

The Economic Contribution of Copyright-Based Industries in Singapore



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The Economic Contribution of Copyright-Based Industries in Singapore

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The IP Academy was established in January 2003 to be the focal point for Singapore's education and research in the field of IP. It plays a key role in developing and broadening knowledge and capabilities in IP creation, exploitation, protection and management, via two key strategies:

The first is to provide continuing education and lifelong learning opportunities for IP professionals, business organizations, research institutions, and other IP creators and users in Singapore and the region.

The second is to undertake quality interdisciplinary research on IP to provide unique commercial insights on IP issues to industry and businesses to improve their ability to protect, manage and exploit IP, and to support both local and regional development of best practices and policy in relation to IP issues and rights.

It has also formed various strategic local and international partnerships with established IP institutions, bringing together IP expertise from industry, academia and private practice to exchange ideas on IP.

Economic Contribution of Copyright-Based Industries in Singapore

Executive Summary

The development of copyright based industries and their contribution to the economy have been of much interest to researchers as evidenced by the increasing number of studies in recent times. One of these is a cross-disciplinary project jointly commissioned by the IPA (IP Academy of Singapore) and IPOS (Intellectual Property Office of Singapore) in November 2003 to NUS Consulting to conduct a pilot study applying WIPO's new framework for estimating the economic contribution of copyright based industries in Singapore in terms of output, value added, employment and foreign trade.

The study found that in 2001 Singapore's copyright based industries generated S\$30.5 billion of output and S\$8.7 billion of value added. This amounted to 5.7% of GDP. Employment in these industries stood at 118,600 or 5.8% of Singapore's workforce. The size of GDP of the copyright based industries was close to that of the construction industry which produced S\$9.3 billion in value added, amounting to 6% of Singapore's GDP. Productivity in copyright based industries was estimated at S\$73,597 of value added per worker, which was almost the same as the national average of S\$75,281. Foreign trade generated by copyright based industries in terms of domestic exports of copyrighted goods and materials was S\$3.5 billion or the equivalent of 2.3% of GDP.

Stronger growth than the economy's average annual rate of 7.6% was noted in the copyright based industries, giving an average of 8.9% per annum in real value added from 1986 to 2001. Consequently, the contribution of the copyright based industries to Singapore's GDP expanded from 4.7% to 5.7% over the same 15-year period. Employment in the copyright based industries also

expanded faster than in the overall economy, averaging 5.2% per annum versus 3.5% for national-wide employment. The relative share of copyright based employment thus rose from 4.6% to 5.8% over the 15-year period.

The copyright based industries appear to be more volatile than the overall economy as a 1.9% decline in GDP between 2000 and 2001 corresponded to a 9.5% drop in the value of the copyright based industries. This phenomenon could be substantiated through future research on a regular basis.

The group of nine core copyright industries was analyzed for its linkages with the rest of the Singaporean economy. The estimated output multiplier of the core copyright industries is 1.7661, of which 0.6685 comprised the direct and indirect value added from one unit increase in output of core copyright industries. Every S\$1 million of core copyright output would provide employment for 6 persons directly and 5 persons indirectly in ancillary activities, giving an employment multiplier of 11.

As a group, the core copyright industries have a greater impact on the economy - in terms of generation of output, GDP and jobs - than an average industry as reflected in their multipliers which are above the national averages. Among the core copyright industries, the industry encompassing music, theatrical production and opera has the second highest output multiplier (2.0840), and the highest value added (0.8630) and employment (26) multipliers.

It is hoped that this pilot study, adopting WIPO's comprehensive framework, will provide the essential impetus for future studies along similar lines, thereby enabling meaningful comparative analyses of copyright based industries across countries or economies. The study findings will also serve as vital inputs for decision-making on the importance of copyright activities as a key driver for the continued economic and social growth of Singapore.

I. Introduction

A. Background

The creation of knowledge in a competitive new age economy depends to a large extent on the copyright protection of intellectual property. Copyright laws are necessary for holders to derive an economic benefit through the utilization of their works. Copyright protection aims to optimize resource allocation efficiency, thereby enhancing the welfare and growth of a nation. Prospective creators are encouraged in the development and transfer of their works to the industries requiring them.

The interaction between law and economics has often been of interest to scholars. The importance of copyright based industries has been recognized by a growing number of international studies conducted in recent times. Copyright and other related rights are defined in each country's legislatures which are mostly consistent with the provisions provided within the Berne Convention. Copyright is defined as "the rights in literary and artistic works" and is an important aspect of intellectual property for it encompasses every form of production in the literary, scientific and artistic form regardless of mode or expression. The concept of copyright protection is only afforded to the expression of the idea and not the idea itself.

To raise awareness of the importance of copyright based industries in Singapore, IPA (Intellectual Academy of Singapore) and IPOS (Intellectual Property Office of Singapore) jointly commissioned NUS Consulting in November 2003 to conduct the first pilot study applying WIPO's new framework for estimating the economic contribution of copyright based industries in Singapore. The study was conducted with the technical assistance of Professor J J M Theeuwes of the Netherlands and Senior Counselor Dimiter Gantchev of WIPO (World Intellectual Property Organization).

B. Objective

The study aims to measure the relative size of copyright activities in Singapore. It encompasses the following:

- A brief description of the copyright laws in Singapore;
- The estimated economic contribution of copyright based industries to the Singaporean economy in terms of output, value added and employment from 1986 to 2001;
- Foreign trade in copyrighted goods and materials;
- Comparison with other international studies; and
- Linkages of core copyright industries with the rest of the economy, as measured by their direct and indirect economic impact in terms of output, value added and employment, based on input-output methodology.

C. Scope

1. Copyright-Based Industries

WIPO (World Intellectual Property Organization) has defined copyright-based industries comprehensively and grouped them into four main categories by degree of dependence on copyright activities as discussed below. A total of 29 industries is identified in the four categories (Table IC.1). This study applied WIPO's methodology and measured the economic contribution of these industries in terms of output, value added, employment and foreign trade. Except for the core copyright industries where the copyright output is 100%, copyright factors¹ were used to apportion the share of copyright in each of the non-core copyright industries.

¹ Copyright factors are ratios that reflect the percentage of copyright activities in the industry's output and are estimated through a combination of interviews, surveys and numerical methods.

(i) Core Copyright Industries

These are industries primarily involved in the creation, manufacture, production, broadcast and distribution of copyrighted works and have a substantial level of copyright activity. Alternatively, they could be defined as industries that would not be in existence if not for their copyright subject matter. These industries are substantially involved in copyright activities and divided into nine separate industries. Examples of industries in the core copyright group are the press and literature, software and databases, and motion picture and video industries.

(ii) Interdependent Copyright Industries

Industries involved in the manufacture, performance, broadcast and communication in order to support and facilitate the creation of copyrighted works and other protected subject matter, belong to this group. An example would be the transmission of entertainment programmes through television. The level of copyright activity in these interdependent copyright industries is significant. Examples of the seven industries in this group are: computers and equipment and TV and radio industries.

(iii) Partial Copyright Industries

These industries are characterized by a portion of the activities which are related to copyright through manufacture, performance, exhibition, broadcast, communication or distribution and sales. The partial copyright group consists of nine industries. Examples of partial copyright industries are furniture, architecture, engineering and surveying and jewelry and coins.

(iv) Non-Dedicated Support Industries

Industries where part of the activities are related to broadcast, communication, distribution and sales in protected subject matter and not included in the core copyright industries belong to this group. Also known as the distribution industries, examples of three industries in the non-dedicated support group are the general wholesale and retail trade and general transportation industries.

Table IC.1: Composition of Singaporean Copyright-Based Industries
(WIPO Methodology²)

Core Copyright (9)	Interdependent Copyright (7)	Partial Copyright (10)	Non-Dedicated Support (3)
<p>a. Press and Literature</p> <ol style="list-style-type: none"> 1. Authors, writers, translators 2. Newspapers 3. News and feature agencies 4. Magazines/periodicals 5. Book publishing 6. Cards, maps and other published materials 7. Pre-press printing of books, magazines, newspapers, advertising materials 8. Wholesale and retail of press and literature (bookstores and newsstands) 9. Libraries <p>b. Music, Theatrical Productions and Opera</p> <ol style="list-style-type: none"> 1. Composers, lyricists, arrangers 2. Printing and publishing of music 3. Production and manufacturing of music 4. Wholesale/Retail of music 5. Artistic/literary creation and interpretation 6. Performance and allied agencies <p>c. Motion Pictures and Video</p> <ol style="list-style-type: none"> 1. Writers, directors, actors 2. Motion Picture and Video production and distribution 3. Motion Picture exhibition 4. Video rental and sales 5. Allied services <p>d. Radio and Television</p> <ol style="list-style-type: none"> 1. National Radio and broadcasting companies 2. Other Radio and Television broadcasters 3. Independent producers 4. Cable television (systems and channels) 5. Satellite television 6. Allied services <p>e. Photography</p> <ol style="list-style-type: none"> 1. Studio and Commercial Photography 2. Photo agencies and libraries <p>f. Software and Databases</p> <ol style="list-style-type: none"> 1. Programming, development and design, manufacturing 2. Wholesale/Retail of prepackaged software 3. Database processing and publishing <p>g. Visual and Graphic Arts</p> <ol style="list-style-type: none"> 1. Artists 2. Art galleries and other wholesale and retail 3. Picture framing and other allied services 4. Graphic Design <p>h. Advertising Services</p> <p>i. Copyright Collecting Societies</p>	<p>a. TV sets, Radios, VCRS, CD Players, Cassette Players, Electronic Game Equipment and other similar equipment</p> <ol style="list-style-type: none"> 1. Manufacture of television, radio receivers and associated goods 2. Wholesale of radio and television sets, sound reproducing and recording equipment except electrical and electronic components 3. Retail sale of radio, television sets, sound reproducing and recording equipment <p>b. Computers and Equipment</p> <ol style="list-style-type: none"> 1. Manufacture of computing and data processing equipment, accessories, and peripheral equipment 2. Wholesale of computer hardware and peripheral equipment 3. Wholesale of computer accessories <p>c. Musical Instruments</p> <ol style="list-style-type: none"> 1. Wholesale of musical instruments, record albums, cassette tapes and laser discs 2. Retail sale of musical instruments, record albums, cassette tapes and laser discs <p>d. Photographic and Cinematographic Instruments</p> <ol style="list-style-type: none"> 1. Manufacture of optical instruments and photographic equipment 2. Wholesale of photographic equipment and supplies 3. Retail sale of cameras and other photographic goods <p>e. Photocopiers</p> <ol style="list-style-type: none"> 1. Manufacture of photocopying equipment 2. Wholesale of office machines and equipment <p>f. Blank Recording Material</p> <ol style="list-style-type: none"> 1. Manufacture of blank magnetic tapes, diskettes and cds 2. Retail sale of blank recording material in household appliances and equipment <p>g. Paper</p> <ol style="list-style-type: none"> 1. Manufacture of pulp, paper and paperboard 2. Wholesale of other intermediate products, waste and scrap 3. Retail sale of paper and other crafts 	<p>a. Apparel, textiles and footwear</p> <ol style="list-style-type: none"> 1. Manufacture of wearing apparel except fur apparel 2. Manufacture of made-up textile articles except apparel 3. Manufacture of footwear 4. Wholesale of textiles, clothing, footwear and leather goods 5. Retail sale of textiles, clothing, footwear and leather goods <p>b. Jewelry and coins</p> <ol style="list-style-type: none"> 1. Manufacture of jewelry and related articles except custom jewelry 2. Wholesale of other household goods 3. Other retail sale in specialized stores <p>c. Other crafts</p> <ol style="list-style-type: none"> 1. Retail sale of paper and other crafts 2. Wholesale of handicrafts and fancy goods <p>d. Furniture</p> <ol style="list-style-type: none"> 1. Manufacture of furniture and fixtures 2. Wholesale of furniture and fittings 3. Renting and leasing of furniture and other household equipment <p>e. Household goods, china and glass</p> <ol style="list-style-type: none"> 1. Manufacture of household goods and glass 2. Manufacture of knitted and crocheted fabrics and articles 3. Manufacture of rattan processing and other products of wood <p>f. Wall coverings and carpets</p> <ol style="list-style-type: none"> 1. Manufacture of wall coverings and carpets 2. Manufacture of other articles of paper and paperboard 3. Other retail sale in specialized stores <p>g. Toys and games</p> <ol style="list-style-type: none"> 1. Manufacture of toys and games 2. Wholesale of toys and games 3. Retail sale of toys and games <p>h. Architecture, engineering, surveying</p> <p>i. Interior design</p> <p>j. Museums</p>	<p>a. General wholesale and retailing</p> <ol style="list-style-type: none"> 1. Wholesale trade and commission trade, except of motor vehicles and motorcycles 2. Wholesale of household goods 3. Wholesale of machinery, equipment and supplies 4. Other wholesale 5. Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods 6. Non-specialized retail trade in stores 7. Other retail trade of new goods in specialized stores 8. Retail trade not in stores <p>b. General transportation</p> <ol style="list-style-type: none"> 1. Transport via railways 2. Other land transport 3. Water transport 4. Air transport 5. Cargo handling 6. Storage and warehousing 7. Other supporting transport activities 8. Activities of travel agencies and tour operators 9. Activities of other transport agencies 10. National post activities 11. Courier activities other than national post activities <p>c. Telephony and internet</p> <ol style="list-style-type: none"> 1. Telecommunications

² Adapted from WIPO, "Guide on surveying the Economic Contribution of the Copyright-Based Industries", Publication No. 893(E) pp 75-80

D. Methodology

1. Data

(i) Data Collection

Official data series were purchased from both DOS (Department of Statistics, Singapore) and EDB (Economic Development Board of Singapore). The use of national statistics was regarded as the primary source of data, supplemented by unofficial industrial data.

(ii) Selection of Data Period

The years selected for analysis ranged from 1986 to 2001. The time period selected was based on the following elements:

- 1987 marked the incorporation of the Copyright Act in Singapore and it would be more interesting to measure copyright activities with the above-mentioned Act in force.
- 2001 was the most recent year for which industrial statistics were available at the commencement of the study.
- Observations of short-term cyclical changes and long-term trends were important.

(iii) SSIC Classification System

The industrial classification used in WIPO's framework was based on the ISIC (International Standard Industrial Classification), which relied on the United Nation's classification of industrial activities. Singapore has its own SSIC (Singapore Standard Industrial Classification) and these activities are classified from a list representing general industrial activity to the most detailed 5-digit item classification. We shall use wholesale of jewelry as an illustration (Table ID.1).

Table ID.1: Example of SSIC Classification System

Classification	Description	Code
Section	Wholesale and retail trade	G
Division	Wholesale trade and commission trade	50
Group	Wholesale of household goods	503
Class	Wholesale of personal effects	5032
Item	Wholesale of jewelry	50321

The SSIC adopted the basic framework and principles of ISIC which ensured the general compatibility when mapping out the required activities embedded in the copyright based industries for Singapore. The priority was first to seek out exact matching of the activities in the SSIC with the ISIC. If this failed, a near equivalent based on the description of activities was accepted even though the classification codes differed.

2. Groundwork

(i) Literature Review

A literature review was first carried out in November 2003 and was essential to a better understanding of the various methods used and results obtained by other international studies. This was fundamental in developing a thorough understanding of the study requirements in relation to WIPO's recommendations.

(ii) Industry Survey

This was to estimate the degree of copyright activities in the interdependent, partial and non-dedicated support industries. The first mail survey in mid-March 2004 covered 2,000 firms followed by a second round in mid-April 2004 to a further sample of 1,000 firms. The survey questionnaire requested both quantitative and qualitative information, the major aspects being:

- Principal type of business engaged in by the firm
- Turnover in 2002 and number of creative full- and part-time employees
- Receipts/payments for intellectual property in the form of royalties, patents, license fees, and their proportion in turnover/expenditure
- Significance of copyright activities to firm's daily activities.

The respondents' views on the above-mentioned issues were useful in determining the copyright factors. A total of 115 responses (4%) out of 2,887 firms (excluding those undelivered) were received. In light of the level of knowledge required in addressing questions related to copyright activities and the paucity of quantitative information available in most organizations, a third round of the survey was not carried out. Instead interviews were conducted to obtain additional information.

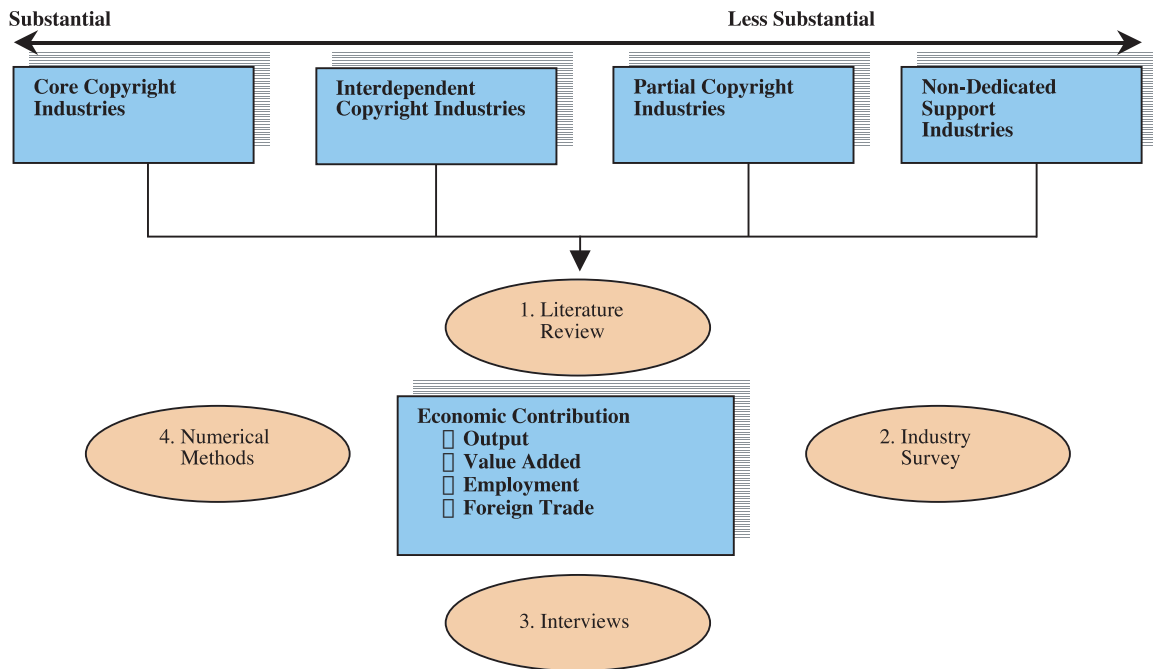
(iii) Interviews

A total of 10 personal interviews were conducted during the two months of May and June 2004 with large companies, especially those in the group of interdependent copyright industries. This was useful in getting an in-depth understanding of the level or degree of copyright activities in these firms.

(iv) Numerical Methods

Quantitative methods (details of which are provided in the technical notes of Section VI) were applied in combination with the interviews and surveys. This was done to obtain the copyright factors for partial copyright industries and non-dedicated support industries.

Table ID.2 depicts the framework used for estimation of the economic contribution of copyright based industries to the economy.

Table ID.2: Estimation of the Economic Contribution of Copyright Activities**Step 1: Literature Review**

Understanding the importance of copyright industries and their economic contributions from previous studies.

Step 2: Industry Survey

Design of questionnaires for surveying smaller-sized companies to derive copyright factors in determining the appropriate level of economic contribution attributable to non-core industries.

- Interdependent Copyright
- Partial Copyright
- Non-Dedicated Support.

Step 3: Interviews

Analysis of the involvement of copyright/creative activities and their correlation to the research and development climate of the large companies through in-depth interviews with the various stakeholders.

- Interdependent Copyright
- Partial Copyright.

Step 4: Numerical Methods

A combination of numerical methods and intuitive qualitative analysis was utilized to derive copyright factors for the non-dedicated support industries where information and data are scarce. Adoption of factors from previous studies must be adjusted to reflect the characteristics of the Singaporean economy in terms of:

- Manpower Capability
- Infrastructure
- Research and Development Climate.

Step 5: Economic Contribution

The economic contribution of the total copyright based industries in Singapore is the aggregate of the core and non-core industries and will be measured by the following four variables:

- Output
- Value Added
- Employment
- Foreign Trade.

Official Data were purchased from the Department of Statistics and Economic Development Board.

3. Estimation Issues

(i) Estimating Economic Contribution

The economic contribution of the copyright based industries can be estimated on either a broad or narrow basis. The former encompasses both core and non-core copyright industries while the latter would only consist of the core copyright industries and their associated activities. On the other hand, the narrow method would deal only with the issue of horizontal³ integration while the broad approach would have an added dimension of vertical estimation.

(ii) Completeness versus Reliability

Any researcher must face the challenge of determining the measurable parameters of copyright based industries. There is a trade-off between completeness and reliability. As the coverage of copyright based industries enlarges to cover non-core copyright industries, data reliability becomes lower. There might be a tendency to overstate one's findings by including the non-core industries while the reverse might be true if only the core copyright industries were included. This would be even more apparent in countries where the non-core copyright industries form a significant portion of the nation's economy.

(iii) A Conservative Approach

A prudent view was highlighted by WIPO which was applied consistently in our study by adopting conservative⁴ copyright factors in apportioning the contribution by the non-core industries arising from their involvement in copyright activities. This would maintain credibility in our findings even though it may result in a slight understatement of the significance of copyright based industries.

E. Organization of Report

The rest of the report is organized as follows:

- Section II describes copyright law in Singapore with its recent trends and developments
- Section III deals with the direct economic contribution, foreign trade of copyrighted goods and comparison of the study findings with other international findings
- Section IV covers the economic impact (direct and indirect) of the core copyright industries and the multipliers through input-output methodology
- Section V provides the conclusions on our findings
- Section VI contains the technical notes and details on the methodologies of the study.

³ Horizontal estimation depicts the measurable boundaries of what should be measured with respect to each group of industries, i.e. which industries should be included in the core copyright industries. Vertical estimation deals with the segregation of copyright industries by rationale of their function or behavior, i.e. the split between core and non-core copyright industries.

⁴ Richard Watt (2004), "A Comment: The Copyright Factors", Review of Economic Research on Copyright Issues, 2004, vol. 1(1), pp 71-78.

II. Copyright Law Trends and Developments

A. *Milestones in the Development of Copyright Law*

The tenth of April, 1710 marked the birth of the first copyright law in the world when the Statute of Anne came into force in the United Kingdom. For the first time, rights were granted to authors; hitherto, the law had only granted limited rights to printers to make copies of specified works which they had generally purchased outright from authors (leaving the latter with no further economic rights in those works). Along with the granting of economic rights to authors, the Statute also introduced the concept of a limited period of monopoly.

Less than two centuries later, the adoption of The Berne Convention for the protection of Literary and Artistic Works in 1886 represented the next milestone in the development of copyright protection: as between contracting states (the Convention being a multilateral treaty) each state would grant copyright protection to the works of the nationals of the other contracting states. The principle of "reciprocity" was born. However, since the Convention was binding only on contracting states -- the USA did not become a party until 1989 -- the recognition of copyrights of foreign nationals, in practical terms, was somewhat watered down.

The next significant milestone on the road to development of copyright protection internationally was the conclusion of the TRIPS Agreement on Trade-Related Aspects of Intellectual Property Rights, 1994. Like the Berne Convention, the principle of "reciprocity" formed the basis of the TRIPS Agreement; the significant difference was that the TRIPS Agreement was binding on all member states of the World Trade Organization, thus giving rights owners the expectation of something more closely approaching worldwide protection.

The TRIPS agreement was primarily an attempt at globalization of intellectual property law, requiring member states to implement certain minimum standards of protection for intellectual property rights, and to extend such protection in favour of nationals of all other member states. With regard to copyright, there were some minimum requirements:

- The copyright term to extend to 50 years after the author's death
- Copyright to be granted automatically without formalities such as registration and renewal
- Computer works to be deemed as literary works and given the same protection as the latter.

Largely driven by the TRIPS Agreement, the last 10 years have seen a significant movement towards greater harmonization of intellectual property laws, including copyright law, amongst the member nations of the WTO.

The trend to provide for intellectual property protection in free trade agreements will certainly contribute to the next phase of development. Most notable is the FTA signed between the US and Singapore in May 2003 which has an IP Chapter that, in some cases, set a standard of protection for intellectual property higher than that required by TRIPS; for example, the duration of copyright protection under this FTA must generally be 20 years longer.

B. Copyright Law in Singapore

1. Overview⁵

The law of copyright in Singapore is governed by the Copyright Act of 1987 (Cap 63). Since it came into force in 1987, the Copyright Act has been amended several times, most recently in 2004 to implement the IP Chapter in the US-Singapore Free Trade Agreement. Its present form bears little resemblance to the Statute of Anne, save that the original concepts of giving recognition to authors and of limiting the period of monopoly still form the cornerstones of the legislation. The provisions in the Copyright Act presently meet, and in some cases exceed, the minimum standards set out in the TRIPS Agreement.

As expressed in the Copyright Act, copyright is fundamentally a set of rights granted to the creators of works. These rights may be exercised only by the creators or with their authority during a specified period of time, and thus allows them to control the commercial exploitation of their works during this time.

2. Protection of Authors' and Entrepreneurial Works and Ownership Rights

Under the Copyright Act, copyright may subsist in two broad categories of works, referred to in this article as "authors' works" and "entrepreneurial works".

Authors' works comprise:

- Literary works (computer programs and compilations are deemed to be literary works)
- Dramatic works
- Musical works
- Artistic works

Entrepreneurial works comprise:

- Sound recordings
- Cinematographic films
- Cable programmes
- Television and sound broadcasts
- Published editions of works

For copyright to subsist in an author's work, it has to be original. There is no requirement of originality in respect of entrepreneurial works. An original work is one created by the author (and not copied from another), employing a certain degree of skill and labour. The originality threshold is fairly low, and the work need not be "creative" in the normally understood sense of the word.

There are no formal registration requirements to secure copyright protection in Singapore. However, in order for a work to enjoy such protection, the required "connecting factors" have to be established. Broadly speaking, the requirement is that of a connection with Singapore, i.e. the work must first be published or made in Singapore, or the author or maker of the work must be a Singaporean citizen or resident. The requirement of a connection with Singapore has now been extended to include a connection with any member state of the World Trade Organization or the Berne Convention.

Ownership of a work generally rests with the author or maker of the work. One notable exception to the general rule is that if a work is made or created in the course of the author's employment, then his employer is entitled to any copyright subsisting in that work. The scope and duration of copyright in the various works are described briefly in Tables IIB.1 and IIB.2 below:

⁵ Collin Ng and Partners, "A Primer on Intellectual Property Rights in Singapore", pp 4-7.

