The Motion Picture and Video Industry’s Contribution to Virginia’s Economy

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Mangum Economic Consulting, LLC is a Richmond, Virginia based firm that specializes in producing objective economic, quantitative, and qualitative analysis in support of strategic decision making. Examples of typical studies include:

**Policy Analysis** – Identify the intended and, more importantly, unintended consequences of proposed legislation and other policy initiatives.

**Economic Impact Assessments and Return on Investment Analyses** – Measure the economic contribution that business, education, government, or other enterprises make to their localities.

**Workforce Information** – Project the demand for, and supply of, qualified workers.

**Cluster Analysis** – Use occupation and industry clusters to illuminate regional workforce and industry strengths and identify connections between the two.

**Environmental Scanning** – Assess the economic, demographic, and other factors likely to affect your enterprise in the future.

**Forecasting** – Identify future trends likely to affect your business.

Dr. Mangum earned his Ph.D. in economics from George Mason University in 1995, where he received his training under Nobel Laureate James Buchanan and the team of esteemed colleagues, such as Dr. Mark Crain and Dr. Robert Tollison, that Dr. Buchanan had recruited to the Center for Study of Public Choice. He has nearly two decades of experience in quantitative analysis and policy development at both the federal and state level.
Executive Summary

This report provides an assessment of the contribution that the motion picture and video production and distribution industry made to Virginia’s economy in 2011. The most salient findings from that assessment are as follows:

- The motion picture and video production and distribution industry has a sizeable economic impact on Virginia’s economy. In 2011, the industry’s overall direct and indirect contribution to the state’s economy totaled $394.4 million, and generated 3,817 jobs and $59.9 million in tax revenue.

This report was produced by Mangum Economic Consulting, LLC at the request of the Virginia Film Office.
Introduction

This report provides an assessment of the contribution that the motion picture and video production and distribution industry made to Virginia’s economy in 2011. The remainder of this report is divided into two sections. The Employment Trends section provides some general background on statewide trends in industry employment and wages. The Economic Impact section quantifies the economic impact that the motion picture and video industry had on Virginia in 2011. This analysis was produced by Mangum Economic Consulting, LLC at the request of the Virginia Film Office.

Employment Trends

To provide a context for the economic impact analysis to follow, in this section we present general employment and wage data for the motion picture and video production and distribution industry in Virginia. Figure 1 depicts changes in statewide motion picture and video industry employment over the ten-year period from the first quarter of 2002 through the first quarter of 2012.1 As this graph shows, with the exception of significant employment spikes in the second quarter of 2006 and the first quarter of 2007, employment in Virginia’s motion picture and video industry generally trended downward from the first quarter of 2002 through the first quarter of 2010. Over that period as a whole, employment declined by 554 jobs or 28.3 percent. Importantly, however, that trend has since reversed, with a 946 job spike in employment in the fourth quarter of 2011, and an overall increase of 279 jobs, or 20.1 percent in employment, between the first quarter of 2010 and the first quarter of 2012.

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1 In this graph and all subsequent areas of this report, the motion picture and video industry is defined to include four specific industry groups, as defined by the U.S. Bureau of Labor Statistics’ North American Industry Code System (NAICS) industry classification taxonomy. These are: 1) Motion Picture and Video Production (NAICS 512110), 2) Motion Picture and Video Distribution (NAICS 512120), 3) Teleproduction and Other Postproduction Services (NAICS 512191), and 4) Other Motion Picture and Video Industries (NAICS 512199). This definition of the motion picture and video industry is consistent with those employed in earlier analyses conducted for the Virginia Film Office (see Mangum Economic Consulting, “How the Motion Picture and Video Industry Contributes to Virginia’s Economy,” December 2008).
In an effort to control for the effects of seasonality in the data and focus more clearly on emerging trends, Figure 2 depicts the year-over-year change in total film industry employment over this same ten year period. Any observation above the zero line indicates growth in employment from the year before, and any observation below the zero line indicates a decline in employment from the year before. These data also clearly reveal a general downward trend in film industry employment through the second quarter of 2010, followed by uniformly increasing employment in all quarters since.

