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SUBJECT: Analysis of a Tradable Motion Picture Credit for Georgia

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Summary

The purpose of this policy brief is to analyze the cost to the state of Georgia of a tradable tax credit for qualified production activities including *only* the production of new film or video projects. The brief provides an analysis of the costs of such a credit (the foregone revenue) and the benefits of a credit (due to the economic impact of expansion in the number of films produced in Georgia). The analytical tool that is used in this analysis is the IMPLAN model. The analysis has been done using data on a representative budget for a low budget motion picture, a commercial, and a music video as provided by the Georgia Department of Economic Development.[1]

The economic impact component of the analysis for the motion picture was conducted under two basic scenarios: the baseline (using data from the budgets provided and assuming no change in the mix of expenditures by type or by location) and alternative scenarios (a set of sensitivity scenarios assuming some changes in the mix of expenditures by location in the motion picture budget). For the commercial and music video budget, only the baseline scenario is presented. The credit cost component of the analysis was also made using a number of different credit rules. In all cases, it is assumed that the credit would be tradable without restriction as to the trade price of the credit. Modifying this assumption would change the analysis somewhat. Table 1 presents the results of this analysis; scenario 1 is the baseline case for each project type under alternative credit scenarios and scenario 2 is the low budget film under alternative assumptions regarding the budget as explained in the table notes.

Table 1 provides a summary of the type and cost of alternative types of credits and the net impact of the various alternatives. For example, in the first scenario, the budget information pertains to a low-budget production of $11.8 million, of which $4.0 million is non-labor Georgia expenditures and $2.1 is GA labor expenditures. The economic impact (total direct and indirect economic activity) associated with such a production is $12.6 million. In turn, the direct and indirect expenditures yield a revenue increase of $746,531 state revenue and $1.04 million of state and local revenue. If a credit of 10 percent of non-labor Georgia expenditures (on all Georgia non-labor) and 15 percent of Georgia labor expenditures were allowed (on all Georgia labor), the cost of the credit would be $714,848. The net impact on the state and local budgets would be an increase in revenue of $320,620 and on the state budget only would be a revenue gain of $198,712. In the case of a 20% credit on Georgia labor and a 15% credit on non-labor Georgia spending, the net impact on state revenue would be negative (-90,214) and the net impact on state and local revenue would be a positive $198,712.[2]

TABLE 1: SUMMARY OF IMPACTS

Scenario	Credit: Percent Credit All Georgia Labor	Credit: Percent Credit All Georgia Non-Labor	Credit: Value of Credit	Net State Revenue Impact ($)	Net State-Local Revenue Impact ($)
1 Low budget	15	10	$714,838	31,694	320,620
2 Low budget	17	12	$836,745	-90,214	198,712
3 Commercial	15	10	$11,499	-3,391	695
4 Music Video	15	10	$13,950	-2,252	3,151
5 Low budget; increased post-production	15	10	$804,838	-14,563	306,908

Notes: Scenarios 1-2 are the baseline scenarios and utilize budget data as reported; scenarios 3 is for a hypothetical budget where post-production in Georgia was increased to 50 percent of total reported post-production.

Details on the classification of expenditures and use of the IMPLAN model are presented in the following sections.

Analytical Approach

The expenditures of any business add money to the economy and potentially increase tax revenues if the expenditures are new to the economy. The direct expenditures are those that are made by the firm in producing a good or service. In the case of the motion picture industry, the direct expenditures (direct economic effects) are those items presented in the example budgets provided by the Georgia Department of Economic Development. In addition to these direct economic effects (i.e., expenditures and employment compensation), the economic activities of a firm generate additional economic impacts. These secondary effects, which are known as multiplier or ripple effects, occur because the expenditures made by the production company, by their employees, and by their suppliers, result in additional economic activity in other parts of the economy.

To illustrate how the multiplier works in the case of a film production, consider the following example. Suppose that Firm A purchased $5,000 in security services from a local firm. That security firm will use the $5,000 to hire workers, to purchase materials, etc. The workers, in turn, will purchase goods and services with their income. The firm that supplied the materials to the security firm will, in turn, hire workers, purchase materials, etc. Thus, the initial expenditure results in an increase in sales from several firms as successive rounds of spending occur.

