A professional video camera with a large lens is the central focus of the image. The camera is mounted on a tripod and has various attachments, including a microphone and a viewfinder. The background is a studio setting with a person visible in the distance. The lighting is dramatic, with strong highlights and deep shadows.

The economic contribution of the film and television industries in Thailand



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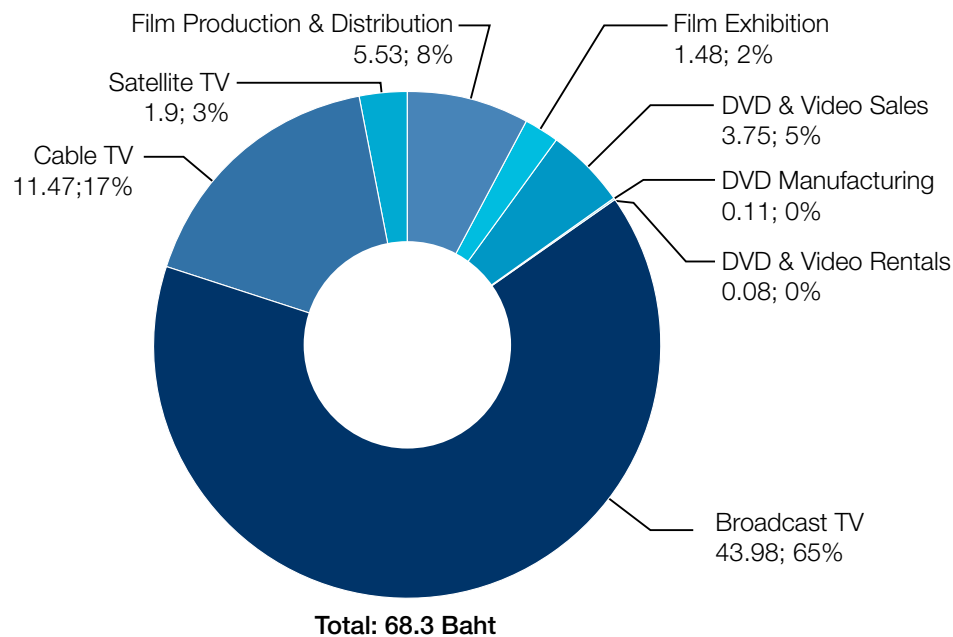
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1 Key findings

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

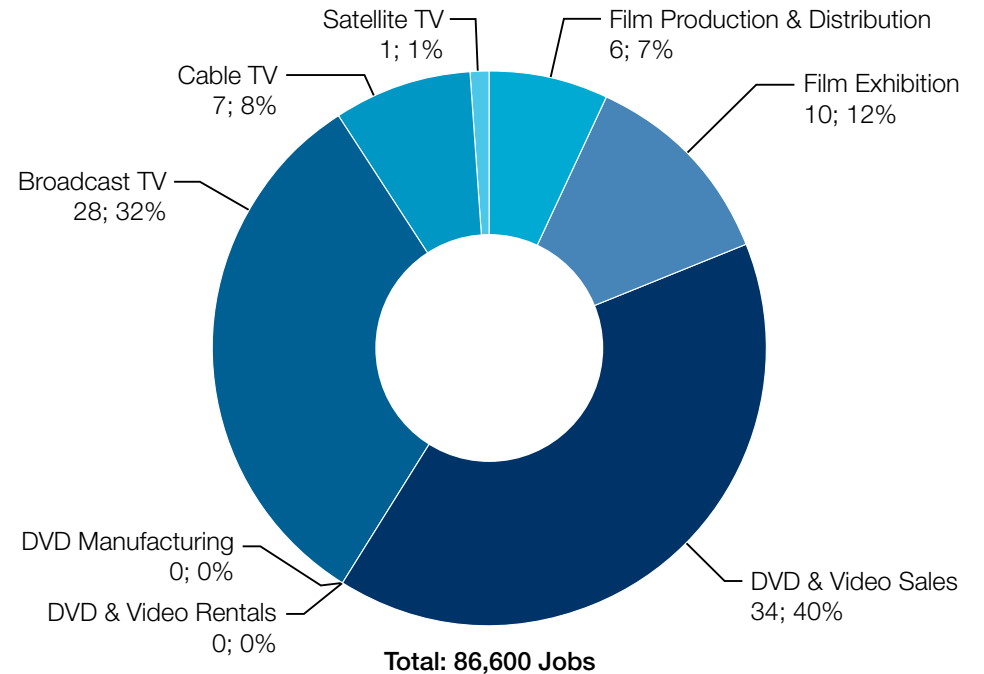
The film and television industries are estimated to have **directly** contributed **68.3 billion Baht** in gross domestic product (GDP)¹ to the Thai economy in 2011. They also directly supported **86,600 jobs** and generated approximately **2.5 billion Baht** in **tax revenues**.

Chart 1.1: Direct GDP of Thai film and TV industry, 2011 (billions of Baht 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 Thai film and TV industry, 2011 (persons employed ('000) and percentage split)*



*DVD and video manufacturing and rentals employment is included in DVD and video sales figures

- The film and television industries direct contribution to GDP in 2011 was equivalent to some 0.65% of total national GDP and was higher than estimates for sectors such as dramatic arts and other arts activities (0.03%) though smaller than major sectors such as health (1.9%) and construction (2.6%).
- Meanwhile, film and television's direct share of economy employment was 0.23% while it generated 0.20% of total tax revenues.

Table 1.1: Comparison of industry GDP in 2011

| Industry | billions Baht | % Total GDP |
|--|---------------|-------------|
| Dramatic arts and other arts activities (est.) | 3.3 | 0.03 |
| Film and television | 68.3 | 0.65 |
| Health and social work | 198.7 | 1.90 |
| Construction | 270.0 | 2.60 |

... and lend additional support to other industries in Thailand through multiplier effects ...

- Moreover, the film and TV industries also support economic activity and jobs across the wider Thai economy in a number of ways. Purchases by the film and television industries from their suppliers in other sectors within Thailand generated an additional 'indirect' contribution to GDP of 44.6 billion Baht in 2011, supported a further 72,200 jobs and generated an extra 3.5 billion Baht of additional tax revenues.

“Taking into account ‘multiplier’ effects in 2011, the Thailand film and television industries contributed some 151.8 billion Baht to Thai GDP...”

