FISCAL RESEARCH CENTER

ECONOMIC IMPACT OF THE COMMERCIAL MUSIC INDUSTRY IN ATLANTA AND THE STATE OF GEORGIA: NEW ESTIMATES

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Executive Summary

In February 2005 Michael Rushton and Marcus X. Thomas (2005) (R&T) provided an update of the study of the music industry in Georgia originally developed by Kelly D. Edmiston and Marcus X. Thomas (2003) (E&T). Rushton and Thomas derived new estimates of the economic impact of the commercial music industry in Georgia. In addition, R&T provided arguments about why the overall importance of the *primary* music industry may be underestimated by looking only at the output, the employment, and tax revenue numbers, and ignoring the effects the *primary* music industry may have in the future. This study reviews the major findings of the previous two studies and provides a new set of estimates of the economic impact of the commercial music industry in Georgia.

We find that the *primary* music industry in Georgia has expanded both in terms of establishments and employment, but employment and establishments in *secondary* music industry, which includes specific industries such as *Musical Instrument Stores* and *Electronic Parts & Equipment*, have decreased since the previous study. This demonstrates that the industry mix continues to change, but the total level of output continues to grow. The net effect on the economy is summarized in the table below. Two measures of output are used for *secondary* music production. One is based on sales and one is based on output per employee. As explained in the report, the difference in the approaches is subtle and is based on the interpretation of the linkages among sectors of the industry.

As seen the Table A, the growth in total output between the 2005 and current study (the last bank of numbers in Table A) is between $10 ($1,007-$997) and $57 ($1,054-$997) million depending on the base for the 2007 estimates ("sales" or "employment"). The total level of employment fell because of the contraction in the *secondary* music industry. The revenue impact of the industry is between $47 and $50 million per year.

TABLE A. ESTIMATES OF THE ECONOMIC IMPACT OF THE MUSIC INDUSTRY IN GEORGIA ($ MILLIONS)

		Output	Employment	Tax Revenues
Primary Music Production	New Estimates (2007):			
	Sales[1]	*$838*	*5,329*	*$35*
	Employment[2]	*838*	*5,329*	*35*
	R&T (2005)	521	4,941	22
	E&T (2003)	386	3,492	16
Secondary Music Industries	New Estimates (2007):			
	Sales	*169*	*4,098*	*12*
	Employment	*216*	*4,098*	*15*
	R&T (2005)	476	6,091	32
	E&T (2003)	604	5,451	41
Total	New Estimates (2007):			
	Sales	*1,007*	*9,427*	*47*
	Employment	*1,054*	*9,427*	*50*
	R&T (2005)	997	11,032	54
	E&T (2003)	990	8,943	58

Notes: [1]Output (and tax revenues) based on sales; [2]Output (and tax revenues) based on employment; Columns may not sum to totals due to rounding.

I. Introduction

In February 2005 Michael Rushton and Marcus X. Thomas (2005) (R&T) provided an update of the study of the music industry in Georgia originally developed by Kelly D. Edmiston and Marcus X. Thomas (2003) (E&T). Rushton and Thomas derived new estimates of the economic impact of the commercial music industry in Georgia. In addition, R&T provided arguments about why the overall importance of the *primary* music industry may be underestimated by looking only at the output, the employment, and tax revenue numbers, and ignoring the effects the *primary* music industry may have in the future. This study will briefly review the major findings of the previous two studies and provide a new estimate of the economic impact of the commercial music industry in Georgia.

The report is structured as follows. In the next section, we summarize the previous studies of the music industry in Georgia. The third section describes recent developments in the music sector, and the fourth section provides updated estimates of the impact of commercial music industry on the Georgia's economy. In addition, Section 5 summarizes the industrial organization of the *primary* music industry and arguments provided by R&T that outline the importance of the *primary* music industry that cannot be seen by looking solely at output, employment, and revenue figures. Section 6 concludes.

II. Review of Previous Studies of the Music Industry in Georgia

The state of Georgia has a well-known history of producing celebrated musicians, and metro Atlanta has more recently become recognized as an industry hub for music production. The industry has impacts beyond the music production industry. These additional impacts that come through the network of industries that are associated with music production increase the overall stake of the industry in Georgia's economy.