The size of the additional economic effect gets smaller in each additional round of spending since some of the additional income goes to pay taxes, some of it is not spent, and some of it is spent outside the area. To illustrate, suppose that each additional $1.00 of expenditure results in additional spending within Georgia of $.50. The additional $.50 then results in an increase in spending of $.25, and so on. In total, the effect of the initial $1.00 expenditure may be an additional $1.00 in the local economy or an additional $1.25, etc.

The multipliers used for this briefing are based on a sophisticated input-output model called IMPLAN. There are many multipliers available from the IMPLAN software model depending on the type of expenditure that is analyzed. In total, the version of IMPLAN that is run at Georgia State University, Fiscal Research Center contains 509 multipliers representing 20 two-digit NAICS industries.[3] Due to the specificity of the multipliers in the IMPLAN model, in the case of the motion picture industry, given that detailed budgetary data are available, multipliers from a variety of sectors may be applied to specific types of expenditures made in the production process. Therefore the analysis is not based on any one multiplier, but rather on a number of multipliers each of which is quite specific to a particular budgeted category.[4] The detailed breakdown of the budget by category is shown in Table 4 as the "direct" expenditures. The table also contains the economic impacts of the various expenditures.

In general, multiplier effects apply only to expenditures generated by demand from outside the local economy. In this analysis, expenditures of the motion picture industry are assumed to be "new" and not crowding out expenditures that otherwise would have been made in the absence of the production as a result of a tax credit. Budgeted expenditures that are spent outside Georgia will have no multiplier effects on the Georgia economy. Thus, to calculate the total economic effect it is first necessary to determine total Georgia based expenditures, and then to categorize those expenditures by industry type. The Georgia/non-Georgia classification was made available in the representative low-budget film that we received. To further analyze the effect of the motion picture industry, we classified each expenditure in the representative budget by industry. We used 2-digit NAICS industrial classifications as the starting point for aggregation, but broke out industrial categories specifically mentioned in the representative budget. Expenditures from the representative budget are then re-grouped into new budget-specific industrial sectors. These new sectors are denoted by an asterisk (*) in Table 2, along with a descriptive name and list of the IMPLAN sectors included in that sector. Table 3 provides the actual multipliers for these sectors and they range from a high of 2.19 in the construction industry to a low of 1.14 in the real estate and rental sector.

The IMPLAN model produces indirect and induced economic effects by sector. These results are reported in Table 4. As seen in that table, the direct Georgia based expenditures of $6.1 million generate an additional $6.3 million in economic activity. Table 5 shows that these direct and indirect and induced expenditures generate $746,531 in state tax revenue and slightly over one million dollars in state and local tax revenue.

Sensitivity Analysis (Low-Budget Motion Picture)

The economic analysis presented in this report is based on information developed from a variety of industry sources, available data, and published research. However, there are a number of pieces to the analysis, and the results are somewhat sensitive to the inputs. For example, the representative budget itself may not be a good reflection of the business in the industry overall. Small changes in the Georgia/non-Georgia spend categories have a substantial impact on the analysis. Also, the classification of expenditures (Table 4) has an impact on the overall impact; the level of Georgia/non-Georgia spending has an impact, etc. We believe that the classification of Table 4 is accurate and unless the original budget items were misclassified, Table 4 is a very good cross-walk between the budget and the industry classifications available in IMPLAN. A finer budget classification would result in finer categorization of the multipliers. It should be noted, however, that for very similar expenditures, the multipliers are quite similar.

