

Economic Impact of Screen Production in Poland

Report by Olsberg•SPI



7th December 2023

OLSBERG•SPI

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1. GLOSSARY OF KEY TERMS

Above-the-Line ("ATL") and **Below-the-Line ("BTL")** refer to the film and television production workforce and the different types and seniority of roles across talent, cast, and crew. ATL refers to key talent, including directors, writers, and actors. BTL refers to other crew, for example, in technical production roles.

Direct impact refers to the economic uplift in terms of the output, value created (GVA), and jobs within the film and television industry resulting from increased production expenditure.

Indirect impacts refers to the economic uplift in terms of the output, value created (GVA), and jobs effects observed in industries that supply goods and services into the film and television production industry.

Induced impacts refers to the economic uplift in terms of the output, value created (GVA), and jobs uplift created because of the wage effects of those working in the film and television production industry.

Full-time equivalent ("FTE") employment is a consistent measure of employment that accounts for part-time and full-time working patterns and temporary or contract-based workers. This is based on a year-round and 'permanent' definition of FTE jobs. This means that if one person is working full time on a three-month contract, this would be counted as 0.25 of a job. This approach has been adopted as it enables comparison across industries and countries.

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

Output is a measure of the results of an economic process available for sale or use elsewhere and is a measure of activity.

Screen production industry is an umbrella term referring to the processes involved in producing films, television, VFX, and animation.

Subscription Video on Demand ("SVoD") is a form of VoD that provides consumers access to digital content via a subscription fee model.

2. EXECUTIVE SUMMARY

2.1. About the Study

In 2023, international screen sector consultancy Olsberg•SPI (“SPI”) undertook an economic evaluation of the impact of Poland’s screen production industry (the “Study”).

Research for this Study was supported by the Polish Producers Alliance (“KIPA”) and academic Marta Materska-Samek, PhD from Jagiellonian University in Kraków.

2.2. Key Findings

2.2.1. Poland’s Historic Screen Production Industry is Globally Renowned

Poland has an international reputation as a key player in the European and global film and television landscape. Polish film has reached international recognition thanks to the work of filmmakers such as Krzysztof Kieślowski, Roman Polański, Agnieszka Holland, Andrzej Wajda, and more recently, Janusz Kamiński and Paweł Pawlikowski.

Recent Polish films, including *Zimna Wojna (Cold War, 2018)*, *Boże Ciało (Corpus Christi, 2019)*, and *IO (EO, 2022)*, have been nominated for and won prestigious global film awards, including Academy Awards, British Academy of Film and Television Arts (BAFTA) awards, and César awards, and have received accolades at leading international film festivals, including Cannes, Venice, and San Sebastián. In 2023, the Polish co-productions *The Zone of Interest*, directed by Jonathan Glazer, and *Green Border*, directed by Agnieszka Holland, won the Grand Prix at Cannes and the Special Jury Prize at Venice, respectively.

While Polish film is known internationally for its auteurs in particular, the country also produces national blockbusters such as *Bogowie (2014)*, *Kler (2018)*, *Girls to Buy (2021)*, *Johnny (2022)*, and *Kogel Mogel 4 (2022)*.

Alongside Poland’s domestic screen production industry, international productions increasingly select Poland as a production location, motivated by its award-winning performing and technical talent and its well-regarded infrastructure and film schools. After hosting international productions in the 1990s and early 2000s, such as *Schindler’s List (1993)* and *The Pianist (2002)*, Poland has become increasingly successful at attracting major international companies to locate their productions there. Recent projects include *Mission: Impossible – Dead Reckoning (2023)*, season two of *Barbarians (2020-2022)*, and *The Hunger Games: The Ballad of Songbirds & Snakes (2023)*.

2.2.2. Rapid Growth in Production Activity From National and International SVoD Providers and Broadcasters

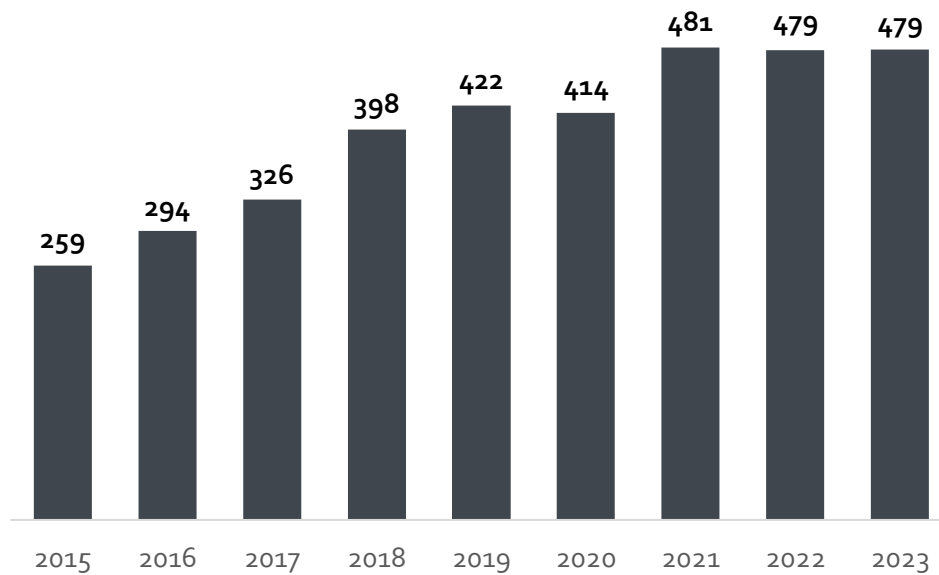
Poland is an emerging hub for international production companies, which is stimulating valuable content production. Endemol Shine Poland moved to the region in the early 2000s. It quickly became one of Poland’s largest independent television production companies by bringing global hits to the local market. Poland further established itself as an international production hub in 2022 when Netflix opened its Central and Eastern European (CEE) office in Poland, announcing that it would act as a central hub for the company’s business in the region. Data from Statistics Poland show that the number of film and television production entities active in film and television production has steadily increased between 2015 and 2023. In 2022, Poland produced a combined 367 feature films, documentaries, animations, and short films. Of these, 112 were full-length films, and 255 were medium-length and short films.¹ This is a historically high figure in recent years and the highest since 2019. In 2019, Poland produced a combined 283 projects, of which 76 were full-length films and 207 medium-length and short

¹ *Cinematography in 2022*. Statistics Poland, 18th May 2023. Accessible at: <https://stat.gov.pl/en/topics/culture-tourism-sport/culture/cinematography-in-2022,15,4.html>

films. Compared to 2021, in 2022, the number of full-length feature films increased by 41.7% (from 60 to 85), and television feature films increased by 57.9% (from 19 to 30).²

Investment by Polish broadcasters in Polish original content has grown on average by 8% per year since 2015. Data from Ampere Analysis shows an increase from US\$259 million (c. 911 million PLN) in 2015 to US\$479 million (c. 2.1 billion PLN) in 2023 in original content, excluding news and current affairs.

Figure 1 – Spend by Broadcasters in Poland on Original Content (Excluding News and Current Affairs, Including Scripted and Unscripted) 2015 – 2023 (US\$, million)



Source: Ampere Analysis (November 2023), SPI analysis (2023)

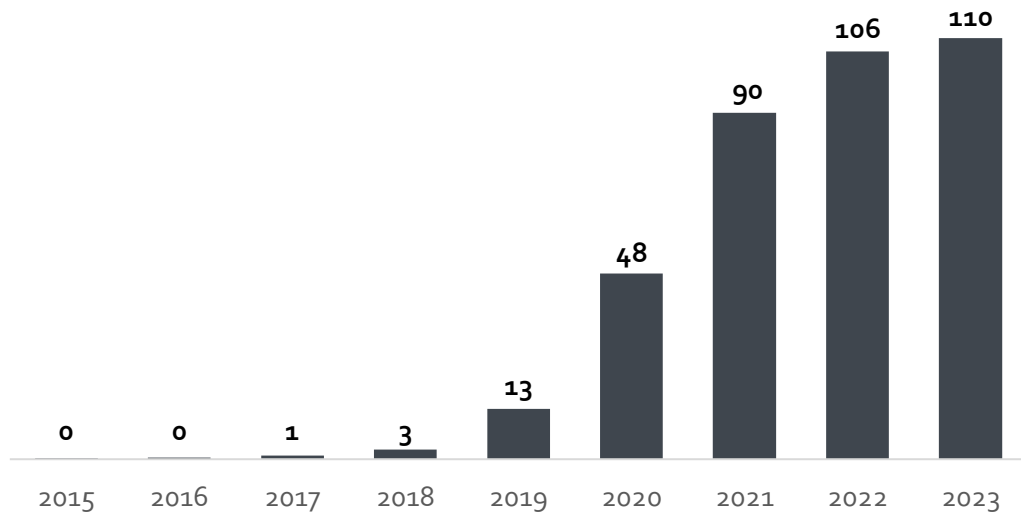
There has been a rapid and significant rise in SVoD content expenditure in Poland – from a very small base in 2015 to an estimated level of over US\$100 million (c. 438 million PLN) in 2022 and 2023 (see Figure 2 below). The streaming landscape in Poland is characterised by a mix of players, which, year by year, have increased their presence in Poland. Investors currently include Netflix, HBO Max, Disney+, Amazon Prime Video, Sky Showtime, Viaplay and Player.pl, owned by TVN Warner Bros. Discovery. Netflix is the leading streamer in Poland in terms of content expenditure. In 2022, the company announced that it had invested 400 million PLN³ (US\$90 million) in film and television series in 2022.⁴

² *Cinematography in 2022*. Statistics Poland, 18th May 2023. Accessible at: <https://stat.gov.pl/en/topics/culture-tourism-sport/culture/cinematography-in-2022,15,4.html>

³ *Celebrating a Momentous Year in Poland*. Netflix, December 2022. Accessible at: <https://about.netflix.com/en/news/celebrating-a-momentous-year-in-poland>

⁴ An average 2022 exchange rate is used to convert PLN to USD. See Appendix One for more details

Figure 2 – Estimated Spend by SVoD in Poland 2015 – 2023 (US\$, million)



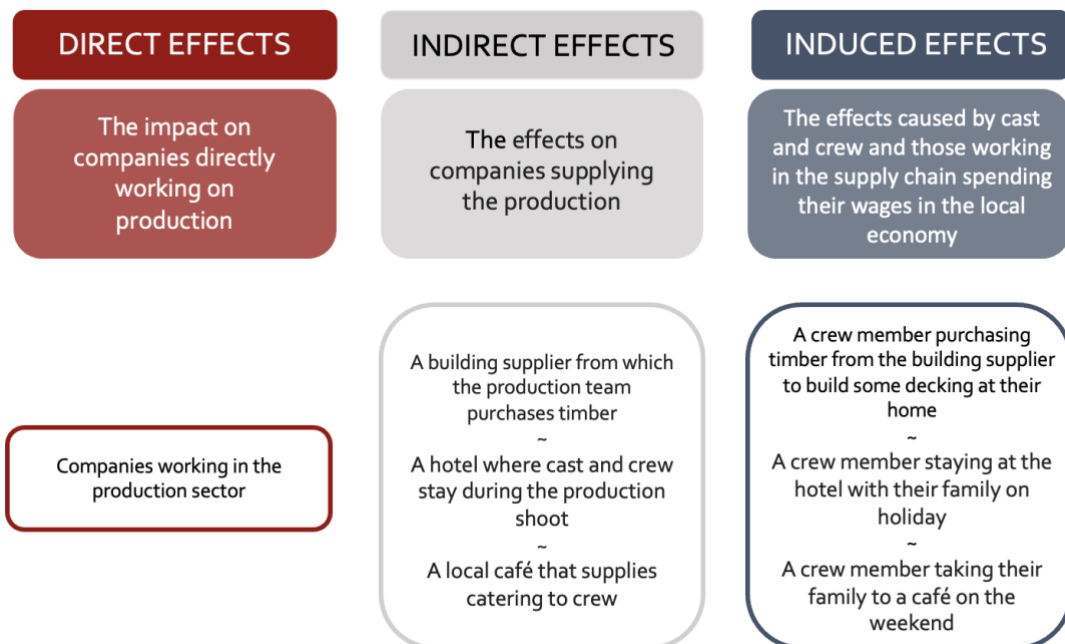
Source: Ampere Analysis (November 2023), SPI analysis (2023).

Note: these data are presented as an estimation, as the data collection approach involves assigning the location of content spend based on a proprietary methodology

2.2.3. Screen Production Expenditure in Poland Delivers Significant Multiplier Effects

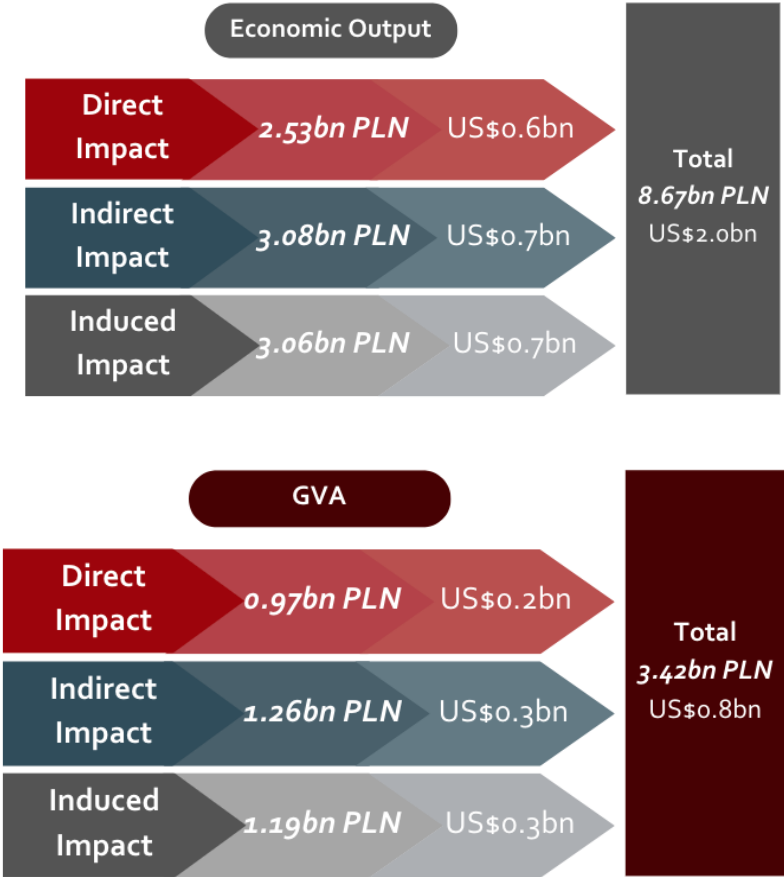
For this study, SPI developed and constructed an economic model to estimate the economic impact of the screen production industry in Poland. The total economic impact comprises the direct, indirect, and induced effects as outlined in Figure 3.

Figure 3 – Definition of Direct, Indirect and Induced Effects

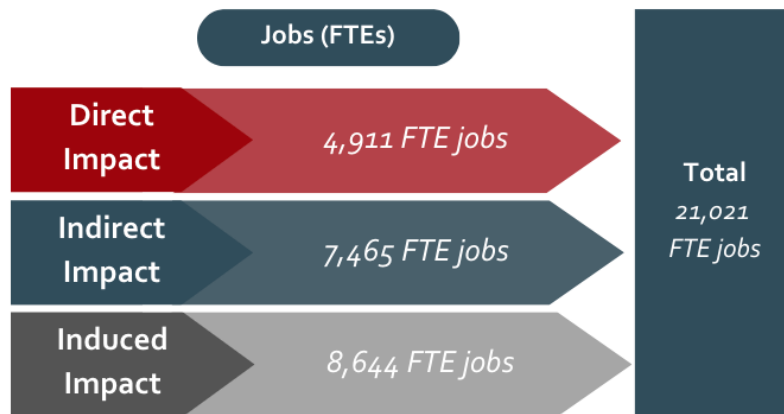


SPI estimates that expenditure by producers in Poland in 2022 was at least 2.5 billion PLN (US\$569 million).⁵ This level of production expenditure generates a significant impact on the Polish economy, including within the firms directly engaged in screen production (direct impact), firms in the supply chain (indirect), and the footprint of economic activity caused by those working in the screen production industry and the supply chain spending their wages in the economy (induced). The impact in terms of economic output, GVA, and jobs is summarised in Figure 4.

Figure 4 – Economic Impact of Screen Production in Poland, 2022



⁵ This estimate includes broadcaster and SVoD spend but does not include spend on Polish theatrical releases and therefore this is a conservative estimate of the total expenditure spent in Poland in 2022. However, SPI research suggests that spend on Polish theatrical releases is likely to be small compared to broadcaster and SVoD spend and thus the estimate used is a reasonable reflection of the overall scale of activity in Poland



Source: SPI analysis (2023)

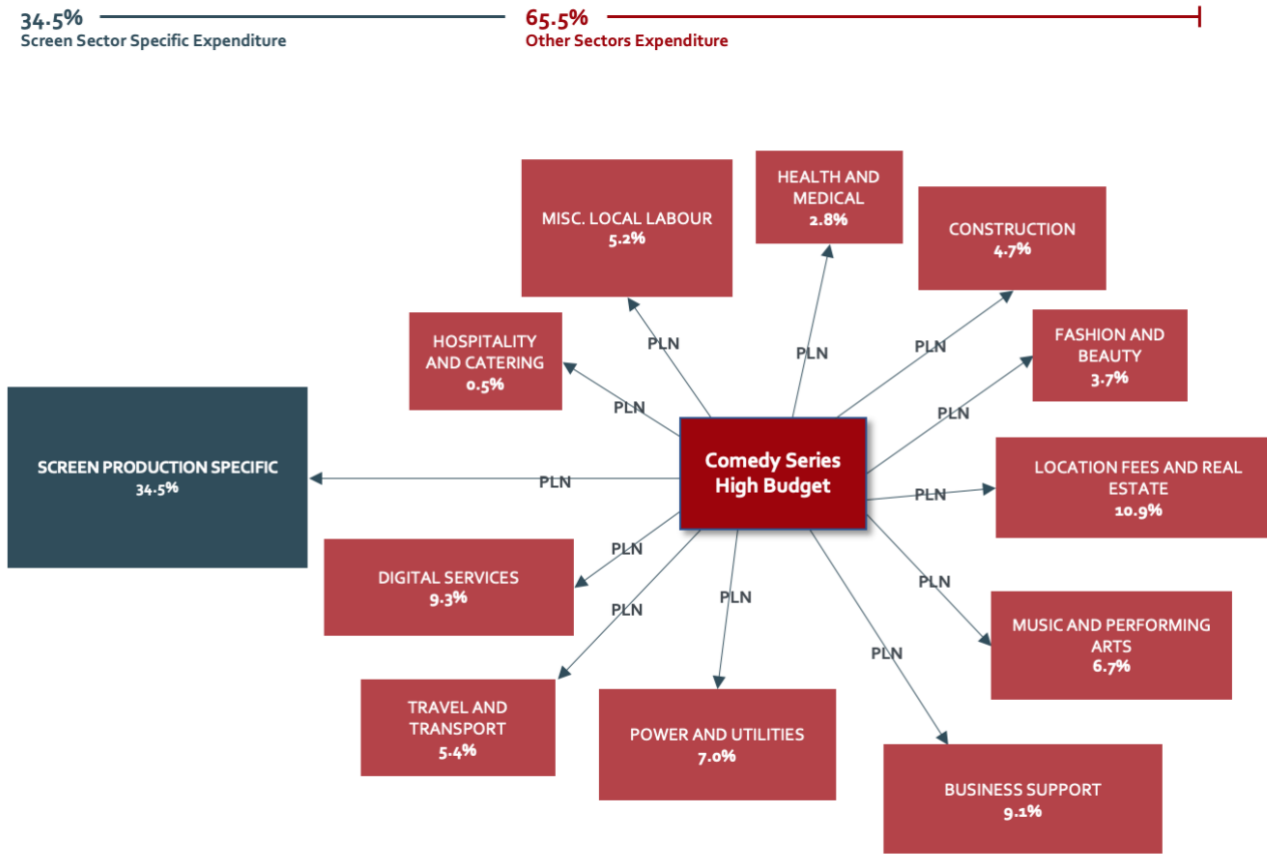
2.2.4. Micro Impacts

Screen production involves unique processes requiring a range of inputs that include many workers – varying in creative, technical, logistical, and support roles – as well as equipment, facilities, infrastructure, and services. While a portion of a production’s expenditure is directed towards screen production-specific vendors, significant spend is also directed into other areas of the economy, such as real estate and hospitality services, that do not solely service the screen production industry. The assessment of this process is called the Ripple Analysis.

