



The economic contribution of the film and television industries in South Korea

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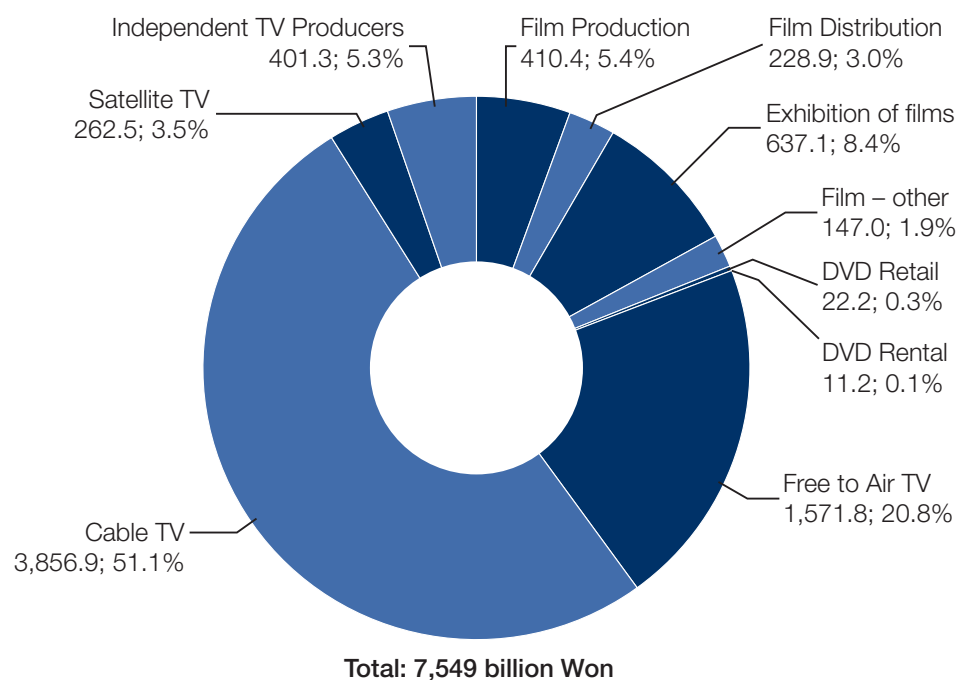
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1 Key findings

The film and television sectors make an important direct contribution to the South Korean economy...

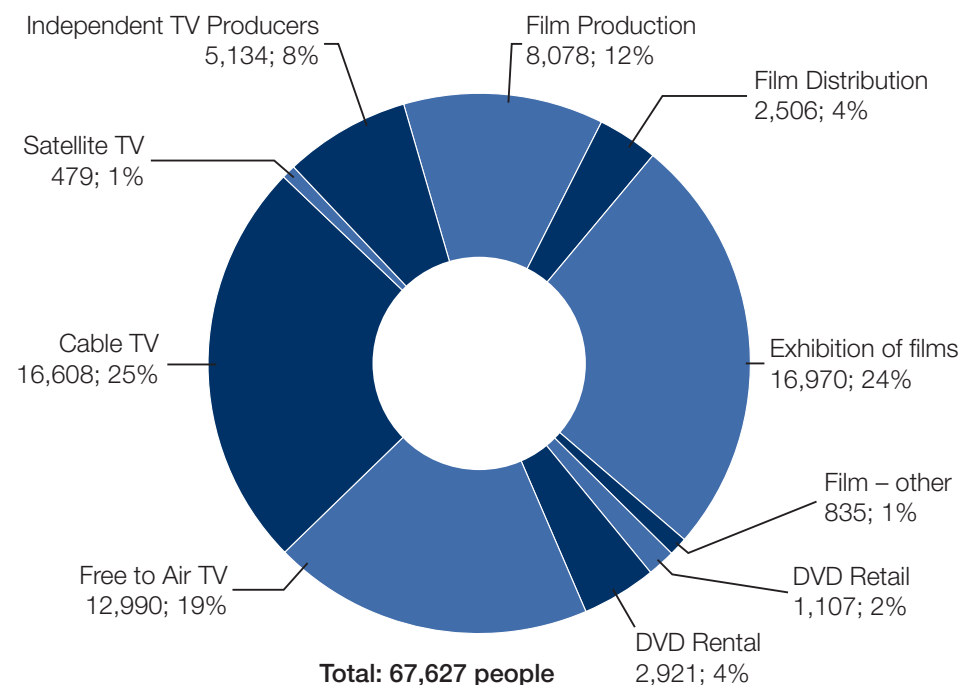
The film and television industries are estimated to have **directly** contributed **7,549 billion Won** South Korean GDP in 2011¹. They also directly supported **67,600 jobs** and generated some **3,752 billion Won** in **tax** revenues.

Chart 1.1: Direct GDP of South Korean film and TV industry, 2011 (billions of Won and percentage split)



¹ Throughout this report measures of GDP reflect GDP at 'basic prices' (also known as gross value added or GVA), rather than the 'market price' measure usually given 'headline' status in official statistics. (See 'Detailed methodology' at the end of this report.)

Chart 1.2: Direct employment of South Korean film and TV industry, 2011 (persons employed and percentage split)



- The film and television industries' direct contribution to GDP in 2011 was equivalent to some 0.7% of total national income and was higher than either the manufacture of precision instruments (0.4%) or the farming of animals (0.5%) industries. It was slightly lower than the construction of residential structures (0.9%) and around half the size of the food, beverage and tobacco manufacturing (1.3%) and textiles and leather manufacturing (1.4%) industries.
- Meanwhile, film and television's direct share of economy employment was 0.3% while it generated 1.3% of total tax revenues.

Table 1.1: Comparison of industry GDP²

Industry	billions Won	% of GDP
Manufacturing of precision instruments	4,165	0.4
Farming of animals	5,407	0.5
Film and television industries	7,549	0.7
Construction of residential structures	10,184	0.9
Manufacturing of food, beverages and tobacco	14,365	1.3
Manufacturing of textiles and leather	15,363	1.4

² As full-year data on 2011 GDP was not available at the time of publication the figures in Table 1.1 are forecasts based on data up to Q3 and projecting forward using year-to-date growth.

... and lend additional support to that economy through multiplier effects ...

- Moreover, the film and TV industries also support economic activity and jobs across the wider South Korean economy in a number of ways. Purchases by the film and television industries from their suppliers in other sectors within South Korea generated an additional 'indirect' contribution to GDP of 4,515 billion Won in 2011, supported a further 104,300 jobs and generated an extra 787 billion Won of tax revenues.

