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February 1, 2006

Dr. Pat Raines
Dean of College of Business Administration
Belmont University
1900 Belmont Blvd
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Re: "The Economic Impact of the Music Industry In the Nashville-Davidson-Murfreesboro MSA," January 2006

Dear Dean Raines:

I looked over your report and was sufficiently troubled to take a couple of days to re-run selected segments of the Music Industry through my IMPLAN model and analyze the results. Because of its detailed disaggregation and your single year data, IMPLAN would have been a better choice than TVA's REMI model to begin with. By contrast, the IMPLAN results reveal problems in your estimates.

I was concerned about the number of questionable choices you made about included direct Music Industry drivers and the unreasonably low multiplier results for the selected sub-sectors that I checked. Had you calculated the very low multipliers attached to sub-sectors of your Table 6 results, this should have been a "red-flag" that something was wrong with your results. Insufficient details are provided in your report for me to discern the exact modeling errors. I do comment on apparent conceptual errors in the text.

I recommend that your report be pulled back, the input data be purged of spurious sub-sectors that I describe in the attached comments and the analysis be re-run thru IMPLAN. Misleading statements and results in the report need to be corrected.

I will be happy to discuss the attached comments further. Call with any questions.

Very truly yours,

William W. Wade

C: President Robert C. Fisher
C: Dean Bo Thomas
C: David Bennett, Executive Director, Film, Entertainment and Music Commission

Review and Comments about:
“The Economic Impact of the Music Industry in the
Nashville-Davidson-Murfreesboro MSA”
Belmont University/Nashville Area Chamber of Commerce, January 2006

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February 1, 2006

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1 Executive Summary

Understanding the economic importance of the Music Industry to the Nashville Metro economy is vital not only to the business community but to Music Industry executives across the country. Belmont University's Dean of College of Business Administration Patrick Raines undertook the study, with Dr. LaTanya Brown, who is no longer with the University. I read the study with interest because of my background in regional economics, interest in Nashville Music Industry, conversations with Belmont University about the study and knowledge of Dean Raines' background in International Business and Finance and his published literature.

The importance of the need for the study in contrast with its immediately apparent failings prompted me to look deeper into how Raines and Brown made use of their excellent access to industry data and information described on pages 8 & 9 of the Belmont Study. Unfortunately, analytic approaches and results reported confound and confuse "the economic value of the music industry." Due to its analytic failings, the policymaker audience to which the study is aimed cannot rely on either the employment impacts or business values reported. In short, the Belmont Study of the economic impacts of the Music Industry is confused in execution, estimation and interpretation. My preliminary corrections suggest reasons why the Belmont Study's results more likely understate than overstate the true economic and employment impact values.

The following bullet list summarizes my findings. Some of the bullets will make more sense after reading Section 2. The remainder of this review supports the findings.

- Business sectors that are not properly part of the export Music Industry are mistakenly counted as part of the export Music Industry.
- Sub-sectors of the Music Industry that support the creation, production, and distribution of Nashville's music brands are mis-estimated within the analysis.

- Tourism spending impacts are double-counted in part. The Tourism element of the analysis needs more in-depth research and vetting.
- Multiplier effects on the core economic drivers of the Music Industry are estimated to be so low that their small size should have been a warning to Raines and Brown that something was wrong with the economic modeling.
- The output and employment multiplier effects on the Integrated Production and Distribution sector – the hub of Music Row – are estimated to be so low (1.06) that the study might imply that Country and Christian music is not created and produced in Nashville. This should have been a “red-flag.”
- My modeling of that major label sector shows that the Output multiplier is 1.7 and the employment multiplier is 2.6, not 1.06 per Raines and Brown. My estimates match *ex ante* expectations for an industry richly interlinked with the Nashville economy. Their total indirect and induced employment impact of 39 jobs created elsewhere in Nashville doesn’t even come close to the 228 jobs I estimate to be created in the restaurant and drinking places sector.
- The authors mis-define a multiplier of 2 to mean, for example, two additional jobs are created in Nashville for each job in the Music Industry. A multiplier of 2 actually means one job in the Music Industry creates one additional job. This error will mislead readers.
- The authors confuse concepts about the basic tenets of regional economic impact analysis within the Belmont Study; i. e., direct, indirect and induced are misused as cited in the rest of this review.

Economic multipliers estimated in the study are too low to pass the common sense test and should have “red-flagged” the authors’ attention to a problem by their low values. Something’s wrong with the Belmont Study’s estimates of the size of the economic linkages of the Music Industry generally to the rest of the Metro Nashville economy. Insufficient detail is provided in the study to support modeling results. Because of this lack of supporting detail and fundamental confusion about components of multipliers and interpretation of multiplier effects within the Belmont Study, I re-ran the largest and most obvious sub-sectors of the Music Industry through my regional IMPLAN model. The results are a useful contrast with the Belmont Study’s results that reveal where the Belmont Study’s arise, if not how they arise.