TABLE 2: SECTOR CLASSIFICATION

NAICS (2-digit)	Sector Name	Included Sectors
11	Ag., Forestry, Fishing & Hunting	All NAICS 11
21	Mining	All NAICS 21
22	Utilities	All NAICS 22
23	Construction	All NAICS 23 (less 230220)
31-33	Manufacturing	All NAICS 31-33
42	Wholesale Trade	All NAICS 42
44-45	Retail Trade	All NAICS 44-45 (less 447, 441)
48-49	Transportation	All NAICS 48-49 (less 491110, 492)
51	Information	All NAICS 51 (less 5121)
52	Finance & Insurance	All NAICS 52
53	Real Estate & Rental	All NAICS 53 (less 531, 5321, 5324, 53221)
54	Professional & Scientific Serv.	All NAICS 54 (less 54192, 5418)
55	Management	All NAICS 55
56	Administrative and Waste Serv.	All NAICS 56 (less 5611, 5613, 5614, 5615)
61	Educational Services	All NAICS 61
62	Health & Social Services	All NAICS 62
71	Arts & Entertainment	All NAICS 71 (less 71394, 7131, 72111, 72119, 722)
81	Other Services	All NAICS 81 (less 81111, 8121, 8123, 8129)
92	Government	All NAICS 92
*	Film and Stock Processing	Photographic Serv (54192)
*	Gas & Repairs	Gasoline Stations (447), Auto Rep. & Maint.(81111)
*	Living Expenses	Fitness & Recreation (71394), Other Amuse. (7131), Hotel & Motel (72111), Other Accommodations (72119), Food Serv. & Drinking Places (722)
*	Location Rental	Real Estate (531)
*	Movie Production	Commercial Building (230220), Motion Pictures (5121), Machinery & Equip. Rental (5324), General Consumer Goods Rental (53221), Empl. Serv. (5613), Travel Arrangements (5615)
*	Office Equipment, Supplies and Shipping	Postal Service (491110), Courier & Messenger (492), Office Admin. Serv. (5611), Business Support Serv. (5614)
*	Publicity	Advertising and Related Services (5418)
*	Transportation Rental and Purchase	Motor vehicle and Parts Dealers (441), Auto. Equipment Rental (5321)
*	Wardrobe & Makeup	Personal Care Serve. (8121), Drycleaning & Laundry Serv. (8123), Other Personal Serv. (8129),

TABLE 3: OUTPUT MULTIPLIERS BY INDUSTRY (LOW-BUDGET MOVIE)

Sector	Direct Effects	Indirect Effects	Induced Effects	SAM Multiplier
11 Ag, Forestry, Fish & Hunting	1.00	0.33	0.34	1.67
21 Mining	1.00	0.26	0.41	1.68
22 Utilities	1.00	0.20	0.29	1.49
23 Construction	1.00	0.60	0.59	2.19
31-33 Manufacturing	1.00	0.58	0.36	1.94
42 Wholesale Trade	1.00	0.32	0.48	1.80
48-49 Transportation & Warehousing	1.00	0.52	0.54	2.06
44-45 Retail trade	1.00	0.37	0.56	1.93
51 Information	1.00	0.34	0.43	1.77
52 Finance & insurance	1.00	0.37	0.45	1.82
53 Real estate & rental	1.00	0.08	0.06	1.14
54 Professional- scientific & tech serv.	1.00	0.20	0.71	1.91
55 Management of companies	1.00	0.28	0.71	1.99
56 Administrative & waste services	1.00	0.32	0.58	1.90
61 Educational serv.	1.00	0.30	0.66	1.96
62 Health & social services	1.00	0.44	0.61	2.04
71 Arts-entertainment & recreation	1.00	0.34	0.69	2.03
81 Other services	1.00	0.40	0.54	1.94
92 Government & non NAICs	1.00	0.10	0.56	1.65
*Film and Stock Processing	1.00	0.33	0.40	1.74
*Gas and Repairs	1.00	0.50	0.38	1.89
*Living Expenses	1.00	0.46	0.54	2.00
*Location Rental	1.00	0.30	0.22	1.52
*Movie Production	1.00	0.42	0.67	2.09
*Office Equipment, Supplies, and Shipping	1.00	0.32	0.60	1.92
*Publicity	1.00	0.28	0.61	1.90
*Transportation Rental and Purchase	1.00	0.33	0.54	1.88
*Wardrobe and Makeup	1.00	0.37	0.43	1.80

TABLE 4A: ECONOMIC IMPACT OF A SMALL-BUDGET FILM ($11.8 MILLION BUDGET, $6.1 MILLION SPENT IN GEORGIA)

