $244.34m = broadcast radio advertising revenue ($255.0m) multiplied by FM share of the radio spectrum licence renewal fee (95.82 percent).
- The RSM proposed FM licence upfront renewal fee ($37.12m) is converted to an annual income steam that grows at 0.8 percent per year over the licence period but has a net present value of $37.12 million using the RSM discount rate of 8.61 percent per year.
- The royalty is applied to radio broadcast revenue only from 2031 to 2050 which is estimated as the 2024 value of $$244.34m increased by 0.8 percent each year.
- The results of the calculation are shown in Table 7 below

[51] RSM, 'AM/FM 2031 expiry and potential reassignment'. '*The total industry estimated population counts are 32 million for FM and 27 million for AM. These estimates are the aggregate of the estimated population coverage for each individual licence – which is why the estimated total industry figures are higher than the New Zealand population of 5.3 million people.*' Downloaded on 6 June 2025 from https://www.rsm.govt.nz/projects-and-auctions/consultations/amfm-2031-expiry-and-potential-reassignment.

[52] The RSM 2031 AM/FM Licence paper proposes a per capita licence fee of $1.16 for FM licences and $0.06 for AM licences. See Radio Spectrum Management, (2025), *'AM/FM radio spectrum: 2031 expiry of licences and potential reassignment, Discussion document, 8 May 2025'* page 11. The 'Proposed national per capita prices for 2031 renewals' for 20 years are: FM - $1.16 per capita and AM - $0.06 per capita.

[53] We estimate that the government expectation for total licence revenue from the 2031 licence renewal assuming a licence duration of 20 years is $38.74m comprising : FM at $37.12 million = population (32 million) multiplied by price per capita ($1.16) and AM at $1.62 million = population (27 million) multiplied by price per capita ($0.06).

Table 7 Royalty calculations for $37m licence fee and RSM growth assumption

Year ended 31 December, all mounts in $m

Year	Nominal income[1]	NPV[2]	Revenue at 0.8% CAGR	Royalty
2024			244.34	
2031	3.74	3.44	258.35	1.448%
2032	3.77	3.20	260.42	1.448%
2033	3.80	2.97	262.50	1.448%
2034	3.83	2.75	264.60	1.448%
2035	3.86	2.55	266.72	1.448%
2036	3.89	2.37	268.85	1.448%
2037	3.92	2.20	271.00	1.448%
2038	3.95	2.04	273.17	1.448%
2039	3.99	1.90	275.36	1.448%
2040	4.02	1.76	277.56	1.448%
2041	4.05	1.63	279.78	1.448%
2042	4.08	1.52	282.02	1.448%
2043	4.12	1.41	284.27	1.448%
2044	4.15	1.31	286.55	1.448%
2045	4.18	1.21	288.84	1.448%
2046	4.21	1.12	291.15	1.448%
2047	4.25	1.04	293.48	1.448%
2048	4.28	0.97	295.83	1.448%
2049	4.32	0.90	298.20	1.448%
2050	4.35	0.83	300.58	1.448%
Total	**80.77**	**37.12**	**5,579.25**	**1.448%**

Notes:

1 Nominal annual licence income increases at 0.8 percent per year.

2 Net present value of licence income discounted at 8.61 percent per year.

Source: NZIER

A.2 Effect of RBA revenue projections on licence value

This section applies the royalty of 1.448 percent calculated in section A.1 above to the RBA projections for FM broadcast radio audiences (and revenue). The net present value of the royalty is $26.70m compared with $37.12m using the RSM assumptions for revenue growth.

Table 8 Royalty applied to RBA growth assumption

Year ended 31 December, all mounts in $m

Year	Nominal income[1]	NPV[2]	Revenue at 0.8% CAGR	Royalty
2024			244.34	
2031	3.08	2.83	212.58	1.448%
2032	3.02	2.58	208.42	1.448%
2033	2.96	2.35	204.35	1.448%
2034	2.90	2.13	200.35	1.448%
2035	2.84	1.94	196.43	1.448%
2036	2.79	1.77	192.59	1.448%
2037	2.73	1.61	188.82	1.448%
2038	2.68	1.46	185.13	1.448%
2039	2.63	1.33	181.51	1.448%
2040	2.58	1.21	177.96	1.448%
2041	2.53	1.10	174.47	1.448%
2042	2.48	1.00	171.06	1.448%
2043	2.43	0.91	167.71	1.448%
2044	2.38	0.83	164.43	1.448%
2045	2.33	0.76	161.22	1.448%
2046	2.29	0.69	158.06	1.448%
2047	2.24	0.63	154.97	1.448%
2048	2.20	0.57	151.94	1.448%
2049	2.16	0.52	148.97	1.448%
2050	2.11	0.47	146.05	1.448%
Total	**51.35**	**26.70**	**3,547.03**	**1.448%**

