Economic Impact of the New Zealand Aotearoa Screen Production Sector

A Study for the New Zealand Film Commission by Olsberg•SPI

6th July 2022

OLSBERG • SPI

FOREWORD

Aotearoa New Zealand has a globally competitive and thriving screen sector. We are renowned for our creativity and innovation, our diverse and accessible landscapes, and our highly skilled and experienced crew. We produce world class productions like The Power of the Dog, Whina, Sweet Tooth, The Beatles: Get Back, and the upcoming Avatar Sequels which all shine the spotlight on our country and our screen industry.

For New Zealand, the screen industry is a huge economic asset. Since the introduction of the New Zealand Screen Production Grant (NZSPG) in 2014, more than 100 international productions have helped boost our economy. In the 2020/2021 period, production expenditure was recorded at NZ$985m. Expenditure grew by an average of 20% each year since the NZSPG was introduced. The number of people directly employed in the screen sector has grown to nearly 5,400 full-time equivalents (FTE) in 2020/2021 and that figure balloons to 17,600 FTE if you include those in the supply chain.

Governments around the world use policies and funding (including financial incentives) to encourage and support the screen industry. Economic impact studies are a valuable tool in measuring the scale of screen production activity and its overall economic footprint. The New Zealand Film Commission (NZFC) believe it is important to understand the size and scale of the screen sector. It is therefore critical to survey the sector and measure its economic impact. In 2020 the NZFC commissioned UK based agency Olsberg SPI ("SPI") to carry out this work.

SPI is an internationally renowned creative industries consultancy with a proven track record in economic impact studies. It has become one of the leading international consultancies offering expert advice specialising in the global screen sector. The methodology it uses in this report is used in similar studies in a range of countries including Ireland, the UK, several US states, and Australia.

Globally, investment in screen content production is currently at unprecedented levels, with a 'deluge' of production being undertaken worldwide. This report sets out to empower industry decision-makers in growing their businesses, and policy makers at every level of local and national government. It is however important to note this report is not a cost benefit analysis of the NZSPG and does not make any assumptions about what might happen to the New Zealand screen sector if New Zealand's screen incentive, the New Zealand Screen Production Grant (NZSPG) was no longer available.

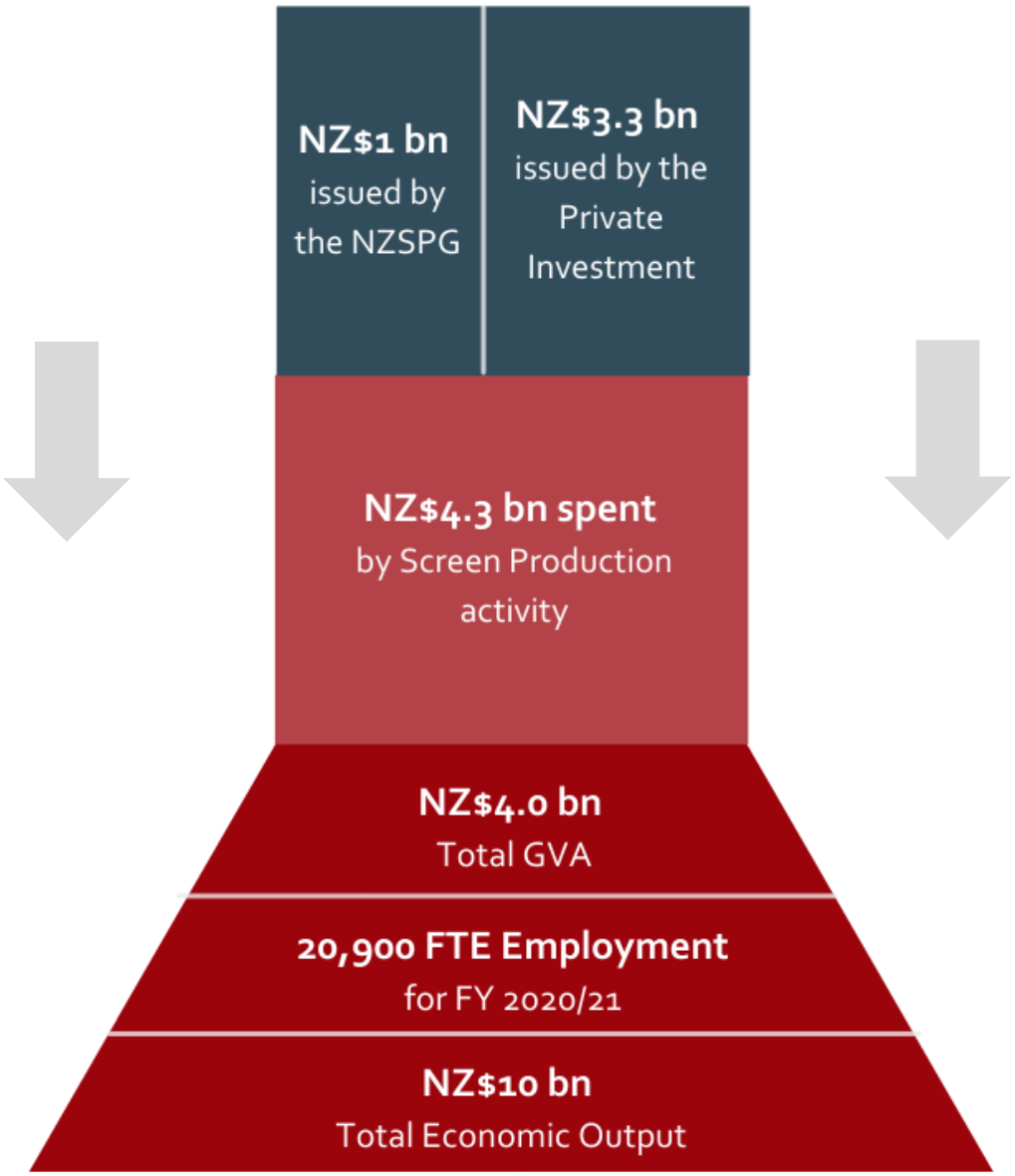
With competitive incentives, and continued investment nurturing diverse and creative talent, skills, and infrastructure, the screen sector can continue to support New Zealand's economic growth.

In conclusion, I would like to thank everyone who has contributed to this report. To the many members of the screen sector in New Zealand who volunteered their time providing data and information, we thank you for your cooperation.

- **Dame Kerry Prendergast**, *New Zealand Film Commission's Board Chair*

1. SUMMARY OF KEY ECONOMIC FINDINGS

Economic Footprint of New Zealand Screen Production Sector
Between FY 2014/15 – 2020/21



Attributed to the New Zealand Screen Production Grant
between FY 2014/2015 and 2020/2021

NZ$1 of Net* Investment in NZSPG *Cost of NZSPG minus direct tax receipts	supports	NZ$ 1.92 GVA Value	**Direct Impact**	1.92 ROI	OVERALL ROI 6.15X
		NZ$ 3.36 GVA Value	**Indirect Impact**	3.36 ROI	
		NZ$ 0.88 GVA Value	**Induced Impact**	0.88 ROI	

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2. EXECUTIVE SUMMARY

2.1. About the Study

In 2021, the New Zealand Film Commission ("**NZFC**") commissioned creative industries consultancy Olsberg•SPI ("**SPI**") to undertake an independent assessment of the economic impact of the New Zealand Screen Production Sector and the New Zealand Screen Production Grant (NZSPG) (the "**Study**").

The study aims to assess the contribution of the New Zealand production sector to the economy in terms of jobs and Gross Value Added. It set out to estimate the direct impacts, as well as the supply chain (indirect effect) and the footprint of economic activity generated by wages associated with the sector and suppliers. It also considers the impact and return on investment of the NZSPG, estimating the production activity it attracts to the country and the domestic production activity it supports. The study also undertook a comparison analysis of the economic impact of the screen production sector in New Zealand in relation to Australia, Ireland and the United Kingdom.

Sources of data cover registration forms, application forms and data on the disbursement of the NZSPG provided by the NZFC, sector data from NZ Stats and sector unions, survey of incentivised production companies, as well as consultations with supported productions, legislators, vendors and other stakeholders.

The study considers the impact between FY2014/15 and FY2020/21.

The aim of this commission was not to undertake a full cost-benefit analysis of NZSPG. Thus, it does not systematically estimate the opportunity cost of public investment in the film industry nor account for the dynamic adjustment of the sector's resources if production in New Zealand or the NZSPG were to cease.

2.2. Context

In recent years, there has been a 'deluge' of film and television production on a global level. This is driven by voracious demand for all types of content from consumer and investors alike – which include newer entrants such as the streamers, as well as established broadcasters and studios. Section 11 (Appendix 4) provides further context and statistics on this global production deluge.

In response to this deluge, governments and legislators in jurisdictions of all sizes globally have increasingly recognised and valued the considerable economic impact and other social and cultural benefits delivered by this global growth sector, especially as they look to diversify their economies and recover from the economic effects of the COVID-19 pandemic.

Against this backdrop, the NZFC have a particular interest in the added value and economic impact of the New Zealand screen production sector, including the effects of the film and television grant, NZSPG.

2.3. Results of Economic Impact Analysis

2.3.1. Methodology

The economic impact analysis approach uses screen (film and television) sector production expenditure data to drive a specially developed economic impact model. The most complete source of production expenditure data comes from management records of NZSPG productions kept by the NZFC. While this does not capture all production expenditure, it includes expenditure information for major international productions and medium to large sized domestic productions.

A bespoke sector economic impact model that combines national datasets from Stats NZ and international benchmarks has been developed to calculate the **economic footprint of**

production expenditure in term of GVA, economic output and full-time equivalent (FTE) employment for direct, indirect (supply chain) and induced (re-spending of wages) effects. This report contains a full economic impact methodology note (Section 9, Appendix 2) and glossary of key terms (Section 8, Appendix 1).

The assessment of the contribution of NZSPG to the economy begins with the overall production activity impact and adjusts it downwards to account for the fact that some production activity would still have happened in the absence of NZSPG (additionality). The resulting GVA estimate can be compared to net costs of NZSPG (total cost minus direct tax receipts) to obtain a GVA return on investment figure.

2.3.2. Economic Footprint of Screen Production Activity

Screen production has generated significant and increasing expenditure within New Zealand, with domestic productions taking an increasingly greater share of total expenditure. In FY20/21, recorded expenditure reached its highest recorded level at NZ$985 million, with an average annual growth rate of 20% between FY2014/15 and FY2020/21. This is notable considering this period was amid the global COVID-19 pandemic. Industry consultations suggest that this speaks to the country's adaptability and ability to handle such a significant influx in production. When comparing the proportion of total expenditure from domestic and inward international productions, New Zealand domestic productions have seen a compound annual growth rate of over 150% of the total spend over this period.

This screen production expenditure has translated into significant economic value. Between FY2014/15 and FY2020/21, the total output[1] associated with screen production activity was NZ$10.0 billion, with the annual output steadily increasing over the seven years. This total output includes direct output of the sector (NZ$4.1 billion), the footprint of the supply chain (NZ$4.8 billion) and output generated by the re-spending of wages in the local economy (NZ$1.1 billion[2]).

Between FY2014/15 and FY2020/21, screen production activity in New Zealand has contributed an estimated NZ$4.0 billion in GVA[3] to the economy. This includes NZ$1.3 billion of direct GVA associated with screen production firms, NZ$2.2 billion in the supply chain of the industry, and a further NZ$577 million in induced effects caused by the re-spending of wages in the economy. The GVA and the output of screen production activity has been growing, in line with production expenditure.

Between FY2014/15 and FY2020/21, the screen production sector contributed NZ$1.8 billion to the New Zealand economy in terms of employee compensation[4]. This includes NZ$466 million in direct wages, NZ$1 billion wages in the supply chain and NZ$340 million through induced effects.

Screen production supports a growing number of high value well paid jobs. Between FY2014/15 and FY 2020/21, the screen production sector's direct Full-Time Equivalent (FTE) employment footprint was on average 3,360 FTE people each year. This rose significantly during the period from 1,835 FTE in FY2014/15 to 5,372 FTE in FY2020/21. When direct, indirect

1 Output is a monetary measure of amount of goods or services produced. It is similar in concept as a firm's total turnover.

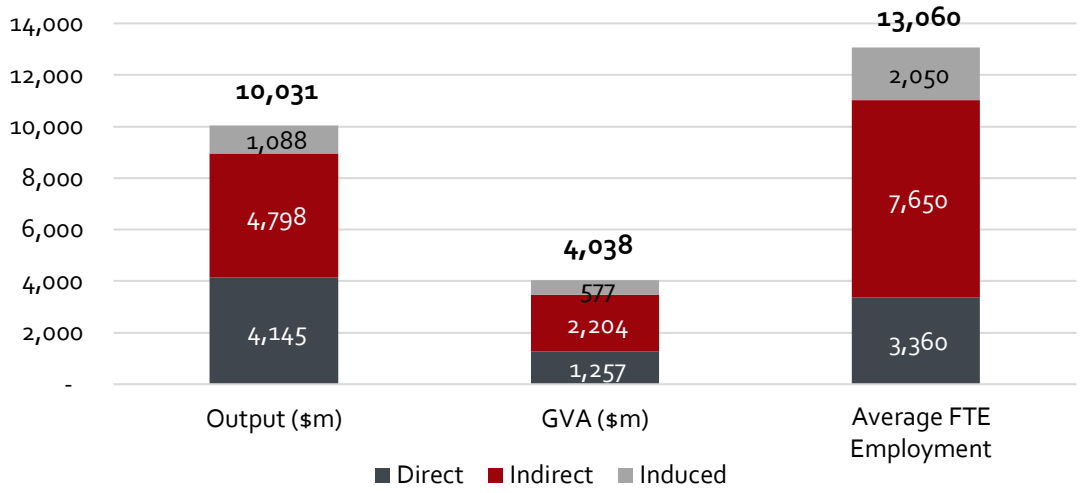
2 When output and GVA figures are presented aggregated across years, figures are real (in 2021 prices). When results from individual years are presented, they are nominal, i.e. the prices refer to the same year as the data.

[3] Gross Value Added (GVA) is a measure of the additional economic value created by an economic activity. It is as the difference between gross output and intermediate inputs or wages plus profit; at a national level it aligns to Gross Domestic Product (GDP).

[4] Employee compensation describes the wages and other income earned from a particular industry activity.

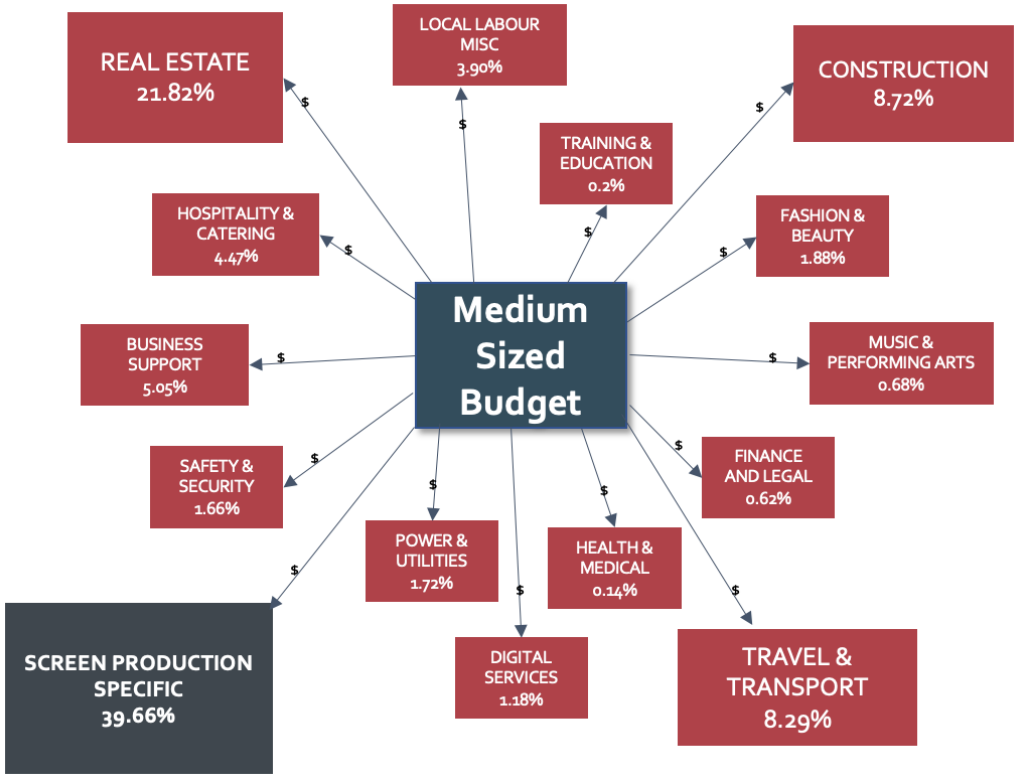
and induced effects are included, the annual average employment supported by screen production activity between FY2014/15 and FY2020/21 was 13,060 FTE.

Figure 1 Economic Impact of Screen Production Activity, FY2014/15 to FY2020/21, Output, GVA and Average Full-Time Equivalent (FTE) Employment



The majority of screen production expenditure is spent in non-screen specific sectors, spreading the value into different parts of the economy. SPI analysed the expenditure of a representative, sample production: a mid-budget, international TV drama series shot in New Zealand in recent years. This is described in detail in Section 5. The result of the analysis shows that over 60% of the 'below-the-line' expenditure were spent in the broader business economy, as opposed to with screen sector specific industries, such as crew wages (Figure 2). The largest of these were real estate (21.82%), construction (8.72%) and travel and transport (8.29%).

Figure 2 Breakdown of Below-The-Line Production Spend for Representative Sample Production by Business Sectors



2.3.3. *Comparison of Economic Impact to Other Jurisdictions*

Screen production makes a larger comparative contribution to the New Zealand economy than the industry does in Australia and in Ireland with comparing relative GVA and GDP results.

The analysis displayed in Figure 3 provides an indicator of how concentrated or specialised Australia, Ireland and the UK's economy is in terms of screen production. Overall, New Zealand compares positively to Australia and Ireland in terms of the size of its screen production industry, with a comparatively higher contribution to the national economy. The UK's screen production sector (connected to the UK's tax relief) is somewhat stronger when the scale of the economy is taken into account.