Table IIB.1⁶ : Ownership Rights and Duration in Literary and Artistic Works

Category	Description	Ownership Rights	Duration of Protection
1. Literary works	<ul style="list-style-type: none"> Written works Lyrics in songs Articles in newspapers and journals Source codes for computer programmes Web pages and content in multimedia productions 	<ul style="list-style-type: none"> Reproduction of the work Publishing the work Performing the work in public Broadcasting the work in public Including the work in cable programme Adaptation of the work 	<ul style="list-style-type: none"> Life of the author plus 70 years If the work is published after death, it will last for 70 years after the original date of publication
2. Dramatic works	<ul style="list-style-type: none"> Scripts for films and plays Choreographic scripts for shows or dance routines 		
3. Musical works	<ul style="list-style-type: none"> Musical scores 		
4. Artistic works	<ul style="list-style-type: none"> Paintings Sculptures Drawings Engravings Photographs Buildings and models of buildings 		

Table IIB.2: Ownership Rights and Duration in Other Subject Matter

Category	Description	Ownership Rights	Duration of Protection
1. Sound recordings	<ul style="list-style-type: none"> Tapes, compact discs or any form of recording 	<ul style="list-style-type: none"> Make a copy of the sound recordings Rent out the sound recording 	<ul style="list-style-type: none"> 70 years from the end of the year of the release of the sound recording or film
2. Cinematograph films	<ul style="list-style-type: none"> Includes videos and digital video discs 	<ul style="list-style-type: none"> Make a copy of the film Cause the film to be seen in public Broadcast the film 	
3. Cable programmes	<ul style="list-style-type: none"> ESPN and HBO networks 	<ul style="list-style-type: none"> Make a recording of the cable programme Broadcast and re-broadcast Cause the broadcast to be seen or heard by a paying audience 	<ul style="list-style-type: none"> 50 years from the end of the year of making broadcast or programme
4. Broadcast	<ul style="list-style-type: none"> Includes satellite and encrypted broadcasts 	<ul style="list-style-type: none"> Make a recording of the broadcast Re-broadcast Include the broadcast in a cable programme Cause the broadcast to be seen or heard by a paying audience 	
5. Published editions of a work	<ul style="list-style-type: none"> Literary, dramatic, musical or artistic works 	<ul style="list-style-type: none"> Exclusive right to make a reproduction of the reproduction 	<ul style="list-style-type: none"> 25 years from the end of the year in which the edition was first released
6. Performances	<ul style="list-style-type: none"> By performers such as actors, dancers, musicians, singers and comedians 	<ul style="list-style-type: none"> Right to prevent unauthorized recordings of the performances and the distribution and sale of unauthorized recordings 	<ul style="list-style-type: none"> 50 years from the time the first performance was given

⁶ Tables IIB.1 and IIB.2 are adapted from <http://www.ipos.gov.sg>.

3. Infringement and Remedies

(i) Copyright Infringement

Copyright infringement takes place in Singapore when a person does, or authorizes the doing of, any act which the copyright owner has the exclusive right to do, without his consent. Copyright is also infringed by commercial dealings in unauthorized copies of copyrighted works such as selling and importing, without the consent of the owner.

(ii) Defences

Certain acts do not constitute copyright infringement. Some of the important ones are:

- Fair dealing with a work for research or private study;
- Fair dealing with a work for criticism or review;
- Fair dealing with a work for reporting of current events.

(iii) Remedies

The main remedies for copyright infringement are:

- An injunction
- Surrender of infringing articles
- Damages or an account of profits.

(iv) Offences

It would be a criminal offence for a party to deal commercially with infringing copies of a work where that party knows, or ought reasonably to know, that the copies were an infringement at the relevant time. Offenders are liable to pay fines of up to S\$100,000 and/or to imprisonment of up to 5 years.

4. Protection of Performers

Since 16 April 1998, "copyright-like" protection has been made available in respect of performances. Generally, all live performances (including improvisations) are covered if the required "connecting factors" are established. Broadly speaking, the requirement is that the performance be given in Singapore or given by one or more Singaporean citizens or residents. The requirement of a connection with Singapore has now been extended to include connection with any member state of the World Trade Organization.

III. Direct Economic Contribution

A. Copyright-Based Industries in Singapore

1. Overview

The contribution of the copyright based industries to the Singaporean economy in the year 2001 was:

- S\$30,514.7 million output
- S\$8,729.9 million value added (5.7% of GDP)
- 118,617 jobs (5.8% of nation-wide employment).

In other words, one dollar out of every S\$17.5 of Singapore's GDP was generated by copyright based industries. Also, one worker out of every 17 was engaged directly in one of the copyright based industries.

Table IIIA.1: Economic Contribution 2001

Industry	Output	Value Added	% of GDP	Employment (Number)	% of Employment
	Constant 2001 prices (S\$ millions)				
1. Core copyright	12,249.8	4,390.3	2.85%	74,434	3.64%
2. Interdependent copyright	14,212.4	2,713.3	1.76%	25,293	1.24%
3. Partial copyright	339.9	138.1	0.09%	3,737	0.18%
4. Non-dedicated support	3,712.6	1,488.2	0.97%	15,153	0.74%
Total copyright-based industries	30,514.7	8,729.9	5.67%	118,617	5.80%
Singaporean economy	N/A⁷	154,078	100%	2,046,700	100%

2. Distribution of Copyright-Based Industries

(i) Output 2001 (Table IIIA.2)

The largest groups in terms of output within the copyright based industries were the interdependent and core copyright industries. The combined total output of these two groups amounted to S\$26,462.2 million (86.7%) with the interdependent and core copyright industries contributing S\$14,212.4 million (46.6%) and S\$12,249.8 million (40.1%) in output respectively. The remaining S\$4,052.5 million (13.3%) was attributed to both the partial copyright and non-dedicated support industries.

(ii) Value Added 2001 (Table IIIA.2)

The core copyright industries accounted for half (50.3%) of the value added with S\$4,390.3 million. This was followed by the interdependent copyright industries with S\$2,713.3 million (31.1%) and non-dedicated support industries with S\$1,488.2 million (17%) of value added. The remaining S\$138.1 million value added (1.6%) was attributable to the partial copyright industries.

⁷ There is no publicly available data for output of the economy.

(iii) Employment 2001 (Table IIIA.2)

An estimated 74,434 workers (62.8%) were employed within the core copyright industries while 25,293 (21.3%) workers were plying their livelihood in the interdependent copyright industries. Meanwhile, the non-dedicated support industries also played a vital role with 15,153 workers (12.8%) while the partial copyright industries absorbed the remaining 3,737 workers (3.2%) within the copyright based workforce.

Table IIIA.2: Distribution of Copyright-Based Industries 2001

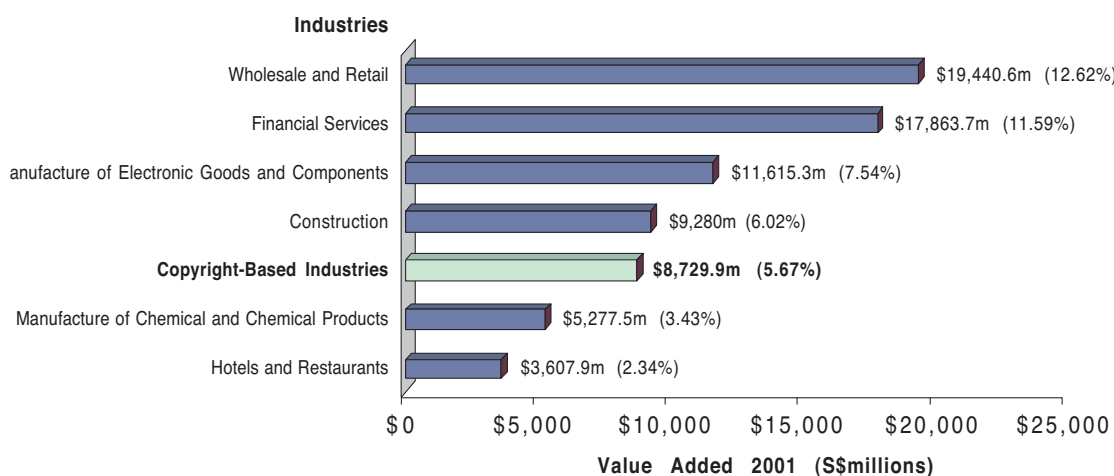
Industry	Output (millions)	(%)	Value Added (millions)	(%)	Employment (Number)	(%)
1. Core copyright	12,249.8	40.1%	4,390.3	50.3%	74,434	62.8%
2. Interdependent copyright	14,212.4	46.6%	2,713.3	31.1%	25,293	21.3%
3. Partial copyright	339.9	1.1%	138.1	1.6%	3,737	3.2%
4. Non-dedicated support	3,712.6	12.2%	1,488.2	17%	15,153	12.8%
Total copyright-based industries	30,514.7	100%	8,729.9	100%	118,617	100%

3. Industry Comparison

(i) Comparison (Chart IIIA.1)

The contribution of the copyright based industries was compared against some other industries in the economy. The value added of S\$8,729.9 million, i.e. 5.7% of Singapore's GDP, was higher than both the chemical and chemical products and hotel and restaurant industries. It was almost as high as the construction industry which accounted for 6% of Singapore's GDP in 2001 with S\$9,280 million in value added.

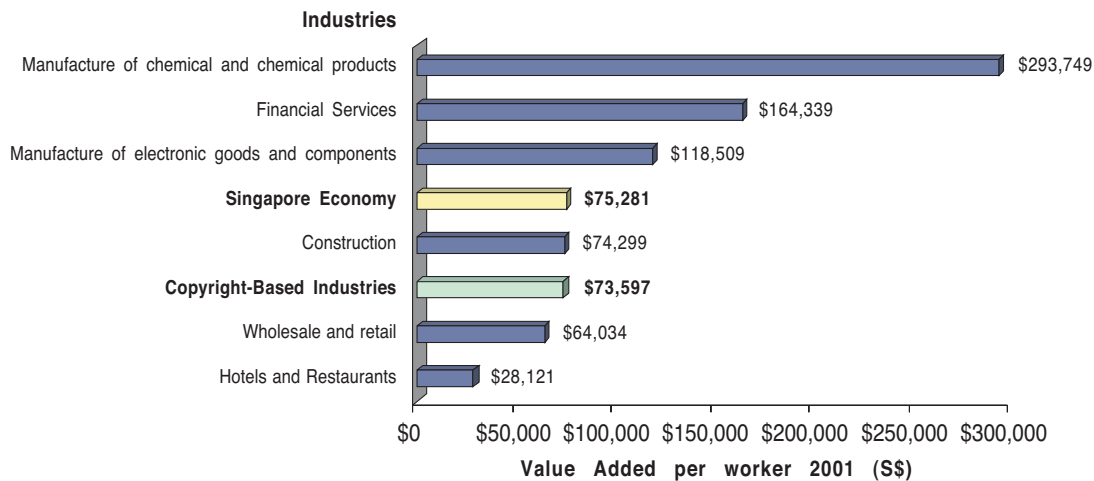
Chart IIIA.1: Relative Size of Copyright-Based Industries, 2001



(ii) Productivity 2001 (Chart IIIA.2)

The average productivity⁸ of a worker in the copyright based industries in 2001 was S\$73,597, which was higher than the wholesale and retail industry's S\$64,034 while being very close to the economy's average of S\$75,281. It was lower than both the manufacture of electronic goods and components and chemicals and chemical products as the value added per worker from these industries totalled S\$118,509 and S\$293,749 respectively. This was probably due to the manufacturing industries being more capital-intensive on average than service industries and hence registered higher value added. Moreover, copyright based industries are a composite of manufacturing, wholesale and retail trade and service industries thereby resulting in an overall lower value added per worker compared with manufacturing industries.

Chart IIIA.2: Worker Productivity in Selected Industries 2001



4. Growth of Copyright-Based Industries 1986-2001

(i) Output (Tables IIIA.3 and IIIA.4)

Output⁹ in the copyright based industries grew strongly between 1986 and 2001 at an average real rate of 10.1% per annum from S\$7,178.5 million to S\$30,514.7 million at 2001 market prices. The highest growth achieved was between 1986 and 1990 at an average rate of 19.2% per annum. Growth in output was slower at 5.5% per annum between 1995 and 2000, and declined by 8.5% between 2000 and 2001.

(ii) Value Added (Tables IIIA.3 and IIIA.4)

The copyright based industries' value added grew in real terms at 8.9% per annum from S\$2,425.8 million to S\$8,729.9 million between 1986 and 2001. On an annual basis this was 1.3% points higher than the 7.6% GDP growth witnessed by the economy, from S\$51,150.8 million to S\$154,078 million over the same period. High growth was predominant between 1986 and 1990 with the copyright based industries expanding at 13.8%, which was 3.8% points higher than the 10% average growth attained by the economy. Slower growth occurred between 1995 and 2000 for both copyright based industries and the economy at 6.6% and 6.4% per annum respectively. Apparently, copyright based

⁸ The average productivity statistics in the other industries were estimated by dividing the value added in these industries by their employment. Source: Yearbook of Statistics 2003.

⁹ Real rates of growth were estimated for output and value added by converting nominal values to real values at 2001 constant dollars. Nominal values for each SSIC class and item within each copyright based industry were deflated by the relevant industry deflator for all periods back to 1986. Similarly, the GDP values were also based on constant 2001 dollars (i.e. base year was 2001).

industries may be more susceptible to short-term cyclical changes than the economy as witnessed by the 9.5% decline in copyright based value added compared with the 1.9% drop in overall GDP between 2000 and 2001.

(iii) Employment (Tables IIIA.3 and IIIA.4)

Employment in the copyright based industries more than doubled between 1986 and 2001, from 55,421 workers to 118,617 workers, equivalent to an average growth rate of 5.2% per annum. This was higher than the 3.5% annual growth in national employment from 1.2 million to 2 million workers during the same period. Between 2000 and 2001, the copyright based industries were still employing more workers as employment grew by 0.2% despite an overall 2.3% decline in employment in the whole economy.

(iv) Productivity (Tables IIIA.3 and IIIA.4)

Worker productivity in copyright based industries grew at 3.5% annually from S\$43,769 to S\$73,597 between 1986 and 2001. This was close to the average 3.9% productivity growth in the economy over the same period¹⁰. Productivity growth in copyright based industries was higher than that of the economy between 1995 and 2000 at 4.2% a year against 2.1% per annum for the economy. Because employment was still increasing in 2001, the copyright based productivity decline of 9.7% was slightly higher than the 9.5% drop in value added.

(v) Contribution (Table IIIA.3)

Observations from Table IIIA.3 further underline the growing importance of the copyright based industries to the Singaporean economy. The GDP of the industries expanded from 4.7% to 5.7% between 1986 and 2001. Similarly, the share of nation-wide employment also increased from 4.6% to 5.8% during this period.

Table IIIA.3: Summary of Copyright-Based Industries 1986-2001

Economic Indicators	Copyright-Based Industries				
	2001	2000	1995	1990	1986
1. Output (S\$ millions)	30,514.7	33,349	25,516.5	14,505.8	7,178.5
2. Value Added (S\$ millions)	8,729.9	9,647.3	6,995.1	4,065.4	2,425.8
3. Copyright-Based Employment	118,617	118,363	105,546	81,832	55,421
4. Copyright-Based Productivity (S\$)	73,597	81,507	66,275	49,679	43,769
5. Singaporean GDP (S\$ millions)	154,078	157,070.3	115,227.2	74,871.7	51,150.8
6. Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
7. Economy Productivity (S\$)	75,281	74,981	67,697	48,713	42,120
8. Relative Value Added Size (%)	5.67%	6.14%	6.07%	5.43%	4.74%
9. Relative Employment Size (%)	5.80%	5.65%	6.20%	5.32%	4.56%

¹⁰ Productivity growth in the copyright based industries surpassed that of the economy between 1986 and 2000 as it grew by 4.5% per annum as compared with the 4.2% achieved by the economy.

Table IIIA.4: Growth Summary of Copyright-Based Industries 1986-2001

Economic Indicators	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Output	-8.5%	5.5%	12%	19.2%	7%	10.1%
2. Value Added	-9.5%	6.6%	11.5%	13.8%	7.2%	8.9%
3. Copyright-Based Employment	0.2%	2.3%	5.2%	10.2%	3.4%	5.2%
4. Copyright-Based Productivity	-9.7%	4.2%	5.9%	3.2%	3.6%	3.5%
5. Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%
6. Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%
7. Economy Productivity	0.4%	2.1%	6.8%	3.7%	4%	3.9%

Chart IIIA.3: Copyright-Based Industries Value Added Growth 1986-2001

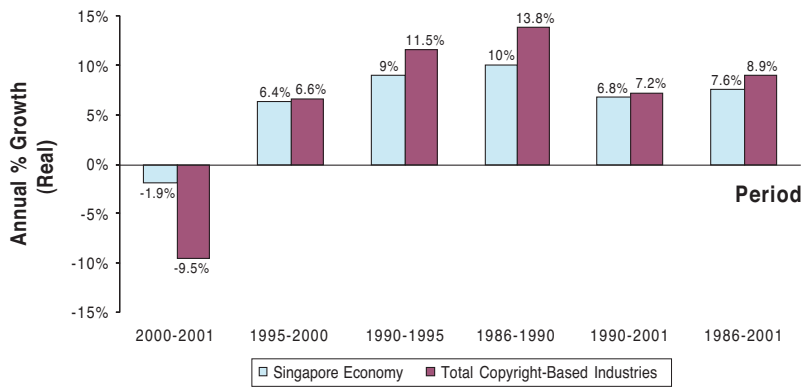


Chart IIIA.4: Employment in the Copyright-Based Industries Growth 1986-2001

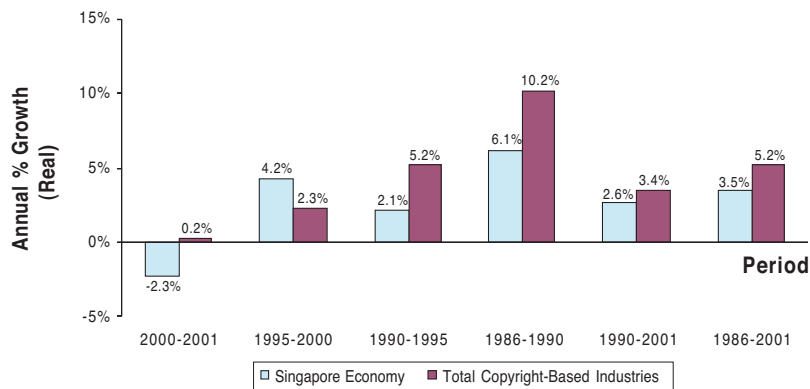


Chart IIIA.5: Productivity Growth in the Copyright-Based Industries 1986-2001

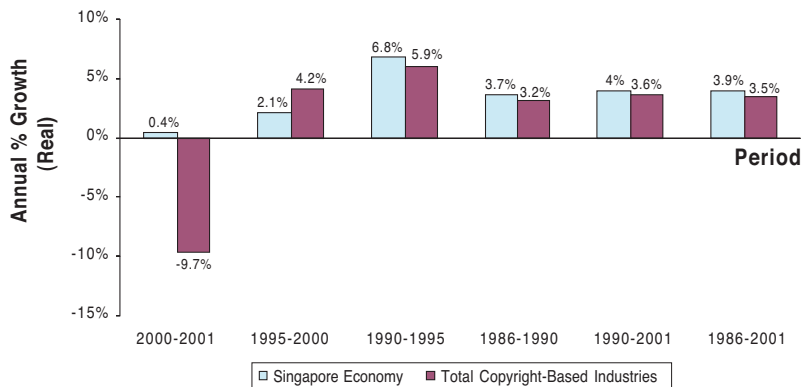
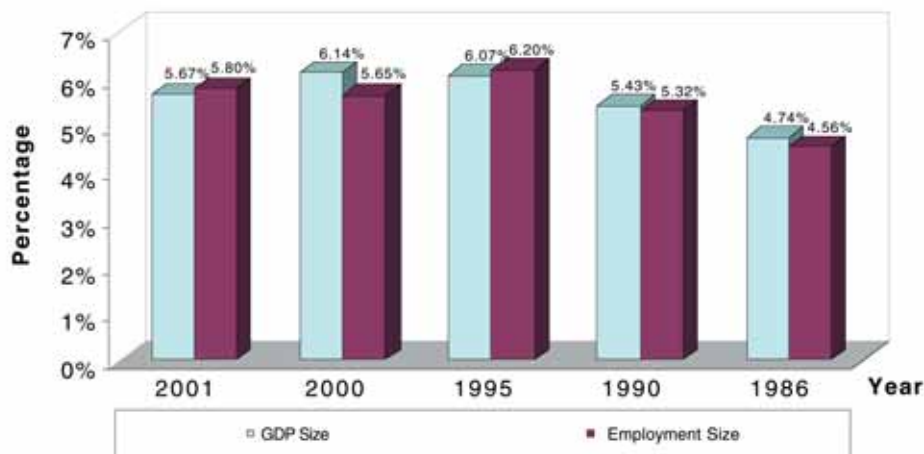


Chart IIIA.6: Relative Size of Copyright-Based Industries 1986-2001



B. Core Copyright Industries

The core copyright industries are wholly engaged in the “creation, production and manufacturing, performance, broadcast, communication and exhibition, or distribution and sales of works and other protected matter” (WIPO Guide, p.29). These industries have a very high level of involvement in copyright activities and their direct economic contribution to output, value added and employment was taken at full value. In this study, the core copyright group encompasses the following nine main industries:

- Press and Literature
- Music, Theatrical Productions and Opera
- Motion Picture and Video
- Radio and Television
- Photography
- Software and Databases
- Visual and Graphic Arts
- Advertising Services
- Copyright Collecting Societies

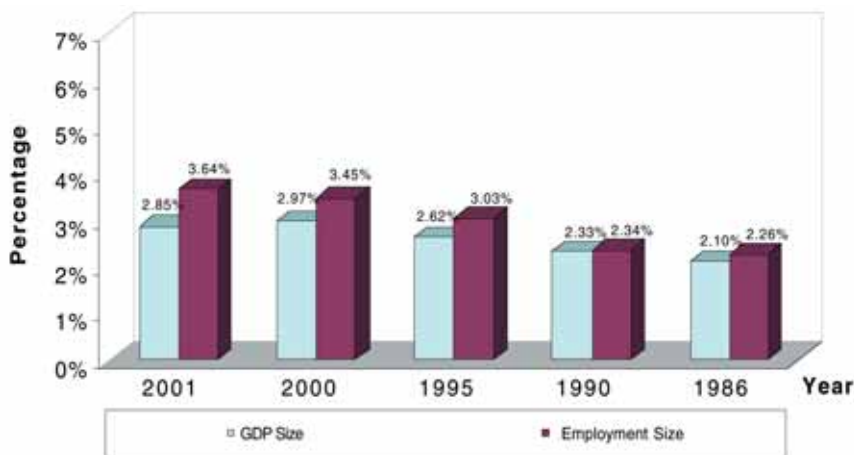
1. Overview

The core copyright industries contributed the following to the Singaporean economy in the year 2001:

- S\$12,249.8 million output
- S\$4,390.3 million value added (2.9% of GDP)
- 74,434 jobs (3.6% of nation-wide employment)

The core copyright industries were the largest contributor of both value added and employment in 2001. Value added of these industries grew (in constant 2001 dollars) from S\$1,072.7 million to S\$4,390.3 million at 9.8% per annum between 1986 and 2001 and their proportion of the economy expanded from 2.1% to 2.9%. Employment also rose from 27,420 workers to 74,434 workers at 6.9% annually during this period while its share of nation-wide employment expanded from 2.3% to 3.6%.

Chart IIIB.1: Relative Size of Core Copyright Industries 1986-2001



2. Output

(i) Output 2001 (Chart IIIB.2)

In 2001, the core copyright industries achieved an estimated output¹¹ of S\$12,249.8 million. The five most important industries in the group were:

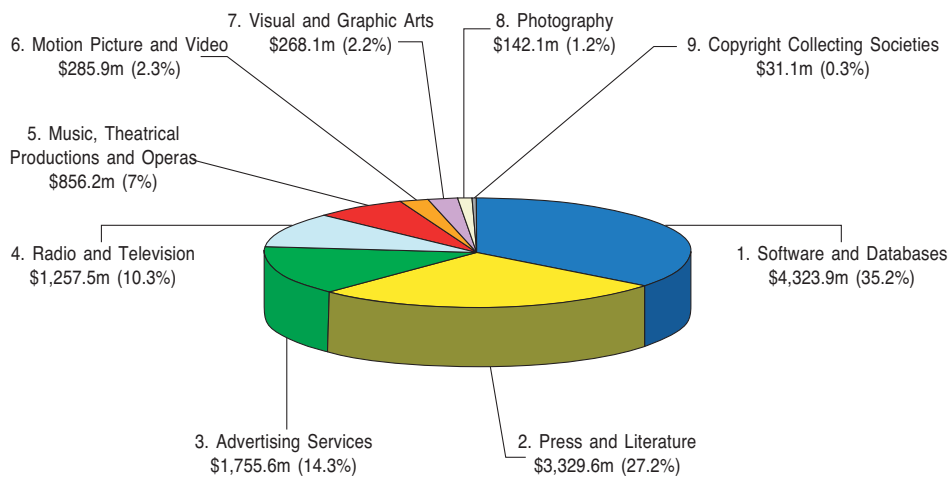
1. Software and Databases
2. Press and Literature
3. Advertising Services
4. Radio and Television
5. Music, Theatrical Productions and Opera.

These industries constituted S\$11,522.7 million or 94.1% of the entire core copyright industries in terms of output. The software and database industry was the largest, accounting for S\$4,323.9 million or 35.2% of total output. Press and literature was second with S\$3,329.6 million (27.2%) while advertising services was third with S\$1,755.6 million (14.3%). The radio and television and music, theatrical productions and opera industries followed suit with S\$1,257.5 million (10.3%) and S\$856.2 million (7%) respectively.

The four remaining industries namely, motion pictures and video, visual and graphic arts, photography, and copyright collecting societies contributed the remaining S\$727.1 million, or 5.9% of output from core copyright industries.

¹¹ Consistent with the national accounts, output values for the wholesale and retail trade industries belonging to the SSIC 50s and 51s series were represented by their gross margin to reduce double counting through intermediate transactions,

Chart IIIB.2: Output 2001



(ii) Output Growth¹² (Tables IIIB.1 and IIIB.2)

Vibrant growth was recorded by the core copyright industries with output augmented from S\$2,942.1 million in 1986 to S\$12,249.8 million in 2001 at constant prices. This represented a real growth rate of 10% per annum over the 15-year period (Table IIIB.2). The highest short-term growth period was achieved from 1986 to 1990 when output increased at a rate of 12.2% per annum. Growth declined to 9.7% per annum between 1990 and 1995 and 10.3% per annum between 1995 and 2000. Despite a downturn in economic activity in 2001, output increased slightly by 1.1% from S\$12,113.7 million to S\$12,249.8 million (Table IIIB.1).

Further analysis of the industries within the core copyright group and their associated economic activities revealed that the software and database industry excelled, expanding from 1986 to 2001 at a rate of 19.9% per annum. Also experiencing strong growth during this period were the radio and television, visual and graphic arts, and music, theatrical productions and opera industries.

Between 1986 and 1990, higher growth rates were still prevalent for most of the individual industries, especially the software and databases, music, theatrical productions and opera, and visual and graphic arts industries. Between 1995 and 2000, slower growth was observed in most industries except the software and databases industry which achieved a high growth rate of 22.8% per annum during this period. The year 2001 was a turning point for the photographic and advertising services industries as output fell by 22.5% and 15.8% respectively from the previous year.

¹²Total figures and growth rates may not tally exactly due to rounding up to 1 decimal place.