Notes:

1 Nominal annual licence income decreases at:
   a 1.97 percent per year over 2024 to 2031.
   b 1.96 percent per year over 2031 to 2050.

2 Net present value of licence income discounted at 8.61 percent per year.

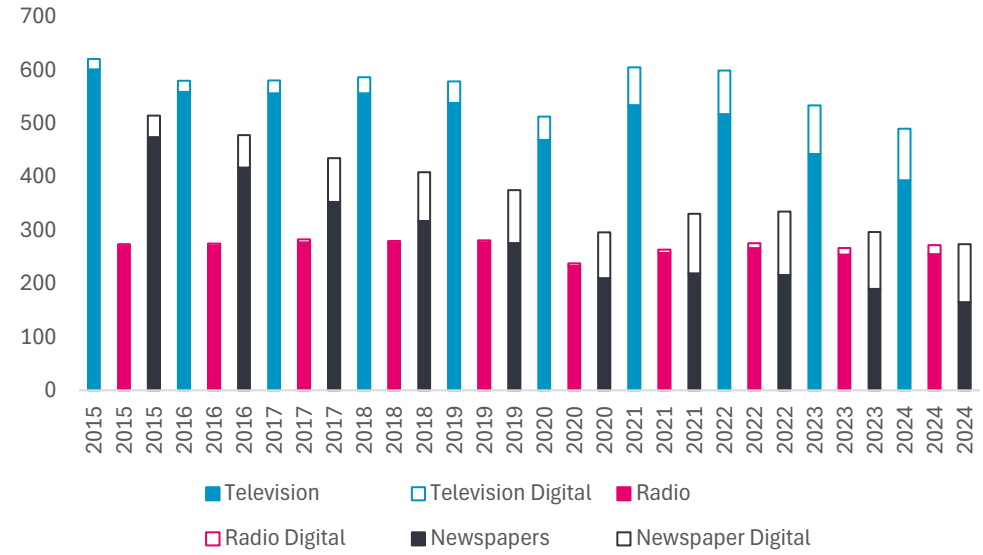
Source: NZIER

Appendix B Advertising revenue trends

B.1 Change in advertising revenue

Advertising revenue for traditional media has been disrupted by 'digital only' platforms. Digital only advertising has expanded rapidly over the period 2006 to 2024, while advertising revenue for most traditional media has remained flat (radio) or declined (television, newspapers and magazines) and continues to rely on traditional channels as show in Figure 10 (digital advertising is only reported separately from 2015 onwards) and Table 9 below.