Figure 3 Summary of Comparative Position of NZ Screen Production Sector

Jurisdiction	Year of Comparison	GVA supported by NZ Screen production as a % comparator GVA	NZ GDP (whole economy) as % of comparator country	Relative strength of NZ sector compared to comparator
Australia	2017/2018	32%	15%	Yes
Ireland	2016	80%	63%	Yes
UK[5]	2019	3%	7%	No

2.3.4. *Impact of the New Zealand Screen Production Grant (NZSPG)*

To determine the impact of the NZSPG, it is important to determine how much production activity would have happened without the grant. To calculate this, SPI undertook an additionality survey, which was sent to all (domestic and international) production companies who have accessed the NZSPG. Response rate from domestic productions was high (86%), providing a robust picture of additionality. The responses from international productions covered 74% of production expenditure between FY2014/15 and FY2020/21, also providing a robust picture of additionality.

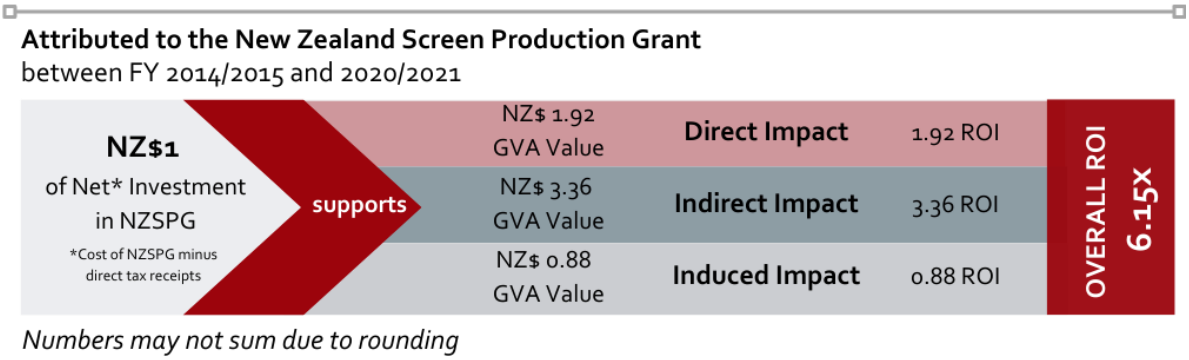
Analysis of the survey results from domestic productions indicated that **the NZSPG incentive is a critical public investment tool to enable domestic productions to be financially viable, with a high proportion of domestic production expenditure attributable to the NZSPG.** 83% of domestic respondents saw the NZSPG as very important to the production's financial viability, with 56% of respondents stating that in the absence of NZSPG their production would not have gone ahead. Nearly 4 in ten respondents stated that the production would have moved to a different country or jurisdiction. Using this data, SPI estimates that for domestic productions, 98% of the domestic production expenditure can be attributed to the NZSPG.

Results from international productions indicated that **the NZSPG incentive is a critical public investment tool to attract inward international productions to New Zealand, with a high proportion of international production expenditure attributable to the NZSPG.** 69% (9 out of 13) of respondents indicated that their production would not have happened in New Zealand without the NZSPG. For those reporting that the production would still have happened in New Zealand without the NZPSG, the in-county expenditure would have been hugely reduced. Using this data, SPI estimate that for international productions, 93% of the international production expenditure can be attributed to the NZSPG.

[5] UK/NZ comparison is based on the assessment of the economic impact of the tax incentive/relief programmes and are therefore not an exact comparison.

The NZSPG incentive provides a strong return on economic investment (RoI)[6]. Analysis of screen production sector GVA indicates an average GVA RoI of 1.92 for direct impacts, 3.36 for indirect impacts, and 0.88 for induced impacts between (FY2014/15 and FY2020/21). This means every NZ$1 spent on the NZSPG, supports on average $1.92 of direct GVA, $3.36 of GVA in the supply chain (indirect) and $0.88 GVA due to the spending of wages in the economy (induced). Combining these three effects, the total ROI is 6.15, meaning that NZ$1 spent on NZSPG supports a total of NZ$6.15 of additional economic value (including direct, indirect and induced impact).

Figure 4 NZSPG Return on Economic Investment (Direct, Indirect and Induced)



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2.4. Additional Insights and Findings on the Screen Production Sector in New Zealand

Related to workforce capacity and development

- Inward international productions have and continue to provide valuable opportunities for the domestic workforce in New Zealand, including high paid positions, experience on notable credits, and training opportunities. However, with increasing levels of inward productions, there are perceived and real challenges around meeting the needs of inward productions while ensuring workforce and studio capacity and support for domestic productions
- New Zealand is uniquely positioned in terms of developing and supporting expertise that are currently sought after and will be increasingly in demand for the production of digital content
- Interventions are taking place to improve the domestic workforce capacity and representation. While progress has been made, structural issues are still affecting marginal members to reach representative roles in the making of and representation on screen.

Related to the public and external perception of the screen production sector and the NZSPG as a critical part of its function

- The New Zealand screen production sector can be seen as a 'black box' by those outside the sector, where the direct and indirect social and economic value not readily shared or understood. This effects the way the NZSPG is perceived.

Related to the impact of the COVID-19 pandemic

- The New Zealand screen sector saw a delayed impact to the COVID-19 global pandemic in comparison to other parts of the world, partly due to its ability to become an isolated hub for productions to take place. As restrictions globally were eased, New

[6] The economic RoI is a measure of how much economic value is supported per NZ$1 of net investment in the NZSPG by the New Zealand government. The net investment is the cost of the NZSPG minus the direct tax return associated with the NZSPG

Zealand's prolonged isolation became a prohibitor, however the NZFC and NZ on Air are working to mediate these effects.

Related to NZSPG's criteria and process

- The NZSPG incentive is highly regarded among international users, with specific but relatively isolated issues around the 5% Uplift.
- Industry commented that the NZSPG should consider adapting its support to new formats, such as virtual production, cross-platform content and gaming, being popularised in the sector.

2.5. The Remainder of this Report

The remainder of this report covers:

- Full economic impact analysis and methodology
- Comparison of economic impact to other jurisdictions: Australia, Ireland, and the UK
- Ripple Analysis of a NZSPG incentivised TV-series production, demonstrating the spread of expenditure across different business sectors
- A comparison of the NZSPG with other incentivised industries: international education and tourism
- Further insights and findings from consultations
- An appendix, including a glossary of key terms, methodology details, further details on the global screen production deluge, SPI's EIS credentials and approach to EIS, and SPI company profile.

3. NEW ZEALAND SCREEN PRODUCTION GRANT USE

3.1. The New Zealand Screen Production Grant (NZSPG)

The NZFC oversees the New Zealand Screen Production Grant (NZSPG), administrating it on behalf of the Ministry for Culture and Heritage (MCH) and the Ministry of Business, Innovation and Employment (MBIE). Established in 2014, the NZSPG has been implemented and adapted since. The grant is based on Qualifying New Zealand Production Expenditure (QNZPE), referring to goods sourced or hired from the region, and resources or services provided by New Zealand residents. Figure 5 provides an overview of the NZSPG's key elements.

Figure 5 Key Elements of the NZSPG

New Zealand Screen Production Grant: Key Elements	
Value	Up to 40% of QNZPE for domestic, 20% (up to 25% with additional 5% Uplift) for international
Type	Applicable to above and below-the-line expenditure (international, post-production, digital, and visual effects grant available)
Cap	NZ$6 million Additional grant for productions meeting additional criteria and have QNZPE NZ$15 million to NZ$50 million

The NZSPG takes the form of a rebate and is accessible for film, television, documentary and animation project formats. All applicants must be a New Zealand incorporated company. As with other comparable incentives, the NZSPG has a range of criteria for varied types of productions, particularly pertaining to domestic and international projects, with the intention to foster regional industry and promote local content, while encouraging inward investment for industry growth and skills development.

Figure 6 provides a more in-depth overview of the NZSPG criteria for three types of grants: for domestic productions; international productions; and international productions applying for support in post-production, digital and visual effects (i.e. International PDV). This covers the related incentive rate, eligible production types, per project expenditure cap and minimum spend.

Figure 6 NZSPG Types of Grants Breakdown

Type of Grant	Incentive	Production	Per Project Cap	Minimum Spend
New Zealand (domestic)	40%	Domestic AND Official Co-productions	NZ$6m, OR NZ$20m if Additional Grant applies	NZ$2.5m (feature film); NZ$1m (scripted); NZ$250k (unscripted/short form animation)
	Key Points: • NZSPG-NZ applicants must pass a Significant New Zealand Content Test or be certified as an Official Co-production • Additional criteria apply for applicants to the NZSPG-NZ Additional Grant – including the Significant Cultural Benefits Test • "Per hour" minimums also apply for scripted/unscripted series, single episode scripted and short form animation			

International	20%	Predominantly international	None	NZ$15m (feature film); NZ$4m (TV)
	Key Points: • Additional criteria apply for applicants invited to apply for a 5% Uplift – including the Significant Economic Benefits Test			
International PDV	20% OR 20% + 18%	Predominantly international	None	NZ$500,000
	Key Points: • For a PDV Grant only, 20% on qualifying spend up to NZ$25m, thereafter 18% of qualifying spend is considered			

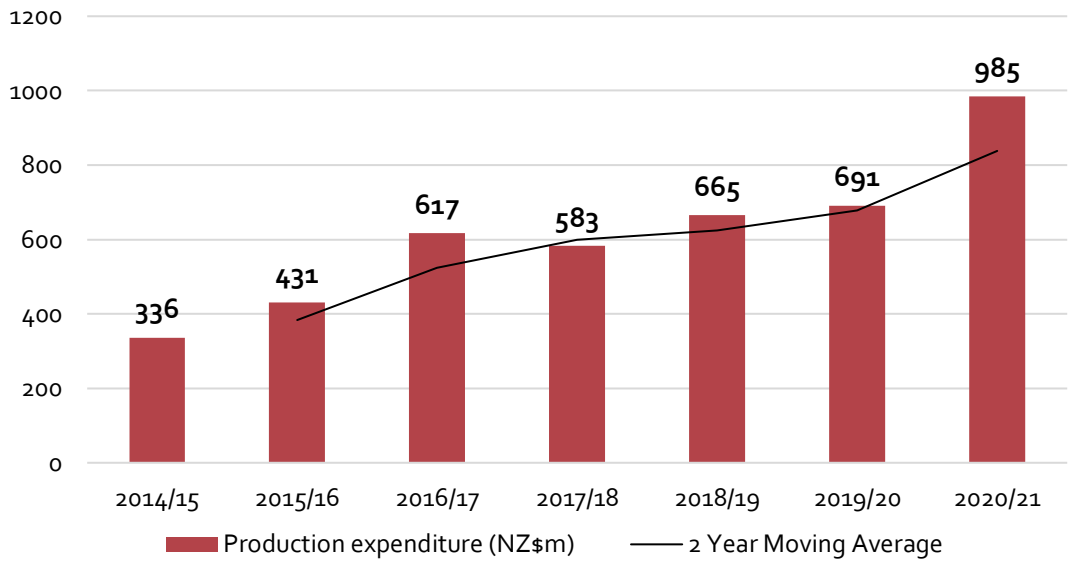
The NZSPG is geared towards sustainable growth for the domestic industry and development of regional talent, as well as providing cultural benefits to New Zealand through its support of local content. Productions must have significant New Zealand content, which is determined by a points system, specified producer's income[7] and meet regional distribution requirements.

The current criteria for the NZSPG is from July 2017, but includes temporary provisions for productions effected by COVID-19. A 5% Uplift to the 20% base is also available to specific productions. The Uplift is an additional incentive that has been offered to a small number of international projects that qualify for the 20% (NZSPG) and deliver significant additional economic benefits.

3.2. Production Expenditure

The most accurate record of screen production expenditure in New Zealand comes from the management data of the NZSPG. This indicates that in total, in the seven years between FY2014/15 and FY2020/21, NZ$4.3 billion was spent on screen production activity in New Zealand. As Figure 7 illustrates, since FY2014/15 there has been strong growth in production activity in the country, which averaged 20% a year over the period.

Figure 7 New Zealand Production Expenditure with Two-year Moving Average, FY2014/15 to FY2020/21 (NZ$m)

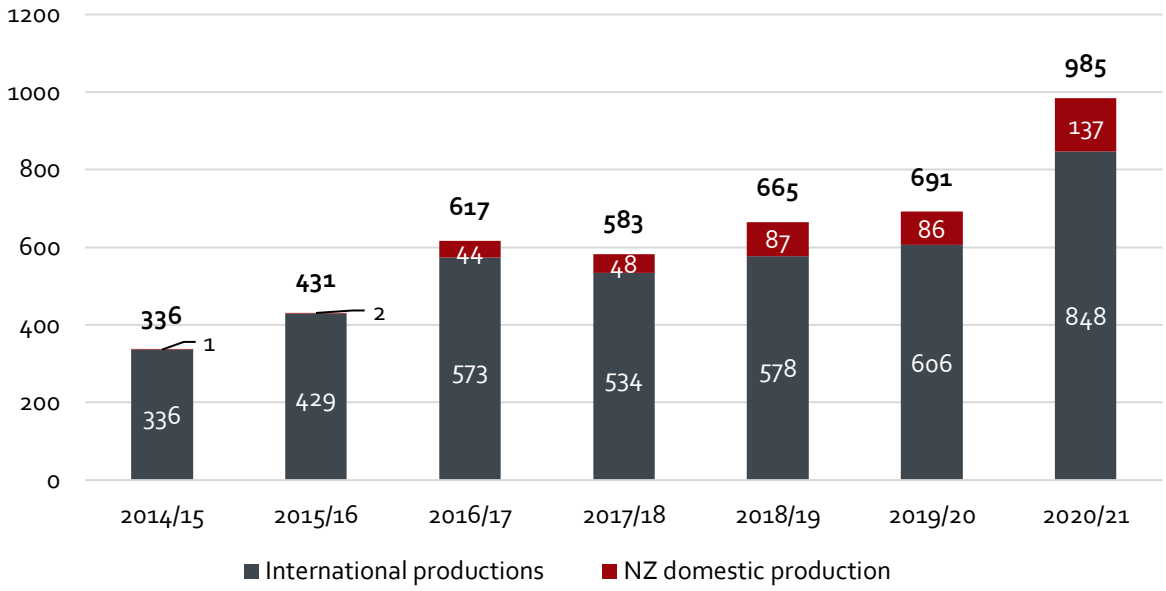


Over the seven years, 9.4% of production expenditure came from productions originating from New Zealand, while over 90% came from outside the country. Figure 8 shows how the

[7] The equity position of the applicant must be similar to that of other equity investors in the production.

proportion of expenditure attributable to New Zealand production is growing over time from less than 1% in 2014/15 to nearly 14% of all production expenditure in 2020/21. This indicates the strengthening of the New Zealand industry.

Figure 8 Total Production Expenditure by Origin, FY2014/15 to FY2020/21 (NZ$m)

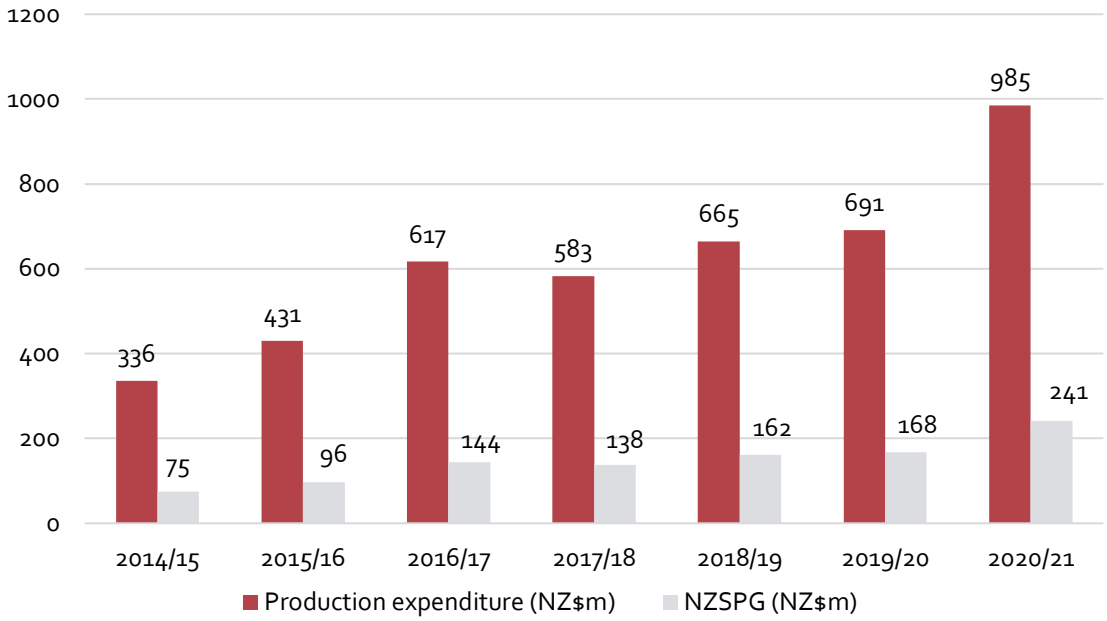


3.3. NZSPG Investment

The growth in production expenditure has been accompanied by a rise in NZSPG payments. Overall, between FY2014/15 and FY2020/21, NZ$1.0 billion was distributed to fund production activity in New Zealand (Figure 9) – rising from NZ$337 million in FY2014/15, an annual average growth rate of 21.5% a year, compared to the 19.6% rise in overall expenditure (see section 3.2).

The incentive provides a grant of 40% and 20% of eligible production expenditure for domestic and international productions, respectively. The grant for international productions can be topped up by a 5% Uplift. Across all productions, the average rate of funding across all years was 23.5%. For three New Zealand productions the average grant rate was 38% and it averaged 22% for international productions. As the number of domestic productions and associate expenditure has risen over the last seven years, the overall intervention rate of the NZSPG has risen slightly.