Table IIIB.1: Detailed Output 1986-2001

Industry	Output (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. Press and Literature	3,329.6	3,210.3	2,594	1,922.8	1,183
2. Music, Theatrical Productions and Opera	856.2	924.2	904.7	408	199.2
3. Motion Pictures and Video	285.9	333.1	347.6	230.4	180.4
4. Radio and Television	1,257.5	1,161.2	432.6	283.3	235.3
5. Photography	142.1	183.3	168.7	140	101.2
6. Software and Databases	4,323.9	3,972.3	1,413	695.6	284.8
7. Visual and Graphic Arts	268.1	222	172.1	66.8	54.4
8. Advertising Services	1,755.6	2,084.5	1,366.8	903	685.5
9. Copyright Collecting Societies	31.1	22.7	18.8	12.5	18.2
Core Copyright Industries	12,249.8	12,113.7	7,418.4	4,662.4	2,942.1

Table IIIB.2: Detailed Output Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Press and Literature	3.7%	4.4%	6.2%	12.9%	5.1%	7.1%
2. Music, Theatrical Productions and Opera	-7.4%	0.4%	17.3%	19.6%	7%	10.2%
3. Motion Pictures and Video	-14.2%	-0.8%	8.6%	6.3%	2%	3.1%
4. Radio and Television	8.3%	21.8%	8.8%	4.8%	14.5%	11.8%
5. Photography	-22.5%	1.7%	3.8%	8.4%	0.1%	2.3%
6. Software and Databases	8.8%	23%	15.2%	25%	18.1%	19.9%
7. Visual and Graphic Arts	20.8%	5.2%	20.8%	5.3%	13.5%	11.2%
8. Advertising Services	-15.8%	8.8%	8.6%	7.1%	6.2%	6.5%
9. Copyright Collecting Societies	37%	3.9%	8.5%	-9%	8.7%	3.6%
Core Copyright Industries	1.1%	10.3%	9.7%	12.2%	9.2%	10%

3. Value Added

(i) Value Added 2001 (Chart IIIB.3)

Value added or Gross Domestic Product (GDP) remains the key indicator of economic contribution. In 2001, an estimated S\$4,390.3 million in value added was generated by the core copyright industries, which was approximately 2.9% of Singapore's GDP (Table IIIB.3). The five major industries in descending order of their value added were:

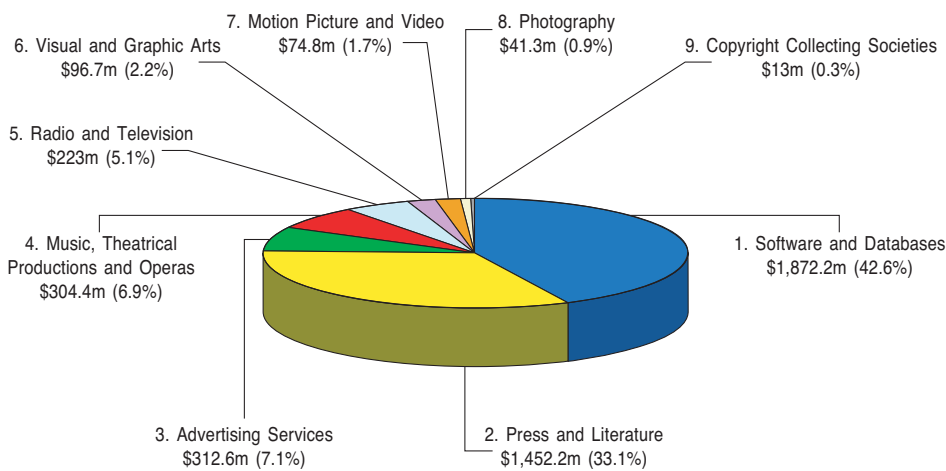
1. Software and Databases
2. Press and Literature
3. Advertising Services
4. Music, Theatrical Productions and Opera
5. Radio and Television

Value added from these five major industries was estimated at S\$4,164.5 million, or 94.9% of the entire value added from the core copyright industries. The two largest industries were software and databases and press and literature with S\$1,872.2 million (42.6%) and S\$1,452.2 million (33.1%) respectively. The next two major industries were advertising services with S\$312.6 million (7.1%) and

music, theatrical productions and opera with S\$304.4 million (6.9%) value added. The radio and television industry was ranked fifth with S\$223 million (5.1%) of value added.

The visual and graphic arts, motion picture and video, photographic, and copyright collecting societies industries contributed S\$225.8 million or the remaining 5.1% of value added within the core copyright group.

Chart IIB.3: Value Added 2001



(ii) Value Added Growth (Tables IIB.3 and IIB.4)

An attempt was made for a systematic understanding of copyright activities over the long term through the contribution of core copyright industries to the nation over a 15-year period. Between 1986 and 2001, the core copyright industries outperformed the Singaporean economy with value added increasing at an average rate of 9.8% per annum from S\$1,072.7 million to S\$4,390.3 million, as opposed to the economy's 7.6% rate (Tables IIB.3 and IIB.4). Meanwhile, the relative size of the core industries rose from 2.1% to 2.9% during the same period.

Growth was at its zenith between 1986 and 1990 when both core copyright industries and the economy experienced growth rates of 12.9% and 10% per annum respectively with the former gaining an advantage of 2.9% points annually (Table IIB.4). The sector, in alignment with the economy, experienced slower growth from 1990 onwards, most noticeably from 1995 to 2000 when the growth in the core copyright industries fell to 9.1% per annum and that of the economy to 6.4% per annum.

Deeper insights into the various industries can be obtained from Table IIB.4. Higher growth rates were apparent between 1986 and 1995. However, such momentum gradually slowed from 1995 to 2000. The decline in value added of the industries in 2001 was almost universal except for the software and database industry which still had the highest positive growth rates among the different industries for all short and long-term periods from 1986 to 2001. It remained the sole industry to witness a marginal increase in value added of S\$174.6 million or 10.3% growth in 2001. Both advertising services and the photographic industries were considerably affected by the downturn of 2001 as value added declined by 43.4% and 33% respectively.

Table IIIB.3: Detailed Value Added 1986-2001

Industry	Value Added (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. Press and Literature	1,452.2	1,516.9	1,380.9	818.3	536.9
2. Music, Theatrical Productions and Opera	304.4	369.8	372.9	178	81
3. Motion Pictures and Video	74.8	80.6	82.6	67.7	59.8
4. Radio and Television	223	266.1	181.1	206	149.3
5. Photography	41.3	61.6	41.1	29.2	19.4
6. Software and Databases	1,872.2	1,697.6	607.7	205.9	67
7. Visual and Graphic Arts	96.7	100.4	71.4	28.5	21.3
8. Advertising Services	312.6	552	267.9	202.9	131.2
9. Copyright Collecting Societies	13	13.5	10.3	5.4	6.8
Core Copyright Industries	4,390.3	4,658.5	3,015.9	1,741.8	1,072.7
Singaporean GDP	154,078	157,070.3	115,227.2	74,871.7	51,150.8
Relative Size	2.85%	2.97%	2.62%	2.33%	2.10%

Chart IIIB.4: Value Added Growth in Core Copyright Industries 1986-2001

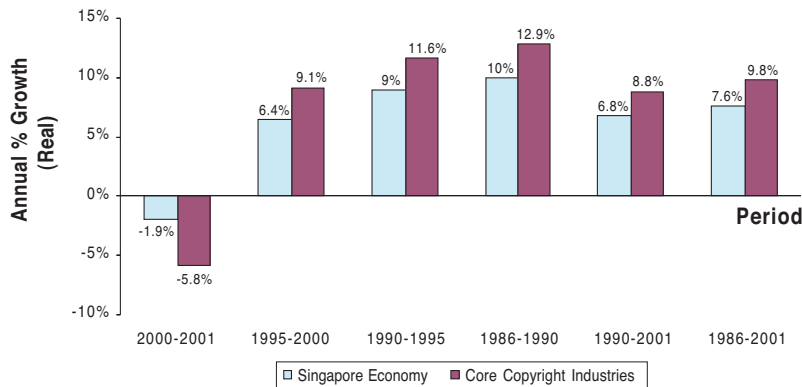


Table IIIB.4: Detailed Value Added Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Press and Literature	-4.3%	1.9%	11%	11.1%	5.4%	6.9%
2. Music, Theatrical Productions and Opera	-17.7%	-0.2%	15.9%	21.7%	5%	9.2%
3. Motion Pictures and Video	-7.2%	-0.5%	4.1%	3.2%	0.9%	1.5%
4. Radio and Television	-16.2%	8%	-2.5%	8.4%	0.7%	2.7%
5. Photography	-33%	8.4%	7.1%	10.8%	3.2%	5.2%
6. Software and Databases	10.3%	22.8%	24.2%	32.4%	22.2%	24.9%
7. Visual and Graphic Arts	-3.7%	7%	20.2%	7.6%	11.7%	10.6%
8. Advertising Services	-43.4%	15.6%	5.7%	11.5%	4%	6%
9. Copyright Collecting Societies	-3.6%	5.6%	13.9%	-5.9%	8.4%	4.4%
Core Copyright Industries	-5.8%	9.1%	11.6%	12.9%	8.8%	9.8%
Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%

4. Employment

(i) Employment 2001 (Chart IIIB.5)

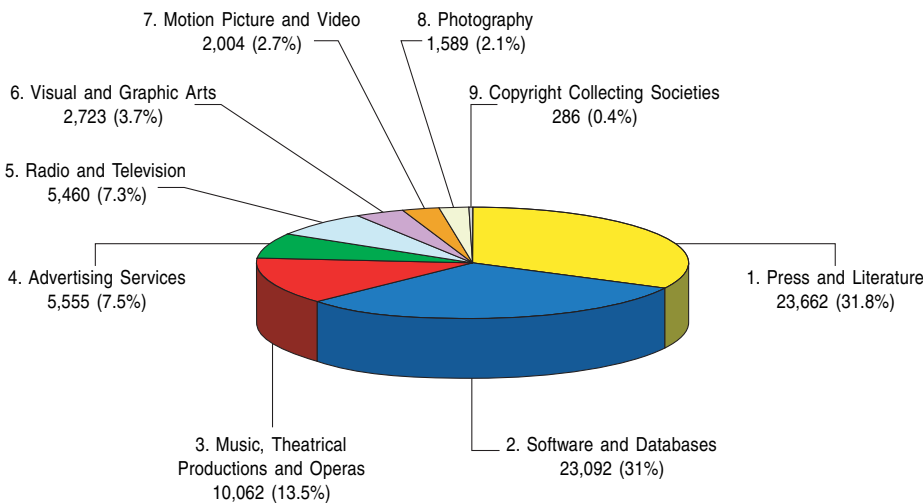
A total of 74,434 people were employed by the core copyright industries in 2001. The size of the group as a proportion of national employment was 3.6% of total employment in 2001 (Table IIIB.5). The five major industries with the largest workforce were:

1. Press and Literature
2. Software and Databases
3. Music, Theatrical Productions and Opera
4. Advertising Services
5. Radio and Television

These five industries accounted for 67,831 workers or 91.1% of employment within the core copyright industries. The two largest employers were the press and literature industry with 23,662 workers (31.8%) and software and database industry with 23,092 workers (31%). Music, theatrical productions and opera with 10,062 workers (13.5%), advertising services 5,555 workers (7.5%) and radio and television with 5,460 workers (7.3%) were the remaining three significant sectors.

The visual and graphic arts, motion picture and video, photography and copyright collecting societies industries employed a combined workforce of 6,603 workers, or 8.9% employment within the core copyright industries.

Chart IIIB.5: Employment 2001



(ii) Employment Growth (Tables IIIB.5 and IIIB.6)

Employment expansion in the core copyright industries between 1986 and 2001 was 6.9% per annum. This represented an annual 3.4% points above the 3.5% rate attained by the economy over the 15-year period. The best short-term period for employment growth was between 1990 and 1995 at 7.5% per annum from 35,919 workers to 51,578 workers. This was higher than the average 2.1% annual growth in national employment from 1.54 million workers to 1.7 million workers during the same period. Between 2000 and 2001, employment within the core copyright industries increased by 2.9% from 72,369 workers to 74,434 workers despite an overall decline of 2.3% in Singapore's employment rate (Table IIIB.6).

The software and database industry achieved an employment growth of 17.1% per annum between 1986 and 2001. Albeit lower but still strong was the employment expansion in the visual and graphic arts and music, theatrical productions and opera industries which attained a growth rate in the workforce of 7.5% and 6.2% per annum respectively over the long term. Economic decline in 2001 affected the core copyright industries except radio and television, software and database and press and literature industries. The two industries most affected were photographic and advertising services where employment fell by 30.5% and 16.9% respectively.

Table IIIB.5: Detailed Employment 1986-2001

Industry	Employment				
	2001	2000	1995	1990	1986
1. Press and Literature	23,662	21,717	17,831	13,887	10,960
2. Music, Theatrical Productions and Opera	10,062	10,803	9,824	5,828	4,085
3. Motion Pictures and Video	2,004	2,317	2,135	1,699	1,290
4. Radio and Television	5,460	4,593	3,807	3,110	2,633
5. Photography	1,589	2,286	1,954	1,612	1,334
6. Software and Databases	23,092	20,701	8,107	4,432	2,161
7. Visual and Graphic Arts	2,723	2,976	2,203	1,171	920
8. Advertising Services	5,555	6,686	5,426	4,016	3,829
9. Copyright Collecting Societies	286	290	289	163	207
Core Copyright Industries	74,434	72,369	51,578	35,919	27,420
Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
Relative Size	3.64%	3.45%	3.03%	2.34%	2.26%

Chart IIIB.6: Employment Growth in the Core Copyright Industries 1986-2001

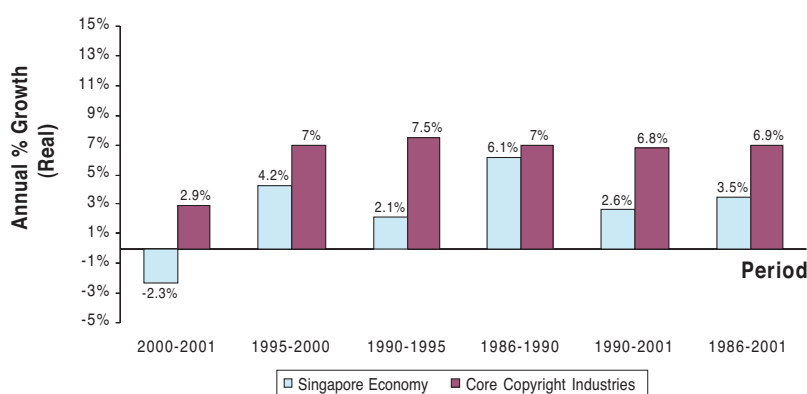


Table IIIB.6: Detailed Employment Growth 1986-2001

Industry	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Press and Literature	9%	4%	5.1%	6.1%	5%	5.3%
2. Music, Theatrical Productions and Opera	-6.9%	1.9%	11%	9.3%	5.1%	6.2%
3. Motion Pictures and Video	-13.5%	1.6%	4.7%	7.1%	1.5%	3%
4. Radio and Television	18.9%	3.8%	4.1%	4.3%	5.2%	5%
5. Photography	-30.5%	3.2%	3.9%	4.8%	-0.1%	1.2%
6. Software and Databases	11.6%	20.6%	12.8%	19.7%	16.2%	17.1%
7. Visual and Graphic Arts	-8.5%	6.2%	13.5%	6.2%	8%	7.5%
8. Advertising Services	-16.9%	4.3%	6.2%	1.2%	3%	2.5%
9. Copyright Collecting Societies	-1.4%	0.1%	12.1%	-5.8%	5.2%	2.2%
Core Copyright Industry	2.9%	7%	7.5%	7%	6.8%	6.9%
Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%

C. Interdependent Copyright Industries¹³

The interdependent copyright industries are engaged in “the production, manufacture and sale of equipment whose purpose is to wholly or primarily facilitate the creation and production or usage of works and other protected subject matter” (WIPO Guide p.33). These industries are commonly termed the copyright hardware industries whose operations would be significantly reduced without the above-mentioned copyright aspect. Their economic contribution was weighted by factors¹⁴ depending on the level of copyright activities specific to each individual industry within the group. In our study, the interdependent copyright group contains seven industries as follows:

- TV sets, Radios, VCRs and DVD Players
- Computers and Equipment
- Musical Instruments
- Photographic and Cinematographic Instruments
- Photocopiers
- Blank Recording Material
- Paper

1. Overview

The interdependent copyright industries contributed the following to the Singaporean economy in the year 2001:

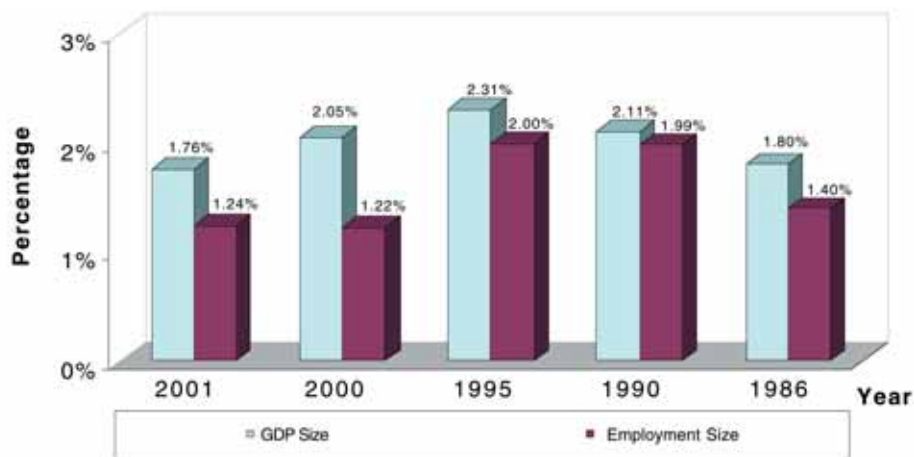
- S\$14,212.4 million output
- S\$2,713.3 million value added (1.8% of GDP)
- 25,293 jobs (1.2% of nation-wide employment).

¹³ All non-core copyright industry contributions were apportioned with the relevant copyright factors of 2001. These factors were also imputed into the data for the years 1986 to 2000, with the assumption of constant copyright intensities in these activities. This remains the best method to date for estimates of the earlier years.

¹⁴ Please refer to pp 89, Table VIC.6: Copyright Factors for Non-Core Copyright Industries, 1986-2001, for the relevant copyright factors on the non-core copyright industries.

The interdependent copyright industries were the most important value added contributors after the core copyright industries. Value added in the group increased at 7.5% per annum from S\$918.7 million to S\$2,713.3 million (in real terms at 2001 market prices) between 1986 and 2001, while its relative GDP share of the economy remained constant at about 1.8% during the period. Employment also rose from 16,993 to 25,293 workers or by 2.7% per annum whereas its share of national employment dropped from 1.4% to 1.2% between 1986 and 2001.

Chart IIIC.1: Relative Size of Interdependent Copyright Industries 1986-2001



2. Output

(i) Output 2001 (Chart IIIC.2)

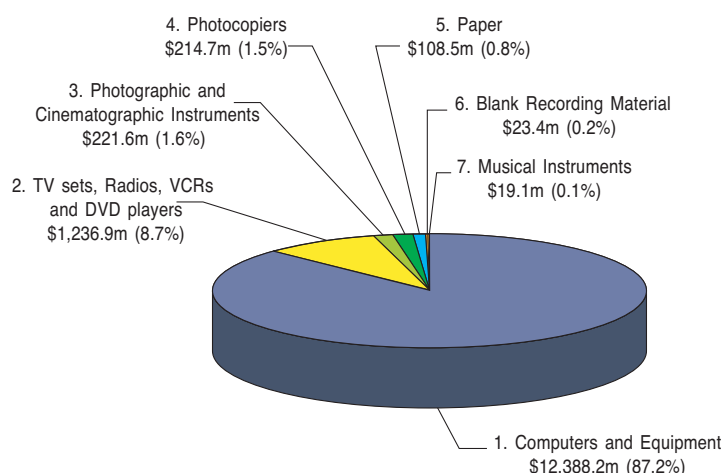
In 2001, the interdependent copyright industries attained an estimated output of S\$14,212.4 million. The five most important industries were:

1. Computers and Equipment
2. TV sets, Radios, VCRs and DVD Players
3. Photographic and Cinematographic Instruments
4. Photocopiers
5. Paper

A total of S\$14,169.9 million or 99.7% of the output within the interdependent copyright group was attributable to these major industries. The computer and equipment industry was the largest among them with S\$12,388.2 million (87.2%). The TV set and radio industry followed suit with S\$1,236.9 million (8.7%) while the photographic and cinematographic instruments industry was third with S\$221.6 million (1.6%). The last two major industries were photocopiers and the paper industry with S\$214.7 million (1.5%) and S\$108.5 million (0.8%) respectively.

The two smaller industries of blank recording material and musical instruments accounted for the remaining S\$42.5 million (0.3%). Output values from the blank recording and musical instrument industries were S\$23.4 million (0.2%) and S\$19.1 million (0.1%) respectively.

Chart IIIC.2: Output 2001



(ii) Output Growth (Tables IIIC.1 and IIIC.2)

Output of the interdependent copyright industries grew by 10.7% per annum in real terms from S\$3,106.1 million to S\$14,212.4 million between 1986 and 2001 (Table IIIC.1). Predominantly, the two key industries within the group were the TV set and radio and the computer and equipment industries. Growth was at its highest at 26.8% per annum between 1986 and 1990. From 1990 onwards, output growth in the interdependent copyright industries was lower at 13.6% per annum between 1990 and 1995, and 2.4% between 1995 and 2000. In 2001, output in the group declined by 16.7%.

At the detailed industry level, the computer and equipment, musical instrument and photocopier industries experienced strong growth over the long-term between 1986 and 2001. Such upward trends in these industries were apparent for the intermediate 5-year periods between 1986 and 1995. They were, however, affected in 2001 when output in both the photocopier and computer and equipment industries declined by 26.5% and 18% respectively.

Table IIIC.1: Detailed Output 1986-2001

Industry	Output (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. TV sets, Radios, VCRs and DVD players	1,236.9	1,347.2	3,134.8	2,729.1	1,172.6
2. Computers and Equipment	12,388.2	15,100.5	11,662.5	4,987.7	1,750
3. Musical Instruments	19.1	19.4	24.9	10.8	3.4
4. Photographic and Cinematographic Instruments	221.6	192.7	136.7	119	87.8
5. Photocopiers	214.7	292	107.2	64.1	25.2
6. Blank Recording Material	23.4	18	29.9	70	29.8
7. Paper	108.5	94.6	76.8	46.1	37.3
Interdependent Copyright Industries	14,212.4	17,064.4	15,172.7	8,026.7	3,106.1

Table IIIC.2: Detailed Output Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. TV sets, Radios, VCRs and DVD players	-8.2%	-15.5%	2.8%	23.5%	-6.9%	0.4%
2. Computers and Equipment	-18%	5.3%	18.5%	29.9%	8.6%	13.9%
3. Musical Instruments	-1.4%	-4.9%	18.1%	34%	5.3%	12.3%
4. Photographic and Cinematographic instruments	15%	7.1%	2.8%	7.9%	5.8%	6.4%
5. Photocopiers	-26.5%	22.2%	10.8%	26.2%	11.6%	15.3%
6. Blank Recording Material	30.1%	-9.6%	-15.7%	23.8%	-9.5%	-1.6%
7. Paper	14.7%	4.2%	10.8%	5.4%	8.1%	7.4%
Interdependent Copyright Industries	-16.7%	2.4%	13.6%	26.8%	5.3%	10.7%

3. Value Added

(i) Value Added 2001 (Chart IIIC.3)

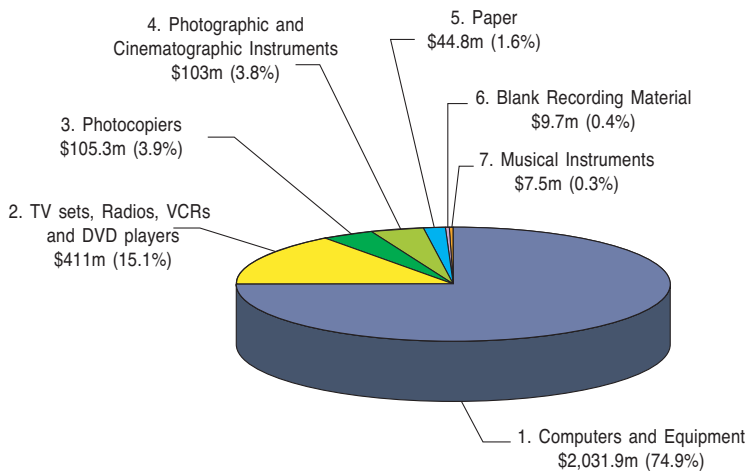
An estimated S\$2,713.3 million in value added was generated by the interdependent copyright industries. Among them, the five most important industries in the group were:

1. Computers and Equipment
2. TV sets, Radios, VCRs and DVD Players
3. Photocopiers
4. Photographic and Cinematographic Instruments
5. Paper

These five major industries constituted S\$2,696.1 million, or 99.4% of the value added in the entire interdependent copyright group. The two largest industries were computers and equipment and TV sets and radios with value added of S\$2,031.9 million (74.9%) and S\$411 million (15.1%) respectively. Other important industries included the photocopier industry with S\$105.3 million (3.9%) and the photographic and cinematographic instrument industry with S\$103 million (3.8%) in value added. Lastly, S\$44.8 million (1.6%) of value added was contributed by the paper industry.

The remaining S\$17.2 million (0.6%) of value added was attributable to the blank recording material and musical instruments industries.

Chart IIIC.3: Value Added 2001



(ii) Value Added Growth (Tables IIIC.3 and IIIC.4)

Value added in the interdependent copyright industries almost tripled from S\$918.7 million to S\$2,713.3 million between 1986 and 2001 (Table IIIC.3). This represented a real annual growth rate of 7.5%, which was almost equivalent to the average economy growth of 7.6% (Table IIIC.4). Value added growth of the interdependent copyright group, during the earlier years, was higher than the economy between 1986 and 1990 as reflected in the average annual growth rates of 14.5% and 10% respectively. Such trends continued until 1995 when the growth of the interdependent copyright industries was slower at 3.8% in comparison with the economy's 6.4% between 1995 and 2000. The interdependent copyright industries declined by S\$504 million in value added from S\$3,217.3 million to S\$2,713.3 million or by 15.7% a year on average between 2000 and 2001.

The faster growing industries within the group between 1986 and 2001 were the photocopier and musical instrument industries, recording average growth of 13.9% and 11.2% per annum respectively. These industries also experienced high short-term growth between 1986 and 1995. In 2001, value added in the photocopier and computer and equipment industries declined by 23% and 21.3% respectively.

