
Economic contribution of the New Zealand book publishing industry 2015

A report for Copyright
Licensing New
Zealand Limited

*This study highlights
the economic
contribution of the New
Zealand book
publishing industry in
terms of employment,
GDP and wider
impacts.*

November 2016



Final report

Paula Browning
Chief Executive
Copyright Licensing New Zealand Limited
PO Box 331488
Takapuna

15 November 2016

***Economic contribution of the New Zealand book publishing industry
2015***

Dear Paula,

We are pleased to provide our final report on the economic contribution of the book publishing industry in New Zealand.

This report is provided in accordance with the terms of our engagement letter dated 1 August 2016, and is subject to the restrictions set out in Appendix C of this report.

If you have any queries please do not hesitate to contact us.

Yours sincerely

A handwritten signature in black ink, appearing to read 'C Rice', written over a light blue horizontal line.

Craig Rice
Partner
craig.rice@nz.pwc.com
(09) 355 8641

A handwritten signature in black ink, appearing to read 'M Robinson', written over a light blue horizontal line.

Mark Robinson
Associate Director
mark.d.robinson@nz.pwc.com
(09) 355 8153

Table of contents

Executive summary	ii
Introduction	1
Acknowledgements	1
Purpose and scope of this report	1
Defining the publishing industry	2
Comparisons with other studies	7
Economic impact of the New Zealand publishing industry	8
2015 snapshot	8
Key trends	10
Wider economic and social benefits	11
Improving the quality of data on the publishing industry	13
Data limitations	13
Review of current state	13
Recommended approach for improving data	15
Appendix A: Glossary	17
Appendix B: Method and data sources	18
Appendix C: Restrictions	24

Executive summary

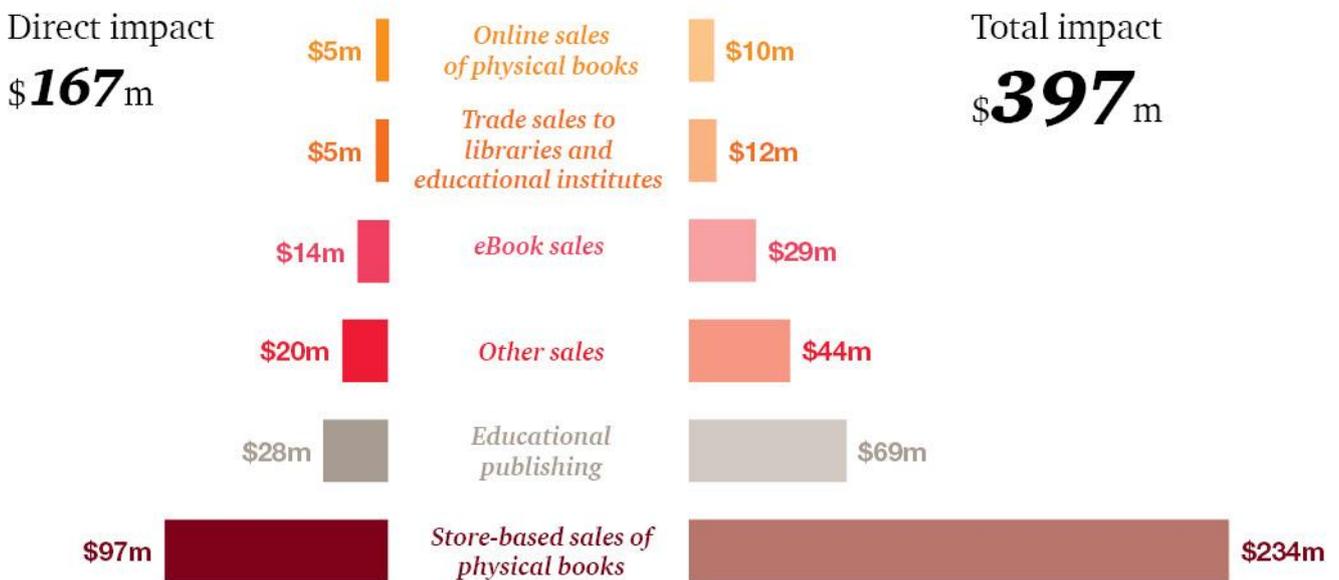
2015 was exciting for the New Zealand book publishing industry. Sales of books through traditional channels, ie bricks and mortar stores, was at its highest level in four years, rebounding after difficult trading conditions in 2013 and 2014. Our analysis suggests that sales via bricks and mortar stores grew by almost 25% between 2014 and 2015. Complementing the growth in sales via bricks and mortar stores was strong growth of eBooks sales. Importantly, the relationship between physical books and eBooks appears to be complementary – there was growth in the sales of both eBooks and physical books in 2015.

In 2015, the overall book publishing industry directly contributed \$167m to national gross domestic product (GDP) and the equivalent of 2,889 employees across New Zealand. After accounting for multiplier effects, the book publishing industry contributed \$397m to national GDP (up from \$381m in 2012) and supports 4,929 jobs (down from 5,007 jobs in 2012).

Store-based sales of physical books remains an important channel to market. This sales channel contributed over half the overall economic impact of the industry, comprising 58% of the direct GDP impact and 62% of the direct employment impact in 2015.

Educational publishing also remains an important contributor to the book publishing industry. The educational publishing channel to market contributes 16% of the direct GDP impact of the book publishing industry. Importantly, it also provides the opportunity for students to learn with material specific to the New Zealand context.

GDP impact of book publishing (\$2015)



Source: PwC Analysis

Employment impact of book publishing (Employment counts)

Direct impact

2,889 Jobs

Total impact

4,929 Jobs

Online sales of physical books

89 jobs   134 jobs

Trade sales to libraries and educational institutes

57 jobs   121 jobs

eBook sales

219 jobs     351 jobs

Other sales

387 jobs         581 jobs

Educational publishing

337 jobs        720 jobs

Store-based sales of physical books

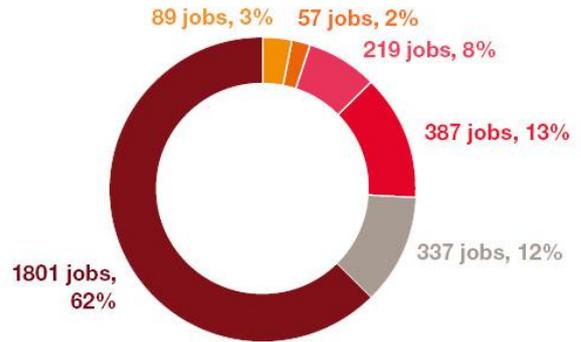
1,801 jobs                                     

Direct impacts of book publishing in terms of GDP and employment

Direct GDP contribution

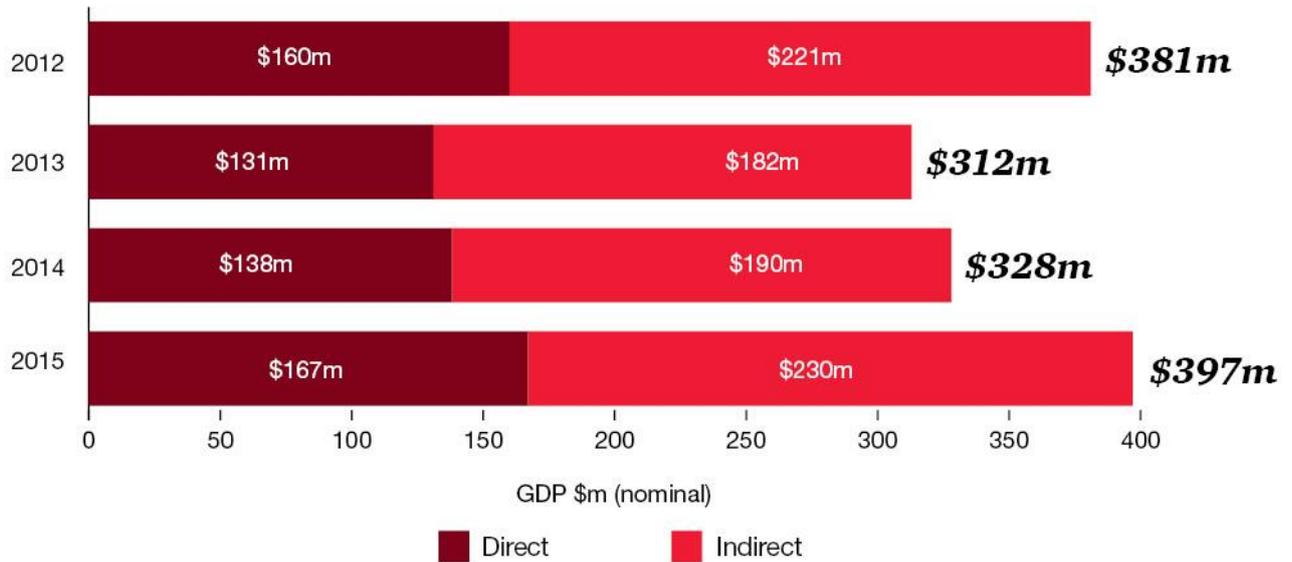


Direct employment contribution



Source: PwC Analysis

Direct and total GDP impact (2012 - 2015)



Source: PwC Analysis

Introduction

The purpose of this study is to estimate the contribution of the publishing industry to the New Zealand economy. It provides a snapshot of the publishing industry in the 2015 calendar year (the most recent year for which data is available), and a trend analysis of the estimated economic impact between 2012 and 2015. It follows similar work that has been conducted on other creative industries in New Zealand and publishing industries in Australia and elsewhere.