Output Impact	Actual Expenditures				Actual Expenditures + 900k in New Post Production Expenditures			
Sector	**Direct**	**Indirect**	**Induced**	**Total**	**Direct**	**Indirect**	**Induced**	**Total**
11 Ag, Forestry, Fish & Hunting	$ -	$ 32,066	$ 27,695	$ 59,762	$ -	$ 34,271	$ 32,315	$ 66,586
21 Mining	$ -	$ 1,853	$ 1,777	$ 3,629	$ -	$ 2,080	$ 2,073	$ 4,153
22 Utilities	$ -	$ 69,989	$ 89,432	$ 159,421	$ -	$ 75,911	$ 104,350	$ 180,261
23 Construction	$ 182,318	$ 32,110	$ 16,458	$ 230,886	$ 182,318	$ 34,532	$ 19,204	$ 236,054
31-33 Manufacturing	$ -	$ 626,949	$ 535,868	$ 1,162,817	$ -	$ 714,196	$ 625,257	$ 1,339,453
42 Wholesale Trade	$ -	$ 211,445	$ 221,375	$ 432,821	$ -	$ 235,537	$ 258,303	$ 493,841
44-45 Retail trade	$ -	$ 133,344	$ 283,915	$ 417,259	$ -	$ 161,606	$ 331,275	$ 492,881
48-49 Transportation & Warehousing	$ -	$ 84,020	$ 108,373	$ 192,393	$ -	$ 94,920	$ 126,451	$ 221,371
51 Information	$ -	$ 132,779	$ 106,017	$ 238,796	$ -	$ 151,145	$ 123,702	$ 274,846
52 Finance & insurance	$ -	$ 131,169	$ 310,079	$ 441,248	$ -	$ 151,338	$ 361,804	$ 513,141
53 Real estate & rental	$ -	$ 71,426	$ 23,564	$ 94,990	$ -	$ 77,747	$ 27,495	$ 105,241
54 Professional-scientific & tech serv.	$ -	$ 261,926	$ 116,785	$ 378,711	$ -	$ 315,559	$ 136,266	$ 451,825
55 Management of companies	$ -	$ 56,046	$ 30,407	$ 86,453	$ -	$ 65,471	$ 35,479	$ 100,949
56 Administrative & waste services	$ -	$ 43,825	$ 30,934	$ 74,759	$ -	$ 48,836	$ 36,094	$ 84,930
61 Educational serv.	$ -	$ 6,474	$ 38,714	$ 45,188	$ -	$ 7,364	$ 45,172	$ 52,536
62 Health & social services	$ -	$ 58	$ 441,540	$ 441,598	$ -	$ 63	$ 515,195	$ 515,258
71 Arts-entertainment & recreation	$ -	$ 23,333	$ 17,790	$ 41,124	$ -	$ 25,949	$ 20,758	$ 46,707
81 Other services	$ -	$ 38,585	$ 73,820	$ 112,405	$ -	$ 44,732	$ 86,134	$ 130,865
92 Government & non NAICs	$ -	$ 47,571	$ 395,144	$ 442,715	$ -	$ 53,313	$ 461,059	$ 514,372
Film and Stock Processing	$ 217,060	$ 1,612	$ 3,022	$ 221,694	$ 217,060	$ 1,780	$ 3,526	$ 222,366
Gas and Repairs	$ 69,499	$ 61,940	$ 120,425	$ 251,864	$ 69,499	$ 71,766	$ 140,513	$ 281,778
Living Expenses	$1,961,618	$ 49,378	$ 232,521	$ 2,243,517	$1,961,618	$ 56,614	$ 271,309	$ 2,289,541
Location Rental	$ 144,743	$ 143,638	$ 139,714	$ 428,095	$ 144,743	$ 156,311	$ 163,020	$ 464,074
Movie Production	$2,922,172	$ 194,325	$ 52,712	$ 3,169,209	**$3,822,172**	$ 237,451	$ 61,505	$ 4,121,128
Office Equipment, Supplies, and Shipping	$ 207,038	$ 68,635	$ 41,506	$ 317,179	$ 207,038	$ 78,366	$ 48,430	$ 333,833
Publicity	$ 21,608	$ 24,961	$ 8,718	$ 55,287	$ 21,608	$ 28,188	$ 10,172	$ 59,968
Transportation Rental and Purchase	$ 289,973	$ 32,042	$ 88,651	$ 410,667	$ 289,973	$ 37,818	$ 103,439	$ 431,230
Wardrobe and Makeup	$ 79,340	$ 13,103	$ 38,349	$ 130,792	$ 79,340	$ 13,345	$ 44,747	$ 137,432
Total	**$6,095,369**	**$2,594,603**	**$3,595,305**	**$12,285,277**	**$6,995,369**	**$2,976,206**	**$4,195,046**	**$14,166,621**