As E&T (2003) and R&T (2005), we derive impact estimates for the entire music sector by looking separately at *primary* and *secondary* music sector activities. As defined in the earlier studies, *primary* activity includes music production and *secondary* activity includes manufacturing, instrument repair, education, and wholesale and retail trade in music.

E&T estimated that the *primary* music industry in Georgia for commercial music production had 427 establishments, which together employed 1,918 individuals and generated output of $212 million per year. Using an input-output model of the state economy E&T determined that the output multiplier for commercial music production was 1.82 (i.e. every $1 of output by the music production industry has a total impact of $1.82 on the Georgia economy). It should be noted that R&T, looking at the structure of the industry, suggest reasons why an "input-output model might *underestimate* the true impact of new spending in music production."[1] Nevertheless, R&T also use the same multiplier, and we follow the previous two studies by adopting the same methodology for calculating the total impact.

R&T estimate that the *primary* music industry had 415 firms, employed 2,715 individuals, and produced $286 million in output per year, an increase of 35 percent over the previous study period. When they applied the multiplier, the total impact of *primary* music industry on the state economy was 4,941 jobs and $521 million in output per year.

[1] Section 4 of this report provides some details for this argument. See R&T for a more detailed discussion on this issue.

A social accounting matrix was used to estimate the total tax revenues generated by the *primary* music production, and E&T arrive at a figure of $16.375 million per year. R&T use this result to calculate an implicit tax rate on economic activity generated by the *primary* music industry of 4.2 percent.[2] Applying this rate to their output estimates, R&T estimate $22 million in tax revenues per year contributed by the *primary* music industry at the time of second study.

Turning to the *secondary* music industry, the calculations are somewhat more complex, since with the inclusion of wholesale and retail trade we need to ensure that we avoid the effects of double-counting – if we add together the total sales prices involved in the three transactions of (1) a manufacturer selling an instrument to a wholesaler, (2) the wholesaler selling the same instrument to a retailer, and (3) the retailer selling the instrument to a final consumer, we will have overestimated the total value of economic activity. While for all other sectors sales and output are treated as equivalent, R&T follow the estimate of E&T where in the wholesale and retail trade each $1 in sales represents $0.126 in output, and they use these estimates for calculating output of *secondary* music industry.

E&T estimate total output in the *secondary* music industry of $368.9 million per year and the employment in the *secondary* music industry of 3,650. Based on a multiplier of 1.64, the total impact of the *secondary* sector on the state economy was $604 million per year in output, 5,451 jobs, and tax revenue of $41.3 million per year.

From the estimates of E&T, R&T derive an implicit tax rate of 6.8 percent in the *secondary* music industry.[3] R&T find total output in the *secondary* music industry of $290.4 million in output per year and the employment of 3,714. Using the multiplier and implicit tax, the total impact of the *secondary* sector on the state economy was $467 million in output per year, 6,091 jobs, and tax revenue of $32.4 million per year at the time of second study.

[2] Following R&T we use this estimate of implicit tax rate to calculate new tax revenues in the primary music industry.

[3] We also use the same multiplier and implicit tax rate, but in addition to basing output estimates on sales, we also calculate output from employment as in the original E&T study.

The total impacts of the *primary* and *secondary* sectors combined, are estimated to have generated $990 million in output per year, 8,943 jobs, and $58 million in tax revenue per year in Georgia at the time of the E&T study. At the time of the R&T study, the combined impact of both sectors was $997 million in output per year, 11,032 jobs, and $54 million in tax revenue per year.

Table 1 summarizes the output, employment, and tax revenues derived in the previous two studies, along with our updated estimates. We elaborate more on our estimates and compare them with the previous estimates in Section 3 of this report, but before we proceed, we first review recent developments in Georgia music industry in the following section.

TABLE 1. ESTIMATES OF THE ECONOMIC IMPACT OF THE MUSIC INDUSTRY IN GEORGIA ($ MILLIONS)

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Notes: [1]Output (and tax revenues) based on sales; [2]Output (and tax revenues) based on employment; Columns may not sum to totals due to rounding.