Figure 10 Radio, television and newspaper advertising



Source: ASA New Zealand Advertising Industry Annual Revenue Reports

B.2 Advertising revenue disruption

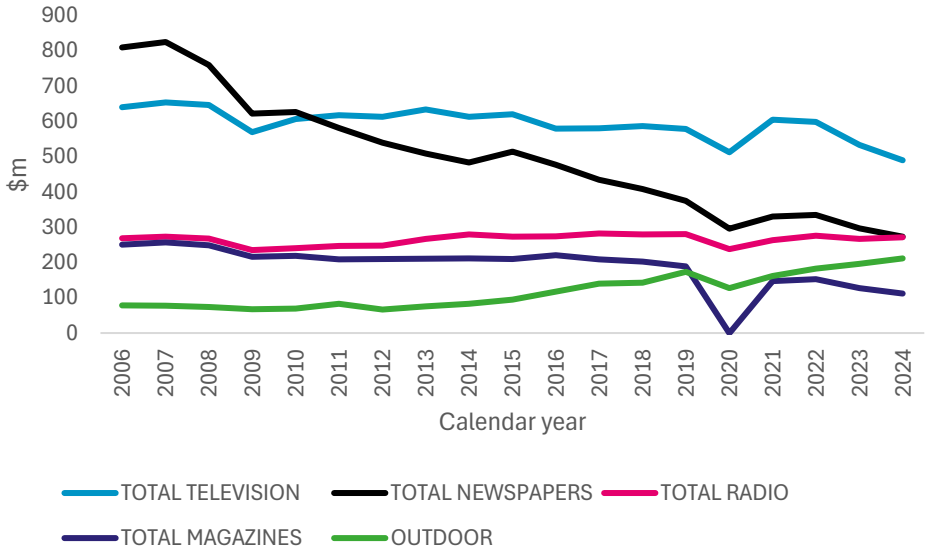
Advertising revenue for traditional media has been disrupted by 'digital only' platforms. Digital only advertising has expanded rapidly over the period 2006 to 2024, while advertising revenue for most traditional media has remained flat (radio) or declined (television, newspapers and magazines) as shown in Figure 11, Figure 12 and Figure 13. The new online advertising has increased overall advertising revenue (grown the market). Traditional media has increased digital advertising revenue streams, but digital revenue streams for traditional channels have grown less quickly than for pure online channels and have not grown rapidly enough to offset the decline in traditional advertising revenue.

These trends indicate two separate types of risk for radio advertising revenue:

- Traditional media advertising revenue is declining steadily, and growth in traditional media digital revenue is low and insufficient to offset the decline. With flat or declining nominal revenue, the ability of traditional media to meet inflation-based cost increases is being continuously eroded.

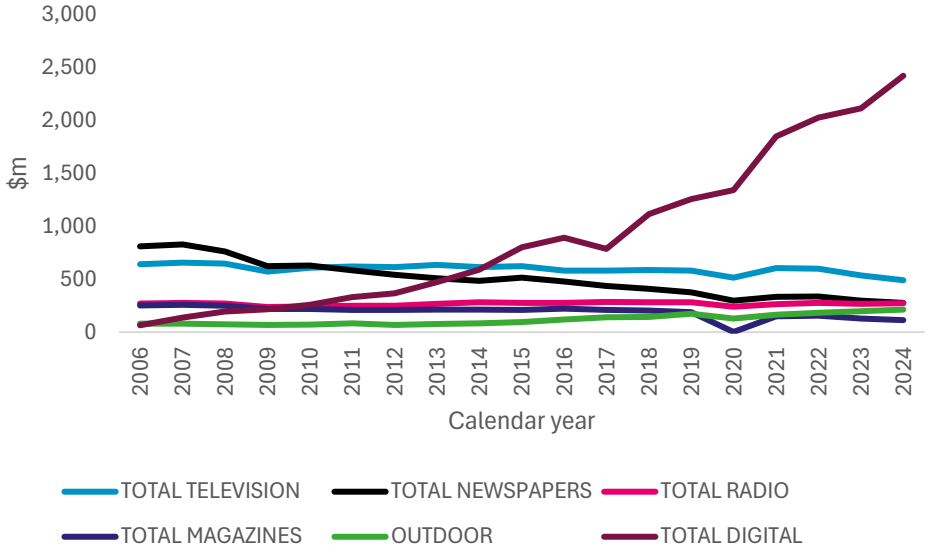
- Online advertising seems to offer advertisers more sophisticated advertising products that allow quick and detailed feedback on audience engagement with advertisements, opportunities to tailor advertising to individual viewers and opportunities for follow-up.