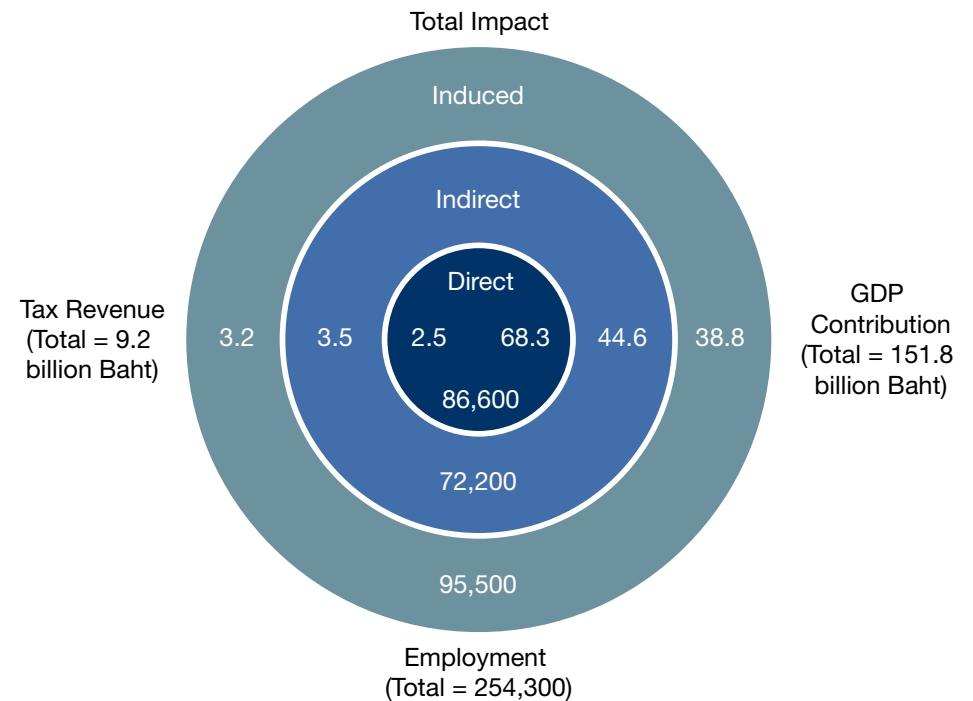
- Furthermore, as those employed either directly or indirectly by the film and television industries spent their income on goods and services, this is estimated to have generated a further 38.8 billion Baht of GDP in 2011 through the so-called 'induced' economic multiplier. That was sufficient to support another 95,500 jobs and to have yielded an additional 3.2 billion Baht in tax receipts for Thailand.

... 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 2010 was **151.8 billion Baht 1.4% of economy output**. In addition, it supported **254,300 jobs** overall, 0.66% of national employment. And it generated total tax revenues of **9.2 million Baht** (0.73% of total revenues).

“...supporting 254,300 jobs and generating 9.2 billion Baht in taxes”

Figure 1.1: Total contribution to Thai GDP, jobs and tax 2011



The industry creates high productivity jobs...

- Each person employed in the film and television industries generated, on average, 0.79 million Baht of GDP - which is slightly higher than the economy-wide average in 2010 of 0.67 million Baht. High productivity is reflected in employees' estimated average earnings which, at 253,000 Baht a year, were almost double the average across the economy as a whole (135,000 Baht).

...and grew strongly after 2003...

- Between 2003 and 2007 (the most recent time span over which consistent data are available) nominal GDP growth of the film industry outstripped that of the wider economy. A similar pattern was evident when comparing industry employment growth with its economy wide equivalent. In addition, all forms of television distribution experienced strong growth rates during the equivalent time period.

...while the country attracts foreign film makers.

- In 2010 some 578 foreign films were shot in Thailand, generating some 1,869.2 million Baht in revenue. This provides an injection of funds into the Thai economy (though this is incorporated into the figures cited above).
- Despite (or perhaps because of) the fact that Thailand is famed for its natural beauty, there is little evidence to date that Thai films themselves (or foreign films shot in Thailand) have actually induced much foreign tourism. More research is required in this area however.

Table 1.2: Overview of the economic contribution of the Thai film and television industries, 2011

| Metric | Gross Output (bns Baht) | | Gross Value Added (bns Baht) | | Employment ('000s jobs) | | Tax Collections (bns Baht) | |
|--------------------------------|-------------------------|--------------|------------------------------|--------------|-------------------------|--------------|----------------------------|------------|
| | Direct | Total | Direct | Total | Direct | Total | Direct | Total |
| Film Production & Distribution | 12.6 | 25.6 | 5.5 | 13.4 | 6.2 | 22.4 | 0.6 | 1.2 |
| Film Exhibition | 5.8 | 15.6 | 1.5 | 7.4 | 10.3 | 21.9 | 0.6 | 1.1 |
| Home Entertainment | 7.5 | 12.5 | 3.9 | 7.0 | 33.6 | 40.1 | 0.3 | 0.5 |
| Broadcast TV | 64.4 | 148.7 | 44.0 | 95.1 | 27.9 | 130.3 | 0.3 | 4.3 |
| Cable TV | 16.8 | 38.8 | 11.5 | 24.8 | 7.3 | 34.0 | 0.7 | 1.7 |
| Satellite TV | 2.8 | 6.4 | 1.9 | 4.1 | 1.2 | 5.6 | 0.1 | 0.3 |
| Total | 109.9 | 247.6 | 68.3 | 151.8 | 86.6 | 254.3 | 2.5 | 9.2 |

2 How we arrived at these figures

Oxford Economics was commissioned by the Motion Picture Association (MPA) and the Federation of National Film Associations of Thailand (“the Federation”) to assess the economic contribution of the film and television industries in Thailand.

The starting point for measuring the economic contribution of the film industries lies in data compiled by the Federation and supplemented with data from the semi-annual Business and Trade Survey conducted by the Thailand National Statistics Office, The television industry data relies on data compiled by the CASBAA for their Thailand in View Report which was published in March 2011². The CASBAA data was also supplemented with data from the Business and Trade Service Survey and the annual report of the largest company in the cable industry, TrueVisions.

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 contributions**.

Here, data from the Federation and the National Statistics Office for gross output, value added and employment, 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 economy.