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2 Data Source: Virginia Employment Commission.
Figure 2: Year-Over-Year Change in Film Industry Employment in Virginia – 2002:Q1 to 2012:Q1

Figure 3 provides data on average wages within Virginia’s film industry, by comparing the 2011 average weekly wage in the four industry classifications that comprise the film industry to the average weekly wage across all industries within state. As this graph shows, average weekly wages in the motion picture and video production and distribution industry compare quite favorably to the statewide average for all industries.

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3 Data Source: Virginia Employment Commission.
The motion picture and video production and distribution industry impacts Virginia’s economy primarily through its hiring of workers and purchases of goods and services. That economic impact is generally referred to in terms of “direct,” “indirect,” and “induced.” Direct impact pertains to the immediate injection of cash into a state’s economy from wages and the direct purchase of goods and services. Indirect impact refers to the economic ripple effects that the direct expenditures have as suppliers use those revenues to purchase goods and services themselves. Finally, induced impact refers to the economic ripple effects that the direct expenditures have as employees spend their wages on consumer goods and services.

To assess the direct, indirect, and induced economic and fiscal impact that the film industry had on Virginia in 2011, we employ a commonly used regional economic impact model called IMPLAN. The IMPLAN model uses state-specific and

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4 Data Source: Virginia Employment Commission.
5 IMPLAN is produced by Minnesota IMPLAN Group, Inc.
national economic data to construct Keynesian multipliers and employs those multipliers to quantify economic impact. Keynesian multipliers measure the ripple effects that an expenditure has as it makes its way through the economy. For example, as when film production companies purchase goods and services from other firms, or when film production workers spend their incomes on rent, food, and clothing. In each case, these expenditures become income for someone else, which is then in turn spent becoming income for someone else, and so on, and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the Keynesian multiplier.

The data that we use in conjunction with the IMPLAN model come from two sources – the Virginia Employment Commission (VEC) and the Virginia Film Office. Employment data collected by VEC pertain to generally full-time positions that are covered by unemployment insurance. To augment these data to include part-time workers and others not covered by unemployment insurance, the Virginia Film Office also surveys known motion picture and video industry within the state. These data are then reviewed on a firm-by-firm basis to ensure that there is no duplication with the VEC employment data.

By feeding these combined data into the IMPLAN model we are able to obtain the statewide impact estimates displayed in Table 1. Three categories of economic impact are provided in Table 1:  1) output impact – the dollar value of the economic activity generated by the film industry, 2) employment impact – the number of jobs associated with that economic activity, and 3) fiscal impact – the tax dollars associated with that economic activity. These categories of impact are further disaggregated into:  1) direct, 2) indirect, 3) induced, and 4) total.

As shown in Table 1, we estimate that, in total, the motion picture and video production and distribution industry contributed $394.4 million to Virginia’s economy in 2011. The multiplier effect for film industry expenditures was 1.77, which means that every $1.00 in film industry expenditures generated $1.77 in total economic activity within the state’s economy. In addition, the motion picture and video production and distribution industry was responsible for creating 3,817 jobs within the state. Finally, the economic activity attributable to the film industry within Virginia generated an estimated $59.9 million in additional tax revenue – $20.1 million of which was state and local and $39.7 million of which was federal.
Table 1: Estimated Economic Impact of the Film Industry on Virginia in 2011

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
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<tr>
<td><strong>Output</strong></td>
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<td><strong>Employment</strong></td>
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<td>998</td>
<td>3,817</td>
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<td><strong>Fiscal</strong></td>
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<td>State and Local Tax Revenue</td>
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<td>$20,190,823</td>
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<tr>
<td>Federal Tax Revenue</td>
<td></td>
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<td>$39,708,272</td>
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