The magnitude of the Music Industry's impact on the regional economy remains unknown because their reported values are confounded by inclusion of direct effects of sub-sectors that should not be included, and by results for appropriate sub-sectors, which are demonstrated by my analysis to be low. Whether the resultant size of the Music Industry is larger or smaller than reported by the Belmont Study is unknown. Selected results provided within Section 5 suggest that properly re-done, the Music Industry economic impact on the region is likely to be larger than reported by the Belmont Study.

2 Overview of regional economic impacts concepts, measurement and interpretation.

An overview of fundamental concepts of regional economic impact analysis is useful to understand the failings of the Belmont Music Industry Study. The following five concepts underlie regional economic theory:

- Basic and local economic sectors;
- Agglomeration effect;
- Direct, indirect and induced effects;
- Multiplier;
- Net effects contrasted with redistribution effects.

The Belmont study reveals confusion with all of the above tenets of regional economic analysis.

2.1 Basic and local economic sectors

One purpose of regional economic impact assessment is to understand the effects on regional business activity, income and employment that stem from revenues and income brought into the region by a "basic" – or backbone -- industry. Simplistically, an area's economy can be partitioned into two sectors:

the “basic” sector, which produces goods and services for sale to buyers outside the area, and the “local” sector, which sells its products within the area. The “basic” sector is the economic driver of the local sector because the export sector brings in money from the outside that is spent and re-spent on local goods and services. “Basic” industries have a “multiplier effect” on income, employment and earnings as firms and workers in the “basic” industries buy goods and services from the local sector.

2.2 Agglomeration effect

Nashville’s Music Industry is a key “basic” industry that supplies music and entertainment in many forms and by diverse media to the world. The music industry is supported by well-developed linkages depicted in the graphic at page 11 of the Belmont Study. Regional economists describe these well-developed music linkages as an agglomeration in both the labor and product markets. Nashville's agglomeration of artists, producers, labels, recording studios, show case venues, songwriters, musicians, agents, entertainment lawyers, etc. is the perfect example of an agglomeration economy. Nashville even houses BMI and ASCAP to keep track of the performance royalties due publishers and songwriters. Nashville’s abundance of management, creativity, talent and technical expertise increases productivity and efficiency. The wide array of suppliers and workers who provide specialized labor and talent makes Nashville Music City – and serves to keep the basic income recirculating in the regional economy.

2.3 Direct, indirect and induced effects

From the perspective of a regional economic study of the agglomerated Music Industry, one expects to find that most of the basic income stays in the region recirculating among those well-developed linkages depicted on the Belmont Study graphic. To understand and accurately measure the industry economic

effects, the analyst must understand and estimate the components of these economic effects.

Economic impacts are classified as direct, indirect and induced.

- Direct effects in the case of the Music Industry refer broadly to creation, production, performing and worldwide distribution of music and entertainment that arises from the talent and technical base in Nashville.
- Indirect impacts result from changes in sales of suppliers to the directly-affected businesses that create, produce and perform the music.
- Induced impacts result from spending on consumer goods and services by employees of directly and indirectly affected businesses.

Indirect and induced effects may be referred to as the secondary effects; economists sometimes refer to direct and secondary effects.

2.4 Multiplier

Secondary effects are considered to be the multiplier or ripple effects. Regional economic models calculate the secondary effects of direct changes, taking account of the ability of the region to provide the goods and services and labor to affected industries. In the case of the agglomerated Nashville music industry one can reasonably anticipate that multiplier effects will be significant because the support industries are locally present and the local economy is sufficiently broad to retain most of the induced consumer spending. One would expect little leakage to outside suppliers from the regional economy because the skill and talent pool is locally well-developed to provide most or all of the needed inputs.

2.5 Net effects contrasted with redistribution

Besides distinguishing basic economic activity from local economic activity, one further thought must be kept in mind when measuring economic impacts. Net effects (a net addition to the economy) must be distinguished from redistribution

effects (where activity is shifted from one location to another). For example, spending by visitors to Fan Fair (Country Music Association Festival) from the local region is considered a redistribution of their spending, not net new income to the regional economy. Economists consider that had they not spent the money at Fan Fair, they would have spent it somewhere else locally. Only spending by out of state or out of region visitors matters to tabulating the direct economic drivers in the Metro Nashville music economy.

3 Conceptual confusion in Belmont Study led to misleading results and interpretations

The Belmont study reveals confusion about the above tenets of regional economic analysis. At the beginning of its sparse write up of “Methodology,” on page 9, the authors write, “Once the survey participant’s responses are collected and aggregated . . . , the results are run through multiplier models to determine the induced or ‘ripple effects’ from the firms’ initial spending. Finally, the direct and induced values are added to produce the total economic impact of an industry.” (Emphasis added.)

This misuse of the term induced, where in fact regional models produce estimates of secondary effects, sometimes parsed into indirect and induced effects, could be excused if the study itself revealed that the authors understood the difference between induced and indirect effects and their role in determining the size of the multiplier and in determining which industries to consider as direct backbone sub sectors of the Music Industry and which to tabulate as indirect or induced effects.