Table IIIC.3: Detailed Value Added 1986-2001

Industry	Value Added (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. TV sets, Radios, VCRs and DVD players	411	347.8	640.6	508.1	259
2. Computers and Equipment	2,031.9	2,583	1,833.7	933.1	566
3. Musical Instruments	7.5	8.2	11.9	7.1	1.5
4. Photographic and Cinematographic instruments	103	93.4	64.1	61.2	50
5. Photocopiers	105.3	136.7	67.1	32.9	14.9
6. Blank Recording Material	9.7	8	7.8	14.4	9.6
7. Paper	44.8	40.1	39.9	21.2	17.7
Interdependent Copyright Industries	2,713.3	3,217.3	2,665.3	1,578	918.7
Singaporean GDP	154,078	157,070.3	115,227.2	74,871.7	51,150.8
Relative Size	1.76%	2.05%	2.31%	2.11%	1.80%

Chart IIIC.4: Value Added Growth in Interdependent Copyright Industries 1986-2001

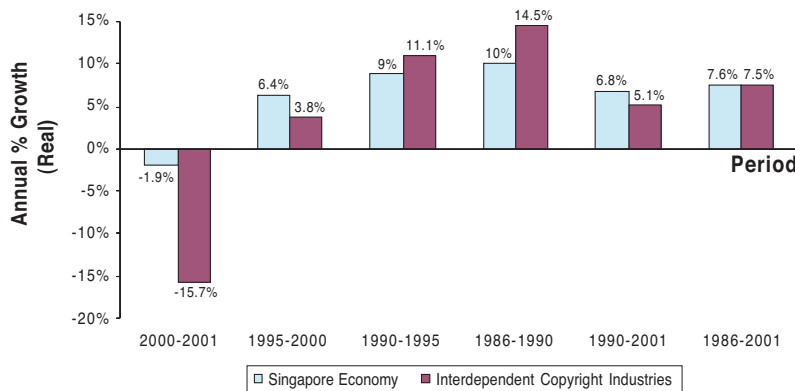


Table IIIC.4: Detailed Value Added Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. TV sets, Radios, VCRs and DVD players	18.2%	-11.5%	4.7%	18.3%	-1.9%	3.1%
2. Computers and Equipment	-21.3%	7.1%	14.5%	13.3%	7.3%	8.9%
3. Musical Instruments	-8.8%	-7.2%	10.7%	47.2%	0.4%	11.2%
4. Photographic and Cinematographic instruments	10.3%	7.8%	0.9%	5.2%	4.8%	4.9%
5. Photocopiers	-23%	15.3%	15.4%	21.9%	11.2%	13.9%
6. Blank Recording Material	21.9%	0.3%	-11.4%	10.7%	-3.5%	0.1%
7. Paper	11.5%	0.1%	13.5%	4.5%	7.1%	6.4%
Interdependent Copyright Industries	-15.7%	3.8%	11.1%	14.5%	5.1%	7.5%
Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%

4. Employment

(i) Employment 2001 (Chart IIIC.5)

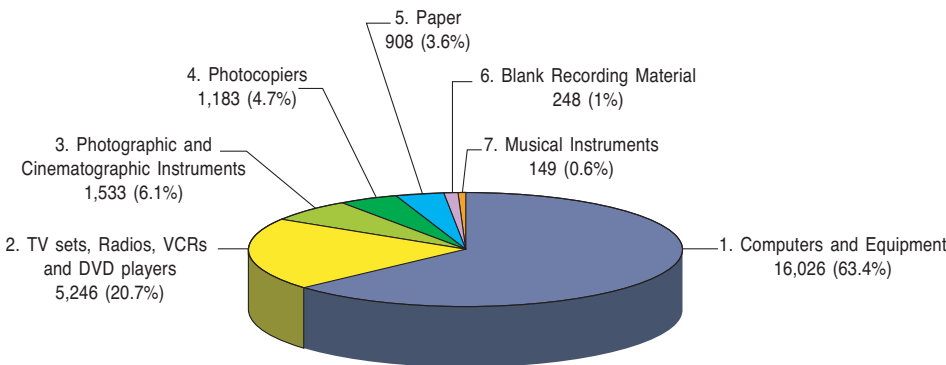
A total of 25,293 workers were employed within the interdependent copyright industries in 2001. The top five industries were:

1. Computers and Equipment
2. TV sets, Radios, VCRs and DVD players
3. Photographic and Cinematographic instruments
4. Photocopiers
5. Paper

The five major industries employed 24,896 workers (98.4%). Among them, the computer and equipment industry was dominant with 16,026 workers (63.4%). Further down the hierarchy was the TV set and radio industry with 5,246 workers (20.7%). This was then followed by the photographic and cinematographic instrument and photocopier industries with 1,533 workers (6.1%) and 1,183 workers (4.7%) respectively. The smallest among them was the paper industry which accounted for 908 workers, or 3.6% of the group's labour force.

The other two industries, blank recording material and musical instruments, employed 248 and 149 workers respectively, accounting for the remaining 397 workers (1.6%).

Chart IIIC.5: Employment 2001



(ii) Employment Growth (Tables IIIC.5 and IIIC.6)

Employment increased by about 1.5 times from 16,993 workers to 25,293 workers between 1986 and 2001, indicating an average growth of 2.7% per annum during the 15-year period. This was lower than the economy average of 3.5% during this period. The exception was from 1986 to 1990 when employment in the interdependent copyright industries was occurring at a rate above the economy, i.e. 15.9% versus 6.1%. Overall employment fell in 2001 when the number of workers in the group declined by 1.4% from 25,645 workers to 25,293 workers.

Within the interdependent group, higher growth industries include the computer and equipment and photocopier industries whose long-term average growth rates were 6.3% and 6% respectively between 1986 and 2001 (Table IIIC.6). Between 2000 and 2001, employment in the blank recording material industry increased by 36.1% while the paper industry's workforce expanded by 23.2% although both the industries still had a small workforce. Meanwhile, employment in the photocopier and musical instrument industries experienced a fall of 18.4% and 17.5% respectively.

Table IIIC.5: Detailed Employment 1986-2001

Industry	Employment				
	2001	2000	1995	1990	1986
1. TV sets, Radios, VCRs and DVD players	5,246	4,990	9,469	10,810	7,744
2. Computers and Equipment	16,026	16,612	20,765	16,428	6,400
3. Musical Instruments	149	181	206	127	82
4. Photographic and Cinematographic instruments	1,533	1,493	1,605	1,576	1,271
5. Photocopiers	1,183	1,451	1,031	692	492
6. Blank Recording Material	248	182	247	338	302
7. Paper	908	737	770	742	702
Interdependent Copyright Industries	25,293	25,645	34,093	30,712	16,993
Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
Relative Size	1.24%	1.22%	2.00%	1.99%	1.40%

Chart IIIC.6: Employment Growth in Interdependent Copyright Industries 1986-2001

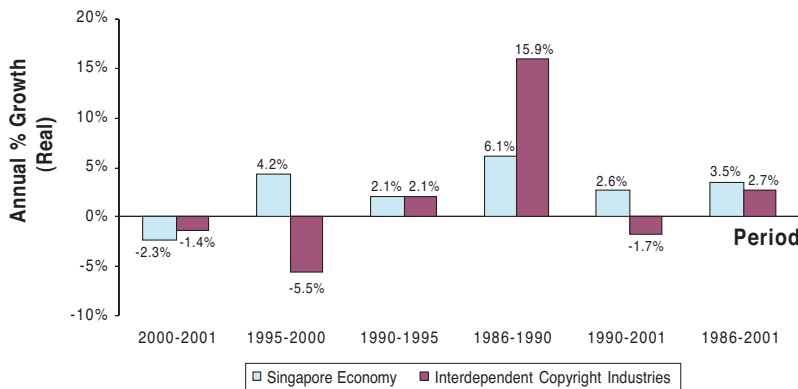


Table IIIC.6: Detailed Employment Growth 1986-2001

Industry	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. TV sets, Radios, VCRs and DVD players	5.1%	-12%	-2.6%	8.7%	-6.4%	-2.6%
2. Computers and Equipment	-3.5%	-4.4%	4.8%	26.6%	-0.2%	6.3%
3. Musical Instruments	-17.5%	-2.5%	10.2%	11.6%	1.5%	4.1%
4. Photographic and Cinematographic instruments	2.7%	-1.4%	0.4%	5.5%	-0.3%	1.3%
5. Photocopiers	-18.4%	7.1%	8.3%	8.9%	5%	6%
6. Blank Recording Material	36.1%	-5.9%	-6%	2.9%	-2.8%	-1.3%
7. Paper	23.2%	-0.9%	0.7%	1.4%	1.9%	1.7%
Interdependent Copyright Industries	-1.4%	-5.5%	2.1%	15.9%	-1.7%	2.7%
Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%

D. Partial Copyright Industries

The partial copyright industries are industries in which “ a portion of activities are related to works and other protected subject matter and may involve creation, production, manufacturing, performance, broadcast, communication and exhibition or distribution and sales” (WIPO Guide p.33). In this study, we have assigned relevant ratios accordingly to apportion the values of the specific industries within the group after considering the copyright factors used in other international studies. The partial copyright group comprises the following nine¹⁵ industries:

- Apparel, textiles and footwear
- Jewelry and coins
- Other crafts
- Furniture
- Household goods, china and glass
- Wall coverings and carpets
- Toys and games
- Architecture, engineering and surveying
- Interior design

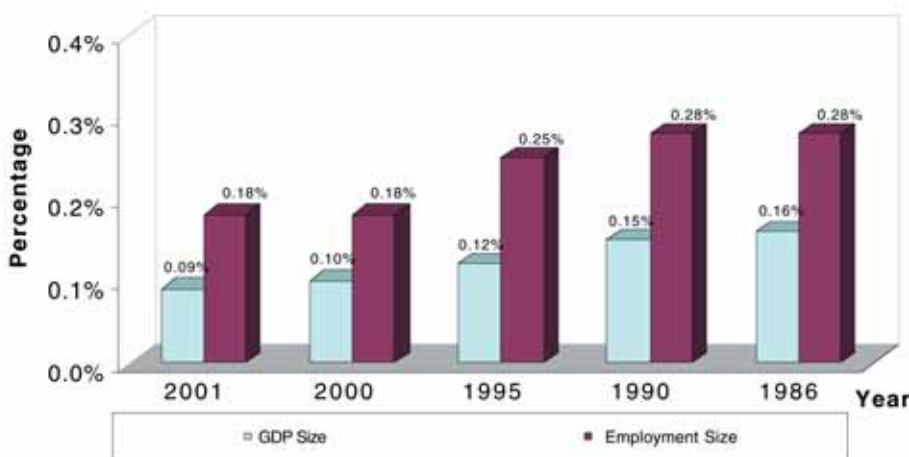
1. Overview

The partial copyright industries contributed the following to the Singaporean economy in 2001:

- S\$339.9 million output
- S\$138.1 million value added (0.1% of GDP)
- 3,737 jobs (0.2% of nation-wide employment).

Value added in these industries increased in real terms gradually from S\$80.7 million to S\$138.1 million at 3.6% per annum between 1986 and 2001 while its relative GDP size declined steadily from 0.2% to 0.1% during the period. Employment also increased slightly from 3,429 to 3,737 workers or at 0.6% per annum while its share of national employment also declined from 0.3% to 0.2% during the same period.

Chart IIID.1: Relative Size of Partial Copyright Industries 1986-2001



¹⁵SSIC class 9222- Museum activities and preservation of historical sites and buildings were subsumed into the visual and graphic industries within the core copyright group. The data did not allow us to differentiate between SSIC items 92221 and 92222 where the latter solely concerned museum activities. Therefore, we have only 9 of the 10 industries in WIPO's recommendations for the partial copyright group but the missing industry is accounted for at the aggregate level of copyright based industries

2. Output

(i) Output 2001 (Chart IIID.2)

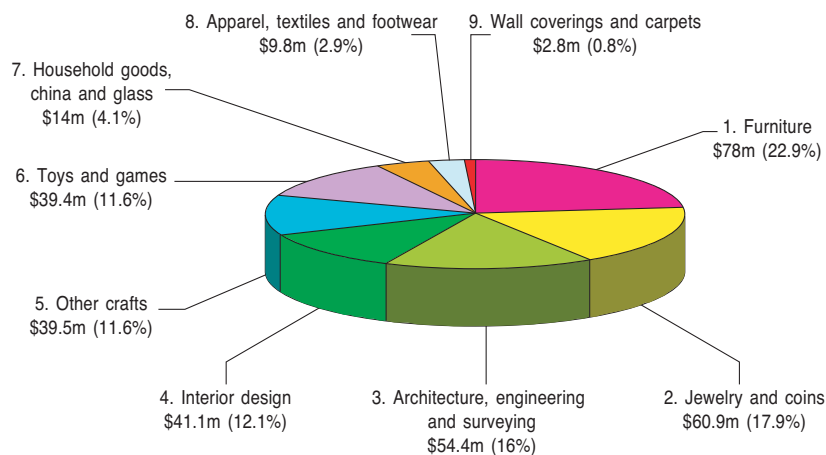
An estimated S\$339.9 million output was generated by the partial copyright industries in 2001. The five most important industries in the group were:

1. Furniture
2. Jewelry and coins
3. Architecture, engineering and surveying
4. Interior design
5. Other crafts

The output generated by these five major industries within the group accounted for S\$273.9 million or 80.6% of the entire partial copyright output. Largest among them was the furniture industry which contributed S\$78 million (22.9%). The jewelry and coin and architecture, engineering and surveying industries followed suit with S\$60.9 million (17.9%) and S\$54.4 million (16%) respectively. Next were the interior design industry with S\$41.1 million (12.1%) and other crafts which generated S\$39.5 million (11.6%).

The other four industries -- toys and games, household goods and glass, apparel, textiles and footwear and wall coverings and carpets -- were responsible for the remaining S\$66 million (19.4%) of output within the partial copyright group.

Chart IIID.2: Output 2001



(ii) Output Growth (Tables IIID.1 and IIID.2)

Overall output in the partial copyright industries increased in real terms by 1.9% per annum from S\$257.6 million to S\$339.9 million between 1986 and 2001 (Table IIID.1). The strongest period of growth was between 1986 and 1990 when output expanded at 10.7% per annum. Slower growth was apparent from 1990 onwards when growth declined to 0.3% per annum between 1990 and 1995. In 2001, overall output in the group fell by S\$30.1 million (8.1%) from S\$370 million to S\$339.9 million.

From 1986 to 2001, some of the industries growing faster in the long-term included the interior design, household goods, china and glass, other crafts and architecture, engineering and surveying industries. Almost all the industries in the group experienced a decline in output in 2001. The exceptions were the jewelry and coin and architecture, engineering and surveying industries whose output increased by 4.3% and 0.1% respectively.

Table IIID.1: Detailed Output 1986-2001

Industry	Output (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. Apparel, textiles and footwear	9.8	10.9	10.2	12.9	9.5
2. Jewelry and coins	60.9	58.3	71.2	75.9	39.7
3. Other crafts	39.5	41.4	40.9	29.4	10.5
4. Furniture	78	97.7	72.4	60.9	47.2
5. Household goods, china and glass	14	16.7	13.8	8.1	3.3
6. Wall coverings and carpets	2.8	3	4.6	3.6	2.5
7. Toys and games	39.4	44.1	104.1	160.2	120.2
8. Architecture, engineering and surveying	54.4	54.4	40.6	20.9	15.8
9. Interior design	41.1	43.5	34.9	14.9	8.9
Partial Copyright Industries	339.9	370	392.7	386.7	257.6

Table IIID.2: Detailed Output Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Apparel, textiles and footwear	-10.5%	1.3%	-4.5%	8%	-2.5%	0.2%
2. Jewelry and coins	4.3%	-3.9%	-1.3%	17.6%	-2%	2.9%
3. Other crafts	-4.4%	0.2%	6.8%	29.3%	2.7%	9.2%
4. Furniture	-20.2%	6.2%	3.5%	6.6%	2.3%	3.4%
5. Household goods, china and glass	-16.3%	4%	11.3%	25%	5.1%	10.1%
6. Wall coverings and carpets	-6.2%	-8.4%	4.9%	9.8%	-2.4%	0.7%
7. Toys and games	-10.6%	-15.8%	-8.2%	7.4%	-12%	-7.2%
8. Architecture, engineering and surveying	0.1%	6%	14.2%	7.2%	9.1%	8.6%
9. Interior design	-5.6%	4.5%	18.6%	13.8%	9.7%	10.8%
Partial Copyright Industries	-8.1%	-1.2%	0.3%	10.7%	-1.2%	1.9%

3. Value Added

(i) Value Added 2001 (Chart IIID.3)

The overall value added contribution by the partial copyright industries was S\$138.1 million.

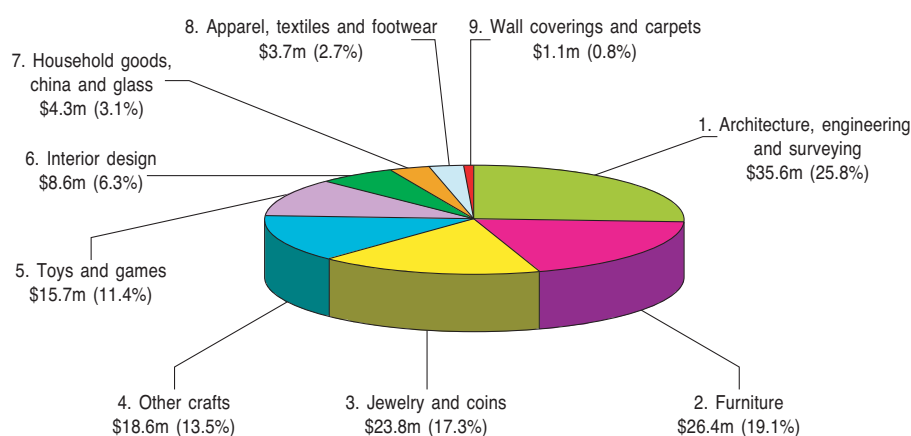
The five most important industries within the group were:

1. Architecture, engineering and surveying
2. Furniture
3. Jewelry and coins
4. Other crafts
5. Toys and games

A total of S\$120.3 million or 87.1% in value added was generated by these five major industries. The largest contributor was the architecture, engineering and surveying industry with S\$35.6 million (25.8%). Other stakeholders included the furniture and jewelry and coin industries with S\$26.4 million (19.1%) and S\$23.8 million (17.3%) respectively while other crafts and toys and games contributed a combined total of S\$34.3 million (24.9%).

The other four industries (interior design, household goods, china and glass, and apparel, textiles and footwear) accounted for the remaining S\$17.8 million or 12.9% of value added within the partial copyright group.

Chart IIID.3: Value Added 2001



(ii) Value Added Growth (Tables IIID.3 and IIID.4)

Value added of the partial copyright industries grew by S\$57.4 million from S\$80.7 million to S\$138.1 million constant dollars between 1986 and 2001 (Table IIID.3). Long-term value added growth of 3.6% per annum in the group was slower than the average growth in the economy of 7.6% per annum between 1986 and 2001. Higher growth in these industries was concurrent with that of the economy between 1986 and 1990 with rates of 8.8% and 10% per annum respectively. But overall value added declined by 14.3% between 2000 and 2001.

Within the group, the four industries which outperformed the economy between 1986 and 2001 were the architecture, engineering and surveying, household goods, china and glass and other craft industries. In contrast, value added in the furniture and interior design industries declined by 29.5% and 18.5% respectively.

Table IIID.3: Detailed Value Added 1986-2001

Industry	Value Added (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. Apparel, textiles and footwear	3.7	4.3	4.3	4.7	3.2
2. Jewelry and coins	23.8	24.3	26.9	26	14.2
3. Other crafts	18.6	22.7	20.6	13.1	4.9
4. Furniture	26.4	37.5	22	15.8	13.6
5. Household goods, china and glass	4.3	5.4	3.8	2.1	0.9
6. Wall coverings and carpets	1.1	1.3	1.7	1.2	0.8
7. Toys and games	15.7	18.6	30.8	35.4	33.4
8. Architecture, engineering and surveying	35.6	36.6	25.6	12.4	7.7
9. Interior design	8.6	10.6	7.2	2.4	1.8
Partial Copyright Industries	138.1	161.2	142.9	113	80.7
Singaporean GDP	154,078	157,070.3	115,227.2	74,871.7	51,150.8
Relative Size	0.09%	0.10%	0.12%	0.15%	0.16%

Chart IIID.4: Value Added Growth in Partial Copyright Industries 1986-2001

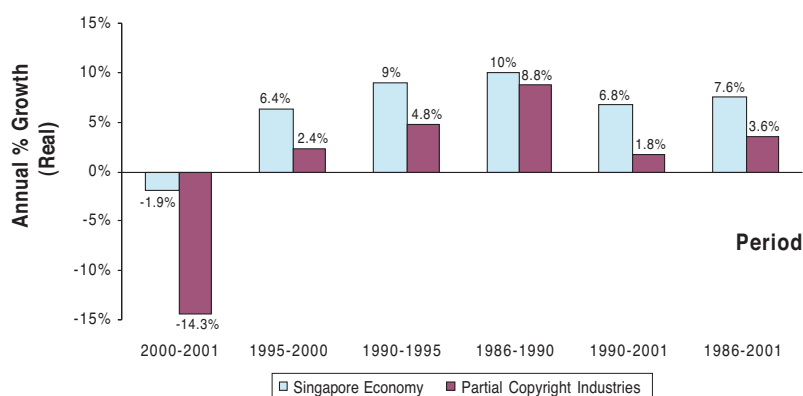


Table IIID.4: Detailed Value Added Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Apparel, textiles and footwear	-12.3%	0%	-1.8%	9.4%	-2%	0.9%
2. Jewelry and coins	-1.8%	-2%	0.7%	16.2%	-0.8%	3.5%
3. Other crafts	-18.1%	2%	9.4%	27.9%	3.2%	9.3%
4. Furniture	-29.5%	11.2%	6.9%	3.8%	4.8%	4.5%
5. Household goods, china and glass	-19.4%	7.3%	12.4%	22.9%	6.8%	10.8%
6. Wall coverings and carpets	-13.4%	-5.4%	7.5%	8.8%	-0.6%	1.8%
7. Toys and games	-15.3%	-9.6%	-2.7%	1.4%	-7.1%	-4.9%
8. Architecture, engineering and surveying	-2.6%	7.4%	15.6%	12.6%	10.1%	10.8%
9. Interior design	-18.5%	7.9%	24.2%	8.4%	12.2%	11.1%
Partial Copyright Industries	-14.3%	2.4%	4.8%	8.8%	1.8%	3.6%
Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%

4. Employment

(i) Employment 2001 (Chart IIID.5)

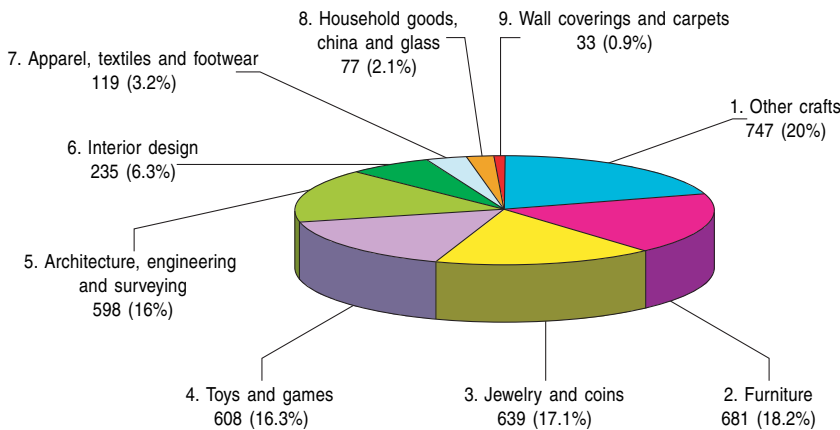
In 2001, the partial copyright industries employed a total of 3,737 workers. The five major employers were:

1. Other crafts
2. Furniture
3. Jewelry and coins
4. Toys and games
5. Architecture, engineering and surveying

These industries within the group contributed 3,274 workers or 87.6% of the total employment in the partial copyright group. The other craft industry was the highest with 747 workers (20%), followed by the furniture industry with 681 workers (18.2%). The jewelry and coins and architecture, engineering and surveying industries employed 639 workers (17.1%) and 608 workers (16.3%) respectively. Smallest among the five major industries was toys and games with 598 workers (16%).

The other four industries of interior design, apparel, textiles and footwear, household goods, china and glass, and wall coverings and carpets accounted for 463 workers (12.4%) of the partial copyright group's total employment.

Chart IIID.5: Employment 2001



(ii) Employment Growth (Tables IIID.5 and IIID.6)

Overall employment within the partial copyright industries expanded marginally at an average rate of 0.6% per annum between 1986 and 2001 from 3,429 workers to 3,737 workers which was lower than the nation-wide average of 3.5% (Table III.D5). Between 1986 and 1990 labour recruitment was occurring at 6.2% annually, slightly faster than the 6.1% per annum average of the economy. In 2001, the overall employment decline of 2% was slightly lower than the 2.3% decline in the economy.

Between 1986 and 2001, the architecture, engineering and surveying, household goods, china and glass and other crafts industries engaged workers at a faster rate than the economy. The period between 1986 and 1990 witnessed the highest employment growth for the individual industries in the group. The furniture and interior design industries were the most affected among the group in 2001 as their employment fell by 18.7% and 6.3% respectively that year.

Table IIID.5: Detailed Employment 1986-2001

Industry	Employment				
	2001	2000	1995	1990	1986
1. Apparel, textiles and footwear	119	118	159	204	175
2. Jewelry and coins	639	640	911	875	613
3. Other crafts	747	683	887	635	328
4. Furniture	681	838	620	690	771
5. Household goods, china and glass	77	75	64	53	24
6. Wall coverings and carpets	33	33	48	39	35
7. Toys and games	608	560	950	1,572	1,250
8. Architecture, engineering and surveying	598	617	402	220	153
9. Interior design	235	250	203	80	78
Partial Copyright Industries	3,737	3,815	4,245	4,369	3,429
Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
Relative Size	0.18%	0.18%	0.25%	0.28%	0.28%

Table IIID.6: Employment Growth in Partial copyright Industries 1986-2001

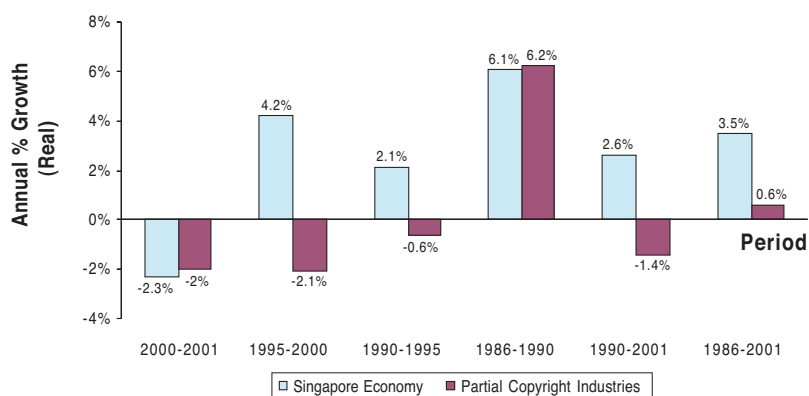


Table IIID.6: Detailed Employment Growth 1986-2001

Industry	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Apparel, textiles and footwear	0.5%	-5.8%	-4.9%	3.9%	-4.8%	-2.6%
2. Jewelry and coins	-0.1%	-6.8%	0.8%	9.3%	-2.8%	0.3%
3. Other crafts	9.3%	-5.1%	6.9%	18%	1.5%	5.6%
4. Furniture	-18.7%	6.2%	-2.1%	-2.7%	-0.1%	-0.8%
5. Household goods, china and glass	2.8%	3.1%	3.7%	22%	3.4%	8.1%
6. Wall coverings and carpets	-0.1%	-7.1%	3.9%	2.6%	-1.6%	-0.5%
7. Toys and games	8.5%	-10%	-9.6%	5.9%	-8.3%	-4.7%
8. Architecture and engineering	-3%	8.9%	12.9%	9.4%	9.5%	9.5%
9. Interior design	-6.3%	4.3%	20.4%	0.6%	10.2%	7.6%
Partial Copyright Industries	-2%	-2.1%	-0.6%	6.2%	-1.4%	0.6%
Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%

E. Non-Dedicated Support Industries

The non-dedicated support industries are industries "in which a portion of the activities are related to facilitating broadcast, communication, distribution or sales of works and other protected subject matter, and whose activities have not been included in the core copyright industries" (WIPO Guide p.35). These activities are classified into three industries in accordance with WIPO's framework as follows:

- General wholesale and retail
- General transportation
- Telephony and internet.