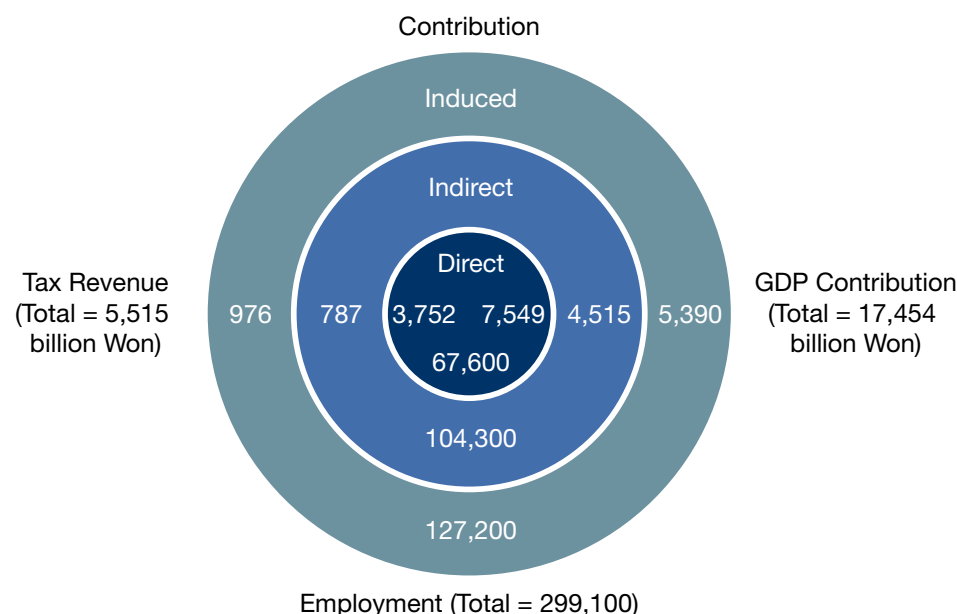
“Taking into account ‘multiplier’ effects, the South Korean film and television industries support activity worth 17,454 billion Won in GDP per annum for their home country...”

- Furthermore, as those employed either directly or indirectly by the film and television industries spent their income on goods and services, this is estimated to have generated a further 5,390 billion Won of GDP in 2011 through the so-called 'induced' economic multiplier. That was sufficient to support another 127,200 jobs and to have yielded an additional 976 billion Won in South Korean tax receipts.

... making the total economic contribution significantly larger

- Taking the direct, indirect and induced contributions together, we estimate that the film and television industries' total contribution to GDP in 2011 was in the region of **17,454 billion Won** (1.6% of economy output). In addition, it supported **299,100 jobs** overall, 1.2% of national employment. And it generated total tax revenues of **5,515 billion Won** (1.9% of total revenues).

“... supporting 299,100 jobs and generating 5,515 billion Won in taxes”

Figure 1.1: Total contribution to South Korean GDP, tax and employment, 2011

The industry creates high productivity jobs...

- Each person employed in the film and television industries generated, on average, 111.6 million Won of GDP - more than double the economy-wide average in 2011 of 46.2 million Won. High productivity is reflected in employees' average earnings, which, at 54.9 million Won a year, are 47% higher than the average across the economy as a whole (37 million Won).

...and has enjoyed strong growth since 2005...

- Since 2005 the industry has enjoyed strong growth, expanding by a cumulative 84% in real terms. This implies average annual growth of 10.7%, well in excess of the economy wide real GDP average growth rate of 3.8%.
- The very impressive overall growth trend conceals a fairly volatile performance. A leap in output in 2006 was followed by two subsequent years of contraction before a striking rebound in 2009 took real output back above 2006 levels.
- Meanwhile, employment growth has been much less rapid with the total number of jobs rising by just 9%, or 1.4% per annum, over the past six years. The implication of the discrepancy between employment and real GDP growth is that labour productivity has surged ahead, rising by 9.2% per year on average.

Chart 1.3: Film & TV real GDP and employment 2005-11

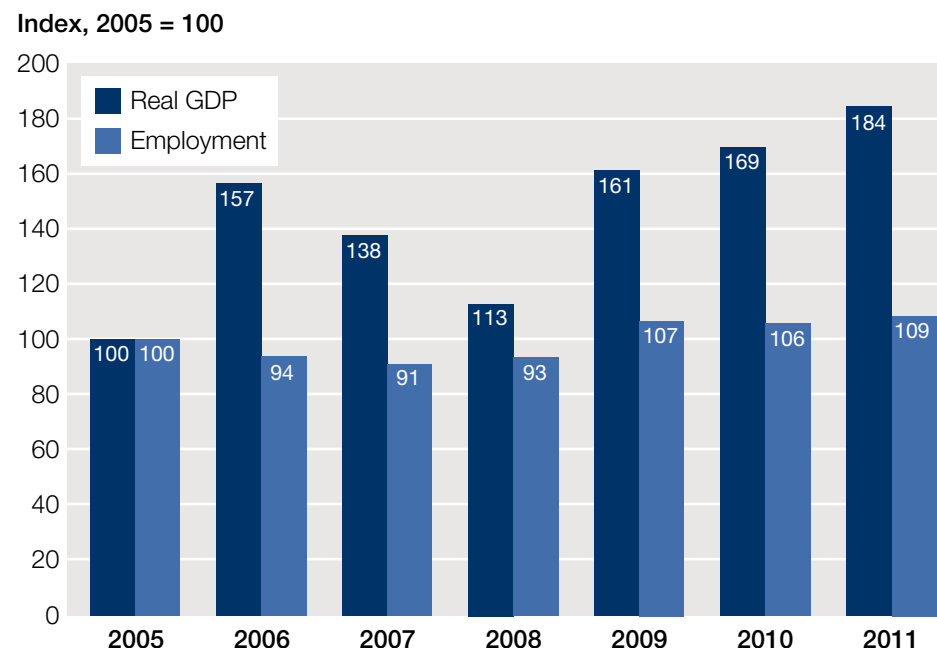


Table 1.2: Overview of the economic contribution of the South Korean film and television industries

Metric	Gross Output (bns Won)		GDP (bns Won)		Employment ('000s jobs)		Earnings (bns Won)		Tax (bns Won)	
Type of impact	Direct	Total	Direct	Total	Direct	Total	Direct	Total	Direct	Total
Film Production	1,142	2,187	410	852	8.1	18.1	281	656	180	258
Film Distribution	689	1,302	229	490	2.5	8.6	157	385	105	152
Exhibition of films	1,919	3,499	637	1,316	17.0	32.0	437	999	370	489
Film-Other	446	853	147	320	0.8	4.9	101	253	68	99
Home Ent. Retail	68	135	22	51	1.1	1.7	9	31	10	15
Home Ent. Rental	34	72	11	28	2.9	3.3	7	20	5	8
Free to Air TV	3,886	7,641	1,572	3,171	13.0	54.1	695	2,013	1,298	1,578
Cable TV	9,534	22,886	3,857	9,497	16.6	146.8	1,705	6,564	1,462	2,472
Satellite TV	649	1,660	262	689	0.5	10.0	116	470	99	174
Independent TV Producers	973	2,490	401	1,041	5.1	19.6	206	747	155	268
Total	19,340	42,725	7,549	17,454	67.6	299.1	3,713	12,138	3,752	5,515

...while export earnings are substantial

- The film and TV sector is estimated to have earned 437.5 billion Won in export receipts in 2011, or 0.4% of total service exports. In 2009 (the year in which the last detailed data split was available) around 36% of exports were generated by the film industry, with the remaining 64% due to the activities of the television industry.
- As exports form part of GDP, these revenues are incorporated within our estimates of the economic contribution of the industries above.
- Overall, it is clear that the film and television industries are therefore substantial creators of economic wealth in South Korea.