Figure 11 Traditional media only



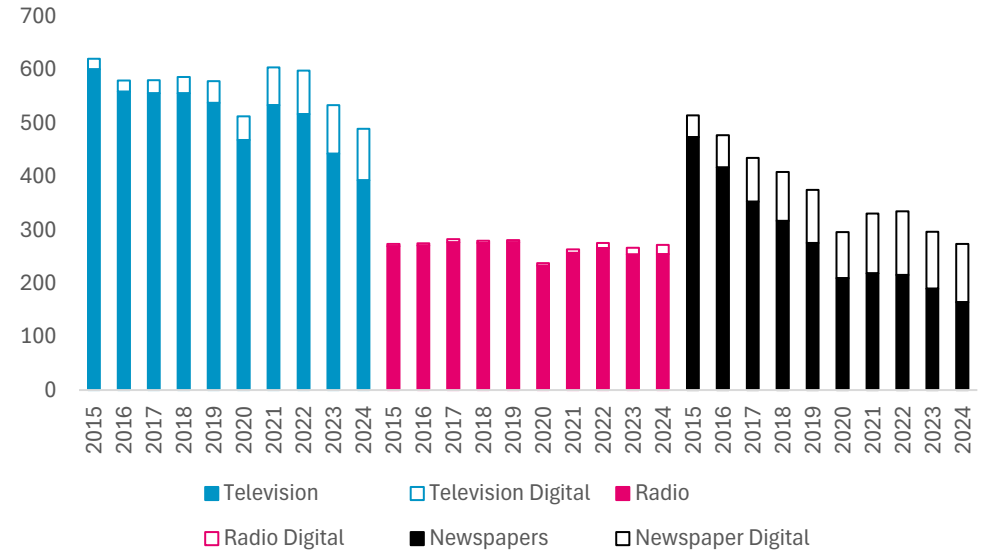
Source: ASA New Zealand Advertising Industry Annual Revenue Reports

Figure 12 Online and traditional media



Source: ASA New Zealand Advertising Industry Annual Revenue Reports

Figure 13 Radio, television and newspaper revenue rely on traditional advertising



Source: ASA) New Zealand Advertising Industry Annual Revenue Reports

Table 9 Advertising revenue by channel

Annual revenue in $m

Media channel	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Television										601	559	556	556	538	469	534	517	443	393
Television Digital										20	21	25	31	41	44	71	82	91	97
Total Television	**641**	**654**	**647**	**570**	**607**	**618**	**614**	**634**	**614**	**621**	**580**	**581**	**587**	**579**	**513**	**605**	**599**	**534**	490
Newspapers										474	417	353	317	276	210	219	216	190	165
Newspaper Digital										41	61	82	92	99	86	112	119	107	109
Total Newspapers	**810**	**826**	**760**	**623**	**627**	**582**	**540**	**509**	**484**	**515**	**478**	**435**	**409**	**375**	**296**	**331**	**335**	**297**	**274**
Radio										270	271	277	276	277	233	257	266	254	255
Radio Digital										4	4	6	4	4	5	7	10	13	17
Total Radio	**269**	**274**	**268**	**236**	**241**	**247**	**248**	**267**	**280**	**274**	**275**	**283**	**280**	**281**	**238**	**264**	**276**	**267**	**272**
Magazines										210	199	184	173	156	0	114	117	93	84
Magazine Digital										0	22	25	30	33	0	34	36	35	28
Total Magazines	**251**	**257**	**249**	**217**	**219**	**209**	**210**	**211**	**212**	**210**	**221**	**209**	**203**	**189**	**0**	**148**	**153**	**128**	**112**
Outdoor	**79**	**78**	**74**	**68**	**70**	**83**	**67**	**76**	**83**	**95**	**118**	**140**	**143**	**174**	**128**	**162**	**183**	**197**	**212**
Digital Only										736	783	785	956	1,078	1,206	1,620	1,778	1,866	2,171
Digital Other*										65	108	0	157	177	135	224	247	246	251
Total Digital	**65**	**135**	**193**	**214**	**257**	**328**	**366**	**471**	**589**	**801**	**891**	**785**	**1,113**	**1,255**	**1,341**	**1,848**	**2,025**	**2,112**	**2,422**
Addressed Mail	**35**	**36**	**56**	**53**	**53**	**50**	**58**	**60**	**61**	**58**	**59**	**54**	**41**	**32**	**24**	**24**	**22**	**29**	25
Unaddressed Mail	**64**	**65**	**61**	**58**	**58**	**55**	**54**	**53**	**54**	**52**	**48**	**53**	**47**	**47**	**39**	**34**	**33**	**32**	26
Cinema	**10**	**10**	**9**	**6**	**8**	**7**	**7**	**8**	**9**	**9**	**10**	**11**	**11**	**12**	**5**	**7**	**10**	**9**	10
Total	**2,224**	**2,335**	**2,317**	**2,045**	**2,137**	**2,179**	**2,164**	**2,289**	**2,386**	**2,570**	**2,572**	**2,551**	**2,677**	**2,767**	**2,449**	**3,195**	**3,389**	**3,359**	**3,592**

Source: ASA New Zealand Advertising Industry Annual Revenue Reports

Appendix C NZME and Mediaworks financial data

C.1 Overview

Commercial radio station owners face flat revenue streams (despite fluctuations in listenership) while facing upward pressure on costs from increases in wage and other input prices. [54] Analysing Mediaworks and NZME financial data to demonstrate this point is hindered by changes in the categories used to report revenue and expenses. In the case of Mediaworks the analysis is further complicated by its divestment of television assets in 2017.