This report has been commissioned by Copyright Licensing New Zealand (CLNZ).

Acknowledgements

This report is based on data from several different sources in the publishing industry as well as publicly available statistics. Data from the Nielsen BookScan, which tracks book sales through some (but not all) bricks and mortar retailers¹, was used to track retail sales in some segments of the market. However, data for other sales channels, such as eBooks and educational publications, and retailers that are not surveyed by Nielsen, was not as readily available.

In order to address this information gap, New Zealand-based trade² and educational publishers and retailers helpfully provided supplementary information that was aggregated and used to estimate sales in other channels to market. We acknowledge their valuable contribution to this report. In future years we hope to be able to provide further market segmentation but this will not be possible without the on-going commitment of New Zealand publishers to the study.

Purpose and scope of this report

This report examines some “bottom-line” measures of the publishing industry’s net impact on the national economy. Other sources of information on the publishing industry, such as Nielsen’s BookScan, focus on the total revenue earned by the industry, a “top-line” measure that does not account for factors such as intermediate inputs purchased from other sectors or imported from overseas.

By estimating bottom-line measures, this report enables comparisons between the publishing industry, other industries, and the economy as a whole. It is intended to provide industry participants and policymakers with a robust basis for understanding the importance of publishing activities to the New Zealand economy.

We have estimated three measures of the publishing industry’s economic contribution:

- gross output (also called total revenue or total sales) – the combined revenues of all publishing industry participants, including both publishers and booksellers
- value added or contribution to GDP – the returns to labour and capital attributable to the industry
- employment – the number of jobs created as a result of publishing industry activity, measured in terms of employment counts.

Note that there has been a change in our method in calculating the employment impacts. We previously reported employment impacts in terms of full-time equivalent positions. However, this year we report employment counts (ie the number of jobs) for 2015, and revised our previous employment estimates for 2012 -

¹ The Nielsen BookScan currently incorporates sales from Paper Plus, The Warehouse, LS Travel and a weighted sample of independent booksellers.

² Trade books are books published by a commercial publisher and intended for general reading eg fiction, non-fiction books, children’s books.

2014. Employment counts are reported in common Statistics New Zealand datasets, so reporting the number of jobs provides better alignment to official New Zealand data.

Multiplier effects

In addition to its direct economic impacts, an industry will have multiplier effects elsewhere in the economy. In order to do business, firms must purchase inputs from other industries, while the wages, salaries, and profits that they pay will subsequently be spent elsewhere in the economy. These effects fall into two categories:

- indirect (or upstream) impacts occur when businesses in the publishing industry purchase goods and services from other sectors in order to write, publish, or sell a book in print or electronic format
- induced (or downstream) impacts are generated when the wages, salaries, and profits paid out by the publishing industry are spent on goods and services, thereby stimulating further economic activity.

The total economic impact of the industry is equal to the sum of its direct, indirect, and induced impacts. In order to estimate the direct, indirect and induced economic impacts of the New Zealand publishing industry, we have used multiplier analysis based on national input-output tables³. Note that we have revised our previous GDP and employment estimates for 2012 - 2014 on the basis of updated economy-wide information from Statistics New Zealand. We have described our application of multiplier analysis in Appendix B.

Defining the publishing industry

What is included in this report?

This report defines the New Zealand publishing industry as the group of businesses located in New Zealand whose primary objective is the creation, distribution, or sale to consumers of books. This definition includes activities undertaken by New Zealand-based book publishers, booksellers and distributors. It excludes activities related to other types of written content, such as magazine and newspaper publishing and sale, and academic journal publication. At this stage, the definition of the industry includes publishers' sales to libraries but excludes employment and other activities in libraries. While libraries are an important source of books for many New Zealanders, the New Zealand publishing industry does not internalise the value of much of this activity⁴.

We have examined the economic contribution of the industry throughout the entire value chain – from the conception of an idea through to the consumption of the finished product through five main channels to market. These channels are:

- store-based sales of physical books – the traditional “bricks-and-mortar” sales model including chain stores such as Paper Plus, The Warehouse, Whitcoulls and independent bookstores, among other retailers.
- online sales of physical books – the delivery of printed content through internet stores such as Fishpond or Mighty Ape
- sales to libraries and educational institutions – the sale of books, and the right to copy published content, to institutions that make them available to the public and to students
- eBook sales – the online sale of electronic books through eReaders such as Kobo or Kindle

³ Insight Economics (2015), *New Zealand 2013 Input-Output Table and Multipliers*, based on Statistics New Zealand data.

⁴ Libraries purchase a significant volume of books – in 2015 total acquisitions (for printed books, printed serials, non-electronic audio-visual documents, other non-electronic documents, databases, electronic serials, digital documents, eBooks) totalled \$30.2 million – but they purchase most books from international wholesalers rather than domestic suppliers. Libraries pay \$2 million dollars annually in Public Lending Rights royalties to New Zealand authors, allocated based on the number of books by those authors held in New Zealand collections, but no royalties are paid to publishers or non-New Zealand authors.

- other sales channels - including overseas sales of the right to publish or otherwise commercialise books, and non-traditional sales channels such as book clubs.

We also note that New Zealanders now purchase a significant number of physical books directly from overseas retailers such as Amazon and BookDepository. However, data on the number and value of purchases from overseas retailers by New Zealand consumers is not readily available. We have therefore excluded purchases of books from overseas-based retailers from our analysis.

This approach to overseas-based book purchases is conservative. To some extent, a degree of local activity is occurring for books purchased from offshore retailers. For example, marketing and advertising services occur in New Zealand, including promotional activity by New Zealand publishers, which incentivises consumer purchases from the offshore retailer. In addition, complementary services, such as payments processing and couriers, are part of the New Zealand component of the value chain. Therefore to exclude the entire consumption channel is a conservative, but practical, approach given the data limitations. However, we could look to include some of this value chain activity if the data becomes available in the future.⁵

As this classification indicates, traditional sales channels now coexist with emerging models for content provision. New channels to market often imply changes to the broader industry value chain, reorganising the relationship between publishers, wholesalers, domestic retailers, and consumers. In order to interpret and analyse outcomes for the sector, it is therefore important to consider the different characteristics of different channels to market.

This report considers four (indicative) value chains that exist in the New Zealand publishing industry, reflecting different relationships between parts of the industry and with readers. These value chains inform the analysis of the industry's economic contribution.

Table 1 Summary of treatment of distribution channels

Channel to market	Included in study	Excluded from study
Store-based retail (including educational publishing)	✓	
Online retail of print books (NZ based retailer)	✓	
Online retail of eBooks (NZ and offshore retailers)	✓	
Online retail of print books (offshore based retailer)		✗

⁵ We note that GST is not currently collected on purchases from offshore retailers which are less than the de-minimis threshold for physical products, while GST has recently been levied on remote services eg eBooks, Netflix. We note that the new tax does not apply for the period of this report (GST on digital services came into effect on 1 October 2016). As such, our approach to include digital purchases but exclude purchases of physical products from offshore based retailers, is consistent with current tax rules. We could look to include overseas-based book purchases in the future, for example if GST were also levied on all offshore purchases and note that the tax revenue collected could introduce new avenues for our data collection in future years.

Figure 1 presents the value chain for traditional store-based retail, which represents the main way that New Zealanders purchase and consume books. In this value chain, New Zealand publishers work with authors, editors and (largely overseas-based) printers to produce printed books, which are then distributed to the point of sale through (local) wholesalers. In order to reach consumers, booksellers must operate physical stores all over New Zealand.