2.2 Additional economic contributions

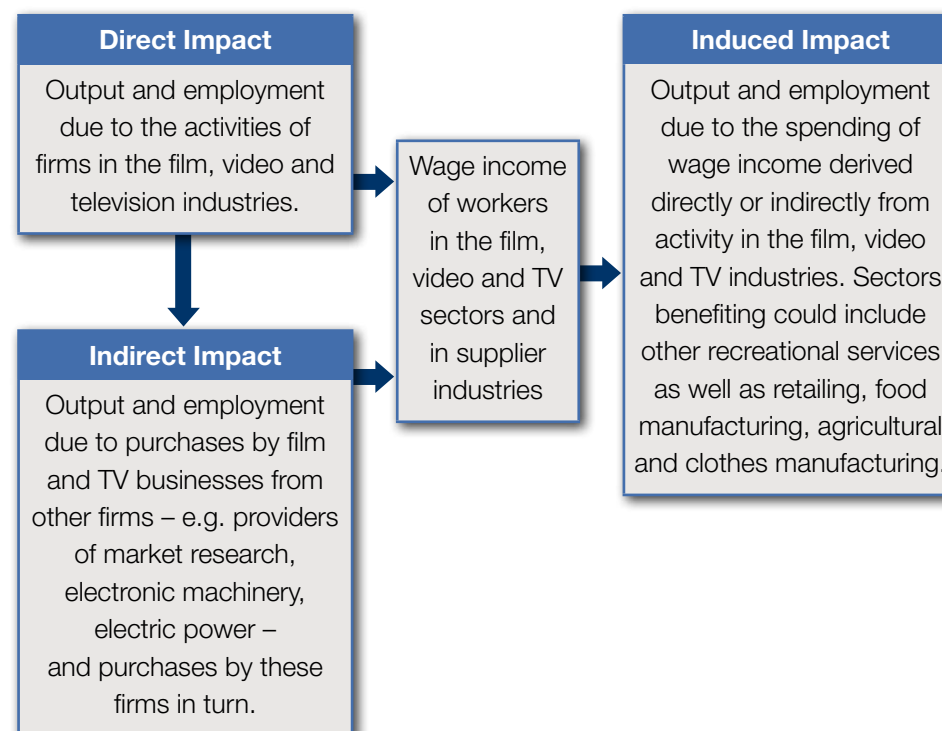
To assess the **total economic contribution** of these sectors for the Thai economy, we also need to take into account additional channels of economic contribution. The contribution of two key channels can be quantified by combining our estimates of direct contributions with output ‘multipliers’ implied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

2 CASBAA. 2011. Thailand in View: Thai Pay TV 2011

These estimates cover:

- **Indirect contributions**, which relate to the output and jobs supported in Thailand-based supply chains, due to purchases by Thai 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 supply chain.
- **Induced contributions**, i.e. the Thai 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 contributions in greater detail, breaking down the economic 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. (Note that total figures the charts below may vary slightly from the sum of their sub-components due to rounding.)

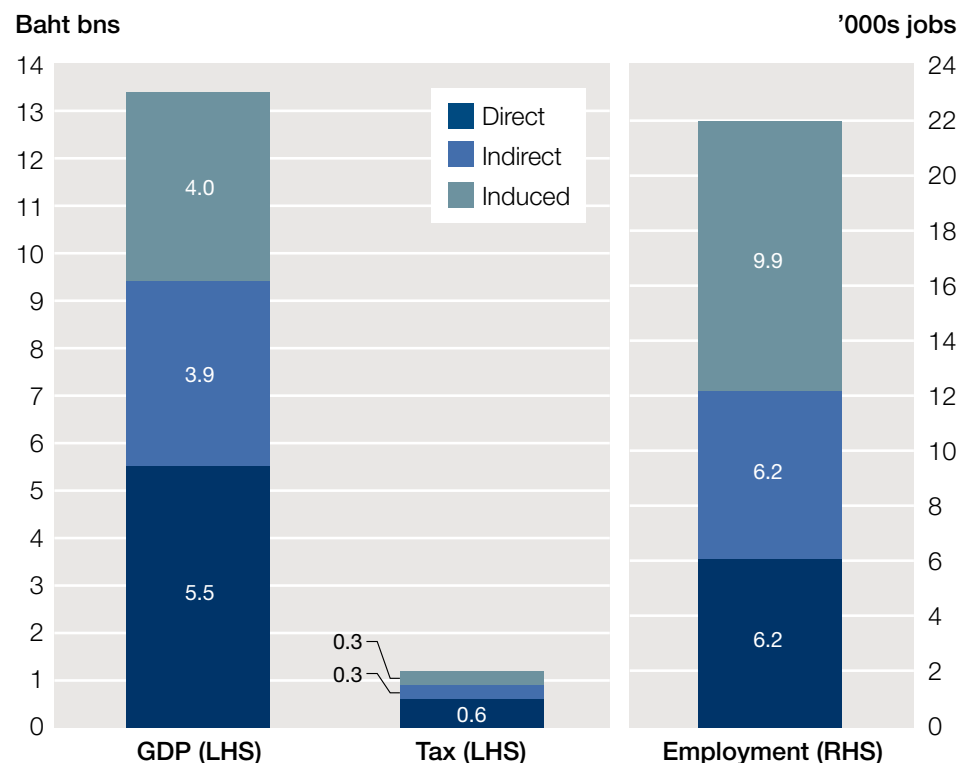
3.1 Film production and distribution

By “film production and distribution” we mean the physical process of producing a film (i.e. the filming of scenes at a studio, the editing and revision of the final content) and the distribution of that content. Thailand has a thriving domestic film industry mainly driven by the popularity of going to the movies as well as a strong appetite for Thai movies. After a period of stagnation in the late eighties and early nineties the Thai film production industry in particular, has seen a recent increase, driven in part by an increase in number of foreign productions being filmed in Thailand.

“After a period of stagnation in the late eighties and early nineties, the Thai film production industry has experienced resurgence, driven in part by an increase in the number of foreign productions being filmed in Thailand.”

We estimate that in 2011 film production, both domestic and international, along with film distribution, was worth some 5.5 billion Baht in GDP and directly responsible for creating 6,200 jobs. Moreover, this activity helped to generate 0.6 billion Baht in tax revenue. Taking into account indirect and induced effects these figures rise to 13.4 billion Baht, creating 22,400 jobs and raising 1.2 billion Baht in total for the Thai government in tax receipts.