On page 18, the authors confirm their confusion about its underlying components in their discussion of the multiplier. They write, “The Nashville music industry employment has a multiplier of 2.02, which implies that for every one employee employed by the music industry, that employee’s economic activity, such as consumption of other industry goods and services, will create an additional two

jobs for the Nashville Middle Tennessee area.” Inspection of the Belmont Study Table 4 reveals that their estimates do support a multiplier of 2.02. The table itself shows that the 19,437 jobs directly supported by the Music Industry result in 39,263 total jobs. If the inputs are accurately tabulated, this result confirms that a multiplier 2.02 means that a single job directly created in the Music Industry yields an additional 1.02 jobs elsewhere. The authors’ confusion is a major gaff because readers who do not take the time to study the table, or do not know how to interpret the table, will assume that the language about two additional jobs created by each job in the music industry is correct. The results show it is not.

The employment paragraph at page 18 reveals fundamental confusion about components of the multiplier, interpretation of multiplier effects and measurement of those effects. The language used to overstate the implication of a 2.02 multiplier incorrectly attributes the ripple effect to employee spending. The employee’s consumption of other industry goods and services do not create the 2.02 multiplier. Employee expenditures are measured as the induced effect, which is typically the smaller component of the secondary effect or multiplier effect. Indirect inputs to the directly measured industry are typically the larger component of the multiplier.

Elsewhere the Belmont Study confirms the authors’ confusion about the concept and measurement of multipliers. At page 23 they correctly state that the “output multiplier is approximately 1.5, which means that every \$1 of output sales revenue by the music industry has a \$1.50 impact on the Nashville economy.” This would be true by their estimates shown on Table 6 (if indeed the component direct sectors and their multipliers were correct). They then report on page 25 that “Music-related tourism has multiplier of 2.16, which implies that for \$1 in music-related tourism sales it creates an additional \$2.16 in sales in the area.” Inspection of Table 7 reveals that the \$1.12 billion in tourism direct sales slightly more than doubles when indirect and induced effects are included. The original \$1 creates an additional \$1.16 in secondary effects, not \$2.16. The authors must

not recognize that they mis-defined the multiplier in two places, but described it correctly in one.

4 Local sectors incorrectly analyzed as basic sectors cause overstatement of the Music Industry impacts

Several economic sectors mistakenly are included as direct effects on the Belmont Study Table 6. This reveals confusion about basic versus local industries and net additions versus redistribution of income. A clear example is Clubs, Taverns and Lodges tabulated as reporting \$47.8 million in direct revenues on Belmont Study Table 6. Keep in mind that only income brought into the region is legitimate basic income from which to trace ripple effects through region. The survey questionnaire used to sample spending patterns from visitors to Fan Fair reveals that respondents were asked to report household spending on meals and drinks and on musical performances during their visit. These expenditures were measured within the \$1.12 billion reported as direct sales on Belmont Study Table 7.

The line item for clubs and taverns on the Belmont Study Table 6 has two flaws:

1. It double counts spending by visitors to the region by including it on Table 6 (implicitly) and on Table 7;
2. It includes spending by locals on the Belmont Study Table 6 that would be spent otherwise.

The authors fail to recognize both of these problems. The \$47.8 million direct value and related \$66.75 million indirect and induced effect is mistaken.

It would be useful to be able to inspect the support for that \$1.12 billion of assumed Tourism direct spending and the modeling convention used to trace the tourism ripple effects. Without this review, it is impossible to infer from the lack of supporting information in the Belmont Study if the inputs are reasonable and modeling conventions acceptable. The Tourism impacts are treated in a cavalier

fashion in the Belmont Study. They require more careful attention before they can be considered more than a good guess.

Three other errors are reflected in the industries measured as direct industries.

1. Musical therapists offices, meaning medical services, are an induced effect; i. e., directly and indirectly employed individuals may spend their income on these services, but these services are part of the local economy, captured by estimation of the induced effects. The \$95.76 million Total effect is mistaken. Medical services are discussed in more detail in Section 5.
2. Agents and managers are an indirect effect. Besides, the values reported by County Business Patterns include agents and managers for sports players, which would be substantial in Nashville. The \$311.96 million Total Effect is mistaken. So, too, the Public Relations sector is an indirect effect. The \$34.28 million Total Effect is mistaken. Agents are discussed in more detail in the Section 5.
3. Retail music stores sell product to the local economy, except perhaps the Ernest Tubb Record Shop on Broadway, which sells a substantial amount of product to tourists. The music stores of Nashville are no different than those in Louisville; i. e., they are not part of the economic backbone of Nashville's Music Industry. They are part of the local economy. Music stores are tabulated under two SIC codes on Belmont Study Table 6. Both the \$117.35 and the \$105.97 million Total Effect are mistaken. Besides, RIAA reports that Country and Christian music sales accounted for only 18 percent of recorded music sales in 2002. Sales of the remaining 82 percent of recorded music do not originate from Nashville's Music Industry and are not part of the study anyway.