2 How we arrived at these figures

Oxford Economics prepared this report assessing the economic contribution of the film and television industries in Korea for the Motion Picture Association (MPA) and The National Assembly's Culture & Media Forum.

The starting point for measuring the economic contribution of the film and television industries lies in the statistics compiled by the Korea Creative Content Agency (KOCCA), which publishes an annual report on the creative industries. The latest version of this report, *Content Industry Statistics 2010*, provides statistics related to the 2009 calendar year. We used a variety of sources to extrapolate these figures into 2011. More detail on this can be found in section 8.1.

2.1 Direct economic contribution

The GDP, employment and tax contribution due to the activities of businesses in the film and television industries themselves are referred to as the **direct impacts**.

Here, for gross output, GDP and employment, data from KOCCA provide the starting point for our estimates.

In the case of taxation, our estimates rely on combining estimated industry income with knowledge of the country's tax system and various tax-to-GDP ratios found to exist for broader sectors of the South Korean economy.

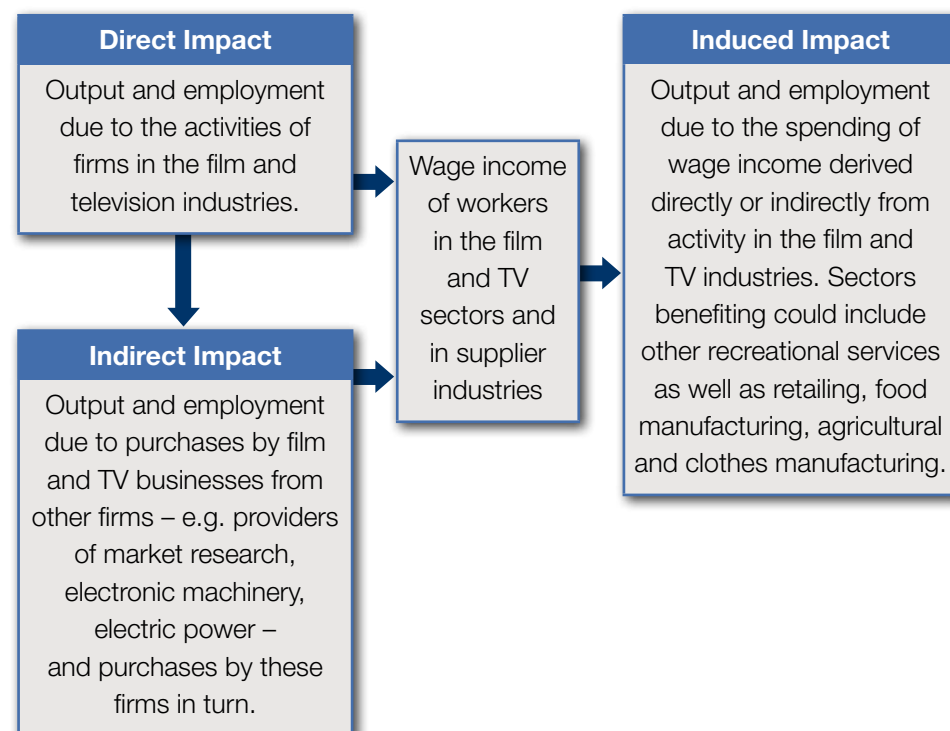
2.2 Additional economic contributions

To assess the **total economic contribution** of these sectors for the South Korean economy, we also need to take into account additional channels of economic contribution. The effect of two key channels can be quantified by combining our estimates of direct contributions with output 'multipliers' implied by detailed national accounts data, and with employment-to-GDP and tax-to-GDP ratios for various broader sectors of the South Korean economy.

These estimates cover:

- **Indirect contributions**, which relate to the output and jobs supported in South Korean-based supply chains, due to purchases by South Korean film and TV companies of goods and services from other firms located in the country, purchases by those suppliers in turn, and so on throughout the chain.
- **Induced contributions**, i.e. the South Korean output and jobs supported by workers in the film and TV industries – and other employees throughout the supply chain – spending the earnings ultimately derived from film and TV activities.

Figure 2.1: The channels of economic contribution



3 Film industry

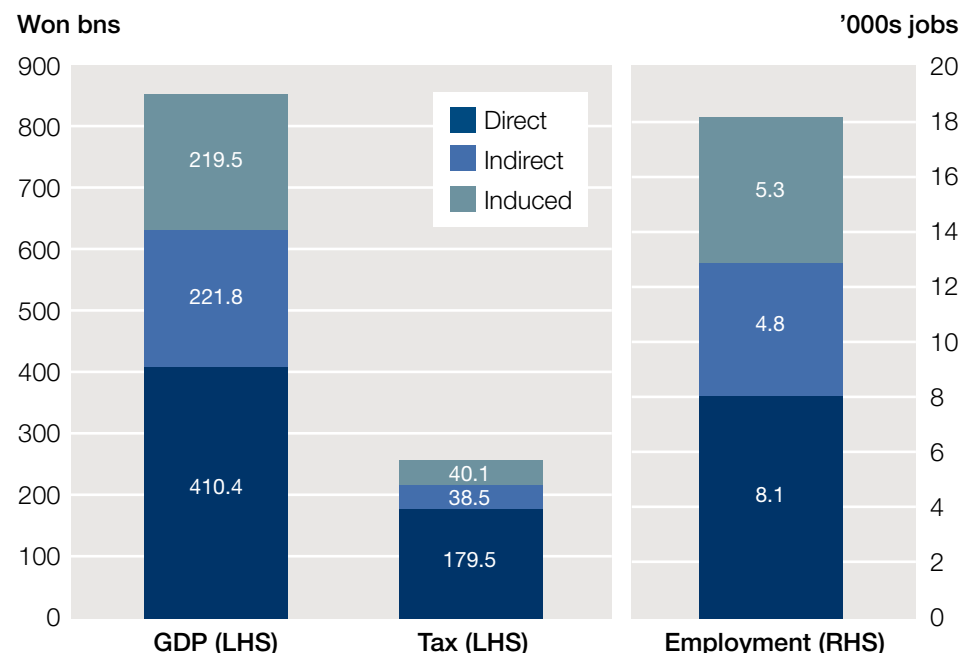
In this chapter we set out the economic impact in greater detail, breaking down the contribution of the film and TV industry into various subsectors such as film production, distribution and exhibition. We focus on each subsector's contribution to GDP, to taxes and to employment, including direct, indirect and induced effects.

3.1 Film production

By “film production” we mean the physical process of producing a film i.e. the filming of scenes at a studio and the editing and revision of the final content. Following a period of strong growth during a renaissance of South Korean cinema around the turn of the millennium, the industry has endured a fairly patchy recent performance, with data from KOCCA indicating that revenue has remained broadly flat during several recent years. Key supplier sectors include fashion and make-up, hi-tech equipment manufacturing and the utilities sector.

We estimate that in 2011 film production was worth some 410.4 billion Won in GDP and directly responsible for creating 8,100 jobs. Moreover, this activity helped to generate 179.5 billion in tax revenue. Taking into account indirect and induced effects these figures rise to 851.8 billion Won, creating 18,100 jobs and raising 258.1 billion Won for the South Korean government in tax receipts.