III. Recent Developments

Atlanta and the state of Georgia are well-known for a vibrant music scene. As documented in the previous two reports (E&T and R&T), a number of artists and studios call the area home. Georgia boosts a number of annual music festivals and shows that bring hundreds of thousands to cities and towns in the state. Billboard's R&B Hip-Hop Conference is held in downtown Atlanta and the Atlanta Jazz Festival brings more than 100,000 attendees to Atlanta. The 2006 Atlanta Dogwood Festival reports a $46.3 million economic impact on the city of Atlanta.[4]

Music festivals are highlighted in cities and towns across the state. A brief review of the calendar of events in *Georgia Music Magazine* provides testimony to the level of activity in music: *Georgia Music Magazine* reports 27 events between June 2006 and September 2006, 29 events between September and November 2006, 24 events between December 2007 and March 2007, and 26 events for April-June 2007. The Georgia Music Hall of Fame in Macon, Georgia, hosts it's an annual Music Awards event in Atlanta. The 2006 inductees included: REM, Dallas Austin, Felice Bryant, Gregg Allman, and Jermaine Dupree. In 2006-07, the Georgia Music Hall of Fame hosted an estimated 26,000 visitors (including approximately 8,000 school children).

Georgia artists, writers, producers and engineers continue to be represented at the Grammy Awards. In 2006, Grammy winners included Gladys Knight, Jermaine Dupri, Johnta Austin, Manuel Seal, Casting Crowns (Best Pop/Contemporary Gospel Album). Amy Grant (Georgia-born) won for her album "Rock of Ages . . . Hymns & Faith." Georgia native Ciara is featured in the Best Short Form Music Video "Lose Control." Ray Charles received two wins for the motion picture soundtrack "Ray" including Best Composition Score in a Soundtrack Album for Motion Picture, Television, or Other Visual Media by Craig Armstrong. According to the Georgia Department of Economic Development, more than 30 artists, producers, songwriters,

[4] Atlanta Dogwood Festival accessed at: http://www.dogwood.org/category.aspx?category ID=138.

conductors and other musical talents with Georgia ties were honored including Trisha Yearwood, Usher, and Ludacris.[5]

Following these awards, Georgians were also well represented in the 2007 awards (the 49th annual awards). The Georgia Department of Economic Development reports that more than 35 artists, producers, songwriters, conductors, and others in the music industry with Georgia ties were honored as nominees in the 49th Grammy awards. "Nominees included Akon, Ben H. Allen, Johnta Austin, Gnarls Barkley, Byron Cage, Former President Jimmy Carter, Bryan-Michael Cox, Danger Mouse, Ossie Davis, Kendrick Dean, Jermaine Dupri, Field Mob, Jeff Foxworthy, Gipp, Van Hunt, Susan Archie, India Arie, Yung Joc, Hillary Lindsey, Little Big Town, Ludacris, Mastodon, John McCutcheon, Chadron Moore, Jennifer Nettles, OutKast, Henry Owens, Alan Jackson, Mac Powell, Kenny Rogers, Robert Spano, T.I., Third Day, DJ Toomp and Trisha Yearwood." (Georgia Department of Economic Development, 2007). There were 12 Georgia winners spanning the music genre including: Gnarls Barkley (Best Alternative Music Album and Best Urban/Alternative Performance), Jimmy Carter (Best Spoken Word Album), T.I. (Best Rap Solo Performance), Third Day (Best Pop/Contemporary Gospel Album), Robert Spano (Best Opera Recording and Best Classical/Contemporary Composition), and Ludacris (Best Rap Album).

At the annual BET Awards (June 2007), Georgia artists remain strong candidates for recognition among their peers. Georgia nominees include: Gnarls Barkley, Ludacris, Ne-Yo, OutKast and T.I. In addition, Gladys Knight, Tyler Perry and Chuck D were scheduled to appear. In 2006, Georgia's Sugarland was named Top Duo/Vocal Group at the 41st Annual Academy of Country Music Awards and Jason Aldean (Macon) was named Top New Male Vocalist.

In radio listening, Atlanta is listed in 11th place among national markets. Atlanta is also ranked fourth behind New York, Chicago and Washington D.C. in the number of African-Americans in its listening population.[6] African-Americans

[5] Accessed at http://www.georgia.org/Mobile/PressCenter/NewsItems/FilmVideoMusic/Georgia+musicians+honored+at+48th+annual+GRAMMY%C2%AE+awards.htm

[6] Accessed at www.arbitron.com. These data are for 2002, there have been no published updates.

account for 28.4 percent of the city's total listening population. The early studies also provided evidence of Georgia's strong presence in the music industry.