This Study analysed the ripple effect of two high-budget television series⁶ that were produced in Poland, with one filming predominantly in Warsaw and the other filming primarily outside of Warsaw. The research reveals that just under two thirds (61.9% and 65.5% respectively) of the total ATL and BTL production expenditure from these two series impacts and benefits other business sectors outside the specialist screen production industry in Poland.

⁶ Information about these productions is commercially sensitive and cannot be shared. These two productions were selected as they are representative of other titles produced in Poland within these genres

Figure 5 – Production One: High-Budget Comedy Series



Note: Percentages based on above and below-the-line expenditure

Source: SPI analysis (2023)

In addition to the Ripple Analysis, SPI engaged with a production company to assess the geographical spread of their expenditure. Analysis was conducted on two high-budget television series to determine where the production spend landed in terms of geographic location in Poland. This analysis covered spend across the whole country broken down by postcode.

Production expenditure from the two productions occurred across the country, with concentration around the main production hub in Warsaw. Data from Statistics Poland shows that just under half of all film and television production enterprises are based in the Warsaw area. Beyond that, the cities of Wrocław and Kraków also emerged as additional production hubs used by these two productions. This reflects the general economic distribution in the country, with Warsaw being the economic heart of the country and cities such as Wrocław and Kraków following.⁷

⁷ Region and Cities at a Glance 2020 – Poland. OECD. Accessible at <https://www.oecd.org/cfe/Poland-Regions-and-Cities-2020.pdf>

Figure 6 – Combined Geographical Impact of Two Example Television Series, Poland Overall



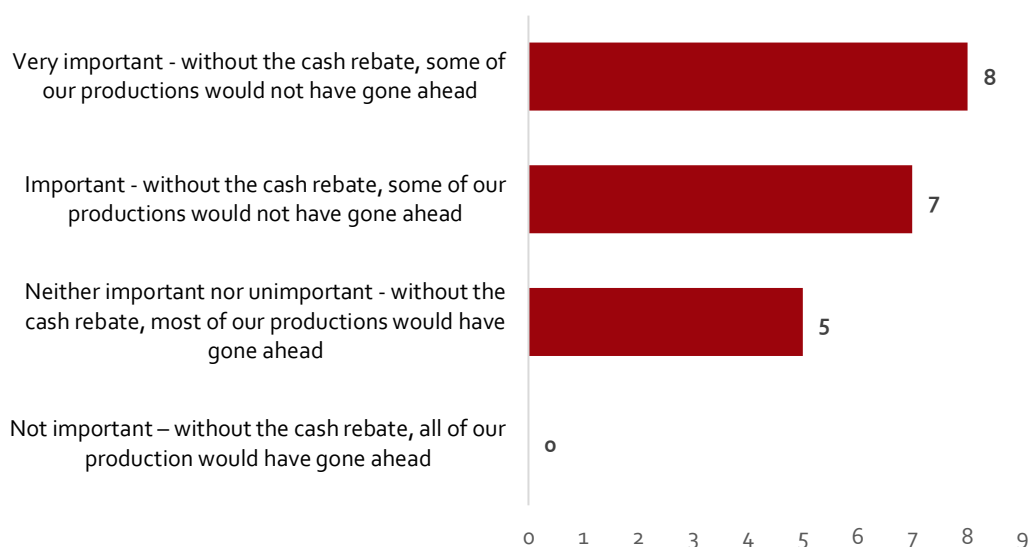
Source: SPI analysis (2023)

2.2.5. Poland's Incentive is Critical – But is not Expanding with the Screen Production Industry

Poland's Act on Financial Support for Audiovisual Production has played an important role in stimulating additional production activity from domestic and international producers since its introduction in 2019. Publicly available data from the Polish Film Institute ("PFI") show that, between 2019 and 2022, production companies received a total of over 337 million PLN (US\$79 million) in incentives across 140 applications.

The Polish incentive is a critical funding mechanism for many Polish producers. In total, 75% of producers surveyed for this study stated that Poland's incentive is either important or very important in making their productions financially viable.

Figure 7 – "How Important Was The Poland Cash Rebate in Making Your Productions Financially Viable?"



Source: SPI analysis (2023) (n=20)

However, as the Polish screen production industry has expanded, the incentive has not grown fast enough to maintain effective support. The uncertainty this creates has already led to producers choosing to place projects in other countries with incentives that are more readily accessible and available. This, in turn, impacts the continuity of work available to Polish crew, which can lead to a talent drain as screen production workers move to countries with a more stable production rate or alternative industries.

2.2.6. Factors for Future Growth in Poland

Poland's limited incentive budget is one of several challenges facing the screen production industry, alongside macro trends such as production cost inflation. With other established offerings from surrounding countries such as Hungary, Lithuania, or the Czech Republic and growing competition from developing production hubs, interest in Poland from productions and other investors, including studios and infrastructure developments, have been drawn elsewhere. Nevertheless, Poland remains a contender with a very strong opportunity to ensure future growth in the screen production industry – even in a globally competitive landscape.

Poland's rich history of screen talent and capability combines with the country's focus on digital technology to ensure Poland has a unique offer. Companies are being attracted to invest in Poland because of this.

Developing Poland's abilities in this industry further is also a clear opportunity – for example, by investing in new production technology and techniques and ensuring cross-connection with talent and technical abilities in the strong Polish video games industry. For example, the Netflix Engineering Hub in Warsaw focuses on the products and services used by the company's internal and external creative partners to produce and launch global content.

Poland's strategic potential in the screen production industry is already underlined by the country's ability to attract major projects and companies. Going forward, it is critical to ensure that Poland – through its government and policies – continues to proactively meet the needs of these projects and companies and provide a competitive and supportive destination for investment.

Part I:
Introduction



3. INTRODUCTION

3.1. Global Context

3.1.1. Global Screen Production Opportunity

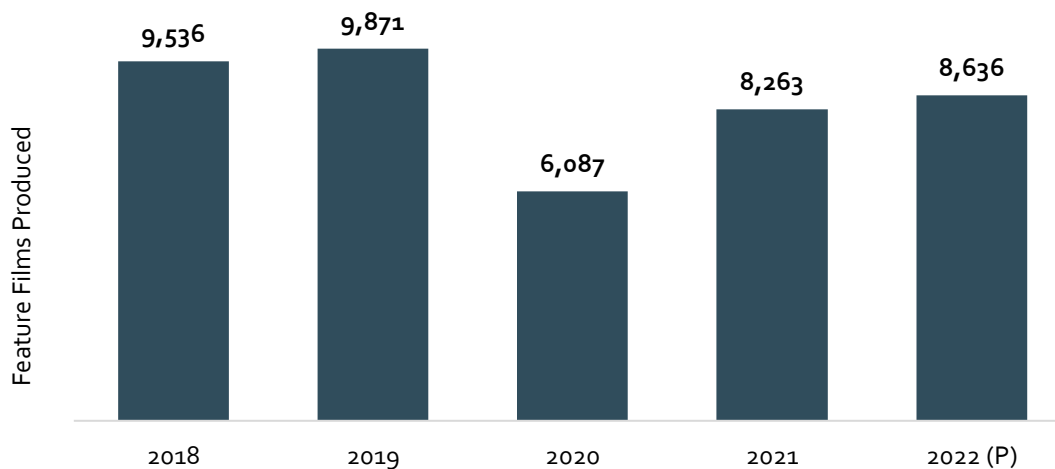
Driven by demand from audiences and investors, recent years have seen significant increases in film and television production worldwide. While production levels dropped due to the impact of the COVID-19 pandemic in 2020, global production activity recovered quickly, with US\$238 billion in global content expenditure in 2022.⁸

The global production deluge has largely been driven by the growth of SVoD providers such as Netflix, Disney+, and Amazon, as well as traditional broadcasters and studios.

Over the long term, there has been a significant increase in the number of films produced globally, from 5,708 in 2009⁹ to nearly 10,000 in 2019.¹⁰ The pandemic had a significant effect, and film production numbers have not recovered to their pre-pandemic levels (Figure 8). In Europe,¹¹ film and television production bounced back to pre-pandemic levels in 2021, with an estimated total of 1,832 feature films in 2021. This represented a 30% increase on 2020.¹²

On a global level, much of the recent industry growth has been from series production (Figure 9) – with a 71% increase in the number of series produced in the US alone between 2012 and 2022. In Europe, the number of television fiction also increased, growing from 981 titles in 2015 to 1541 titles in 2022 (Figure 10).¹³

Figure 8 – Worldwide Feature Film Production, Calendar Year 2017 – 2022



Source: European Audiovisual Observatory

⁸ *Growth in Content Investment will Slump in 2023*. Ampere Analysis, 3rd January 2023. Accessible at:

<https://www.ampereanalysis.com/press/release/dl/growth-in-content-investment-will-slump-in-2023>

⁹ *FOCUS 2014*, European Audiovisual Observatory. Accessible at <https://rm.coe.int/focus-2014/168088dca8>

¹⁰ *FOCUS 2023*, European Audiovisual Observatory

¹¹ "Europe" refers to the 27 member states of the European Union + the United Kingdom + Norway + Switzerland + Iceland

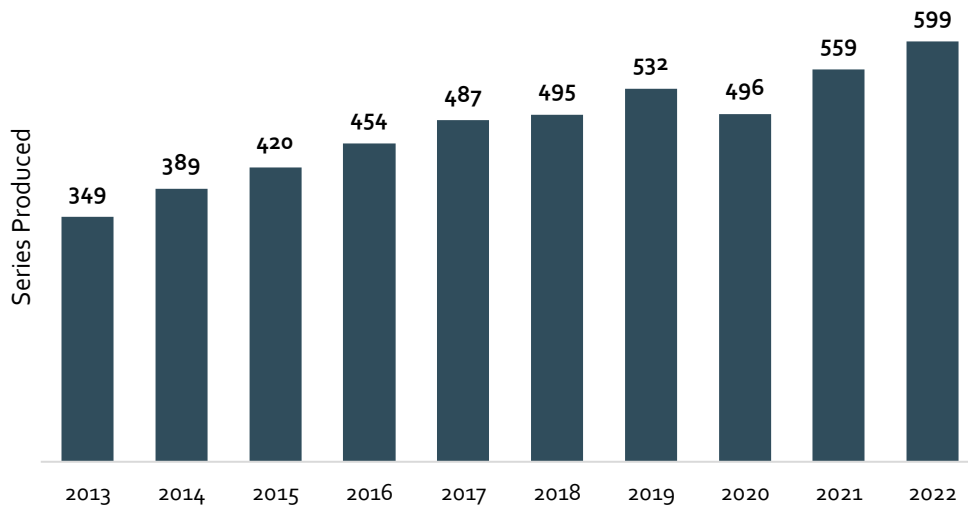
¹² *Yearbook 2022/2023 Key Trends*. European Audiovisual Observatory, 2023. Accessible at:

<https://rm.coe.int/yearbook-key-trends-2022-2023-en/1680aa9fo2>

¹³ *Audiovisual Fiction Production in Europe, 2022 Figures*. European Audiovisual Observatory, October 2023.

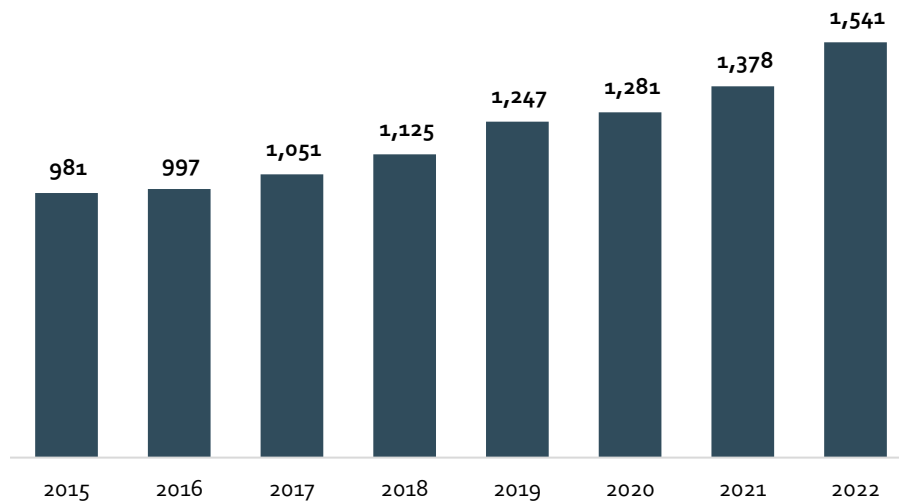
Accessible at: <https://rm.coe.int/audiovisual-fiction-production-in-europe-2022-figures-october-2023-a-s/1680ad1ede>

Figure 9 – Scripted Original Series Production in the US, Calendar Year 2012 – 2022



Source: FX Networks Research¹⁴

Figure 10 – Volume of AV fiction produced in Europe 2015 – 2021



Source: European Audiovisual Observatory (2023)

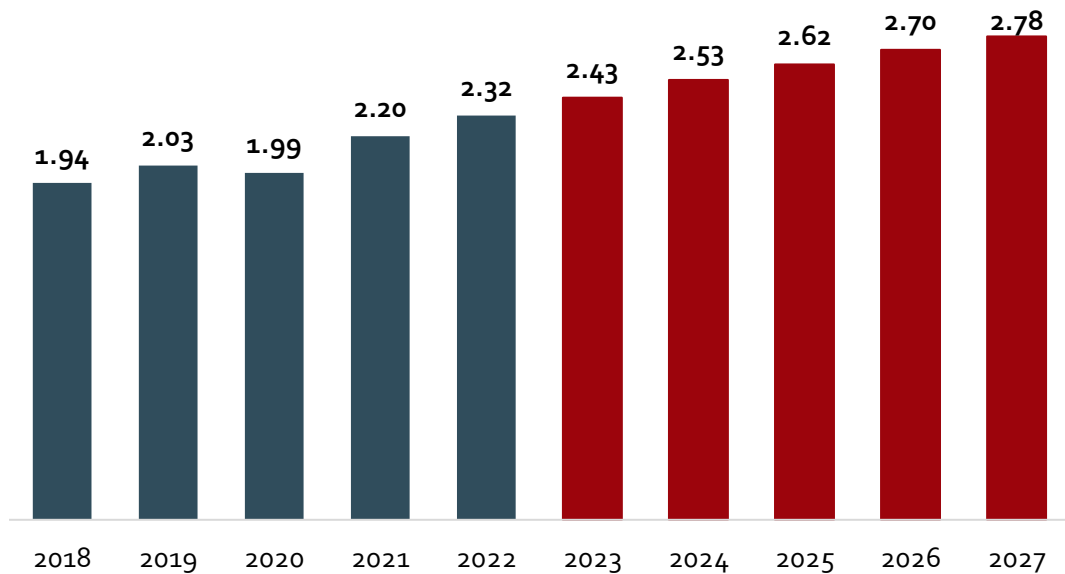
Recent economic and industry developments have slowed the pace of this growth. A period of restructuring and consolidation has followed a decade of competitive spending from the SVoD providers to establish themselves in the global market. In 2023, US strike action by the Writers Guild of America (WGA) and the Screen Actors Guild - American Federation of Television and Radio Artists (SAG-AFTRA) has slowed global production. At the same time, the screen production industry has faced increased production costs due to inflation and global

¹⁴ Peak TV Climbs Again in 2022, Nearly Reaches 600 Scripted Series. Hollywood Reporter, 12th January 2023. Accessible at: <https://www.hollywoodreporter.com/tv/tv-news/peak-tv-2022-count-599-scripted-shows-1235298139/>

economic uncertainty. In Europe, this resulted in a stagnation of the volume of hours produced in television fiction, for example.¹⁵

While growth has slowed, global consumer and investor demand means that the industry is forecast to continue to expand.¹⁶ The challenges above have slowed the growth of the global entertainment and media space. However, as Figure 11 demonstrates, PwC forecasts ongoing revenue growth – albeit at a slower pace – at an average rate of 3.4% per year to 2027.¹⁷ Meanwhile, according to the OECD, Poland’s GDP is forecast to grow by an average rate of 2.3% per year between 2023 and 2027.¹⁸ This illustrates the significant growth opportunity that the entertainment and media industry provides.

Figure 11 – Global Entertainment and Media Revenues, Calendar Year 2018 – 2027 (\$ trillions)



Source: PwC, Omdia.

Note: 2023 – 2027 values are forecasts

3.1.2. Public Investment Policy and Incentives

Unprecedented levels of screen production have meant that governments worldwide are increasingly considering the screen production industry as an important factor for economic development and growth. There are four key factors motivating governments to proactively invest in their jurisdiction. These factors are summarised in Figure 12.

¹⁵ Audiovisual Fiction Production in Europe, 2022 Figures. European Audiovisual Observatory, October 2023. Accessible at: <https://rm.coe.int/audiovisual-fiction-production-in-europe-2022-figures-october-2023-a-s/1680ad1ede>

¹⁶ Content Spending Levels at Top Media Companies: 2023 Forecast. Variety, 25th November 2023. Accessible at: <https://variety.com/vip/content-spending-levels-at-top-media-companies-2023-forecast-1235440145/>

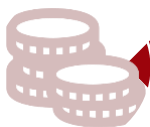
¹⁷ Perspectives from the Global Entertainment & Media Outlook 2023–2027. PwC, 21st June 2023. Accessible at: <https://www.pwc.com/gx/en/industries/tmt/media/outlook/insights-and-perspectives.html>

¹⁸ Real GDP long-term forecasts. OECD Data. Accessible at <https://data.oecd.org/gdp/real-gdp-long-term-forecast.htm>

Figure 12 – Factors Motivating Government Investment in the Screen Production Industry



The intensifying **global consumer demand** and access to visual content from SVoD providers and traditional studios and broadcasters.



The **unique role screen production plays in delivering economic value** through the large amount of spend that can be rapidly delivered to a location and then spread throughout the economy via the significant volume of cast, crew, and vendors employed in a production.



As a specialised and fleet-footed manufacturing activity, screen production creates **modern, highly skilled, productive, and mobile employment**. These jobs are less at risk of being replaced by automated production.



The fact that screen production typically delivers an **attractive return on public investment**, alongside a variety of other economic and strategic impacts. These include increasing inward investment, stimulating tourism, helping national branding, and enhancing soft power and cultural impacts.

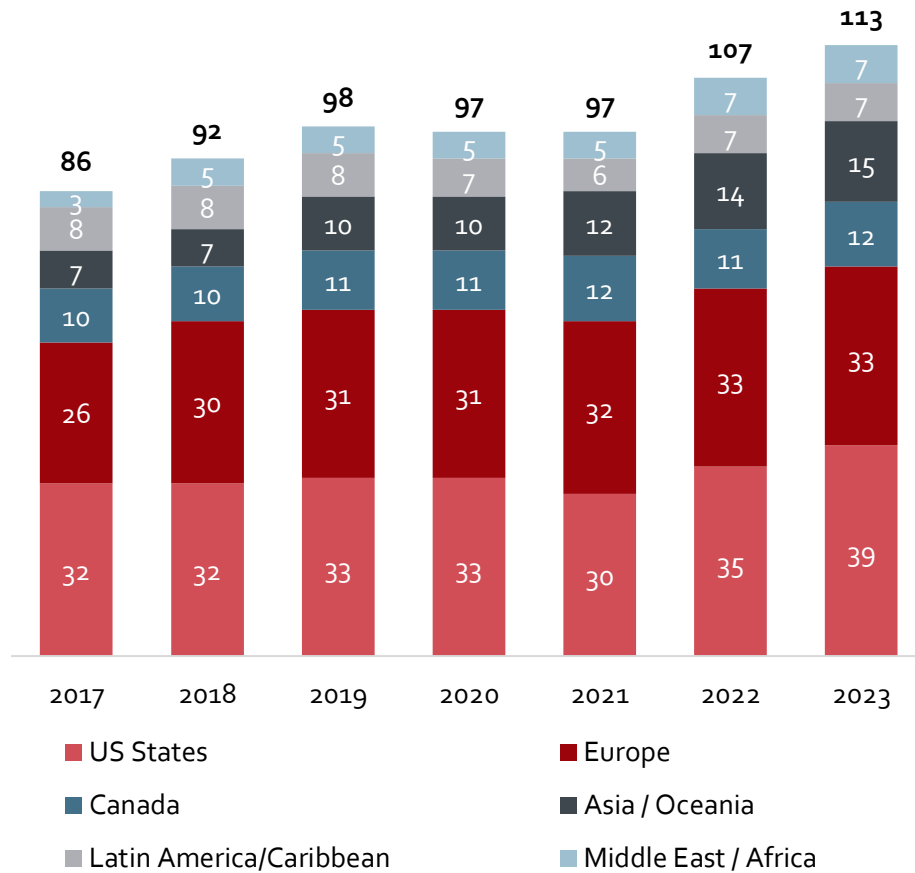
Automatic production incentives have been one of the primary policy levers governments employ to stimulate production activity and increase the attractiveness of their jurisdiction as a production location. These are programmes triggered by eligible expenditure – rather than selective funding decisions – and can play a decisive role in where productions are situated around the world. Given the challenges referenced in the previous section, producers are particularly sensitive to such systems.