Chart 3.1: Economic contribution of film production and distribution



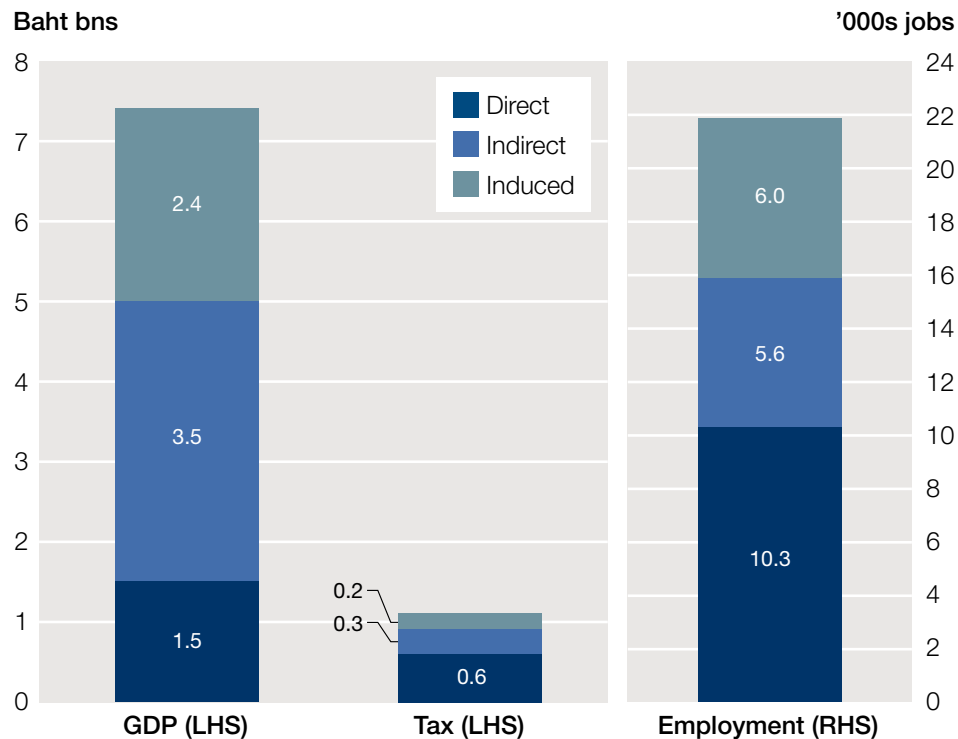
3.2 Exhibition of films

By ‘film exhibition’ we mean the process of screening films to the public, most commonly at a cinema. Thailand has a thriving film exhibition industry driven by popularity of cinema going and strong demand for both domestically and Hollywood produced feature films. In 2011 the exhibition subsector employed more individuals than the film production and distribution subsector.

We estimate that the GDP of film exhibition sub-sector was 1.5 billion Baht in 2011, supporting some 10,300 jobs. Moreover, this activity helped to generate 0.6 billion Baht in tax revenue. Taking into account indirect and induced effects these figures rise to 7.4 billion Baht, creating 21,900 jobs and raising 1.1 billion Baht in total for the Thailand government in tax receipts. Key supplier sectors include food and beverage wholesalers and maintenance services.

“Thailand has thriving film exhibition industry driven by the popularity of cinema going and strong demand for both domestically and Hollywood produced films.”

Chart 3.2: Economic contribution of film exhibition

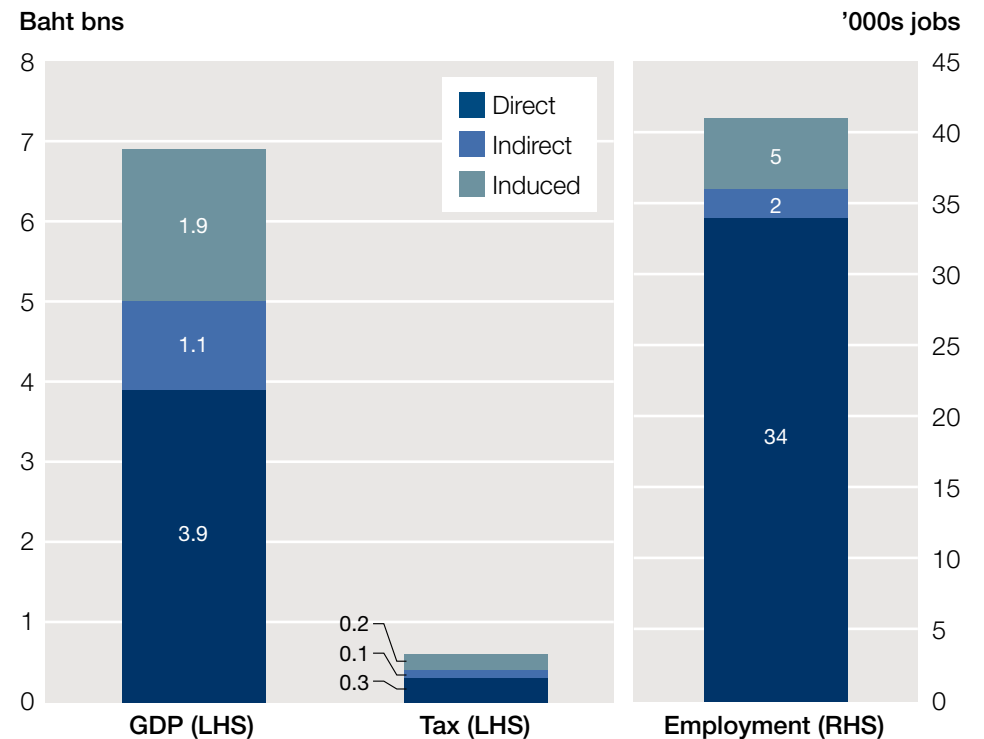


3.3 Home entertainment

This sector comprises the retail and rental of DVDs, VHS cassettes and related video products, including online streaming/downloads. It also includes the manufacturing of DVDs and VHS cassettes. The sector 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 rentals and manufacturing made a 3.9 billion Baht contribution to GDP, directly creating over 33,600 jobs. Moreover, this activity helped to generate 0.3 billion Baht in tax revenue. Taking into account indirect and induced effects these figures rise to 7.0 billion Baht, creating over 40,100 jobs and raising 0.5 billion Baht for the Thai government in tax receipts.

Chart 3.3: Economic contribution of home entertainment



3.4 Trends over time

Using historic data from the semi-annual Business and Trade Services Survey, conducted by the Thailand National Statistics Office, along with more recent industry data from the Federation, we can examine the growth in the film industry over time.