On the classic music scene, there are some mixed signals regarding the vitality of the industry. The Atlanta Symphony has generated increased ticket sales. The new Symphony Center design was unveiled on February 9, 2005, but the building is currently on hold. In other classic music news, the Atlanta Opera is moving locations to Cobb County's new Cobb Energy Performing Arts Center on the heels of lower attendance at the Boisfeulliet Jones Atlanta Civic Center. The Atlanta Ballet moved to taped music in 2006 as a means to save money.

Georgia's music industry is playing an important role in education. Music Lives foundation is providing $70,000 to provide 600 Atlanta area students music education (*Georgia Music Magazine*, 2007, p. 50). The Dallas Austin Foundation has established recording studios at five Atlanta public schools (*Georgia Music Magazine*, 2007, p. 9).

The industry did lose some important icons over the past 2 years. James Brown died on December 25, 2006. Phil Walden, founder of Capricorn Records and manager for musicians including the Allman Brothers, Otis Redding, Al Green, and others passed away in April 2006. Another influential producer, Mike Clark, owner and manager of Southern Tracks Recording, passed away on February 1, 2007.

IV. New Estimates of Economic Impact

To update the figures for the economic impact of the music sector in Georgia, we replicated the methodology used in E&T and R&T. Following the previous two studies, we construct our data from the *ReferenceUSA* database. As in the previous studies, we face similar data limitations: while the database provides a detailed classification for all firms, the database contains only a *range* of employment and sales (e.g. employment between 1 and 4, or 5 and 9, etc.; sales either under $500,000, or between $500,000 and $1 million, etc.). We use the same point estimates the ranges, same methodology, and same SIC categories for industry classifications in the *ReferenceUSA* database . We derive the point estimate for employment and sales for each firm by taking the midpoint of the range. Therefore, as in the case of the previous results, the new results we present should be treated as estimates.

Table 2 presents the number of establishments, number of employees, sales volume, and two output estimates for the Primary SIC industries (primary refers to four digit level industries, not primary music industry). Comparing our estimates with the ones of E&T, several points are worth mentioning. We see that there are now no establishments (nor employment) in the *Pre-Recorded Music* industry, in comparison with 7 establishments (and estimated 220 employees) at the time of E&T study. New data show that there are no establishments in *Video Tapes & Discs–Manufacturers*, *Records Tapes Discs–Equipment/Supplies–Manufacturers*, and *Phonograph Record/ Prerecorded Tape – Manufacturers* sectors of the pre-recorded music industry, while at the time of E&T these sectors had one, four, and two establishments, respectively.

At the time of E&T study there were no establishments in the *Used Merchandise Stores* industry, whereas we now we see one (which employs 3 individuals). The highest growth in the number of establishments is in the *Electronic Parts & Equipment* industry (383 percent growth since 2003) and this industry is followed by *Schools and Educational Services* (48 percent). The only other industry with an increase in the number of establishments is *Musical Instrument Stores* (35 percent). The largest loss in establishments was in the *Durable Goods* (negative 79 percent) and in *Theatrical Producers* (71 percent) industries. Overall, however, there

TABLE 2. INDUSTRY DATA ($ MILLIONS)