Governments recognise incentives as an efficient and strategic tool to attract high-value inward investment, strengthen local production industries, and build skills, employment, and infrastructure. Indeed, the strategic value of film and television production is underlined by the fact that authorities continue to improve existing incentives or introduce new systems.

Over 100 automatic incentives are active globally, including in countries neighbouring Poland, such as Germany, Czech Republic, Slovakia, and Lithuania.¹⁹ Automatic incentive programmes aim to provide a return to a producer based on the eligible expenditure undertaken. In this way, they function as an economic tool and not a selective funding system.

¹⁹ Global Incentive Index 2023. SPI, November 2023. Accessible at: <https://www.o-spi.com/news/oct-2023-update-of-spi-global-incentives-index>

Figure 13 – Automatic Incentives Globally, 2017 – 2023



Source: SPI analysis (2023). Where relevant, includes multiple incentives for individual markets, e.g. Ontario, which offers a separate incentive for visual effects. Does not include incentives in some markets which have been legislated but not fully implemented

3.2. About the Study

Poland has been at the centre of European filmmaking for many years. The screen production industry has been growing and strengthening its position in domestic production and as a hub for international production, supported by the introduction of a cash rebate for screen production in 2019.

Against this backdrop, SPI has undertaken this economic impact analysis of screen production in Poland. At the core of the Study is a quantitative assessment of the economic impact of the television and film production industry. This incorporates the best available data on production expenditure in Poland and uses it to drive a bespoke economic model built on national and international data from various economic data sources. The results present the economic impact in terms of economic output, GVA, and employment.

The Study also demonstrates the quantitative ‘micro’ impacts of example productions using a Ripple Analysis, which maps how production expenditure is spread through suppliers across economic industries, and vendor spend heat maps, which show where within a jurisdiction expenditure occurs.

The findings presented in this report are the result of analysis of data and intelligence from the following sources:

- **Review of existing industry research and policy reports, articles, and datasets.** To build an evidence base for this Study, SPI has analysed data from the PFI, Statistics Poland, and analytics firm Ampere Analysis. This data includes, but is not limited to:
 - REGON data – provided by Statistics Poland
 - Cultural and creative industries data
 - Economic activity data built from SP3 forms – an annual business survey led by Statistics Poland
 - Incentive application data from the PFI
 - Ampere Analysis data on streamer and broadcaster activity in Poland.
- **Confidential consultations with 13 stakeholders across industry, education, and government.**
- **Analysis of budget and vendor data analysis from four examples of productions,** which are presented in Section 6.
- **The results of a survey of top Polish producers.** The survey was developed to complement the consultation process, gather quantitative data on the Polish screen production industry and assess the importance of Poland's production incentive. The results are presented in Appendix Three.

KIPA and academic Marta Materska-Samek, PhD, supported research for this study.

KIPA played an integral role as a partner on this project, providing useful background intelligence and connecting SPI with relevant industry stakeholders.

The Polish Producers Alliance was established 20 years ago and is one of Poland's biggest independent business organisations, with over 170 member entities. Among the members are production companies that specialise in film, television, and advertising, as well as film schools and regional film funds.

Marta Materska-Samek assisted with data and intelligence gathering and provided context for the wider cultural industries perspective in Poland.

Marta Materska-Samek, PhD, works at Jagiellonian University as a researcher and academic teacher specialising in entrepreneurship, the economics of culture, the strategy of media organisations, and project management. She is the author of reports and publications on various topics, including cinema, the children's film market, and tools for financing culture. Additionally, she serves as the Interim Director for Education at EIT Culture & Creativity and chairs the Working Group on National Smart Specialisation No. 12: Creative Industries.

Dr Materska-Samek is also a proficient project manager and a visiting researcher in the CresCine project, which aims to enhance the international competitiveness of the film industry in small European markets (HORIZON-CL2-2022-HERITAGE-01-06). She plays a crucial role as the main investigator in numerous international R&D projects.

Furthermore, she is recognised as an expert by the Polish National Center for Research and Development, the National Agency for Academic Exchange, and the National Agency of the Erasmus+ Programme.

3.3. Study Structure

The remainder of the Study sets out:

- An overview of the screen production industry in Poland, including an overall estimate of production expenditure in Poland in 2022
- The economic impact of the screen production industry in Poland in 2022, including an estimate of the direct, indirect, and induced effects, reporting on three key indicators: economic output, GVA, and employment
- Consideration of micro impacts of production activity, including the ripple effect of production and the geographical spread of production impact
- Additional spillover impacts of film and television production, including infrastructure development and screen tourism.

Part II:
Screen Production in Poland



4. SCREEN PRODUCTION IN POLAND

Investment in the Polish screen production industry has increased substantially in recent years. While Polish broadcasters are responsible for the majority of production expenditure in Poland, since 2021, over 20% of the production spend on original content in Poland has come from streamers.

SPI estimates that, in 2022, total screen production expenditure in Poland was at least US\$569 million (2.5 billion PLN).²⁰

4.1. About the Polish Screen Production Industry

Poland's film and television production industry is internationally known and is a key player in the European landscape. An early frontrunner of artistic expression through film, the Polish screen industry has been, since its early days, a platform to entertain as well as to interrogate the national social and political discourse. Polish film has received international recognition thanks to the work of filmmakers such as Krzysztof Kieślowski, Roman Polański, Agnieszka Holland, Andrzej Wajda, and more recently, Paweł Pawlikowski. Since 2013, three Polish films have been nominated for the Academy Award for Best Foreign Language Film (*Cold War*, *Corpus Christi*, *EO*), with one Polish film winning (*Ida*, 2014). *Loving Vincent* (2017) was nominated for Best Animated Feature film at the Oscars.

In 2023, the Polish co-productions *The Zone of Interest*, directed by Jonathan Glazer, and *Green Border*, directed by Agnieszka Holland, won the Grand Prix at Cannes and the Special Jury Prize at Venice, respectively.

Although internationally Polish film is known especially for its auteurs, the country also produces national blockbusters, with productions such as *Bogowie* (2014), *Kler* (2018), *Girls to Buy* (2021), *Johnny* (2022), and *Kogel Mogel 4* (2022).

Poland's screen production industry has also been expanding, driven by both national and international productions. In addition to its strong national industry, Poland has increased its profile as an emerging production hub for international film and television series. After hosting international productions such as *Schindler's List* (1993) and *The Pianist* (2002), Poland experienced a watershed moment when international companies started locating their productions there. Endemol Shine Poland moved to the country in the early 2000s. It quickly became one of the largest independent television production companies in Poland by bringing global hits to the local market. Poland further established itself as an international production hub in 2022 when Netflix opened its Warsaw office in Poland, announcing that it would act as a hub for the company's CEE business.²¹

In 2022, Poland produced a combined 367 feature films, documentaries, animations, and short films. Of these, 112 were full-length films, and 255 were medium-length and short films.²² In recent years, the country has hosted a variety of high-profile international projects,²³ such as *Mission: Impossible – Dead Reckoning* (2023), season two of *Barbarians* (2020-2022), and *The Hunger Games: The Ballad of Songbirds & Snakes* (2023), as well as highly regarded national projects such as *Zimna Wojna (Cold War)*, 2018), *Boże Ciało (Corpus Christi)*, 2019), and *EO* (2022).

²⁰ This estimate includes broadcaster and SVoD spend but does not include spend on Polish theatrical releases and therefore this is a conservative estimate of the total expenditure spent in Poland in 2022. However, SPI research suggests that spend on Polish theatrical releases is likely to be small compared to broadcaster and SVoD spend and thus the estimate used is a reasonable reflection of the overall scale of activity in Poland

²¹ *Netflix Bets on Central and Eastern Europe*. Netflix, 29th March 2022. Accessible at: <https://about.netflix.com/en/news/netflix-bets-on-central-and-eastern-europe#>

²² Cinematography in 2022. Ibid

²³ *Poland*. Film New Europe, 2021. Accessible at: <https://www.filmneweurope.com/countries/poland-profile>

Local professionals link this success to Poland’s skilled workforce, supportive public institutions, competitive costs, varied historical locations, and its incentive system.²⁴

4.2. Poland’s Act on Financial Support for Audiovisual Production

In February 2019, the Act on Financial Support for Audiovisual Production, Poland’s automatic cash rebate, was launched. A primary goal of the incentive was to boost the Polish production industry by attracting international investment and encouraging cooperation between national and international producers.²⁵ As set out in section 3.1.2, incentives are a key government policy lever in the global screen production industry, with Poland one of 113 national, state, or provincial jurisdictions offering an automatic incentive triggered by expenditure.²⁶

The Financial Support for Audiovisual Production incentive programme is administered by the PFI, the primary funding entity supporting the film industry across Poland. The PFI is responsible for facilitating the reimbursement of production expenses incurred in Poland, amounting to 30% of eligible expenditures. These funds are derived directly from the state budget and are allocated throughout the year, adhering to a first-come, first-served principle.

The rebate applies to feature films, documentaries, animation, and scripted series; Polish projects, international projects, and co-productions are all eligible. It is a prerequisite for eligibility to have a Polish partner or a company registered within Poland. Engaging in the system mandates the applicant to successfully clear a qualification assessment and satisfy predetermined spending thresholds. Reimbursement is disbursed after the presentation and positive validation of the final production report for the covered work stage.

The incentive offers a cash rebate with a range of considerations and eligibility requirements.

Table 1 – Overview of Poland’s Financial Support for Audiovisual Production Incentive

Financial Support for Audiovisual Production	
Title	
Type	Rebate
Value	30%
Details	<p>Per Project Cap: 15 million PLN (US\$3.6 million)</p> <p>Annual Budget: 108 million PLN (US\$25.7 million) with the possibility of expansion up to 221 million PLN (US\$50.6 million)</p> <p>Application Deadline: At present, an application may be submitted no earlier than 12 months before the start of work to be covered by financial support. The applicant is obligated to start works covered by financial support no later than 12 months from the date of submitting the application.</p>

²⁴ Poland Opens More Screen Doors to Global Partners. Variety, 19th February 2023. Accessible at: <https://variety.com/2023/film/global/poland-berlin-1235527901/>

²⁵ Poland introduces financial incentives in audiovisual industry. February 2019. UNCTAD. Accessible at: <https://investmentpolicy.unctad.org/investment-policy-monitor/measures/3369/poland-introduces-financial-incentives-in-audiovisual-industry->

²⁶ Global Incentive Index 2023, November 2023. SPI. Accessible at: <https://www.o-spi.com/news/oct-2023-update-of-spis-global-incentives-index>

Limits, Restrictions, Considerations	<p>For service productions: Eligible Polish costs must exceed 1 million PLN (US\$238,000) per fiction or series season; 300,000 PLN (US\$71,000) per documentary feature or season (for series); and 500,000 PLN (US\$119,000) per animated feature or season (for series).</p> <p>For domestic productions and international co-productions: Polish costs must exceed 4 million PLN (US\$951,000) for feature film; 1 million PLN (US\$238,000) per episode for series; 300,000 PLN (US\$71,000) for feature documentary; 1 million PLN (US\$238,000) per documentary season (for series); 1 million PLN (US\$238,000) per animated feature or season (for series).</p> <p>A cultural test applies.</p> <p>Projects that receive financial support must place information on the financial support for audiovisual production granted by the PFI in the credits. In addition to the report and required attachments, the production should submit an unused copy of the audiovisual work and the script, editing and dialogue list, photos, posters, list of credits, and advertising materials within 30 days after production is completed, but no later than on the day of distribution.</p>
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Publicly available data from the PFI show that, between 2019 and 2022, production companies received over 337 million PLN (US\$79 million) in incentives across 140 applications. However, at the time of writing, no detailed economic impact analysis of the incentive had been published – although SPI understands that the PFI is currently undertaking such an assessment.

The Polish incentive has played an important role in stimulating additional production activity from domestic and international producers. Evidence from a survey of producers presented in Appendix Three – Producer Survey Results found that, for 75% of responding producers, Poland’s incentive is either important or very important in making their productions financially viable. This means that without the incentive, some productions would likely not have gone ahead.

Nevertheless, with the screen production incentives landscape becoming more competitive in Eastern and Central Europe and globally, it is important that the Polish incentive remains competitive to ensure it continues to support a sustainable industry. Incentives can lose their competitive edge for several reasons, including limited available funds, doubts about the certainty or stability of payments, and any onerous cultural or marketing requirements.

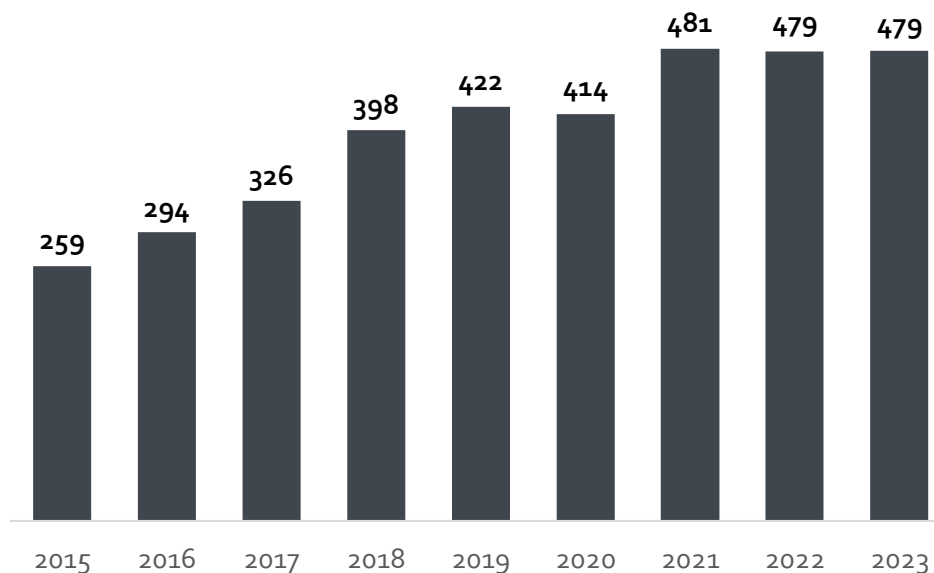
4.3. Growth in Content Investment by National Broadcasters

The leading broadcasters in Poland are TVP, Polsat, and TVN. TVP is a public Polish broadcaster and owns several channels, some of which are of regional scope and others focusing on specific content – such as sports, news, and children’s content. Polsat and TVN have similar offers and are both privately owned.

Data from Ampere Analysis show that investment by broadcasters in Polish original content²⁷ has grown on average by 8% a year since 2015. The data, outlined in Figure 14, show a growth from US\$259 million (c. 911 million PLN) in 2015 to US\$479 million (c. 2.1 billion PLN) in 2023.

²⁷ Original scripted and unscripted content, excluding news and current affairs

Figure 14 – Spend by Broadcasters in Poland on Original Content (Excluding News and Current Affairs, Including Scripted and Unscripted) 2015 – 2023 (US\$, million)



Source: Ampere Analysis (November 2023), SPI analysis (2023)

4.4. Growth in Content Investment by SVoD

Beyond the film and television offer, SVoD operators are increasing their presence in the Polish audiovisual market.

The streaming landscape in Poland is characterised by a mix of players which, year by year, increased their presence in Poland and now include Netflix, HBO Max, Disney+, Amazon Prime Video, and Player.pl, owned by TVN Warner Bros. Discovery. This increasing number of players in streaming distribution also mirrors these operators' increased production value, leading to a rapid and significant rise in estimated streaming content expenditure in Poland.

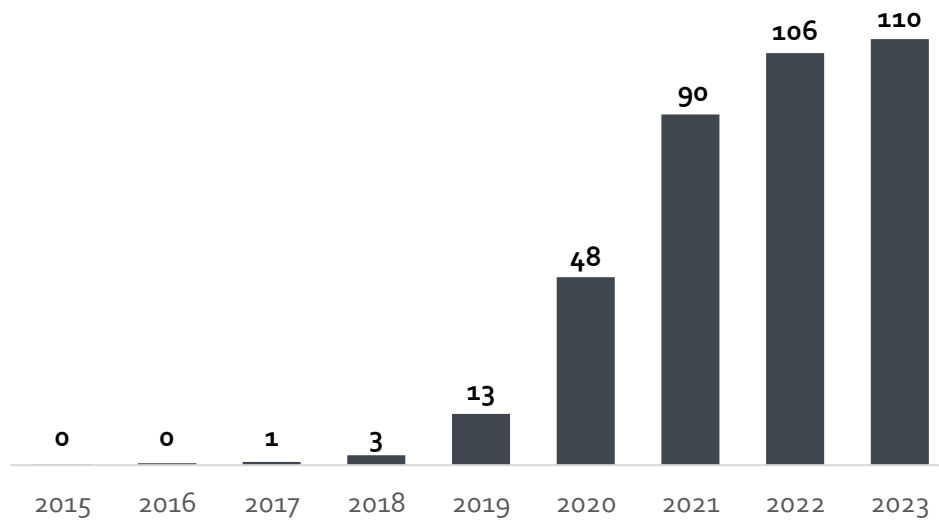
Estimating SVoD's expenditure on content production is challenging due to the limited amount of information shared by these companies. By using a proprietary methodology,²⁸ Ampere Analysis reports that expenditure by streamers in the country grew from a very low base in 2015 to an estimated level of over US\$100 million (c. 438m PLN) in 2022 and 2023 (Figure 15). Ampere Analysis data also show that while Polish broadcasters contribute the majority of production expenditure in Poland, since 2021, over 15% of the total production expenditure on original content in Poland has come from SVoD.

Netflix is the leading SVoD service in Poland in terms of content expenditure. This is reflected in the data from Ampere Analysis. SPI also notes that Netflix announced an investment of 400 million PLN²⁹ (US\$90 million) in Polish films and television series in 2022.

²⁸ See Appendix One for an overview of the methodology

²⁹ *Celebrating a Momentous Year in Poland*. Netflix blog, 6th December 2022. Accessible at: <https://about.netflix.com/en/news/celebrating-a-momentous-year-in-poland>

Figure 15 – Estimated Spending by Streamers in Poland 2015 – 2023 (US\$, million)



Source: Ampere Analysis (November 2023), SPI analysis (2023).

Note this data is presented as an estimation, as the data collection approach involves assigning the location of content spend based on a proprietary methodology.

4.5. Production Expenditure in Poland

As outlined in the previous sections, data from Ampere Analysis reports that broadcasters invested approximately US\$479 million in original scripted and unscripted content (excluding news and current affairs) in 2022. In addition, despite noting the challenges in estimating the specific amount of spend, the Ampere Analysis data suggests that streamers invested more than US\$100 million per year in 2022 and 2023 and that Netflix spent US\$90 million in 2022.

Therefore, SPI estimates that the total production expenditure by producers in Poland for 2022 was at least US\$569 million (2.5 billion PLN), utilising Ampere Analysis data on broadcasters and the 2022 expenditure figure released by Netflix.³⁰

This is in line with the figure reported by the European Audiovisual Observatory, which, also using Ampere data, reported that in 2022, investment in original European content by both streamers and broadcasters in Poland was €0.6 billion³¹ (US\$679 million or 2.7 billion PLN). SPI used the lower total (US\$569 million) to ensure conservative estimates.