Table 1 shows the deleted industry sub-categories. I have deleted \$484 million direct and \$665 million total effect. Other sectors on Belmont Study Table 6 require further scrutiny, but may need to be removed from the list of direct economic drivers of the Music Industry. Notably, much of Radio and Television Broadcasting is not driven by the Music Industry. Further research is needed to partition this sector.

Table 1 Industry Sub-Categories Mistakenly Counted as Economic Impacts		
Industry Sub-Category	Direct (\$ million)	Total (\$ million)
CD and Record Stores	58.09	117.35
Music Stores, used	52.46	105.97
Agents and managers	281.26	311.96
Music Therapists	67.64	95.76
Public Relations	24.52	34.28
Total	483.97	665.32

5 Selected IMPLAN Model Results Correct the Belmont Study's Empirical Values

Selected numerical results will illustrate the conceptual points discussed above and reveal other empirical issues with the Belmont Study's results. I selected five of the most obvious and largest sectors of the Music Industry to run Belmont's direct effect values through my IMPLAN model, assuming that the direct effects are reasonably well measured by Belmont's efforts described on pages 13 – 17 of the Belmont Study. My model includes only Davidson, Williamson and Maury counties. Hence, the results might be expected to understate the total effects by exclusion of Rutherford and other counties of the Nashville MSA

Table 2 provides the summary results. Belmont Study results throughout this review are highlighted in brown.

Three obvious findings are revealed on Table 2:

1. My multiplier for these five sub-sectors is 1.75 compared to 1.22 implicit on the Belmont Study Table 6;

2. The size of the aggregate indirect effect, \$734.9 million, is over twice the size of the induced effect, \$328.3 million, which means the analyst needs to understand and measure these effects correctly for a study to have empirical substance;
3. The size of the indirect and induced effects on the Record Production and Distribution business (\$312.35 +\$126.86 million) is twelve times larger than shown on Belmont Study Table 6 as \$36.15 million. The Belmont Study multiplier is unreasonably low for Nashville's agglomerated Music Industry.

The following two sub-sections 5.1 and 5.2 include 12 tables that provide output and employment impacts for 2-digit NAICS aggregate industries and rank orderings of indirect and induced effects sorted by 5-digit disaggregated industries. These 5-digit tables show which industries receive the largest stimulus from the directly impacted industry.

Tables are provided for three major sub-sectors of the Music Industry:

- Record Production & Distribution
- Independent Artists and Writers
- Music Groups & Artists

The tables can be made available to interested stakeholders and professionals.

Table 2 Selected Music Economic Drivers in Metro Nashville					Multiplier	
	Direct	Indirect	Induced	Total	IMPLAN	Belmont
Record Production & Distribution	\$627,929,984	\$312,350,460	\$126,864,997	\$1,067,145,430	1.70	1.06
Record Production Independents	\$184,280,000	\$91,666,180	\$37,231,351	\$313,177,531	1.70	1.47
Independent Artists and Writers	\$290,689,984	\$162,138,429	\$81,106,763	\$533,935,180	1.84	1.47
Music Groups & Artists	\$278,150,016	\$155,144,007	\$77,607,928	\$510,901,963	1.84	1.11
Sound Recording Studios	\$27,300,000	\$13,579,806	\$5,515,606	\$46,395,412	1.70	2.02
Subtotal	\$1,408,349,984	\$734,878,882	\$328,326,646	\$2,471,555,515	1.75	1.22

5.1 Record Production and Distribution – Hub of Music Row

The Record Production and Distribution sector, which includes the major labels, is the hub of the recording industry in Nashville. Something's wrong with Belmont's estimate of the size of economic linkages from this sector to the rest of the Music Industry and the local Nashville economy.

Table 3 shows my estimate of the two digit NAICS summary of the direct, indirect and induced effects for the Record Production and Distribution business – the heart of Music Row. Not surprisingly, the well-developed linkages that support this industry in Nashville reveal a 1.7 multiplier, not Belmont's 1.06 multiplier. The overall effect of this sector on the Nashville economy is \$1.1 billion, not \$664 million estimated by Belmont as shown at the bottom of Table 3.

Table 4 investigates the indirect effects to reveal the top 19 industries that provide inputs to Music Row's production and distribution of recorded music. Not surprisingly, other sound recording segments of that industry are the biggest supplier of inputs. Table 5 investigates the induced effects to show the top 16 industries by induced effects. Much of employee spending of wages and salaries goes to housing. Medical providers are the third and fourth affected induced economic sectors.

Table 6 shows the employment effects of Music Row's production and distribution activities. The direct effects are shown as 2265 jobs compared to Belmont's estimate of 700. I did not take the time to check Belmont's source data or calibrate my model to actual reported industry jobs based on actual wages and salaries. Hence, I do not claim that 2265 jobs is the correct number of direct employment in the sector. The number shown is estimated by the model based on an average value for wages and salaries, which may be low in the model. Nonetheless, the employment multiplier is more correctly estimated at 2.6 rather than Belmont's 1.06. This value is the same number as their output multiplier, which suggests that the employment multiplier may be scaled to output rather than estimated in a model.