Chart 3.1: Economic contribution of film production

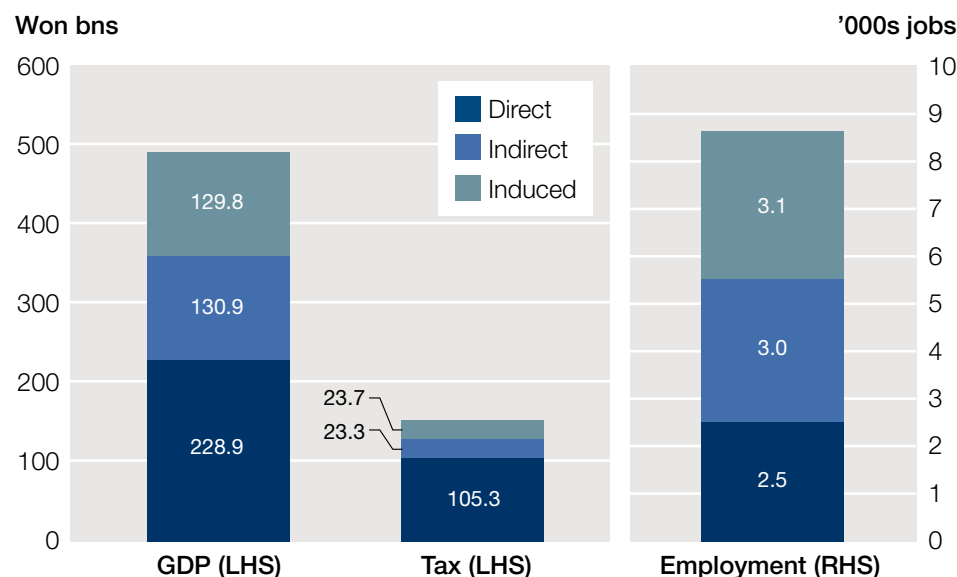


3.2 Film distribution

The ‘film distribution’ sector involves the launching and sustaining of films in the market place, with firms responsible for the logistical task of shipping film prints around the world and building audience awareness and interest through PR and marketing campaigns. Recent technological innovations have meant that digital distribution techniques have become increasingly prominent, with the growth of video-on-demand and download platforms. Key supplier sectors include business services (particularly advertising and PR) and transport services.

We estimate that the GDP of film distribution was some 228.9 billion Won in 2011 and was directly responsible creating 2,500 jobs. Moreover, this activity helped to generate 105.3 billion in tax revenue. Taking into account indirect and induced effects these figures rise to 489.6 billion Won, creating 8,600 jobs and raising 152.3 billion Won for the South Korean government in tax receipts.

Chart 3.2: Economic contribution of film distribution



3.3 Exhibition of films

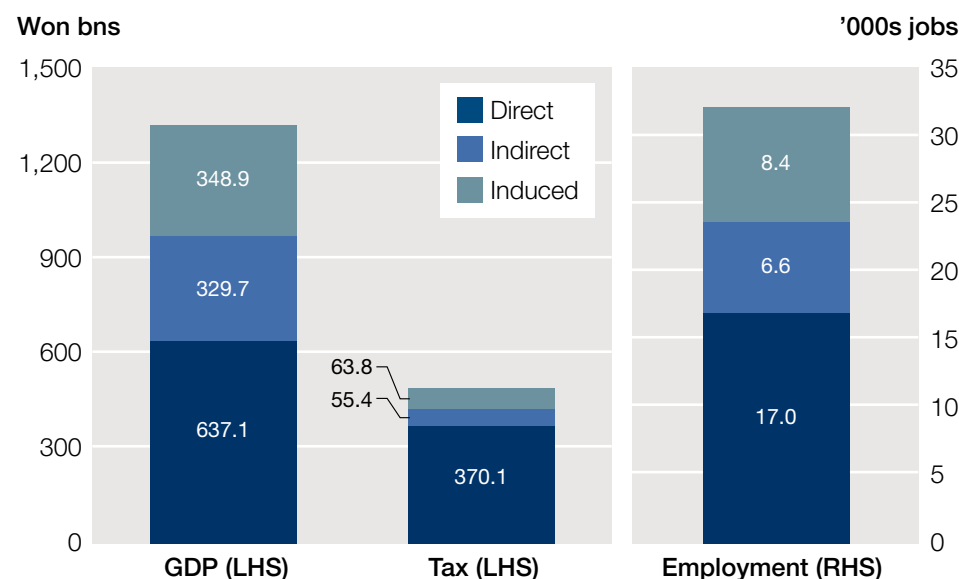
By 'film exhibition' we mean the process of screening films to the public, most commonly at a cinema. Exhibition remains a bigger contributor to South Korean GDP and employment than either production or distribution. Indeed, in 2011, the sector employed more than 60% more workers than production and distribution combined. Key supplier sectors include food and beverage wholesalers and maintenance services.

We estimate that the GDP of film exhibition was 637.1 billion Won in 2011, supporting some 17,000 jobs. Moreover, this activity helped to generate 370.1 billion in tax revenue. Taking into account indirect and induced effects these figures

rise to 1,315.8 billion Won, creating 32,000 jobs and raising 489.4 billion Won for the South Korean government in tax receipts.

“Exhibition remains a bigger contributor to South Korean GDP and employment than either production or distribution.”

Chart 3.3: Economic contribution of film exhibition



3.4 Other film industry activity

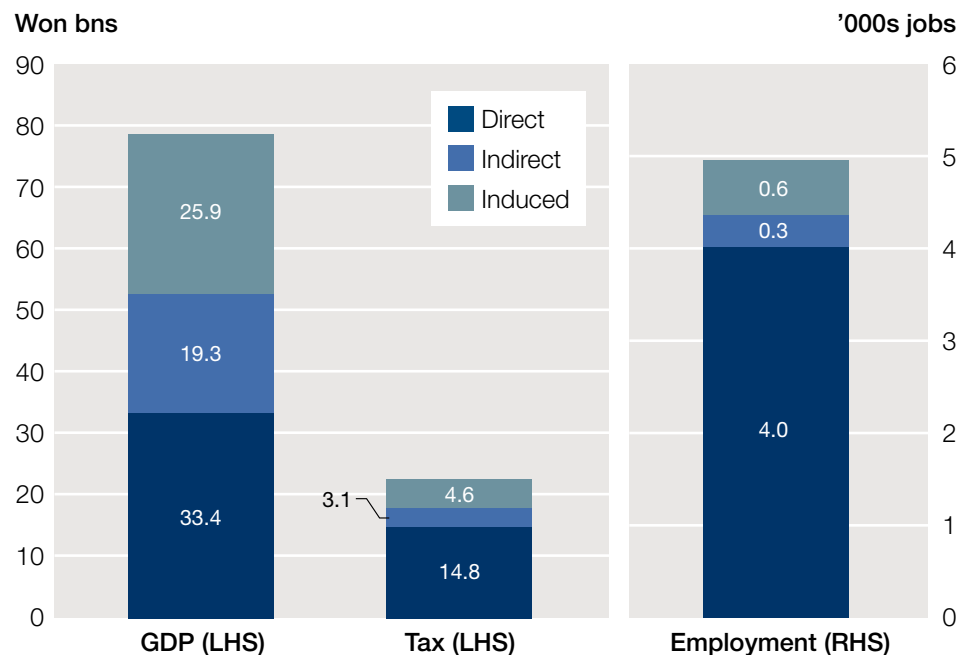
This sector comprises miscellaneous film industry activities not included elsewhere including income for industry investment funds and other sources. We estimate that such activities were worth 147.0 billion Won in GDP in 2011 and directly created 800 jobs. Moreover, this activity helped to generate 67.9 billion in tax revenue. Taking into account indirect and induced effects these figures rise to 320.0 billion Won, creating 4,900 jobs and raising 99.2 billion Won for the South Korean government in tax receipts.