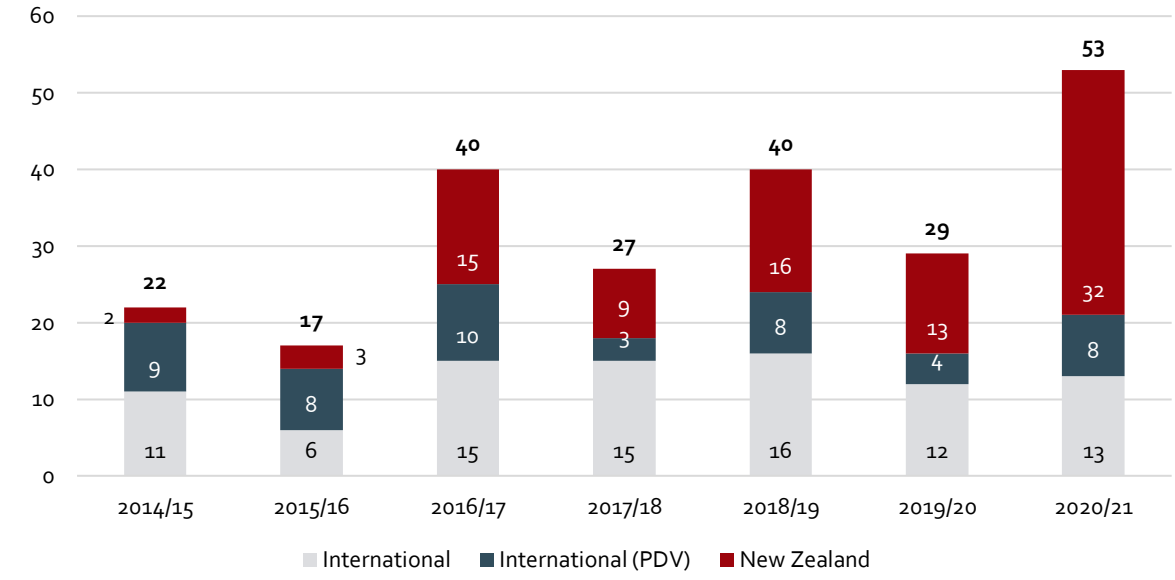
Figure 9 Total Production Expenditure and NZSPG (NZ$, m), FY2014/15 to FY2020/21



3.4. Supported Productions

The overall number of productions accessing the NZSPG has gradually grown between FY2014/15 and FY2020/21 (Figure 10). This was marginally driven by increasing numbers of New Zealand projects accessing the incentive – though overall, more international productions (138) have been supported by the incentive, compared to New Zealand productions (90).

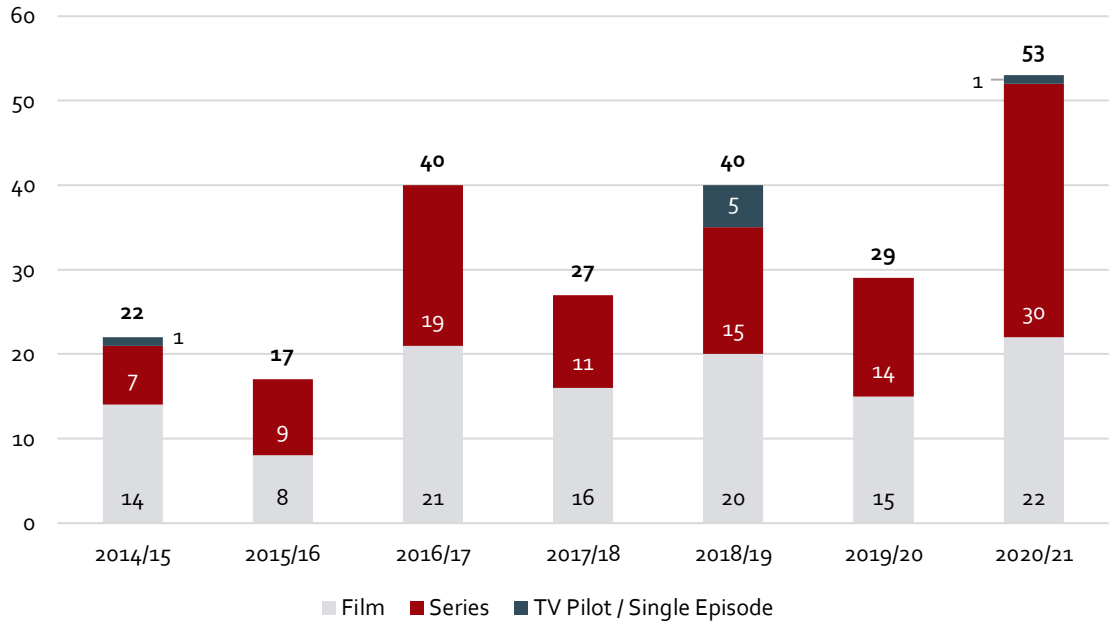
Figure 10 Number of Projects Accessing the NZSPG, FY2014/15 – FY2020/21[8]



[8] Based on the first year the NZSPG grant was paid and excludes projects that were withdraw, on hold or mark as registered

Analysis of the type of projects utilising the NZSPG shows a roughly even split between film (116) and series (105)[9]. TV pilots / single episodes still account for a small proportion of the projects support (7) (Figure 11).

Figure 11 Type of Productions Accessing the NZSPG, FY2014/15 – FY2020/21[10]



[9] Note film includes those defined as film, feature film, telefeature, streaming feature. Series includes those defined as TV series and streaming series

[10] Based on the first year the NZSPG grant was awarded and excludes projects that were withdraw, on hold or mark as registered

4. ECONOMIC IMPACT OF SCREEN PRODUCTION

4.1. Overview of Methodology

The economic impact methodology for this study is based on a large number of sector studies SPI has undertaken around the world, including in the UK, Ireland, Australia and for several US states. A full detailed methodology can be found in Section 9 (Appendix 2).

The approach uses sector production expenditure data to drive a specially developed economic impact model. This model incorporates multipliers and ratios calculated from the latest New Zealand Input-Output (I-O) tables[11] and other data released by Stats NZ and MBIE.

The most complete source of production expenditure data comes from management records of NZSPG productions kept by NZFC. While this does not capture all production expenditure, it includes expenditure information for major international productions and medium to large sized domestic productions. In the absence of the NZ Screen Industry Survey, which was discontinued in 2018, this is the best data source available.

The total economic footprint of the sector is the sum of the direct, indirect and induced effects:

- **Direct impacts** are the economic uplift in terms of output, value created (GVA) and employment within the film and television sector resulting from the increase in production and postproduction expenditure
- **Indirect impacts** are the output, value created (GVA) and employment effects observed in sectors that supply goods and services into the screen production sector
- **Induced impacts** are the output, value created (GVA) and employment uplift created as a result of the wage effects of those working in the production sector.

This methodology is not directly comparable with the estimates from the NZ Screen Industry Survey[12] which estimated that the gross revenues of the sector reached NZ$ 3.3 billion in 2018. There are three main differences in approach. First, the NZ Screen Industry Survey estimates include television broadcasting, film and video distribution and film exhibition as well as production and post-production. Second, the NZ Screen Industry Survey estimates the gross revenue of the sector not the Gross Value Added (GVA). Third, SPI's approach includes direct, indirect and induced impacts, whereas the NZ Screen Industry Survey estimates are based only on direct revenue estimates.

4.2. Additionality

Additionality describes the extent to which an observed change or impact can be attributed to a particular intervention. In this case, it describes how much of the production expenditure can be attributed to the NZSPG incentive. To determine additionality, a survey was sent to all production incentive recipients to explore what production companies would have done without the incentive.

4.2.1. Additionality – Domestic New Zealand Productions

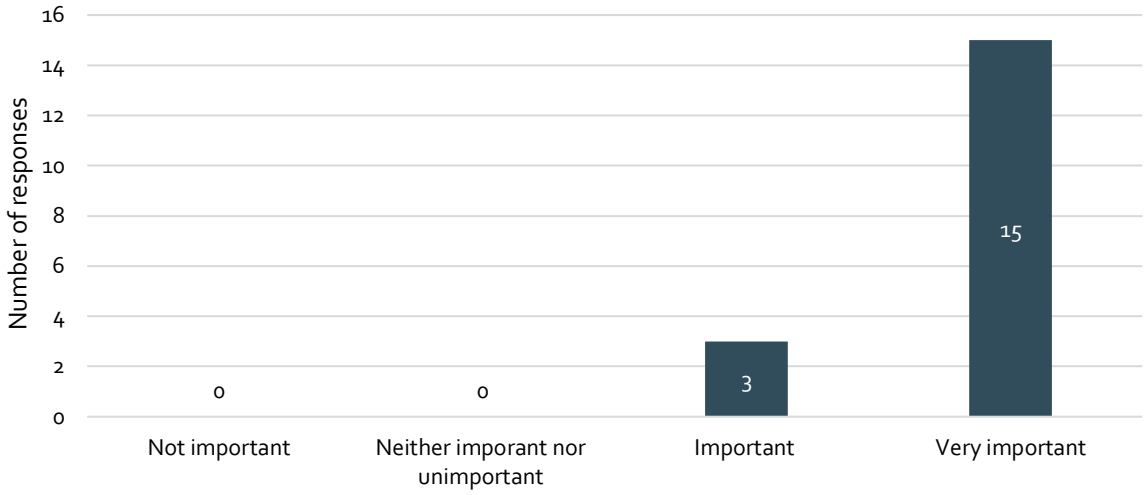
There were 18 responses out of 21 survey invitations for domestic New Zealand productions, indicating a robust response rate of 86%.

Overall, the NZSPG leverages very high additionality for domestic productions within New Zealand. As outlined in Figure 12 when asked how important the NZSPG was in making the production financially viable, all respondents indicated that it was important (without the grant the production may not have gone ahead) or very important (without the grant, the production would not have gone ahead).

[11] Released in December 2021

[12] NZ Stats, Screen Industry Survey 2018 https://www.stats.govt.nz/information-releases/screen-industry-201718

Figure 12 Domestic New Zealand Productions - How Important was the NZSPG in Making the Production Financially Viable?



When asked what would have happened in the absence of the NZSPG, 10 (56%) out the 18 respondents indicated that in the absence of NZSPG, their production would not have gone ahead. Seven (39%) indicated that the production would have moved to a different country or jurisdiction. Only one respondent indicated that that the production would have gone ahead without the NZSPG, although the budget would have been reduced to 30% of the original.

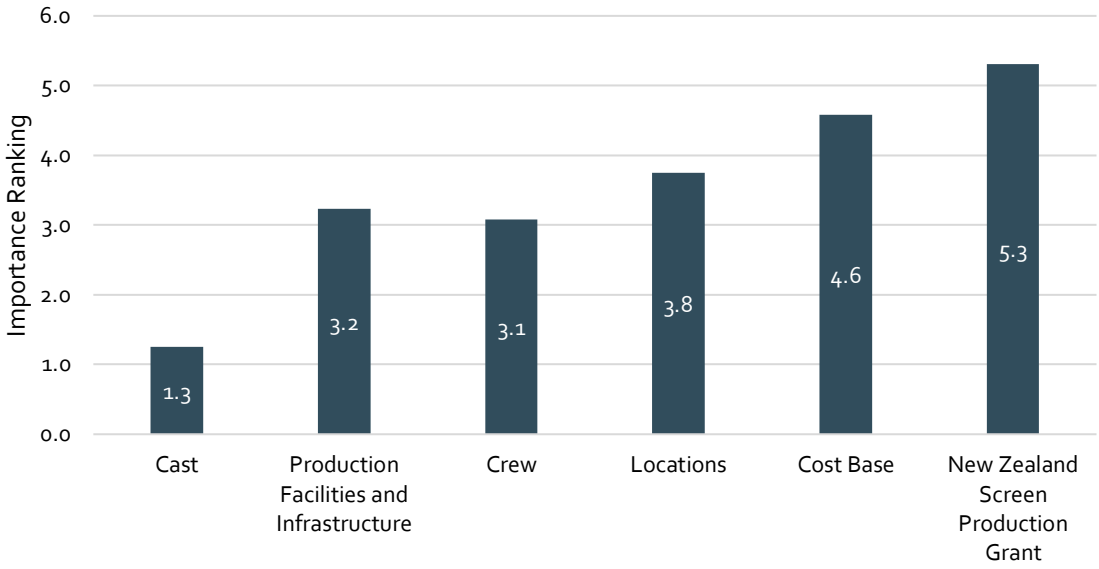
Using this data, SPI estimate that, **98% of the domestic production expenditure can be attributed to the NZSPG**

4.2.2. Additionality – International Productions

There were 13 responses by international productions (out of 27 invitations). The expenditure is largely concentrated in a relatively small number of production companies. The 13 responses cover 74% of all international production expenditure between FY2014/15 and FY2020/21.

International productions were asked what factors influenced their decision to locate production in New Zealand. Figure 13 illustrates how the NZSPG was the most important decision factor, followed by the cost base, locations and crew.

Figure 13 In Terms of your Decision to Produce in New Zealand, Please Rank the Following Factors in Order of Importance (1 least important to 6 most important)



When asked what would have happened without the NZSPG, nine (69%) out of 13 respondents indicated that their production would not have happened in New Zealand. For those reporting that the production would still have happened in New Zealand without the NZPSG, the in-county expenditure would have been hugely reduced; three indicated that production expenditure would have been 10% of the actual budget and one company indicated it would have only been 30% of the actual budget.

Using this data, SPI estimates that **93% of the international production expenditure in New Zealand can be attributed to the NZSPG**.

The rate of 98% for domestic production expenditure and 93% for international production expenditure is used to estimate the impact attributable to the NZSPG, excluding the relatively small proportion of expenditure that is likely to have happened in New Zealand without the NZSPG.

The quantitative data finding of high additionality is supported by evidence from consultations. These also indicated the NZSPG provides significant additionality (i.e., without the incentive, the production would have either not taken place in New Zealand or at a smaller scale).

4.3. Inward Investment

New Zealand producers have been successful at attracting foreign investment into the country as part of the financing structures for productions taking place, mostly using investment from the NZSPG. This leverage factor is shown in the following tables and figures, sourced from research carried out by the NZFC.

The amount of foreign inward investment outstripped NZ-sourced funding by a total of NZ$201m to NZ$164m over the five years from FY2015/16 to FY2019/20. The average split over the same period was 55/45%. These figures included co-productions as well as pure inward investment projects.

Figure 14 shows the amount of inward investment expressed in NZ$.

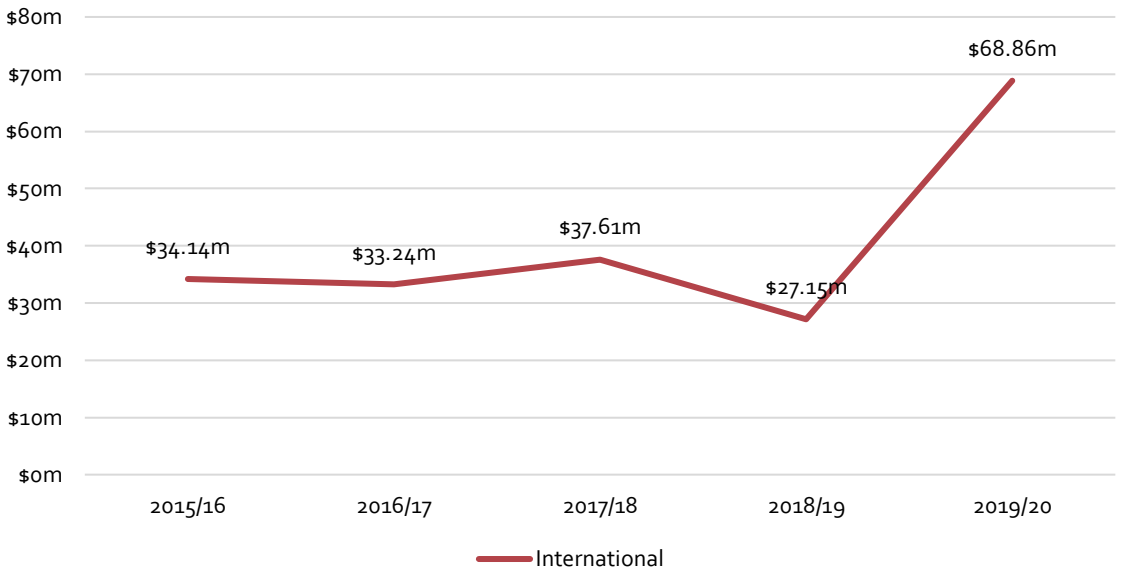
Figure 14 Total Investment (NZ$), FY2015/16 - FY2019/20

Investment Amount			
FY	**NZ**	**International**	**Total**
2015/16	$27.52m	$34.14m	$61.67m
2016/17	$36.39m	$33.24m	$69.63m
2017/18	$24.67m	$37.61m	$62.28m
2018/19	$39.20m	$27.15m	$66.36m
2019/20	$35.93m	$68.86m	$104.79m
Grand Total	**$163.72m**	**$201.00m**	**$364.72m**

Source: NZFC calculations (October 2020)

Figure 15 identifies the foreign-sources inward investment only, illustrating a notably lucrative year in FY2019/20.

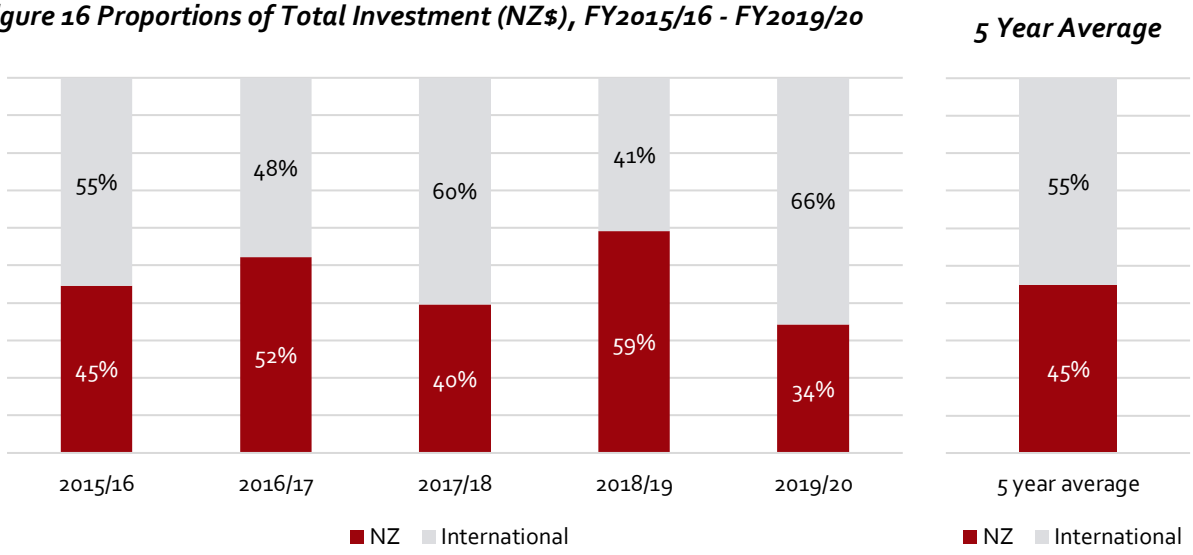
Figure 15 Volume of Inward Investment (NZ$), 2015/16 - 2019/20



Source: NZFC calculations (October 2020)

Figure 16 shows the same information expressed in percentage terms.