The Belmont multiplier does not pass the commonsense test. The indirect and induced jobs in the Retail sector alone amount to nearly nine-fold the Belmont Study's total estimate. Even if my direct employment numbers are high, something's wrong with Belmont's estimates of the indirect and induced employment effects of this major sector on the Nashville economy. The small size of the employment indirect and induced value on Belmont's Table 5 should have created a "red flag" in the authors' thought process. Probably, more than 39 jobs are created at the Sunset Grill and The Palm by major label executives. In fact, IMPLAN output (not shown) reveals that the Record Production and Distribution sector creates 228 jobs in restaurants and drinking establishments. The Belmont Study underestimates the multiplier effects of this major label hub industry on output and employment.

Table 3

Output Impact	Nashville Music			
Record Production & Distribution				
Industry	Direct	Indirect	Induced	Total
11 Ag, Forestry, Fish & Hunting (AGG)	\$0	\$45,166	\$116,014	\$161,180
21 Mining (AGG)	\$0	\$59,007	\$51,300	\$110,308
22 Utilities (AGG)	\$0	\$1,527,445	\$1,210,633	\$2,738,078
23 Construction (AGG)	\$0	\$3,247,580	\$861,767	\$4,109,347
31-33 Manufacturing (AGG)	\$0	\$49,328,204	\$5,731,057	\$55,059,260
42 Wholesale Trade (AGG)	\$0	\$38,847,956	\$7,788,031	\$46,635,988
48-49 Transportation & Warehousing (AGG)	\$0	\$11,826,184	\$3,879,562	\$15,705,746
44-45 Retail trade (AGG)	\$0	\$2,046,524	\$16,299,201	\$18,345,726
51 Information (AGG)	\$627,929,984	\$99,683,880	\$4,226,916	\$731,840,768
52 Finance & insurance (AGG)	\$0	\$12,714,595	\$12,247,989	\$24,962,584
53 Real estate & rental (AGG)	\$0	\$23,887,844	\$7,797,162	\$31,685,006
54 Professional- scientific & tech svcs (AGG)	\$0	\$29,664,422	\$3,639,925	\$33,304,346
55 Management of companies (AGG)	\$0	\$3,610,736	\$1,062,961	\$4,673,697
56 Administrative & waste services (AGG)	\$0	\$17,324,826	\$2,324,375	\$19,649,200
61 Educational svcs (AGG)	\$0	\$246,135	\$2,792,271	\$3,038,406
62 Health & social services (AGG)	\$0	\$7,662	\$20,869,364	\$20,877,026
71 Arts- entertainment & recreation (AGG)	\$0	\$3,142,636	\$1,969,237	\$5,111,873
72 Accommodation & food services (AGG)	\$0	\$4,807,621	\$7,585,565	\$12,393,186
81 Other services (AGG)	\$0	\$4,185,866	\$6,823,881	\$11,009,746
92 Government & non NAICs (AGG)	\$0	\$6,146,172	\$19,587,788	\$25,733,960
Total	\$627,929,984	\$312,350,460	\$126,864,997	\$1,067,145,430
Multiplier				1.70

Belmont Study	Direct	Indirect/Induced	Total
Record Production, Distribution & Publishing	\$627,929,984	\$36,150,000	\$664,090,000
Multiplier			1.06

Table 4

Output Impact	Nashville Music			
Record Production & Distribution				
Industry Sort by Indirect	Direct	Indirect	Induced	Total
Sound recording industries	\$627,929,984	\$70,537,024	\$183,769	\$698,650,752
Wholesale trade	\$0	\$38,847,956	\$7,788,031	\$46,635,988
Audio and video media reproduction	\$0	\$31,873,738	\$32,871	\$31,906,608
Real estate	\$0	\$17,915,028	\$6,396,723	\$24,311,752
Advertising and related services	\$0	\$13,269,010	\$367,991	\$13,637,001
Telecommunications	\$0	\$8,031,615	\$2,077,203	\$10,108,818
Employment services	\$0	\$7,760,624	\$551,810	\$8,312,434
Newspaper publishers	\$0	\$7,712,386	\$268,601	\$7,980,987
Commercial printing	\$0	\$7,065,653	\$249,076	\$7,314,729
Radio and television broadcasting	\$0	\$5,524,806	\$195,996	\$5,720,803
Monetary authorities and depository credit interme	\$0	\$4,844,226	\$3,463,791	\$8,308,017
Nondepository credit intermediation and related a	\$0	\$3,998,455	\$1,376,670	\$5,375,125
Accounting and bookkeeping services	\$0	\$3,627,208	\$471,468	\$4,098,676
Management of companies and enterprises	\$0	\$3,610,736	\$1,062,961	\$4,673,697
Laminated plastics plate- sheet- and shapes	\$0	\$3,468,114	\$6,914	\$3,475,028
Office administrative services	\$0	\$3,431,020	\$250,973	\$3,681,993
Legal services	\$0	\$3,391,431	\$1,332,614	\$4,724,045
Truck transportation	\$0	\$3,197,911	\$1,606,543	\$4,804,454
Food services and drinking places	\$0	\$3,171,630	\$6,565,408	\$9,737,038
Subtotal Top 19		\$241,278,571		\$903,457,945
Total	\$627,929,984	\$312,350,465	\$126,864,997	\$1,067,145,421