3.5 Home entertainment

This sector comprises the retail and rental of DVDs, VHS cassettes and related video products, including online streaming/downloads. It excludes hardware such as DVD players, however. The sector has endured a difficult market environment in recent years with DVD sales falling sharply and a large number of rental stores being forced into closure. Key suppliers include business services such as IT and advertising.

We estimate that DVD and other video retail and rental made a 33.4 billion Won contribution to GDP, directly creating 4,000 jobs. Moreover, this activity helped to generate 14.8 billion in tax revenue. Taking into account indirect and induced effects these figures rise to 78.6 billion Won, creating 5,000 jobs and raising 22.6 billion Won for the South Korean government in tax receipts.

Chart 3.4: Economic contribution of home entertainment

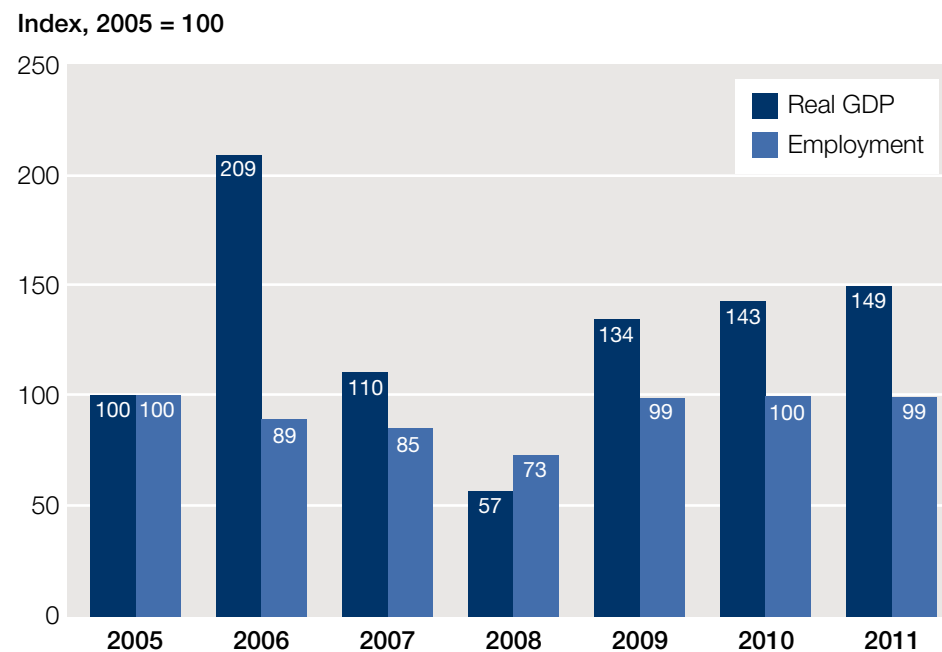


3.6 Trends over time

Since 2005 the film industry has expanded by 49% in real terms, implying average annual growth of 6.9%, almost double the growth rate of economy real GDP during the equivalent period. This overall trend masks a very volatile pattern in the intervening years. Real GDP more than doubled in 2006 before contracting sharply in 2007 and 2008. This was followed by a strong rebound in 2009 which took real GDP back above its 2005 level.

Meanwhile, employment followed a steady downward trend between 2005-8 before recovering strongly in 2009, taking industry jobs back approximately to their 2005 level. Overall, employment has been stagnant between 2005-11, while average labour productivity³ has increased by 7% per year.

Chart 3.5: Film industry real GDP and employment (2005-11)



³ Labour productivity here is measured in terms of real GDP per worker (at constant 2005 prices).

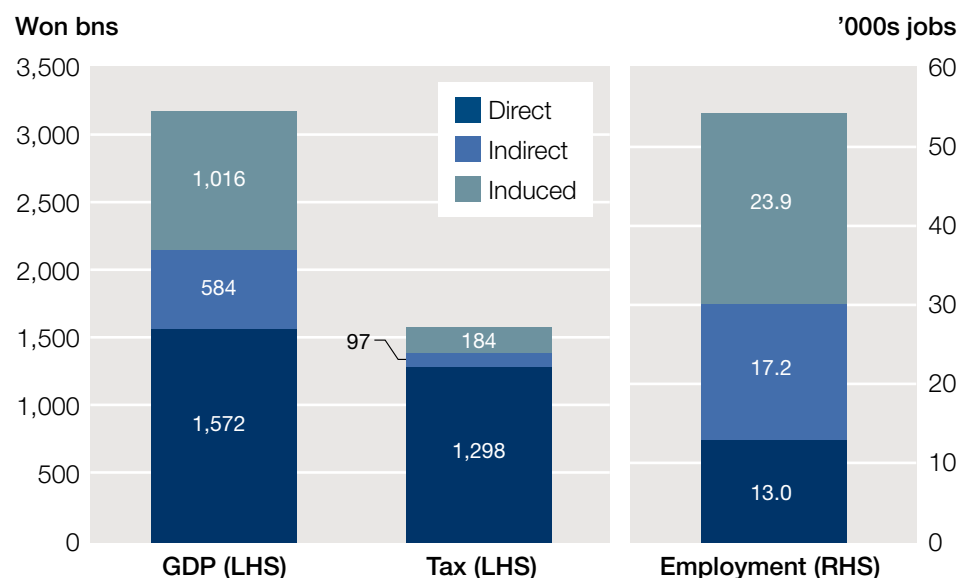
4 Television industry

4.1 Free-to-air television broadcasting

Free-to-air television broadcasting involves the production and distribution of TV content on free-to-air channels i.e. those which do not require a subscription fee. Key suppliers include the audiovisual equipment manufacturing sector and independent TV production companies.

We estimate that the GDP of Free to Air TV was worth 1,572 billion Won in 2011, directly creating 13,000 jobs. Moreover, this activity helped to generate 1,298 billion Won in tax revenue. Taking into account indirect and induced effects these figures rise to 3,171 billion Won, creating 54,100 jobs and raising 1,578 billion Won for the South Korean government in tax receipts.