Figure 16 Proportions of Total Investment (NZ$), FY2015/16 - FY2019/20



Source: NZFC calculations (October 2020)

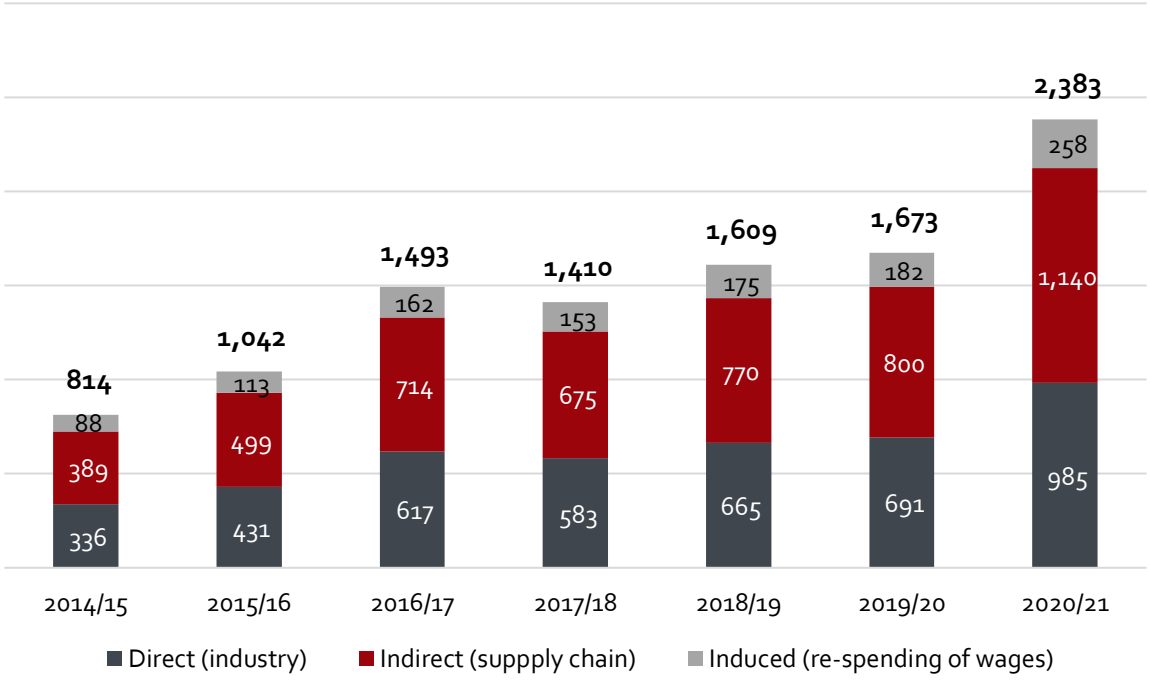
4.4. Economic Impact Results: Screen Production Activity in New Zealand

4.4.1. Output Supported by Screen Production Activity

Between FY2014/15 and FY2020/21, screen production expenditure in New Zealand has contributed a total of NZ$10 billion in economic output[13]. This included NZ$4.1 billion of direct output within production sector firms, NZ$4.8 billion in the supply chain and NZ$1.1 in induced effects, caused by the re-spending of wages in the economy.

Figure 17 shows how the total output by screen production has grown significantly over this period, in line with the pattern of expenditure discussed in Section 3.2.

Figure 17 Total Output of New Zealand Screen Production Activities, FY2014/15 to FY2020/21 ($m, nominal)



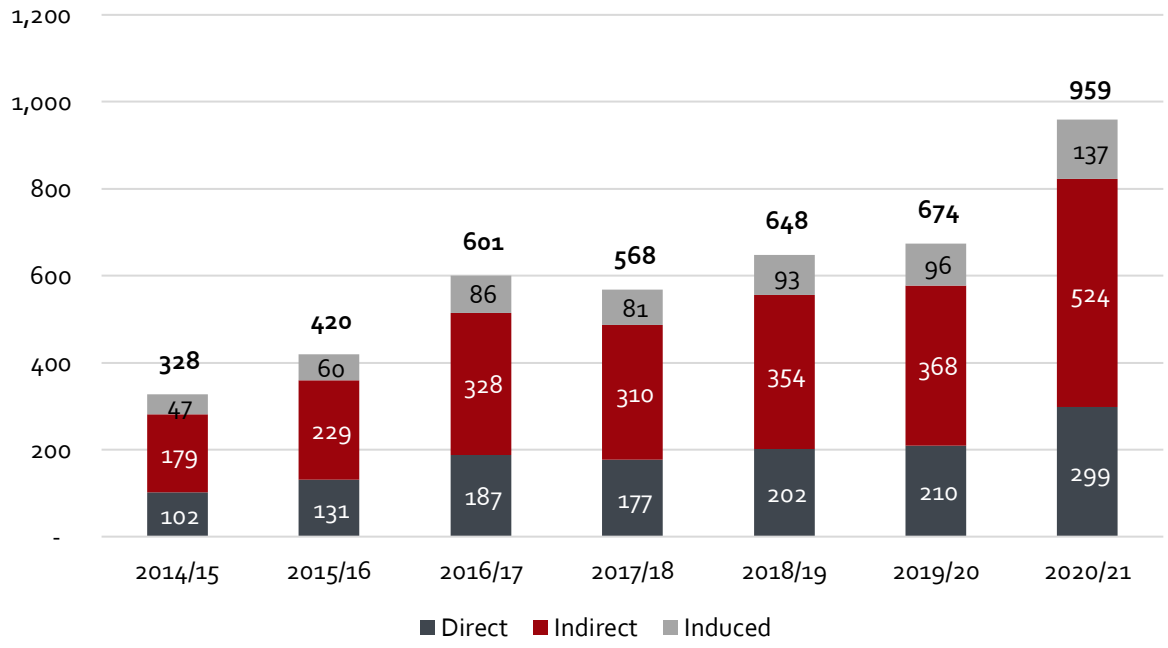
[13] Results aggregated across years are 'real' and are adjusted to FY2020/21 prices

4.4.2. Gross Value Added (GVA) Supported by Screen Production Activity

GVA is a measure of the value that is created by economic activity. It is the difference between gross output and intermediate inputs. At a national level, it aligns to Gross Domestic Product (GDP).

Between FY2014/15 and FY2020/21, screen production activity in New Zealand has contributed an estimated NZ$4.0 billion in GVA to the economy. This includes NZ$1.3 billion of direct GVA associated with screen production firms, NZ$2.2 billion in the supply chain of the industry and a further NZ$577 million in induced effects caused by the re-spending of wages in the in economy. As shown in Figure 18, the annual total GVA has steadily grown within this period.

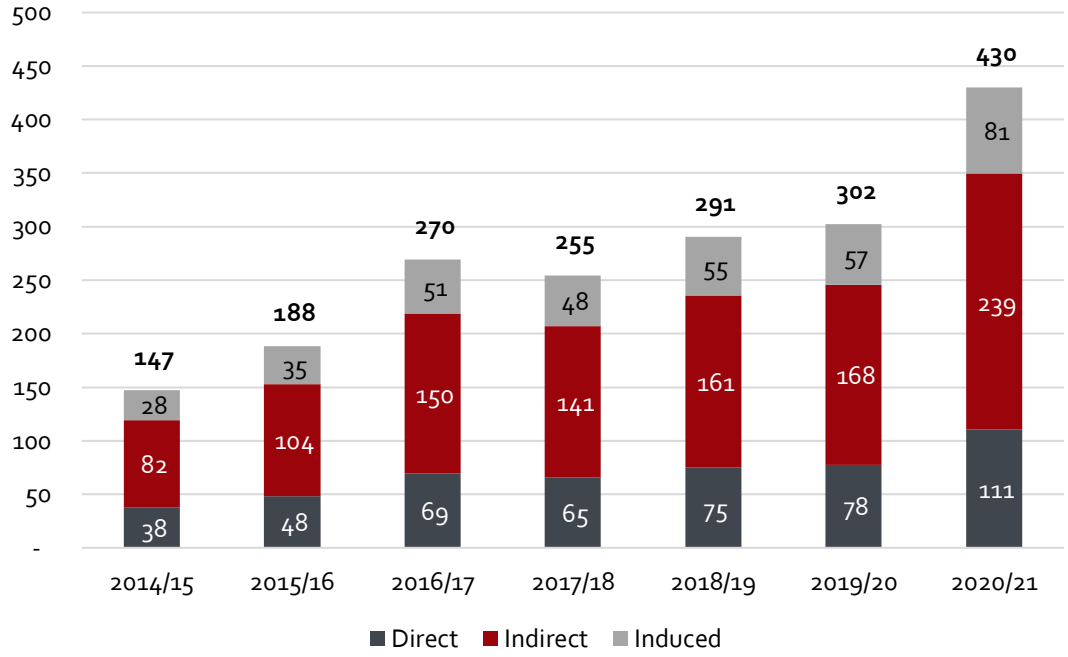
Figure 18 Total GVA, FY2014/15- FY2020/21 (NZ$m, nominal)



4.4.3. Employee Compensation

Employee compensation describes the wages and other income earned from a particular industry activity. SPI analysis indicates that between FY2014/15 and FY2020/21, the screen production sector contributed NZ$1.8 billion to the New Zealand economy in terms of employee compensation. This includes NZ$466 million in direct wages, NZ$1 billion wages in the supply chain and NZ$340 million through induced effects. As shown in Figure 19, the employee compensation associated with screen production steadily grown within this period.

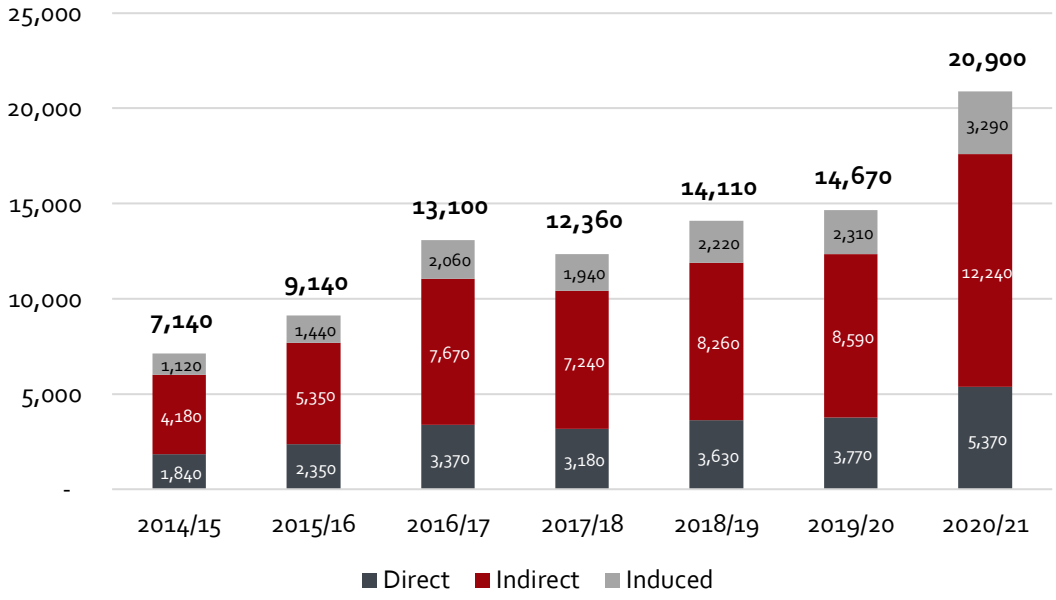
Figure 19 Employee Compensation Associated with Screen Production, FY2014/15-FY2020/21 (NZ$m, nominal)



4.4.4. *Jobs Supported by Screen Production*

This analysis indicates that between FY2014/15 and FY2020/21, the screen production sector's direct employment footprint was on average 3,360 FTE[14] jobs. This rose significantly during the period from 1,840 FTE in 2014/15 to 5,370 FTE in FY2020/21. When indirect and induced effects are included, the annual average employment supported by production activity is 13,060 FTE – ranging from 7,140 FTE in FY2014/15 to 20,900 FTE in FY2020/21 (Figure 20).

Figure 20 Full-Time Equivalent (FTE) Jobs Supported by Screen Production, FY2014/15 to FY2020/21



[14] Full Time Equivalent (FTE) measures how many total full-time employees or part-time employees add up to full-time employees a company employs. An FTE of 1.0 is equivalent to a full-time worker, while an FTE of 0.5 signals half of a full worker.

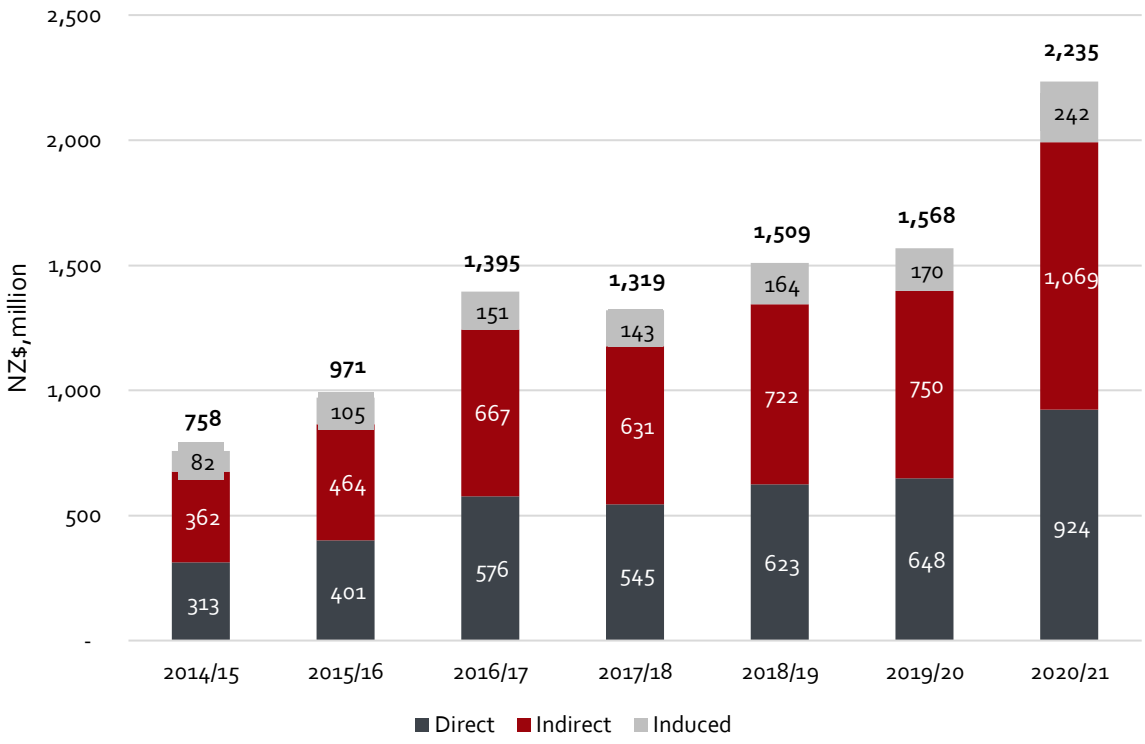
4.5. Economic Impact Results: NZSPG

4.5.1. Output

Between FY2014/15 and FY2020/21, the NZSPG contributed a total of NZ$9.4 billion in economic output[15]. This included NZ$3.9 billion of direct output (2021 prices) within production sector firms, NZ$4.5 billion in the supply chain and NZ$1.0 billion in induced effects, caused by the re-spending of wages in the economy.

Figure 21 shows how the total output by screen production supported by the NZSPG has grown significantly over this period.

Figure 21 Total Output Attributed to NZSPG, FY2014/15 to FY2020/21 ($m, nominal)

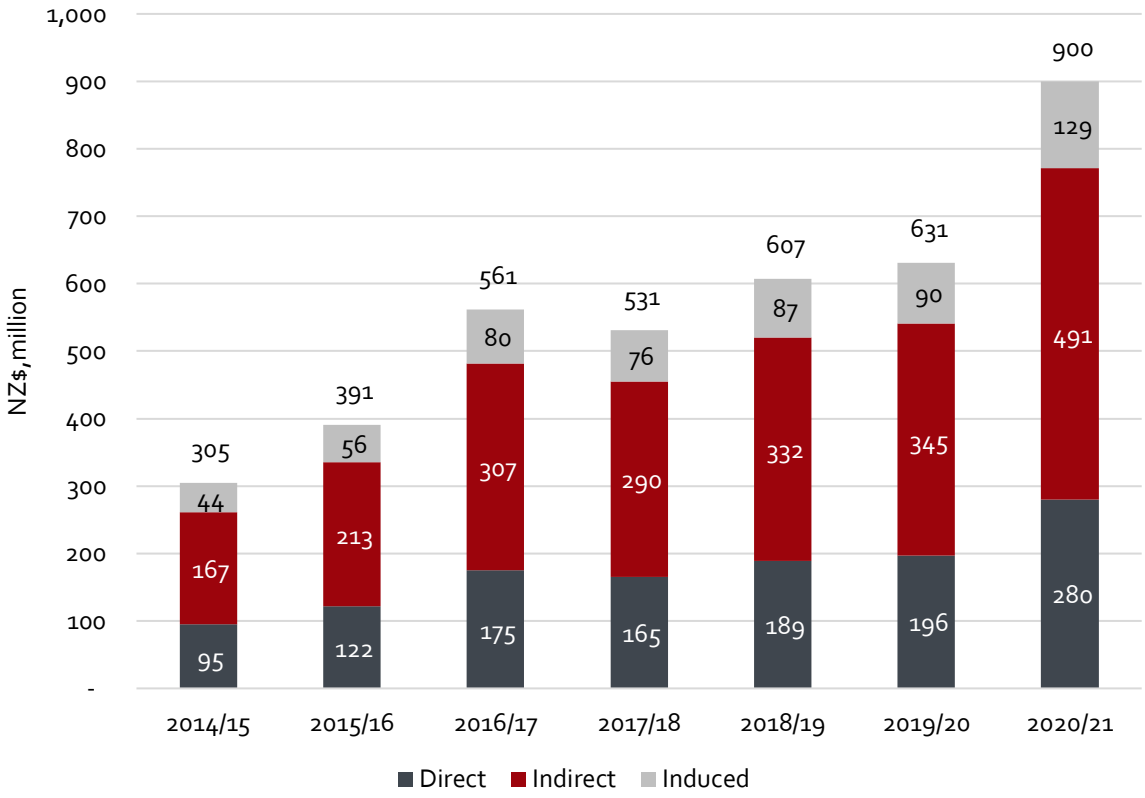


4.5.2. Gross Value Added (GVA)

The NZSPG has contributed a significant amount in terms of Gross Value Added (GVA). Between FY2014/15 and FY202/21, screen production activity, which can be attributed directly to the NZSPG, contributed an estimated NZ$3.8 billion in GVA to the economy. This includes NZ$1.2 billion of direct GVA associated with screen production firms, NZ$2.1 billion in the supply chain of the industry, and a further NZ$540 million in induced effects caused by the re-spending of wages in the in economy (Figure 22).