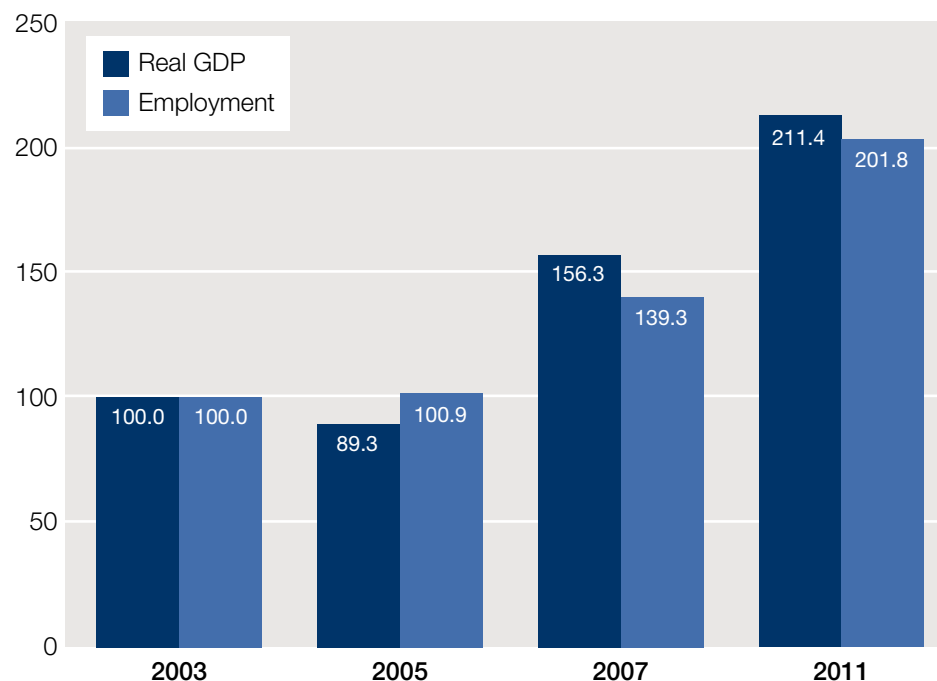
The starting point for measuring the economic contribution of the film production and distribution industries lies in the statistics compiled by Thailand National Statistics Office, which publishes the results of the semi-annual Business and Trade Services Survey. The 2007 calendar year version of this survey was used for this report³.

Chart 3.4 presents the direct economic contribution of the film production and distribution industries in 2003, 2005, and 2007 with estimates to 2011 based on data from the Federation. (Due to a lack of timely data, we are unable to include any historic data on the DVD/video sales and rental industries.) Between 2003 and 2011, we estimate that film production and distribution industry nominal GDP increased at a compound average growth rate of 11.2% per year and that film exhibition industry nominal GDP increased at an annual rate of 5.7%.

Employment in both industries also increased between 2003 and 2011, with employment in the film production and distribution industry estimated to have increased by 5.9% per annum and employment in the film exhibition industry increasing by 11.7% per year.

Chart 3.4: Film industry nominal GDP and employment

Index, 2003 = 100



³ Business and Trade Services Survey data for 2009 were released after this study went to press.

4 Television industry

The television industry in Thailand is divided into three main subsectors; free-to-air broadcast television (which does not require a subscription or the purchase of any equipment) free-to-air satellite (which also does not require a monthly or annual subscription but does involve the purchase of a satellite receiver) and cable television which includes monthly subscription fees. It is estimated that TV viewing households more than tripled between 1997 and 2010.⁴

Thailand has six terrestrial TV stations, classified in three groups in terms of institutional settings. Aside from the terrestrial broadcasters, Thailand also has more than 325 cable TV and satellite television networks, with the number growing each year. Currently, there are a small number of local production houses selling quality local content to the cable operators. Otherwise, the main sources of content are Universal, Fox International Channels and Sony, along with regional production houses for Chinese, Korean and Japanese movies, drama series, game shows, musical variety shows, and entertainment programming.⁵

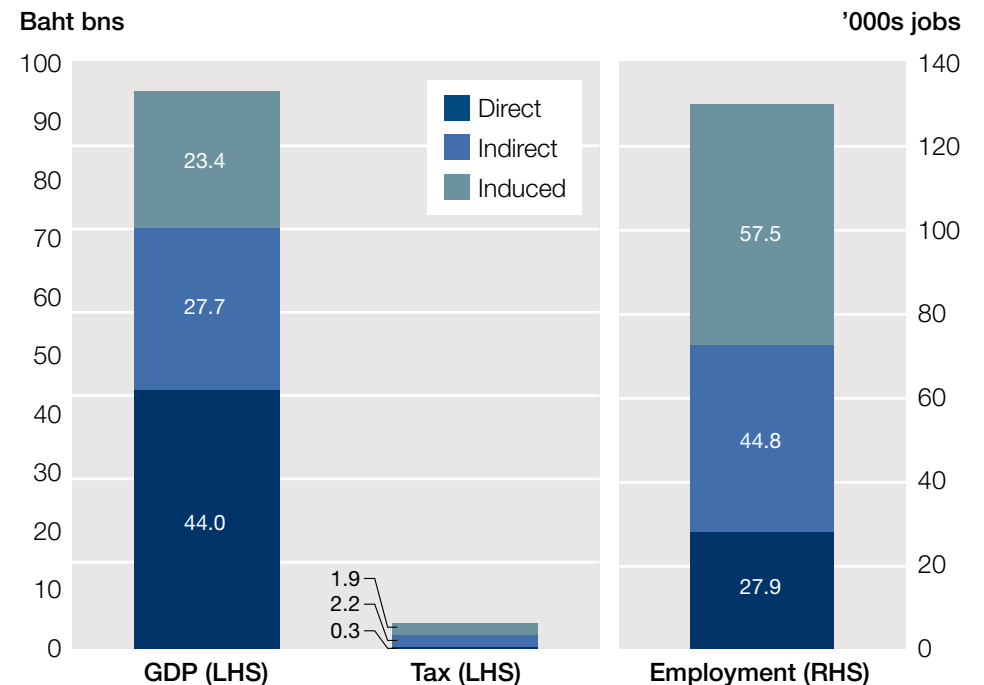
4.1 Free-to-air Broadcast Television

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 44.0 billion Baht in 2011, directly creating 27,900 jobs. Moreover, this activity helped to generate 0.3 billion Baht in tax revenues. Taking into account indirect and induced effects these figures rise to 95.1 billion Baht, creating 130,300 jobs and raising 4.3 billion Baht for the Thai government in tax receipts.