Table 10 Mediaworks financial data

Year ended 31 December, all mounts in $m

Description	2017	2018	2019	2020	2020	2021	2022	2023	2024
Advertising revenue									
Radio			161.4	133.9	132.2	151.6	156.8	146.5	150.5
Outdoor			24.3	43.7	32.4	43.4	47.2	45.8	51.5
Print			0.0	0.0	8.3	7.3	8.0	10.4	9.0
Total			**185.7**	**177.6**	**172.9**	**202.4**	**211.9**	**202.8**	**211.1**
Core expenses									
Programming & production			8.6	8.5					
Sales & marketing			42.9	31.4					
Broadcasting & infrastructure			90.6	91.2					
Corporate costs			8.7	18.4					
Personnel related expenses					76.1	76.2	85.6	79.9	78.5
Sales related expenses					49.4	71.7	71.9	72.3	74.9
Technology and transmission					9.4	14.0	15.0	15.5	16.2
Other costs					6.4	3.7	8.0	1.7	1.0
Total			**150.8**	**149.5**	**141.3**	**165.5**	**180.5**	**169.5**	**170.6**
Licence amortisation			2.7	2.7	2.7	2.8	3.4	3.4	3.7
Share of radio revenue			1.69%	2.04%	2.07%	1.84%	2.18%	2.34%	2.49%

Source: NZIER

[54] Finding a relevant measure of inflation pressures on commercial radio over the period covered by the financial data (2019 to 2023) is difficult as Statistics New Zealand does not publish an input price index for this sector. The input price index for Information Media and Telecommunications' increased by 2.7 percent over the period but this sector is likely to be dominated by industries where technology improvements offset cost pressures and is an outlier compared to all other industries. In contrast the input price index for all groups increased by 18 percent over the same period.

Table 11 NZME financial data

Year ended 31 December, all mounts in $m

Description	2016	2017	2018	2019	2020	2021	2022	2023	2024
Advertising revenue									
Radio & Experiential	108.7	103.7	100.0						
Other[1]	6.2	6.4	6.9						
Radio				108.5	91.6	101	105.6	103.8	104.2
Digital audio				1.7	2.4	4.5	6.8	8.4	10.8
Other				1.8	5.6	1.1	1.5	1.4	1.5
Total audio	**114.9**	**110.1**	**106.9**	**111.9**	**99.6**	**106.5**	**113.9**	**113.6**	**116.6**
People & Contributors				54.0	50.0	52.3	55.6	55.8	56.2
Agency[2]				19.3	14.9	17.6	16.1	14.2	16.8
Content				7.0	5.8	6.7	7.2	7.7	8.5
Other				12.0	9.1	9.2	12.2	12.6	13.2
Total audio expenses				**92.4**	**79.8**	**85.7**	**91.2**	**90.4**	94.6
Audio EBITDA[3]				**19.5**	**19.8**	**20.9**	**22.8**	**23.3**	**21.9**
Audio EBITDA[4]				**12.6**	**14.2**	**13.9**	**15.2**	**15.1**	**13.3**
Licence amortisation	3.4	3.0	3.0	3.0	3.0	3.1	3.2	3.2	3.2
Share of audio revenue	3.0%	2.7%	2.8%	2.6%	3.0%	2.9%	2.8%	2.8%	2.8%

Notes:

1 Includes iHeart and events.

2 Commission and marketing

3 Includes NZ IFRS 16 adjustment for 2021 to 2024. IFRS 16 relates to the accounting for leases, but the reports do not explain the detail of the change.