Table 5

Output Impact	Nashville Music			
Record Production & Distribution Industry Sort by Induced	Direct	Indirect	Induced	Total
Owner-occupied dwellings	\$0	\$0	\$15,819,409	\$15,819,409
Wholesale trade	\$0	\$38,847,956	\$7,788,031	\$46,635,988
Hospitals	\$0	\$0	\$7,397,702	\$7,397,702
Offices of physicians- dentists- and other health	\$0	\$2	\$6,667,745	\$6,667,747
Food services and drinking places	\$0	\$3,171,630	\$6,565,408	\$9,737,038
Real estate	\$0	\$17,915,028	\$6,396,723	\$24,311,752
Insurance carriers	\$0	\$1,396,969	\$3,538,169	\$4,935,138
Monetary authorities and depository credit interme	\$0	\$4,844,226	\$3,463,791	\$8,308,017
Motor vehicle and parts dealers	\$0	\$391,426	\$3,270,981	\$3,662,407
Food and beverage stores	\$0	\$270,728	\$2,466,223	\$2,736,951
Automotive repair and maintenance- except car wash	\$0	\$583,038	\$2,306,673	\$2,889,711
Nursing and residential care facilities	\$0	\$0	\$2,182,216	\$2,182,216
General merchandise stores	\$0	\$296,474	\$2,094,103	\$2,390,577
Telecommunications	\$0	\$8,031,615	\$2,077,203	\$10,108,818
Securities- commodity contracts- investments	\$0	\$2,132,776	\$1,964,217	\$4,096,993
Other ambulatory health care services	\$0	\$6,849	\$1,904,828	\$1,911,677
Subtotal Top 16			\$75,903,422	
Total	\$627,929,984	\$312,350,465	\$126,864,997	\$1,067,145,421

Table 6				
Employment Impact	Nashville Music			
Record Production & Distribution				
Industry	Direct	Indirect	Induced	Total
11 Ag, Forestry, Fish & Hunting (AGG)	0	2	6	7
21 Mining (AGG)	0	0	0	1
22 Utilities (AGG)	0	3	2	6
23 Construction (AGG)	0	42	10	52
31-33 Manufacturing (AGG)	0	269	22	292
42 Wholesale Trade (AGG)	0	277	56	333
48-49 Transportation & Warehousing (AGG)	0	122	35	157
44-45 Retail trade (AGG)	0	34	268	302
51 Information (AGG)	2265	445	20	2731
52 Finance & insurance (AGG)	0	74	69	142
53 Real estate & rental (AGG)	0	149	53	202
54 Professional- scientific & tech svcs (AGG)	0	333	43	375
55 Management of companies (AGG)	0	29	9	38
56 Administrative & waste services (AGG)	0	412	47	459
61 Educational svcs (AGG)	0	4	51	55
62 Health & social services (AGG)	0	0	199	199
71 Arts- entertainment & recreation (AGG)	0	53	29	81
72 Accommodation & food services (AGG)	0	99	169	268
81 Other services (AGG)	0	51	155	206
92 Government & non NAICs (AGG)	0	12	8	20
Total	2265	2410	1250	5925
Multiplier				2.62

Belmont Study	Direct	Induced/Indirect	Total
Record Production, Distribution & Publishing	700	39	739
Multiplier			1.06

5.2 Independent Artists and Writers and Music Groups and Artists

Two more sets of tables examine the Independent Artists and Writers, which Belmont tabulates as \$290.7 million of direct output, and Music Groups and Artists, which Belmont tabulates as \$278.15 million. (I ran the sector that Belmont labels as Record production and Independents under the same modeling convention as Majors' production and distribution. Its results are included on summary Table 2 but not parsed further in these comments.) Table 7 shows how basic income from independent artists and writers ripples through the aggregated sectors of Nashville's economy. The total

effect, \$533.9 million is larger than Belmont's \$426.64 million, giving rise to a larger multiplier of 1.84 compared to Belmont's 1.47. Table 8 reveals that the largest supplier of indirect inputs to the independent artists and writers are promoters and agents. Table 9 shows housing as the largest induced effect and medical services as the third and fourth ranked sector.

Table 10 compares the employment effects to the Belmont Study's estimates. Ignore the absolute difference in direct effects, but notice that the Belmont multiplier, 1.18, is substantially lower than my estimate of 1.94. Notice the relative size of the indirect employment in the same industry. A lot of musicians would be put to work to support the independent artists and writers. Belmont's aggregate number of 944 indirect and induced jobs is too small to pass the common sense test.