4,5 CASBAA. 2011. "Thailand in View: Thai Pay TV 2011"

Chart 4.1: Economic contribution of free-to-air broadcast TV⁶



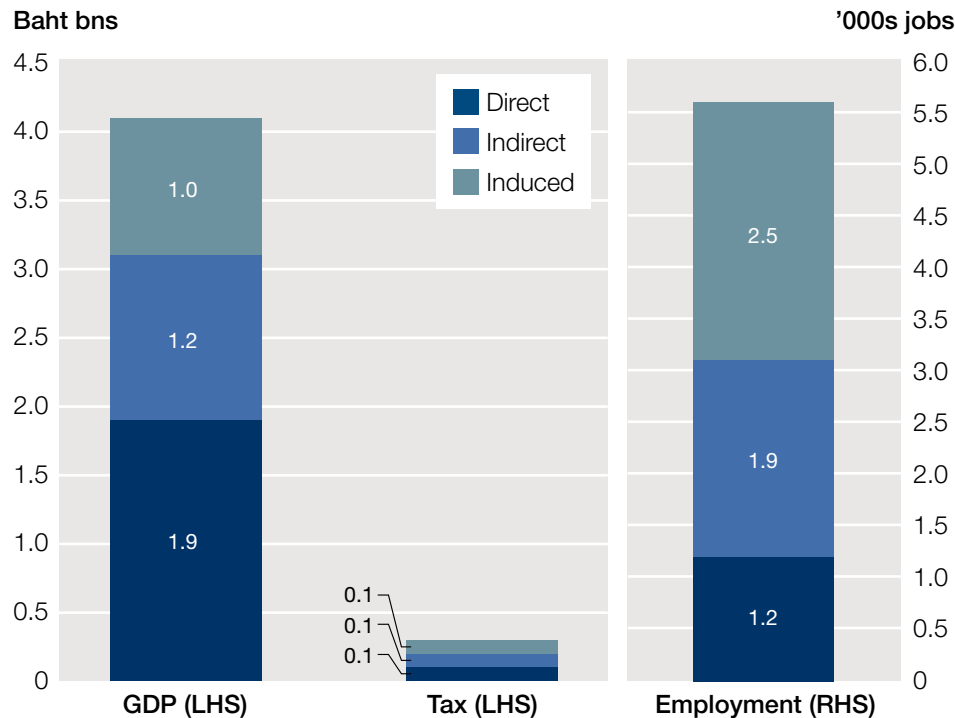
4.2 Free-to-air Satellite Broadcasting

Thailand has seen an explosion of Free-to-Air (FTA) satellite TV viewership, with a tenfold increase in viewing households over the past four years, from 642,000 households in 2007 to 6.34 million in August 2010. With FTA satellite TV there is a one-time set up cost for satellite receiving equipment, and no monthly subscription fee. The main source of revenue for the industry is advertising revenue and to a lesser extent, equipment purchases by new subscribers.

6 Direct tax accounts for 0.3 billion Baht

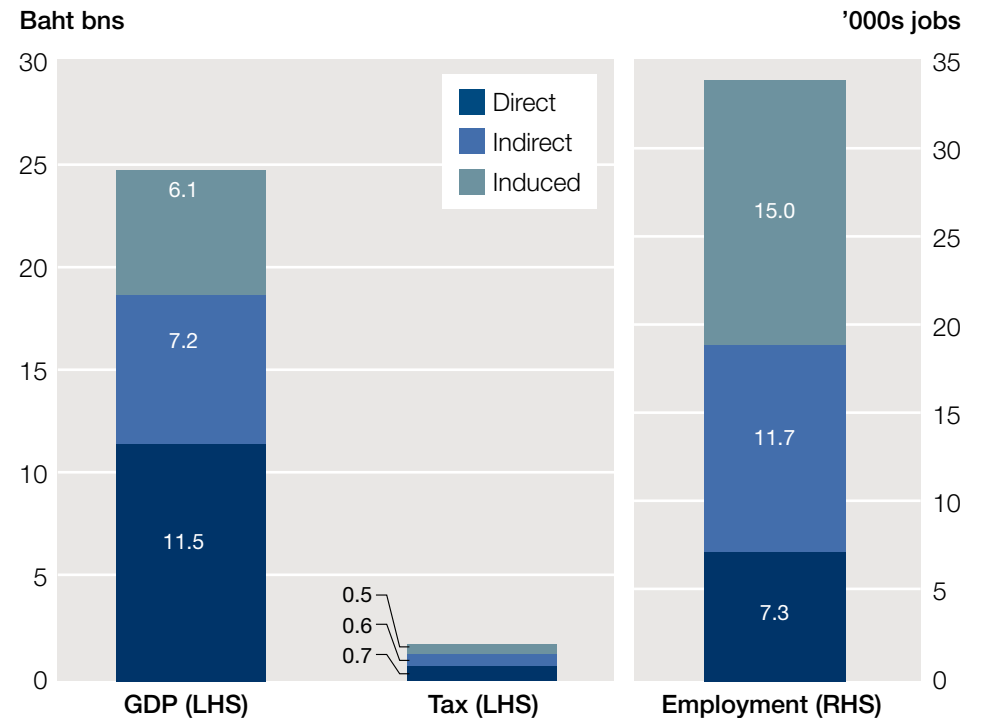
We estimate that the FTA satellite TV subsector generated 1.9 billion Baht in GDP, primarily from advertising spending, directly creating 1,200 jobs and 0.1 billion Baht in tax revenue. In addition, taking into account the indirect and induced effects, these figures rise to 4.1 billion in Baht in GDP and 5,600 jobs, which in turn generated 0.3 billion Baht in total tax receipts for the Thai government.

Chart 4.2: Economic contribution of free-to-air satellite broadcasting



We estimate cable/other pay TV broadcasting GDP at 11.5 billion Baht, directly creating 7,300 jobs. Moreover, this activity helped to generate 0.7 billion Baht in tax revenue. Taking into account indirect and induced effects these figures rise to 24.8 billion Baht, creating 34,000 jobs and raising 1.7 billion Baht for the Thai government in tax receipts.

Chart 4.3: Economic contribution of cable and other pay TV



4.3 Cable and other pay TV

The non-free-to-air cable TV and other pay TV market is primarily comprised of Truevisions, Inc, with 8.9% of the total TV market, and a number of smaller local operators who share an additional 13.3% of the market. While Truevisions only has 8.9% of total Thai TV market, they are responsible for 75% of revenue of the cable TV subsector. However, the market has been under increasing pressure from free-to-air satellite providers.

4.4 Trends over time

Using data from the Thailand National Statistics Office's semi-annual Business and Trade Services Survey, we can estimate the compound average growth rate of the free-to-air broadcast television industry. Although detailed data for recent years are difficult to obtain, the nominal GDP of the free-to-air broadcast industry increased at an annual rate of 33.7% between 2003 and 2007, which was almost six times the growth rate of nominal GDP for the Thai economy over the same time period.