SIC Code	Industry	Establishments	Employees	Sales	Output[1]	Output[2]
2741	Miscellaneous Publishing	23	118	95.00	$95.00	$95.00
2759	Commercial Printing, NEC	0	0	0	0	0
3651	HH Aud & Vid Equip Rec – Sound/Video	6	96	44.75	44.75	44.75
3652	Pre-Recorded Music	0	0	0	0	0
3931	Musical Instruments	5	31	7.75	7.75	7.75
7359	Equipment Rental and Leasing, NEC	2	10	1.50	1.50	1.50
7389	Business Services, NEC	288	1,424	157.75	157.75	157.75
7699	Repair Shops and Related Services, NEC	98	266	26.51	26.51	26.51
7819	Services Allied to Motion Picture	0	0	0	0	0
7922	Theatrical Producers (Exc Motion Pic)	2	5	0.50	0.50	0.50
7929	Bands, Orchestras, and Actors	82	360	71.00	71.00	71.00
8299	Schools and Educational Services, NEC	167	603	53.75	53.75	53.75
8699	Membership Organizations, NEC	0	0	0	0	0
8999	Miscellaneous Services, NEC	7	18	1.75	1.75	1.75
5065	Electronic Parts & Equipment	58	341	368.50	46.43	38.81
5099	Durable Goods, NEC	3	20	15.00	1.89	2.22
5112	Stationery and Office Supplies	0	0	0	0	0
5734	Comp and Comp Hardware Stores	0	0	0	0	0
5736	Musical Instrument Stores	444	2,136	436.01	54.94	90.84
5932	Used Merchandise Stores	1	3	0.25	0.03	0.11
	Total	*1,186*	*5,427*	*1,280*	*564*	*592*

Notes: [1]Output based on sales; [2]Output based on employment; Columns may not sum to totals due to rounding.

is a 10 percent increase in the number of establishments (from 1,074 to 1,186) since the E&T study in 2003.

When it comes to employment in the music industry, developments closely follow the number of establishments. We see the highest growth in employment in *Electronic Parts & Equipment* (326 percent) and this industry is followed by *Musical Instrument Stores* (28 percent). Other industries with an increase in employment are *Schools and Educational Services* (26 percent), *Equipment Rental and Leasing* (19 percent), and *Business Services* (7 percent). The largest losses in employment are found in the *Durable Goods* (95 percent) and in *Theatrical Producers* (90 percent) industries. However, in contrast to number of the growth in the overall number of establishments, there is an overall 3 percent decrease in number of employees (from 5,568 to 5, 427) since 2005.

From the overall numbers and growth figures for the number of establishments and employment, we can observe several interesting points. First, the total number of establishments has grown since 2003, but the growth has been concentrated in a few industries. At the same time, the overall level of employment in the associated industries has decreased, despite many individual industries with positive employment growth. Therefore, we see that composition of firms is changing – we see more firms, but these firms employ fewer individuals.[7] Second, the economic activity is shifting from the *secondary* to the *primary* music industry over time. This second point has several important implications that we elaborate below.

Given the changes we see in the composition of the overall music industry, it is interesting to discuss the changes in establishments by industry in more detail. For the sake of brevity, we have discussed specific trends in the number of establishments and employment by comparing new data only with the data from the first study (2003). We compare output, employment, and tax revenues with both studies in what follows, but we first briefly look at one interesting development in relation to second study (2005). Namely, the number of establishments remained almost identical between 2005 and 2007 (R&T found 1,198 establishments compared to 1,186 that are present now), but there is variation in growth across industries. Perhaps the most

[7] This point is also noted by R&T.

interesting variation is the decrease in the number of *Recording Studios* (SIC 73989-47, subcategory of *Business Services*, *NEC*). The number of establishments in this subcategory is 285 in 2007, compared to 309 that R&T find. Nevertheless the majority of these establishments are still small, employing less than five people and generating less than $500,000 in sales every year.

As can been seen from Table 1 there are two estimates of *Output*. These differ because we have two methods for estimating output of the *secondary* music industry, and we explain these two methods before turning to a description of data. First, we note that similar to the previous two studies, we use estimates of sales as being a valid estimate of output for the *primary* music industries. However, when we turn to the *secondary* music industries, the calculations are somewhat more complex. Namely, with the inclusion of wholesale and retail trade we need to ensure that we avoid the effects of double-counting – if we add together the total sales prices involved in the three transactions of (1) a manufacturer selling an instrument to a wholesaler, (2) the wholesaler selling the same instrument to a retailer, and (3) the retailer selling the instrument to a final consumer, we will have overestimated the total value of economic activity.

The previous two studies differ in terms of how they approached this problem. Based on aggregate data from the trade industry, E&T assume that "wholesale establishments create $113,975 for every employee per year, on average, while retail establishments generate $42,528 in output per employee each year." This gives them an estimate where each $1 in sales represents $0.126 in output. R&T similarly assumed that in the wholesale and retail trade each $1 in sales represents $0.126 in output, and use this estimate for calculating output of *secondary* music industry ignoring the output per employee element of E&T estimations.