Tables 11 thru 14 show the estimates for the Music Groups and Artists component of the Music Industry. The Belmont Study's output multiplier looks suspiciously low at 1.11 compared to my estimate of 1.84 on Table 11. Linkages between artists and the rest of the Music Industry and the local economy are too well-developed in Nashville for the multiplier to be that low. Table 12 shows that promoters and agents are the largest supplier of inputs to the performers. Tables 12 and 8 together confirm that agents and promoters, tabulated as a direct effect by the Belmont Study, is both overestimated by the Belmont Study Table 6 and not a direct effect. The two sectors that I have included as writers and performers support \$115 million for agents and promoters.

Table 13, which ranks the induced effects by sector, shows that housing and medical sectors are among the top four sectors. Table 14 shows the employment effects. Ignore the absolute values of the direct effects and notice that again my estimate of employment multiplier, 1.94, is substantially higher than Belmont's 1.14. The relative size of the indirect effects in the arts and entertainment sector is over five times the size of Belmont's estimate of total indirect and induced employment effects. This should have been a "red flag" that reveals that something is wrong with the Belmont numbers.

6 Summary Conclusion from IMPLAN modeling results

I have not intended to re-do the entire analysis. Nor do these selected comments show that Belmont overestimated the economic impacts of Nashville's Music Industry on the Metro economy. While I removed several sub-sectors from the list of direct economic drivers, I showed that the Belmont Study's multipliers for selected large segments of the industry are too low. A corrected re-do of the entire analysis is required and, if my selected higher results are indicative, would show the industry's impact on the regional economy is larger than Raines and Brown estimated – even after deleting spurious sub-sectors included in their analysis.

My estimates from these selected sectors of the Music Industry confirm that medical services are among the largest induced effects and are not correctly counted as a direct economic driver for the Music Industry. They also prove that agents and promoters are an indirect input to the production process.

Little detail about how the study was done is provided by Raines and Brown. The authors did not input the data into the "REMI multiplier model," in spite of their claim to the contrary at page 18. Although unacknowledged, Nashville TVA analyst Ralph Perhac ran the REMI model with input data provided to him by Dr. Brown, according to Mr. Perhac.¹ The fact that TVA merely ran scenarios and returned results to Dr. Brown for further analysis may explain the confusion evident within the report about theoretic and technical issues of regional economic modeling.

The REMI model, which Mr. Perhac ran for the authors, does not print out multipliers *per se*. Neither does it print out indirect and induced effects. The REMI model accepts the analyst's direct values and provides output values in several different concepts. Output, meaning gross sales, and employment, which the Belmont Study reports, are two available variables. The REMI model is not sufficiently disaggregated to accept inputs and provide output values that match the music business sectors reported on Belmont

¹ Telcons with Perhac and REMI president Fred Treyz, January 2006.

Study Table 6 by SIC. Thus, the authors seem to have made some post-model calculations to the results that could have been provided to them from Mr. Perhac. They do not describe what they did in the report; their apparent confusion about multipliers within the report may have undermined their calculations reported as indirect/induced effects on Belmont Study Tables 4 and 6.

In contrast to the REMI model output, IMPLAN, which I used, provides output exactly as I have reported in the tables of this review. IMPLAN is disaggregated into 500+ sectors that reasonably well match the NAICS sectoring system and allows better analysis of disaggregated sectors of the Music Industry than REMI. The IMPLAN output can be made available to the interested professional.

Table 7

Output Impact	Nashville Music			
Independent Artists and Writers				
Industry	Direct	Indirect	Induced	Total
11 Ag, Forestry, Fish & Hunting (AGG)	\$0	\$41,207	\$74,181	\$115,388
21 Mining (AGG)	\$0	\$18,427	\$32,826	\$51,254
22 Utilities (AGG)	\$0	\$475,324	\$774,731	\$1,250,054
23 Construction (AGG)	\$0	\$1,338,756	\$550,890	\$1,889,646
31-33 Manufacturing (AGG)	\$0	\$6,065,653	\$3,665,492	\$9,731,144
42 Wholesale Trade (AGG)	\$0	\$4,614,094	\$4,981,726	\$9,595,820
48-49 Transportation & Warehousing (AGG)	\$0	\$3,967,677	\$2,479,958	\$6,447,634
44-45 Retail trade (AGG)	\$0	\$1,752,449	\$10,424,158	\$12,176,608
51 Information (AGG)	\$0	\$23,085,500	\$2,702,806	\$25,788,306
52 Finance & insurance (AGG)	\$0	\$6,849,746	\$7,830,254	\$14,680,000
53 Real estate & rental (AGG)	\$0	\$15,866,090	\$4,991,285	\$20,857,376
54 Professional- scientific & tech svcs (AGG)	\$0	\$12,202,066	\$2,327,448	\$14,529,514
55 Management of companies (AGG)	\$0	\$1,143,120	\$679,676	\$1,822,796
56 Administrative & waste services (AGG)	\$0	\$12,011,695	\$1,485,988	\$13,497,683
61 Educational svcs (AGG)	\$0	\$88,305	\$1,782,031	\$1,870,336
62 Health & social services (AGG)	\$0	\$95,036	\$13,342,328	\$13,437,364
71 Arts- entertainment & recreation (AGG)	\$290,689,984	\$65,813,224	\$1,258,007	\$357,761,216
72 Accommodation & food services (AGG)	\$0	\$1,668,313	\$4,848,943	\$6,517,255
81 Other services (AGG)	\$0	\$2,709,951	\$4,359,617	\$7,069,568
92 Government & non NAICs (AGG)	\$0	\$2,331,797	\$12,514,421	\$14,846,218
Institutions (AGG)	\$0	\$0	\$0	\$0
Total	\$290,689,984	\$162,138,429	\$81,106,763	\$533,935,180
Multiplier				1.84