4.6. The Polish Screen Production Industry

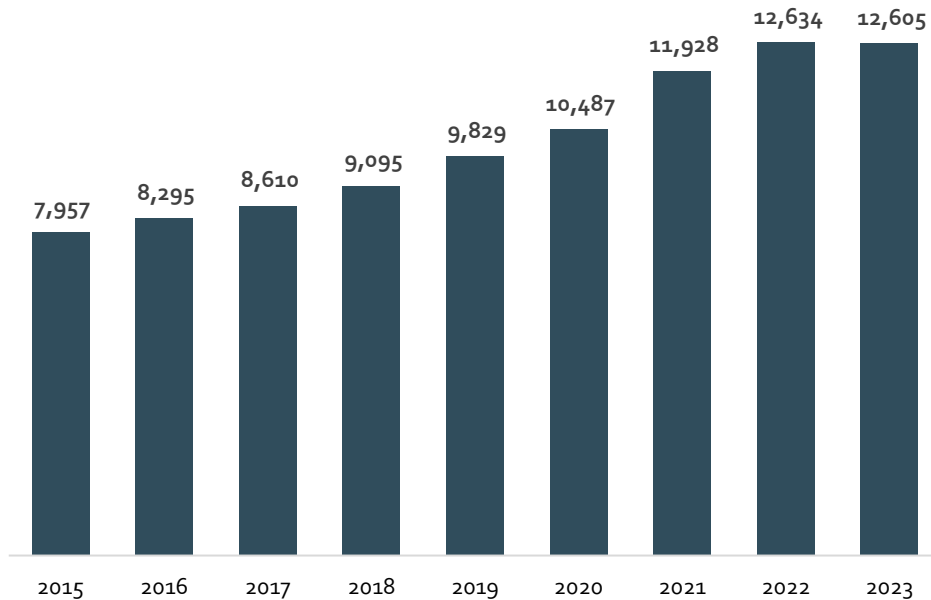
The increased investment into screen production in Poland is reflected in a growing number of enterprises active in this industry. Data from Statistics Poland show that the

³⁰ This estimate includes broadcaster and SVoD spend but does not include spend on Polish theatrical releases and therefore this is a conservative estimate of the total expenditure spent in Poland in 2022. However, SPI research suggests that spend on Polish theatrical releases is likely to be small compared to broadcaster and SVoD spend and thus the estimate used is a reasonable reflection of the overall scale of activity in Poland

³¹ *Investments in Original European Content. A 2011-2021 Analysis*. European Audiovisual Observatory, September 2022. Accessible at: <https://rm.coe.int/investments-in-european-original-content-2011-2021-analysis-september-1680a75db4>

number of film and television production entities active in film and television production has steadily increased between 2015 and 2023 (see Figure 16). The number might not necessarily reflect the real number of active companies as some of the companies on the records may be dormant but still show a certain level of growth in screen production.

Figure 16 – Number of Film and Television Production Enterprises in Poland, 2015 – 2023



Source: Statistics Poland, REGON data: No. of entities in PKD5911 Production of film, video, and television, 2015-23. SPI analysis (2023). All data refers to Q4 data, except for 2023, which is Q3 data

Data from Statistics Poland also shows that screen production is also the sub-sector that, within the wider film and television production industry, makes up for the majority of workers, with 82% of film and television employees working in production, compared to 14% in post-production, 2% in distribution, and 1% in projection.

Data from Statistics Poland also shows that the film and television production industry is characterised by small and micro companies, with 99% of production companies having fewer than 10 employees. While the data shows that there is a clear presence of a production hub in the Warsaw area, it also demonstrates that more than half (51%) of film and television production enterprises are located elsewhere in Poland – marking the potential role the industry can have in regional economic development.

Part III:
Economic Impacts



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5. ECONOMIC IMPACT OF PRODUCTION IN POLAND

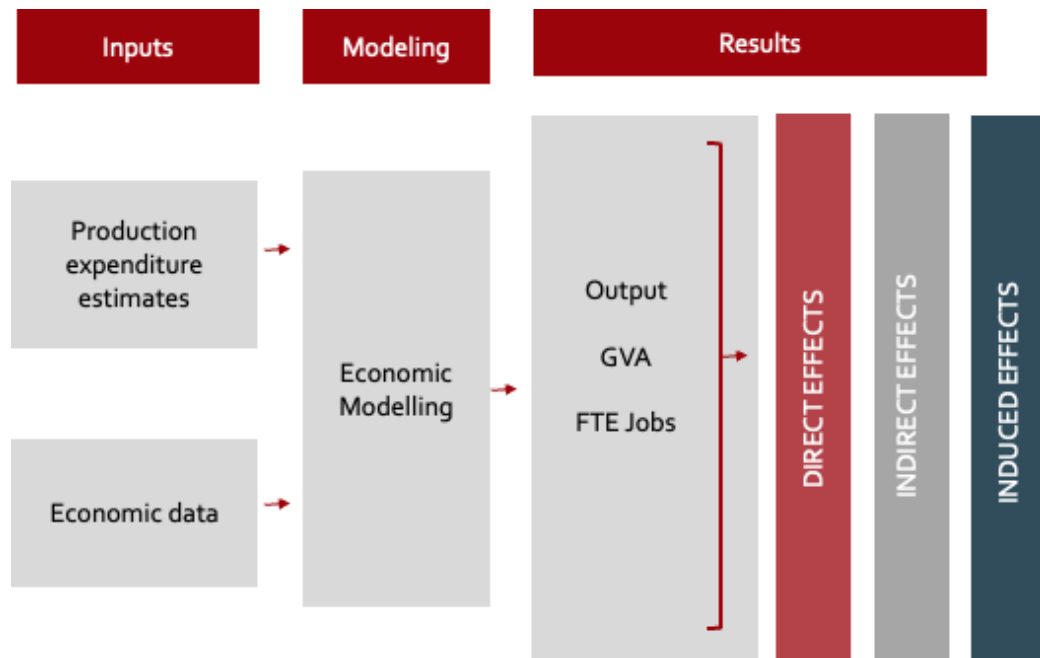
5.1. Overview of Methodology

Film and television productions can deliver a consistent, significant economic impact throughout the industry via their supply chain and through employees and contractors spending their wages in the country. The Polish market has grown significantly in recent years and continues to be an attractive location for international productions to produce in.

SPI built a bespoke economic impact model to estimate the economic impact of film and television production in Poland (summarised in Figure 17). This model incorporated a range of economic data from national and international sources. Full details of the methodology are included in Appendix One (Section 8).

The results presented in this section represent the impact for 2022, based on an estimated production expenditure by producers of 2.5 billion PLN (US \$569 million) for that year.^{32, 33} As set out in Section 4, this is the best available estimate of production expenditure and is considered conservative.

Figure 17 – Summary of Economic Impact Methodology



The total economic impact is the sum of the following three effects:

- **Direct impacts** are the economic footprint in terms of output, value created (GVA), and FTE jobs within firms directly engaged in film and television production
- **Indirect impacts** are the output, value created (GVA), and FTE job footprint in the supply chain, i.e. firms supplying goods and services to firms directly engaged in production

³² This estimate includes broadcaster and SVoD spend but does not include spend on Polish theatrical releases and therefore this is a conservative estimate of the total expenditure spent in Poland in 2022. However, SPI research suggests that spend on Polish theatrical releases is likely to be small compared to broadcaster and SVoD spend and thus the estimate used is a reasonable reflection of the overall scale of activity in Poland

³³ An average 2022 exchange rate is used to convert PLN to USD. See Appendix One for more details

- **Induced impacts** are the output, value created (GVA), and FTE job footprint resulting from the wage effects of those working in the production industry, i.e. cast, crew and the employees of vendors spending money in the economy.

5.2. Economic Impact

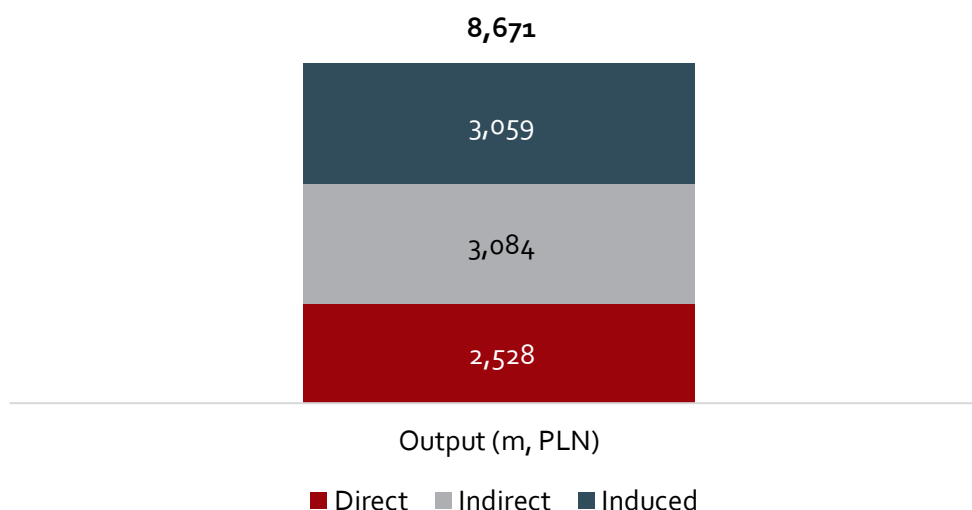
5.2.1. Output

Economic output is a measure of the results of an economic process available for sale or use elsewhere and is a measure of activity.

In 2022, the total production expenditure by producers in Poland of 2,528 million PLN (US\$569 million) generated a total of 8,671 million PLN (US\$1,952 million) in output.

The supply chain effects of the 2022 total production expenditure in Poland accounted for 3,084 million PLN (US\$694 million). An additional 3,059 million PLN (US\$689 million) was generated through the effect of those working on the production and its supplying wages within the economy.

Figure 18 – Total Output Supported by Screen Production Activity in Poland for 2022 (PLN, millions)



Source: SPI analysis (2023)

5.2.2. Gross Value Added

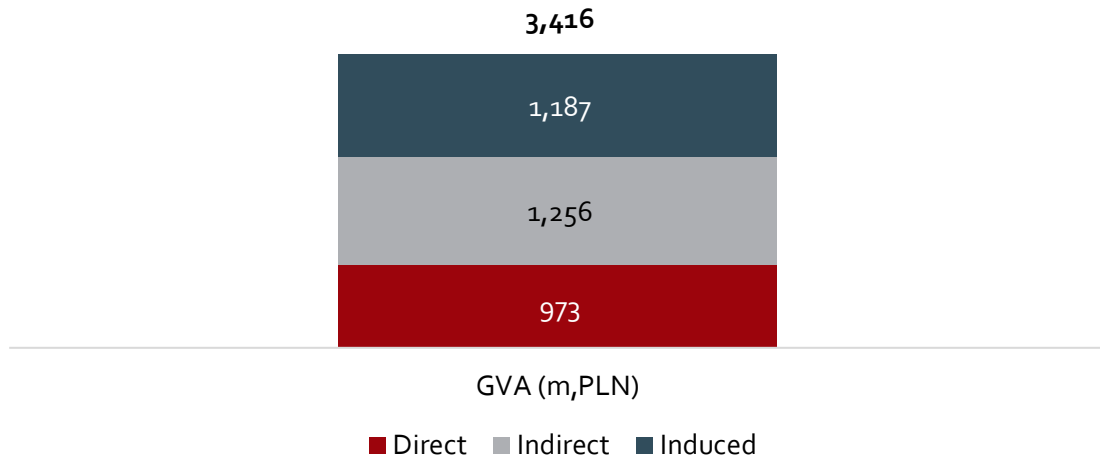
GVA is a key measure of the additional economic value created by an activity. It is the difference between gross output and the value of intermediate inputs, and it is aligned to the concept of GDP.³⁴

This analysis indicates the 2022 expenditure by producers in Poland stimulated significant economic value (GVA) within the production activities, supply chain, and through spending of wages in the economy.

The total production expenditure of 2,528 million PLN (US\$569 million) by producers in 2022 created a total of 3,416 million PLN (US\$769 million) in GVA. This includes 973 million PLN (US\$219 million) in direct GVA, 1,256 million PLN (US\$283 million) in indirect GVA in the supply chain, and 1,187 million PLN (US\$267 million) in induced GVA.

³⁴ GDP is equal to GVA at basic prices plus taxes on products less subsidies on products

Figure 19 – Total GVA Supported by Screen Production Activity in Poland for 2022 (PLN, millions)



Source: SPI analysis (2023)

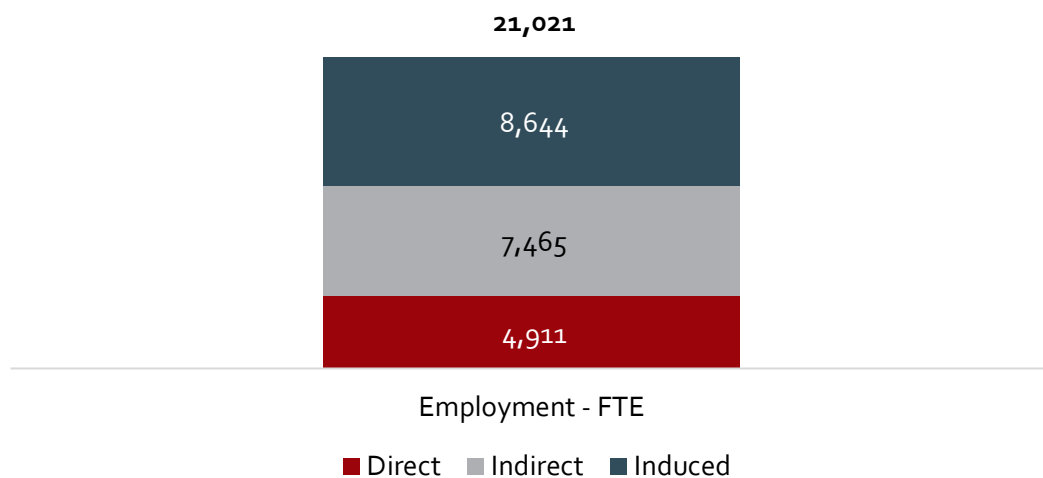
5.2.3. Employment

There are various ways to measure employment in screen production activity. To account for the contract-based nature of the industry and to make it more comparable to other industries, SPI calculates the FTE figure. An FTE total is an annualised jobs figure, meaning that a three-month contract would be counted as 0.25 of an FTE job. The FTE approach also adjusts for part-time working.

Employment estimates have been calculated using available expenditure data in Poland and running this through an economic model to get an FTE estimate.

Overall, using this method, film and television production expenditure by producers in Poland in 2022 is estimated to have supported 21,021 FTE jobs, including jobs supported in the supply chain and through wage effects. In 2022, production generated an estimated 4,911 direct FTE jobs, 7,465 indirect FTE jobs, and 8,644 induced FTE jobs.

Figure 20 – Full Time Equivalent Job Supported by Screen Production in Poland for 2022



Source: SPI analysis (2023)

6. MICRO IMPACTS

In addition to identifying and analysing the screen production industry’s impact on macroeconomic metrics, such as GVA, output, and employment, this study also highlights the industry’s impact on a localised level through services and activities that are not limited to the screen production industry alone.

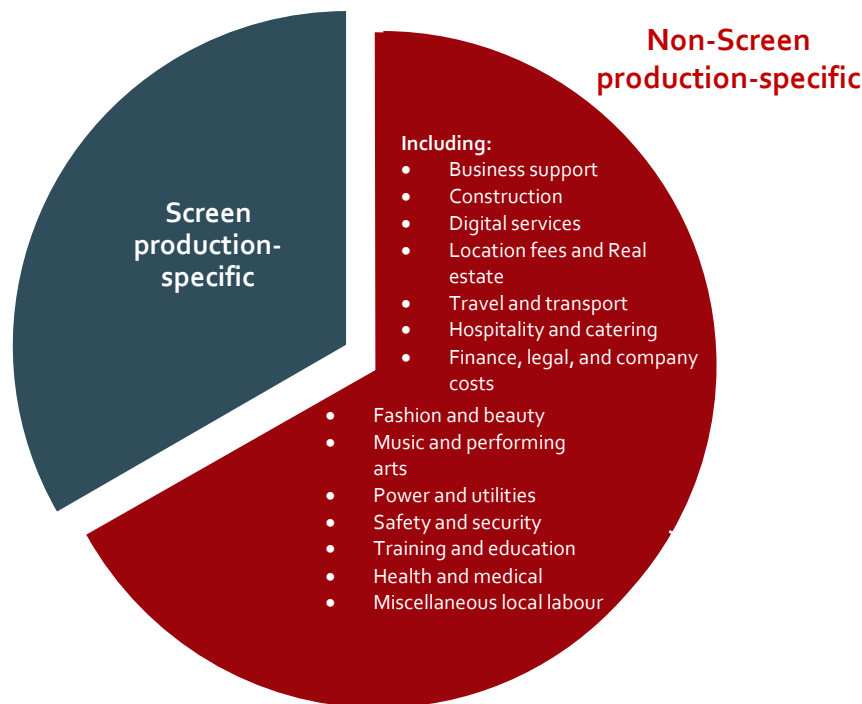
Budget and vendor data from four anonymised productions that were filmed in Poland were analysed as case studies to show the distribution of spend across business sectors and geographically.

6.1. Ripple Analysis

Film and television production involves unique processes requiring a range of inputs that include many workers – varying in creative, technical, logistical, and support roles – as well as equipment, facilities, infrastructure, and services. While a portion of a production’s expenditure is directed towards screen production-specific vendors, significant spend is also directed into other areas of the economy, such as real estate and hospitality services, that do not solely service the screen production industry.

To understand this impact, a project’s expenditure (i.e. direct spending) is analysed and categorised according to several business industries that typically supply goods and services to productions. The business industry categories included in non-screen-specific expenditure are detailed below in Figure 21.

Figure 21 – Ripple Analysis Division of Screen and Non-Screen-specific Business Industries



The screen production-specific category indicates the proportion of spend represented by the wages of crew and companies supplying goods and services that exclusively work in the film and television production industry, such as equipment gear rental, special effects makeup, and set builders.

The vendors included in the screen production-specific category do not directly participate in other industries of the economy and, therefore, do not contribute to the ripple effect. In SPI's experience conducting this type of analysis across multiple productions, the screen-specific expenditure portion of a television series usually amounts to between 25% and 45% of the total budget analysed. The remaining expenditure is spent on services and supplies from individuals or companies that supply a variety of business industries, in addition to screen production. This spend is designated to its associated non-screen-specific business industries.³⁵

Ripple analyses were conducted on two separate scripted Polish television productions: a high-budget comedy series (section 6.1.1) and a high-budget dramatic thriller series (section 6.1.2).³⁶ The analysis for these two productions includes both ATL and BTL production expenditure.³⁷

6.1.1. Production One: High-Budget Comedy Series

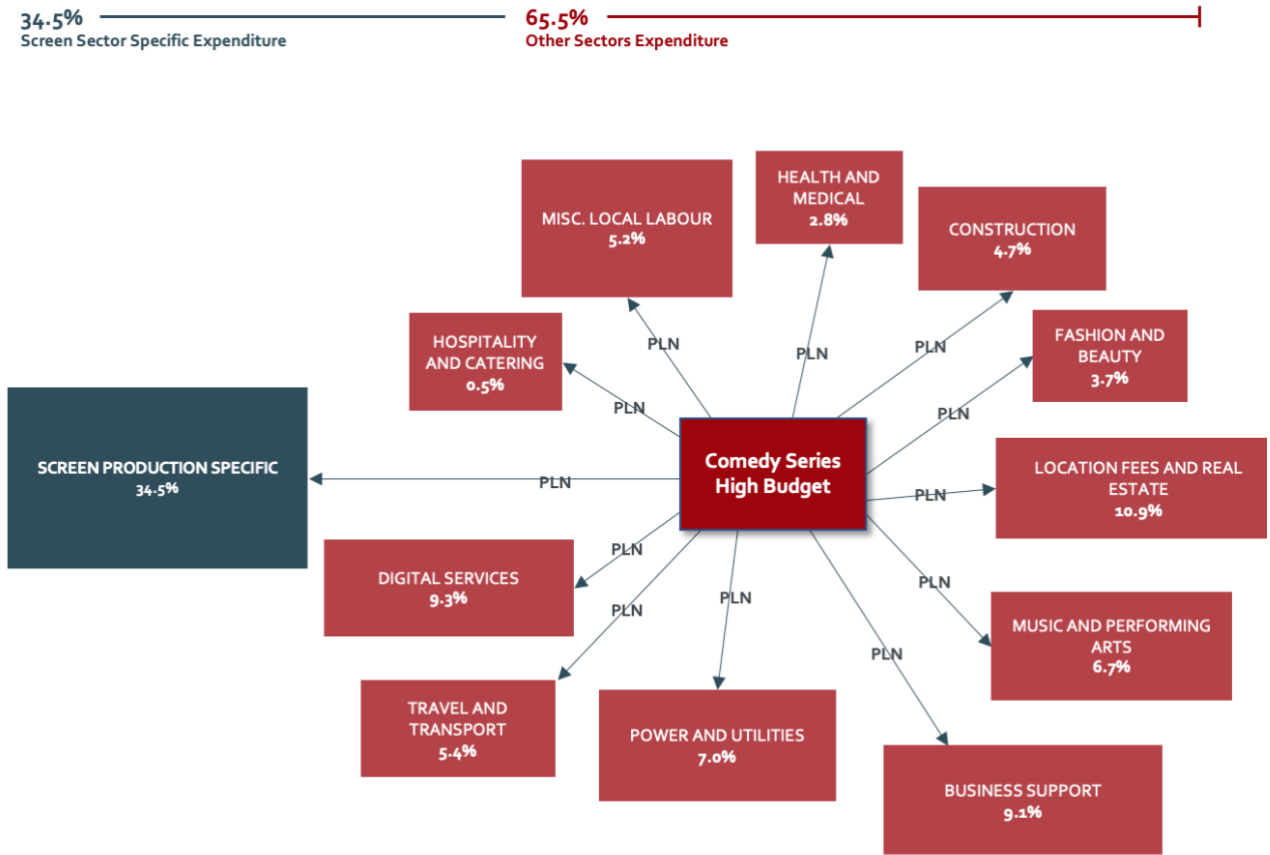
Production One was a high-budget comedy series. Screen production-specific vendors and service providers accounted for 34.5% of Production One's Polish production spend. This falls on the lower end of the spectrum for screen production-specific spend, highlighting that this production predominantly used vendors outside the screen production industry. In total, **65.5% of the Polish production spend was distributed across various non-screen-specific business industries.** This is outlined in Figure 22 below.