TABLE 4B: ECONOMIC IMPACT OF A COMMERCIAL

Output Impact	------------------Actual Expenditures-----------------			
Sector	**Direct**	**Indirect**	**Induced**	**Total**
11 Ag, Forestry, Fish & Hunting	0	331	487	818
21 Mining	0	30	31	61
22 Utilities	0	885	1,571	2,456
23 Construction	8,500	373	289	9,163
31-33 Manufacturing	0	10,272	9,414	19,685
42 Wholesale Trade	0	3,126	3,889	7,015
44-45 Retail trade	0	2,877	4,988	7,865
48-49 Transportation & Warehousing	0	1,380	1,904	3,284
51 Information	0	2,286	1,862	4,148
52 Finance & insurance	2,227	2,625	5,447	10,299
53 Real estate & rental	0	1,039	414	1,453
54 Professional-scientific & tech serv.	0	5,299	2,052	7,351
55 Management of companies	0	953	534	1,487
56 Administrative & waste services	0	711	543	1,255
61 Educational serv.	0	125	680	805
62 Health & social services	0	1	7,756	7,757
71 Arts- entertainment & recreation	0	346	313	659
81 Other services	0	698	1,297	1,995
92 Government & non NAICs	0	754	6,941	7,696
Film and Stock Processing	10,200	70	53	10,323
Gas and Repairs	0	1,104	2,115	3,219
Living Expenses	7,245	865	4,085	12,195
Location Rental	0	2,109	2,454	4,564
Movie Production	65,992	3,833	926	70,751
Office Equipment, Supplies, and Shipping	1,250	1,208	729	3,187
Publicity	0	383	153	537
Transportation Rental and Purchase	0	629	1,557	2,186
Wardrobe and Makeup	10,000	362	674	11,036
Total	105,414	44,676	63,158	213,248

TABLE 4C: ECONOMIC IMPACT OF A MUSIC VIDEO

Output Impact	-------------------Actual Expenditures------------------			
Sector	**Direct**	**Indirect**	**Induced**	**Total**
11 Ag, Forestry, Fish & Hunting	0	486	640	1,126
21 Mining	0	37	41	78
22 Utilities	0	1,113	2,067	3,180
23 Construction	5,013	493	380	5,886
31-33 Manufacturing	0	13,100	12,384	25,484
42 Wholesale Trade	0	4,023	5,116	9,139
44-45 Retail trade	0	3,525	6,561	10,086
48-49 Transportation & Warehousing	0	1,689	2,505	4,194
51 Information	300	2,808	2,450	5,558
52 Finance & insurance	5,600	3,885	7,166	16,651
53 Real estate & rental	0	1,329	545	1,874
54 Professional-scientific & tech svcs	1,600	6,886	2,699	11,185
55 Management of companies	0	1,228	703	1,931
56 Administrative & waste services	0	800	715	1,515
61 Educational svcs	0	140	895	1,034
62 Health & social services	0	1	10,204	10,205
71 Arts-entertainment & recreation	0	435	411	847
81 Other services	0	866	1,706	2,572
92 Government & non NAICs	0	976	9,132	10,108
Film and Stock Processing	8,660	37	70	8,767
Gas and Repairs	0	1,361	2,783	4,144
Living Expenses	18,520	1,115	5,374	25,009
Location Rental	0	2,453	3,229	5,682
Movie Production	93,215	5,095	1,218	99,528
Office Equipment, Supplies, and Shipping	0	1,504	959	2,464
Publicity	0	497	201	698
Transportation Rental and Purchase	0	781	2,049	2,830
Wardrobe and Makeup	1,510	269	886	2,665
Total	134,418	56,932	83,088	274,438