Figure 1 Publishing value chain – traditional store-based retail

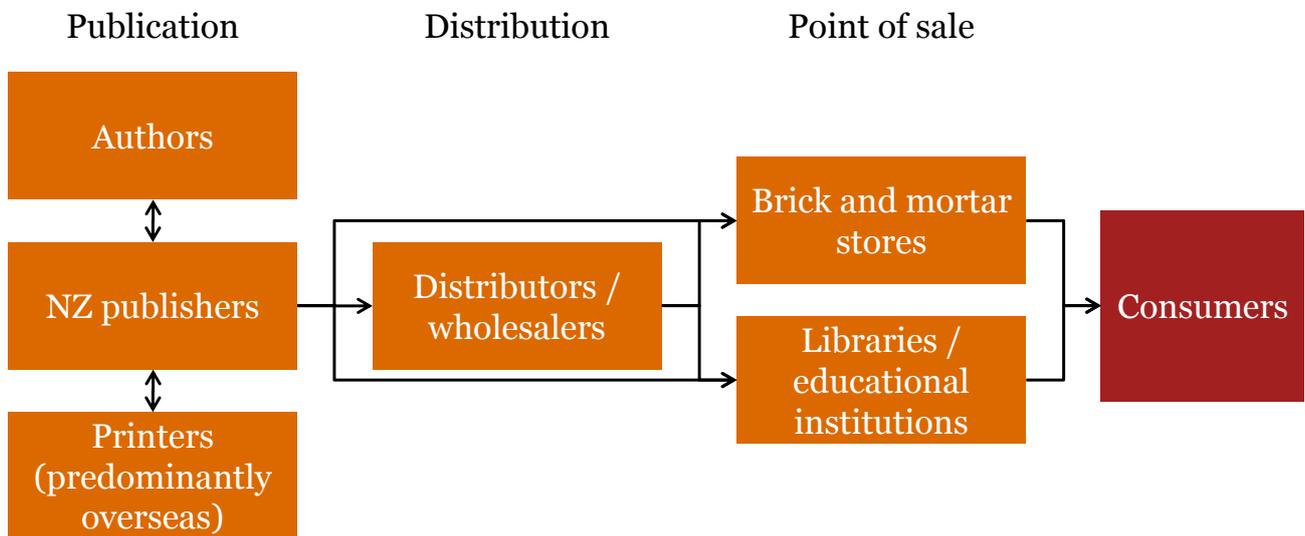
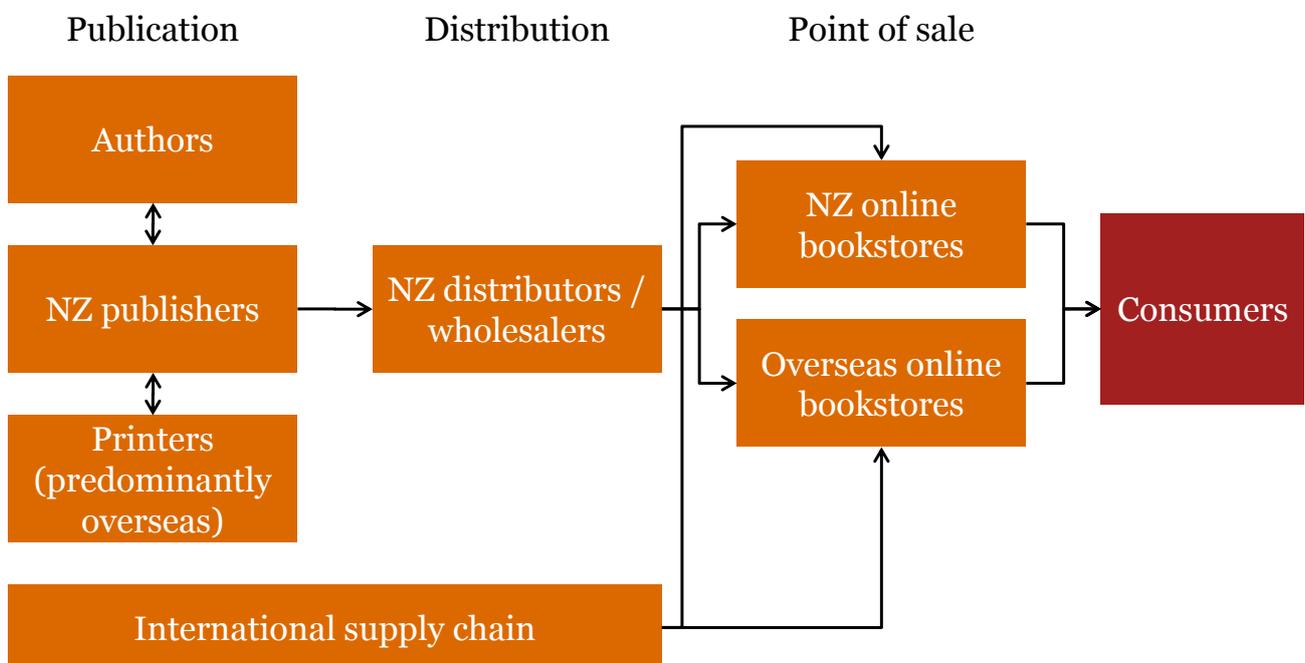


Figure 2 presents the value chain for online retail of print books. In this value chain, consumers purchase books from domestic and overseas online bookstores. These bookstores in turn source books from both New Zealand-based supply chains and international supply chains.

Figure 2 Publishing value chain – online retail of print books



This value chain was pioneered in the 1990s by US-based companies such as Amazon and subsequently emulated by large bricks-and-mortar retail chains. Fishpond and Mighty Ape are New Zealand-based online booksellers, but overseas-based online stores such as Amazon and BookDepository also account for a significant

proportion of online sales. As noted above, we have excluded content purchased from offshore retailers, as this involves little domestic economic activity.

Traditional bricks and mortar stores in New Zealand are responding to the proliferation of the online market, offering an online purchasing service, which is included in our assessment. Whitcoulls, Paper Plus and The Warehouse have all adapted their retail service, and their websites have online search and purchasing functionality.

Figure 3 presents the value chain for online retail of eBooks, which is an emerging and fast-growing channel to market. The development of this value chain has been enabled by technological innovations in particular the development of usable and affordable eBook readers and tablet computers. In this value chain, consumers purchase digital books from domestic and overseas online bookstores. These online bookstores source books – or rather, the right to distribute the intellectual property embodied in eBooks - directly from publishers or via digital asset distributors. The retail sale of eBooks requires an eReader, tablet or similar, to use in conjunction with eBooks. The manufacture and purchase of eReaders and tablets is not represented in Figure 3 nor included in our economic assessment.

Figure 3 Publishing value chain – online retail of eBooks

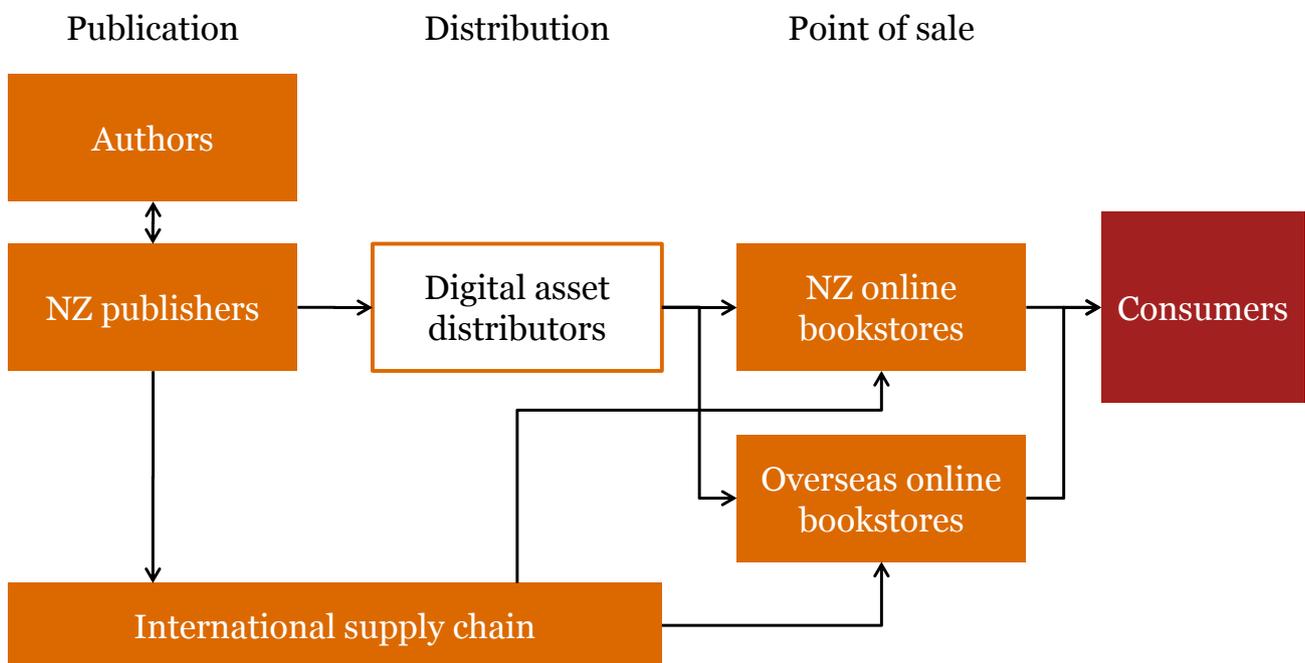
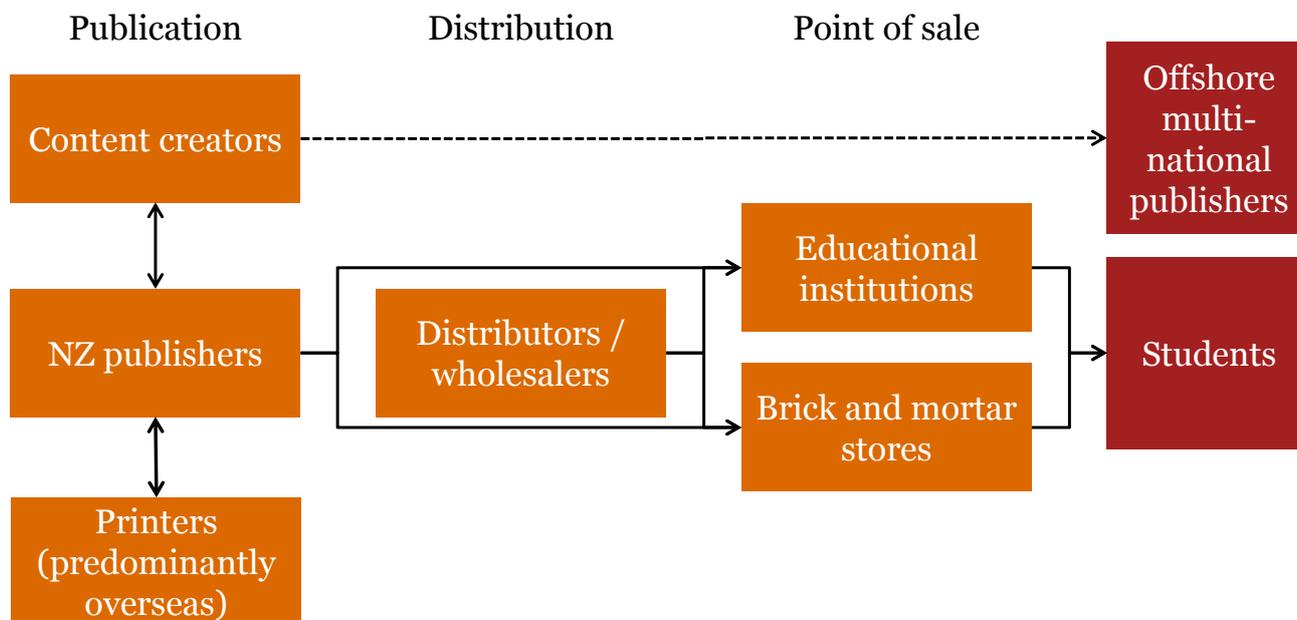