³⁵ For a longer description of the ripple analysis, see Appendix Two

³⁶ Information about these productions is commercially sensitive and cannot be shared. These two productions were selected as they are representative of other titles produced in Poland within these genres

³⁷ ATL and BTL relate to film and television production workforce and the different types and seniority of roles across talent, cast, and crew: ATL refers to key talent, including directors, writers, and actors; BTL refers to other crew, for example in technical production roles

Figure 22 – Production One: High-Budget Comedy Series



Note: Percentages based on above and below-the-line expenditure

Source: SPI analysis (2023)

Miscellaneous Local Labour (5.2%) includes all labour that could not be allocated to a specific business industry section (such as builders, who would be included in Construction expenditure; hotel staff, who would be included in Hospitality and Catering; or hair and makeup artists, who would be included in Fashion and Beauty). **Music and Performing Arts (6.7%)** is a notably high portion of the non-screen-specific spending in this production.

The high portion of spend allocated to **Location Fees and Real Estate (10.9%)** indicates a production doing a significant portion of shooting at existing locations that serve other purposes outside of the production (such as historic houses, nature reserves and warehouses). This directly relates to a higher portion of spend directed to **Power and Utilities (7.0%)** and **Construction (4.7%)**, as those services would be accessed through providers associated with those locations and/or set-up on-site, which would not require screen specialists but rather vendors suited to the location or service needed. For example, with generators and portable toilet facilities, many venues would have their preferred suppliers, or it would be more cost effective to use a local supplier that would be providing the services to a range of consumers outside the industry).

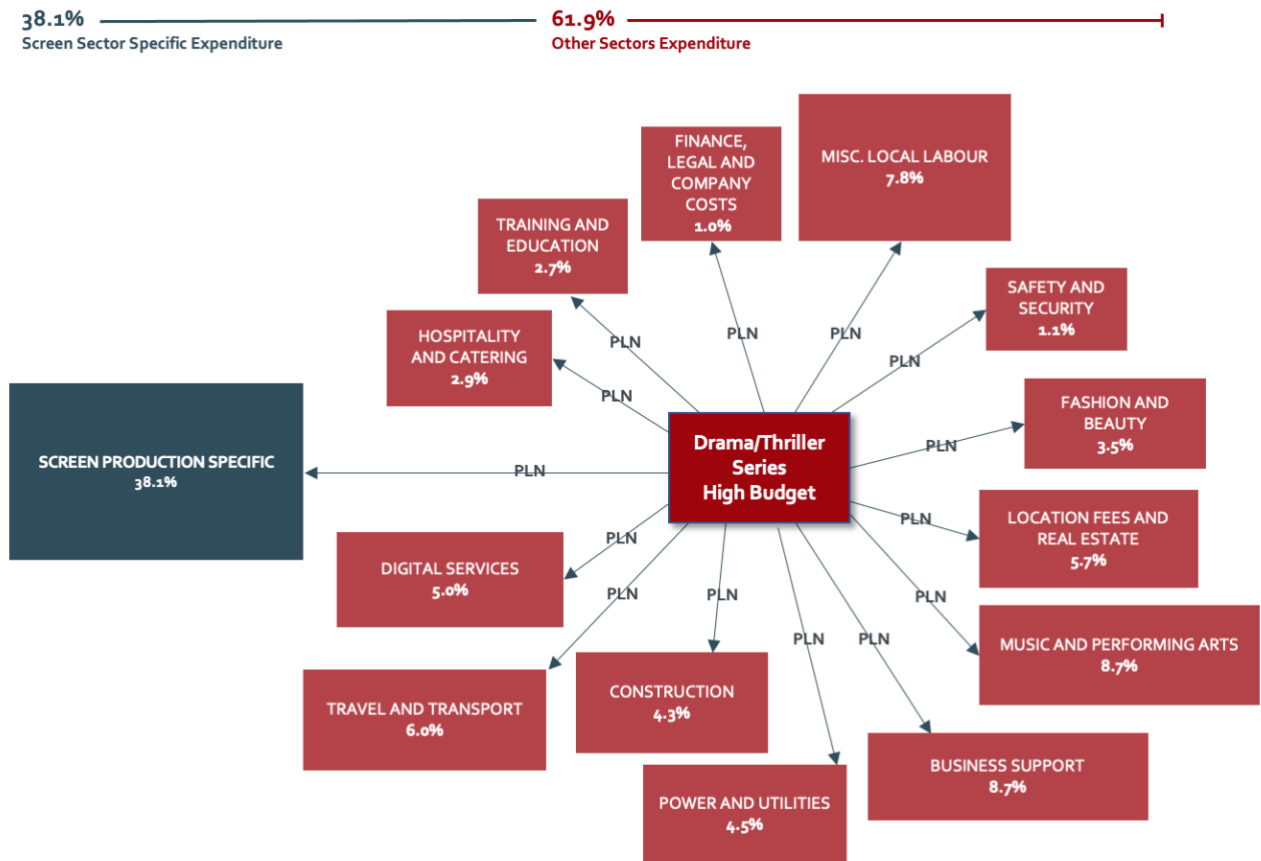
The significant spend allocated to **Business Support (9.1%)** and **Digital Services (9.3%)** reflects the impact a localised production, meaning a production based in a specific area outside of a studio or production hub, can have on other business industries. In these cases, production and administration offices are usually set-up near or on location, which requires sourcing the relevant materials and services needed to operate a production office for the duration of that shoot. Digital Services can also include the use of technology required to

process dailies (the download of that day’s footage) that can be sourced from a range of technical service providers.

6.1.2. Production Two: High-Budget Dramatic Thriller Series

Production Two was a high-budget dramatic thriller series. Screen production-specific vendors and service providers accounted for 38.1% of Production Two’s Polish production spend, which is a relatively average level of screen production-specific spend. **The remaining 61.9% of the Polish production spend was spread across various other non-screen-specific business industries.** This is showcased in Figure 23.

Figure 23 – Production Two: High-Budget Dramatic Thriller Series



Note: Percentages based on above and below-the-line expenditure

Source: SPI analysis (2023)

Training and Education (2.7%) and **Finance, Legal, and Company Costs (1.0%)** include all training programmes, such as internships, apprenticeships, and trainee schemes, and all financial services and administration costs that could not be specifically allocated to another section. **Miscellaneous Local Labour (7.8%)** also includes all labour that could not be specifically assigned to another business industry but was sourced from service providers that are not screen-specific. This would include part-time and full-time jobs, such as landscaping for outdoor sets, cleaning, and refuse removal. **Music and Performing Arts (19.5%)** refers to the local labour used specifically from other creative fields – such as theatrical actors or orchestral composers.

Digital Services (5.0%) is heavily dependent on screen production, and the bulk of such costs in most budgets will be allocated to the category specific to screen production. However, there

is some crossover of skills between this industry and the other key digital industries, particularly the video games industry, and the costs of such persons and suppliers have been allocated to this category.

Like any economic activity, film and television production uses the services of general business equipment, services, and supplies industry in many ways. In the case of this production, the portion of **Business Support (8.7%)** could involve purchases of office equipment, as well as printing and copying services. Producers also purchase or rent a large number of miscellaneous items, such as storage containers and marquees, especially when a significant production goes on location, when producers will rely heavily on being able to access local supplies as they set up temporary bases.

6.2. Impacts of Production Expenditure by Geography

Vendor Spend Heat Maps visually represent the geographical location and intensity of production expenditure. Typically, this analysis uses data directly from the production accounts of example productions, or if data allows, it can be built from the production's vendor database. This expenditure is then mapped to show a detailed pattern of impact across a borough, city, region, or country.

SPI analysed data from two high-budget television series that were shot in Poland. The expenditure data from each production was organised by Polish postcode to identify the geographical location of the spend. SPI has used this data to visually map the spread of expenditure from these productions individually across Poland, as well as within Warsaw, Wrocław, and Kraków. These maps are not representative of all expenditure in the Polish production industry; however, they indicate the reach and breadth of a high-budget television series production produced in Poland.

A selection of key heat maps are included below in Figure 24 – Figure 27.³⁸ Additional heat maps are available in Appendix Four – Additional Vendor Heatmaps.

The analysis shows that expenditure for these two high-budget television series occurred across Poland, with a specific concentration in Warsaw, the main production hub in Poland. Additional spend is present in the cities of Wrocław and Kraków. This reflects the general economic distribution in the country, with Warsaw being the economic heart of the country and cities such as Wrocław and Kraków following.³⁹

³⁸ The heatmaps cover a range of expenditure from 5,000 PLN to 2.5 million PLN. This expenditure range was chosen to narrow down the expenditure to the major expenditures that a production would accrue during their time in Poland

³⁹ *Region and Cities at a Glance 2020 – Poland*. OECD. Accessible at <https://www.oecd.org/cfe/Poland-Regions-and-Cities-2020.pdf>

Figure 24 – Production Three, High-Budget Television Series, Poland Overall



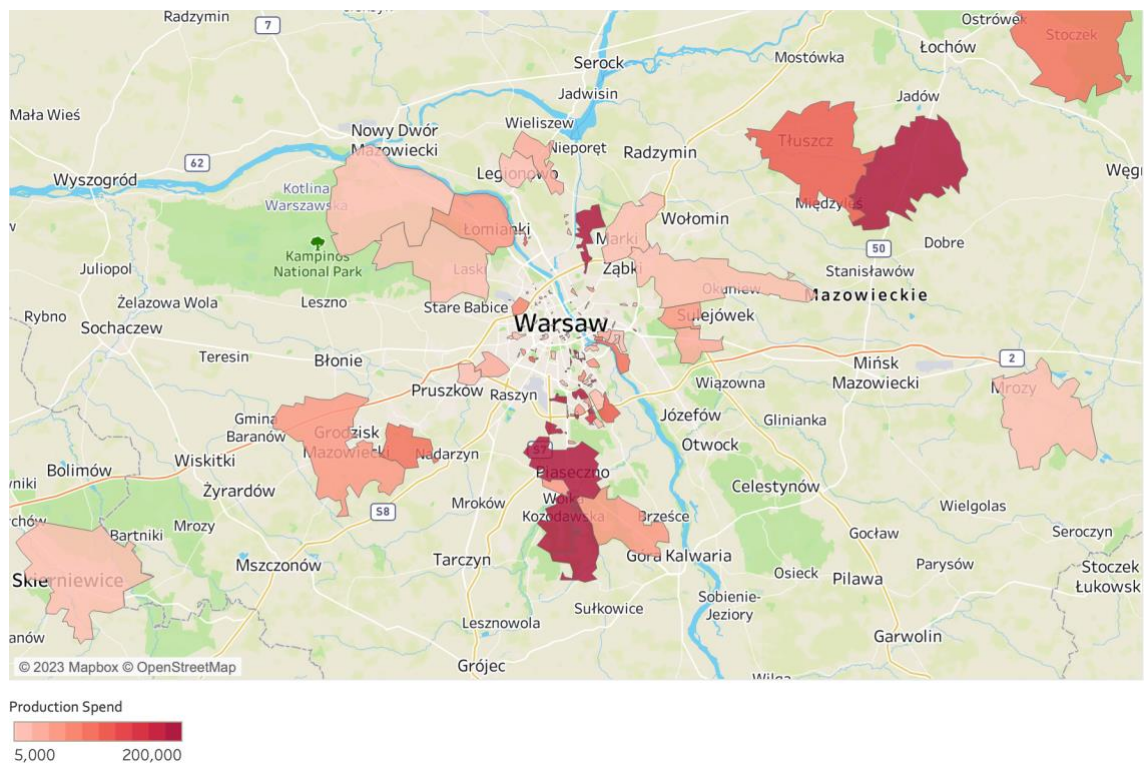
Source: SPI analysis (2023)

Figure 25 – Production Four, High-Budget Television Series, Poland Overall



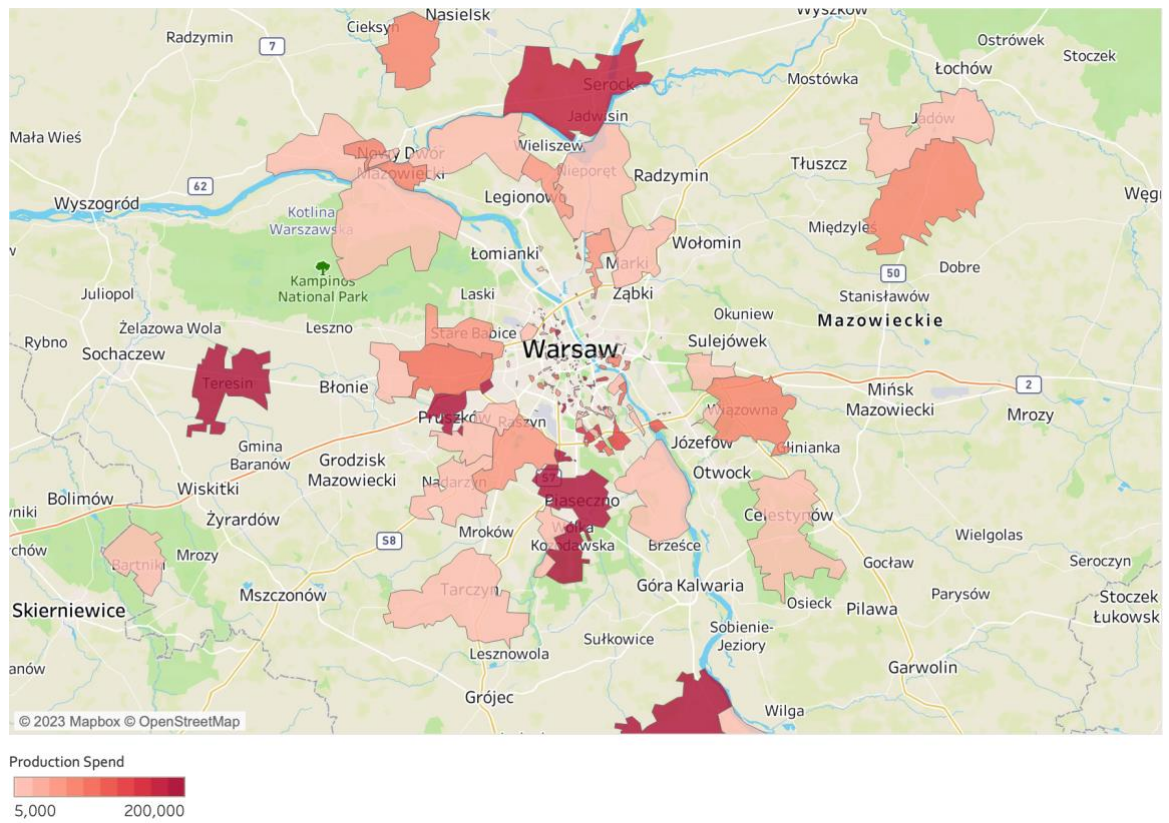
Source: SPI analysis (2023)

Figure 26 – Production Three, High-Budget Television Series, Warsaw



Source: SPI analysis (2023)

Figure 27 – Production Four, High-Budget Television Series, Warsaw



Source: SPI analysis (2023)

Part IV:

Wider Strategic Impacts of Screen Production in Poland



7. WIDER STRATEGIC IMPACTS

Screen production is a highly unique industry in that it delivers valuable and strategic impacts while generating significant effects in other business sectors and a host of spillover benefits. The latter, which includes areas like training, screen-induced tourism, national branding, and infrastructure development, is generated and supported by the presence of an active screen production industry.

Key examples of wider strategic impacts generated from production activity are outlined in this section.

7.1. Impacts on Infrastructure

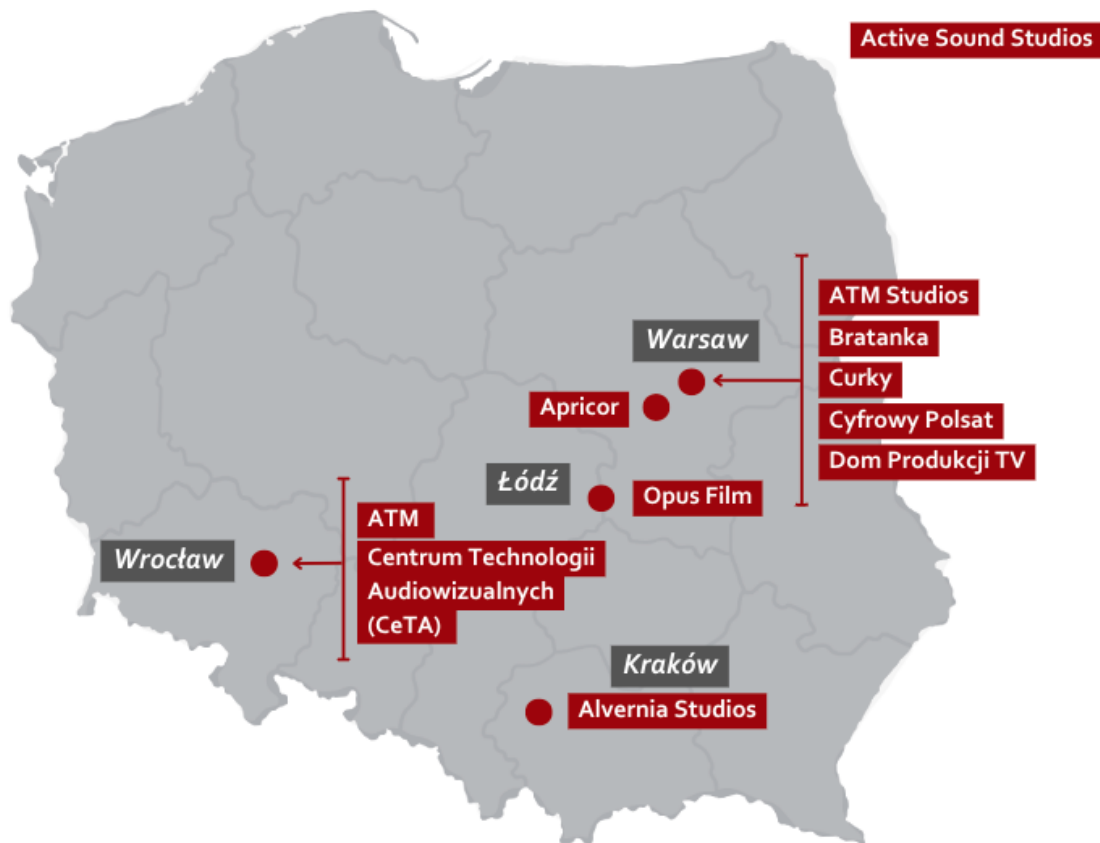
Poland is an emerging international screen production hub. The growth of the screen production industry has meant that aspects of the industry have had to scale to match the increase in demand in terms of both quality and quantity. For example, consultees noted that Poland has a highly skilled workforce with favourable rates compared to other European countries, although the difference in the rates between Poland and other parts of Europe is closing. Similarly, the increase in production activity in Poland has led to infrastructure development to support industry growth. This infrastructure includes studios, post-production or VFX facilities, and equipment rental companies.

7.1.1. Existing Infrastructure in Poland

There are currently around 10 studio spaces (including sound stages and production studios) that can facilitate medium to large-scale productions and have adequate capacity for both film and television productions. These are primarily located in Warsaw, Wrocław, and Kraków.⁴⁰ Warsaw is Poland's main screen production hub and is home to a large proportion of film and television productions as well as the industry's respective infrastructure and vendors.