4 Before NZ IFRS 16 adjustment for 2021 to 2024.

Source: NZIER

Appendix D Types of fairness

Table 12 Different types of equity

Philosophical basis	Plain English interpretation
Utilitarianism	Fairness means society is as well off as possible overall
Maximin	Fairness means the worst off are as well off as possible
Prioritarianism	Fairness means worse off people have priority over better off people
Sufficientarianism	Fairness means everyone has enough
Libertarianism	Fairness means respecting individual rights and freedoms
Luck egalitarianism	Fairness means people start out with equal opportunities and are rewarded for effort
Relational egalitarianism	Fairness means people treat each other as equals

Source: NZIER based on Thompson (2022)

Appendix E Economic footprint data

E.1 Footprint data sources

The SNZ datasets used to estimate the economic footprint of commercial radio are listed in Table 13 below. The SNZ dataset industry groupings reported at the following levels of aggregation:

- Broadcasting -which combines radio and television with internet publishing for National Input Output Tables and combines radio and television for the Linked Employer Employee Database (LEED).
- Radio, free to air television and subscription television for the Business Demography Statistics.

Table 13 Economic footprint data sources

Dataset	Reported group	Code		Sub-group (not reported)	Code
National Input Output Tables	Broadcasting and internet publishing	NZSIOC JJ113	Interindustry transactions. Contribution to GDP.s	Radio broadcasting	ANZSIC06 J561000
				Free-to-air television broadcasting	ANZSIC06 J562100
				Cable and other subscription broadcasting	ANZSIC06 J562200
				Internet publishing and broadcasting'	ANZSIC06 J570000
Table 04: LEED measures, by industry (based on ANZSIC06)	Broadcasting (except internet)	ANZSIC06 J56000	Mean quarterly earnings per job and number of jobs per quarter,		
Annual Enterprise Survey	Information Media Services	NZSIOC JJ11	Statements of Income and Financial Position[1]		
Business Demography Statistics: Enterprises by industry 2024	Radio broadcasting	ANZSIC06 J561000	Number employed		
	Free-to-air television broadcasting	ANZSIC06 J562100			
	Cable and other subscription broadcasting	ANZSIC06 J562200			

Notes:

1 Statement of Income variables include: 'Sales of goods and services', Purchases, Salaries and wages', 'Depreciation' and 'Interest' (both income and expense). Statement of Position variables include: 'Current assets', 'Fixed tangible assets', 'Current liabilities', 'Other liabilities' and 'Total income'.

Source: NZIER

Appendix F Licence fee setting 2011 – reconstruction

F.1 Need for reconstruction

A reconstruction of the used by MBIE for the 2011 licence allocation is necessary because MBIE is not prepared to share the details of the methodology used because it contains commercially sensitive information. Comparison of the valuation method used by the Government in the 2011 spectrum allocation with the actual outturn is necessary for two reasons:

- To answer the RBA question of whether the licences were overvalued.
- To assess the suitability of reuse of this model for the upcoming round of spectrum auctions given the following:
  - The model used in the 2011 process was based on the model developed in 2003 based on data over the previous 10 years. The 2003 model assumes a linear relationship to population growth and radio advertising revenue.
  - Auctions and allocations of spectrum to the telecommunications industry (which has a far more direct route for monetising spectrum allocation than commercial radio) has moved away from charging for spectrum at all let alone as a proportion of revenue.

F.2 Unclear starting point

MBIE is not prepared to release the workbook it used to estimate licence values for the 2011 auction. An e-mail from the MBIE to RBA[55] included the following comments:

> *We are unable to share the final pricing workbook previously used because this would mean sharing the prices that individual companies paid – which is potentially commercial information. However, we can confirm that last time around the Covec methodology was used to determine regional per capita prices from tender and auction data, that were then applied to the population count for the licenses for renewal. After this formula was applied to these licenses, the offer prices were scaled downwards so the total equalled $96m. Licenses that were at or below the minimum offer price were not scaled downwards. Subsequently, early payment discounts were applied where applicable.*
>
> *… .Note the report is from 2003 (attached) so it does not reflect any subsequent changes from industry consultation eg. regional averaging. For the 2011 renewals, licence holders were given the option to auction a licence if the price offer was refused. Of the licence holders, 89 per cent accepted the offer price and 10 percent accepted the offer price with the early payment discount.*

Accordingly, we have attempted to reconstruct the approach used to by starting with the Covec 2003 report and applying the formulae to the 2011 population and advertising revenue data.

[55] **From:** Daniel O'Grady <daniel.ogrady@mbie.govt.nz> **Sent:** Wednesday, 22 January 2025 4:03 PM **To:** Jana Rangooni <jana@rba.co.nz> **Subject:** RE: RBA Letter Attached [UNCLASSIFIED].