Figure 4 shows the value chain for educational publishers. Curriculum teaching material at the primary and secondary school level makes up one component of educational publishing while early childhood, learn to read, tertiary, adult learning and professional manuals compose other parts of educational publishing.

New Zealand educational publishers experience a great deal of success overseas - New Zealand-developed content and overall learning programmes are exported to over sixty countries. New Zealand content creators are commissioned by offshore multi-national publishers to develop content for use in globally distributed publications.

Figure 4 Publishing value chain – educational publishing



What is not included?

This report excludes activities that are related to the publishing industry but not exclusively devoted to the production of its main outputs, as well as some activities that are related to books more generally but not necessarily to the formal book industry. For example:

- publication, distribution, and sale of magazines, newspapers, and other periodicals
- self-published books, as the production, distribution, and sale of self-published books are not easily traceable
- the manufacture and sale of eReaders and tablets to support eBook sales.

It also excludes activities occurring within libraries and educational institutions. While these activities often depend upon books, the publishing industry does not capture a large portion of the social value of these institutions.

Accounting for output innovation

The New Zealand publishing industry is currently evolving in response to technological and economic changes. Publishers and booksellers are rapidly innovating, developing new services, products and distribution channels. The impact of these innovations is already being felt within the industry and among readers. However, official statistics and many other data sources often respond slowly to innovations. For example, the system of national accounts that Statistics New Zealand uses to classify and measure industry activity is typically updated every ten to twenty years.

As a result, accounting for economic impacts within a rapidly changing industry can be challenging as the economic models used to understand the relationship between inputs and outputs in individual industries may

lag behind major changes. Within this context, this report represents an attempt to capture the present state of a changing industry, and to provide a sound basis for accounting for future changes.

Later in this report, we discuss some of the opportunities available to improve the quality of information available on the publishing industry and monitor future changes.

Definition of industry subsectors

This study estimates the contribution to the economy from the entire value chain of the outputs outlined above – from the conception of an idea through to the viewing of its finished product. We examine five broad channels to market. Sales to the consumer through each of these channels will have implications up the publishing industry value chain for activities such as wholesaling, distribution, publishing, editing and writing (ie authors). In order to capture these activities, we have applied a multiplier analysis based on New Zealand-specific input-output tables published by Statistics New Zealand⁶, which account for the relative role of activities happening within industries and inputs purchased from other industries.

Comparisons with other studies

This report is intended to provide comparable measures of the publishing industry's impact on the New Zealand economy. The economic impact measures we have chosen and the analysis we have undertaken mean that our results can be compared with:

- economic impact studies of other New Zealand industries, including copyright industries
- similar studies of publishing and copyright industries undertaken overseas, including work by the World Intellectual Property Office and a 2011 PwC Australia report on the Australian book industry (*Cover to Cover* (2011), A report for Australia's Department of Innovation, Industry, Science and Research)
- national-level GDP and employment statistics.

⁶ We use multipliers from Insight Economics which are derived from the input-output tables published by Statistics New Zealand.

Economic impact of the New Zealand publishing industry

2015 snapshot

In 2015, the New Zealand publishing industry as a whole had total sales of an estimated \$350 million. This is estimated to have directly generated \$167 million in GDP and 2,889 jobs within the publishing and bookselling industry. After accounting for multiplier effects, the industry had an estimated total economic impact of \$397 million in GDP and 4,929 jobs. This suggests that in addition to the activity occurring directly within the industry, publishing also supports a range of activities across other New Zealand industries.

Table 2 presents estimates for the economic impact of the New Zealand publishing industry, breaking out impacts across the main channels to market, while Figure 5 illustrates the direct GDP impact and Figure 6 illustrates the direct employment impact, in 2015.

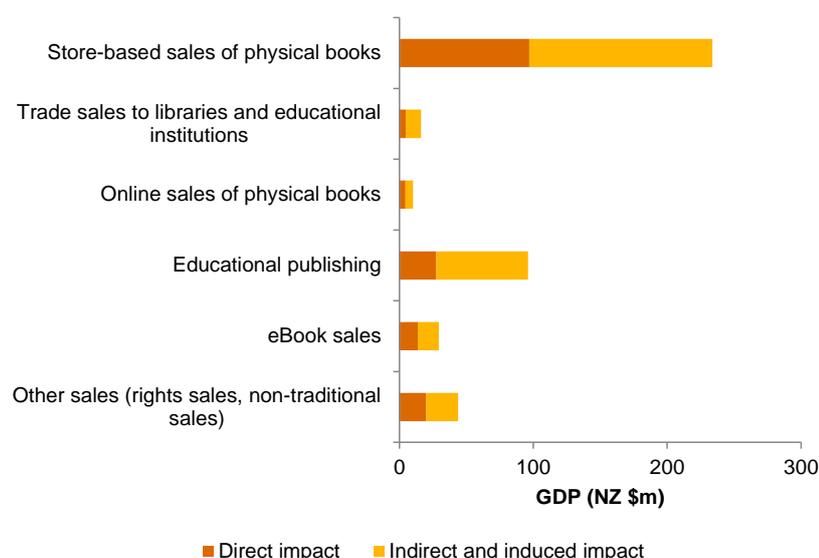
Table 2 Direct and total economic impact of the NZ publishing industry (2015)

Channel to market	Value added (GDP \$m)		Employment (jobs)	
	Direct impact	Total impact	Direct impact	Total impact
Store-based sales of physical books	\$97m	\$234m	1,801	3,023
Trade sales to libraries and educational institutions	\$5m	\$12m	57	121
Online sales of physical books	\$5m	\$10m	89	134
Educational publishing	\$28m	\$69m	337	720
eBook sales	\$14m	\$29m	219	351
Other sales (rights sales, non-traditional sales)	\$20m	\$44m	387	581
Total	\$167m	\$397m	2,889	4,929

Note: The figures for sales to libraries and educational institutions do not include the impact of library employees' spending.