For comparison, we use both approaches and that is why we have two estimates of output (one based on $1 in sales representing $0.126 in output and other where output is calculated based on number of employees). Perhaps a more appropriate measure would be one where output is estimated based on the number of employees (i.e. the output per employee listed in the last column), but to keep our methodology consistent with the previous studies, we report other estimate as well.

Looking at the two estimates, we first notice that output is higher when we estimate output per employee than when we use fraction of sales to estimate output. However, there is still some variation within industries. Only in the *Durable Goods* industry is output higher when it is based on sales, while in all other industries (*Electronic Parts & Equipment*, *Musical Instrument Stores*, and *Used Merchandise Stores*) output is higher when it is based on output per employee.[8]

We use the same multipliers as used in the previous two studies to calculate the total impact of each sector in terms of employment and output (and hence tax collections). In the *primary* music industry the multiplier is about 1.82 (i.e. every $1 of output by the music production industry has a $1.82 impact on the Georgia economy), while in the *secondary* music industry this multiplier is 1.64. Therefore, the total impact of the *primary* music industry on the state is $838 million in output per year and 5,329 jobs. The total impact in the *secondary* music industry on the state in terms of employment is 4,098, while output varies based on the method used. If we base the output estimates on sales, the total impact on the state in terms of output is $169 million per year, while if we base the output estimates on employment the impact is $216 million per year.

Following the methodology of R&T, we use an implicit tax rate in the *primary* music industry of 4.2 percent, and use this estimate to calculate new tax revenues in the *primary* music industry. In the *secondary* music industry, the implicit tax rate we use is about 6.8 percent. This gives us total impact of the *primary* music industry of $35 million in tax revenues per year. *Secondary* music industry yields about $12 million in tax revenues per year if we calculate output based on sales and about $15 million in tax revenues per year if we calculate output based on employment.

Looking at the joint impact of both sectors, the total impact on the economy in terms of employment is 9,427 jobs. In addition, if the *secondary* music industry output is based on sales, then the total impact on the economy is $1,007 million in output per year and $47 million in tax revenues per year. However, if the *secondary*

[8] There are several secondary music industries without any establishments, employment, or sales.

music industry output is based on employment, then the total impact on the economy is $1,054 million in output per year and $50 million in tax revenues per year.

Table 1 provides a comparison of previous two estimates and our estimates. The *primary* and *secondary* sectors combined, given the multiplier effects, are estimated to have generated for the state at the time of the E&T study $990 million in output per year, 8,943 jobs, and $58 million in tax revenues per year. At the time of the R&T study, the combined impact of both sectors was $997 million in output per year, 11,032 jobs, and $54 million in tax revenues per year. If we base our estimates for *secondary* industry on sales, the combined impact of both sectors on the state was $1,007 million in output per year, 9,427 jobs, and $47 million in tax revenue, while if we base our estimates for *secondary* industry on employment the combined impact of both sectors on the state was $1,054 million in output per year, 9,427 jobs, and $50 million in tax revenue per year.

Therefore, we see an increase in output between $10 million per year and $57 million per year since the last study and between $17 million per year and $64 million per year since first study. Despite an increase in output, from the same table we see that tax revenues are between $47 million per year and $50 million per year, and both estimates show a decrease in tax revenues when compared to previous two studies. Total tax revenues have decreased between $4 million per year and $7 million per year since the last study, and between $8 million per year and $11 million per year since the first study. This is due to the shift in concentration to the primary sector, which carries a lower implicit tax rate.

Employment shows more fluctuation: we see a decrease in employment of 1,606 individuals when compared to the last study (R&T 2005) and an increase in employment of 484 individuals since the first study (E&T 2003).

V. The Industrial Organization of Music Recording: Clustering and Returns to Scale

In an attempt to explain how the economic impact of music industry calculated in the previous section may be an underestimate of true impact of this industry on the economy, R&T (2005) provide the arguments that there are increasing returns to scale in music production. This section follows their arguments and summarizes them in the relation to the new estimates.