TABLE 5: TAX IMPACTS OF FILM PRODUCTION EXPENDITURE (LOW-BUDGET FILM)

Tax Impact Low-Budget			
Revenue Item	**State**	**Local**	**Total**
Corporate Income Tax	8,445	0	8,445
Personal Income Tax	556,576	0	556,576
Sales Tax	158,527	105,929	264,456
Estate & Gift Tax	0	0	0
Property Tax	1,543	155,425	156,968
Other Taxes, Fees, and Fines	21,439	27,573	49,012
Total	**746,531**	**288,926**	**1,035,457**

Tax Impact Low-Budget + 900K in New Post Production in GA			
Revenue Item	**State**	**Local**	**Total**
Corporate Income Tax	9,510	0	9,510
Personal Income Tax	578,819	0	578,819
Sales Tax	176,044	117,633	293,677
Estate & Gift Tax	0	0	0
Property Tax	1,715	172,730	174,445
Other Taxes, Fees, and Fines	24,188	31,107	55,295
Total	**790,275**	**321,471**	**1,111,746**

Tax Impact Commercial			
Revenue Item	**State**	**Local**	**Total**
Corporate Income Tax	154	0	154
Personal Income Tax	5,386	0	5,386
Sales Tax	2,220	1,484	3,704
Estate & Gift Tax	0	0	0
Property Tax	22	2,185	2,207
Other Taxes, Fees, and Fines	325	418	743
Total	**8,107**	**4,087**	**12,194**

Tax Impact Music Video			
Revenue Item	**State**	**Local**	**Total**
Corporate Income Tax	182	0	182
Personal Income Tax	8,123	0	8,123
Sales Tax	2,937	1,962	4,899
Estate & Gift Tax	0	0	0
Property Tax	29	2,890	2,919
Other Taxes, Fees, and Fines	428	550	978
Total	**11,698**	**5,403**	**17,101**

Another limitation of this type of analysis is that the mix of the budgeted expenditures could be influenced by the fiscal policy of a state. In two interviews undertaken to develop this analysis, it was suggested that the ratio of Georgia-non-Georgia based expenditures could change as a result of a tax credit (due in particular to the increased likelihood of doing Georgia-based post-production work), depending upon the size and construction of the credit. We have not been able to obtain a time-series of budget data from firms producing in states with credits to critically analyze such a supposition. And to the contrary, in one interviewee suggested that in the case of post-production, such a switch would not likely take place due to the time-intensity of post-production (those involved "wanting to get home after filming."). However, to demonstrate the sensitivity of the analysis to this type of response, scenario 3 provides an alternative assumptions regarding "Georgia share" in the budget by increasing post-production to 50 percent of reported post production. If this were the case, the revenue cost of the credit would actually increase (scenario 3 in Table 1) because of the relatively large value of credit relative to increase in revenue associated with the post-production industry in Georgia.

Notes

1. We received a budget for a medium budget picture ($35 million) but do not have sufficient detail in that budget to distribute between Georgia and non-Georgia labor and expenditures. We did not have specific Georgia spend breakdowns for the representative commercial nor video production budgets. For the commercial and video production, we allocated expenses as follows. Non-Georgia labor includes: Pre-and post-wrap salary expenses, and directors fees, Non-Georgia non-labor includes: pre-and post wrap expenses, post-production expenses, and telecine expenses. For all labor expenditures, we assume that the total amount is taxable as income generated from activities in Georgia.

2. In all cases, we have assumed that when a tax liability arises from the production, it is paid. This includes the tax liability for non-residents.

3. The multipliers range in size from a low of 0 to a high of 2.72. The average multiplier in the file is 1.63.

4. This is also true of the earlier study by Edmiston (2003).

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