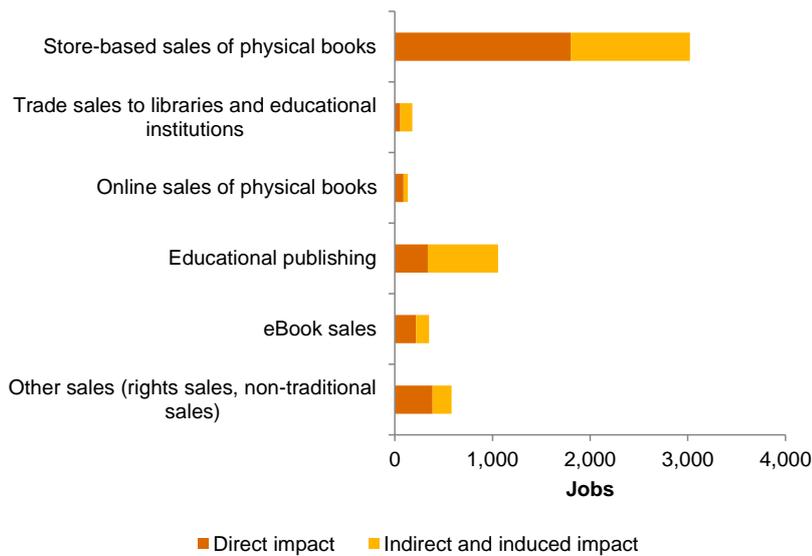
Source: PwC analysis, Insight Economics IO tables (2013)

Figure 5 Direct GDP impacts by channel to market (2015)



Source: PwC analysis, Insight Economics IO tables (2013)

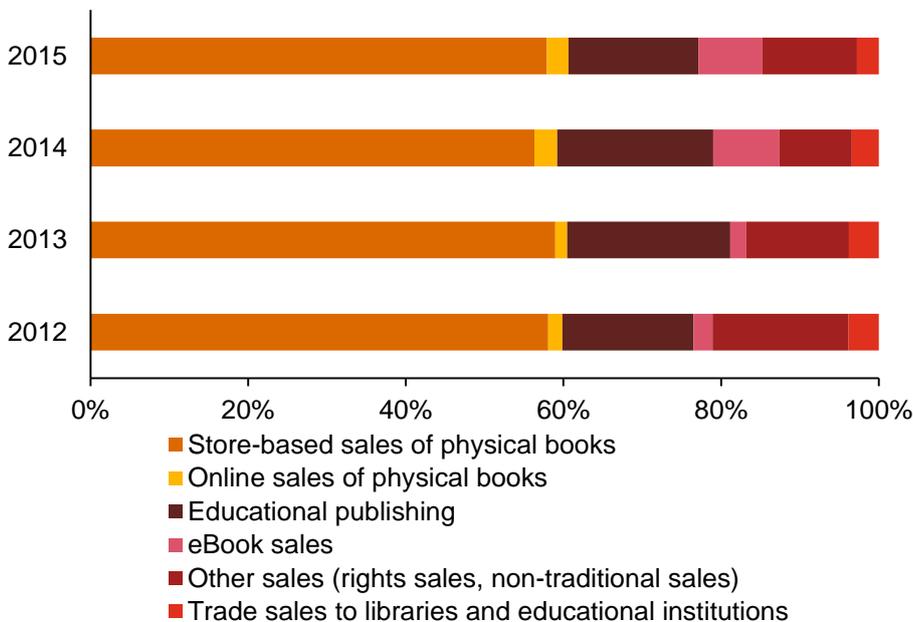
Figure 6 Direct employment impacts by channel to market (2015)



Source: PwC analysis, Insight Economics IO tables (2013)

In 2012 emerging channels to market, such as online sales of physical and eBooks, were much smaller than today. While these channels represent a relatively small proportion of the industry, they have experienced significant growth since 2012, and so have their contribution to the publishing industry’s direct GDP (as shown in Figure 7). New Zealand publishers are meeting market demand for eBooks, publishing books in print and eBook formats. This provides opportunity for consumers to choose the format which best suits their needs. In particular, schools purchasing educational material can still opt to purchase class sets of books which can be distributed to students from year to year.

Figure 7 Proportion of direct GDP impact by channel to market (2012 – 2015)



Source: PwC analysis, Insight Economics IO tables (2013)

It is also important to consider the broader social and cultural role of sales to libraries and education institutions. In addition to the measurable economic impacts of this channel to market, libraries and schools make the books they purchase available to many users free of charge. Consequently, the publishing industry

does not always internalise the full benefits to society of book sales to libraries and educational institutions. If library activities were accounted for, it is likely that our estimate of the size of the book industry would increase substantially. In 2015, Public Libraries of New Zealand reported in its Public Library Statistics⁷ that libraries employed 2,066 FTEs and paid \$121 million in wages, salaries and allowances. Inclusion of employment in schools and tertiary libraries and libraries in other institutions and organisations would add even more to the economic impacts of the publishing industry.

Key trends

The high level trends of the publishing industry's economic impact in New Zealand over the 2012 to 2015 period are outlined in Table 3 below.

Since 2012, the overall contribution of the publishing industry in New Zealand has increased in nominal terms. Store based sales of physical books have recovered since the fall in 2013 and 2014, following the trend established by larger markets such as the UK and US. In 2012, the publishing industry in New Zealand had a direct GDP contribution of \$160m. Since then, publishing's direct contribution to GDP grew to \$167m in 2015. Employment in the industry has also increased over the last three years but has not recovered to 2012 levels. Employment has decreased slightly from 2,930 jobs in 2012 to 2,889 jobs in 2015.

Table 3 Economic impacts of the publishing industry⁸

Channel to market	Economic impacts							
	Direct				Total			
	2012	2013	2014	2015	2012	2013	2014	2015
Store-based sales of physical books								
Value added (GDP)	\$93m	\$77m	\$78m	\$97m	\$224m	\$186m	\$187m	\$234m
Employment (Jobs)	1,818	1,416	1,445	1,801	3,060	2,366	2,427	3,023
Trade sales to libraries and educational institutions								
Value added (GDP)	\$6m	\$5m	\$5m	\$5m	\$15m	\$12m	\$12m	\$12m
Employment (Jobs)	79	59	58	57	168	127	124	121
Online sales of physical books								
Value added (GDP)	\$3m	\$2m	\$4m	\$5m	\$6m	\$4m	\$9m	\$10m
Employment (Jobs)	58	37	77	89	88	56	115	134
Educational publishing								
Value added (GDP)	\$27m	\$27m	\$27m	\$28m	\$66m	\$67m	\$68m	\$69m
Employment (Jobs)	345	323	334	337	737	692	715	720
eBook sales								
Value added (GDP)	\$4m	\$3m	\$12m	\$14m	\$8m	\$6m	\$25m	\$29m
Employment (Jobs)	65	42	186	219	104	67	299	351
Other sales (rights sales, non-traditional sales)								
Value added (GDP)	\$28m	\$17m	\$13m	\$20m	\$60m	\$37m	\$28m	\$44m
Employment (Jobs)	565	322	245	387	849	483	368	581
Total								
Value added (GDP)	\$160m	\$131m	\$138m	\$167m	\$381m	\$312m	\$328m	\$397m
Employment (Jobs)	2,930	2,200	2,345	2,889	5,007	3,791	4,048	4,929

Source: PwC analysis, Insight Economics IO tables (2013)

The broader publishing industry contributed \$381m to the New Zealand economy in 2012, which increased to \$397m in 2015, after accounting for multiplier effects. There was a slight decrease in the total number of jobs the publishing industry supported, falling from 5,007 jobs in 2012 to 4,929 jobs in 2015.

⁷ Available online at <http://www.lianza.org.nz/resources/lianza-publications/public-library-statistics>

⁸ The result observed in the other sales category (consisting of rights sales and non-traditional sales) in 2013 and 2014 is lower than New Zealand publishers' expectations, who believe the market has been reasonably consistent over the 2012 to 2014 period. This could occur due to the sampling method undertaken and a smaller number of responses to this year's survey, which may not be representative of the market. See the section on method and data sources for further details.

The industry has faced significant changes in recent years, and has adapted in response to the changing way consumers are enjoying books and other creative media. There has been movement away from traditional retailing in bricks and mortar stores towards digital consumption - either through online purchasing of physical products, downloading digital media or even streaming over the internet (for example with films, TV and music).

The traditional distribution channel of bricks and mortar stores experienced a downward trend between 2012 and 2014 but there are signs that there has been a revival of purchasing physical books from bricks and mortar retailers. The Nielsen BookScan shows that in 2015 there was a 4% increase in the value of books purchased and a 9% increase in the volume of books purchased in New Zealand compared to 2014 figures. Our analysis based on the Nielsen BookScan data and our own primary data collected, shows nominal growth in book sales of almost 25% across all bricks and mortar stores between 2014 and 2015, including those not covered by the Nielsen BookScan.

Complementing the traditional retail market, is growth in online retail and eBooks. Online distribution channels also offer an alternative channel to purchase books. 24-hour online shopping offers convenience to shoppers, who can search for publications at their convenience and get the books delivered to their home. Online specialty retailer websites, such as Fishpond and MightyApe, have taken advantage of lower overheads (relative to traditional retailers), and the online arms of traditional retailers, such as Whitcoulls, The Warehouse and Paper Plus, are emerging.