F.3 Covec 2003 report[56]

The key points describing the approach to the valuation of spectrum licences from the Covec2003 report are:

- The objective of the approach is to calculate adjustment factors that incorporate expected changes in revenue to the prices originally paid for that can be used to value the rights at renewal.[57] The report assumes that revenue and cost will increase at the same constant rate which simplifies the staring question of forecasting cashflows over the licence period to forecasting the steady stat growth rate for advertising revenue.
- The report argues that the Government may choose not to re-auction spectrum licences as it is economically efficient to give incumbents the first option of renewal, and the Government is likely to obtain higher prices for licences from renewal offers than from auctions. The report argues that auction prices do not reflect the full value of the rights to the incumbent as they tend to reflect the value to a new entrant with higher set-up costs.[58]
- The formula[59] for the licence renewal valuation (V_2) is the initial licence valuation (V_1) multiplied by the expected advertising revenue at the end of the period (20 years). based on a constant growth rate z ^{20}and discounted at a rate r for the early (five years before starting) payment of the fee - $V_2 = 1+z)^{20} x\ V_1/(1+r)^5$ This formula is derived using the following simplifying assumptions:
  - The initial licence value was the net present value of the net cashflows (revenue less cost).
  - Revenue and costs grow at the same constant annual rate (z) over the initial licence period with a value of V_2 and the renewal licence period with a Value of V_2. (This report's authors adopted this because they found it easier to forecast revenue accurately than to forecast costs.) The report also assumes a constant annual discount rate (r) applies over the initial and renewal licence periods.
  - A discount rate of between 11 and 12 percent per year based on the published cost of capital estimates.[60]
- The report discussed two issues with the original licence prices and, in both cases, advocated for population-based averaging:
  - The report noted that the initial licence prices varied widely for some technically identical licences and then observed more generally [61] *Since the spectrum licenses within a given category of license (such as radio or TV) have different characteristics in terms of location and power, some basis needs to be used to implement the averaging. The most attractive option is to use data on the population covered by each license to calculate a per-capita price, and then average these prices.* The decision on averaging is beyond the scope of the report.

[56] Covec 2003 'Development of Price Setting Formulae for Commercial Spectrum Rights at Expiry for the Ministry of Economic Development, 20 October 2003'.

[57] Covec 2003 pages 1 and 2.

[58] Covec 2003 page 15.

[59] Covec 2023 pages 17 to 20.

[60] Covec 2023, page 26.

[61] Covec 2023 pages 22 and 23.

- The report noted that some licences were granted under incumbency provisions and sold to incumbents *'sold to incumbents for prices that were a function of gross revenue and were determined through commercial negotiations.'*[62] The report noted that these negotiated values could be used as inputs to V_1. However, the report noted that after these licences were sold, similar licences were auctioned and a population based averaged of these auction prices could be used to estimate V_1 for licences sold to incumbents, provided there was sufficient sales data.

- The report asserts that[63] *'All other things being equal, the most reliable predictor of future advertising revenues is probably population,'* because the number of listeners increases in proportion to the population. The report estimated the following ordinary least squares (OLS) regression relationships between population and radio and television advertising revenue using data from 1987 to 2002:
  - Radio advertising revenue ($m) = 155.5 × population (m) - 410.2 (R^2 = 0.9347).
  - Television advertising revenue ($m) = 1472 × population (m) - 1055 × population (last year) (m) - 1133 (R^2=0.9389).
  - The report combined these equations with Statistics New Zealand's 'medium' population projections to forecast advertising revenue in 2030 at $296 million for radio and $782 million for television.
- The report calculated annual growth factors (z)[64] for radio (1.95%) and television (2.02%) as the constant annual growth rate required to increase actual advertising revenue in 1990 of $136.7 million[65] for radio and $351.4 million for television to the 2030 forecast revenue of $296 million for radio and $782 million for television.

F.4 Covec 2003 revenue modelling outturn

The Covec 2003 forecast radio advertising revenue was below the actual radio revenue until about 2021, but the largest difference between the Covec 2003 forecasts occurred between 2004 and 2009 – before the renewal licence period began in 2011. Radio broadcast advertising revenue exceeded $270 million in 2007, 2014 and 2016 to 2019 but these results were a plateau rather than the steady increase assumed in the Covec 2003 model. The forecast and actual revenue (nominal and adjusted for inflation since 1990) are compared in Figure 14.