Chart 4.1: Economic contribution of free-to-air TV

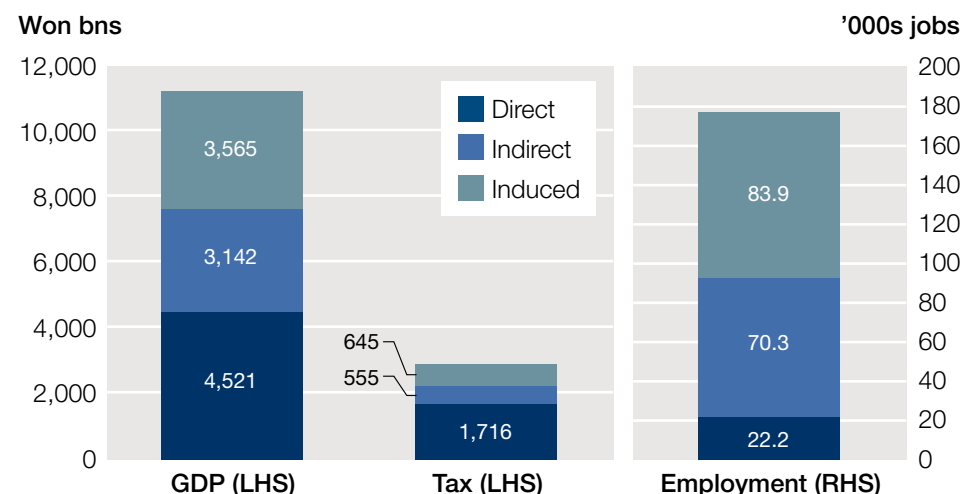


4.2 Cable and satellite TV broadcasting

The non-free-to-air TV market (including cable and satellite companies and the independent producers who supply services to these companies) dominates in South Korea with total revenue almost triple that of free-to-air broadcasters in 2011. The market has recently been transformed by the rise of Internet Protocol television (IPTV) platforms, whose growth has been facilitated by Korea's very high rate of broadband penetration.

We estimate that non-free-to-air TV broadcasting GDP as 4,521 billion Won in 2011, directly creating 22,200 jobs. Moreover, this activity helped to generate 1,716 billion in tax revenue. Within this, cable TV broadcasting made by far the largest contribution accounting for around 85% of total GDP. Taking into account indirect and induced effects these figures rise to 11,227 billion Won, creating 176,400 jobs and raising 2,915 billion Won for the South Korean government in tax receipts.

Chart 4.2: Economic contribution of cable, satellite and independent TV broadcasting



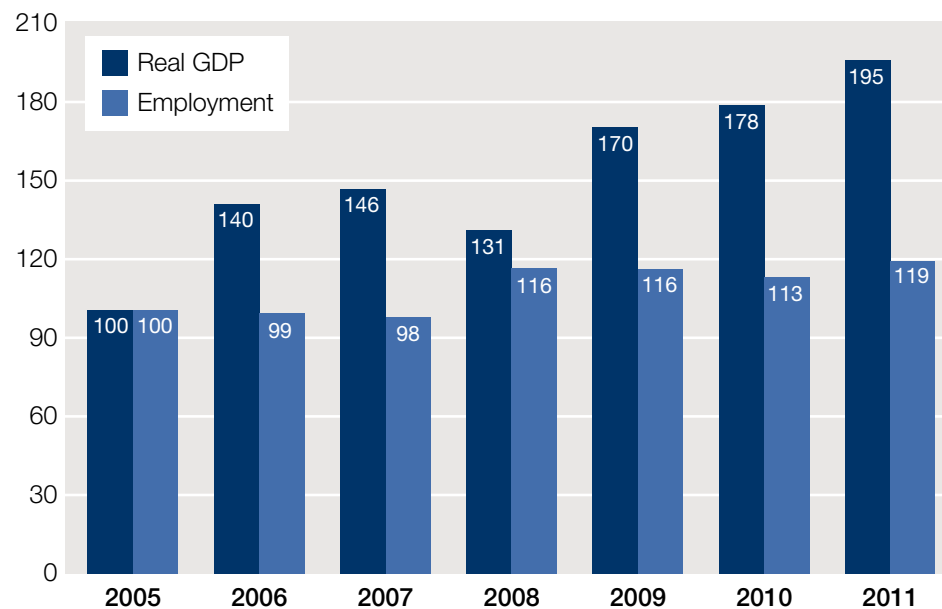
4.3 Trends over time

Real GDP in the television industry has surged since 2005, increasing by a cumulative 95% or at an average annual rate of 11.8%. This compares very favourably with average growth at the economy level of 3.8% per annum in the relevant period. Compared to the film industry, progress has been much more even with just one year of outright contraction (2006).

Employment over the same period has risen by 19% in total, implying average annual growth of 2.9%. Labour productivity growth has, therefore, averaged 8.6% per year.

Chart 4.3: Television industry real GDP and employment (2005-11)

Index, 2005 = 100



5 Exports

The “new wave” of South Korean popular culture, known as *Hallyu* and consisting of films, TV shows, popular music computer games, food and fashion, has swept Asia since the early 2000’s. *Hallyu* is particularly popular in countries such as Japan, China, Taiwan, Hong Kong and Singapore.

While the *Hallyu* phenomenon is broader than films and TV, these media play a very important role within *Hallyu* due to the emotional contribution such media can have.

Accordingly recent years have seen a growth in overall exports of combined South Korean film and TV products. In 2011 we estimate that South Korea exported over 437.5 billion Won worth of film and TV products.

“The growth of Hallyu has promoted South Korean exports and tourism.”

In 2009 (the year in which the last detailed data split was available) some 64% of Korean film and TV exports related to TV exports. This reflects the popularity of South Korean TV series, as evidenced by the past success of programs such as *Winter Sonata*, *Jewel in the Palace* and *Fireworks*. Exports of TV-related material grew by 52% between 2005 and 2009.

While the export performance of traditional feature films was disappointing in the years leading up to 2009, Korean animated films have also proved popular in recent years. Some 86% of the value of Korean film exports in 2009 was related to animated productions.

Total film exports were 0.4% of total service exports in 2011, and approximately equivalent to exports by the insurance and computer and information service sectors.

Table 5.1: Korean service exports in 2011⁴

Industry	billions Won	% of total
Film and television industries	438	0.4
Insurance	464	0.4
Computer & information	470	0.4
Financial	3,731	3.5
Travel	13,636	13.0
Construction	16,828	16.0
Transport	41,067	39.0

⁴ Figures for other industries are taken from balance of payments data produced by the Bank of Korea.

It should be noted that these export figures represent a sub-set of the GDP values cited above rather than a value over and above the figures cited in Table 1.2.

6 Tourism

The growth of *Hallyu* has also attracted tourists to South Korea in recent years, a phenomenon noted by several analysts⁵. While media-induced tourism in South Korea and other countries has been the subject of numerous studies, many analysts focus on visits to specific sites, rather than valuing the phenomenon as a whole.

Past work by the Korean International Trade Association (KITA) suggested that *Hallyu*-related tourism amounted to \$825 million in 2004⁶. This would equate to some 13.6% of Korean international inbound tourism revenues in that year (or \$1,673 million if this proportion was applied to 2011 tourism revenues).⁷

However not all *Hallyu* tourism can be ascribed to TV series or films. Past surveys of Hong Kong residents indicated that 28.3% cited Korean drama series and movies as the most important potential reason they might visit South Korea, with 55.7% suggesting Korean food and 15.8% Korean popular music. However the study authors state that the interest in Korean food can be attributed to Korean dramas and films (implying that some 84% of *Hallyu* tourism might be attributable to TV dramas and films).