[15] Output is a measure of the total production value of an industry and is roughly equivalent to revenue

Figure 22 Total GVA Attributed to NZSPG FY2014/15-FY2020/21 ($m, nominal)



4.5.3. *Return on Investment*

The economic return on investment (RoI) is a measure of how much economic value is supported by NZ$1 of net investment in the NZSPG by the New Zealand government. The net investment is the cost of the NZSPG minus the direct tax return associated with the NZSPG.

The GVA RoI between FY2014/15 and FY202/21 is 6.11, meaning for each NZ$1 invested through the programme, NZ$6.15 in additional economic value is supported. Out of this NZ$6.15, NZ$1.92 is from direct effects, NZ$3.36 is from indirect (supply chain) effects and NZ$0.88 is from induced effects (re-spending of wages)[16].

Figure 23 NZSPG Return on Economic Investment (Direct, Indirect and Induced)

Attributed to the New Zealand Screen Production Grant
between FY 2014/2015 and 2020/2021

NZ$1 of Net* Investment in NZSPG *Cost of NZSPG minus direct tax receipts	supports	NZ$ 1.92 GVA Value	**Direct Impact**	1.92 ROI
		NZ$ 3.36 GVA Value	**Indirect Impact**	3.36 ROI
		NZ$ 0.88 GVA Value	**Induced Impact**	0.88 ROI

OVERALL ROI 6.15x

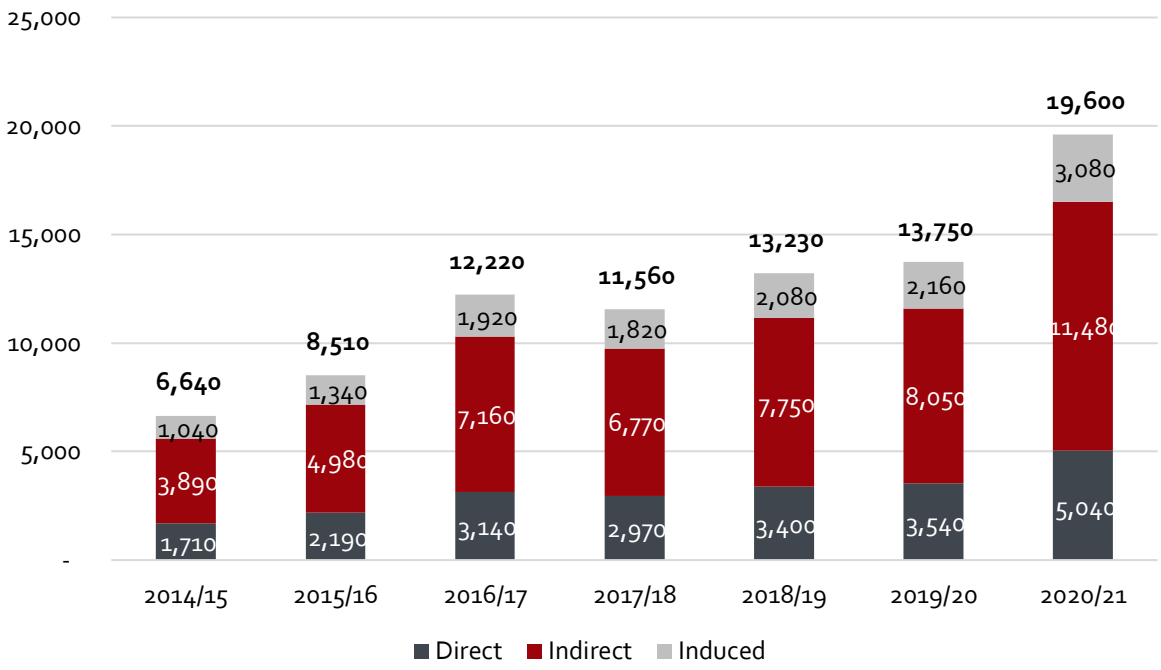
Numbers may not sum due to rounding

[16] Numbers do not sum due to rounding

4.5.4. *Employment*

The direct Full Time Equivalent (FTE) employment supported by the NZSPG rose significantly between FY2014/15 and FY2020/21, from 1,710 FTE in FY2014/15 to 5,040 FTE in FY2020/21. When indirect and induced effects are included, the annual average employment supported by production activity was 6,640 FTE in FY2014/15 to 19,600 FTE in FY2020/21 (Figure 24).

Figure 24 Full-Time Equivalent (FTE) jobs attributed to NZSPG, FY 14/15 to FY 20/21



4.6. Comparison of Economic Impact to Other Jurisdictions

It is not straightforward to compare the impact of screen production activity in different jurisdictions. Economic impact studies employ a variety of methods, with sector definitions written for different purposes.

When looking for international comparison, SPI needed to identify countries which have measured their screen production activity in a similar way and publish results for a comparable timescale. Many studies only consider the impact of a particular incentive scheme and therefore the results display the effectiveness of that scheme rather than the strength of the sector overall. SPI has a database of over fifty screen sector economic impact reports and from this, SPI identified Australia, Ireland and the UK to be the most suitable comparisons of country-wide (i.e., not individual states) studies in a similar timeframe using a similar methodology.

Overall, New Zealand compares positively in terms of the comparative size of its sector with Australia and Ireland.

Figure 25 summaries the comparisons to other jurisdictions. This analysis provides an indicator of how concentrated or specialised each country's economy is in terms of screen production, compared to the overall economic scale of the country.

If New Zealand had a similar level of screen production concentration as the comparator country, indicator A: 'GVA supported by NZ screen production as a % comparator GVA' would be the same as indicator B: 'NZ GDP as a % of comparator country'. When A is greater than B New Zealand's economy is more specialised in screen production (i.e., that a higher proportion

of all economic value comes from screen production) than the comparator country. When A is less than B, NZ's economy is less specialised in screen production than the comparator country.

Figure 25 Full Summary of Comparative Position of NZ Screen Production Sector

Jurisdiction	Year of comparison	A: GVA supported by NZ screen production as a % comparator GVA	B: NZ GDP (whole economy) as % of comparator country	Relative strength of NZ sector compared to comparator
Australia	FY17/18	33%	15%	Yes
Ireland	2016	80%	63%	Yes
UK[17]	2019	3%	7%	No

Each of these comparisons are explained in more detail below.

4.6.1. Australia

SPI analysis indicates that screen production makes a larger comparative contribution to the New Zealand economy than the sector does in Australia.

In 2019, SPI carried out a study in Australia which can be used for a comparator analysis for the year FY2017/18[18]. In FY2017/18, Australian production activity accounted for around NZ$1.7 billion (AUS$1.6 billion) in GVA. In the same year New Zealand's screen production sector was NZ$568 million, roughly a third of Australian's production impact in the same year. Comparing the two country's overall GDP, New Zealand's GDP is only 15% of Australia's, indicating that New Zealand has a particular strength in screen production.

4.6.2. Ireland

SPI, with Nordicity, undertook an analysis of the audiovisual sector in Ireland in 2017[19]. This found that in 2016 that the GVA impact of production in Ireland (defined as including independent inward production, in-house production, post-production/VFX and animation production) was €405.3 million. Using the average exchange rate between euro and NZ$ for that year, this translates to NZ$644 million.

The results from this study suggest that GVA for the calendar year 2016 is estimated to be NZ$ 511 million (an average of the FY2015/16 and FY2016/17) total GVA. This suggests that New Zealand production was around 80% of Irish production in that year.

Comparing the overall size of the economy (in terms of GDP) for 2016 suggests that the New Zealand economy was 63% of the Irish economy (US$189 billion compared to US$298 billion). This therefore also suggests that compared to Ireland, the New Zealand screen production sector contributes more in terms of economic value when accounting for the size of the economies.

4.6.3. United Kingdom

In the UK, SPI undertook an assessment of the impact of the screen tax relief for the last nine years. The latest study, published in 2021, found that in 2019 the screen production tax relief supported £12.4 billion of GVA (incorporating Film, High End Television, Children's

[17] UK/NZ comparison is based on the assessment of the economic impact of the tax incentive/relief programmes and are therefore not an exact comparison.
[18] Olsberg-SPI (2019) Study of the Economic Contribution of the Motion Picture and Television Industry in Australia.
[19] Olsberg-SPI (2017) Economic Analysis of the Audiovisual Sector in the Republic of Ireland

Programmes and Animation). This is equivalent to NZ$24.1 billion (using an average exchange rate for 2019). This can be compared to data from this study that found that the NZSPG supports an estimated NZ$ 617 million in GVA 2019 (average figure for FY2018/2019 and FY2019/2020). The NZSPG supported around 3% of the GVA supported by the UK tax relief system.

Comparing the size of the two economies – New Zealand's GDP in 2019 was 7% of the UK's. The findings when comparing the impact of the incentive programme are less clear. On the one hand, it suggests a lower level of specialisation in screen production in New Zealand than in the UK. However, the results may also be influenced by the varying definitions of eligible spend and are therefore not as reliable indicator of strength of overall position as the Australia and Ireland comparisons above.

5. THE 'RIPPLE EFFECT': MEASURING THE MICRO-ECONOMIC IMPACT OF FILM AND TELEVISION PRODUCTION SPENDING ACROSS BUSINESS SECTORS

5.1. Overview

While this study focuses primarily on the macro-economic effects generated by the expenditure of screen productions in New Zealand, research was also undertaken into an additional and important element of impact created by this activity. This is the micro-economic effect that delivers value to many business sectors in the locality where the production expenditure takes place.

Film and TV production are specialist manufacturing processes which require a wide variety of inputs. These include a large number of workers – spanning creative, technical, logistical and support roles – as well as equipment, facilities, infrastructure and services.

While some of these inputs will be sourced directly from the screen sector – i.e., from individuals or vendors who only work in film and television production – normally a larger proportion of expenditure is made in other areas of the economy. This is referred to as the 'Ripple Effect' – i.e., the micro-economic impacts that each production generates for other business sectors.

To demonstrate this impact, forensic analysis of an anonymous but representative production's budget was undertaken. Here, production spend was assigned to the business sector into which the money is spent. The focus of the analysis is on 'below-the-line' production expenditure to exclude the effect of payments to major creative talent that could imbalance the analysis.

As noted above, producing and manufacturing a typical film or television drama series involves drawing on a wide range of personnel, skills, services, facilities, and infrastructure from other industries, both from the creative economy and more general business sectors.

The Ripple Analysis process involved examining every element of 'below-the-line' expenditure, as contained in a production's final budget or cost report. A significant portion is typically spent with companies and individuals who ONLY supply the screen production sector: they do not work in any other industry. These amounts are allocated to the screen production specific sector and normally amount to between 25% and 50% of the costs analysed; in this case 40%.

The remaining amounts are spent on services and supplies from individuals or companies that supply a variety of sectors, in addition to screen production.

5.2. Breadth of Impact across Business Sectors

The Ripple Analysis investigated production spend in the following business sectors:

- Screen production-specific
- Business support
- Construction
- Digital services
- Real estate
- Travel and transport
- Hospitality and catering
- Finance and legal
- Fashion and beauty
- Music and performing arts
- Power and utilities
- Safety and security
- Training and education

- Health and medical
- Local labour miscellaneous.

These are described further below.

5.2.1. Screen Production-specific

The proportion of production spend on wages of crew and companies supplying services that exclusively work in the film and television production sector. These suppliers do not participate in other sectors of the economy and therefore do not contribute to the Ripple Effect.

5.2.2. Business Support

Like any economic activity, film and TV production uses the services of general business equipment, services and supplies sector in many ways. This could involve purchases of office equipment, printing and copying services. Producers also purchase or rent a large number of miscellaneous items, such as storage containers and marquees, especially when a significant production goes on location, when producers will rely heavily on being able to access local supplies as they set up temporary bases.

5.2.3. Construction

Much of a production's construction expenses could be classified as screen production-specific; a film set is normally only of any use to a specific type of production. The construction department, however, will reach out to the wider construction sector to hire equipment and specialists, for example earth diggers and heavy lifting equipment; such costs have been allocated here.

5.2.4. Digital Services

This sector is heavily dependent on-screen production, and the bulk of such costs in most budgets will be allocated to the category specific to screen production. There is, however, some crossover of skills between this sector and the other key digital industries, in particular the video games sector, and the costs of such persons and suppliers have been allocated to this category.

5.2.5. Real Estate

The costs of renting space from purpose-built or adapted studios have been included in the screen production-specific category but, when productions are on location, they may rent buildings that also serve other sectors of the economy.

5.2.6. Travel and Transport

A key expense of production is the cost of bringing above- and below-the-line personnel into and around where the production is located. Furthermore, a moving unit requires considerable transport back up – whether that is by road, train or air. The spend is normally higher on location-based productions rather than largely studio-based shows.

5.2.7. Hospitality and Catering

These costs relate to accommodating and feeding substantial numbers of talent and crew, especially when a production is using locations at a distance from where the workforce is permanently based. Consequently, the hotel and accommodation sector is an important supplier to productions, regardless of whether they are largely studio-based or predominantly moving between different locations.

Catering for the working unit is usually provided by mobile catering companies, but the quality and availability of restaurants are also important to those having travelled to the location of the production.

5.2.8. Finance and Legal

Like any business sector, screen production has many requirements for this expertise, with a plethora of standard and specialised contracts to be negotiated. The accounts department of a production also has a crucial role, especially as so many projects involve funding sources that require external audits.

5.2.9. Fashion and Beauty

For many contemporary productions, much of the on-screen costume requirement is simply purchased from high street shops, while period or futuristic shows on the other hand will require considerable work by skilled cutters, tailors and dressmakers. Specific costume hire spend has been allocated to the screen-production specific category.

Equally, hair and make-up look to the general 'beauty' sector for both their products and skilled practitioners – wig makers are a good example of the screen production world interacting to mutual benefit with the broader fashion and beauty sector.

5.2.10. Music and Performing Arts

It is sometimes challenging to differentiate between these two sectors and screen production specific. Almost all the creative roles are filled with people who have either moved in the past or continue to move between theatre, musicals and the visual arts. In the design area, for example, the 'concept' artists who bring the designer's work to life will also work in the exhibition field and in theatre. Actors move continuously between live theatre and screen. Producers are constantly looking to the live theatre scene for new talent, and writers often move between live theatre and screen.

Musicians and singers who work in orchestras and opera companies will often be found in recording studios providing musical background for screen productions.

5.2.11. Power and Utilities

As with any major business sector, screen production is a considerable consumer of power and general utilities. While on location, production units will use generators to power their lighting rigs and location bases. However, the sector is increasingly looking to adapt to more environmentally responsible ways of consuming power and other utilities, and major financiers are constantly interested in mitigating their environmental impact.

5.2.12. Safety and Security

Risk assessments for screen productions can be very specific, so specially trained health and safety advisors are common and of more importance in recent years because of the COVID-19 pandemic. Stunt work, for example, calls for close co-operation between the production, the stunt co-ordinator, and health and safety officers.

Security, particularly on location, can be co-ordinated by the production but will require considerable support from the local community, and close contact between the production and a local security operation is often a huge asset to both sides.

5.2.13. Training and Education

Many countries have adopted a variety of training initiatives, internships and apprenticeship schemes to enable pathways for diverse kinds of training across many disciplines.

5.2.14. Health and Medical

This is becoming an even more crucial sector in the wake of the COVID-19 pandemic and has therefore gained far greater significance. Trained medical staff attend sets and construction sites, providing immediate health cover. Screen production also relies on the medical community in several ways, including the health checks that all key staff undergo – this has

increased substantially because of pandemic issues and protocols. Special training of such staff has become necessary across the industry since COVID-19, with considerably increased costs in this category as a result.