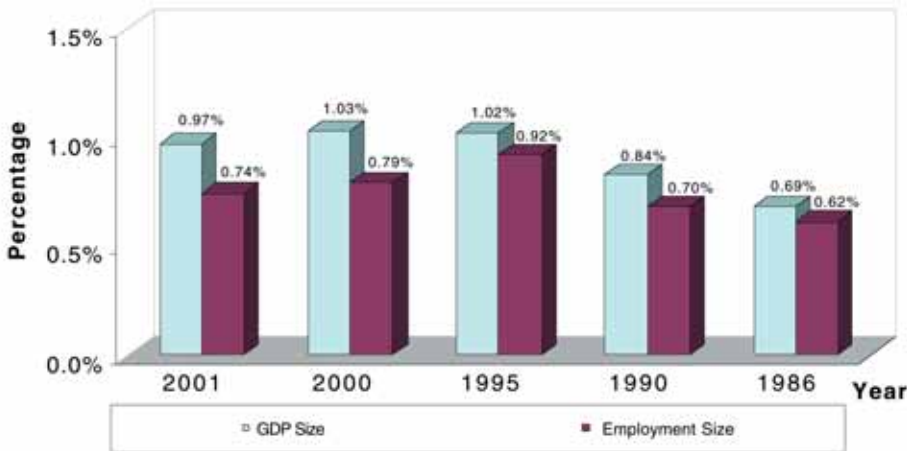
1. Overview

The non-dedicated support industries contributed the following to the Singaporean economy in the year 2001:

- S\$3,712.6 million output
- S\$1,488.2 million value added (1% of GDP)
- 15,153 jobs (0.7% of nation-wide employment)

These distribution-based industries were the third-largest economic contributors after the core and interdependent copyright industries. Value added (in constant 2001 dollars) in the non-dedicated support industries increased from S\$353.7 million to S\$1,488.2 million at 10.1% per annum between 1986 and 2001 while their relative GDP expanded from 0.7% to 1%. Meanwhile, employment in these industries grew from 7,579 workers to 15,153 workers at 4.7% per annum with the relative employment size rising slightly from 0.6% to 0.7% of Singapore's workforce.

Chart III E.1: Relative Size of Non-Dedicated Support Industries 1986-2001

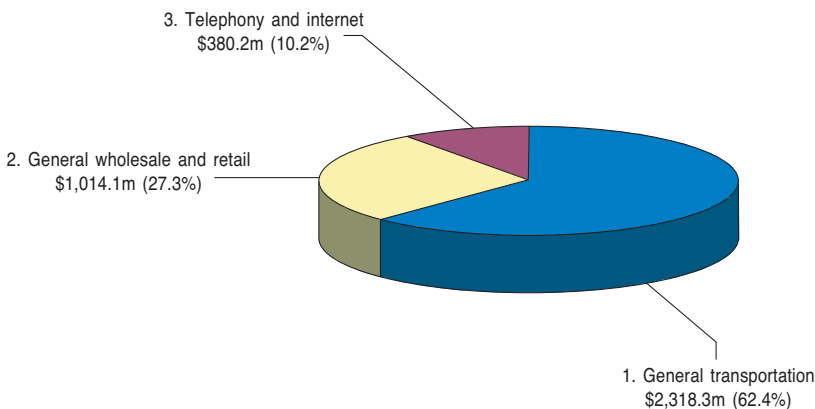


2. Output

(i) Output 2001 (Chart III E.2)

In 2001, the non-dedicated support industries produced an estimated output of S\$3,712.6 million. The largest industry within the group was the general transportation industry with a contribution of S\$2,318.3 million (62.4%) to total revenue. Next were the general wholesale and retail and telephony and internet industries with an output of S\$1,014.1 million (27.3%) and S\$380.2 million (10.2%) respectively.

Chart III E.2: Output 2001



(ii) Output Growth (Tables III E.1 and III E.2)

Total revenue in the non-dedicated support industries rose from S\$872.6 million to S\$3,712.6 million between 1986 and 2001 (Table III E.1). This represented an annual average growth rate of 10.1%. In tandem with the economy, higher growth persisted between 1986 and 1995. From 1995 to 2000 onwards, growth was slower at 8.5% per annum.

Between 1986 and 1990, the individual industries experienced a double-digit growth rate in their output, especially the general wholesale and retail trade and telephony and internet industries. Between 2000 and 2001, total output of the group fell by S\$88.2 million or 2.3% from S\$3,800.8 million to S\$3,712.6 million.

Table III E.1: Detailed Output 1986-2001

Industry	Output (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. General wholesale and retail	1,014.1	1,077.7	853.8	451.4	241.2
2. General transportation	2,318.3	2,411.9	1,478.5	867	563.9
3. Telephony and internet	380.2	311.2	200.4	111.5	67.5
Non-Dedicated Support Industries	3,712.6	3,800.8	2,532.7	1,429.9	872.6

Table III E.2: Detailed Output Growth 1986-2001

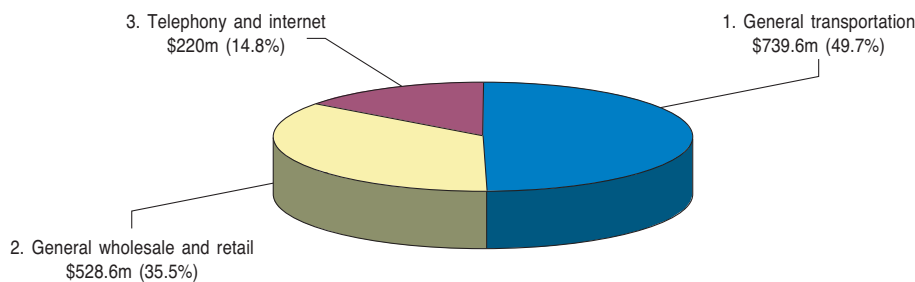
Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. General wholesale and retail	-5.9%	4.8%	13.6%	17%	7.6%	10%
2. General transportation	-3.9%	10.3%	11.3%	11.4%	9.4%	9.9%
3. Telephony and internet	22.2%	9.2%	12.4%	13.4%	11.8%	12.2%
Non-Dedicated Support Industries	-2.3%	8.5%	12.1%	13.1%	9.1%	10.1%

3. Value Added

(i) Value Added 2001 (Chart III E.3)

The largest industry in the non-dedicated support group was general transportation which contributed S\$739.6 million (49.7%) of value added. Next were the general wholesale and retail and telephony and internet industries with S\$528.6 million (35.5%) and S\$220 million (14.8%) respectively.

Chart III E.3: Value Added 2001



(ii) Value Added Growth (Tables III E.3 and III E.4)

Value added in the non-dedicated support industries increased more than four times from S\$353.7 million to S\$1,488.2 million between 1986 and 2001. This represented an annual average growth rate of 10.1%, which was above the long-term GDP growth of 7.6% during the period. Strong value added growth was shown by the individual industries between 1986 and 1990, especially the general

wholesale and retail trade industry with 18.3% growth per annum which was 8.3% points higher than the average 10% annual GDP growth during the period. Between 1995 and 2000, all the industries in the group experienced slower growth with the general transportation industry showing the highest at 7.5% per annum. In 2001, a decline in the economy affected the general transportation industry as its value added dropped by S\$113.4 million to S\$739.6 million, or 13.3% from the S\$853 million achieved in the previous year.

Table III.E.3: Detailed Value Added 1986-2001

Industry	Value Added (Constant 2001 prices in millions)				
	2001	2000	1995	1990	1986
1. General wholesale and retail	528.6	569.8	446.4	227.2	115.9
2. General transportation	739.6	853	593.2	335.6	199.3
3. Telephony and internet	220	187.6	131.4	69.8	38.5
Non-Dedicated Support Industries	1,488.2	1,610.4	1,171	632.6	353.7
Singaporean GDP	154,078	157,070.3	115,227.2	74,871.7	51,150.8
Relative Size	0.97%	1.03%	1.02%	0.84%	0.69%

Chart III.E.4: Value Added Growth in Non-Dedicated Support Industries 1986-2001

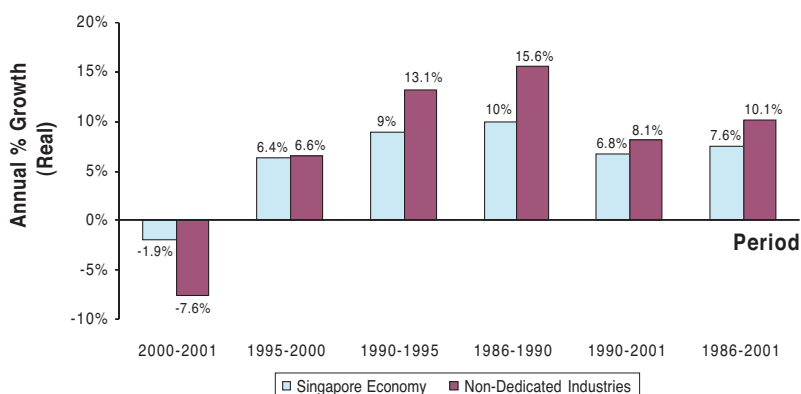


Table III.E.4: Detailed Value Added Growth 1986-2001

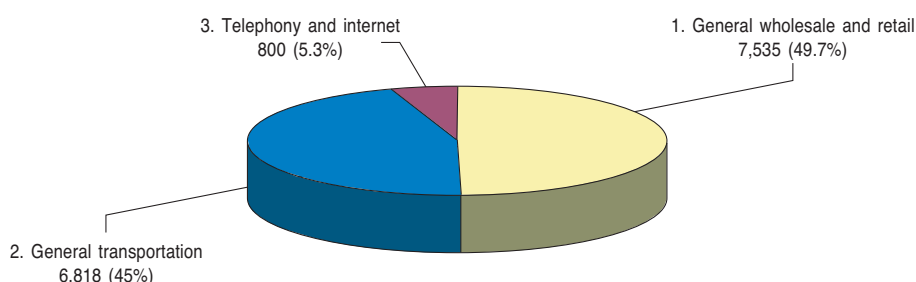
Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. General wholesale and retail	-7.2%	5%	14.5%	18.3%	8%	10%
2. General transportation	-13.3%	7.5%	12.1%	13.9%	7.4%	9.1%
3. Telephony and internet	17.3%	7.4%	13.5%	16%	11%	12.3%
Non-Dedicated Support Industries	-7.6%	6.6%	13.1%	15.6%	8.1%	10.1%
Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%

4. Employment

(i) Employment 2001 (Chart III.E.5)

An estimated 15,153 workers were employed within the non-dedicated support group in 2001. The general wholesale and retail industry was the largest employer with 7,535 workers or 49.7% of the total workforce. The general transportation industry followed closely with 6,818 workers (45%) while another 800 workers (5.3%) were engaged in the telephony and internet industry.

Chart III.E.5: Employment 2001



(ii) Employment Growth (Tables III.E.5 and III.E.6)

Employment doubled from 7,579 workers to 15,153 workers between 1986 and 2001 at an average rate of 4.7% per annum, which was above the 3.5% average. Concurrent with the economic climate of Singapore, growth in the group was at its peak between 1986 and 1990 when employment increased at an average of 9.3% per annum. Slower growth was then observed between 1990 and 2000. Between 2000 and 2001, employment fell by 1,381 workers or 8.4% from 16,534 workers to 15,153 workers.

The general wholesale and retail trade and telephony and internet had high employment growth rates of 5.1% and 5.9% respectively between 1986 and 2001. These two industries also witnessed strong growth between 1986 and 1990 but lower growth between 1990 and 2000. Both the general transportation and general wholesale and retail industries experienced a decline in employment of 6.5% and 11.9% between 2000 and 2001. In contrast, the telephony and internet industry grew strongly in 2001, at almost the same rate as in the period 1986-1990.

Table III.E.5: Detailed Employment 1986-2001

Industry	Employment				
	2001	2000	1995	1990	1986
1. General wholesale and retail	7,535	8,059	7,495	5,244	3,592
2. General transportation	6,818	7,736	7,437	5,104	3,649
3. Telephony and internet	800	739	698	484	339
Non-Dedicated Support Industries	15,153	16,534	15,631	10,833	7,579
Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
Relative Size	0.74%	0.79%	0.92%	0.70%	0.62%

Chart III.E.6: Employment Growth in Non-Dedicated Support Industries 1986-2001

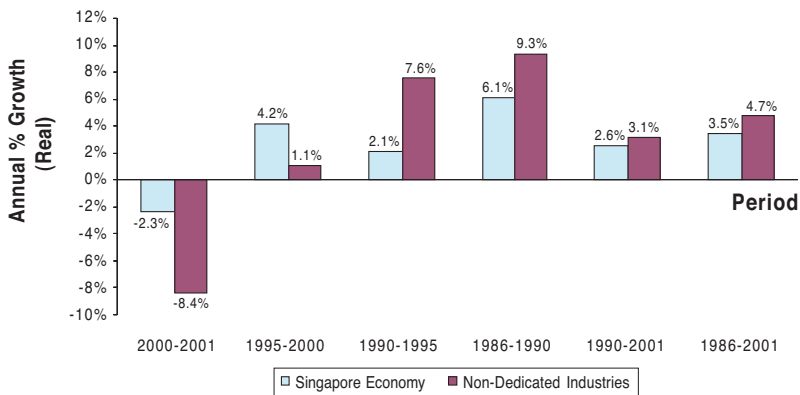


Table III.E.6: Detailed Employment Growth 1986-2001

Industry	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. General wholesale and retail	-6.5%	1.5%	7.4%	9.9%	3.3%	5.1%
2. General transportation	-11.9%	0.8%	7.8%	8.8%	2.7%	4.3%
3. Telephony and internet	8.2%	1.1%	7.6%	9.3%	4.7%	5.9%
Non-Dedicated Support Industries	-8.4%	1.1%	7.6%	9.3%	3.1%	4.7%
Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%

F. Foreign Trade

1. Overview

Foreign trade as represented by the domestic exports of copyrighted goods and materials was estimated at around S\$3,500 million for the year 2001. The trade items were¹⁶:

- Recorded computer tapes and disks
- Printed books, newspapers, periodicals, journals, calendars and brochures
- Printed music and other material
- Recorded video, audio tapes and disks and cinematograph film
- Advertising materials

2. Domestic Exports of Copyrighted Goods

Domestic exports of copyrighted goods and materials in 2001 amounted to S\$3,466.8 million (Table III.F.1), which was equivalent to 3.6% of Singapore's total non-oil domestic exports or 2.3% of GDP for that year. Between 2000 and 2001, there was a decline of S\$152.1 million or 4.2% from the S\$3,618.9 million achieved in 2000 whereas the size of copyrighted trade as a proportion of total non-oil domestic exports rose from 3.3% to 3.6%.

¹⁶For a detailed breakdown, refer to pp 88, Table VIC.5: Detailed Domestic Exports of Copyrighted Goods, 2000-2001 and their relevant SITC codes. These domestic exports were assumed to have originated from the core copyright industries as exports from the non-core copyright industries were excluded.

Table III.F.1: Domestic Exports of Copyrighted Goods 2000-2001

Description	Domestic Exports (Constant 2001 prices in millions)		Change (S\$ millions)	% Change
	2001	2000		
1. Copyrighted Goods and Materials	3,466.8	3,618.9	-152.1	-4.2%
2. Total Non-Oil Domestic Exports	96,728	110,592	-13,864	-12.5%
3. Singaporean GDP	154,078	157,070.3	-2,992.3	-1.9%
Share of Total Non-Oil Domestic Exports (%)	3.58%	3.27%	N/A	+0.31% pts
Share of GDP (%)	2.25%	2.30%	N/A	-0.05% pts

G. International Comparisons

1. Overview

An analysis of copyright based industries across countries, based on research findings of national or international studies, is difficult due to differences in the methodologies employed in these studies. This is made even more complicated when one has to bear in mind the divergence on the following factors in the various studies:

- National Accounting System
- Industrial Classification
- Scope of study (Broad/Narrow)

Nevertheless, it is instructive to obtain some indication on the relative size of Singapore's copyright based industries, bearing in mind that the data are not strictly comparable.

2. Comparison with the EU-15

(i) Size (Table III.G.1)

The economic contribution of the copyright based industries in the year 2000¹⁷ was compared against some European countries in the EU-15¹⁸ where data were available for the same year (Table III.G.1). The 5%¹⁹ GDP contribution was close to the EU-15's average of 5.3%. In terms of employment, the 4.7% employment share was above the EU-15 average of 3.1%, implying that the copyright based industries in Singapore were more-labour intensive than those in the European countries. The average value added per worker in the copyright based industries in the EU-15 in 2000 was estimated at S\$137,585²⁰, which was higher than the S\$80,535²¹ attained by Singapore's core and interdependent copyright industries for the year 2000.

¹⁷ The GDP and employment shares of the copyright based industries in Singapore for the year 2000 were estimated at 6.14% and 5.65% respectively under WIPO's methodology for the comparison with the EU-15 countries on the-same-year basis.

¹⁸ Robert. G. Picard, Timo E. Toivonen, Mikko Gronlund (Oct 2003), The Contribution of Copyright and Related Rights to the European Economy for the year 2000, Media Group, Business Research and Development Centre, Turku School of Economics and Business Administration.

¹⁹ The GDP contribution in 2000 by Singaporean copyright based industries excluded the partial copyright and non-dedicated support industries so that the analysis would be on a more comparable basis as the scope would be similar to that of the EU-15 study.

²⁰ This was estimated by taking the average worker productivity in the EU-15 of 86,369 euros and multiplying by the average sing/euro exchange rate of 1.593 for the year 2000. Source Economic Survey of Singapore 2002.

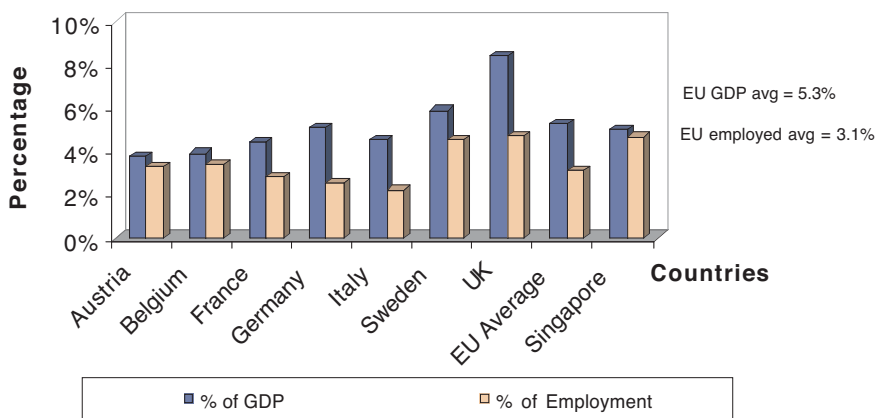
²¹ This was derived by adding the value added of both the core and interdependent copyright industries and dividing it by their total employment.

It should be noted that the statistics are not strictly comparable as the scope contained in the EU-15 study of these countries differs to some extent from that recommended in the WIPO Guidelines even though Singapore's estimates are adjusted for a more comparable basis. The adjusted values in the comparison analysis and Table IIIG.1 pertain to excluding shares of the partial and non-dedicated support industries from the Singaporean statistics given in the earlier sections.

Table IIIG.1: Comparisons of Copyright-Based Industries 2000

Country	GDP Contribution			Employment Contribution		
	Core (%)	Inter-Dependent (%)	National Share of GDP (%)	Core (%)	Inter-Dependent (%)	National Share of Employment (%)
1. Austria	2.30%	1.50%	3.80%	2.10%	1.20%	3.30%
2. Belgium	2.70%	1.20%	3.90%	2.40%	1.00%	3.40%
3. France	3.40%	1.00%	4.40%	1.90%	0.90%	2.80%
4. Germany	3.50%	1.60%	5.10%	1.30%	1.20%	2.50%
5. Italy	3.30%	1.20%	4.50%	1.30%	0.90%	2.20%
6. Sweden	4.40%	1.50%	5.90%	2.70%	1.80%	4.50%
7. UK	7.10%	1.30%	8.40%	3.20%	1.50%	4.70%
EU-15 Average	3.99%	1.28%	5.27%	2.02%	1.12%	3.14%
Singapore	2.97%	2.05%	5.02%	3.45%	1.22%	4.67%

Chart IIIG.1: Comparisons of Copyright-Based Contributions 2000



(ii) Comparisons of Specific Core Copyright Industries (Table IIIG.2)

The press and literature industry in Singapore contributed about 1% of GDP. This was slightly higher than France's 0.8% but lower than the EU-15 average of 1.1%. The two countries where the press and literature industry was significant were the United Kingdom and Sweden with 1.8% and 1.2% respectively, especially so for the former which has a very well-established press and literature industry.

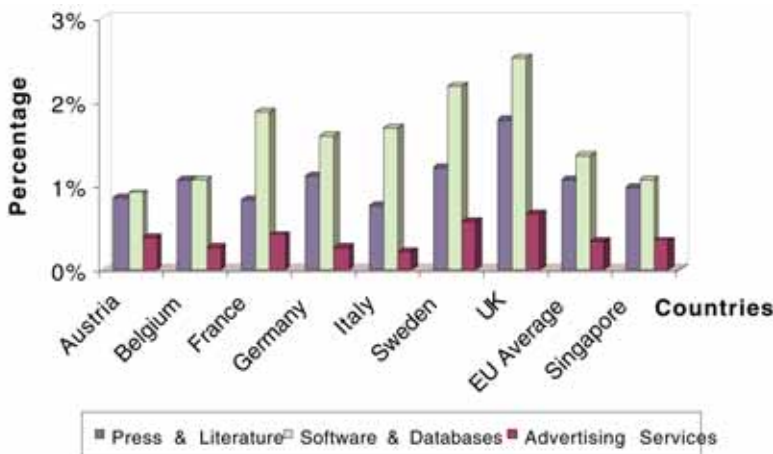
The size of the software and database industry in Singapore was estimated at 1.1% of GDP which was higher than the 0.9% of Austria. This was lower than the EU-15 average of 1.4% as the information technology industry is still relatively new in Singapore, being introduced on a nation-wide scale only in the past decade.

National contributions by advertising services were also compared. Singapore's advertising industry contributed almost 0.4% to GDP in 2000. This was higher than the EU-15 average of 0.3% and the 0.2% of Italy while lagging behind the United Kingdom's 0.7%.

Table III.G.2: Comparison of Specific Core Industries Value Added 2000

Country	GDP Contribution of some Industries in the Core Copyright Group		
	Press and Literature	Software and Databases	Advertising Services
1. Austria	0.85%	0.92%	0.38%
2. Belgium	1.07%	1.07%	0.27%
3. France	0.83%	1.87%	0.42%
4. Germany	1.12%	1.59%	0.26%
5. Italy	0.76%	1.69%	0.21%
6. Sweden	1.22%	2.18%	0.57%
7. UK	1.79%	2.52%	0.67%
EU-15 Average	1.07%	1.35%	0.33%
Singapore	0.97%	1.08%	0.35%

Chart III.G.2: Comparison of Specific Core Industries Value Added 2000



(iii) Comparison of Non-Core Copyright Industries

In terms of the non-core copyright²² industries, a more rational assessment would be to compare the interdependent copyright industries against the copyright-dependent industries of the EU-15. The interdependent copyright industries in Singapore contributed 2.1% and 1.2% to GDP and employment respectively. These were higher than the EU-15 copyright-dependent industries' average contribution to GDP and employment of 1.3% and 1.1% respectively. Singapore has a proportionately larger manufacturing sector, especially in the field of electronic products and components, resulting in a relatively large group of interdependent copyright industries when compared with European counterparts.

²² Specific analysis could not be conducted at the specific industry level as there was not enough information for several of the countries. Therefore, comparison was conducted on a macro perspective.

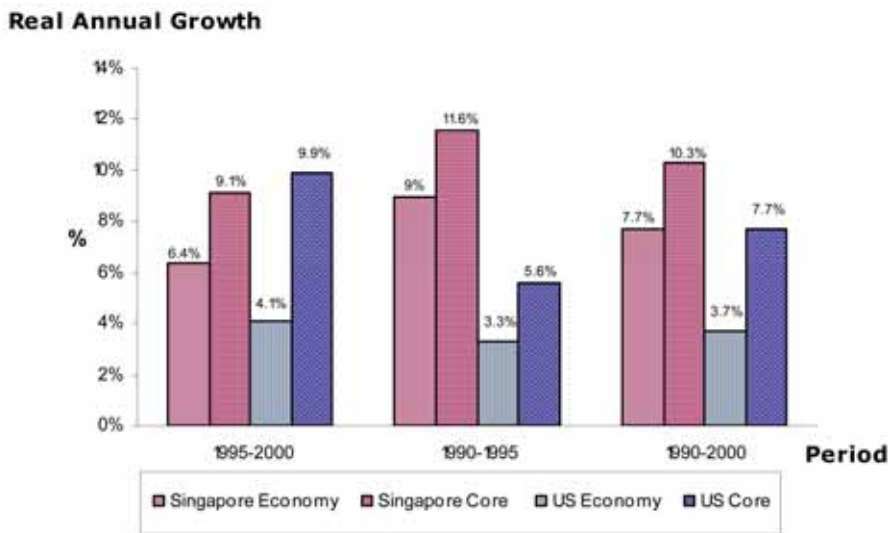
(iv) Growth of the Core Copyright Industries

A common pattern among the various studies showed that growth in core copyright industries generally outpaced that of the overall economy. The United States has been analyzing its copyright based industries on an annual basis for a sufficiently long period of time thus providing us with an opportunity to compare the real value added growth of core copyright industries between the two nations. Real value added growth in the core copyright industries in Singapore and in the US outgrew the rate of expansion in their respective economies for each of the periods reviewed in the decade ending 2000 (Chart III G.3). The pace of growth in the Canadian and US core copyright industries was tremendous as it was, on average, twice as fast as their respective GDP growth rates (Table III G.3). In comparison, Singapore's core copyright industries achieved 10.3% annual growth, outperforming the overall economy's 7.7% annual expansion by 1.34 times during 1990-2000.

Other research, with findings of higher real growth in the core copyright industries than in the overall economy, include:

- Australia - Core copyright industries increased by an estimated annual compounded rate of 5.3%²³ per annum between 1996 and 2000 while the economy expanded at 4.5% per annum.
- Canada - Core copyright industries expanded by an average 6.6%²⁴ per annum while the economy grew at 3.3% annum between 1991 and 2002.
- Netherlands - Core copyright industries grew at an annual rate of 5.6%²⁵ as against the economy's 3.2% between 1994 and 1998.

Chart III G.3: Real Value Added Growth, Singapore vs. US 1990-2000



²³ Allen Consulting Group (2001), "The Economic Contribution of Australia's Copyright Industries". Please note that the average arithmetical growth rates for both the core industries and economy have been converted to a geometric basis for easier comparison.