There is also increasing competition from offshore retailers who no longer need a physical presence in New Zealand to access the New Zealand market. Amazon, and its subsidiary the Book Depository, offer product variety and competitive pricing through scale. In the case of the Book Depository, consumers can also take advantage of free shipping worldwide. While New Zealanders benefit from the competitive pricing of a wide range of books, this distribution channel does not contribute much to the New Zealand economy.

eBooks offer consumers the convenience of multiple books in a single device and are also sold at a lower price point than physical books. It appears that consumers are still working out their retail platform of choice. The growth in trade (book) sales of physical books and eBooks suggests that there is a role for both in the retail market.

However, physical books are still in demand by educational institutions. New Zealand publishers are increasingly digitising their catalogues to complement their print books, but print books meet the needs of schools as resources are easily shared between students throughout the year, and from year to year. However, there may be some more movement towards digital resources in the future as educational institutions re-develop the way they teach and educate.

Educational content produced in New Zealand allows a degree of control over the content covered in books which students learn with. Educational publishing in New Zealand allows students to learn using high quality material that reflects New Zealand history, culture and values. This can have wider benefits which are not captured in this economic study.

Wider economic and social benefits

When considering a creative industry such as book publishing, it is important to take a broader view on the economic and cultural role that it plays for New Zealand. In addition to the purely economic effects estimated here, there are several wider societal outcomes. These include:

- The role that creative works can have in putting New Zealand “on the map” and creating a recognisable global brand for the country. This can in turn have indirect effects on the economy by enhancing the perception of other New Zealand goods and services, and improving New Zealand’s ability to attract migrants and visitors.
- Support for the creative sector as a result of global success. For example, Eleanor Catton’s novel, *The Luminaries*, won the 2013 Man Booker prize, which increased awareness of New Zealand authors and

writers. Such success can help to incentivise philanthropic and government funding for the arts and the creative sector.

- The importance of publishing in allowing New Zealanders to tell their own stories and develop and express a distinctive national identity. Once again, this may have indirect economic benefits.
- Enabling important events in New Zealand's history to be captured and documenting the lives of influential New Zealanders, ensuring that moments are captured and preserved for the benefit of future New Zealanders.
- The role that local educational publishing plays in the New Zealand curriculum, as a developer and distributor of New Zealand-specific materials. This has supported New Zealand's educational outcomes and enabled innovation in the sector. It enables New Zealand students to learn using material that reflects New Zealand content, culture and values which supports their learning, providing valuable context.
- The growing recognition of New Zealand originated educational resources which are increasingly used in overseas markets, building awareness of New Zealand as an attractive and high quality market for international students.
- Knowledge and skill improvements leading to a more productive workforce, particularly through publishing professional books and technical manuals.

These types of broader economic, cultural, and educational benefits are not quantified in this study but should be taken into account in any broader analysis of the role of publishing in New Zealand society.

Improving the quality of data on the publishing industry

Data limitations

Our analysis relies on a combination of data sources, including industry-led statistics such as the Nielsen BookScan, primary survey data and other official statistics and estimates (where appropriate) to fill in gaps in local knowledge.

We have relied on the goodwill of publishers to provide us with data on their market activity. We were not able to capture all publishers who are active in the New Zealand industry, so we have used a combination of data sources to ensure our assessment of the industry is as robust as possible. This component of the analysis is driven from survey results, which means that there can be issues with coverage and sampling bias, as well as variations from year to year.

We also note that the publishing industry has evolved and the data collection methods may not capture sales from all channels perfectly. The introduction of eBooks and online shopping means it is more difficult to track sales in the industry as consumers can purchase directly from offshore websites bypassing traditional data capture mechanisms.

As such, this assessment represents our best estimate of the publishing industry, using the information available to us at the time the analysis was undertaken.

Review of current state

While developing the analysis reported in this report, we undertook a review of the information that was readily available on the publishing industry and on book sales more generally. We concluded that this information was not well suited to conducting a reliable estimate of the state of the industry, as it excluded some important components of the industry such as eBooks and educational publishing, and that it was unlikely to enable a robust understanding of future changes to the industry.

Table 4 shows the status of the information available on different components of the industry. While it provides some information, there are many gaps.

Table 4 Publicly available information on the publishing industry

Industry segment	Status of data	Value	Source
Channels to market			
Trade books	2015 data available but incomplete – excludes Whitcoulls (56 stores nationwide) and online retailers such as Fishpond and Mighty Ape	Total sales: \$120m NZ books: \$28.6m	Nielsen BookScan
<ul style="list-style-type: none"> Bricks and mortar retail Online retail 			
Trade books	No official statistics or NZ industry estimates	2015 sales estimate: \$39m	PwC Global Entertainment & Media Outlook Note: The PwC Global Entertainment & Media Outlook is collated offshore and for some elements, proxies are
<ul style="list-style-type: none"> eBooks 			

Industry segment	Status of data	Value	Source
			used. Therefore the data does not necessarily capture aspects of the local market with great accuracy.
Educational books <ul style="list-style-type: none"> Physical and audio books eBooks 	No official statistics or NZ industry estimates	2015 sales estimate: <ul style="list-style-type: none"> \$38m \$5m 	PwC global Entertainment & Media Outlook
Exports	2015 Customs data on value of book exports available ⁹	\$25.9m (FOB value)	UN Comtrade database
Upstream activities			
Authors	2013 Census data on people occupied as Authors	1,605 authors and critics	Statistics NZ Census occupational tables
Editors	2013 Census data on people occupied as Book or Script Editors	75 editors	Statistics NZ Census occupational tables
Copywriter	2013 Census data on people occupied as Copywriters	303 copywriters	Statistics NZ Census occupational tables
Book publishers	2015 data on employment in book publishing available	590 people directly employed in 246 business units	Statistics NZ Business Demography Statistics ¹⁰
Book printers	2015 data on employment in printing and printing support services available	7,100 people directly employed in 948 business units for printing 730 people directly employed by 264 enterprises for printing support services Only a fraction of printing employment related to book publishing	Statistics NZ Business Demography Statistics ¹¹
Book imports	2015 Customs data on value of book imports available ¹²	\$150.1m (CIF value)	UN Comtrade database

⁹ HS codes 4901 (Printed books, brochures, leaflets and similar printed matter, whether or not in single sheets) and 4903 (Children's picture, drawing or colouring books).

¹⁰ ANZSIC code J541300

¹¹ ANZSIC code C161 Printing composed of C161100 Printing and C161200 Printing Support Services

Industry segment	Status of data	Value	Source
Book wholesaling / distribution	2015 data on employment in Book and Magazine Wholesaling available	700 people directly employed in 117 business units	Statistics NZ Business Demography Statistics ¹³
Store-based book retailing	2015 data on employment in Newspaper and Book Retailing available	2560 people directly employed in 435 business units	Statistics NZ Business Demography Statistics ¹⁴
Libraries	2015 data on PLR author royalties available	\$2m in royalties paid out to 1,514 authors	National Library
	2015 data on employment in Libraries and Archives available	2,066 FTEs employed in public libraries across New Zealand	LIANZA
	2014/15 data on the value of library acquisitions (primarily sourced from overseas; including but not limited to books)	\$30.2m in new acquisitions	LIANZA

In short, there are some significant gaps in data availability. Data on sales through different channels to market was severely lacking, as it has not been systematically or comprehensively collected. This is partly due to commercial sensitivity concerns within the industry (eg with reporting to Nielsen BookScan or information-sharing by publishers) and partly due to technological changes (eg the rise of eBooks and purchasing from offshore retailers' websites).

Recommended approach for improving data

Recognising the limitations and availability of official New Zealand statistics and industry data, we worked with CLNZ and the Publishers Association of New Zealand to design and carry out a survey of publishers in New Zealand. The aim of the survey was to gauge publishers' sales through different retail channels, filling in gaps in the knowledge base.

Survey questionnaires were designed to minimise confidentiality issues associated with sharing commercially sensitive information, to be readily comprehensible to users, and to be reflective of the industry's current state and emerging channels to market.

Trade publishers and educational publishers were surveyed separately. No data has been reported on individual publishers – all figures have been aggregated prior to use to avoid the potential for identifying individual businesses.

We note that we did not achieve a census of all publishers in New Zealand, and as such our results represent a sample only. However, we weighted the responses based on the self-reported sales figures, to ensure that the skew in the results (due to the sampling and survey method of small and large publishers) is minimised.

¹² HS codes 4901 (Printed books, brochures, leaflets and similar printed matter, whether or not in single sheets) and 4903 (Children's picture, drawing or colouring books).

¹³ ANZSIC code F373500 Book and Magazine Wholesaling

¹⁴ ANZSIC code G424400 Newspaper and Book Retailing

We recommend continuing to repeat this survey on an annual basis to update this report, with as much encouragement as possible to respond to the survey. It is expected that this survey form can be updated to reflect further innovations in the publishing industry and innovations in data gathering (eg online surveying).

In addition, the growth in online platforms means that self-publishing is also likely to become more prevalent. The current survey method does not capture self-publishing and could be adapted to capture this channel to market.