Assuming that an estimate midway between 28.3% and 84% is reasonable (i.e. 56%) and applying this to the 2011 *Hallyu* tourism figure estimated above suggests that some \$937 million (1,055 billion Won) in tourism revenues generated by TV and film induced tourism in 2011.

5 For example, Kim, S., Agrusa J., Lee, H., Chon K., (2007) "Effects of Korean television dramas on the flow of Japanese tourists", *Tourism Management* 28, pp.1340-1353 ; Kim H., Chen M., Su, H., "The impact of Korean TV dramas on Taiwanese tourism demand for Korea", (2009) *Tourism Economics* Vol. 15., No.4.; Chan B., "Film-induced tourism in Asia: A case study of Korean television drama and female viewers motivation to visit Korea", *Tourism, Culture and Communication* Vol. 7 pp.207-224

6 Cited in Kim, S., Long, P. and Robinson, M., (2009) "Small Screen Big Tourism: The Role of Popular Korean Television Dramas in South Korean Tourism" *Tourism Geographies*, Vol. 11, No. 3

7 Kim S., Agrusa J., Chon K., Cho, Y.(2008), The Effects of Korean Pop Culture on Hong Kong Residents' Perceptions of Korea as a Potential Tourist Destination", *Journal of Travel and Tourism Marketing* Vol.24, No.2&3

This figure equates to 7.6% of South Korea's total international inbound tourism revenues in 2011. This figure is also close to the midpoint of the equivalent range (4% to 12%) for the UK over the decade to 2005, as previously reported by Oxford Economics⁸.

As the great majority of *Hallyu* induced film and TV tourism would appear to relate to TV series, it is likely to be more enduring than the "episodic" tourism sometimes witnessed in response to major feature films.

Note that, unlike the export values, cited above, these tourism figures are *in addition* to the values reported in Table 1.2.

8 Oxford Economics (2010) *The Economic Impact of the UK Film Industry*.

Conclusion

This report has provided a detailed overview of the film and television sectors in Korea, systematically quantifying the economic contribution of various sub-sectors of the industry. These estimates indicate that film and television makes a material contribution to economic activity in Korea, directly accounting for 0.7% of GDP, 0.3% of total jobs and 1.3% of all government revenues. In absolute terms, these figures translate to 7,549 billion Won, 67,600 jobs and 3,752 billion Won in tax revenues.

Moreover, including the indirect (via the supply chain) and induced (via the spending of those employed directly and indirectly) contributions, these figures rise to 1.6%, 1.2% and 1.9% respectively. In absolute terms these figures translate to 17,454 billion Won, 299,100 jobs and 5,515 billion Won. In addition to these effects are less readily quantifiable “catalytic” contributions such as the economic benefit derived by Korea from media-induced tourism.

The film and television industry has grown strongly since 2005 although progress has been volatile. Overall, real GDP increased by 84% between 2005-11 implying average annual growth of 10.7%. Employment growth was much slower (1.4% per annum on average) meaning that labour productivity rose at an average annual rate of 9.2%, an extremely impressive performance.

Future prospects appear solid although maintaining the recent rapid growth trend may prove difficult in one of the more mature Asian markets.

8 Detailed methodology

8.1 Quantifying the direct contribution

The main source used to quantify the direct contribution was the annual *Content Industry Statistics* report produced by KOCCA. The 2010 report provided statistics for calendar year 2009 on gross output (or sales), GDP, employment and exports for a variety of sub-sectors of the South Korean film and TV industry. While this was a relatively rich data source, it was still necessary to make some estimates for items such as sub-sector GDP.

In order to extrapolate these figures forward to provide more timely estimates for 2011, we used a variety of high-frequency data sources. For the DVD retail and rental market we grew GDP with household spending on recording media, and for film exhibition with household spending on recreational and cultural services⁹. For film production, distribution and other film industry activity we used nominal publishing, broadcasting and information services GDP to grow forward our 2009 values of GDP¹⁰. For all the television subsectors we grew forward GDP using the broadcasting component of the index measuring changes in the value of service sector activity¹¹. To obtain estimates of exports we grew 2009 data forward using balance of payments data on overall exports of Korean audiovisual and related services.

In order to extrapolate employment, we divided GDP by estimates of labour productivity (measured as GDP per worker). Given the lack of available data on productivity trends in the television and film industry, we grew forward our 2009 estimates of the relevant sub-sector level of labour productivity with economy-wide labour productivity growth between 2009-11¹².

9 Source: National Statistics Office. Data was available up to 2011Q3, so the 2011 extrapolation was based on year-to-date growth.

10 Source: Bank of Korea. Data was available up to 2011Q3, so the 2011 extrapolation was based on year-to-date growth.

11 Source: National Statistics Office

12 As 2011Q4 national accounts data was not available at the time of writing, we used the Oxford Economics forecast of 2011 nominal GDP.

8.2 Modelling the total economic contribution

Broadly speaking, input-output multipliers measure the relationship between an initial shock (such as spending) and final outcomes across the whole of the economy in terms of gross output, GDP and employment.

This study uses “Type II” multipliers. Type II multipliers allow for both the “indirect” supply chain effects (i.e. the film and TV industries purchasing from other industries) and “induced” effects which arise from workers spending wages (derived from employment) on goods and services. (Studies which only allow for the indirect or supply chain effects use what is known as Type I multipliers. Type II multipliers will be larger than Type I multipliers.)

In order to estimate the indirect and induced contributions, we used a 78-sector South Korean Input Output (IO) table for the year 2008¹³. An IO table details economy-wide transactions between sectors in matrix form, quantifying the extent to which different industries sell to and purchase from each other.

By appropriately manipulating the IO matrix, we were able to estimate the contribution of, for example, film production on the rest of the economy through its supply-chain purchases (indirect effect) and through the spending of those employed directly and indirectly in film production (induced effect).

No specific sector capturing all of the activities of the film, home entertainment and TV industries exists within I-O tables, as these are split among several industries and the I-O tables aggregate many industries together. We therefore allocated each sub-sector to a relevant IO category.

13 Source: Bank of Korea, http://ecos.bok.or.kr/jsp/use/iomgt_e/IOMgt.jsp?LANG_GUBUN=E

Accordingly, the activities covered by films were allocated to the “Amusements and sports activities” category, the sale of DVDs and related home entertainment products was allocated to the “Wholesale and retail” category, while the rental of such products was allocated to “Other business services”. TV-related activities were allocated to the “Broadcasting” category.

We then “shocked” the IO table using the level of direct gross output (or sales), derived from the values reported by KOCCA. Shocking the model simulated the contribution of the film and TV sectors on gross output in the rest of the economy

Note that “raw” revenue data typically includes indirect taxes (such as VAT) whereas the South Korean IO table is measured in producers prices (which excludes VAT). Accordingly, the sales revenue values were adjusted to allow for this when the model was shocked (i.e. VAT was excluded). VAT is included however in the direct and total gross output figures in Table 1.2, as it forms part of gross output.

Accordingly, the gross output multipliers cited below relate to the ratio between direct inputs in producers prices (i.e. excluding VAT) and total gross output - which includes VAT. (The GDP multipliers, however, relate to the ratio between direct GDP and total GDP.)