²⁴ Wall Communications Inc. (2004), "The Economic Contribution of Copyright Industries to the Canadian Economy", Draft 8, 19 March 2004, pp 12 and 15.

²⁵ SEO (2000) Report, "The Economic Importance of Copyright in the Netherlands in 1998", pp 8, Research by SEO Amsterdam Economics.

Table IIIG.3: Relative Growth of the Core Copyright Industries

Country	Real Annual Compounded Growth Rates		
	1995 to 2000	1990 to 1995	1990 to 2000
1. Australia (1996-2000)			
a. Core industries (Australia)	5.3%	N/A	N/A
b. Australian economy	4.5%	N/A	N/A
c. Relative growth index	1.17 times	N/A	N/A
2. Canada (1991-2002)²⁶			
a. Core industries (Canada)	N/A	N/A	6.6%
b. Canadian economy	N/A	N/A	3.3%
c. Relative growth index	N/A	N/A	2 times
3. Singapore (1990-2000)			
a. Core industries (Singapore)	9.1%	11.6%	10.3%
b. Singaporean economy	6.4%	9%	7.7%
c. Relative growth index	1.42 times	1.29 times	1.34 times
4. US (1990-2000)			
a. Core industries (US)	9.9%	5.6%	7.7%
b. US economy	4.1%	3.3%	3.7%
c. Relative growth index	2.41 times	1.7 times	2.08 times

²⁶ The time frame for Canada was from 1991 to 2002. There was not enough information in the Canadian draft report on the growth of their core industries for various periods between 1991 and 2002 to calculate short-term growth. The growth periods for Australia and Canada were categorized under the nearest time frame available in Table IIIG.3.

IV. I-O Analysis

As mentioned in WIPO's guidelines, input-output (I-O) tables are alternative sources of data for estimation of the economic contribution of copyright based industries. I-O tables are the most comprehensive econometric models which show the inputs to production and the output markets for groups of industries classified as I-O sectors. The linkages among sectors are shown and the multiplying effects of an increase in final demand have been computed. This section details an attempt to estimate the total (direct and indirect) economic impact of the core copyright industries in 2001 on the Singaporean economy through I-O methodology.²⁷ Indications on the strength of linkages that the core copyright industries have with the rest of the economy, i.e. multipliers, are also shown.

A. Singapore I-O Table

The latest I-O table pertains to the year 2000 and has been updated by NUS Consulting from the 1995 benchmark table compiled by Singapore's Department of Statistics. The table comprises 155 production sectors of goods and services in Singapore. The nine core copyright industries are covered by 13 Singaporean I-O sectors (SIO) as follows:²⁸

- SIO 034 Newspapers, books and magazines
- SIO 035 Other printing
- SIO 087 Recorded media
- SIO 111 Wholesale and retail trades
- SIO 135 Information technology
- SIO 139 Advertising and exhibitions
- SIO 140 Leasing of machinery and equipment
- SIO 142 Other business and technical services
- SIO 148 Cinema services
- SIO 149 Broadcasting and entertainment services
- SIO 150 Other recreational services
- SIO 151 Personal and household services
- SIO 154 Domestic services and non-profit bodies

The analysis in this section assumes that the input structure of the I-O sector, to which a core copyright activity belongs, closely reflects the input structure of that core copyright activity. For instance, SIO 139 advertising and exhibitions sector has input coefficients that well represent the input structure of the core copyright industry of advertising services.

B. Indirect Impact

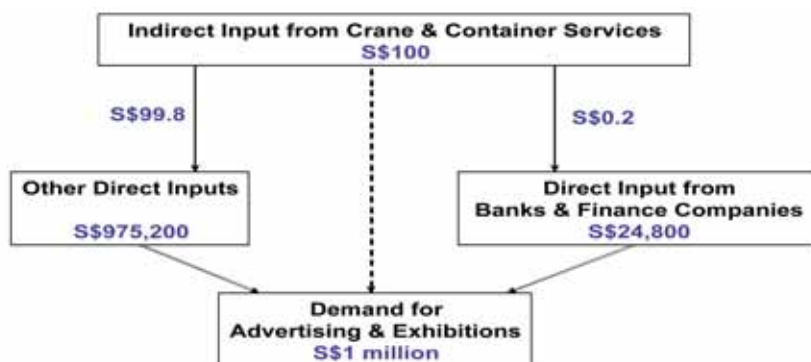
The indirect impact of an industry on an economy arises from the industry's backward linkages with the rest of the economy owing to its requirements of domestic inputs for its output. For instance, according to the I-O table, the advertising and exhibitions sector requires S\$24,800 of services from banks and finance companies in order to produce S\$1 million of the sector's output. The banks and finance companies in turn require input of crane and container services of S\$8 for every S\$1 million of output. Hence though the advertising and exhibitions sector does not require any input of crane and container services, it indirectly requires S\$0.2 of such services through its direct requirement of services from banks and finance companies for every S\$1 million of its output. (Chart IVB.1 depicts the direct

²⁷ The I-O methodology was developed by Professor Wassily Leontief, who was awarded a Nobel prize for his work.

²⁸ I-O sectors comprise groups of industries generally with similar production functions.

and indirect relationships.) Eventually, because its other inputs require crane and container services, the advertising and exhibitions sector would indirectly need S\$100 of crane and container services for an output of S\$1 million. In other words, the indirect impact comprises all the upstream goods and

Table IVB.1: Input Structure of Core Copyright Industries 2001



services that need to be produced to support the direct inputs to a sector.

As a group, the core copyright industries in 2001 purchased 44% of their inputs from Singaporean industries (Table IVB.1). Almost a quarter of the group's inputs were from overseas.

Labour, as represented by wages and salaries, formed one fifth of the inputs while net profits amounted to almost 6% of total revenue (in I-O tables, total inputs equal total output or total expenditures equal total revenue).

Table IVB.1: Input Structure of Core Copyright Industries 2001

SIO	Sector	Input Coefficient
1190	Total domestic intermediate inputs	0.4385
2190	Imports	0.2428
3182	Value added	0.3187
<i>Of which</i>		
3178	Wages and salaries	0.2072
3179	Net operating surplus	0.0581
Total		1.0000

Table IVB.2 shows the estimated major inputs of the combined core copyright industries, the input coefficients being for one unit of output. Of the 12 large input sectors, five had indirect coefficients that were significantly larger than the respective direct coefficients. This implies very strong backward linkages of these sectors with the rest of the economy. For instance, the indirect input (0.1422) of other printing is almost ten times that of the direct input (0.0156). If the core copyright industries as a group were to increase output by S\$1 million, it would require other printing to expand output by almost S\$0.16 million to meet both direct and indirect demand. The sum of all indirect output to support the S\$1 million increase in core copyright industries would amount to S\$0.7661 million. That is the core copyright industries had an overall output multiplier of 1.7661. And almost half of the indirect output would be from the information technology sector.

Table IVB.2: Major Inputs of the Core Copyright Industries 2001

SIO	Sector	Input Coefficient		
		Direct	Indirect	Total
35	Other printing	0.0156	<i>0.1422</i>	0.1578
69	Disk drives	0.0709	0.0417	0.1126
111	Wholesale and retail trades	0.0565	<i>0.1250</i>	0.1815
112	Food and beverage services	0.0164	0.0069	0.0233
127	Communications	0.0157	0.0108	0.0265
130	Banks and finance companies	0.0265	0.0254	0.0519
132	Real estate	0.0435	0.0315	0.0750
135	Information technology	0.0073	<i>0.3425</i>	0.3498
139	Advertising and exhibitions	0.0069	<i>0.1481</i>	0.1550
149	Broadcasting and entertainment services	0.0180	<i>0.1582</i>	0.1762
151	Personal and household services	0.0251	0.0267	0.0518
154	Domestic services and non-profit bodies	0.0166	0.0167	0.0333
Total*		1.0000	0.7661	1.7661

Note: Coefficients in italics signify indirect coefficients exceeding direct coefficients by more than 0.1.

* Total of all sectors.

C. Multipliers

The output multipliers of each core copyright industry are detailed in Table IVC.1 together with the estimated direct and indirect output values.

The direct output of S\$12.2 billion from the core copyright industries in 2001 would generate an additional S\$9.4 billion of output owing to the backward linkages. Every dollar of output from the core copyright industries would require the economy to produce another 77 cents of output to support the production of the one-dollar output. The three highest multipliers (measuring 2.0145 to 2.1906) were from radio and television; music, theatrical production and opera; and motion pictures and video. An increase in demand for the output of goods and services from any of these three industries would stimulate total output of goods and services in Singapore to rise by twice that amount.

Table IVC.1: Output Multipliers 2001

Industry	Direct Output (\$'mil)	Indirect Output (\$'mil)	Total Output (\$'mil)	Output Multiplier*
1. Press and Literature	3,329.6	2,255.8	5,585.4	1.6775
2. Music, Theatrical Productions and Opera	856.2	928.1	1,784.3	2.0840
3. Motion Pictures and Video	285.9	290	575.9	2.0145
4. Radio and Television	1,257.5	1,497.2	2,754.7	2.1906
5. Photography	142.1	123.3	265.4	1.8676
6. Software and Databases	4,323.9	2,797.1	7,121	1.6469
7. Visual and Graphic Arts	268.1	158.2	426.3	1.5902
8. Advertising Services	1,755.6	1,312	3,067.6	1.7473
9. Copyright Collecting Societies	31.1	23	54.1	1.7380
Core Copyright Industries	12,249.8	9,384.7	21,634.5	1.7661

* Multiplier = Total output/Direct output

The value added multipliers, given in Table IVC.2, show that every dollar increase in output from the group of core copyright industries in 2001 would result in an increase in value added (or GDP) of 66.85 cents. In other words, the value added multiplier of core copyright industries in 2001 was 0.6685. The direct value added constituted 0.3584 while the indirect value added generated was 0.3101 (or the indirect value added was equivalent to 87% of the direct value added). The highest value added multiplier belonged to music, theatrical productions and opera at 0.8630.

Table IVC.2: Value Added Multipliers 2001

Industry	Direct Value Added (\$'mil)	Indirect Value Added (\$'mil)	Total Value Added (\$'mil)	Value Added Multiplier*
1. Press and Literature	1,452.2	1,005	2,457.2	0.7380
2. Music, Theatrical Productions and Opera	304.4	434.4	738.8	0.8630
3. Motion Pictures and Video	74.8	129.9	204.7	0.7160
4. Radio and Television	223	493.9	716.9	0.5701
5. Photography	41.3	34.7	76	0.5349
6. Software and Databases	1,872.2	1,273	3,145.2	0.7274
7. Visual and Graphic Arts	96.7	48.9	145.6	0.5430
8. Advertising Services	312.6	370.3	682.9	0.3890
9. Copyright Collecting Societies	13	8.1	21.1	0.6787
Core Copyright Industries	4,390.3	3,798.2	8,188.5	0.6685

* Multiplier = Total value added/Direct output

The core copyright industries directly employed some 74,400 workers in 2001 and indirectly provided jobs for another 61,000 workers (Table IVC.3). Every million of output of the core copyright industries would require a workforce of 6 persons directly and 5 persons indirectly, resulting in an employment multiplier of 11.1 workers per million of output. The music, theatrical productions and opera industry, at 26, had the largest employment multiplier.

Table IVC.3: Employment Multipliers 2001

Industry	Direct Employment	Indirect Employment	Total Employment	Employment Multiplier*
1. Press and Literature	23,662	15,579	39,422	11.8
2. Music, Theatrical Productions and Opera	10,062	12,184	22,246	26
3. Motion Pictures and Video	2,004	2,909	4,913	17.2
4. Radio and Television	5,460	9,524	14,984	11.9
5. Photography	1,589	526	2,115	14.9
6. Software and Databases	23,092	12,456	35,549	8.2
7. Visual and Graphic Arts	2,723	1,005	3,728	13.9
8. Advertising Services	5,555	6,485	12,040	6.9
9. Copyright Collecting Societies	286	121	407	13.1
Core Copyright Industries	74,434	60,969	135,404	11.1

* Multiplier = Total employment/Direct output in S\$ million

D. Comparison

At 1.7661, the output multiplier of the core copyright industries is higher than the average of 1.6474 for the whole economy (Table IVC.4). It is also higher than some major industries in Singapore, for example, semiconductors, banks and finance companies, and construction. But it is lower than that of petrochemicals, aquarium fish, ship repairing, and jewelry for example.

Table IVC.4: Multipliers of Selected Sectors

SIO	Sector	Multiplier		
		Output	Value Added	Employment (Persons per \$m of output)
073	Semiconductors	1.3308	0.3348	3.13
068	Computers and computer peripheral equipment	1.4021	0.3345	2.08
130	Banks and finance companies	1.4191	0.8104	3.19
143	Producers of government services	1.5597	0.7277	9.75
109	Building construction	1.6345	0.6594	17.05
110	Other construction	1.6574	0.6551	11.63
145	Education	1.7240	0.8547	18.02
069	Disk drives	1.8040	0.3225	3.79
002	Nursery products	1.8507	0.6486	20.22
038	Petrochemicals and products	1.8542	0.3324	2.80
004	Aquarium fish	1.8574	0.6499	23.90
039	Polymers and man-made fibres	1.9398	0.4298	4.23
103	Jewelry	2.1276	0.4326	8.38
094	Repairing of ships and boats	2.2618	0.6193	13.51
Core Copyright Industries		1.7661	0.6685	11.1
Average of all I-O sectors		1.6474	0.5561	10.17

Output Multiplier = (Direct Output + Indirect Output) / Direct Output

Value Added Multiplier = (Direct Value Added + Indirect Value Added) / Direct Output

Employment Multiplier = Total Employment / Direct Output in S\$ million

The value added (0.6685) and employment multipliers (11.1) of core copyright industries are also above the national averages (0.5561 and 10.17 respectively). Hence the core copyright industries, as a group, generated more output, contributed more to GDP, and provided more jobs per one million dollars of output than the average industry. The group stimulates the economy more in terms of expansion in output, value added and employment than two I-O sectors in the above table -- semiconductors and computer and computer peripheral equipment. The education sector has a lower output multiplier than the group of core copyright industries but higher value added and employment multipliers. Though the petrochemicals and products sector has a higher output multiplier than the core copyright industries, its value added and employment multipliers are less than half that of core copyright industries.

E. Economic Impact

Through their backward linkages to the rest of the economy, the core copyright industries could generate upstream activities that amount to about 80% of the core copyright output, value added and employment. An increase in demand for core copyright goods and services of S\$1 million would result in:

- an additional output in the whole economy of S\$0.7661 million, giving an output multiplier of 1.7661;
- an increase in value added of S\$0.3584 million directly in the core copyright industries and S\$0.3101 million indirectly in the rest of the economy, with a value added multiplier of 0.6685;
- an increase in employment of 6 workers directly in core copyright activities and 5 workers indirectly in ancillary activities, associated with an employment multiplier of 11.0535.²⁹

As a group, the core copyright industries have a greater impact on the economy - in terms of generation of output, GDP and jobs - than an average industry, as reflected in their above-average multipliers for the country. Among the core copyright industries, the industry encompassing music, theatrical production and opera has the second highest output multiplier (2.0840), and the highest value added (0.8630) and employment (26) multipliers.

²⁹Details of the economic impact estimates and multipliers are in Tables VIC.7-9, pp 90-95 under Technical Notes.

V. Conclusion

Copyright-Based industries are significant to Singapore's economy in contributing S\$8,729.9 million in value added and employing 118,600 workers in 2001. These industries accounted for 5.7% GDP and 5.8% national employment. The economic size of the copyright based industries was almost equivalent to the construction industry, which contributed 6% to GDP in 2001, and was larger than the chemical and chemical products and hotel and restaurant industries. Foreign trade, as represented by domestic exports of copyrighted goods and materials was estimated at S\$3,466.8 million, roughly 3.6% of total non-oil domestic exports or 2.3% of GDP in 2001.

Real value added growth of the entire copyright based industries over the long term, between 1986 and 2001, was 8.9% per annum, which was on average 1.3% points higher than the 7.6% average GDP growth. Consequently, the relative GDP size of these industries increased from 4.7% to 5.7% during this period. Employment expanded at 5.2% per annum, which was above the average 3.5% annual growth in national employment, resulting in the share of copyright based employment rising from 4.6% to 5.8%. On the other hand, the copyright based industries may be more volatile than the economy as GDP dipped 1.9% while the copyright based industries declined 9.5% in value added between 2000 and 2001.

Worker productivity in the copyright based industries in 2001 was estimated at S\$73,597 which was very close to the economy's average of S\$75,281. It was higher than that of the wholesale and retail trades but lower than overall manufacturing industries which are of a higher capital intensity. In general, worker productivity in copyright based industries was lower than the EU-15 average. Such a disparity must be viewed in light of different methodologies employed in the various studies, ruling out any comparison on a common basis. Furthermore, copyright activities have been deeply embedded into the European culture while they are still relatively new, though fast growing, in Singapore's society.

The importance of copyright based industries to the Singaporean economy is also reflected in the output, value-added and employment multipliers of the nine core copyright industries which are above the national averages. With an output multiplier of 1.7661 of which 0.6685 is value added, and an employment multiplier of 11 jobs for every S\$1 million of core copyright output, core copyright activities are strongly linked to the rest of the Singaporean economy and produce a greater impact on Singapore's output, GDP and employment rates than an average industry.

LKM/CKB/OCH/LKB/LWL
NCO/NUS/IPA
28 Oct 2004

VI. Technical Notes

A. Mapping the Copyright-Based Industries

1. Industrial Classification

Some differences were observed when mapping out Singapore's copyright based industries using SSIC codes against the classifications given by the ISIC. They are listed below:

(i) Core Copyright Industries

Printing and Publishing - Printing and services related to printing as defined by WIPO have been classified under ISIC class 2221 and ISIC class 2222 which corresponds to the SSIC classes of 2211 and 2212 used by Singapore. The publishing of books and newspapers, journals and periodicals is classified under ISIC codes 2211 and 2212 respectively. In Singapore, the equivalent would be under the SSIC 7440 code from 2000 onwards as the previously combined printing and publishing activities have now been segregated.

Libraries - Activities associated with libraries are classified under ISIC class 9231 in WIPO's Guide whereas the equivalent code in Singapore is SSIC item 92210.

Reproduction of Recorded Media - These activities are classified as ISIC class 2230 while the corresponding activity is listed under SSIC item 22200.

(ii) Interdependent Copyright Industries

TV sets, Radios, VCRs - The manufacture of such copyright hardware equipment is assigned to ISIC class 3230 while such corresponding activities in Singapore are listed under SSIC class 3130 which represented the manufacture of television and radio receivers, sound or video recording apparatus and associated goods.

Computers and Equipment - The manufacture and wholesale of computers and equipment are listed in the Guide as ISIC classes 3000 and 5151 while the corresponding activities in Singapore are listed as SSIC class 3130, items 50523, 50525 and 51473 which represent the manufacture, wholesale and retail of computing, data processing equipment and peripheral equipment.

Blank Recording Material - The manufacture, wholesale and retail of blank recording material are listed as ISIC classes 2429, 5152 and 5233 respectively. Relevant SSIC items are SSIC 34991 which covers the manufacture of blank magnetic tapes, diskettes, CDs, DVDs and VCDs, and SSIC item 51439 which covers the retail sale of household appliances, articles and equipment.

(iii) Partial Copyright Industries

Jewelry and coins - The manufacture, wholesale and retail of jewelry and coins are classified under ISIC classes 3691, 5139 and 5239 respectively. The first is deemed equivalent to SSIC 3491, the manufacture of jewelry and related articles in Singapore. Corresponding SSIC items for wholesale jewelry would be SSIC 50321 and 50322 while SSIC items 51454 and 51455 pertain to the retail trade in jewelry in Singapore.

Furniture - The manufacture, wholesale and retail of furniture are classified under ISIC classes 3610, 5139 and 7130 respectively. Within the scope of our study, the corresponding SSIC class of 3410 is used for the manufacture of furniture. For wholesale and retail of furniture, appropriate SSIC items are 50331, 50332 and 71301 respectively.

Toys and games - The manufacture, wholesale and retail of toys and games are classified under ISIC classes 3694, 5139 and 5239 respectively. The equivalent description of the manufacturing activity in Singapore's classification would be SSIC class 3494 with the description of the manufacture of toys, including electronic versions. The wholesale and retail of such toys and games are listed as SSIC items 50343 and 51453 respectively.

Interior design - The ISIC class 7499 is given in the Guide under the description of other business activities n.e.c.. The corresponding code in our studies is listed under SSIC item 74951, interior design activities, which is classified under the SSIC 7495 class as specialized design activities.

(iv) Non-Dedicated Support Industries

General wholesale and retail - These activities are classified as ISIC divisions 51 and 52 for the wholesale and retail trade respectively whereas the corresponding activities in Singapore are listed under SSIC divisions 50 and 51 instead.

General transportation and telecommunications - Transportation activities are well matched as the ISIC division and group classifications are the same as the SSIC system. Similarly, the SSIC 642 and ISIC 642 divisions both represent activities in the telecommunications industry.

B. Composition of the Copyright-Based Industries in Singapore SSIC 2000

This section provides detailed SSIC codes and descriptions for each economic activity under each copyright based industry in Singapore.

Table VIB.1: Press and Literature

Economic Activity	Description	2000 SSIC Code
1. Authors, Writers and Translators	Theatrical productions except motion pictures	92141p
	Theatres and concert halls	92142p
	Opera wayangs and puppet shows	92143p
	Orchestras and dance bands	92144p
	Dramatic arts, music and other arts activities	92149p
2. Newspapers and Books	Publishing of books, brochures, music books	74401
	Publishing of newspapers	74402
3. Newspapers and Agency activities	News agency activities	74991
	Micro-image recording services	74992
	Modeling Agencies	74998
4. Magazines and Periodicals	Publishing of journals, periodicals and magazines	74403
5. Cards and Maps	Publishing Activities n.e.c.	74409
6. Directories and other Published Materials	Publishing of directories and databases	74405
7. Pre-press Printing of Newspapers	Printing	2211
	Service activities related to printing	2212
8. Wholesale and Retail of Press and Literature	Wholesale of books and magazines	50374
	Retail sale of books and magazines	51483
9. Libraries	Library and archives activities	9221

Table VIB.2: Music, Theatrical Productions and Opera

Economic Activity	Description	2000 SSIC Code
1. Composers, Lyricists, Writers, Directors and Performers	Theatrical productions except motion pictures	92141p
	Theatres and concert halls	92142p
	Opera wayangs and puppet shows	92143p
	Orchestras and dance bands	92144p
	Dramatic arts, music and other arts activities	92149p
	Other entertainment activities n.e.c	9219
2. Printing and Publishing of Music	Printing Activities n.e.c (74409)	Inc VIB.1
	Printing (2211)	Inc VIB.1
3. Production of Recorded Music	Reproduction of recorded media	22200
4. Wholesale and Manufacturing of Recorded Music	Retail of household electrical appliances, articles	51435
	Retail sale of musical goods, record albums	51452
	Renting and leasing of radios and televisions	71302
5. Artistic and Literary Creation and Interpretation	Included in Table VIB.2 item 1	Inc VIB.2
6. Performances and Allied Agencies (bookings, ticket agencies)	Included in Table VIB.2 item 1	Inc VIB.2

Table VIB.3: Motion Pictures and Video

Economic Activity	Description	2000 SSIC Code
1. Authors, Writers and Translators	Theatrical productions except motion pictures	92141p
	Theatres and concert halls	92142p
	Opera wayangs and puppet shows	92143p
	Orchestras and dance bands	92144p
	Dramatic arts, music and other arts activities	92149p
2. Motion Picture Production and Distribution	Motion picture/Video production	92111
	Motion picture/Video distribution	92112
3. Motion Picture Exhibition	Motion picture projection	9212
4. Video Rental and Demand	Rental of video and the like	71303
5. Allied Services	Services allied to motion picture production and distribution	92115

Table VIB.4: Radio and Television

Economic Activity	Description	2000 SSIC Code
1. National Radio Broadcasting Companies with other Radio and Television Activities	Television programme production and distribution	92131
	Radio programme production and distributions	92132
	Other radio and television related activities	92139
2. Other Radio and Television Broadcasters	Television broadcasting	64231
	Radio broadcasting	64232
3. Independent Producers	Other business activities (74992/8)	Inc VIB.1
4. Cable Television	Included in Table VIB.4 item 2	Inc VIB.4
5. Satellite Television	Included in Table VIB.4 item 2	Inc VIB.4
6. Allied Services	Radio and television activities	N/A

Table VIB.5: Photography

Economic Activity	Description	2000 SSIC Code
1. Photographic Activities	Photo finishing services	74941
	Photographic activities	74949p
2. Photo Agencies and Libraries	News agency activities (74991)	Inc VIB.1
	News agency (74992)	Inc VIB.1

Table VIB.6: Software and Databases

Economic Activity	Description	2000 SSIC Code
1. Programming, Development and Design, Manufacturing	Publishing of software and multimedia	74404
	Software consultancy	72120
	Other IT related activities	72909
2. Wholesale and Retail of Computer Software	Wholesale of computer software	50524
	Retail of computer software	51473p
3. Database Processing and Publishing	Development of e-commerce applications	72201
	Development of other software and multimedia works	72209
	Computer time sharing services	72301
	Data entry services	72302
	Data processing n.e.c.	72309

Table VIB.7: Visual and Graphic Arts

Partial Copyright Industries	How important is copyright in the daily operations of your firm? (Responses)				
	Very Significant	Significant	Slightly Significant	Insignificant	Total
1. Apparel, textiles and footwear	3	2	0	4	9
2. Jewelry	2	1	2	2	7
3. Other crafts	1	0	0	1	2
4. Furniture	0	2	1	1	4
5. Household goods, glass and fabricated materials	0	1	4	2	7
6. Architecture, engineering and surveying	1	1	1	0	3
Total	7	7	8	10	32

Table VIB.8: Advertising Services

Economic Activity	Description	2000 SSIC Code
1. Agencies, Buying Services	Advertising activities	74300

Table VIB.9: Copyright Collecting Societies

Economic Activity	Description	2000 SSIC Code
1. Copyright Collecting Societies	Activities of professional organizations	91120

Table VIB.10: Interdependent Copyright Industries

Economic Activity	Description	2000 SSIC Code
1. TV sets, Radios, VCRs, CD and DVD Players, Electronic Game Equipment	Manufacture of television and radio receivers, sound or video recording apparatus, and associated goods	3130
	Wholesale of radio and television sets and sound reproducing and recording equipment	50336
	Retail sale of radio and television sets, sound reproducing and recording equipment	51436
2. Computers and Equipment	Manufacture of computing and data processing equipment and peripheral equipment	3141
	Wholesale of computer hardware and peripheral equipment	50523
	Wholesale of computer accessories	50525
	Retail sale of computer hardware and accessories	51473p
	Rental of computer and peripheral equipment	71221
	Rental of other machinery and equipment	71222
3. Musical Instruments	Wholesale of musical instruments	50342
4. Photographic and Cinematographic Instruments	Manufacture of optical and photographic equipment	3220
	Wholesale of optical and photographic equipment	50391
	Retail sale of optical and photographic goods	51482
5. Photocopiers	Wholesale of office machines and equipment (including accessories)	50522
6. Blank Recording Material	Manufacture of blank magnetic tapes, diskettes, CDs, VCDs and DVDs	34991
	Retail sale of other household appliances, articles and equipment	51439
7. Paper	Wholesale of paper and paper products	50371
	Wholesale of scrap, junk and waste	50491
	Wholesale of other intermediate products, waste and scrap	50499
	Other specific commodities (eg, jute bags)	51499

Table VIB.11: Partial Copyright Industries

Economic Activity	Description	2000 SSIC Code
1. Apparel, Textiles and Footwear	Manufacture of wearing apparel except fur	1810
	Manufacture of made-up articles except wearing apparel	1721
	Manufacture of footwear	1920
	Wholesale of textiles, clothing, footwear and leather goods	5031
	Retail sale of textiles, clothing, footwear and leather goods	5142
2. Jewelry and Coins	Manufacture of jewelry and related articles	3491
	Wholesale of jewelry	<i>50321</i>
	Wholesale of costume jewelry	<i>50322</i>
	Retail sale of jewelry	<i>51454</i>
	Retail sale of costume jewelry	<i>51455</i>
3. Other Crafts	Wholesale of handicrafts and fancy goods	5035
4. Furniture	Manufacture of furniture and fixtures	3410
	Wholesale of furniture (including mattresses, cushions)	<i>50331</i>
	Wholesale of furnishings (including curtains, carpets, wall paper)	<i>50332</i>
	Wholesale of other home furnishings and other household equipment	<i>50339</i>
	Renting and leasing of furniture, utensils and other household equipment	71301
5. Household Goods, China and Glass	Manufacture of household goods and glass	26100
	Manufacture of other articles of paper and paperboard	1730
	Manufacture of other wood products	2029
	Manufacture of other fabricated products	2899
6. Wall Coverings and Carpets	Manufacture of other articles of paper and paperboard	2109
	Other retail sales in specialized stores	<i>5149*</i>
7. Toys and Games	Manufacture of toys and games	3494
	Wholesale of toys and games	<i>50343</i>
	Retail sale of toys and games	<i>51453</i>
8. Architecture, Engineering and Surveying	Architectural activities	74211
	Quantity surveying and building appraisal services	74212
9. Interior Design Services	Interior design activities	74951
10. Museums	Included in Table VIB.7 item 2	Inc VIB.7

* three- to 4 digit group and class industrial designations of each common colour category given in italics were deducted from common 5-digit items appearing in different groups of the copyright based industries. This was to avoid double counting of economic contributions.