R&T argue that "new music production not only generates additional spending and output in the economy, but also serves to attract even more music production activity to the state." They also note that increasing returns to scale are based on the industrial organization of *primary* music production. In this industry, there are great incentives for clustering and there will be relatively few centers of activity, compared to some other sectors of economy. Therefore, over time, Atlanta (and Georgia) will continue to attract professionals from other locations who will find it easier to succeed here as there is a significant number of individuals already active here. This suggestion of R&T is confirmed with new data, where *primary* music production is constantly increasing over time.

To better understand this phenomenon, R&T look at how music production industry is organized. They note that the industry is mostly "project based," where recording studios are not large firms, but small firms that provide equipment and some staff. These industries, in turn, service other professionals who work on a project.[9] Therefore, although there may appear to be relatively few employees in the industry, these only serve other professionals that come from elsewhere to obtain services that can be provided only in few places in the country, one of which is Atlanta. R&T list the following reasons that would justify that the *primary* music industry exhibits increasing returns to scale, and that, hence, there are additional positive spillovers that go beyond input-output multipliers:

- *"Thick Market*: Individuals working in a project-based industry will only choose a location for residence if there is a large enough and stable

[9] For more on this phenomenon, R&T refer to DeFillippi and Arthur (1998) and Caves (2000).

enough market for their services such that steady employment is likely, albeit through a series of different projects working with different teams.

- *Human capital*: Young individuals who want to gain technical knowledge and establish connections with a professional network will be drawn to locations where there is a significant amount of activity. In such a milieu, individuals can acquire valuable human capital by serving as interns, or low-paid assistants on projects, and also by informal interaction with individuals more established in the industry (Wu, 2005).

- *Collaboration by musicians*: Professional musicians learn from each other: they can collaborate on projects, provide feedback for one another, and also arrange for co-production, where they appear on each other's recordings. Artists have the opportunity to make themselves known to the other recording artist's fan base (Venkatesh et al., 2000). Such collaboration is quite common in contemporary urban music.

- *Collaboration and knowledge spillovers from technical professionals*: Just as with musicians, recording engineers are also able to learn from each other's experiments, successes and failures. Again, this requires a thick market of working professionals; this most prominent example of the importance of clusters for technical spillovers is probably the software industry – also to a very large degree a "project-based" industry – but there are many similarities in sound recording.

- *Live music*: A vibrant recording scene for music will also tend to lead to a critical mass of support for live music production, which in turn will lead to the further attraction of musical talent." (R&T, 2005, pp. 9-10).

Therefore, as the music production industry can be described by the characteristics outlined above, we expect to see a significant clustering of activity in the music industry. Each professional who chooses to locate in the cluster generates a positive externality by benefiting their own career prospects, but at the same time attracting other professionals. R&T therefore note that the standard public policy response to positive externalities in production should be to encourage that activity. Otherwise, individuals will tend to make decisions focusing only on their own costs and benefits, ignoring the positive spillovers they generate for the industry and for Atlanta and Georgia.

As we have seen from the previous section, the tax collections associated with the industry have declined, despite an increase in output. This is caused by a shift in output from *secondary* toward *primary* music industry. As the *primary* music

industry has an implicit tax rage that is 2.6 percentage point lower than implicit tax rate in *secondary* music industry, it is possible to observe a decrease in the tax revenues with an increase in output. Together with the arguments outlined in this section, we see that the "underestimate" of the impact is increasing over time.

This study, together with earlier update of R&T, confirms that an increase in output is driven by an increase in output of *primary* music industry. However, we note that especially in the *primary* music production industries, it is likely the case that the output multipliers underestimate the dynamic economic impacts of expansion in the industry, hence underestimating total output and tax revenues.

VI. Conclusions

This paper has provided an update of the estimates of the economic impact of the music industry in the state of Georgia. We found significant growth in economic activity in the field of *primary* music production since the 2003 study, but the activity in the *secondary* sector has declined.

The new estimates for the music industry, combining the *primary* and *secondary* sectors and using the same output multipliers as the earlier studies to derive the total impact show us that the music industry generates 9,427 jobs in the state, between $1,007 million and $1,054 million in output per year, and between $47 million and $50 million in tax revenues per year. However, we note that especially in *primary* music production industries, it is likely the case that the output multipliers underestimate the total economic impacts in the industry.

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