The Business and Trade Survey does not collect data on the free-to-air satellite or cable television industries, but the CASBAA does provide estimates for those industries.⁷ Unfortunately, the CASBAA's most recent report does not provide historic revenue data for those industries; however the CASBAA does provide estimates of the growth in subscribers to both television formats. Between 2007 and 2010 (the most recent year for which data were available) the compound average growth rate of cable and satellite television viewership was estimated at 51.7% at the national level. It is likely that the growth in these industries followed a path similar to the growth in viewership.⁸

7,8 CASBAA. 2011. "Thailand in View: Thai Pay TV 2011"

5 Foreign productions and tourism

5.1 Foreign Productions

Despite still being considered a developing country, the Thai film industries has taken great strides to keep up with international film production technologies. Thus, international standard equipment and studio facilities are available throughout the country. Furthermore, with its diverse geographical characteristics, Thailand has an ability to offer a variety of landscapes; including: coastlines, reefs, rivers, lakes, rocky mountains and green plateau.

This has led to an increase in the number of foreign films shot in Thailand in recent years; including productions from Japan, India, USA, Europe, as well as other Asian countries. The number of foreign films shot in Thailand increased from 523 in 2007 to 578 in 2010, and the revenue generated by these productions increased from 1,072.6 million Baht in 2007 to 1,869.2 million Baht in 2010. While the general trend appears to be upward, there is still substantial volatility in the data from year to year. For example, 2011 saw a notable fall-off in these figures (to 531 films and 1,310 Baht respectively) while figures for 2009 are likely to have been affected by the global recession.

As the number of foreign productions, and foreign actors and crew members, increase, so too will the amount of money flowing into the Thai economy. This includes spending at production facilities, equipment rental companies, salaries and wages for Thai citizens as well as spending by foreign actors and crew at hotels, restaurants, and for other goods services while they are on location in Thailand.

Note, however, that such spending should effectively be included in the estimates of the film and TV industry contributions, detailed above and, as such, the economic, employment, and tax impacts of the above spending is included in the estimates above.

Table 5.1: Number and value of foreign productions in Thailand⁹

| Year | Documentary | Advertising | Feature Film | TV Series | Music Video | Total | Revenue (Million Baht) |
|------|-------------|-------------|--------------|-----------|-------------|-------|------------------------|
| 2007 | 229 | 198 | 22 | 32 | 42 | 523 | 1,073 |
| 2008 | 197 | 184 | 28 | 48 | 69 | 526 | 2,023 |
| 2009 | 181 | 166 | 37 | 52 | 60 | 496 | 898 |
| 2010 | 178 | 255 | 49 | 46 | 50 | 578 | 1,869 |
| 2011 | 135 | 262 | 30 | 72 | 32 | 531 | 1,310 |

⁹ Source: Thailand Film Office: http://www.thailandfilmoffice.org/index.php?option=com_content&view=article&id=23&Itemid=28&lang=en Accessed February 15, 2012.

5.2 Film and TV induced tourism

The spending of foreign film productions in Thailand is indicated above. A separate issue is whether finished films and TV productions themselves (whether foreign or “local”) induce visitors to come to Thailand.

Much recent attention has been paid to the phenomenon of film and TV tourism around the world. Oxford Economics has investigated the global development of this phenomenon with specific reference to the UK, as a part of previous research.¹⁰

Within Asia, the growth of South Korean *Hallyu* (popular culture including films, TV, music and food) has been well documented. *Hallyu* has acted to induce large number of foreign visitors to visit South Korea. Many of these come from within the Asian region.

There would not appear to be any true equivalent to *Hallyu* in respect of Thai film and TV productions though there has also been little research of the impact of foreign-made (or local) films in encouraging tourism to the country. One exception to this lack of analysis is the research of Warnick et. al.,¹¹ which investigated whether U.S. college students were more likely to visit Thailand after viewing the film *The Beach*, which was shot in the country. However, while the film did enhance positive images of Thailand there was no evidence that it made respondents more likely to visit the country.

This result may, in fact, be a testament to the fact that Thailand is already seen as a significant tourism destination in its own right. As such film and TV productions may only have a limited ability to induce foreign visits. However more research is required on this topic.

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

11 Warnick, B., Bojanic, D., Siriengkul A., “Movie effects on the Image of Thailand among college student travellers” *Proceedings of the 2005 Northwestern Recreation Research Symposium*

6 Conclusion

This report has provided a detailed overview of the film and television industries in Thailand as well as a quantification of the economic and employment contributions of the sub-sectors of the industry. These estimates indicate that the film and television industries make a material contribution to the economy of Thailand, directly accounting for 0.65% of GDP and 0.23% of total jobs and 0.20% of all government tax revenue. In absolute terms, these figures translate to 68.3 billion Baht of GDP, 86,600 jobs, and 2.5 million Baht in tax revenues.

Moreover, by including indirect (via the supply chain) and induced (via the spending of those employed directly and indirectly) contributions, these figures rise to 1.4%, 0.66% and 0.73% respectively. In absolute terms these figures translate to 151.8 billion Baht in GDP, 254,300 jobs, and 9.2 million Baht in tax revenue. Within the industry, television (including broadcast, FTA satellite, and cable TV) accounts for the vast majority of the contribution to GDP and employment.

In addition, to these effects are the less readily quantifiable “catalytic” contributions such as the economic benefits derived from television and film-induced tourism. While there is little evidence to date that film tourism is a significant contributor to the Thai economy, further research is required on this topic.

The film industry has grown strongly since 2003 with nominal GDP of the film production and distribution and film exhibition sectors estimated to have grown at a compound average rate of 11.2% and 5.7% respectively. In addition, employment in those industries has grown at a compound average growth rate of 5.9% and 11.7% respectively over the same time period. Similar to the film sectors, the various television sectors in Thailand have also experienced tremendous growth over the last couple of years, with the numbers of cable and satellite subscribers estimated to have increased at a compound average growth rate of 51.7% over the 2007-2010 period (the most recent for which consistent data are available).

7 Detailed methodology

7.1 Quantifying the direct contribution

The starting point for measuring the economic contribution of the film industries lies in data compiled by the Federation of National Film Associations of Thailand (“the Federation”) for 2011 and supplemented with data from the semi-annual Business and Trade Survey conducted by the Thailand National Statistics Office.

The National Statistics Office provides detailed revenue, gross value added, employment and wage, and tax data for the movie production, movie exhibition, and FTA broadcast TV sector in 2007 via the Business and Trade Survey.

The data from the Federation provided estimates of the total revenue and total employment of the various film industry subsectors in 2011. We then used data on ratio of GDP to total revenue from the 2007 Business and Trade Survey to estimate the GDP generated by the film industry subsectors.

The free-to-air television data was based on data from the Business and Trade Services Survey. The 2007 calendar year version of this survey was used in this report.¹² In order to extrapolate these figures to provide more timely estimates for 2011, we used historic data from the 2003 and 2005 surveys to estimate the compound average growth rate over the time period. This growth rate was then applied to the 2007 data to estimate economic contribution of the free-to-air film and television sector in 2011¹³.