⁴⁰ *Production Guide: Poland*. KFTV. Accessible at: <https://www.kftv.com/country/poland/guide/production-guide#:~:text=The%20main%20studios%20are%20found%20in%20Warsaw%2C%20Wroclaw%20and%20Krakow.>

Figure 28 – Active Sound Stages and Studio Facilities Across Poland



Source: SPI (2023)

The various studios offer a range of production space for screen productions, which can be used for department bases, workshops, and storage. However, consultees noted that there is minimal backlot space available for additional outdoor construction. ATM Grupa S.A., Alvernia Studios, and Opus Films are three Polish studios showcasing high levels of production activity and facilitation, although they are not the only studios working in Poland. Key elements of their offer are outlined below.

- **ATM Grupa S.A.** has studios in both Wrocław and Warsaw. Each location has multiple sound stages of differing sizes, wardrobe and makeup rooms, storage facilities and production rooms, and additional services that include virtual studio, set services, and post-production.⁴¹ ATM Grupa has hosted many types of productions including drama series, soap operas, game shows, and reality shows. ATM Grupa has collaborated with international productions, such as on Season 3 of HBO's *Wataha* (2014).⁴²
- **Alvernia Studios** is based in Alvernia municipality, 18 km west of Krakow Airport. The studio features 140,000 square feet of production space, including two high-end sound stages. A range of facilities and equipment are available for productions, including an artificial skydome and a spherical, shadowless, 3D bluescreen. Alvernia Studios hosts a range of screen production formats, including studio features, commercials, video

⁴¹ *Sound Stages and Production*. ATM Grupa. Accessible at: <https://atmstudio.eu/en/#1676923346744-18do3da1-6fe2>

⁴² *HBO Confirms the Third Season of "Wataha" (The Pack)*. ATM Grupa, December 2018. Accessible at: <https://www.atmgrupa.pl/en/for-media/hbo-confirms-the-third-season-of-wataha-the-pack/>

games, and music production. Alvernia Studios also provides post-production services on-site, including audio mixing, colour correction, and visual effects. Notable productions to use Alvernia Studios include *The Pianist* (2002), *Arbitrage* (2012), *The Bridge of Spies* (2015), and *Disco Polo* (2015).

- **Opus Films** is a privately owned studio based in Łódź, Central Poland. The studio includes a sound stage covering 8,600 square feet. It is equipped with lighting catwalks, winches, and full backup facilities, including makeup rooms, wardrobes, storage, costumes, props, and set-building workshops. Opus Films also provides in-house editing. The company predominantly services film productions but has worked in documentaries, animations, commercials, and television series.⁴³ Opus Films has collaborated with international studios and streamers, including recent work with Netflix's *Queen* (2022).

7.1.2. Production Innovation Infrastructure Developments in Poland

As Poland continues to develop as a screen production hub, companies are investing in new and emerging technologies such as virtual production, motion capture and extended reality (XR).⁴⁴ This investment is leading to the establishment of innovation hubs, motion capture studios and virtual production studios in Poland.

One notable advantage of virtual production, in particular, is as a cost-saving or cost-efficient tool, which can be gained through its use as a pre-visualisation tool or augmenting aspects of challenging or fictional landscapes, for example.⁴⁵

This is an evolving space in Poland. Established virtual production studios such as Blackfish Studio in Warsaw and TVN's virtual production facilities in Warsaw and Kraków, are joined by new production innovation infrastructure developments such as those listed below in Table 2.⁴⁶

Table 2 – New and Incoming Production Developments in Poland

Infrastructure	Location	Details
Platige Studios Mocap Facility	Warsaw, East-Central Poland	<ul style="list-style-type: none"> • New motion capture studio launched in 2023⁴⁷ • 2,800 square metres with 26-foot-tall ceilings • Will be used for recording segments of cinematics, cut scenes, in-game animation, and animated features
Veles Productions (ZPR Media)	Warsaw, East-Central Poland	<ul style="list-style-type: none"> • Production house offering services and facilities for live television broadcast and virtual production design and projection • Offers world designs and virtual builds, story development, as well as broadcast, XR, and corporate deliverables

⁴³ *Feature Films*. Opus Films. Accessible at: <https://www.opusfilm.com/films/feature-films>

⁴⁴ XR is an umbrella term that covers, virtual reality (VR), augmented reality (AR) and mixed reality (MR)

⁴⁵ *Eight Benefits of Virtual Production*. Disguise. 2021. Accessible at: <https://www.disguise.one/en/insights/blog/eight-benefits-of-virtual-production/>

⁴⁶ This list is not exhaustive of new and proposed developments in Poland. It is intended to demonstrate the growth of investment and engagement occurring in these new technologies

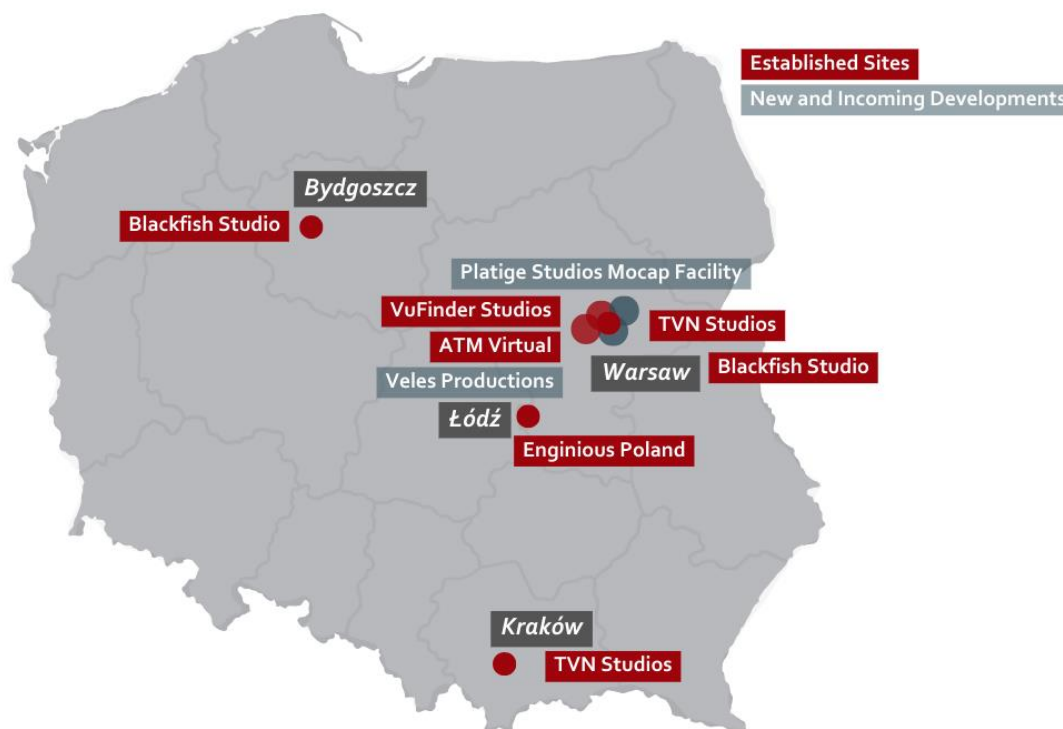
⁴⁷ *Polish Studio Platige Image Launches New Mocap Facility*. Cartoon Brew, April 2023. Accessible at: <https://www.cartoonbrew.com/motion-capture/platige-image-launches-motion-capture-studio-poland-227685.html>

Figure 29 shows the location of these new and incoming production innovation facilities and studios, alongside the established sites such as Blackfish Studio and TVN.

The selection of Warsaw for these many of these new developments is likely due to several factors, including its status as the capital city with a well-developed infrastructure, a thriving creative industry, and a skilled talent pool.

These developments position Warsaw as a hub for innovative and immersive storytelling and furthers its reputation as a competitively cost-efficient European location, further solidifying Poland's prominence in the global screen production industry

Figure 29 – Map of Established and New Production Innovation Facilities/Studios



Source: SPI (2023)

Adopting these new and emerging technologies for screen production feeds into Poland's growing engagement and reputation within the technological innovation space.⁴⁸ Through expansions in these areas of innovation, domestic skills can be developed and crossover from the existing technology-based, non-screen-specific, workforce can be leveraged to attract larger-scale international productions with sophisticated technological needs to Poland.

The establishment and continued development of innovation hubs, new motion capture studios, and virtual production studios in Warsaw and elsewhere in Poland have the potential to showcase the country as a leading site for screen production development and industry innovation.

⁴⁸ *Forget Silicon Valley – Poland is Europe's Emerging Tech Epicentre*. Emerging Europe. March 2023. Accessible at: <https://emerging-europe.com/voices/forget-silicon-valley-poland-is-europes-emerging-tech-epicentre%EF%BF%BC/>

7.1.3. Production Support Vendors

With the increase in demand for film and television production, production support vendors in Poland have grown in quantity and in the quality of their offered services. The production support ecosystem includes vendors and studios who provide an array of services for Polish and international film and television productions, including but not limited to, offline and online editing, sound recording and design, colour grading, and visual effects (VFX). A number of Poland's large production support vendors are in Warsaw, with a spread of small and medium-sized vendors located within and outside of Poland's capital city.

The entry of international streaming companies who invest in local Polish productions which, in turn, utilise the local production support ecosystem has also been valuable for developing the sector and increasing the recognition of Poland's production support vendors globally.⁴⁹ This has led to increased economic activity in the screen production industry and greater opportunities for local production support vendors. Production support vendors in Poland include but are not limited to, DI Factor, Dreamsound, LocoMotive, Artcore, Besta Studio, Televisor, Chimney, Moovi, Orka, Black Photon and Platige Image.

The growth of the industry has encouraged new vendors to establish themselves in Poland, and for existing vendors to expand their offer. Co-founded by ATM Grupa in 2020 to complement existing resources,⁵⁰ post-production company Black Photon has since expanded its services to include a small VFX team, and is opening a new sound studio with Moovi, an established sound vendor in Poland. Czech VFX vendor Magic Lab expanded into Poland, setting up a branch of their company in Warsaw.

The availability of production support vendors with high-quality facilities and a talent workforce in Poland has made Poland an attractive destination for post-production work for both Polish and international productions. In addition to supporting productions that have shot in Poland, as the industry in Poland continues to gain international recognition for their work, there is increased interest from international projects which may shoot elsewhere but send post-production work to Poland. Platige Image, who created the animated prologue for *Wonder Woman* (2017) and have worked on *The Witcher* (2019-), *Love, Death & Robots* (2019-), stated in 2018 that almost 50% of their sale value comes from exporting services.⁵¹

7.2. Spillover Impacts

The screen production industry can have spillover benefits for other business sectors, including for other creative industries and the tourism industry.

Poland has a rich literary history that has often been adapted for film and television.⁵² *Pokot* (*Spoor*, 2017), a crime thriller directed by Agnieszka Holland and Kasia Adamik and based on the successful novel by Olga Tokarczuk. There were 319,612 European admissions to the film since its release in 2017.⁵³ This can be viewed as a symbiotic relationship, with films and television series sparking new or renewed interest in the original source material. This has been

⁴⁹ *Be Ready for the Future*. Post in Poland, 2020. Accessible at: https://kipa.pl/wp-content/uploads/2021/03/Post-in-Poland_2020.pdf

⁵⁰ *Black Photon - ATM Grupa Presents Its Youngest Child*. ATM Grupa, 7th June 2020. Accessible at: <https://www.atmgrupa.pl/en/for-media/black-photon-atm-grupa-presents-its-youngest-child/>

⁵¹ *Post It in Poland*. Polish Film Magazine, 2018. Accessible at: https://issuu.com/filmcommissionpoland/docs/pfm_7_2018

⁵² *From Page to Screen*. Culture. PL. Accessible at: <https://culture.pl/en/article/from-page-to-screen-new-literary-inspirations-in-polish-cinema>

⁵³ Lumiere. European Audiovisual Observatory. Accessible at: <https://lumiere.obs.coe.int/movie/73147#>

seen globally with series such as *Big Little Lies* (2017-2019) and *The Handmaid's Tale* (2017-), as well as in Poland with the series *The Witcher*, as detailed in the case study below.⁵⁴

Screen production can also benefit galleries, theatres, and museums. There are currently at least 14 museums whose collections are connected to Polish films and filmmaking in Poland,⁵⁵ including the Museum of Cinematography and the National Centre for Film Culture in Łódź. The Museum of Cinematography was founded in 1986 by the Łódź municipality⁵⁶ and focuses on the history of film production in Poland along with hosting multiple exhibits that exemplify Polish filmmaking. The National Centre for Film Culture in the EC1 development officially opened in October 2023 and is the only centre for culture and film education of this type in this part of Europe.⁵⁷ There are to be three permanent exhibits, including 'Kino Polonia' which will tell the history of Polish film culture through exhibits featuring original props, costumes, technical equipment, and cinema paraphernalia.⁵⁸

Measuring the impact a production has on a location through tourism can be a challenge due to the high level of data collection required. However, there is evidence of screen productions produced in Poland attracting tourists to filming locations. A study examining the long-running television show *Ojciec Mateusz* (*Father Mateusz*, 2008-) highlighted the degree of influence the show had in visits to the town of Sandomierz located in South-East Poland⁵⁹ where visitors to the town can follow the path taken on the show which leads them to the ruins of the Krzyżtopór Castle or the Ćmielów porcelain factory.⁶⁰ According to a 2016 study, between 2008 and 2011, the Underground Tourist Trail saw a rise of over 70% in visitors to the attraction, with visitors increasing from just over 80,000 in 2008 to more than 137,000 in 2011. Overall, such an uptick in interest and increase in visitor headcount has knock-on impacts on the area and wider economy due to increased spend through accommodation, retail, and restaurants, in particular.⁶¹

7.2.1. Case Study: The Witcher

The Witcher (2019-) is a fantasy television drama based on a book series written by Polish writer Andrzej Sapkowski. Prior to the release of the television series, Sapkowski's books were adapted into a successful video game series. The television show, which was first released at the end of 2019 by Netflix, has garnered a significant following. This has further driven interest in the previous formats of the story, peaking sales of both the books and games, as well as generating additional opportunities for screen tourism, leveraging viewers interest in the series' shooting locations and the show's real-life medieval backdrop.

⁵⁴ Author Margaret Atwood on Why 'The Handmaid's Tale' resonates in 2018. Forbes. 2018. Accessible at: <https://www.forbes.com/sites/shivaunefield/2018/07/31/author-margaret-atwood-on-why-the-handmaids-tale-resonates-in-2018/?sh=43fcd98f64bo>

⁵⁵ *Film tourism in Poland: potential and perspectives for development*, Andrzej Stasiak,

⁵⁶ *Film Museum*, Lodzka Organizacja Turystyczna. Accessible at: <https://lodz.travel/en/tourism/what-to-see/museums/film-museum/>

⁵⁷ *Spectacular New State-of-the-Art Film Centre Opens in Former Łódź Power Plant*. The First News, 13th October, 2023. Accessible at: <https://www.thefirstnews.com/article/spectacular-new-state-of-the-art-film-centre-opens-in-former-lodz-power-plant-42030>

⁵⁸ *NCKF In the Future*. National Centre for Film Culture. Accessible at: <https://nckf.pl/about-nckf>

⁵⁹ *The Historic Town of Sandomierz as a Tourist Destination*. December 2017, Robert Faracik. Accessible at: https://www.researchgate.net/publication/324911703_The_Historic_Town_of_Sandomierz_as_a_Tourist_Destination

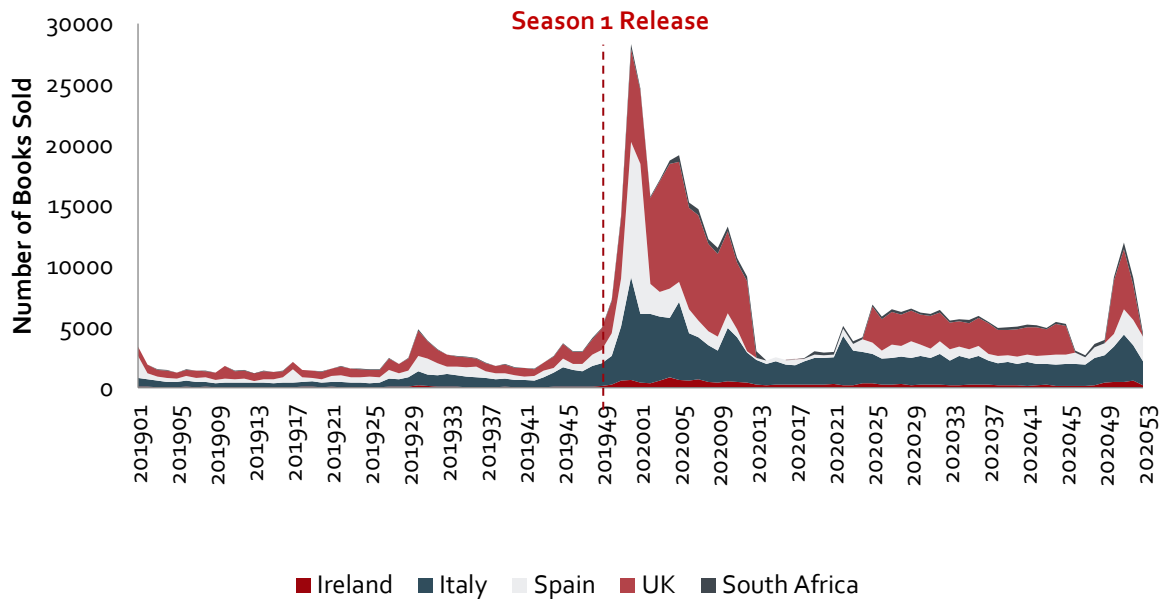
⁶⁰ *Polish City Placement: A New Kind of Travel Agency*. August 2020, Culture PL. Accessible at: <https://culture.pl/en/article/polish-city-placement-a-new-kind-of-travel-agency>

⁶¹ *Turystyka Filmowa w Sandomierzu*. 2016, Geographical Works. Accessible at: <https://www.ejournals.eu/Prace-Geograficzne/2016/Numer-145/art/7854/>

Since its first season tours visiting sites of *The Witcher* have been created to capitalise on the success of the series. In Poland, private tours of one of the shooting locations, the Ogródzieniec castle in Podzamcze, have been launched across sites such as Airbnb and Poland Travel Guide websites.⁶²

The success of the Netflix series has resulted in a notable uptick in renewed, and new, interest in Andrzej Sapkowski's book series. Figure 30 which outlines book sales across select European, Middle Eastern and African (EMEA) countries, demonstrates the sharp peak in book sales following the release of season one.

Figure 30 – Book Sales Across EMEA Countries With *The Witcher* Season One Release



Source: Neilson Books Data⁶³

The series also raised the profile of the book series in other markets, such as in the US. Following pre-release publicity for the series in November 2019, book sales for *The Witcher* series began to increase and two weeks after the show's release in December, US physical book revenue was 562% higher than during that same period the year prior.⁶⁴

In addition, this impact spread to the video game adaptations of the book series by Polish gaming company, CD Projekt Red. According to the popular PC game sales platform, Valve's Steam prior to the release of the Netflix adaptation, reviews for the video game *The Witcher 3: Wild Hunt* (2015) averaged approximately 4,000 monthly, however, this increased to more than 12,600 reviews per month after the series was released.⁶⁵

⁶² *TV and Movie Tours*. Get Your Guide. Accessible at: <https://www.getyourguide.co.uk/krakow-140/tv-movie-tours-tc22/>

⁶³ Graph compiled from Nielsen Books Data: Due to COVID-19, Nielsen Book Sales Data was not available for the UK 28/03/2020-13/06/2020; for India 28/03/2020-09/05/2020; and for New Zealand and South Africa 04/04/2020-25/04/2020

⁶⁴ *The Witcher's Impact Across Entertainment*. NPD, 13th February 2020. Accessible at: <https://www.npd.com/news/blog/2020/the-witchers-impact-across-entertainment/>

⁶⁵ *How that Game Sold on Steam*. The GameDiscoverCo Newsletter, 3rd August 2020. Accessible at: <https://newsletter.gamediscover.co/p/how-that-game-sold-on-steam-using>

Part V:
Appendices



8. APPENDIX ONE – METHODOLOGY

This study employs an Input-Output (I-O) approach to economic impact modelling. It uses estimated and forecast production expenditure data to drive a specially developed economic model. The model uses national data sources from Statistics Poland (the national statistics authority in Poland) and the OECD to model the interconnections between the screen production industry and other industries and the relationships between key metrics, including output, GVA, and FTE jobs.

The methodology is based on many industry studies SPI has undertaken worldwide and is consistent with international best practices, including studies in the UK, many US states, New Zealand, Australia, and Europe.

8.1.1. Key Data Sets and Sources

Industrial codes in national statistics. There are a variety of approaches to defining industrial sectors for statistics – including the International Standard Industry Classifications (ISICS) and NACE, the standard European nomenclature of production economic activities. These methods are broadly similar. A four-digit code identifies each industry – the first two digits identify the major group, the third digit identifies the industry group, and the fourth identifies the industry.