5.2.15. Local labour Miscellaneous

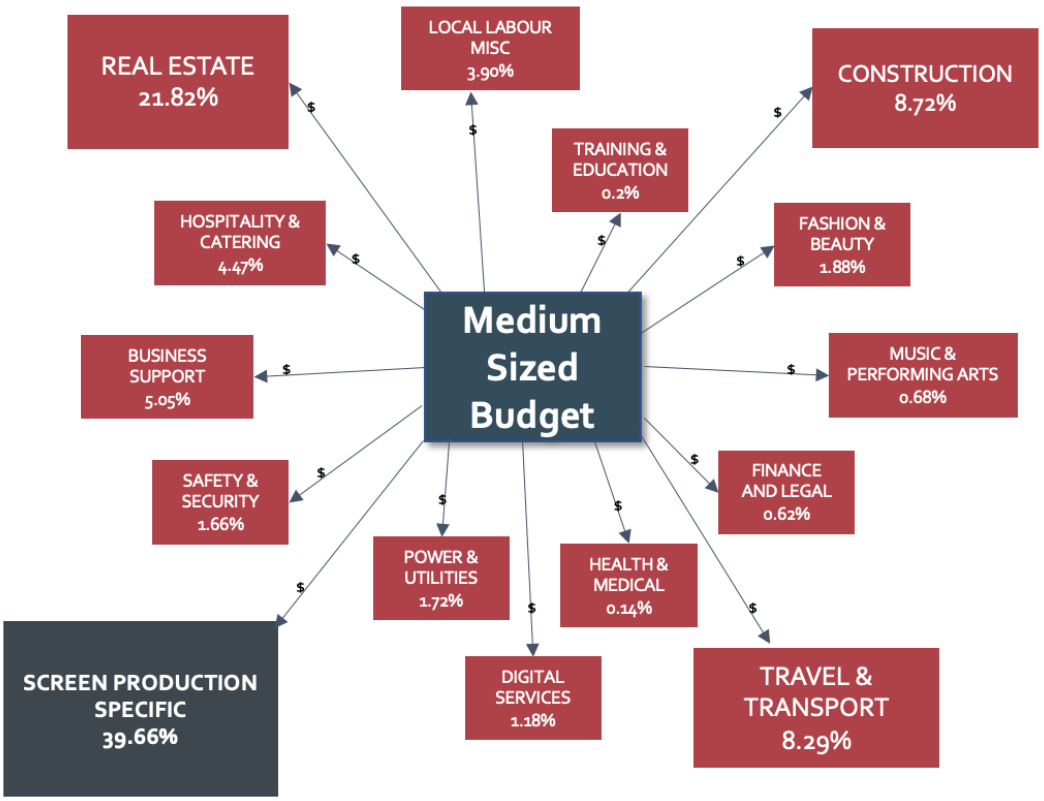
In the analysis there were some labour costs where it was not sufficiently clear to which expenditure category they belonged. These costs have therefore been allocated to a miscellaneous category.

5.3. The Ripple Analysis Case Study: Representative International TV Drama Series[20]

SPI analysed the 'below-the-line' expenditure of the first season of an unnamed TV drama series production. This was a mid-budget, international series, which was supported by the NZSPG. The case study is a standard production, involving a mix of location and studio-based work, and wholly shot in New Zealand. SPI and NZFC are hugely grateful to the producers for their co-operation with this analysis.

The result of the analysis shows that **over 60% of the 'below-the-line' expenditure were spent in the broader business economy,** as opposed to with screen sector specific industries (Figure 26). The largest of these were real estate (21.82%), construction (8.72%) and travel and transport (8.29%).

Figure 26 Breakdown of Below-The-Line Production Spend for Representative Sample Production by Business Sectors



[20] Not named for confidentiality purposes

6. COMPARISON TO OTHER NEW ZEALAND INCENTIVISED SECTORS

As part of this study, SPI looked for sectors within the New Zealand economy which could be used as a comparison for the screen production sector. There are two areas in which such comparisons are useful. First, to understand how the overall size and scale of screen production compares to other sectors. Second, to compare the return on investment for a public investment in sector development. These two types of comparisons will be covered in turn.

6.1. Comparison: Size of Sector

The most comparable approach to measure the size and scale of sectors or industries in the economy is through the National Accounts published by Stats NZ. This uses standard industry classification codes (ANZSIC) to classify economic activity and assign it a detailed (4 level) code, which can then in turn be aggregated into broader industry categories.

The challenge faced when using ANZSIC approach for screen production activity is that the ANZSIC do not align directly with screen production and post-production activity and due to size of the activity, data on output and employment for the most relevant four-digit codes (J5511 Motion picture and video production and J5514 Post-production and services and other motion picture and video activities) are not routinely published.

The latest December 2021 Input-Output table release for data to March 2020 indicates the sector 'Motion picture and sound recording activities' accounted for 0.34% of total NZ economic output. Most of screen production activities, but not all, will fall within this 0.34%. For comparison, agriculture accounts for 4.94% of total output.

The methodology employed in this report seeks to overcome this issue and uses a production expenditure-based approach to ascertain the size and scale of production activity. This is a well-established approach for screen production activity where expenditure data is possible to obtain. A similar methodology is used for tourism and visitor economy economic impact studies that use visitor expenditure data to drive economic impact models.

The review of New Zealand studies found that two sectors have been studied in this way. The Economic Impact of International Education in New Zealand[21] estimated that 'onshore' spend (within NZ) contributed GDP of around NZ$4.0bn (2015/16 prices) – this encapsulates direct, indirect and induced impacts. Total employment (direct, indirect and induced) estimated to be 32,000 jobs in FY2015/16.

The Tourism Satellite Accounts[22], published by MBIE, indicated that in 2019 the direct value added provided by tourism (domestic and international) equated to around NZ$16.1bn, with a further estimated NZ$11.2bn supported indirectly. The total tourism value added as a proportion of NZ GDP was estimated to be 9.8%. International tourism expenditure represented around 42% of total tourism expenditure. The tourism sector was estimated to directly support around 229,000 jobs, with a further estimated 164,000 supported indirectly – estimating 393,000 in total (14% of total NZ employment).

These figures are summarised in Figure 27.

[21] The Economic Impact of International Education in New Zealand for 2015/2016, Ministry of Education
[22] *Tourism Satellite Accounts, 2019*, The Ministry of Business, Innovation and Employment

Figure 27 Comparison of Screen Sector with International Education and Tourism Sectors based on Available Data

Sector	International Education	Tourism	Screen Production
Impact year	2015/16	2019	2020/21
Total GDP (GVA)	NZ$4.0 billion (2015/16 prices) – including direct, indirect and induced	Direct NZ$16.1 bn Indirect NZ$11.2 bn	Direct NZ$0.3 bn Indirect NZ$0.5bn Induced NZ$0.1 bn Total NZ$0.96 bn
Total Employment-	32,000 jobs - including direct, indirect and induced	Direct 229,000 Indirectly 164,000	Direct 6,451 Indirect 14,696 Induced 3,946 Total 25,093

The expenditure-based approach cannot easily be applied to other sectors in the economy as reliable and robust available expenditure data is not readily available. Apart from the international education and the tourism studies example mentioned above, it has not been possible to identify other NZ sector studies employing a similar approach.

6.2. Comparison: Return on Investment

The approach to finding comparison return on investment figures involves looking for evaluations of economic development project and programmes. A wide search was undertaken to identify relevant evaluations, and the most comparable studies have been set out in section 10 (Appendix 3). Overall, there is a relatively limited number of recent, publicly available evaluations of economic development initiatives in New Zealand. Within these evaluations, there is a focus on qualitative rather than quantitative assessments of impact and return. And those that do use a quantitative approach use a variety of methods, meaning the results are not always comparable.

The best examples found include:

- Evaluation of the Regional Growth Programme, which found a Net Benefit to Cost Ratio of 15:1 over a 20-year period through increased profits.
- Evaluation of Venture Investment Fund, which found an investment leverage ratio of 16:1
- Evaluation of the Growth Services Range: Statistical Analysis, which found a cost to benefit return of between 1.3 and 2.

7. ADDITIONAL INSIGHTS AND FINDINGS ON THE SCREEN PRODUCTION SECTOR IN NEW ZEALAND

7.1. Workforce Capacity and Development

Inward international productions provide valuable opportunities for the domestic workforce in New Zealand. However, there are perceived and real challenges around meeting the needs of inward productions while ensuring capacity and support for domestic productions.

The New Zealand screen sector workforce are well respected. They are seen as being highly skilled and a key contributing factor in attracting inward production investment to New Zealand. Effective and well-connected production service companies signposting inward productions to available crew and facilities were also seen as a key part of New Zealand's offer.

Due to the typically large-scale nature of international productions, these projects often provide jobs with higher-than-average pay, credits on high-profile productions, as well as opportunities for the domestic industry to gain expertise and new skills from other parts of the world. For example, with the rapid uptake in development and larger budget HETV[23] productions globally, New Zealand has benefitted from this by hosting multiple HETV productions directly intended for video on demand (VOD) services. The regional workforce has subsequently benefitted from the longer production timeframes, more continuous turnaround of projects, and repeated series.

This said, increases in inward productions taking place in New Zealand have put external strain on the system, pushing workforce and studio capacity to its limits and generating a perceived shortage of skilled labour and production space. This was highlighted in previous research undertaken when developing New Zealand's national screen sector strategy[24], as well as from speaking with industry as part of this study.

New Zealand is uniquely positioned in terms of developing and supporting expertise that are currently sought after and will be increasingly in demand for the production of digital content.

Many roles in the screen production sector are considered 'jobs of the future', as they are relatively well paid and not readily replaced by AI or robotics. Similarly, New Zealand has some notable companies with sector leading technological capabilities, including the advanced digital visual effects produced by Weta FX (formerly known as Weta Digital), and the cutting-edge digital services Rebel Fleet provide in supporting efficient screen production workflow.

Interventions are taking place to improve the domestic workforce capacity and representation. These are seen by some to be relatively high-level with further work needed.

Alongside efforts to increase workforce capacity in New Zealand, there have been interventions to improve working conditions and inclusivity. Such initiatives include *Te māngai pāho*[25], a government supported programme that provides funding for the promotion of Māori language and culture, in terms of representation of content and workforce involved in its creation. Similarly, *Script to Screen* is an example of industry governing bodies, namely the NZFC and NZ on Air, providing training programmes and networking for New Zealand filmmakers.

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[23] High-Ended Television. Definitions vary globally. The UK definition is a production made at £1m or above per broadcast hour and a broadcast timeslot of at least 30 minutes.

[24] *Aotearoa New Zealand Screen Sector Strategy: 2030.* Screen Sector Strategy NZ. August 2020. Accessed: https://screensectorstrategynz.files.wordpress.com/2020/08/aotearoa-new-zealand-screen-sector-strategy-2030-final-august-2020.pdf

[25] Te Māngai Pāho (Overview, Website). Available at: https://www.tmp.govt.nz/en/funding/

While these programmes are having notable impact, there remains ongoing concerns that more needs to be done to tackle structural challenges in the workforce. For example, although on-screen representation has been at the forefront of many initiatives in New Zealand and remain a core consideration for local content, female filmmakers and crew members from indigenous communities are still underrepresented and/or underpaid in both above and below-the-line roles. For example, data collected by Woman in Film and TV (WIFT) found that women from New Zealand working in film and TV production (excluding actors, writers, creative artists, and musicians) make up the majority (54%) of those earning under NZ$35,000 each year, but make up the vast minority (18%) of those earning over NZ$150,000 annually.

7.2. Public / External Perspective

The New Zealand screen production sector can be seen as a 'black box' by those outside the sector, where the direct and indirect social and economic value is not readily shared or understood. This effects the way the NZSPG is perceived.

The socio-economic value of the screen production sector is not always well understood in many jurisdictions globally. This is, partly, due to the unique and complex business models and supply chains which operate within the screen sector. For example, due to the nature of TV and film production (from script development, production, post-production, to distribution), a large number of screen-specific and non-screen-specific workforce and vendors are involved at various points. As highlighted in the production case study in Section 5, these individuals and businesses are providing and gaining valuable economic, cultural and social value, but not always included within sector-specific impact assessments.

The NZSPG is an economic incentive and an effective investment programme, but some external perceptions tend towards it being regarded, incorrectly, simply as a subsidy and therefore a cost. Commentators have been particularly critical of the added value and financial return the NZSPG provides to local and national economies, focusing more on benefits being provided distributed to individuals and major international corporations. The results of this Study show the significant economic benefits that can be attributed to the NZSPG investment and how the expenditure ripples through many different sectors and elements in the New Zealand economy.

This said, there is a segment of public perception that acknowledges the uniqueness of the New Zealand screen sector, in particular its ability to foster and support local talent that have now reached international acclaim, such as Jane Campion and Taika Waititi.

7.3. Impact of the COVID-19 Pandemic

The New Zealand screen sector saw a delayed impact to the COVID-19 global pandemic in comparison to other parts of the world, partly due to its ability to become an isolated hub for productions to take place. As restrictions globally were eased, New Zealand's prolonged isolation became a prohibitor, however the NZFC and New Zealand government are providing support to mediate these effects.

The New Zealand screen sector was not initially heavily impacted by COVID-19 and, because of its containment, was able to continue with existing productions within New Zealand while the rest of the world locked down. However, the industry was not able to escape cancelled/delayed productions or the loss of financing due to extended national and regional lockdown measures, while many other jurisdictions outside New Zealand started to reduce or remove their restrictions. One of the most significant restrictions that impacted inward international production into New Zealand was the expenses and administration associated with the Managed Isolation and Quarantine (MIQ).

The screen production sector typically supports and creates jobs that are on average higher paid when comparing to the same role in other sectors. To support the domestic production

sector and safeguard employment, the NZFC and NZ On Air provided an interim round of funding of ~NZ$8.4 million.

7.4. Related to NZSPG's Criteria and Process

The NZSPG incentive is highly regarded among international users, with specific but relatively isolated issues around the 5% Uplift.

International industry professionals who engaged with the NZSPG regard the grant as a 'best in practice' incentive, which was compared with the incentives in Australia and the United Kingdom, in terms of efficiency of application processes, accessibility to financial resources through the budget minimums and funding cap, range of eligibility requirements, and overall administration of the grant process.

There were some noted challenges for the handful of international productions who have accessed the additional 5% Uplift. Specifically, the extended lead-time associated with the process of securing the additional uplift is particularly inhibiting, which doesn't align with the responsive, rapidly changing planning needed by producers seeking investment. This adds a layer of complexity, especially when compared to the standard NZSPG criteria.

Industry commented that the NZSPG should consider adapting its support to new formats being popularised in the sector.

New Zealand has been identified as a strong player in the digital production realm, with established expertise and strong infrastructure. With the rise of virtual production, cross-platform content and gaming, there is expressed interest in the industry for these formats to be included in funding schemes to promote content and skills development. This would be a consideration that capitalises on New Zealand's existing reputation and resources in that specific area of the sector.

8. APPENDIX 1 – GLOSSARY OF KEY TERMS

Additionality – Additionality describes the extent to which a change in the economy is due to the specific investment under consideration

ATL and BTL – Above-the-line (ATL) and below-the-line (BTL). These relate to film and television production workforce and the different types and seniority of roles across talent, cast, and crew: ATL refers to key talent, including directors, writers, and actors; BTL refers to other crew, for example in technical production roles.

Direct Impacts – Direct impacts are the economic uplift in terms of output and value created (GVA) within construction and film and television firms resulting from the increase in construction and production expenditure. Direct impacts describe the uplift related to a change in revenue for the production company/office or construction company and are therefore located where the production or construction company/office is situated.

Displacement – Displacement describes the extent to which an uplift in economic activity is offset by a reduction in activity elsewhere within the state.

Economic RoI - Economic return on investment (RoI). A measure of how much economic value, in terms of total GVA, is created for the New Zealand government for every $1 of government investment in NZSPG grants. The economic RoI calculation incorporates costs to the government, including the total amount of grant outlay.

FTE – Full-time equivalent (FTE) employment or jobs is a consistent measure of employment that accounts for part time and full-time working patterns and temporary or contract-based workers. An individual working full-time for six months would count as 0.5 FTE. Similarly, someone working part time (half of usual full time working hours) for a year would also count as a 0.5 FTE.

GVA – Gross Value Added (GVA) is a measure of the value that is created by economic activity. It is the difference between gross output and intermediate inputs; at a national level, it aligns to Gross Domestic Product (GDP)

Headcount – a measure of employment which does not take into account the number of hours an individual worked.

HETV – High-End Television. Definitions vary, but in the UK this is defined as a production made at £1m or above per broadcast hour and a broadcast timeslot of at least 30 minutes.

Indirect Impacts – Indirect Impacts are the output and value created (GVA) effects observed in sectors that supply goods and services into the construction and film and television production sectors.

Induced impacts are the output and value created (GVA) stemming from household spending of labour income (wages). The induced effects are generated by spending of the employees within a business and its supply chain.

Input-Output Tables - show the relationships between industries, the goods and services they produce, and who uses them. The tables contain detailed data about the production and expenditure measures of gross domestic product (GDP). In New Zealand these are released every six years or so. This study uses the most recent release (on 20th November 2021) to ensure calculations are as accurate as possible for the New Zealand's current economy.

Leakage – In economics, leakage refers to the amount of economic impact that occurs outside of the region of interest. In this instance all impact which occurs outside New Zealand is deemed to be leakage

Ripple Effect – In economic terms, how screen production expenditure is spent across local and national economies, including non-screen specific sectors, such as hospitality and transport.

9. APPENDIX 2 – ECONOMIC IMPACT METHODOLOGY

To develop this analysis, SPI undertook a series of key steps. These are based on methodological approaches for similar studies in a range of countries, including Ireland, the UK, several US states, and Australia.

9.1. Production Expenditure

To assess the impact of the screen production activity in New Zealand, the first step is to ascertain the overall production expenditure. The most complete data on production activity comes from applications to the NZSPG.

This data set includes the following:

- Major international productions – feature films with over NZ$15 million of qualifying NZ expenditure and other formats minimum of NZ$4 million
- Domestic productions - feature films (over NZ$2.5 million expenditure) and tv episode/series (scripted $1 million an episode and non-scripted $250,000).

In the absence of a wide-spread sector survey, SPI has been unable to identify additional data that can be used to estimate the non-incentivised screen production expenditure. The overall sector expenditure has been identified by MBIE as a gap following suspension of the Stats NZ Screen Industry Survey[26]. However, given that the NZSPG data captures the major production it provides a reasonable low-end estimation of the scale of television and film production activity.

9.2. Key Data Sets and Sources

The following data sets were accessed and analysed:

- New Zealand National Accounts – Input-Output (I-O) Tables: Year End March 2020, published 19th December 2021
- New Zealand National Accounts – Industry Production and Investment: Year End March 2020, published 19th December 2021
- Economic Trends in the Screen Sector – Ministry of Business, Innovation & Employment, 2021.
- Linked Employer-Employee Database (LEED) Quarterly Release 2019.
- Bespoke data request from Stats NZ – LEED data number for number of filled jobs in sector 55 (Motion picture and sound recording) annualised data for year to end March (2015-2020).
- Stats NZ estimation of full-time and part-time workers in sector.