12 http://service.nso.go.th/nso/nso_center/project/search_center/23project-en.htm

13 Business and Trade Services Survey data for 2009 were released after this study went to press. However the 2009 data reflect a recession year in Thailand and may not constitute a good basis for trend estimation.

To estimate the direct contribution of the FTA satellite and cable sectors we used data compiled by the CASBAA in the Thailand in View Report which was published in March 2011¹⁴. The report included an estimate of revenue of the industries as a whole as well as the major players of the industry. In order to estimate gross value added, and employment and wages, we used data from the Business and Trade Service Survey and the annual report of the largest company in the cable industry, TrueVisions. We estimated the average revenue per employee and average wages per employee, and the GDP to revenue ratio and applied those averages to estimate the totals for the cable and FTA satellite industries.¹⁵

7.2 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 began by using the Type I multipliers developed by the Fiscal Policy Institute for the movie production, movie exhibition, and TV industry multipliers.¹⁶ These Type I multipliers were developed using the 2008 Input/Output Table of the Thai economy and provide an estimate of the indirect economic contribution of those industries.

14,15 CASBAA. 2011. “Thailand in View: Thai Pay TV 2011

16 Fiscal Policy Institute. 2009. “Economic Contributions of Thailand’s Creative Industries – Final Report.” December 2009.

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. We used the Type I multipliers calculated by the Fiscal Policy Institute to estimate the economic contributions of the film production, exhibition, FTA broadcast TV, cable TV, and FTA satellite industries. We used multipliers for the retail and rental industries to estimate the economic contribution of the DVD/video sales and rental subsectors.

As discussed above, we are interested in estimating both the indirect and induced contributions generated by the film and television industries. As such, this required the use of Type II multipliers. We calculated Type II multipliers by estimating an “uplift” to Type I multipliers. The uplift was based on the ratio of Type I to Type II multipliers, estimated using data from the “Other Community Service” category from the OECD Input/Output Tables. (The “Other Community Services” category includes motion pictures.)

7.3 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 Thailand IO tables does not allow for the direct estimation of such leakage on a disaggregated 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 Thailand 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/TV industries then in the short term, at the very least, they would receive some income (such as unemployment benefits) and would use this to spend on goods and services.

Accordingly, employee wages reported in the I-O tables were adjusted for 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 was estimated to be some 10% in the case of Thailand.

Finally, for certain subsectors, downward adjustments to the indirect and induced contributions could be made to avoid double counting of the outputs. This is because, when industries are disaggregated, as has been done here, part of the disaggregated industries supply chain includes the other disaggregated sub-sectors that have been classified as part of the film, video, and television industry. For example, distributors direct revenues implicitly reflect purchases from production companies, so adding purchases from the distributors as part of indirect revenue could be double counting.

The Thailand IO data does not provide sufficient sub-industry level data to allow us to adjust the multipliers for double counting. In order to adjust the multipliers we used data drawn from other Asian film and TV industry studies conducted by Oxford Economics. These indicated an average downward adjustment of 7% should be applied to Type 1 multipliers and 6% to Type II multipliers to eliminate the impacts of double counting. Accordingly, we applied this downward adjustment in the case of Thailand.

Table 7.1: Derivation of output multiplier double counting adjustment factors

| | Prior to double counting adjustment | Adjusted for double counting | Downward adjustment |
|----------------------------------|-------------------------------------|------------------------------|---------------------|
| China: Tadio, Film and TV | | | |
| Type I multiplier | 2.5 | 2.3 | 5% |
| Type II multiplier | 3.1 | 2.9 | 6% |
| Korea: Broadcasting | | | |
| Type I multiplier | 2.0 | 1.9 | 8% |
| Type II multiplier | 3.0 | 2.9 | 6% |
| Indonesia: TV | | | |
| Type I multiplier | 2.0 | 1.8 | 7% |
| | | Type I Average | 7% |
| | | Type II Average | 6% |

The fully adjusted gross output and GDP multipliers associated with this study are reported in Table 7.2.

Table 7.2: Gross output and GDP multipliers, by subsector

| | Gross Output | | GDP | |
|-----------------|-------------------|--------------------|-------------------|--------------------|
| | Type I multiplier | Type II multiplier | Type I multiplier | Type II multiplier |
| Film Production | 1.5 | 2.0 | 1.7 | 2.4 |
| Film Exhibition | 2.0 | 2.7 | 3.3 | 5.0 |
| DVD Sales | 1.2 | 1.7 | 1.3 | 1.8 |
| DVD Rentals | 1.2 | 1.7 | 1.3 | 1.7 |
| DVD Manufacture | 1.4 | 1.6 | 1.9 | 2.3 |
| Free to Air TV | 1.7 | 2.3 | 1.6 | 2.2 |
| Cable TV | 1.7 | 2.3 | 1.6 | 2.2 |
| Satellite TV | 1.7 | 2.3 | 1.6 | 2.2 |

7.4 Estimating GDP, earnings, and employment

The gross output totals derived from the above modelling were converted into estimates for GDP using sectoral ratios of value added to gross output taken from the OECD IO table for Thailand. These were then converted into employment estimates using sectoral productivity (measured in terms of GDP per worker).

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

To estimate indirect and induced earnings we applied the average economy-wide gross annual wage to our estimate of indirect and induced employment in each subsector.

7.5 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.

For the direct contribution, the Business Trade and Services survey includes data on the net VAT and other tax collections for the broadcast television, film production and film exhibition sectors. We estimated the net VAT to revenue and other taxes to revenue ratios using the 2007 Business and Trade Services survey data. We then applied the ratios to the estimated output of each sector to estimate the tax revenue generated.

For the indirect and induced spending we estimated the other taxes by estimating the average GDP to other tax ratios using the Business Trade and Services Survey data and applied that to the estimated indirect and induced contributions. To estimate the income taxes paid by the direct, indirect, and induced employees, we estimated the average income taxes paid per worker and then applied those to the direct, indirect, and induced employment estimates.

7.6 GDP measure

The GDP estimates reported in the study are in *basic prices*, that is excluding taxes on products (such as VAT or sales tax) plus subsidies on products. GDP at basic prices is also known as Gross Value Added (GVA).

Technically, GDP is more commonly reported in *market prices* i.e. including taxes on products less subsidies on products. The relationship between GDP at *market prices* and GVA is as follows:

GDP at market prices = GVA plus taxes on products (such as VAT or sales tax) less subsidies on products, which in general means that GAV is modestly smaller than GDP at market prices. GDP at market prices is typically the “headline measure” of GDP used in Thailand and most other countries.



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