For example, for **5911 Motion Picture and Television Programme Production**:

- the **59** indicates the activity is the major industry groups 'Motion Picture and Sound Recording Activities'
- the first **1** refers to 591 Motion Picture, Video, and Television Programme Activities industry group, and
- the final **1** specifies that it is 5911 Motion Picture and Television Programme Production Activities.

Industry data is released at different levels of aggregation depending on variables and context. When looking for data, SPI seeks the most granular breakdown of industry details for screen production activities available. Table 3 displays relevant ISICs for this industry. The four-digit ISICs, highlighted in grey in Table 3, provide an ideal level of detail. The other grey boxes indicate relevant three- and two-digit codes if data is unavailable to the four-digit ISIC.

Table 3 – Summary of Relevant Industry Codes

4 Digit ISIC Industry	3 Digit ISIC Industry Group	2 Digit ISIC Major Industry Group	Combined Codes
5911 Motion Picture and Television Programme Production Activities	591 Motion Picture, Video, and Television Programme Activities	59 Motion Picture and Sound Recording Activities	59_60 Audio visual and broadcasting activities
5912 Motion Picture and Television Programme Post-Production Activities			Or
5913 Motion Picture and Television			58_60 Publishing, audiovisual and

4 Digit ISIC Industry	3 Digit ISIC Industry Group	2 Digit ISIC Major Industry Group	Combined Codes
Programme Distribution Activities			broadcasting activities
5914 Motion Picture Projection Activities			
	592 Sound Recording and Music Publishing Activities		

All of these industries are contained within ISIC industry grouping 'J - Information and Communication'.

OECD Statistics. SPI's extensive data research has found OECD.Stats is the best source of relevant economic data to inform the construction of the economic impact model. It provides up-to-date data for Poland, as well as for comparator countries (OECD and non-OECD). The OECD National Accounts data allows an industry breakdown using the International Standard Industrial Classification (ISIC) and provides many indicators at the 'V59 Motion Picture, Video, and TV Programme Production' level. Additional indicators are available at a higher level 'V58_60 Publishing, Audiovisual, and Broadcasting Activities'. The data is available from 2017-2021. Variables are wide-ranging but include output, GVA, as well as components of GVA. I-O tables are also available through OECD, and the latest release is the 2018 data, although only at the V58_60 industrial code level.

Poland Statistics provides detailed I-O tables (down to code level 59), although the latest release refers to 2015, so it is eight years out of date. The OECD equivalent I-O tables are for 2018 data.

Exchange rates. When converting between PLN and USD, SPI uses historical exchange rate data from ExchangeRates.org.uk. When converting 2022 data, the average exchange rate for 2022 is used (1 PLN = 0.2251 USD).

8.1.2. Data and Ratios from National Statistics

The economic model utilises key ratios and relationships from national and international economic data sets, including ratios of output to GVA, output to jobs, and tax to GDP. For this type of impact model, production expenditure is used as a proxy for economic output, enabling the specific economic impact of the production activity to be estimated.

Table 4 below summarises the key relationships for Poland and data from comparator countries that are included, where available, as a sense check.

Table 4 – Summary of Key Ratios

Indicator	Industry	Poland	EU 27 and Comparator Countries - Czech Republic, Hungary, Slovak Rep, Slovenia, Romania, Bulgaria, and Croatia	Source and notes
GVA as a % of Output,	ISIC V59 Motion picture, video and TV programme production	38.5% 3 year moving average 2018-2020	Comparator countries – range 34.1% to 58.8%, non-weighted average of all seven comparators 44.7% EU27 – 35.8% 3 year average for EU27 (2017-2019).	Calculated from OECD.Stats
Output per job ⁶⁶	ISIC V59-60 Audiovisual and broadcasting activities	515,000 PLN 3 year average 2018-2020	N/A	Calculated from OECD.Stats
Total tax revenue as a % of GDP	Whole economy	35.8% 3 year moving average, 2019-2021	Comparator countries – Range 34.4% Czech Republic to 37.2% for Slovenia non-weighted average of four countries for which data is available (Czech Republic, Hungary, Slovak Republic and Slovenia) 35.6%	OECD.Stats

8.1.3. Input-Output Methodology

I-O analysis estimates the **direct, indirect, and induced effects** that determine the total economic impact of a particular investment or activity. This total is the sum of these three effects and is calculated using the following economic multipliers:

- Type I multiplier describes the relationship between the direct effect and the direct+indirect effect.
- Type II multiplier describes the relationship between the direct effect and the total effect.

Multipliers can be calculated from published Input Output (I-O tables) by calculating the Leontief Inverse for the relevant industry. The exact variables contained in I-O tables differs across countries and publication source. With a full set of data, it is possible to calculate Type I and Type II multipliers for output, GVA, and employment.

⁶⁶ Per employed person, including employees and self-employed people

For Poland, there are two sources of I-O tables. OECD publishes I-O tables up to 2018 to a level that groups 2-digit ISICs together (i.e. Divisions 58, 59, and 60). Statistics Poland has a more granular data set. However, the latest data published refers to 2015.

Table 5 summarises multipliers that were calculated with each data set.

Table 5 – Coverage of Poland I-O Tables

Source	Industry	Year	Multiplier
Statistics Poland	59 Motion picture, video, and television production, sound recording and music publishing	2015	Type I + Type II multipliers for output and GVA, but not employment multipliers due to data limitations.
OECD	58-60 Publishing, audiovisual and broadcasting activities	2018	Type I + Type II multiplier for output, GVA, and employment.

To calculate type II multipliers and employment multipliers, SPI utilised OECD employee compensation data⁶⁷ and employment data⁶⁸. Where data was missing for a specific industry breakdown, higher-level industry data was allocated to ISICs based on the proportion of output for each ISIC.

The model ran on the OECD multipliers as they were more recent and provided a full range of multipliers. Table 6 below summarises the multipliers.

Table 6 – Multipliers

	Output	GVA	Employment
Type I	2.220	2.29	2.52
Type II	3.430	3.51	4.28

8.1.4. Other Variables

In addition to the multipliers, the economic model also utilises key ratios and relationships that estimate GVA and FTE jobs from direct output (production spend).

The output per person employed is based on a definition of an annualised job. This accounts for the short-term nature of some of the employment in the film and television production industry. For example, a three-month contract would be counted as 0.25 jobs. This enables comparison to other industries on a more consistent basis.

Estimating the FTE job impact is standard practice in studies like this. This accounts for the extent of part-time workers within the total workforce. Data on full-time, part-time, and FTE employment is unavailable for the motion picture sector from Poland Statistics or the OECD. There is some data on aggregated Creative and Cultural Industries from Statistics Poland. However, the FTE-to-headcount ratio for this wider industry is much lower than SPI has found for the screen production industry elsewhere in the world. Therefore, it is likely to be influenced

⁶⁷ Dataset 6A. Value added and its components by activity, ISIC rev4. OECD.Stat. Accessible at: <https://stats.oecd.org>

⁶⁸ Dataset 7A. Labour input by activity, ISIC rev 4. OECD.Stat. Accessible at: <https://stats.oecd.org>

downwards by other types of cultural practice and work, meaning it is not appropriate to make an assumption about the screen industry in Poland.

8.1.5. General Limitations of Input-Output Approach

I-O analysis is a commonly used method of establishing the economic contribution or economic impact of a particular firm, investment, or wider industry. It is used worldwide by governments and the private sector to communicate the significance of an industry and the effect of investments and policies. SPI's approach to undertaking economic impact studies is aligned with international best practices.⁶⁹

As with all modelling approaches, there are limitations to the approach. Specifically, I-O analysis makes the following assumptions:

- **No supply constraints.** I-O assumes no restrictions on inputs, raw materials, and employment. This means that modelling a change in the industry needs to be undertaken sensitively to when this assumption might not hold. In this study, SPI has identified potential supply constraints and indicated where action is necessary to mitigate these.
- **The model is not dynamic.** There are no embedded feedback loops or price effects dampening demand. I-O does not account for counteracting or balancing effects of a change being offset or counteracted by a change in another industry.
- **Constant returns to scale.** The same quantity of inputs is needed per unit of output, regardless of the production level.
- **Input structure is fixed.** It is assumed that changes in the economy will affect the level of inputs and outputs but not the mix.
- **Type II multipliers - risk of double counting private consumption effects.** Household consumption is incorporated in GVA. Therefore, if Type II is not applied and the results interpreted correctly there might be a risk of double counting consumption effects. If induced impacts were calculated for all industries in a national economy, the total impact would exceed the national GVA. Type II multipliers should only be used to illustrate footprint effects of a particular industry or policy.

⁶⁹ For example, *Evaluating the effectiveness of state film tax credit programs: Issues that need to be considered*. Ernst & Young, 2012. Accessible at: https://deadline.com/wp-content/uploads/2012/05/motion-picture-assoc-film-credit-study_120510071748.pdf

9. APPENDIX TWO – RIPPLE ANALYSIS METHODOLOGY

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

While some of these inputs will be sourced directly from the screen production industry – i.e., from individuals or vendors who only work in film and television production – normally, a larger proportion of expenditure is made in other areas of the economy. SPI refers to this as the “Ripple Effect”, i.e., the microeconomic impacts each production generates for other business industries.

To demonstrate this impact, forensic analysis of an anonymous production’s budget is undertaken. Here, production costs are allocated to the business industry into which the money is spent. The analysis is focused on below-the-line production expenditure to exclude the effect of payments to major creative talent that could imbalance the analysis.

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

9.1.1. Breadth of Impact Across Business Industries

The Ripple Analysis investigates production spend in the following business industries:

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

These are described further below:

Screen Production-Specific

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

Business Support

Like any economic activity, film and television production uses the services of general business equipment, and services and supplies industries in many ways. This could involve purchases of office equipment, printing, and copying services. Producers also purchase or rent a large number of miscellaneous items, such as storage containers and marquees, especially when a

significant production goes on location, when producers will rely heavily on being able to access local supplies as they set up temporary bases.

Construction

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

Digital Services

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

Real Estate

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

Travel and Transport

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

Hospitality and Catering

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

Mobile catering companies usually provide catering for the working unit, but the quality and availability of restaurants are also important to those travelling to the production location.

Finance and Legal

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

Fashion and Beauty

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

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

Music and Performing Arts

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

Musicians and singers who work in orchestras and opera companies will often be found in recording studios providing musical backgrounds for film and television production industry productions.

Power and Utilities

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

Safety and Security

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

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

Training and Education

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

Health and Medical

This is becoming an even more crucial industry after the COVID-19 pandemic and has, therefore, gained far greater significance. Trained medical staff attend sets and construction sites, providing immediate health cover and medical aid. Screen production also relies on the medical community in several ways, including the health checks that all key staff undergo – this has increased substantially because of pandemic issues and protocols. Special training of such staff has become necessary across the industry since the advent of the COVID-19 pandemic, with considerably increased costs in this category as a result.

Local Labour Miscellaneous

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

10. APPENDIX THREE – PRODUCER SURVEY RESULTS

Using the PFI’s published incentive data, SPI contacted the top 30 Polish production companies that applied for the incentive in Poland. Combined, these 30 companies received 80% of the total incentive funding distributed by the PFI. SPI asked each company to fill in a pro forma and share information on any incentive application productions and other (non-incentive) productions they undertook during the Study period. The data requested included the source of financing for productions, with the aim of identifying production expenditure stimulated by SVoD investment and other key investors.

SPI received financial data from 18 companies, representing 56% of the incentive funding support granted by PFI between 2019 and 2022. The data received from producers refer to 65 productions that applied to the incentive between 2019 and 2022 and with principal photography starting between 2019 and 2024.

10.1. Analysis of the Polish Production Sample

Table 7 outlines the productions the survey responses cover, broken down by production type. Most productions submitted by respondents refer to feature films (29) and television series (25). Information on animated films and documentaries was scarcer and, therefore, excluded from certain analysis types.

Table 7 – Number of Productions in Data Set for Analysis By Type

Type	Number
Animated (film and series)	9
Documentary (film and series)	2
Feature Film	29
Series	25
Total	65

Source: Polish producers who responded to data collection, Olsberg•SPI (2023)

Data show that the average production expenditure that occurred across the 63 productions was 10.7 million PLN (US\$2.6 million), with feature films averaging 10.4 million PLN (US\$2.5 million) and series averaging 14.4 million PLN (US\$3.5 million) (see Table 8). SPI tested these results with key stakeholders in Poland’s screen production industry, who confirmed that this is within the budget ranges the industry in Poland works to.

Table 8 – Number of Productions in Data Set for Analysis and Average Expenditure in Poland, By Type, 2019 – 2022

	Average production expenditure in Poland (all years)	Median production expenditure in Poland (all years)	**Number
Animated (film and series)	3,833,271 PLN	3,140,997 PLN	9
Documentary (film and series)	*	*	2
Feature Film****	10,407,834 PLN	8,439,000 PLN	***27
Series	14,440,035 PLN	12,512,241 PLN	25
Total	10,782,815 PLN	8,444,216 PLN	63

Source: Polish producers who responded to data collection, SPI analysis (2023); Productions submitted happened between 2019 and 2022. *Data not disclosed due to the small sample size; ** Excluding outlier; *** One respondent provided most information for one of their productions, but not the expenditure figure; **** This value excludes from the calculation a large-scale production which was treated as an outlier

10.2. Funding Sources of Polish Production Sample

Of the 65 productions, at least 29 (45%) received some further form of public financing in addition to the Polish incentive. In those cases, the amount received spanned from 590,000 PLN (US\$0.14 million) to 17,440,494 PLN (US\$ 4.2 million),⁷⁰ with an average of 4,749,198 PLN (US\$ 1.1 million) and a median of 2,802,091 PLN (US\$ 0.6 million). Respondents did not provide detailed information on the type of this funding. However, it is worth noting that some provided the amount in euros, suggesting this might have come from international public sources.

Similarly, the data submitted shows that at least 39 (58%) productions received some form of international funding, with Germany and France the most reported countries among those who provided some information.⁷¹

10.3. Importance of the Act on Financial Support for Audiovisual Production

Poland’s incentive – introduced through the Act on Financial Support for Audiovisual Production – is an important financial mechanism for screen production in Poland. Publicly available data from the PFI show that between 2019 and 2022, production companies have received over 337 million PLN (US\$79 million) worth of incentives across 140 applications.

Sixty-five of the 69 productions SPI has information for successfully applied for the Polish incentive. The incentive amount accounted for, on average, 25% of the production expenditure that occurred in Poland for these productions.

The same producers who supplied production data to the study were asked to complete a survey to gather quantitative data on the Polish screen production industry and assess the importance of Poland’s incentive for production. There were 22 responses to the survey. Note that not all respondents answered every question. The actual number of responses to the question is reported under the figures below.

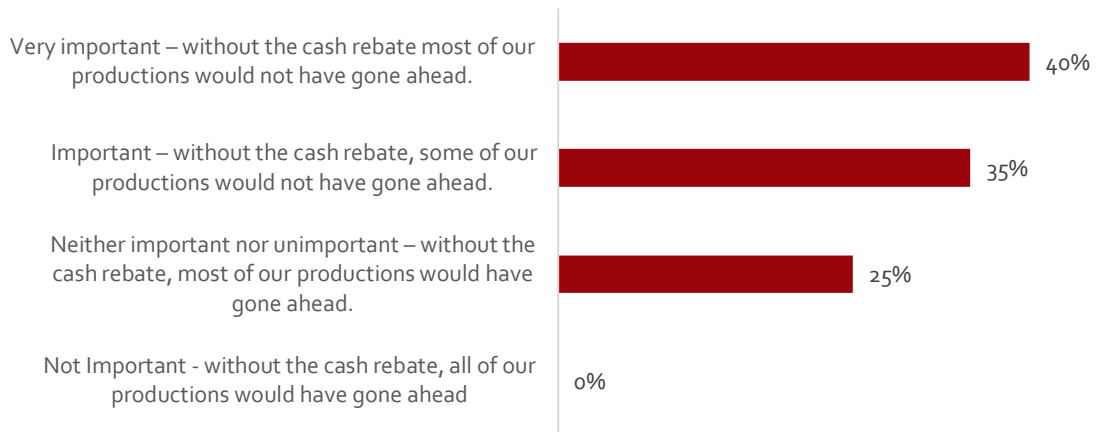
As shown in Figure 31, 75% of the producers who completed the survey stated that Poland’s incentive is either important or very important in making their productions financially viable.

⁷⁰ One production declared they received 98,037,989 PLN (US\$23.8 million) from public sources. Given the stark difference with the others, SPI considers this an outlier.

⁷¹ The list of countries reported also includes the UK, the Netherlands, New Zealand, Israel, and Norway

This means that some of their productions would not have gone ahead without the incentive. No survey respondents agreed that the incentive is unimportant and that their productions would have gone ahead without incentive support.

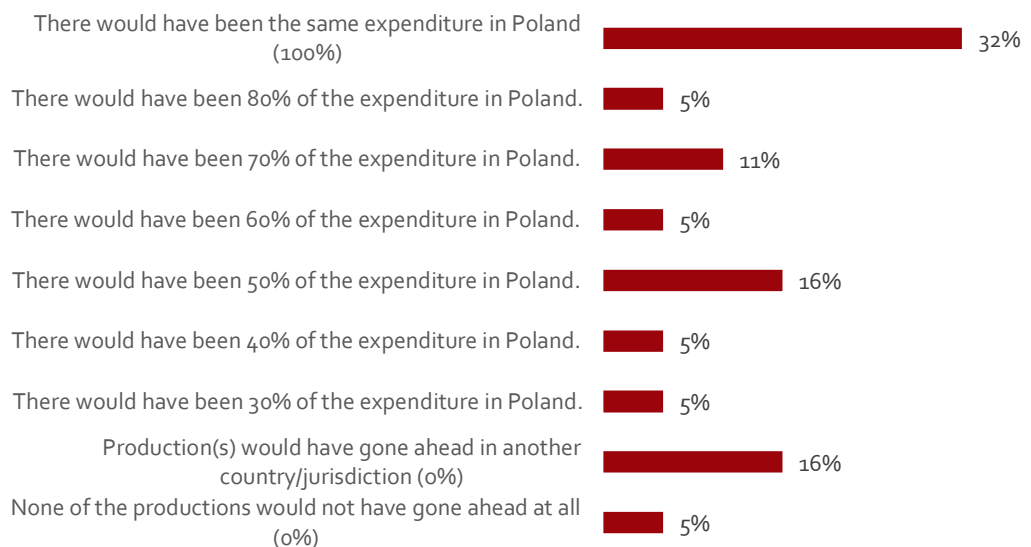
Figure 31 – "How Important Was The Incentive in Making Your Productions Financially Viable?"



Source: SPI analysis (2023) (n=20)

The survey also asked respondents what proportion of their projects would have been made in Poland if the incentive was not available. While 32% of survey respondents stated that their production would have continued as planned in Poland, almost half (47%) of respondents stated that without the incentive, a reduced proportion of the production would have continued in Poland. For 15% of respondents, their production would not have been made in Poland and would have been produced outside of Poland instead.

Figure 32 – "What Proportion of The Project Would Have Been Made in Poland in The Absence Of The Incentive?"