Despite the expected changes to the industry and data collection methods, comparability with past figures should be maintained where possible.

We also recommend measures to address the response rate should be adopted, to ensure a high level of participation by publishers, leading to robust analysis. This could include developing a set of guidelines to complete the survey, as we note that with staff turnover, institutional knowledge could be lost (eg the staff member to complete the survey last year left the organisation).

Our final recommendation is that a consumer survey could be undertaken to cross-check the proportion of sales via each distribution channel and estimate the magnitude of sales via offshore websites.

Appendix A: Glossary

Downstream impacts	See <i>Induced impacts</i> .
GDP	<p>Gross Domestic Product, which is the market value of all final goods and services produced within a defined area in a given period. It is equivalent to the value of the wages, salaries, profits, and taxes paid out in the defined area – ie the value added by the main factors of production. In this report, the area of analysis is the whole of New Zealand.</p> <p>It is also referred to as “value added” in this report.</p>
Gross output	<p>Refers to the total revenue earned by a set of businesses. It includes the value of wages, salaries, profits, and taxes paid by the businesses as well as the value of the intermediate inputs they purchased from other firms. It is a “top-line” rather than “bottom-line” measure as it does not measure firms’ net economic contribution.</p> <p>Gross output is also described as “total sales” or “gross revenue”.</p>
Jobs	A measure of employment that allows comparison of total labour inputs across different industries. It also accounts for independent contractors and working proprietors.
Indirect impacts	<p>The impacts on supplier industries that result from direct economic activity in the industry being studied. For instance, a new sawmill operation will require inputs from log producers, machinery manufacturers, energy providers and imported products. As the sawmill pays for these inputs into its operation, it also generates economic activity (jobs and GDP) at those suppliers. The same basic principle holds for the publishing industry as a whole.</p> <p>These are sometimes referred to as “upstream” or “Type 1” multiplier impacts.</p>
Induced impacts	<p>The impacts on the economy as workers in the industry being examined, and in supplier industries, spend their wages in the economy. For instance, workers at a new sawmill and at the forestry operation that supplies the sawmill, spend their wages at supermarkets, petrol stations and movie tickets, generating employment there. The same basic principle holds for the publishing industry as a whole.</p> <p>These are sometimes referred to as “induced” or “Type 2” multiplier impacts.</p>
Input-output tables/analysis	A quantitative economic technique that represents the interdependencies between different components of the economy in matrix form. It shows how the output of one industry is an input to each other industry. Multipliers are derived from input-output tables.
Multipliers	A factor of proportionality that measures how much one variable changes in response to a change in some other variable. In the case of input-output analysis, multipliers measure the ratio of total employment and GDP to direct employment and GDP. For instance, a GDP multiplier of 3.4 means that for every \$1.00 of direct GDP generated by an industry, an additional \$2.40 of GDP is supported across other industries as a result of indirect and induced impacts. This would result in an estimated total economic impact of \$3.40.
Retail margin	Retail and wholesale trade businesses typically purchase finished goods from other sector for resale. The retail margin for an individual retail business is equivalent to the total sales (or gross output) of the business, less the value of goods purchased for resale. Estimates of retail margin have been used to focus on the direct economic contribution of booksellers as distinct from publishers.
Trade books	Books that are published for general reading eg fiction, non-fiction, children’s books.
Upstream impacts	See <i>Indirect impacts</i> .
Value added	See <i>GDP</i> .

Appendix B: Method and data sources

Measures of economic impact

This study measures the contributions of the publishing industry to the economy in three different ways:

- gross output (or gross revenue or total sales)
- value added (or GDP contribution)
- employment (or labour input).

This section further defines the economic measures by describing the manner in which they are applied to assess economic impact, and summarises the approach that we have taken to measure or estimate them.

This report assesses the 2015 year, and re-states the economic impact for the 2012, 2013 and 2014 years for comparison purposes based on revised information from industry participants, and revisions to Statistics New Zealand's inter-industry input-output tables.

Gross output (or gross revenue or total sales)

Gross output is the total value of goods and services provided by firms and individuals operating in the publishing industries. It is calculated based on the collective sales of all industry participants and expressed as a dollar amount.

In order to estimate total sales within the publishing industry, including sales through bookstores and through other channels, we used data from Nielsen BookScan, which surveys many (but not all) New Zealand booksellers, and additional data provided by New Zealand trade and educational publishers.¹⁵

Value added (or GDP contribution)

The value added by an industry is equal to the total value created within that industry. It is often described as the GDP contribution of an industry. GDP measures the contributions of labour (through wages and salaries) and capital (through profits and depreciation) to the output produced by an industry, as well as the taxes that it pays (less subsidies received). It can be calculated as the gross output of an industry less the value of all inputs purchased from other sectors. Value added is expressed as a dollar amount.

In order to estimate the GDP contribution of the publishing industry, we have used estimates of the relationship between value added and gross output within New Zealand industries based on input-output tables published by Statistics New Zealand.¹⁶ This data allows us to estimate the ratio of value added to gross output across different parts of the publishing industry.

Employment (or labour input)

We have revised our previous employment estimates and now report employment in terms of employment counts (ie jobs). In order to estimate the number of jobs supported by the publishing industry, we used ratios derived from multiplier tables based on New Zealand input-output tables and employment data.¹⁷ These ratios can be used to provide a broad estimate of the expected employment required to produce a given amount of

¹⁵ Nielsen's BookScan market research covers the following retailers: The Warehouse, Paper Plus, LS Travel and a weighted sample of independent booksellers. It does not currently include Whitcoulls.

¹⁶ Statistics New Zealand revised its input-output tables and released new tables for the 2013 year in 2016.

¹⁷ We use Insight Economics input-output tables based on Statistics New Zealand data for the 2013 year.

output in different industry sectors. However, these estimates may fail to account for variations in labour inputs that are highly specific to individual industries. We note that the estimates of employment impact we have provided here have been checked against other publicly-available sources such as detailed industry-level employment statistics published by Statistics New Zealand, which suggests that these estimates are reasonable.

Multiplier analysis

This study estimates the contribution to the economy from the entire value chain of the outputs outlined above – from the conception of an idea through to the viewing of its finished product. We examine five broad channels to market. Sales to the consumer through each of these channels will have implications up the publishing industry value chain for activities such as wholesaling, distribution, publishing, editing and writing (ie authors). In order to capture these activities, we have applied a multiplier analysis based on New Zealand-specific input-output tables published by Statistics New Zealand, which account for the relative role of activities happening within industries and inputs purchased from other industries.

To estimate gross output, value added and employment for each sub-sector involved different calculations depending on the basis of the underlying data, the comparable industry within the national account reporting framework, as well as some technical adjustments for wholesale and retail components to reflect their different treatment in national input-output tables.

Direct, indirect and induced impacts

In addition to its direct economic impacts, an industry will have multiplier effects on other industries. In order to do business, firms must purchase inputs from other industries, while the wages, salaries, and profits that they pay will subsequently be spent elsewhere in the economy. These effects are typically placed into two categories.

Indirect (or upstream) impacts occur as a result of purchases of goods and services from other sectors. When a book is published, businesses within the publishing industry purchase a range of inputs, eg paper products, binding materials, machinery and instruments, rented real estate.

Indirect impacts are typically estimated using Type 1 multipliers, which account for the first-round and indirect effect of purchases of goods and services by an industry.

Induced impacts occur as a result of the wages and salaries paid out by the publishing industry. When a writer or editor is paid, he or she will then spend some of that money on a range of goods and services, thereby stimulating further economic impact.

Induced impacts are typically estimated using Type 2 multipliers, which account for the consumption that is induced as a result of the wages, salaries, and profits paid by an industry.

We estimate the indirect and induced impacts of the New Zealand publishing industry using multiplier analysis based on the most recently available input-output tables for the New Zealand economy for the 2013 year. Our previous analysis for the 2012 – 2014 years were based on the earlier 2006/07 year input-output tables, which have been replaced with the 2013 year tables. As such we have revised our earlier figures in light of the updated information on New Zealand's economy from Statistics New Zealand. The values that we used are summarised in Table 5). However, we note that in some cases, such as physical sales through brick-and-mortar stores, it was necessary to use additional information from Statistics New Zealand's 2014 *Annual Enterprise Survey* to estimate the relative contribution of booksellers and publishers. We also made some adjustments to multipliers for online sales of physical books and eBooks to reflect our analysis of their more internationalised value chains (as discussed further below).