Table VIB.12: Non-Dedicated Support Industries

Economic Activity	Description	2000 SSIC Code
1. General Wholesale and Retail	Wholesale on a fee or contract basis	50100
	Wholesale of personal effects	5032*
	Manufacture of furniture and home furnishings	5033*
	Wholesale of sporting and recreational goods	5034*
	Wholesale of medicinal and pharmaceutical products	5036
	Wholesale of industrial, agricultural, construction and related machinery and equipment	5051
	Wholesale of telecommunication and office apparatus	5052*
	Wholesale of machinery and equipment n.e.c.	5059
	Wholesale of specific commodities	5091
	General wholesale trade	5092
	Ship chandlers and bunkering	5093
	Non-specialized trade in retail stores	5110
	Retail sale of sporting and other recreational goods	5141
	Retail sale of furniture, home furnishings and other household equipment	5143
	Retail sale of construction materials, hardware, paint and glass	5144
Retail sale of sporting and other recreational goods	5145*	
2. General Transportation	Transport via railways	6010
	Passenger transport by road	6021
	Aerial cableways	6022
	Freight transport by road	6023
	Sea and water transport	611
	Inland water transport	612
	Air transport	6200
	Supporting and auxiliary transport	630
	National postal activities	64110
Courier activities other than national postal activities	64120	
3. Telephony and Internet	Telecommunications	642*

C. Estimating the Economic Contribution

1. The Core Copyright Industries

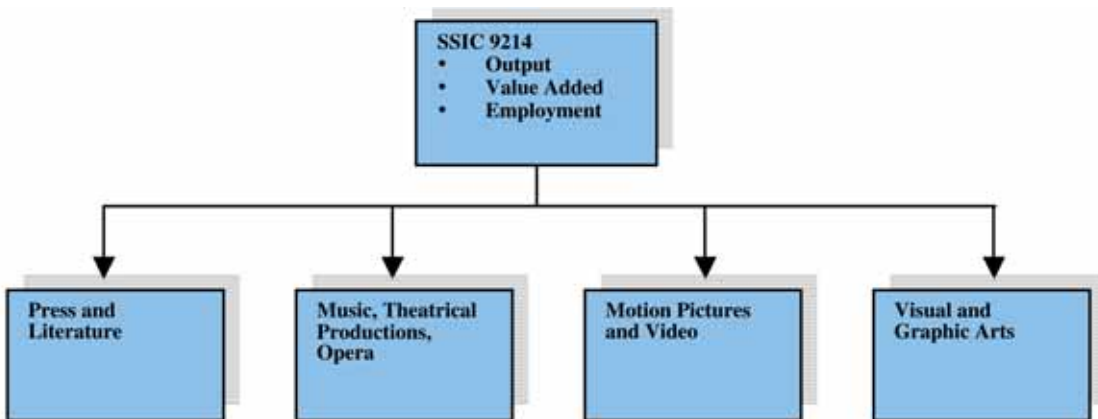
The economic contributions of output, value added and employment were taken at full value in estimating the core copyright industries. This meant that the copyright factors for apportioning the industries were 100% as recommended by the WIPO Guide.

SSIC 9214

Dramatic arts, music and other activities – these are reflected in the following categories in WIPO's Guide:

- Press and Literature
- Music, Theatrical Productions, Opera
- Motion Pictures and Video
- Visual and Graphic Arts

It would have been more convenient to assign the values of SSIC 9214 to just one industry. However, it would be more precise to reflect the distribution of SSIC class 9214, Dramatic arts, music and other activities, among the above-mentioned industries. Therefore, the output, value added and employment values were allocated to the four industries based on their preliminary estimated size.



SSIC 74949

Other photographic activities – Similarly, the data on this item were apportioned between photography and visual and graphic arts.

2. Interdependent Copyright Industries

(i) Interviews

In the estimation of copyright factors for the interdependent copyright industries, we relied mainly on interviews that were conducted between April and June 2004 with the larger companies, especially those in the electronic and equipment-based fields. It was necessary to understand the following issues before we could derive appropriate copyright factors for the specific industries within the interdependent copyright group. Some of the important issues pertaining to the face-to-face interviews were:

- Technology and Design Intensity
- Research and Development Climate
- Size of Creative Workforce
- Significance of Copyright Activities in Course of Business

We were not able to conduct more face-to-face interviews, especially with firms in the computer and equipment, photocopiers, and TV sets, radios, VCR and DVD player industries, owing to time and resource constraints. Generally, the interviewees from the interdependent copyright industries shared some common views as listed below:

- Research and development climate was important
- Emphasis on the original content of their products and processes
- A sizeable creative workforce
- Copyright and intellectual property activities were important in daily operations

(ii) Surveys³⁰

Of the eight survey responses from the interdependent copyright industries, four respondents found copyright activities to be important while the other four felt them to be slightly significant or not significant. We had to evaluate the findings in favor of the interviews and to a lesser extent, the surveys³¹ to estimate our copyright factors which were guided by the principle of prudence based on WIPO's guidelines.

Table VIC.1: Summary of Surveys for Interdependent Copyright Industries

Partial Copyright Industries	How important is copyright in the daily operations of your firm? (Responses)				Total
	Very Significant	Significant	Slightly Significant	Insignificant	
1. TV sets, Radios, VCR players	0	1	0	0	1
2. Computers and Equipment	0	2	0	2	4
3. Blank Recording Material	0	1	0	0	1
4. Paper	0	0	2	0	2
Total	0	4	2	2	8

³⁰The survey responses for the non-core copyright industries included 62 of the total 115 who answered question B1. of the questionnaire. Refer to pp 103-104 for a sample of the survey questionnaire.

³¹The limited number of responses should serve as a qualitative assessment for reinforcing the degree of copyright factors used.

3. Partial Copyright Industries

In order to develop a set of appropriate copyright factors for apportioning the values of the partial copyright industries in Singapore, the US study was used as a starting point. An IP intensity scorecard was developed to determine the IP intensity of 20 core innovator countries. The overall scoring system accounted for the current average IP intensity between 2001 and 2002 in addition to their IP growth potential between 1998 and 2001. These 20 countries were then ranked based on the overall score with the US having 1000 points.

(i) Core Innovator Countries

The core innovator countries³² were defined as nations with more than 15 US utility patents per million population for the year 2000 and consisted of 24 countries. However, only 20 countries were selected due to the availability of data.

(ii) Selection of Data

Selection of data was based on their relation to IP activities. The raw scores for each individual nation, consisting of both soft (qualitative) and hard (quantitative) data were gathered from the World Competitiveness Yearbook for the years 2002, 2001 and 1998 as listed below:

Table VIC.2: Selection of IP Proxy Indicators

Soft Data	Hard Data
1. Basic Research	1. Patents in force per 100,000 population
2. Entrepreneurship	2. RandD as a percentage of GDP
3. Creation of Firms	3. GDP per Capita
4. Technological Support	
5. Economic Literacy	
6. Protectionism	
7. Patent and Copyright Protection	

(iii) Calculation of Standard Deviations

For each variable in the selected years, the standard deviation was calculated with the following formula:

$$\text{Standard Deviation} = \sqrt{\frac{\sum_{i=20} (x_i - \bar{x})^2}{N}}$$

Where x_i = score for country i

\bar{x} = twenty-country average

N = number of countries

³²Source: "Global Competitiveness Report 2001-2002", Chapter 1.1, pp 30.

(iv) Conversion to Standardized Scores

The variables were then converted to standardized scores or SC, to measure the relative dispersion from the mean as given in the formula below:

$$SC_i = \frac{(x_i - \bar{x})}{StdDev}$$

Where SC_i = standardized scores for country i

x_i = score for country i

\bar{x} = twenty-country mean score

(v) Conversion to Z Scores³³

The standardized scores were then converted into intuitive scores for easy comparison with each corresponding variable of the US study being set at a benchmark of 100 by applying the following procedures:

$$Z_i = \left(\frac{e^{SC_i}}{1 + e^{SC_i}} \right) \times 100$$

$$NR_i = \frac{Z_i}{Z_{US}} \times 100$$

Where Z_i = Z rating for country i

Z_{US} = Z rating for US

NR_i = Normalized rating for country i

(vi) Weighting of Data

The IP scores for each individual country were the aggregate of the individual normalized ratings for all the ten variables. The overall soft and hard data were then re-weighted at 300 marks and 700 marks respectively to reduce the extent of over-relying on qualitative indicators whose data were obtained from surveys. These were carried out for the years 2001 and 2002 respectively. The IP growth score was calculated in an exact manner by incorporating the changes in both soft and hard data between 1998 and 2001.

³³Toh Mun Heng, Adrian Choo, Terence Ho (2003), " *Economic Contributions of Singapore's Creative Industries*, Annex C, pp 74" , Singapore Ministry of the Trade and Industry, Economic Survey of Singapore First Quarter 2003.

(vii) Overall IP Score

For each core innovator country, the overall IP score was determined by the following formula:

$$\text{Overall IP Score} = w1IP \text{ Score}2001 + w2IP \text{ Score}2002+ w3IP \text{ Growth}1998-2001$$

Where the following weights are:

$$w1 = 0.35$$

$$w2 = 0.35$$

$$w3 = 0.3$$

The above-mentioned weights were based on the following factors:

- Any performance indicator should be based on a current score in tandem with a potential growth factor. This would provide a more complete overview of each nation's performance.
- It provides a necessary adjustment that is not reflected in the current data as qualitative data could be drastically affected by any changes in macro-economic policies implemented between 2001 and 2002. The turnover of technology in today's world economy is rapid which accounts for the relatively low weight of 0.3 for the growth factor.

(viii) Derivation of Singaporean Copyright Factors

The copyright factor for each relevant partial copyright industry would then be derived from the US copyright factors as follows:

$$SCF = IPSIN/IPUS \times USCF^{34}$$

Where SCF = Singaporean Copyright Factor

" USCF = US Copyright Factor

" PSIN = Singaporean IP Score

" IPUS = US IP Score (1000 marks)

The above-mentioned methodology allowed us to scale down the most recent copyright factors from those adopted in the US study. This resulted in conservative estimates for the copyright factors used in apportioning the relevant industries within the partial copyright group in Singapore.

³⁴We are extremely grateful to Mr Stephen E. Siwek of the Economists Incorporated from the US for supplying us with the US copyright factors.

(ix) Surveys

The responses from the survey of the partial copyright industries showed that 18 out of 32 or 56.3% of the respondents found copyright activities to be only slightly significant or insignificant in their daily operations, which was in line with the low copyright factors we derived for these industries.

Table VIC.3: Summary of Surveys for Partial Copyright Industries

Partial Copyright Industries	How important is copyright in the daily operations of your firm? (Responses)				Total
	Very Significant	Significant	Slightly Significant	Insignificant	
1. Apparel, textiles and footwear	3	2	0	4	9
2. Jewelry	2	1	2	2	7
3. Other crafts	1	0	0	1	2
4. Furniture	0	2	1	1	4
5. Household goods, glass and fabricated materials	0	1	4	2	7
6. Architecture, engineering and surveying	1	1	1	0	3
Total	7	7	8	10	32

4. Non-Dedicated Support Industries

The copyright factors for the non-dedicated support or distribution industries were based on the assumption that the proportionate contribution of the copyright based industries to the distribution industries would be the same as the percentage contribution of the copyright industries to the total non-distribution industries. This meant the copyright factors³⁵ to be derived in the non-dedicated support industries were to be the aggregate of the value added in core, interdependent, and partial copyright industries as a ratio of the non-distribution GDP of Singapore which is total GDP less the transportation and wholesale and retail sectors as listed below:

$$\text{Copyright Factor for NDSI} = \frac{\text{Value Added (Core + Interdependent + Partial)}}{\text{Non-Distribution GDP of Singapore}}$$

Consequently, this explains the difference between the copyright factors of 6.4% and 5.8% for the years 2000 and 2001 as this ratio has to be estimated every year and the factor in 2001 was lower due to the general decline in the economy. Such factors were estimated based on the same principle back to 1986.

These ratios were relatively low and we compared them with our survey results of 22 respondents on the issue of the significance of copyright activities in their organizations. As observed, 15 out of 22, i.e. 68% of the respondents, felt that copyright activities were either slightly significant or not significant at all. This gives an indication that the copyright factors in the non-dedicated industries would be low as indicated by the 5.8% in 2001.

³⁵ All variables required to generate the copyright factors by applying the above-mentioned formula were also based on real values using 2001 constant dollars.

Table VIC.4: Summary of Surveys for Non-Dedicated Support Industries

Non-Dedicated Support Industries	How important is copyright in the daily operations of your firm? (Responses)				
	Very Significant	Significant	Slightly Significant	Insignificant	Total
1. General wholesale and retail	4	2	6	6	18
2. General transportation	0	0	0	3	3
3. Telephony and internet	1	0	0	0	1
Total	5	2	6	9	22

5. Detailed Domestic Exports of Copyrighted Goods and Materials

The data for foreign trade in terms of domestic exports were extracted from the international trade statistics compiled by International Enterprise Singapore for the year 2001. The selection criterion was based on the fact that these items contained literary and artistic works which would have entitled them to protection under the Copyright Act of 1987.

Table VIC.5: Detailed Domestic Exports of Copyrighted Goods 2000-2001

STIC ³⁶ Code	Description	Domestic Exports (Constant 2001 prices in millions)	
		2001	2000
8921600	Printed Books	407.76	441.31
8921900	Brochures leaflets and similar printed material	74.84	61.16
8922100	Newspapers, journals, periodicals	23.11	22.37
8928400	Calendar and calendar books	13.47	16.67
8928500	Sheet Music or in manuscript	0.08	0.13
8928600	Advertising materials	8.36	11.26
8928900	Other printed materials	31.57	94.89
8986110	Recorded video tapes	2.72	1.12
8986120	Recorded computer tapes and disks	2,834.15	2,896.97
8986130	Recorded discs for reproducing sound media	51.48	43.02
8986190	Other recorded media	19.18	29.98
8987100	Gramophone records	0.01	0.06
8830000	Cinematograph film	0.11	0.03
Total Copyrighted Goods		3,466.8	3,618.9

Note: Trade data for 2000 were adjusted to 2001 constant prices by a proxy (Export price deflator of paper manufacturers).

³⁶ Source: "Singapore International Trade Classification 2001", International Enterprise, Singapore.

6. Estimated Copyright Factors

Table VIC.6: Copyright Factors for Non-Core Copyright Industries 1986-2001

Interdependent Copyright Industries³⁷	Copyright Factors (1986-2001)				
1. TV sets, Radios, VCRs, CD and DVD Players, Electronic Game Equipment	35%				
2. Computers and Equipment	35%				
3. Musical Instruments	20%				
4. Photographic and Cinematographic Instruments	30%				
5. Photocopiers	30%				
6. Blank Recording Material	25%				
7. Paper	25%				
Partial Copyright Industries	Copyright Factors (1986-2001)				
1. Apparel, Textiles and Footwear	0.4%				
2. Jewelry and Coins	8.3%				
a. Jewelry	42%				
b. Costume Jewelry	42%				
3. Other Crafts	42%				
4. Furniture	8.3%				
a. Furniture and Fittings	1.7%				
b. Furnishings	0.6%				
5. Household Goods, China and Glass	1.7%				
6. Wall Coverings and Carpets	42%				
7. Toys and Games	8.3%				
8. Architecture, Engineering and Surveying	8.3%				
9. Interior Design	8.3%				
Non-Dedicated Support Industries	Copyright Factors (1986-2001)				
	2001	2000	1995	1990	1986
1. General Wholesale and Retail	5.8%	6.4%	6.2%	5.6%	5%
2. General Transportation	5.8%	6.4%	6.2%	5.6%	5%
3. Telephony and Internet	5.8%	6.4%	6.2%	5.6%	5%

³⁷ Copyright factors were assumed to remain constant in the interdependent and partial copyright industries from 1986 to 2001.

7. Economic Impact of the Core Copyright Industries 2001

Table VIC.7: Output of the Core Copyright Industries 2001 (Direct and Indirect)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct Output (\$S'000)	Indirect Output (\$S'000)	Total Output (\$S'000)	Output Mtp
<i>1. Press and Literature</i>							
(a) Authors, writers and translators	9214p	149	Broadcasting and entertainment services	70,415	83,839	154,253	2.1906
(b) Newspapers and books	74401/74402	034	Newspapers, books and magazines	177,400	116,977	294,377	1.6594
(c) News agency activities	74991/74992/74998	142	Other business and technical services	340,679	197,476	538,155	1.5797
(d) Magazines and periodicals	74403	034	Newspapers, books and magazines	195,733	129,066	324,799	1.6594
(e) Cards and maps	74409	087	Recorded media	40,832	47,966	88,798	2.1747
(f) Directories and other published material	74405	135	Information technology	239,224	149,830	389,054	1.6263
(g) Pre-press printing of newspapers	2211 and 2212	035	Other printing	1,711,212	1,114,892	2,826,104	1.6515
(h) Wholesale and retail of press and literature	50374/51483	111	Wholesale and retail trades	475,269	394,722	869,991	1.8305
(i) Libraries	9221	150	Other recreational services	78,803*	21,037	99,840	1.2670
<i>Sub-total</i>				<i>3,329,567</i>	<i>2,255,805</i>	<i>5,585,371</i>	<i>1.6775</i>
<i>2. Music, Theatrical Productions and Opera</i>							
(a) Composers, lyricists, arrangers, choreographers, writers and directors	9214p	149	Broadcasting and entertainment services	17,585	20,938	38,523	2.1906
(b) Performers and other personnel	9219	149	Broadcasting and entertainment services	357,883	426,109	783,992	2.1906
(c) Production/manufacturing of recorded music	22200	087	Recorded media	255,617	300,277	555,894	2.1747
(d) Wholesale and retail of recorded music	51435/51452	111	Wholesale and retail trades	205,082	170,325	375,407	1.8305
(e) Renting and leasing of radio and television	71302	140	Leasing of machinery and equipment	20,000	10,424	30,424	1.5212
<i>Sub-total</i>				<i>856,167</i>	<i>928,073</i>	<i>1,784,240</i>	<i>2.0840</i>
<i>3. Motion Pictures and Video</i>							
(a) Writers, directors, actors	9214p	149	Broadcasting and entertainment services	5,872	6,991	12,863	2.1906
(b) Motion picture production and distribution	92111/92112	148	Cinema services	99,350	67,929	167,279	1.6837
(c) Motion picture exhibition	9212	149	Broadcasting and entertainment services	91,521	108,968	200,489	2.1906
(d) Video rental and sales and video on demand	71303	149	Broadcasting and entertainment services	63,260	75,320	138,580	2.1906
(e) Allied services	92115	149	Broadcasting and entertainment services	25,872	30,804	56,676	2.1906
<i>Sub-total</i>				<i>285,875</i>	<i>290,012</i>	<i>575,887</i>	<i>2.0145</i>

Table VIC.7 (continued)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct Output (S\$'000)	Indirect Output (S\$'000)	Total Output (S\$'000)	Output Mtp
<i>4. Radio and Television</i>							
(a) National radio and television broadcasting companies	92131/92132/92139	149	Broadcasting and entertainment services	755,833	899,923	1,655,756	2,1906
(b) Other radio and television broadcasters	64231/64232	149	Broadcasting and entertainment services	501,640	597,271	1,098,911	2,1906
<i>Sub-total</i>				<i>1,257,473</i>	<i>1,497,195</i>	<i>2,754,668</i>	<i>2,1906</i>
<i>5. Photography</i>							
Studios and commercial photography	74941/74949p	151	Personal and household services	142,095	123,284	265,380	1,8676
<i>6. Software and Databases</i>							
(a) Programming, development and design manufacturing	74404/72120/72909	135	Information technology	731,854	458,374	1,190,228	1,6263
(b) Wholesale and retail of prepackaged software	50524/51473p	111	Wholesale and retail trades	435,710	361,867	797,577	1,8305
(c) Databases and processing	72201/72209/72301/72302/72309	135	Information technology	3,156,326	1,976,865	5,133,191	1,6263
<i>Sub-total</i>				<i>4,323,890</i>	<i>2,797,105</i>	<i>7,120,995</i>	<i>1,6469</i>
<i>7. Visual and Graphic Arts</i>							
(a) Artists	9214p	149	Broadcasting and entertainment services	4,793	5,707	10,500	2,1906
(b) Art galleries and other wholesale and retail	9222	150	Other recreational services	32,335*	8,632	40,967	1,2670
(c) Picture framing and other allied services	74949p	151	Personal and household services	34,735	30,136	64,871	1,8676
(d) Graphic design	74952/74953	142	Other business and technical services	196,224	113,742	309,966	1,5797
<i>Sub-total</i>				<i>268,087</i>	<i>158,217</i>	<i>426,304</i>	<i>1,5902</i>
<i>8. Advertising Services</i>							
Agencies, buying services	74300	139	Advertising and exhibitions	1,755,585	1,311,960	3,067,545	1,7473
<i>9. Copyright Collecting Societies</i>							
Copyright collecting societies	91120	154	Domestic services and non-profit bodies	31,107	22,958	54,065	1,7380
Total				12,249,846	9,384,610	21,634,456	1,7661

*Output for libraries, museums and associated activities was assumed to be at base level equivalent to its value added, therefore it is slightly understated.

Total output = Direct output + Indirect output.

Output Mtp = Total output/Direct output.

Table VIC.8: The Core Copyright Industries Value Added 2001 (Direct and Indirect)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct VA (\$S'000)	Indirect VA (\$S'000)	Total VA (\$S'000)	VA Mtp
<i>1. Press and Literature</i>							
(a) Authors, writers and translators	9214p	149	Broadcasting and entertainment services	27,483	60,862	88,346	1.2546
(b) Newspapers and books	74401/74402	034	Newspapers, books and magazines	50,524	27,830	78,354	0.4417
(c) News agency activities	74991/74992/74998	142	Other business and technical services	72,721	43,725	116,446	0.3418
(d) Magazines and periodicals	74403	034	Newspapers, books and magazines	59,227	32,624	91,851	0.4693
(e) Cards and maps	74409	087	Recorded media	9,409	7,440	16,849	0.4126
(f) Directories and other published material	74405	135	Information technology	60,248	38,880	99,128	0.4144
(g) Pre-press printing of newspapers	2211 and 2212	035	Other printing	873,943	598,002	1,471,945	0.8602
(h) Wholesale and retail of press and literature	50374/51483	111	Wholesale and retail trades	219,875	183,933	403,808	0.8496
(i) Libraries	9221	150	Other recreational services	78,803	11,730	90,533	1.1488
<i>Sub-total</i>				<i>1,452,233</i>	<i>1,005,025</i>	<i>2,457,258</i>	<i>0.7380</i>
<i>2. Music, Theatrical Productions and Opera</i>							
(a) Composers, lyricists, arrangers, choreographers, writers and directors	9214p	149	Broadcasting and entertainment services	5,622	12,450	18,072	1.0277
(b) Performers and other personnel	9219	149	Broadcasting and entertainment services	129,390	286,539	415,929	1.1622
(c) Production/manufacturing of recorded music	22200	087	Recorded media	77,104	60,969	138,073	0.5402
(d) Wholesale and retail of recorded music	51435/51452	111	Wholesale and retail trades	85,220	71,289	156,509	0.7632
(e) Renting and leasing of radio and television	71302	140	Leasing of machinery and equipment	7,108	3,189	10,297	0.5149
<i>Sub-total</i>				<i>304,444</i>	<i>434,437</i>	<i>738,881</i>	<i>0.8630</i>
<i>3. Motion Picture and Video</i>							
(a) Writers, directors, actors	9214p	149	Broadcasting and entertainment services	1,382	3,061	4,443	0.7567
(b) Motion picture production and distribution	92111/92112	148	Cinema services	24,568	18,505	43,073	0.4335
(c) Motion picture exhibitions	9212	149	Broadcasting and entertainment services	20,204	44,743	64,947	0.7096
(d) Video rental and sales and video on demand	71303	149	Broadcasting and entertainment services	12,903	28,574	41,477	0.6557
(e) Allied services	92115	149	Broadcasting and entertainment services	15,790	34,968	50,758	1.9619
<i>Sub-total</i>				<i>74,847</i>	<i>129,850</i>	<i>204,697</i>	<i>0.7160</i>

Table VIC.8 (continued)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct VA (\$S'000)	Indirect VA (\$S'000)	Total VA (\$S'000)	VA Mip
<i>4. Radio and Television</i>							
(a) National radio and television broadcasting companies	92131/92132/92139	149	Broadcasting and entertainment services	130,774	289,604	420,378	0.5562
(b) Other radio and television broadcasters	64231/64232	149	Broadcasting and entertainment services	92,239	204,267	296,506	0.5911
<i>Sub-total</i>				<i>223,013</i>	<i>493,871</i>	<i>716,884</i>	<i>0.5701</i>
<i>5. Photography</i>							
Studios and commercial photography	74941/74949p	151	Personal and household services	41,266	34,736	76,001	0.5349
<i>6. Software and Databases</i>							
(a) Programming, development and design manufacturing	74404/72120/72909	135	Information technology	336,971	217,456	554,427	0.7576
(b) Wholesale and retail of prepackaged software	50524/51473p	111	Wholesale and retail trades	339,147	283,709	622,856	1.4295
(c) Databases processing	72201/72209/72301/72302/72309	135	Information technology	1,196,100	771,876	1,967,976	0.6235
<i>Sub-total</i>				<i>1,872,218</i>	<i>1,273,041</i>	<i>3,145,259</i>	<i>0.7274</i>
<i>7. Visual and Graphic Arts</i>							
(a) Artists	9214p	149	Broadcasting and entertainment services	1,568	3,472	5,040	1.0515
(b) Art galleries and other wholesale and retail	9222	150	Other recreational services	32,335	4,813	37,148	1.1488
(c) Picture framing and other allied services	74949p	151	Personal and household services	11,790	9,925	21,715	0.6252
(d) Graphic design	74952/74953p	142	Other business and technical services	50,998	30,664	81,662	0.4162
<i>Sub-total</i>				<i>96,691</i>	<i>48,873</i>	<i>145,565</i>	<i>0.5430</i>
<i>8. Advertising Services</i>							
Agencies, buying services	74300	139	Advertising and exhibitions	312,562	370,288	682,850	0.3890
<i>9. Copyright Collecting Societies</i>							
Copyright collecting societies	91120	154	Domestic services and non-profit bodies	13,045	8,067	21,112	0.6787
Total				4,390,319	3,798,187	8,188,506	0.6685

Total Value added = Direct value added + Indirect value added.