As the gap between the Covec 2003 forecast revenue was widest at the beginning of the renewal period and below actual revenue for most of the renewal period the Covec 2003 model is likely to have modestly underestimated the net present value of radio broadcast advertising revenue.

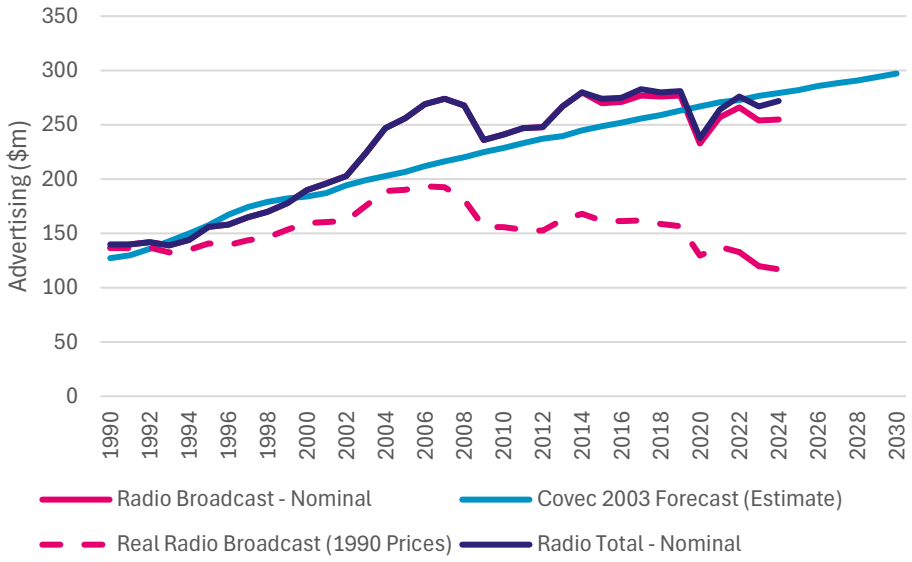
62 Covec 2003, pages 25 to 26.

63 Covec 2023, page 32.

64 Covec 2023, page 35 to 36.

65 The reported level of radio advertising revenue in 1990 in Covec 2003 appears to be about $137m. This is slightly lower than the $140m reported in the New Zealand Official Year Boo 1992. We have relied on the Covec 2003 estimate.

Figure 14 Radio advertising revenue – forecast and actual



Source: Covec (2003) and NZIER analysis

For example, assuming the radio broadcast advertising revenue remains at 2024 levels over the remainder of the renewal period (2025 to 2030) and using a discount rate of 11 percent, the Covec 2003 forecast would underestimate the actual radio advertising revenue by about 11.5 percent. This underestimate is not a final indicator of whether the licences were over or undervalued because we do not have information on how the Covec 2003 forecasts were used in setting the renewal licence fees what adjustments were made for the surge in revenue that occurred over 2004 to 2009. However, we can compare the present value of the radio broadcast advertising revenue to the $96 million licence fee paid at the beginning of the renewal period at different discount rates - see Table 14 below.

Table 14 Net present value of radio broadcast revenue

Net present value ($m) of modelled and actual plus projected broadcast advertising revenue

Description	Low[1]	High[1]	Low[1]	High[1]	Low[1]	High[1]
Discount rate	7.0%	7.0%	9.0%	9.0%	11.0%	11.0%
Covec 2003 model	2,750	2,942	2,352	2,564	2,038	2,262
Actual plus projected[1]	2,806	3,003	2,418	2,636	2,109	2,341
Model under-estimate						
Value	57	61	66	72	71	79
Share of Covec 2003 model	2.1%	2.1%	2.8%	2.8%	3.5%	3.5%
Licence share of actual plus projected	3.5%	3.2%	4.0%	3.7%	4.6%	4.1%

Notes:

1 The 'Low' value discounts the 2011 revenue values while the 'High' approach does not. This reflects the two possible extremes of timing differences for the receipt of revenue.

2 Actual revenue for the years 2011 to 2024 and projected revenue of $255m per year for 2025 to 2030.

Source: NZIER