Table 5 2015 Multipliers and ratios used to estimate publishing GDP and employment impacts

Industry segment	Broad industry basis	Direct impact ratios			Total impact ratios	
		Retail margin to gross sales (if applicable)	Value added to gross sales	Employment to gross sales (Jobs per \$1m sales)	Value added direct to total impacts	Employment direct to total impacts
Physical books - booksellers	Recreational, clothing, footwear, and personal accessory retailing	0.45	0.53	13.5	2.34	1.45
Physical books - publishing	Publishing (except internet and music publishing)	0.55	0.46	5.7	2.48	2.14
Online sales of physical books - sales and publishing	Other store-based retailing and non store retailing	N/A	0.46	8.8	2.19	1.50
Libraries and educational institutions sales and publishing	-Publishing (except internet and music publishing)	N/A	0.42	5.1	2.48	2.14
eBook sales	Other store based retailing; non-store and commission based retailing	N/A	0.44	7.0	2.16	1.61
Other sales channels (rights sales, non-traditional)	Other store-based retailing and non store retailing	N/A	0.57	11.0	2.19	1.50

Source: PwC analysis, Insight Economics IO tables (2013)

Estimating direct economic impacts

We estimate the direct component of the publishing industry's economic impact in terms of its contribution to gross output, value added, and employment as follows:

- We start with an estimate of the total sales in each channel to market based on Nielsen and information provided by publishers.
- We then choose a representative industry basis for each sector – for example, “Recreational, clothing, footwear and personal accessory retailing” is used as a basis for accounting for GDP and job impacts in booksellers.
- If required, we use information from Statistics New Zealand's Annual Enterprise Survey to estimate retail margins. For example, we estimate that booksellers' gross margins (the difference between the total value of retail sales and the wholesale cost to purchase goods for sale) were 45.1% of total sales in 2014.¹⁸
- We then use data from national input-output tables based on Statistics New Zealand data to estimate the ratios of value added (GDP) to gross output (sales) and employment (jobs) to gross output. We adjust the ratios of employment to gross output to account for the economy-wide inflation that occurred from 2012 to 2015.

These ratios are then used to estimate direct value added and employment in each subsector.

Main quantitative data sources

Our estimates of the economic impact of the New Zealand publishing industry are based primarily upon the following sources of data:

- Data on trade publishing sales through some (but not all) main retail channels from Nielsen BookScan. The Nielsen data excludes Whitcoulls, which has a large market share in brick-and-mortar sales, and online retailers Fishpond and Mighty Ape, which are the main New Zealand-based online book retailers.
- Survey questionnaires sent to Publishers Association of New Zealand members to collect information on trade publishing revenues earned through sales channels not captured in Nielsen BookScan (refer Figure 8 and Figure 9).
- Data on educational publishing revenues collected and published in Annear (2013), *Educational Publishing Export Programme: Export Growth Strategy (2013-2016)*, a report to the Publishers Association of New Zealand. We make a growth adjustment to this figure for 2013, 2014 and 2015 (as discussed below).
- Statistics New Zealand's *Annual Enterprise Survey 2012 – 2014*.
- 2013 input-output 55 and 106 industry tables and multipliers for all New Zealand industries, sourced from Insight Economics.

¹⁸ Annual Enterprise Survey data for 2015 was not available at the time this report was prepared.

Figure 8 Survey form sent to New Zealand trade publishers

Physical Sales Breakdown		% of NZ Sales of Physical Books*	
% of NZ sales of physical books via Nielsen			
% of NZ sales of physical books via Fishpond			
% of NZ sales of physical books via Mighty Ape			
% of NZ sales of physical books via Whitcoulls			
% of NZ sales of physical books to libraries			
% of NZ sales of physical books to education institutions			
% of NZ sales of physical books via non-traditional retailers or other channels			
Total NZ Sales of Physical Books		100 %	
Other Revenue			
% of total revenue from export of physical books			
% of total revenue from sales of rights, licenses, copublications			
% of total revenue from sales of eBooks, apps and other digital (either in NZ or overseas)			
Period the above figures relate to	e.g. Jan 2014 to Dec 2014	Start month	End month
Overall Revenue Breakdown		\$\$\$	
Revenue sales in NZ			
Revenue from international sales			
Total Revenue			

**If your business sells and/or distributes for other New Zealand publishers, please EXCLUDE their turnover from your data*

Figure 9 Survey form sent to New Zealand educational publishers

		\$\$	
Total Sales Revenue from physical book sales in NZ	A		
Total Sales Revenue from export of physical books	B		
Total NZ sales revenue from digital	C		
Total overseas sales revenue from digital	D		
Total revenue from rights, licenses, copublications etc	E		
Total Annual Revenue for the period	A + B + C + D + E	0	
Period the above figures relate to	e.g. Jan 2014 to Dec 2014	Start month	End month

* please exclude revenue from academic booksellers. This is captured in the data we already have from Nielsen

Where possible, other data was used to provide a sense check on estimates derived from these sources. In order to do so, we have drawn upon supplementary information from a range of sources, including:

- estimates of eBooks sales from PwC Global Entertainment and Media Outlook
- estimates of employment from Statistics New Zealand Census occupational tables and Business Demography Statistics.

Adjustments for 2013, 2014 and 2015

The response rate for the educational publishers' surveys was lower than in 2012, which meant that our estimates of the size of educational publishing in New Zealand in 2013 - 2015 deviated considerably from our 2012 estimate. This will happen when the sample of publishers, who choose to complete the survey, is not representative of the educational publishing industry in New Zealand. The larger the sample, the more representative the results and the less likely one individual publisher's survey response will skew the results.

We considered that the sample of publishers who responded to the survey in 2012, produced a more accurate result for the size of the educational publishing industry. As such, we used the 2012 value as the basis for the calculation for 2013 – 2015 and then extrapolate based on industry-wide growth rates. Statistics New Zealand's Annual Enterprise Survey for 2013 - 2014 was used to estimate the growth in purchasing and operating expenditure, in the following industries:

- preschool education
- school education
- tertiary education
- adult, community and other education.

We made additional adjustments to the eBook and online sales. The eBook sales figure was adjusted to reflect market intelligence on New Zealand sales for 2015 (and revised market intelligence for 2014). In line with previous years, sales were allocated proportionally from non-traditional channels to eBook sales. We also made an adjustment to the market value of eBook sales in New Zealand to remove the revenue from self-published eBooks, which is consistent with our approach to capture the impact of the publishing industry in New Zealand.

The time series values are in nominal New Zealand dollars unless otherwise stated

All values are presented in calendar year terms (year ended December) as that is the time period of the data provided. Therefore, all amounts in this report, relate to impacts that occur in this period.

Because this report is based on annual data, it provides a useful snapshot of the New Zealand publishing industry. However, it is necessary to consider that copyright and creative industries are constantly changing in response to technological, economic, and policy factors.

The four year trend provided in this report is a good foundation for analysing movement in the industry over time. However it is not a sufficiently long enough time horizon to draw concrete conclusions, particularly when there is moderate non-response sampling bias. Continuing to carry out this study on an annual basis could help to provide a longer-term picture of the industry and support decision-making by both industry and government.

A key to ensuring the results of the analysis remains robust is to capture as much market activity as possible, via the Nielsen BookScan or improved surveying of publishers. In addition, a survey of consumers could also help to ensure that our estimates of distribution channels match the market. In particular, a survey of consumers could help to cross-check our estimates of sales through distribution channels which are not captured well by our surveying (eg online retailers) and gain an idea of the magnitude of direct sales from offshore websites.

Estimates versus official statistics

Our calculations are based on actual, officially published data wherever possible. However, a review of official statistics and other data available through Statistics New Zealand found that it was not fit for purpose for valuing the industry's contribution to the New Zealand economy, as it was neither timely enough to provide a fully robust picture of book sales nor fine-grained enough to be relevant to the publishing industry. In addition, published data on book sales across all channels to market was not readily available from industry sources such as Nielsen BookScan.

Consequently, we refer to the results of our analysis as estimates to distinguish them from official statistics published by Statistics New Zealand. Likewise, we refer to our measures of the direct and total (direct, indirect

and induced) GDP impact and employment of the publishing industry as estimates due to the fact that they are calculated using national multipliers and ratios.

To the greatest extent possible, we have checked our estimates against other data available on the industry. In order to validate our estimates of the publishing industry's economic impact, we developed a range of alternative estimates based on data published by Statistics New Zealand and high-level assumptions discussed with industry participants. This alternative approach confirmed that the estimates reported here are reasonable and likely to be accurate.

Appendix C: Restrictions

This report has been prepared for Copyright Licensing New Zealand Limited to estimate the contribution of the New Zealand publishing industry to New Zealand's economy. This report has been prepared solely for this purpose and should not be relied upon for any other purpose. We accept no liability to any party should it used for any purpose other than that for which it was prepared.

To the fullest extent permitted by law, PwC accepts no duty of care to any third party in connection with the provision of this report and/or any related information or explanation (together, the "Information"). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the Information.

We have not independently verified the accuracy of information provided to us, and have not conducted any form of audit in respect of Copyright Licensing New Zealand Limited. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied.

The statements and opinions expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise.

The statements and opinions expressed in this report are based on information available as at the date of the report.

We reserve the right, but will be under no obligation, to review or amend our report, if any additional information, which was in existence on the date of this report, was not brought to our attention, or subsequently comes to light.

This report is issued pursuant to the terms and conditions set out in our Letter of Engagement dated 1 August 2016.