Value added Mip = Total Value added/Direct output.

Table VIC.9: Employment in the Core Copyright Industries 2001 (Direct and Indirect)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct Employt	Indirect Employt	Total Employt	Employt Mtp
<i>1. Press and Literature</i>							
(a) Authors, writers and translators	9214p	149	Broadcasting and entertainment services	999	1,743	2,743	38,9529
(b) Newspapers and books	74401/74402	034	Newspapers, books and magazines	974	765	1,739	9,8015
(c) News agency activities	74991/74992/8	142	Other business and technical services	745	228	973	2,8569
(d) Magazines and periodicals	74403	034	Newspapers, books and magazines	1,256	986	2,242	11,4554
(e) Cards and maps	74409	087	Recorded media	308	128	436	10,6706
(f) Directories and other published material	74405	135	Information technology	1,608	768	2,376	9,9337
(g) Pre-press printing of newspapers	2211 and 2212	035	Other printing	10,062	5,178	15,240	8,9061
(h) Wholesale and retail of press and literature	50374/51483	111	Wholesale and retail trades	6,412	5,483	11,895	25,0289
(i) Libraries	9221	150	Other recreational services	1,298	479	1,777	22,5485
<i>Sub-total</i>				23,662	15,759	39,422	11,8399
<i>2. Music, Theatrical Productions and Opera</i>							
(a) Composers, lyricists, arrangers, choreographers, writers and directors	9214p	149	Broadcasting and entertainment services	399	695	1,094	62,1951
(b) Performers and other personnel	9219	149	Broadcasting and entertainment services	4,615	8,050	12,665	35,3887
(c) Production/manufacturing of recorded music	22200	087	Recorded media	1,882	780	2,662	10,4152
(d) Wholesale and retail of recorded music	51435/51452	111	Wholesale and retail trades	3,012	2,576	5,588	27,2468
(e) Renting and leasing of radio and television	71302	140	Leasing of machinery and equipment	154	83	237	11,8543
<i>Sub-total</i>				10,062	12,184	22,246	25,9832
<i>3. Motion Pictures and Video</i>							
(a) Writers, directors, actors	9214p	149	Broadcasting and entertainment services	79	138	218	37,1072
(b) Motion picture production and distribution	92111/92112	148	Cinema services	525	328	853	8,5881
(c) Motion picture exhibition	9212	149	Broadcasting and entertainment services	564	984	1,548	16,9119
(d) Video rental and sales and video on demand	71303	149	Broadcasting and entertainment services	626	1,092	1,718	27,1569
(e) Allied services	92115	149	Broadcasting and entertainment services	210	366	576	22,2753
<i>Sub-total</i>				2,004	2,909	4,913	17,1864

Table VIC.9 (continued)

Industry	SSIC Sector	SIO Sector	SIO Description	Direct Employt	Indirect Employt	Total Employt	Employt Mfp
<i>4. Radio and Television</i>							
(a) National radio and television broadcasting companies	92131/92132/92139	149	Broadcasting and entertainment services	3,889	6,784	10,673	14,1204
(b) Other radio and television broadcasters	64231/64232	149	Broadcasting and entertainment services	1,571	2,740	4,311	8,5945
<i>Sub-total</i>				<i>5,460</i>	<i>9,524</i>	<i>14,984</i>	<i>11,9159</i>
<i>5. Photography</i>							
Studios and commercial photography	74941/74949p	151	Personal and household services	1,589	526	2,115	14,8866
<i>6. Software and Databases</i>							
(a) Programming, development and design manufacturing	74404/72120/72909	135	Information technology	4,346	2,077	6,423	8,7759
(b) Wholesale and retail of prepackaged software	50524/51473p	111	Wholesale and retail trades	3,767	3,222	6,989	16,0411
(c) Databases and processing	72201/72209/72301/72302/72309	135	Information technology	14,979	7,158	22,137	7,0134
<i>Sub-total</i>				<i>23,092</i>	<i>12,456</i>	<i>35,549</i>	<i>8,2214</i>
<i>7. Visual and Graphic Arts</i>							
(a) Artists	9214p	149	Broadcasting and entertainment services	93	162	254	53,0161
(b) Art galleries and other wholesale and retail	9222	150	Other recreational services	438	162	600	18,5433
(c) Picture framing and other allied services	74949p	151	Personal and household services	386	128	513	14,7791
(d) Graphic design	74952/74953	142	Other business and technical services	1,807	554	2,361	12,0309
<i>Sub-total</i>				<i>2,723</i>	<i>1,005</i>	<i>3,728</i>	<i>13,9052</i>
<i>8. Advertising Services</i>							
Agencies, buying services	74300	139	Advertising and exhibitions	5,555	6,485	12,040	6,8582
<i>9. Copyright Collecting Societies</i>							
Copyright collecting societies	91120	154	Domestic services and non-profit bodies	286	121	407	13,0880
Total				74,434	60,969	135,404	11,0535

*Total Employment = Direct employment + Indirect employment.
Employment Mfp = Total employment/Direct output in S\$ million.*

D. Miscellaneous

1. Detailed Breakdown of Copyright-Based Industries

Table VID.1: Breakdown of Copyright-Based Industries 2001

Core Copyright Industries	Value Added (S\$ millions)	Percentage of Singaporean GDP	Employment (Number)	Percentage of Singaporean Employment
1. Press and Literature	1,452.2	0.943%	23,662	1.156%
2. Music, Theatrical Productions and Opera	304.4	0.198%	10,062	0.492%
3. Motion Pictures and Video	74.8	0.049%	2,004	0.098%
4. Radio and Television	223.0	0.145%	5,460	0.267%
5. Photography	41.3	0.027%	1,589	0.078%
6. Software and Databases	1,872.2	1.215%	23,092	1.128%
7. Visual and Graphic Arts	96.7	0.063%	2,723	0.133%
8. Advertising Services	312.6	0.203%	5,555	0.271%
9. Copyright Collecting Societies	13.0	0.008%	286	0.014%
A. Total Core Copyright	4,390.3	2.85%	74,434	3.64%
Interdependent Copyright Industries				
1. TV sets, radios, VCR and DVD players	411.0	0.267%	5,246	0.256%
2. Computers and Equipment	2,031.9	1.319%	16,026	0.783%
3. Musical Instruments	7.5	0.005%	149	0.007%
4. Photographic and Cinematographic Instruments	103.0	0.067%	1,533	0.075%
5. Photocopiers	105.3	0.068%	1,183	0.058%
6. Blank Recording Material	9.7	0.006%	248	0.012%
7. Paper	44.8	0.029%	908	0.044%
B. Total Interdependent Copyright	2,713.3	1.76%	25,293	1.24%
Partial Copyright Industries				
1. Apparel, Textiles and Footwear	3.7	0.002%	119	0.006%
2. Jewelry and Coins	23.8	0.015%	639	0.031%
3. Other Crafts	18.6	0.012%	747	0.037%
4. Furniture	26.4	0.017%	681	0.033%
5. Household Goods, China and Glass	4.3	0.003%	77	0.004%
6. Wall Coverings and Carpets	1.1	0.001%	33	0.002%
7. Toys and Games	15.7	0.010%	608	0.030%
8. Architecture, Engineering and Surveying	35.6	0.023%	598	0.029%
9. Interior Design	8.6	0.006%	235	0.011%
C. Total Partial Copyright	138.1	0.09%	3,737	0.18%
Non-Dedicated Support Industries				
1. General Wholesale and Retail	528.6	0.343%	7,535	0.368%
2. General Transportation	739.6	0.480%	6,818	0.333%
3. Telephony and Internet	220.0	0.143%	800	0.039%
D. Total Non-Dedicated Support	1,488.2	0.97%	15,153	0.74%
Total Copyright-Based (A+B+C+D)	8,729.9	5.67%	118,617	5.80%
Singaporean Economy	154,078	100%	2,046,700	100%

Table VID.2: Breakdown of Copyright-Based Industries 2000 (Real Values)

Core Copyright Industries	Value Added (S\$ millions)	Percentage of Singaporean GDP	Employment (Number)	Percentage of Singaporean Employment
1. Press and Literature	1,516.9	0.966%	21,717	1.037%
2. Music, Theatrical Productions and Opera	369.8	0.235%	10,803	0.516%
3. Motion Pictures and Video	80.6	0.051%	2,317	0.111%
4. Radio and Television	266.1	0.169%	4,593	0.219%
5. Photography	61.6	0.039%	2,286	0.109%
6. Software and Databases	1,697.6	1.081%	20,701	0.988%
7. Visual and Graphic Arts	100.4	0.064%	2,976	0.142%
8. Advertising Services	552.0	0.351%	6,686	0.319%
9. Copyright Collecting Societies	13.5	0.009%	290	0.014%
A. Total Core Copyright	4,658.5	2.97%	72,369	3.45%
Interdependent Copyright Industries				
1. TV sets, radios, VCR and DVD players	347.8	0.221%	4,990	0.238%
2. Computers and Equipment	2583.0	1.644%	16,612	0.793%
3. Musical Instruments	8.2	0.005%	181	0.009%
4. Photographic and Cinematographic Instruments	93.4	0.059%	1,493	0.071%
5. Photocopiers	136.7	0.087%	1,451	0.069%
6. Blank Recording Material	8.0	0.005%	182	0.009%
7. Paper	40.1	0.026%	737	0.035%
B. Total Interdependent Copyright	3217.3	2.05%	25,645	1.22%
Partial Copyright Industries				
1. Apparel, Textiles and Footwear	4.3	0.003%	118	0.006%
2. Jewelry and Coins	24.3	0.015%	640	0.031%
3. Other Crafts	22.7	0.014%	683	0.033%
4. Furniture	37.5	0.024%	838	0.040%
5. Household Goods, China and Glass	5.4	0.003%	75	0.004%
6. Wall Coverings and Carpets	1.3	0.001%	33	0.002%
7. Toys and Games	18.6	0.012%	560	0.027%
8. Architecture, Engineering and Surveying	36.6	0.023%	617	0.029%
9. Interior dDesign	10.6	0.007%	250	0.012%
C. Total Partial Copyright	161.2	0.10%	3,815	0.18%
Non-Dedicated Support Industries				
1. General Wholesale and Retail	569.8	0.363%	8,059	0.385%
2. General Transportation	853.0	0.543%	7,736	0.369%
3. Telephony and Internet	187.6	0.119%	739	0.035%
D. Total Non-Dedicated Support	1,610.4	1.03%	16,534	0.79%
Total Copyright-Based (A+B+C+D)	9,647.3	6.14%	118,363	5.65%
Singaporean Economy	157,070.3	100%	2,094,800	100%

Table VID.3: Breakdown of Copyright-Based Industries 2000 (Nominal Values)

Core Copyright Industries	Value Added (S\$ millions)	Percentage of Singapore GDP	Employment (Number)	Percentage of Singaporean Employment
1. Press and Literature	1,530.4	0.959%	21,717	1.037%
2. Music, Theatrical Productions and Opera	367.0	0.230%	10,803	0.516%
3. Motion Pictures and Video	79.0	0.049%	2,317	0.111%
4. Radio and Television	262.2	0.164%	4,593	0.219%
5. Photography	61.1	0.038%	2,286	0.109%
6. Software and Databases	1,682.3	1.054%	20,701	0.988%
7. Visual and Graphic Arts	99.1	0.062%	2,976	0.142%
8. Advertising Services	546.9	0.343%	6,686	0.319%
9. Copyright Collecting Societies	13.2	0.008%	290	0.014%
A. Total Core Copyright	4,641.1	2.91%	72,369	3.45%
Interdependent Copyright Industries				
1. TV sets, Radios, VCR and DVD players	348.2	0.218%	4,990	0.238%
2. Computers and Equipment	2618.1	1.640%	16,612	0.793%
3. Musical Instruments	8.1	0.005%	181	0.009%
4. Photographic and Cinematographic Instruments	93.8	0.059%	1,493	0.071%
5. Photocopiers	135.8	0.085%	1,451	0.069%
6. Blank Recording Material	8.0	0.005%	182	0.009%
7. Paper	39.9	0.025%	737	0.035%
B. Total Interdependent Copyright	3,251.9	2.04%	25,645	1.22%
Partial Copyright Industries				
1. Apparel, Textiles and Footwear	4.3	0.003%	118	0.006%
2. Jewelry and Coins	24.2	0.015%	640	0.031%
3. Other Crafts	22.6	0.014%	683	0.033%
4. Furniture	37.6	0.024%	838	0.040%
5. Household Goods, China and Glass	5.5	0.003%	75	0.004%
6. Wall Coverings and Carpets	1.3	0.001%	33	0.002%
7. Toys and Games	18.5	0.012%	560	0.027%
8. Architecture, Engineering and Surveying	36.3	0.023%	617	0.029%
9. Interior Design	10.5	0.007%	250	0.012%
C. Total Partial Copyright	160.6	0.10%	3,815	0.18%
Non-Dedicated Support Industries				
1. General Wholesale and Retail	557.3	0.349%	8,059	0.385%
2. General Transportation	882.4	0.553%	7,736	0.369%
3. Telephony and Internet	194.0	0.122%	739	0.035%
D. Total Non-Dedicated Support	1,633.7	1.02%	16,534	0.79%
Total Copyright-Based (A+B+C+D)	9,687.3	6.07%	118,363	5.65%
Singaporean Economy	159,662.1	100%	2,094,800	100%

2. Economic Indicators (Real and Nominal)

Table VID.4: Real Output 1986-2001

Industry	Output (Constant 2001 prices in S\$ millions)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	12,249.8	12,113.7	7,418.4	4,662.4	2,942.1
2. Interdependent Copyright Industries	14,212.4	17,064.4	15,172.7	8,026.7	3,106.1
3. Partial Copyright Industries	339.9	370	392.7	386.7	257.6
4. Non-Dedicated Support Industries	3,712.6	3,800.8	2,532.7	1,429.9	872.6
Total Copyright-Based Industries	30,514.7	33,349	25,516.5	14,505.8	7,178.5

Table VID.5: Real Output Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	1.1%	10.3%	9.7%	12.2%	9.2%	10%
2. Interdependent Copyright Industries	-16.7%	2.4%	13.6%	26.8%	5.3%	10.7%
3. Partial Copyright Industries	-8.1%	-1.2%	0.3%	10.7%	-1.2%	1.9%
4. Non-Dedicated Support Industries	-2.3%	8.5%	12.1%	13.1%	9.1%	10.1%
Total Copyright-Based Industries	-8.5%	5.5%	12%	19.2%	7%	10.1%

Table VID.6: Nominal Output 1986-2001

Industry	Output (Current market prices in S\$ millions)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	12,249.8	12,057.3	7,513.7	3,879.6	1,955.5
2. Interdependent Copyright Industries	14,212.4	17,333.5	15,011.7	7,158.2	2,420.5
3. Partial Copyright Industries	339.9	369.8	396.2	342.4	195.5
4. Non-Dedicated Support Industries	3,712.6	3,870.9	2,827.4	1,487.4	760.6
Total Copyright-Based Industries	30,514.7	33,631.5	25,749.1	12,867.6	5,332.1

Table VID.7: Nominal Output Growth 1986-2001

Industry	Annual Compounded Growth Rates (Current market prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	1.6%	9.9%	14.1%	18.7%	11%	13%
2. Interdependent Copyright Industries	-18%	2.9%	16%	31.1%	6.4%	12.5%
3. Partial Copyright Industries	-8.1%	-1.4%	3%	15%	-0.1%	3.8%
4. Non-Dedicated Support Industries	-4.1%	6.5%	13.7%	18.3%	8.7%	11.1%
Total Copyright-Based Industries	-9.3%	5.5%	14.9%	24.6%	8.2%	12.3%

Table VID.8: Real Value Added 1986-2001

Industry	Value Added (Constant 2001 prices in S\$ millions)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	4,390.3	4,658.5	3,015.9	1,741.8	1,072.7
2. Interdependent Copyright Industries	2,713.3	3,217.3	2,665.3	1,578	918.7
3. Partial Copyright Industries	138.1	161.2	142.9	113	80.7
4. Non-Dedicated Support Industries	1,488.2	1,610.4	1,171	632.6	353.7
Total Copyright-Based Industries	8,729.9	9,647.3	6,995.1	4,065.4	2,425.8
Singaporean GDP	154,078	157,070.3	115,227.2	74,871.7	51,150.8
Relative Value Added Size	5.67%	6.14%	6.07%	5.43%	4.74%

Table VID.9: Real Value Added Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	-5.8%	9.1%	11.6%	12.9%	8.8%	9.8%
2. Interdependent Copyright Industries	-15.7%	3.8%	11.1%	14.5%	5.1%	7.5%
3. Partial Copyright Industries	-14.3%	2.4%	4.8%	8.8%	1.8%	3.6%
4. Non-Dedicated Support Industries	-7.6%	6.6%	13.1%	15.6%	8.1%	10.1%
Total Copyright-Based Industries	-9.5%	6.6%	11.5%	13.8%	7.2%	8.9%
Singaporean GDP	-1.9%	6.4%	9%	10%	6.8%	7.6%

Table VID.10: Nominal Value Added 1986-2001

Industry	Value Added (Current market prices in S\$ millions)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	4,390.3	4,641.1	3,041.4	1,462.2	722.7
2. Interdependent Copyright Industries	2,713.3	3,251.9	2,655.2	1,409.8	709.4
3. Partial Copyright Industries	138.1	160.6	145.3	99.8	60.4
4. Non-Dedicated Support Industries	1,488.2	1,633.7	1,298.6	652	304
Total Copyright-Based Industries	8,729.9	9,687.3	7,140.5	3,623.8	1,796.5
Singaporean GDP	154,078	159,662.1	118,962.7	66,884.5	39,102.5
Relative Value Added Size	5.67%	6.07%	6.00%	5.42%	4.59%

Table VID.11: Nominal Value Added Growth 1986-2001

Industry	Annual Compounded Growth Rates (Current market prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	-5.4%	8.8%	15.8%	19.3%	10.5%	12.8%
2. Interdependent Copyright Industries	-16.6%	4.1%	13.5%	18.7%	6.1%	9.4%
3. Partial Copyright Industries	-14%	2%	7.8%	13.4%	3%	5.7%
4. Non-Dedicated Support Industries	-8.9%	4.7%	14.8%	21%	7.8%	11.2%
Total Copyright-Based Industries	-9.9%	6.3%	14.5%	19.2%	8.3%	11.1%
Singaporean GDP	-3.5%	6.1%	12.2%	14.4%	7.9%	9.6%

Table VID.12: Real Productivity 1986-2001

Industry	Value Added Per Worker (Constant 2001 prices in S\$)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	58,982	64,371	58,474	48,493	39,122
2. Interdependent Copyright Industries	107,272	125,455	78,177	51,381	54,063
3. Partial Copyright Industries	36,953	42,255	33,661	25,866	23,521
4. Non-Dedicated Support Industries	98,214	97,399	74,918	58,394	46,668
Total Copyright-Based Industries	73,597	81,507	66,275	49,679	43,769
Economy Average	75,281	74,981	67,697	48,713	42,120

Table VID.13: Real Productivity Growth 1986-2001

Industry	Annual Compounded Growth Rates (Constant 2001 prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	-8.4%	1.9%	3.8%	5.5%	1.8%	2.8%
2. Interdependent Copyright Industries	-14.5%	9.9%	8.8%	-1.3%	6.9%	4.7%
3. Partial Copyright Industries	-12.5%	4.7%	5.4%	2.4%	3.3%	3.1%
4. Non-Dedicated Support Industries	0.8%	5.4%	5.1%	5.8%	4.8%	5.1%
Total Copyright-Based Industries	-9.7%	4.2%	5.9%	3.2%	3.6%	3.5%
Economy Average	0.4%	2.1%	6.8%	3.7%	4%	3.9%

Table VID.14: Nominal Productivity 1986-2001

Industry	Value Added Per Worker (Current market prices in S\$)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	58,982	64,131	58,968	40,708	26,358
2. Interdependent Copyright Industries	107,272	126,807	77,882	45,904	41,746
3. Partial Copyright Industries	36,953	42,097	34,227	22,853	17,599
4. Non-Dedicated Support Industries	98,214	98,809	83,078	60,184	40,114
Total Copyright-Based Industries	73,597	81,844	67,653	44,283	32,415
Economy Average	75,281	76,218	69,892	43,516	32,199

Table VID.15: Nominal Productivity Growth 1986-2001

Industry	Annual Compounded Growth Rates (Current market prices)					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	-8%	1.7%	7.7%	11.5%	3.4%	5.5%
2. Interdependent Copyright Industries	-15.4%	10.2%	11.2%	2.4%	8%	6.5%
3. Partial Copyright Industries	-12.2%	4.2%	8.4%	6.7%	4.5%	5.1%
4. Non-Dedicated Support Industries	-0.6%	3.5%	6.7%	10.7%	4.6%	6.2%
Total Copyright-Based Industries	-10.1%	3.9%	8.8%	8.1%	4.7%	5.6%
Economy Average	-1.2%	1.7%	9.9%	7.8%	5.1%	5.8%

Table VID.16: Employment 1986-2001

Industry	Employment (Number)				
	2001	2000	1995	1990	1986
1. Core Copyright Industries	74,434	72,369	51,578	35,919	27,420
2. Interdependent Copyright Industries	25,293	25,645	34,093	30,712	16,993
3. Partial Copyright Industries	3,737	3,815	4,245	4,369	3,429
4. Non-Dedicated Support Industries	15,153	16,534	15,631	10,833	7,579
Total Copyright-Based Industries	118,617	118,363	105,546	81,832	55,421
Singaporean Employment	2,046,700	2,094,800	1,702,100	1,537,000	1,214,400
Relative Employment Size	5.80%	5.65%	6.20%	5.32%	4.56%

Table VID.17: Employment Growth 1986-2001

Industry	Annual Compounded Growth Rates					
	2000 to 2001	1995 to 2000	1990 to 1995	1986 to 1990	1990 to 2001	1986 to 2001
1. Core Copyright Industries	2.9%	7%	7.5%	7%	6.8%	6.9%
2. Interdependent Copyright Industries	-1.4%	-5.5%	2.1%	15.9%	-1.7%	2.7%
3. Partial Copyright Industries	-2%	-2.1%	-0.6%	6.2%	-1.4%	0.6%
4. Non-Dedicated Support Industries	-8.4%	1.1%	7.6%	9.3%	3.1%	4.7%
Total Copyright-Based Industries	0.2%	2.3%	5.2%	10.2%	3.4%	5.2%
Singaporean Employment	-2.3%	4.2%	2.1%	6.1%	2.6%	3.5%

³⁸ Nominal and real employment are the same.

3. Survey Questionnaire Sample



NUS Consulting

7 April 2004

Dear Managing Director/General Manager,

Estimation of Economic Contribution of Copyright-Based Industries in Singapore

NUS Consulting is studying the contribution of the copyright industries to the Singaporean economy. IPOS Singapore defines copyright as "A bundle of rights given to creators of works to make sure only they can reproduce what they have created for their own purposes that would enable them to control the commercial exploitation of their works". The study, the first in Singapore, is under the jurisdiction of the IP Academy of Singapore and is endorsed by IPOS (Intellectual Property Office of Singapore). One component of the study is an evaluation of the copyright involvement of companies in Singapore.

A survey on copyright activities was launched three weeks ago. If you have completed the questionnaire and returned to us in the past week, please ignore this reminder. We thank you very much for your kind cooperation.

If you have not responded to our survey, we would like to request again for your help. Please fill up the enclosed one-page survey questionnaire reminder requesting on the proportion of copyright activities in your company. All survey responses will be treated with the strictest confidentiality. Only grouped information or data will be included in the study report. Please assist us by completing the questionnaire and returning it in the enclosed self-addressed envelope preferably by 26 April 2004.

If you have any query, please do not hesitate to contact NUS Consulting manager, Leo Kah Mun (telephone 6775-3955 or e-mail kmleo@nus.edu.sg), or Ong Chin Huat (6874-5945 or e-mail ncoongch@nus.edu.sg).

We look forward to your co-operation in this important project.

Thanking you for your kind attention to our request.

Yours sincerely,

CHOW Kit Boey (Ms)
Director, NUS Consulting

ECONOMIC IMPACT OF COPYRIGHT-BASED INDUSTRY IN SINGAPORE

Please be assured that all answers will be kept confidential.

Part A: Company Particulars

Year of Establishment: _____ Number of Years in Copyrights Activities: _____

Primary Business Activity: _____

Ownership (Please tick one only):
_____ Wholly local _____ Majority local
_____ Wholly foreign _____ Majority foreign

Name of Contact Person: _____ Telephone No. _____

A1. Turnover/Sales in 2002 (Please circle one of the following options below.)

1. Less than S\$500K
2. S\$500K to less than S\$1 million
3. S\$1 million to less than S\$5 million
4. S\$5 million to less than S\$10 million
5. S\$10 million to less than S\$50 million
6. S\$50 million and above

A2. Total Workforce (including management)

Number of full-time personnel _____ persons

Number of part-time personnel _____ persons

Part B: Estimation of Copyright Activities in Firm

B1. How important is copyright in the daily operations of your firm?
(Please circle one of the following options below.)

1. Very Significant 2. Significant 3. Slightly Significant 4. Insignificant

B2. Does your firm receive or pay any form of payments for the use of intellectual rights in the form of royalties, patents or other licensing fees in the course of your business?

1. Yes 2. No (Please proceed to question B5.)

B3. On average, what percentage of annual total expenditure does your business spend on royalties, patents or other licensing fees?

_____ %

B4. In your opinion, what percentage of turnover in the company is attributable to copyright or creative activities in your firm?

_____ %

B5. What percentage of the workforce in your business is involved in creative activities? Creative activities include product/service creation and development, for example "A jewelry craftsman drawing the designs for his jewelry".

Number of full-time personnel _____ persons

Number of part-time personnel _____ persons

Thank You For Completing This Questionnaire
Please return the questionnaire in the self-addressed envelope.
For any query, please contact NUS Consulting Project Managers,
Leo Kah Mun at 6775 3955 or Ong Chin Huat at 6874 5945.

If you wish to have a summary of the report,
please attach your name card.

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