9.3. Analysis of New Zealand I-O Tables

Quantitative analysis of these data was undertaken, predominantly using an input-output model developed through an assessment of the NZ I-O tables. The most recent data release in December 2021, provided supply and use data for the year end March 2020. Prior to this release, the last I-O tables were published in 2014 and related to data for year-end 2013.

SPI used the 'Inter-industry transactions' sheet (Table 4) from the published I-O tables. From this, SPI calculated the matrix of coefficients and the Leontief Inverse Matrix for the whole economy. The calculations for Type I multipliers included only the industry, while the calculations for the Type II multipliers also included household income and expenditure. For a particular industry, the multipliers are the sum of the Leontief Inverse coefficients. Type 1

[26] Economic Trends in the Screen Sector, Ministry of Business, Innovation and Employment

multipliers the final demand corresponds to the direct + indirect effects. For Type II multipliers, this final demand corresponds to direct + indirect + induced effects.

For this study, SPI have used the multipliers which correspond to ANZIC J55 'Motion Picture and Sound Recording Activities'. I-O data for New Zealand are only available for 2 digit ANZSICs, therefore it is not possible to calculate more specified multipliers.

Although this sector definition does not align perfectly with the screen production activity, it is close enough to provide useable multiplier estimates for the following reasons:

- Sound recording activities only make up a relatively small proportion of the overall output in this industry code and therefore will only have a small impact on the overall figures
- The other activity within J55 is around the distribution and exhibition of screen content (although broadcasting has a separate SIC code). It is not possible to remove this for estimating multipliers, but this activity is not included in expenditure and therefore final impact figures
- It is common practice in other parts of the world to use multipliers from this sector (or something closely aligned) in studies of the impact of the screen sector and the approach used here is consistent with such studies in Australia, US states, UK and Ireland.

Across all areas, the I-O analysis produces multipliers which allow us to assess the impact of spending associated with the sectors studied in three areas, reflecting the three phases of economic activity in a standard impact study:

- **Direct** – that element of impact which occurs directly within the element of the sector being studied (i.e., for film production, the value generated by the direct hiring of cast and crew, and other direct spending);
- **Indirect** – the impacts associated with the purchasing of goods and services from non-screen sector companies (for example, legal advice, financing, catering, and transport associated with productions); and,
- **Induced** – impacts generated as a result of the additional economic activity resulting from the re-spending of wages earned in the direct and indirect phases, which increases economic activity across the broader economy.

Type I multipliers calculate the direct + indirect effect and Type II are used to calculate the total effect (direct + indirect + induced)

Figure 28 displays the key calculated multipliers.

Figure 28 Output, Income and GVA Multipliers for Motion Picture and Sound Recording Activities

	Type 1	Type 2
Output	2.16	2.42
Income	3.16	3.63
GVA	2.75	3.21

Other key metrics were determined from the IO tables including the turnover to GVA and turnover to employee compensation ratios.

9.4. Estimating Employment Effects

The estimation of employment impact is driven by the expenditure figures. An employment to output ratio was calculated by utilising Stats NZ data on the number of filled jobs a year and data from the I-O tables. This ratio was then applied to the expenditure figure to determine the direct employment effects.

Determining the employment multiplier involved a more complicated process as Stats NZ, unlike other data authorities in Australia, UK and others, do not publish employment information aligned to the ANZSIC sector data published in the IO tables. The most closely aligned information is from the Linked Employer-Employee Database (LEED) Quarterly Release 2019 for filled jobs up to March 2020. SPI aligned the published industry groupings with the ANZICs. In a similar approach to calculating output multipliers, a matrix calculation was undertaken to calculate the ratio of filled jobs to output (for each industry) with the Inverse Leontief Coefficient for each industry (ANZSIC J55).

The direct jobs figure was combined with the relevant multipliers to determine the indirect and induced jobs (see Figure 29).

Figure 29 Employment Multipliers for Motion Picture and Sound Recording Activities

	Type 1	Type 2
Employment	3.28	3.89

To determine the most accurate employment to output ratio for ANZSIC 551, SPI has used data from a customised data report from Stats NZ that estimated employment for ANZSIC 551 in the year March 2020, which estimated the total number of employed and self-employed people working in the sector. This provides a job per NZ$1 million output of 6.2 which is in line with comparable data elsewhere in the world.

In addition, data from NZ Stats indicates that the relationship between full-time and part-time workers in the sector is around 75%:25%, therefore there is approximately 0.8756 FTEs for each one headcount job. This relationship has been used to estimate FTE jobs.

9.5. Application of I-O Multipliers

To begin determining the impact of screen production expenditure, SPI first used the output multipliers to determine the indirect and induced output effects. This approach effectively uses expenditure as a proxy for turnover.

GVA ratios and multipliers were applied to these results, allowing the determination of the value added in each of the phases of economic impact, and thus the direct, indirect, and induced contributions from the screen sector to the broader New Zealand economy.

Employment analysis was undertaken by first applying an employment-to-output ratio to the output generated by the sector which provided an estimate of the direct footprint associated with production expenditure. I-O employment multipliers were applied to the results of this analysis to determine the indirect and induced employment arising from this activity.

Income associated with this employment – which for the purposes of this analysis includes all wages and salaries, employer social actual and imputed security contributions, – was also calculated by reference to the output generated. Employee compensation-to-output multipliers were applied to the direct output, with income effect multipliers used to determine the indirect and induced wage outcomes.

9.6. Determining Additionality

The method set out so far describes the approach to assessing the overall footprint of the screen production sector in New Zealand. To assess the impact of NZSPG, it is important to

remove from the calculation any production activity that would have occurred in the absence of the grant – this is referred to additionality. The activity that would have happened without the grant is sometimes to referred to as the deadweight.

Estimating additionality can be a challenge for all studies of policy interventions and is a challenge in this case. First, since the incentive is automatic, it is not possible to use an experimental or quasi-experimental approach (e.g., difference-in-difference) that compares productions which receive the NZSPG to those productions in New Zealand which do not. Second, as this type of automatic incentive is prevalent in almost all countries with significant film and television production sectors, it is not possible to make an international comparison to a jurisdiction with similar attributes to New Zealand, but that does not have a production incentive.

SPI's commission for this study was not to undertake a full cost-benefit analysis of the incentive programme. Such an analysis would seek to provide monetised estimates of the full range of benefits from the grants (including tourism and cultural benefits). It would also need to develop a full counterfactual which might attempt to estimate the opportunity cost of the policy (i.e. what would the benefit be if a the same funding was spent in a different way) and the longer-term dynamic effects of the economic shock of significantly reducing production in New Zealand (i.e. how would labour and capital resources be reallocated). This analysis was not part of the commission, and we were not able to identify suitable studies done in other industries to make comparisons with public investment in other industries.

This study estimates and accounts for additionality. To do this, we have used a combination of key informant interviews and an industry survey to construct a rate of additionality for both New Zealand domestic productions and international productions.

This type of survey could be open to the critique of response (and non-response) bias. There is also the possibility that respondents over-inflate positive sentiment to reduce the risk of loss. To account for this as much as possible, the surveys have been designed in such a way to reduce this risk through ensuring other decision factors are considered before the impact of the incentive is tested. Also, high response/coverage rates have been achieved to minimise response bias. The methodological approach adopted is in line with international best practice for such studies.

This question of additionality and attribution was also explored during consultations, plus a quantitative additionality survey was sent to all companies that accessed the grant. The survey contained three key additionality questions, addressing:

- The factors drawing the project to New Zealand. The incentive was one of the factors listed along with elements such as locations and talent (to reduce the risk of framing bias), and the respondent was asked to rate the importance of each.
- The specific importance of the incentive in drawing the project as an individual rating; and
- How much lower New Zealand production spend would have been without the availability of the incentive.

The final survey question asked international production respondents 'to the nearest 10%, please rate from 0% to 100% what proportion of the project would have been made in New Zealand in the absence of the NZSPG (where 0% indicates no expenditure in NZ and 100% indicates the same level of expenditure as occurred)'. Using the proportion of respondents that indicated 10%, 20%, 30% and so on, we calculated an average percentage of project that would have happened without the incentive for all international productions. For international productions, 8 out of 11 (73%) said no production would have happened in NZ without the NZSPG, 2 out of 11 (18%) said 10% and 1 out of 11 (9%) said 60%.

$$Average\ production\ expenditure\ without\ NZSPG_{international} = (0 \times 8) + (0.1 \times 2) + (0.6 \times 1) = 0.0727$$

Therefore 7.27% of production expenditure would have happened without the incentive, therefore 92.7% is additional.

$$Additionality\ rate_{international} = 1 - Average\ production\ expenditure\ withouth\ NZSPG = 92.7\%$$

A similar, but slightly tweaked version of the question was asked to domestic producers and a similar additionality calculation was made.

This additionality rate is similar to research results in other countries. For instances for *Screen Businesses* 2021 the rates of additionality in the UK were found to be 92% for film production, 84% for high end television production, 50% for animation and 40% for children's productions.

9.7. Estimating the Return on Investment

The GVA Return on Investment figure in the report is calculated using the following formulae.

$$RoI_{GVA} = \frac{Net\ GVA}{Cost\ of\ NZSPG - Net\ Direct\ Tax\ Receipts}$$

Where:

$$Net\ GVA = GVA\ x\ additionality\ factor$$

$$Net\ Direct\ Tax\ Reciepts = Direct\ Tax * additionality\ factor$$

The whole cost of the NZSPG is included as this is the cost of the incentive, whether or not production expenditure can be attributed to it or not.

The additionality for each element (direct, indirect and induced) are calculated separately. The overall GVA ROI is the total for direct, indirect and induced. However, some policy makers may be interested only in the direct GVA ROI figure.

9.8. Caveats and Limitations

This study uses best available methods for determining the footprint of production activity and the NZSPG. As with all studies of this kind, there are limitations and caveats to the approach.

- The modelling is based on production expenditure data from NZSPG. This is the best available source of production data since the screen sector survey was discontinued. We are confident that this catches all of the major productions in New Zealand and the majority of production expenditure, however due to the requirements of the grant, the analysis will miss some smaller productions. The modelling therefore may lead to a slight underestimation of GVA.
- The GVA was calculated using the relationship between output and added value for ANZSIC 55 in the I-O tables. SPI understands that this is not a perfect sector match for screen production expenditure. SPI's general approach is to err on the side of conservativism in our assumptions, preferring underestimations than overestimations. On balance, SPI feel there is an argument that the GVA to output ratio would be higher for the production activity than for all the activities in J55 – as jobs are more skilled and wages are typically higher in screen production activities than they are in say cinemas. Therefore, this assumption may lead to an underestimation of GVA.
- For the employment estimates, we used the best available data which was from LEED. However, annual LEED data for all industries is not published in ANZICs. Therefore, a

matching process of the LEED data was required, and jobs filled (by quarter) data was used. Overall, there was a good fit of categories between LEED published data and ANZSIC, some minor variations may have been introduced.

- The additionality was estimated through a self-reporting survey. This type of survey could be open to the critique of response (and non-response) bias. There is also the possibility that respondents over-inflate positive sentiment to reduce the risk of loss. While we have tried to reduce this risk by the framing and ordering of the questions, it is not possible to reduce the risk of bias to zero. SPI have undertaken sensitivity analysis (see following section) to study the impact of varying additionality assumptions.
- This study never set out to model the opportunity cost of public investment in the NZSPG nor model the dynamic effects of labour and capital redistribution if the screen production sector reduced significantly overnight. The return-on-investment figures reflect this limitation.

9.9. Sensitivity Analysis

As with all economic impact modelling, the results are sensitive to variables within the model. Sensitivity analysis enables us to study how uncertainty about a particular variable ultimately impacts the results or findings. One of the key variables driving the results of the NZSPG assessment is the additionality factor. As set out above, we have sort to develop an additionality factor based on primary research both through a survey and through consultations with industry. We are confident that the rate of additionality matches what the industry is telling us would happen in the absence of the grant.

Nonetheless, given the potential for reporting bias, SPI have undertaken some sensitivity analysis for the GVA ROI calculations, varying the additionality rate. These are presented below (Figure 30).

Figure 30 GVA ROI Sensitivity Analysis Results

Additionality Rate					
Domestic production	International productions	Direct GVA ROI	Indirect GVA ROI	Induced GVA ROI	Total GVA ROI
98.3%	93.1%	1.92	3.36	0.88	6.15
75%	75%	1.37	2.40	0.63	4.40
60%	60%	1.01	1.77	0.46	3.24
50%	50%	0.80	1.40	0.37	2.56
25%	25%	0.35	0.62	0.16	1.14

This indicates that even when the additionality rate is lowered to 25% (a position where only a quarter of production spend can be attributed to NZSPG), the GVA ROI is above one, indicating a positive return.

Some policymakers may wish to focus only on the direct GVA ROI. This is still positive when only 60% of production expenditure is assumed to be attributable to the NZSPG.

Overall, this sensitivity analysis supports the assertion that the NZSPG is providing a positive return on investment for government.

9.10. Ripple Effect Methodology

While most of this study focuses on the macro impacts of production expenditure, the Ripple Effect analysis is a forensic study of the below-the-line expenditure data from an actual production budget.

The first task when undertaking a Ripple Effect is to identify a suitable production that is representative or typical of the genre being researched. In this case, a long list of productions was put together in collaboration with NZFC executives. At SPI request, these included a range of productions (in terms of scale and scope). SPI reviewed to make sure that there were no outliers in terms of likely production expenditure patterns, such as productions with large VFX components. SPI and NZFC discussed and settled on a short list based on the likelihood of the producer being willing to participate. The producers were then contacted, and data was requested.

To ensure that the results from the Ripple Analysis were not biased, SPI checked the results against other similar studies we have done in recent reports. The results of the analysis included in this report is in line with what we've found in recent studies. For example, the last three analyses SPI have undertaken for High End TV dramas showed the proportion of costs in the Screen Production-specific category averaging 33.4% of the total cost (23.3%, 37.3% and 39.7%2). Looking at feature films out of interest, the last four analyses gave an average of 36.1% for Screen Production-specific costs (30.2%, 32.1%, 39.8% and 42.5%).

10. APPENDIX 3 – COMPARATOR SECTOR RESEARCH

This summary table highlights some evidence of quantified impact through various policy interventions within the broad context of the New Zealand economic development and business support landscape. It is important to note that – given they encapsulate a wide range of historical interventions – they cannot be directly compared. Each one has also adopted a different approach to how economic benefits have been estimated. Some are based on 'ex ante' estimates (pre support), whilst others are 'ex post' (post support). Nor can they be compared to the economic returns of support into the film and screen sector. It is also useful to note that the evidence has been primarily drawn from evaluation documents – some of which are relatively dated. However, they are presented here to provide examples of some quantified estimates.

The evaluation evidence has primarily been sourced from the Ministry of Business, Innovation & Employment (https://www.mbie.govt.nz/document-library), although other online resources were accessed (i.e. - https://thehub.swa.govt.nz/). A wide range of evaluation reports were reviewed, although many largely had a qualitative focus and are not highlighted here.

Publication	Date	Weblink	Quantified Evidence
Evaluation of the Regional Growth Programme	2017	https://www.mbie.govt.nz/dmsdocument/11484-evaluation-of-the-regional-growth-programme-implementation-and-ways-of-working-2017-pdf	Largely qualitative evaluation of NZ approach to regional economic development. However, does include some quantitative estimates for specific programmes. For example, the Extension 350 programme of support to farmers (https://www.northlandnz.com/northland-inc/regional-initiatives/extension-350/) was estimated to provide a Net Benefit to Cost ratio of 15:1 over a 20-year period through increased profits. However, it is important to note that these are ex ante estimates and not evaluated in terms of ex post outcomes.
Evaluation of the NZTE Incubator Support Programme	2012	https://www.mbie.govt.nz/dmsdocument/2269-evaluation-nzte-incubator-support-programme-pdf	Shows the revenue of firms that have gone through incubator programme and provides cost of programme but does not undertake any cost: benefit analysis, or attributes changes in company performance to the programme support
Evaluation of the Venture Investment Fund	2009	https://www.mbie.govt.nz/dmsdocument/2283-evaluation-of-the-venture-investment-fund-pdf	Analysis by the NZ Ministry of Economic Development indicates that programme delivery cost (Venture Investment Fund - a government initiative aimed at growing more innovative industries in NZ and lifting productivity. It aims to attract private sector investors

			to the domestic venture capital market to grow innovative, knowledge-intensive businesses.) was approximately $10.3m over a period of 2001-2009. In turn, NZVIF Ltd has made actual capital commitments of $109m and conditional capital commitments of $51m (c$160m in total) – suggesting leverage of 16:1 against programme cost.
Evaluation of the NZTE International Growth Fund	2015	https://www.mbie.govt.nz/dmsdocument/2270-evaluation-nzte-international-growth-fund-pdf	The IGF was a programme aimed at assisting high-growth firms to internationalise. Impact was measured through 'Realised Direct Economic Impact (rDEI)' which was calculated for each IGF project. The evaluation was informed by 22 'close out reports' which involved initiatives that were intended to raise sales revenues. rDEI measurement was based on self-reported impact in terms of EBITDA, additional salaries and wages and additional supplier spend in NZ. Across the IGF 22 projects the estimated return was 5.9x the amount invested. However, the evaluation notes that rDEI is useful as a self-reported measure of grant additionality. They should not be considered robust measurements.
Evaluation of the Growth Services Range: Statistical Analysis	2009	https://www.mbie.govt.nz/dmsdocument/2273-evaluation-growth-services-range-statistical-analysis-pdf	The Growth Services Range (GSR), which consists of the Growth Services Fund (GSF), Market Development Services (MkDS) and Client Management Services (CMS). Largely this involved funding assistance to firms to purchase external advice and expertise. Statistical analysis using NZ Longitudinal Business Database. Assuming reasonable values for the duration of impact (3 - 5 years) and discount rates (10.5%) gives value for money estimate of 134 -203% i.e. cost: benefit return of 1.3-2.0. If a lower discount rate assumed (6.5%) this increases to a cost: benefit return of c1.4-2.2 over a 3 – 5 year period.

In addition, we have included some evidence that focuses more on 'economic contribution' of specific 'sector' activity – as shown below. Again, given the different approaches involved, these cannot be directly compared but do provide useful context for this work given they are broadly based on a similar 'expenditure-based approach'.