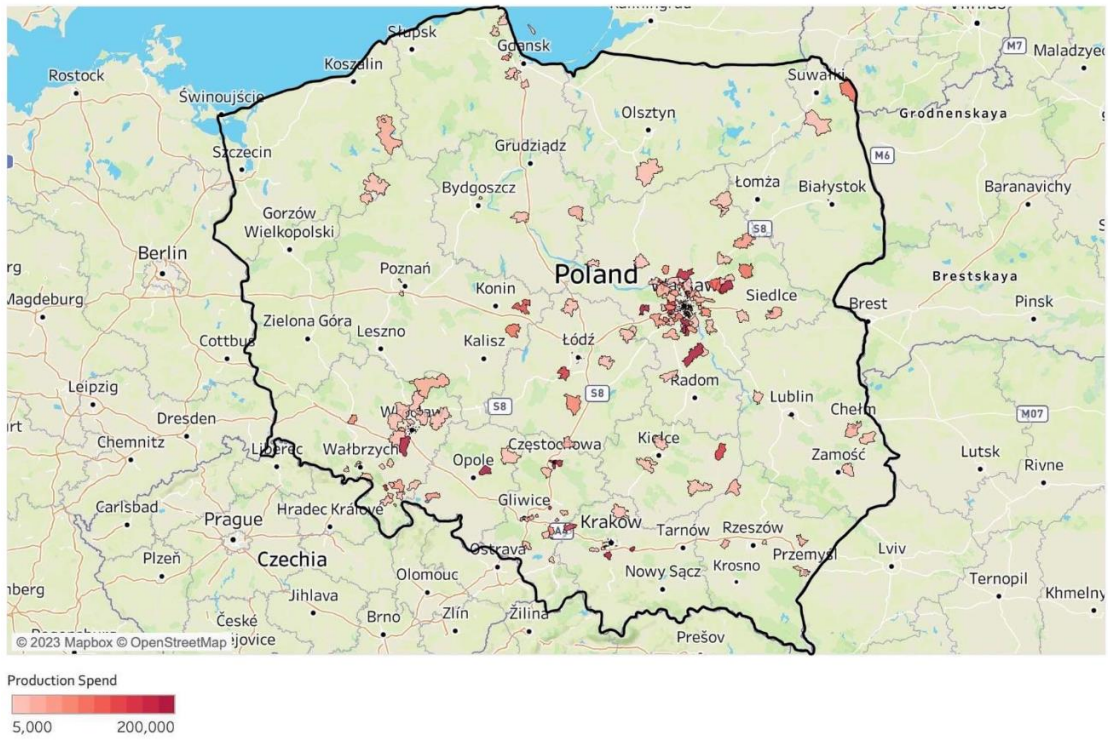


Source: SPI analysis (2023) (n=19)

Consultations completed for this study support the survey findings. The Polish incentive is a critical funding mechanism for many Polish producers, providing them with a vital negotiating tool that enables them to produce larger productions more often and collaborate with international co-producers, global SVoD providers, and studios.

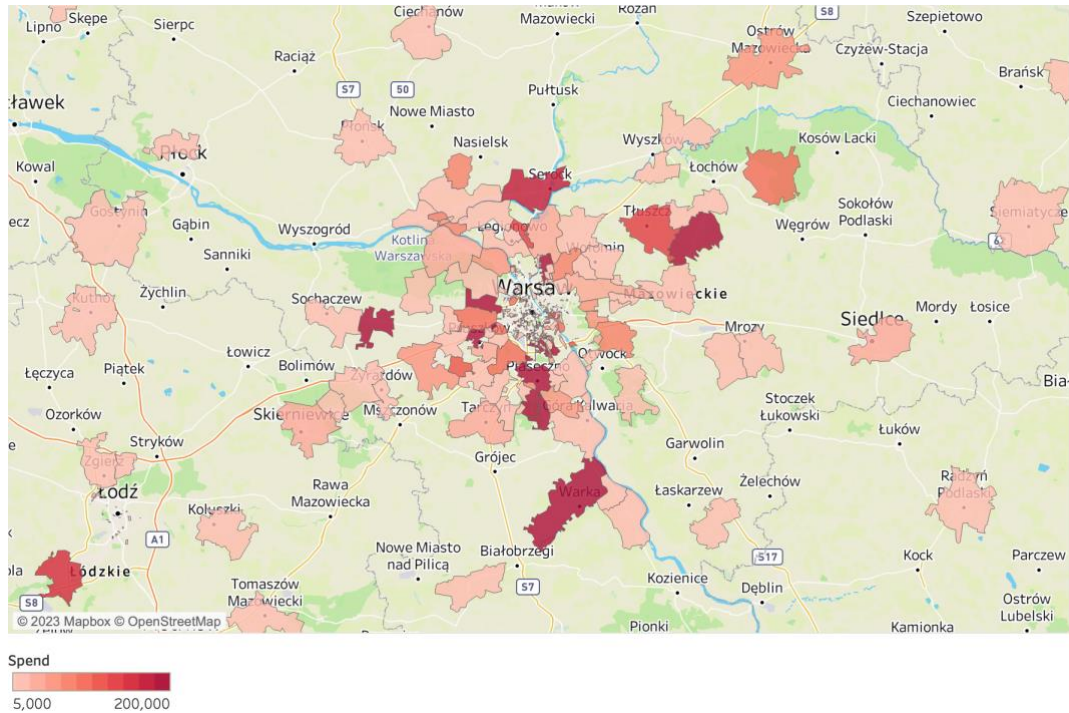
11. APPENDIX FOUR – ADDITIONAL VENDOR HEATMAPS

Figure 33 – Production Three and Production Four Combined, High-Budget Television Series, Poland Overall



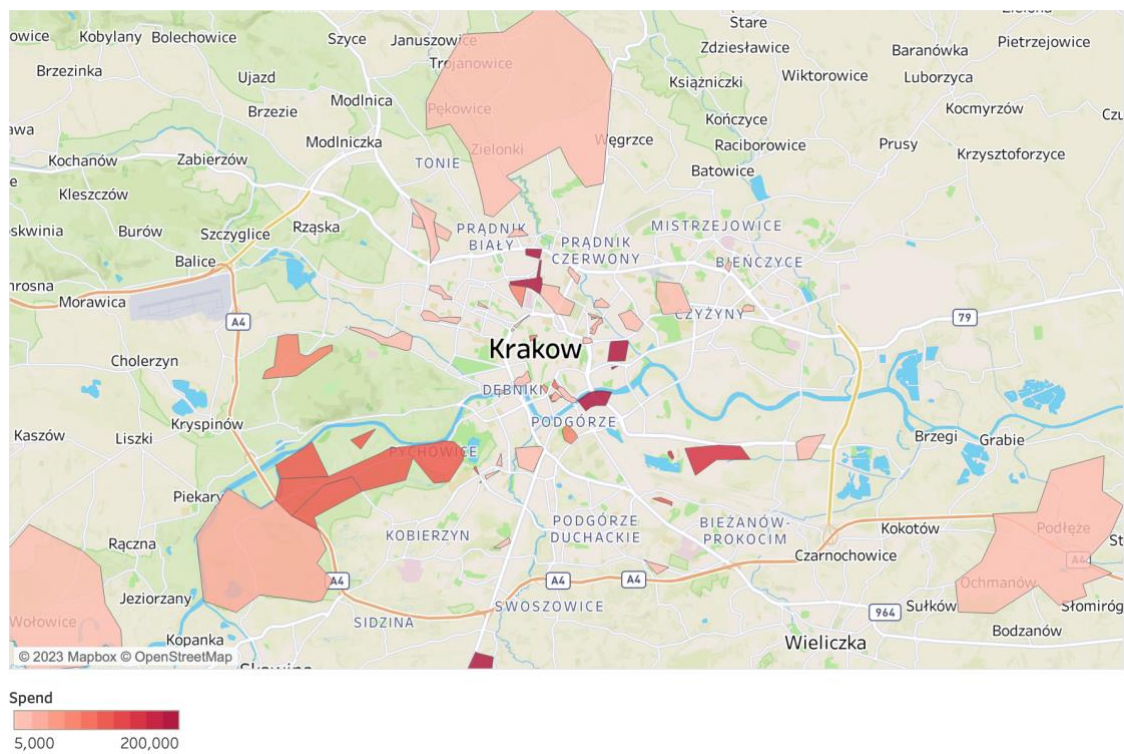
Source: SPI analysis (2023)

Figure 34 – Production Three and Production Four Combined, High-Budget Television Series, Warsaw



Source: SPI analysis (2023)

Figure 35 – Production Three and Production Four Combined, High-Budget Television Series, Kraków



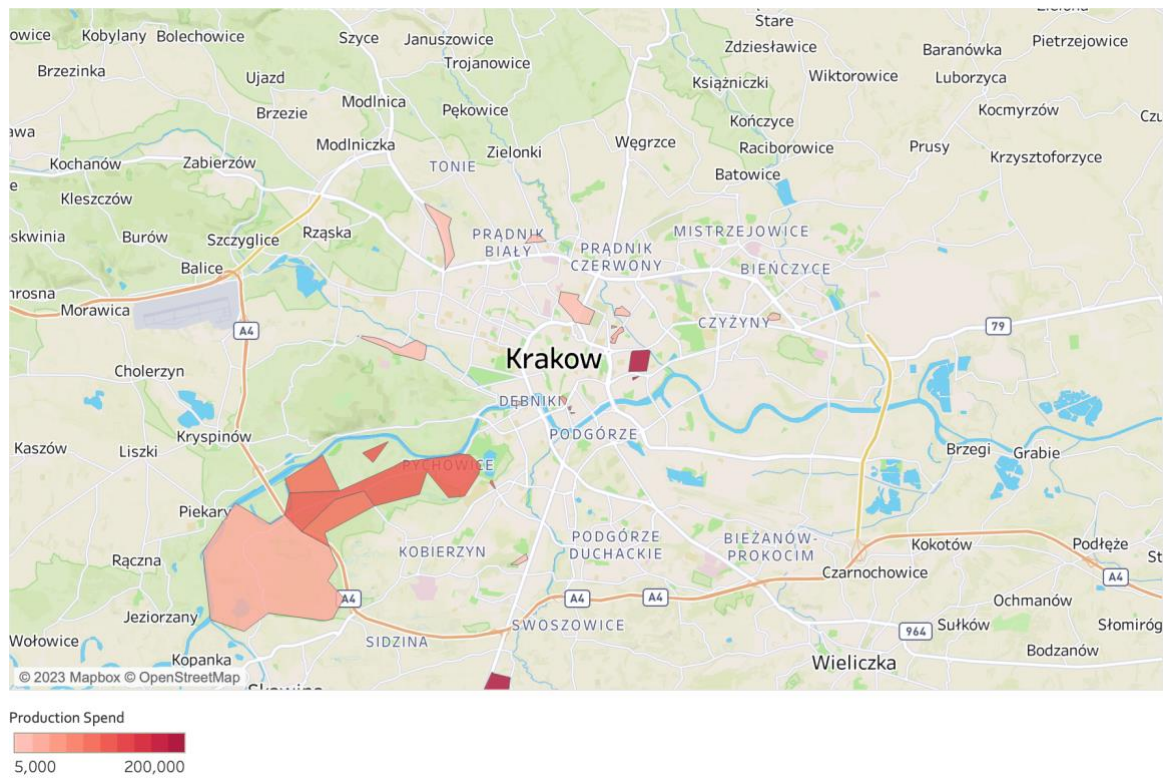
Source: SPI analysis (2023)

Figure 36 – Production Three, High-Budget Television Series, Kraków



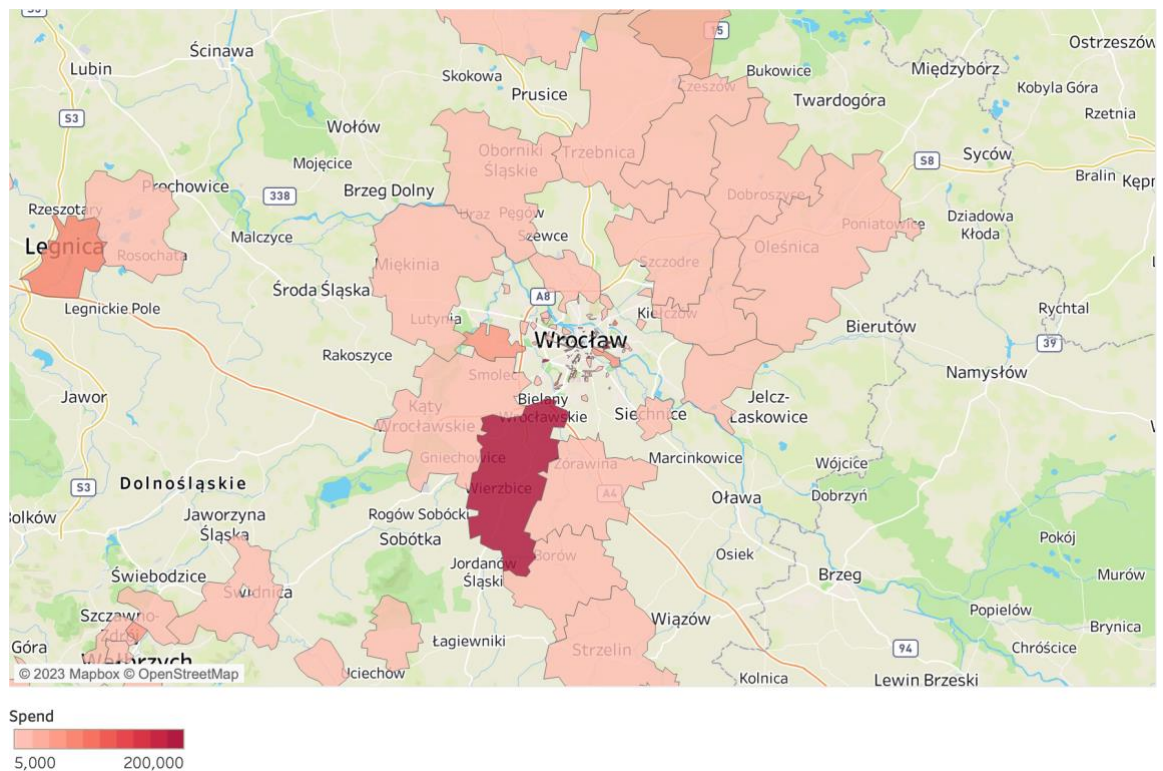
Source: SPI analysis (2023)

Figure 37 – Production Four, High-Budget Television Series, Kraków



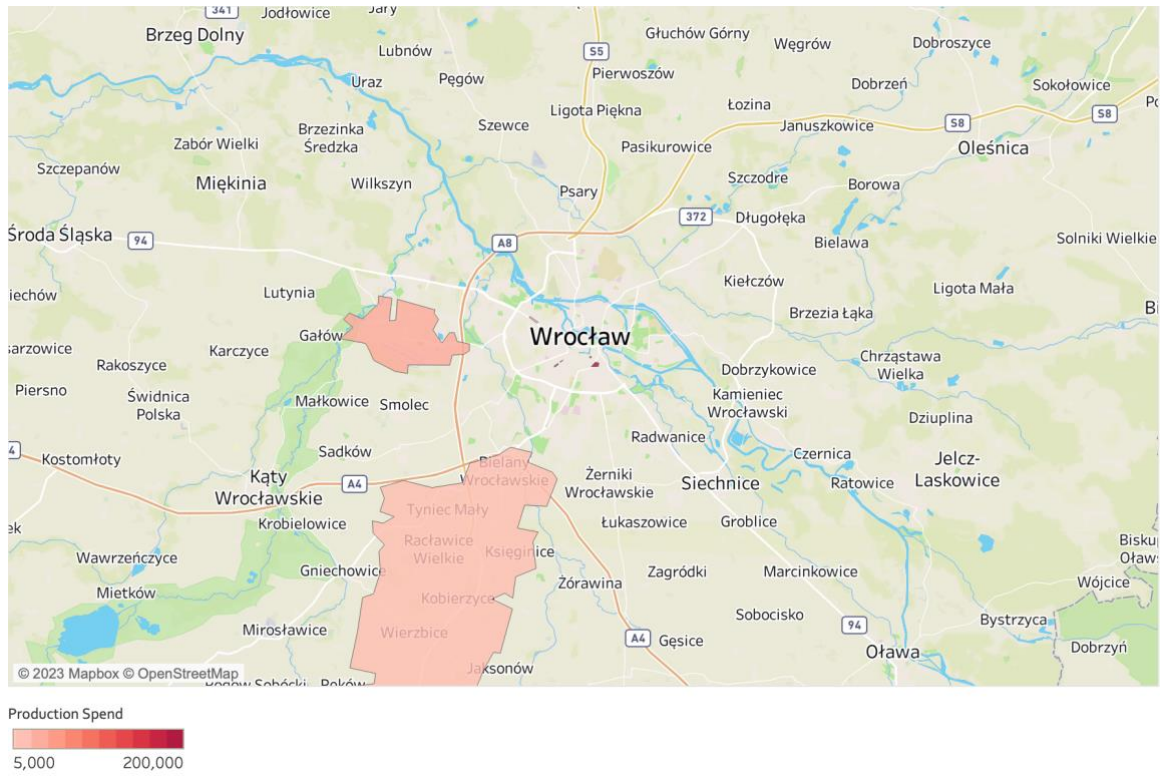
Source: SPI analysis (2023)

Figure 38 – Production Three and Production Four Combined, High-Budget Television Series, Wrocław



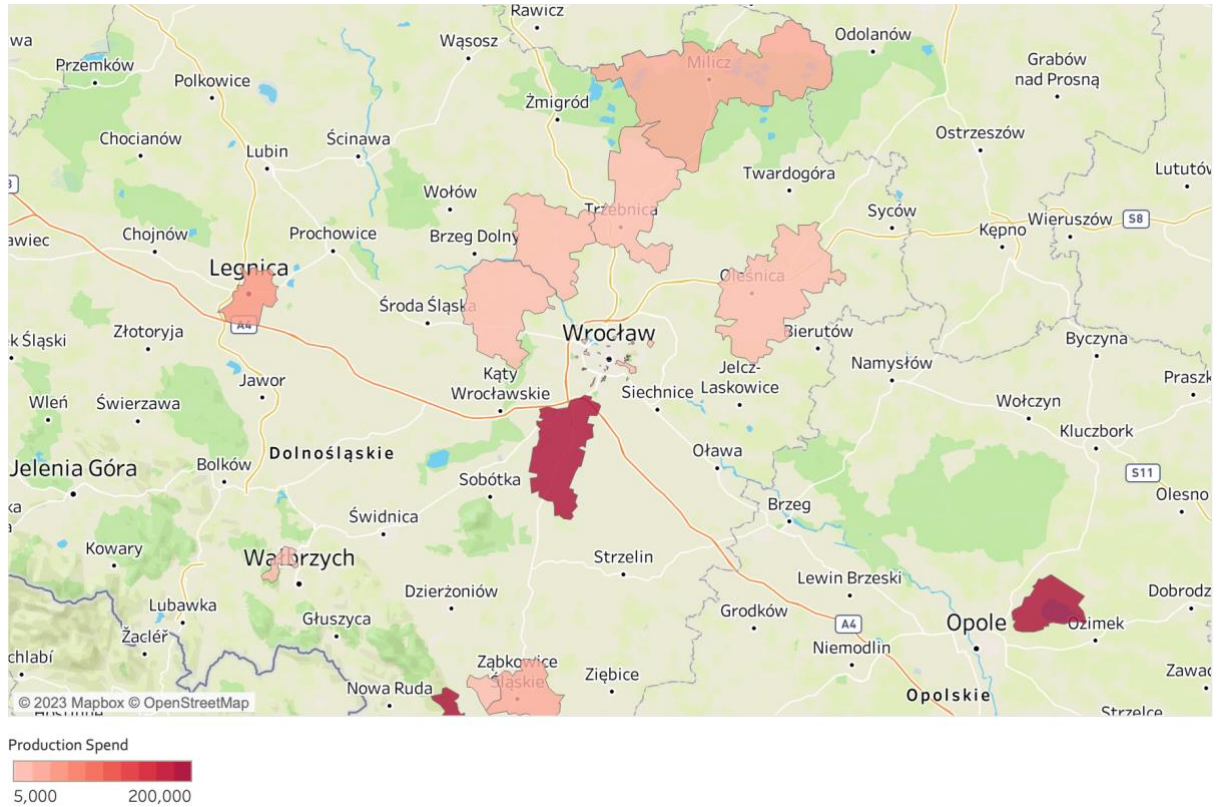
Source: SPI analysis (2023)

Figure 39 – Production Three, High-Budget Television Series, Wrocław



Source: SPI analysis (2023)

Figure 40 – Production Four, High-Budget Television Series, Wrocław



Source: SPI analysis (2023)

12. APPENDIX FIVE – ABOUT KIPA

KIPA, the Polish Producers Alliance, was established 20 years ago and is one of Poland's biggest independent business organisations, with over 170 member entities. Among the members are production companies that specialise in film, television, and advertising, as well as film schools and regional film funds.

KIPA's main goal is to represent its member's economic interests, especially with the government and the key players in the audiovisual market. KIPA facilitates the integration of producers, provides a platform for the exchange of experiences and cooperation, delivers information about current amendments in legislation (including taxation), and shapes and popularises the principles of professional ethics. Moreover, KIPA organises training and workshops for professionals in Poland.

13. APPENDIX SIX – ABOUT OLSBERG•SPI

SPI is an international creative industries consultancy specialising in the global screen sector.

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

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

- National governments, including culture and economics ministries
- National film institutes and screen agencies | Regional and city development agencies and local authorities
- Multi-national cultural funds and authorities
- National and regional tourism agencies
- Established studios and streamers
- Independent companies at all points of the screen business value chain
- National and international broadcasters
- Trade associations and guilds
- Training and skills development organisations
- Publishers and conference organisers.

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

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

Further information on SPI's work can be found at www.o-spi.com and within the [SPI Company Brochure](#).

Please **contact Leon Forde** at leon@o-spi.com for further information about this study.