8.3 Adjustments for leakage and double counting

Generally, when domestic demand expands there will also be an increase in the demand for imports. For example, if consumers spend money on the film and TV industry some of this spending will flow out of the country (e.g. due to the payment of film royalties or the purchase of imported materials by production companies). This is formally known as “leakage”. Allowing for leakage is important as otherwise the contributions on domestic demand will be overestimated.

The standard format of the South Korean IO tables does not allow for the direct estimation of such leakage on a disaggregated industry by industry basis. Accordingly, the tables were adjusted to allow for such leakage using industry imports data, derived from the “imported goods and services” worksheet of the South Korean IO tables.

The Type II multipliers used in this study were also (downwardly) adjusted to reflect the fact that, in any given year, if employees currently working for the film and TV industries were not employed then they would still have some income and that income would be spent within the economy. That is, if they were not employed in the film and television industry, then, in the short term, at the very least, they would receive some income (such as unemployment benefits) and would use this to purchase goods and services.

Accordingly, employee wages reported in the I-O tables were adjusted using OECD data for South Korea, indicating the ratio of unemployment benefits (and related out-of-work support) to the average gross wage. This ratio is formally known as the “gross replacement rate” (GRR) and is some 10% in the case of South Korea. They were also further adjusted for the South Korean savings ratio (some 4% based on data from the Oxford Economics Global Economic Model). This is to reflect the importance of family savings in South Korean society.

Finally, for certain sub-sectors, it was clear that downward adjustments to the indirect and induced contributions would also need to be made to avoid double counting of output. This is because, in some cases, part of a given industry’s supply chain included other sub-sectors that have been classified as part of the film, video and television market. For example, exhibitor direct revenues implicitly reflect purchases from film distributors, so adding purchases from distributors as a part of indirect revenue could be double counting.

We therefore adjusted multipliers for the film exhibitor and film distribution sectors to reflect this fact. Likewise, multipliers for the free to air and cable TV industries were also adjusted due to the potential for double counting through intra industry purchases and the fact that independent producers supply services to both of these sub-sectors. Table 8.2 below shows how these adjustments affected the size of the gross output multiplier in the case of free to air television.

Table 8.2: Derivation of output multiplier for free to air television

Adjustments to output multiplier: Broadcasting	
Broadcasting: Raw Type I multiplier	2.50
Type I multiplier adjusted for import leakage	2.03
Type I multiplier adjusted for double counting	1.86
Broadcasting: Raw Type II multiplier	4.15
Type II multiplier adjusted for import leakage	3.03
Type II multiplier adjusted for double counting	2.86
Type II multiplier adjusted for savings and unemployment insurance	2.64

The full list of gross output and GDP multipliers associated with the modelling described above are reported in Table 8.3.

Table 8.3: Gross output multipliers

	Gross Output		GDP	
	Type I multiplier	Type II multiplier	Type I multiplier	Type II multiplier
Film Production	1.64	2.11	1.54	2.08
Film Distribution	1.62	2.08	1.57	2.14
Exhibition of Films	1.62	2.08	1.52	2.07
Film – other	1.64	2.11	1.60	2.18
DVD Retail	1.64	2.20	1.63	2.30
DVD Rental	1.53	2.34	1.47	2.47
Free to Air TV	1.86	2.64	1.37	2.02
Cable TV	2.03	2.64	1.67	2.46
Satellite TV	2.03	2.81	1.83	2.62
Independent TV Producers	2.03	2.81	1.81	2.59

8.4 Estimating GDP, earnings and employment

The gross output totals derived from the above modelling were converted into estimates for GDP using sectoral ratios of GDP to gross output. These were generally taken from the IO table, although in some instances, values were adjusted to make them consistent with the data contained in the 2010 *Content Industry Statistics* report. These were then converted into employment estimates using sectoral productivity (measured in terms of GDP per worker) for 2011¹⁴.

This process was repeated separately for each sub-sector to generate separate estimates for the total (including direct, indirect and induced effects) economic contribution.

For direct earnings, we applied the ratio of labour costs to GDP¹⁵ to our estimate of direct GDP for each sub-sector. For the indirect and induced contributions, we applied the average economy-wide gross annual wage¹⁶ to our estimate of indirect and induced employment in each sub-sector.

8.5 Modelling tax revenues

In order to model the level of revenue that would be raised for the government as a result of this activity, we made use of a number of different data sources. We included taxes on labour (including income and social security) and profits and for the direct effect, indirect taxes raised including Value Added Tax (VAT), the “ticket tax” on cinema tickets¹⁷ and license fees (in respect of free to air TV). Estimates of these taxes were combined to produce the overall tax figure.

Note that indirect taxes were only estimated for direct contributions and were not applied to indirect and induced contributions.

¹⁴ Source: Bank of Korea

¹⁵ Source: KOCCA *Content Industry Statistics* 2010, Tables 6-33, 7-45 and 7-46

¹⁶ Source: Bank of Korea

¹⁷ The “entertainment tax” or “ticket tax” was introduced on the price of cinema tickets in 2007 and is due to expire in 2014. We understand that the tax rate was set between 3% and 5%. A 4% ticket tax rate has been assumed for this study.

For the direct contribution, we used the gross sales data cited above from KOCCA's 2010 *Content Industry Statistics report*, applying the standard VAT rate to quantify the level of indirect tax accounted for by VAT. (A similar process was used for the cinema exhibition sector to estimate the value of the ticket tax.) Licence fee revenue data for free to air TV were supplied in KOCCA's 2010 *Content Industry Statistics report*¹⁸.

For taxes on labour, we applied an OECD estimate of the tax wedge¹⁹ for 2009 to our estimate of gross earnings. For taxes on profits, we estimated the effective rate of corporation tax by dividing the level of corporate tax receipts (in 2009) by the level of gross operating surplus (GOS). (GOS is approximately equal to profits before interest or depreciation deductions.) We then applied this rate to an estimate of the GOS of companies in the relevant sub-sector. This was calculated by applying the average sectoral ratio of GOS to GDP to our estimate of GDP²⁰. (Note that as we have applied these 2009 ratios to 2011 data, we have effectively assumed that ratios have remained constant between those years.)

This process was repeated for the indirect and induced contributions (with the exception of indirect taxes).

8.6 GDP measure

GDP can either be measured at basic prices or at market prices. The estimates produced in this report are measured using GDP at *basic prices*, which excludes taxes less subsidies on products (taxes on products include VAT and excise duties). Gross Value Added (GVA) is another term for GDP at basic prices.

While VAT is excluded from GDP at basic prices, the VAT directly generated by the film and television industries is estimated in the main body of this report and included as a part of the industry's tax contribution.

GDP at market prices is the "headline measure" of GDP used in South Korea and most other countries. GDP at market prices includes taxes less subsidies on products.

18 Source: KOCCA *Content Industry Statistics* 2010, Table 7-3

19 See <http://www.oecd.org/dataoecd/44/3/1942514.xls> The tax wedge is defined as the combined central and sub-central government income tax plus employee and employer social security contribution taxes, as a percentage of labour costs defined as gross wage earnings plus employer social security contributions.

20 These ratios were generally taken from the 2008 IO table, although information from the KOCCA report was used where appropriate.



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