Publication	Date	Weblink	Quantified Evidence
The Economic Impact of International Education in New Zealand	2016	https://enz.govt.nz/assets/Uploads/The-Economic-Impact-of-International-Education-in-New-Zealand-2015-2016.pdf	Does not undertake any form of cost: benefit analysis but does estimate the contribution of international education (expenditure by international students in NZ). Estimated that 'onshore' spend (within NZ) supported contribution to NZ GDP of c$4.0bn (2015/16 prices) – this encapsulates direct, indirect and induced impacts. Total employment (direct, indirect and induced) estimated to be 32,000 jobs in 2015/16).
Tourism Satellite Accounts	2019	https://www.mbie.govt.nz/assets/tourism-satellite-account-year-ended-march-2021.pdf	The 2019 estimates have been accessed given they represent pre-Covid levels. The 2020 and 2021 satellite accounts reflect the impact of Covid-19 (restrictions on international tourists). In 2019 the direct value added provided by tourism (domestic and international) equated to c$16.1bn, with a further c$11.2bn supported indirectly. The total tourism value added as a proportion of NZ GDP was estimated to be 9.8%. International tourism expenditure represented c42% of total tourism expenditure. The tourism sector was estimated to directly support c229,000 jobs, with a further c164,000 supported indirectly – c393,000 in total (14% of total NZ employment).

11. APPENDIX 4 – THE GLOBAL SCREEN PRODUCTION DELUGE

In recent years, governments around the world have paid particular attention to the production of screen content[27] as a key driver for economic growth. This is because of four distinct factors:

1. The intensifying global consumer demand and access to visual content from Video on Demand (VOD) streamers and traditional studios
2. Government recognition that screen content production plays a unique role in delivering economic value, through large sums being rapidly spent within a location and then spreading throughout an economy via the large number of cast, crew and vendors employed in the production
3. As a specialised and fleetfooted manufacturing activity, screen production creates modern, highly skilled, productive, and mobile employment. These jobs are less at risk of being replaced by automated production
4. It typically delivers an attractive return on public investment, alongside a variety of other economic measures. It increases inward investment, stimulates tourism, helps national branding, and enhances soft power and cultural impacts.

Globally, investment in screen content production has been at unprecedented levels, with a 'deluge' of production being undertaken worldwide. 2019 marked a record level of US$177billion[28] in global production spend. While COVID-19 related disruption impacted screen content production globally, most significantly in 2020, the production sector has already returned to pre-COVID-19 production levels in many jurisdictions. This was largely driven by subscription OTT services and streaming companies[29].

Recent research found that content expenditure by commercial and public service broadcasters bounded back in 2021, after being damaged in the prior year by advertisement spend cut-backs and production halts during the earlier phases of the COVID-19 pandemic. Despite this recovery, content spend from these groups currently remains below 2019 levels, largely due to ongoing pressures on revenue (primarily TV advertising revenue) – a consequence of a mixture of viewing shifts to online video, and lingering economic effects influencing advertiser expenditure.

However, subscription OTT services increased investment in content by 20% in 2021, to nearly US$50 billion. Compared to 2019, this represents a growth of over 50%, a factor of the success of the streaming market during lockdown, and that within this time frame, Apple TV+, Disney+, HBO Max, Peacock and Paramount+ have expanded rapidly and together via their originals, contributed over US$8 billion to content spend in 2021.

Netflix continues to dominate SVoD content investment, contributing 30% of total SVoD content spend and 6% of total global content investment in 2021. Netflix is the third largest investor in professional video content ($14 billion), behind Disney ($18.6 billion) and Comcast and its subsidiaries ($22.7 billion).

SPI forecasts content investment to substantially exceed US$200 billion in 2022, primarily driven by subscription streaming services - both in the USA, but also in the global markets which are increasingly key for growth. Other new and well capitalised players have entered the market and investment from established studios and broadcasters has increased. Disney, for

[27] Primarily feature films, scripted television and documentaries

[28] *Global Screen Production – The Impact of Film and Television Production on Economic Recovery from COVID-19*. Olsberg•SPI, 25th June 2021. Accessible at: https://www.o-spi.com/projects/economic-impact-studies-research-and-evaluation-lyglh

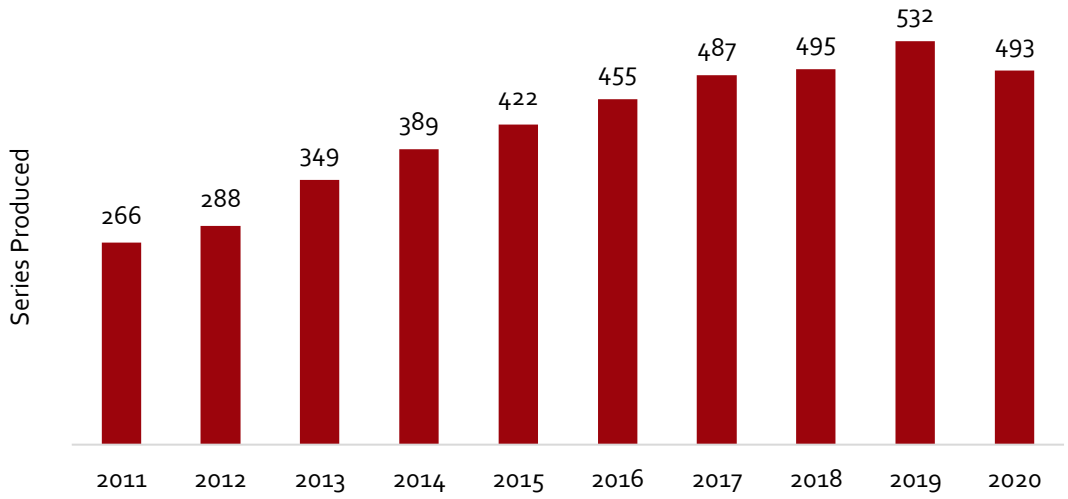
[29] An over-the-top (OTT) media service is a media service offered directly to viewers via the Internet. The term is most synonymous with subscription-based video-on-demand (SVoD) services that offer access to film and television content

example, announced at its 2020 Investor Day that it expected its global direct-to-consumer content expense to be between $14 billion and $16 billion dollars across Disney+, Hulu and ESPN+ for fiscal 2024.[30]

In the US in 2019, according to calculations by UBS reported in the *Economist*, content spending by 16 companies was roughly equal to the sum invested in America's oil industry in the same year.[31]

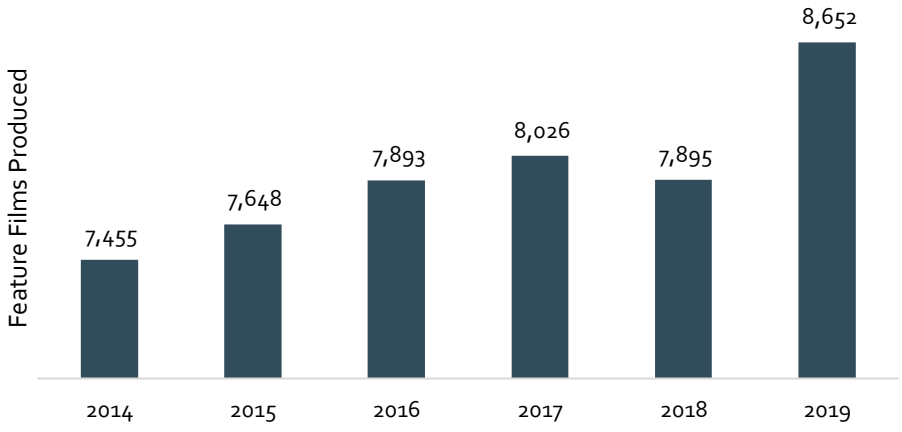
Much of the growth has been driven by television series (Figure 31). Note the 2020 dip in series produce relate to COVID-19 restrictions limited the rate of productions. Feature film production has also been gradually increasing (Figure 32).

Figure 31 Scripted Original Series Production in the US, 2011-2020



Source: FX Networks Research

Figure 32 Worldwide Feature Film Production, 2014-2019



Source: European Audiovisual Observatory

[30] The Walt Disney Company investor day Transcript, 10th December 2020. Accessible at: https://thewaltdisneycompany.com/app/uploads/2020/12/Disney_Investor_Day_2020_transcript.pdf

[31] *The future of entertainment*. The Economist, 14th November 2019. Accessible at: https://www.economist.com/briefing/2019/11/14/the-future-of-entertainment

12. APPENDIX 5 – ABOUT SPI AND OUR APPROACH TO ECONOMIC IMPACT STUDIES

12.1. Overview and Context

SPI has gained a reputation for its independent, objective studies evidenced by robust and supported findings because of our tested methodological approach. A prime example of our credentials is the series of studies on the economic impacts of the UK's production incentives for the British Film Institute (BFI), presented as evidence to the UK government under three different Prime Ministers. In 2015, 2018 and 2021, SPI won a public tender process in each year to carry out these important assessments, the reports of which have been used as fundamental evidence of the effect of the UK's suite of screen sector incentives.

All of these UK studies feature forewords written by the then-sitting Chancellor of the Exchequer (George Osborne in 2015, Philip Hammond in 2018, and Rishi Sunak in 2021) as testimony to their support (and those of their advisers) with the approach taken and findings reached. Furthermore, HM Revenue & Customs (HMRC) in the UK selected a consultancy group comprising SPI, Ipsos and London Economics to carry out for the Government an evaluation of the same incentives, which as of mid-2022 is near to completion.

12.2. SPI's Approach to and Examples of Economic Impact Studies

12.2.1. What is an Economic Impact Study?

Screen production is an important and growing economic sector. National and regional governments around the world use policies and funding (including fiscal incentives) to encourage and support the industry in their jurisdictions. Economic Impact Studies (EIS) are a tool to measure the scale of screen production activity overall and/or the effect of policy interventions that aim to boost production.

Fiscal incentives and other financial interventions for the screen sector can represent a significant strategic investment by public authorities. Consequently, it is critical that these authorities measure economic impact of such interventions, identifying how and to what extent they generate economic activity, jobs, and other impacts such as on tax revenues.

EIS are therefore a very important part of the policy evaluation toolkit for governments. Generally, such studies involve the robust assessment of costs associated with the intervention, and associated benefits. These are measured across a number of standard metrics and phases of economic impact.

SPI has undertaken many EIS (see Section 12.4), particularly to measure the impact of an automatic production incentive system, providing granular detail for clients about how investments in the screen sectors deliver value. Such reports assist clients in understanding whether the intervention in question is delivering value and help strengthen policy development.

12.3. SPI's Approach and Principles

SPI's approach to EIS is underpinned by the following fundamental principles:

- That regular EIS are **critical to evaluate whether an incentive is effective**
- That EIS must be **robust and independent,** providing clear and balanced results. Being an industry specialist does not affect SPI's independence in undertaking such evaluations – and the firm's industry expertise and in-depth knowledge of global incentives brings unique value to each EIS undertaken[32]
- That the EIS methodology employed should **accurately reflect** the particular screen sector in question

[32] As outlined in Section 1, the impartiality of SPI's work was evidenced when each of the last three UK *Screen Business* reports were endorsed by three different Chancellors of the Exchequer

- That SPI's **methods are transparent** to all interested parties. SPI welcomes scrutiny of our work and further discussion.

SPI's studies utilise a robust methodology, drawing on industry best practice for economic impact assessments.[33]

Although based on a common methodology, the approach is adapted for each jurisdiction depending on a range of factors including data availability, geographic boundaries, and the structure of an incentive. Typically, EIS are based on direct expenditure through an incentive system.

12.4. Examples of SPI's Past Economic Impact Studies

SPI has worked on many EIS around the world. A small selection includes:

British Film Institute – *Screen Business* 2021

Published in late 2021, this report calculated the economic contribution of the UK's five screen sector tax reliefs. This ground-breaking and well-received analysis included a detailed breakdown of how the UK's tax reliefs contribute to the wider economy, and, for the first time, an evaluation of the VFX sector outside the tax relief structures. This was an update of two previous studies led by SPI with an expanded methodology designed to capture the broader economy and regional impacts and infrastructure investment. All reports feature forewords written by the sitting Chancellor of the Exchequer (George Osborne in 2015, Philip Hammond in 2018, Rishi Sunak in 2021). Download the latest *Screen Business* here.

SPI Study – *Global Screen Production: The Impact of Film and Television Production on Economic Recovery from COVID-19*

This major SPI study, published in June 2020, was the first of its kind to measure global expenditure and consequent economic impact of the screen production sector. It found that after several years of ground-breaking growth, spending on screen production reached $177 billion in 2019, driving total global economic impact of $414 billion. Screen production also drives employment across the screen value chain, with 14 million FTE jobs created in 2019. The study found that the impact of COVID-19 on production led to a loss of $145 billion in economic impact over the first six months of 2020. The economic research involved undertaking a meta-analysis of economic impact metrics across 47 separate global studies. Download the report here.

Various US States – Economic Impact of Tax Credits

SPI has carried out studies of the economic impact of several US States' tax credit programmes, including Ohio, Connecticut, New Mexico, and Utah.

ANZA and MPA, Australia – The Economic Contribution of the Motion Picture and Television Industry in Australia

SPI conducted an economic impact study of the Australian film and television sector for the Australia and New Zealand Screen Association and the Motion Picture Association. The assessment covered the complete value chain of these industries – including production, distribution, exhibition and TV/online broadcast. This report represents a comprehensive assessment of the value these industries generate for Australia and was instrumental in the Government's decision to enhance its Location Incentive.

[33] For example, *Evaluating the effectiveness of state film tax credit programs: Issues that need to be considered.* Ernst & Young, 2012 https://deadline.com/wp-content/uploads/2012/05/motion-picture-assoc-film-credit-study__120510071748.pdf

Ministry of Culture, Ireland – Economic Analysis and Strategic Development of the Audiovisual Sector in Ireland

SPI delivered a substantial analysis of the economic impact of the audiovisual sector in Ireland (defined as film, television and games), which included a wide-ranging strategic policy analysis to identify how to double the industry size over the following five years. This was built from a wide-range of industry consultations, desk research, and data analysis, and led the Irish government to enact a €200 million, 10-year plan for the growth of the sector, based on SPI's findings. Download the report here.

The European Audiovisual Observatory – Economic Impact Study of Fiscal Production Incentives in Europe

In 2015, SPI prepared a first-of-its-kind, comparative economic impact analysis of Europe's fiscal incentives for the European Audiovisual Observatory. A key aspect of the study was assessing the impact of incentives on foreign investment, both from Europe and the rest of the world, as well as impacts on areas such as state budget, effects on the national audiovisual industry, employment and other related benefits.

12.5. SPI's EIS Value Proposition

- **SPI is Established and Global** – Founded by Jonathan Olsberg in 1992, SPI has provided strategic and specific advice for the screen sector for hundreds of public and private sector clients across the globe for 30 years.
- **SPI is Objective and Robust** – SPI is transparent about the models and methodologies that are applied to the firm's research. These draw from established best practices, are reviewed and agreed with clients early in the process, with full methodology notes included in reports. SPI's speciality in the screen sector does not affect the firm's independence, and SPI's deep knowledge of the sector enables more accurate economic impact evaluation.
- **SPI is Recognised for High Quality** – SPI's research is regularly endorsed by policy and sector leaders around the globe. SPI has led the last three editions of the British Film Institute's *Screen Business* report into the economic value of the UK's screen sector. The foreword for each issue has been provided by The UK's sitting Chancellors of the Exchequer, signalling the highest endorsement of quality work.
- **SPI is Trusted** – SPI's clients regularly recommission the firm for further guidance and services, as well as recommend to others, demonstrating their confidence and trust in SPI's reputation. This has the been the case for numerous film offices/commissions, international streamers, and industry standard bodies, including the British Film Institute, the Motion Picture Association, and the Association of Film Commissioners International.
- **SPI has Unparalleled Sector Knowledge and Expertise** – SPI's core team are leaders in their fields, providing a specialised and nuanced approach to each client and project. An in-depth understanding of the global screen sector sets SPI apart from other consultancies, especially in the case of EIS, where the value and supply chains of screen businesses are unique. SPI also engages with a wider network of freelance contributors and senior consultants around the world, with expertise that effectively expands SPI's skillset.
- **SPI is a Thought-Leader** – SPI's Executive Chair Jonathan Olsberg and Managing Director Leon Forde are regularly invited to speak and provide their experienced and professional thought leadership at high-profile industry events around the world. Recent events included the Toronto International Film Festival, the Berlin International Film Festival, Cineposium in St Petersburg, ExpoCINE in Brazil, the Durban FilmMart in South Africa, the Africa Network Meeting, SPADA Conference in New Zealand, and Screen Forever in Australia, among others.

12.6. SPI Company Profile

Olsberg SPI ("**SPI**") is an international creative industries consultancy, specialising in the global screen sector.

SPI provides a range of expert consultancy and strategic advisory services to public and private sector clients in the worlds of film, television, video games and digital media. Formed in 1992, it has become one of the leading international consultancies in these dynamic creative screen industries.

The firm's expert advice, trusted vision and proven track record create high levels of new and repeat business from a diverse group of companies and organisations, including:

- Multi-national public authorities
- National government bodies, including culture and economics ministries, film institutes and screen agencies
- Regional development agencies for the creative industries
- Film commissions and offices
- Independent companies involved in all aspects of the screen business value chain, including studios and infrastructure supply chain companies
- National and international broadcasters
- Trade associations and guilds
- Training and skills development organisations
- Publishers and conference organisers.

With expertise in all areas of the fast-moving global creative sector, SPI offers a wide range of services, including:

- Analysis and strategic advice for building healthy and sustainable national and regional industries, and recommendations for public policies to support this
- Mapping and assessment of physical infrastructure, services and workforce
- Delivering economic impact studies of whole sector activity or of incentives
- Advice on the creation of fiscal incentives for screen productions
- Helping businesses and governments interpret the strategic implications of digital
- media innovations
- Business development strategies for content companies
- Feasibility studies, marketing and business strategies for small and large-scale studio
- facilities
- Evaluations of publicly-funded publicly funded investment schemes
- Acquisition and divestment advice for owners or managers of SMEs
- International cost comparisons for small and large film and television productions
- Strategic advice on inward investment and exports for national and regional public bodies
- Analysing and explaining the links between growth in tourism and a nation's film and television output
- Providing strategic advice for screen commissions, including business and marketing plans
- Keynote speakers at industry event.