Belmont Study	Direct	Induced/Indirect	Total
Music-related self-employed	\$290,690,000	\$135,950,000	\$426,640,000
Multiplier			1.47

Table 8

Table 8				
Output Impact	Nashville Music			
Independent Artists and Writers				
Industry Sort by Indirect	Direct	Indirect	Induced	Total
Promoters of performing arts and sports and agents	\$0	\$58,688,704	\$100,104	\$58,788,808
Sound recording industries	\$0	\$14,055,467	\$117,439	\$14,172,906
Real estate	\$0	\$8,363,809	\$4,096,307	\$12,460,116
Lessors of nonfinancial intangible assets	\$0	\$5,911,077	\$193,018	\$6,104,095
Independent artists- writers- and performers	\$290,689,984	\$5,434,560	\$77,380	\$296,201,920
Wholesale trade	\$0	\$4,614,094	\$4,981,726	\$9,595,820
Advertising and related services	\$0	\$3,831,287	\$235,284	\$4,066,572
Employment services	\$0	\$3,248,792	\$352,829	\$3,601,620
Nondepository credit intermediation and related a	\$0	\$3,077,469	\$879,978	\$3,957,447
Telecommunications	\$0	\$2,610,400	\$1,329,089	\$3,939,489
Business support services	\$0	\$2,520,642	\$238,933	\$2,759,575
Subtotal Top 12 Indirect		\$112,356,301		\$415,648,368
Total	\$290,689,984	\$162,138,431	\$81,106,763	\$533,935,175

Table 9

Table 9				
Output Impact	Nashville Music			
Independent Artists and Writers				
Industry Sort by Induced	Direct	Indirect	Induced	Total
Owner-occupied dwellings	\$0	\$0	\$10,103,025	\$10,103,025
Wholesale trade	\$0	\$4,614,094	\$4,981,726	\$9,595,820
Hospitals	\$0	\$0	\$4,729,715	\$4,729,715
Offices of physicians- dentists- and other health	\$0	\$28	\$4,264,553	\$4,264,581
Food services and drinking places	\$0	\$1,084,511	\$4,197,715	\$5,282,226
Real estate	\$0	\$8,363,809	\$4,096,307	\$12,460,116
Insurance carriers	\$0	\$586,761	\$2,260,343	\$2,847,104
Monetary authorities and depository credit interme	\$0	\$1,960,486	\$2,216,798	\$4,177,284
Motor vehicle and parts dealers	\$0	\$335,180	\$2,091,960	\$2,427,140
Food and beverage stores	\$0	\$231,826	\$1,577,280	\$1,809,106
Automotive repair and maintenance- except car wash	\$0	\$167,235	\$1,473,698	\$1,640,934
Nursing and residential care facilities	\$0	\$0	\$1,394,816	\$1,394,816
General merchandise stores	\$0	\$253,872	\$1,339,279	\$1,593,151
Telecommunications	\$0	\$2,610,400	\$1,329,089	\$3,939,489
Securities- commodity contracts- investments	\$0	\$1,079,993	\$1,256,828	\$2,336,822
Other ambulatory health care services	\$0	\$94,590	\$1,217,930	\$1,312,520
Colleges- universities- and junior colleges	\$0	\$72,293	\$1,064,155	\$1,136,447
Truck transportation	\$0	\$1,117,220	\$1,027,066	\$2,144,286
Subtotal Top 18 Induced			\$50,622,283	
Total	\$290,689,984	\$162,138,431	\$81,106,763	\$533,935,175

Table 10

Table 10				
Employment Impact	Nashville Music			
Independent Artists and Writers				
Industry	Direct*	Indirect*	Induced*	Total*
11 Ag, Forestry, Fish & Hunting (AGG)	0	1	4	5
21 Mining (AGG)	0	0	0	0
22 Utilities (AGG)	0	1	2	3
23 Construction (AGG)	0	17	6	24
31-33 Manufacturing (AGG)	0	35	14	49
42 Wholesale Trade (AGG)	0	33	36	68
48-49 Transportation & Warehousing (AGG)	0	42	22	64
44-45 Retail trade (AGG)	0	29	171	200
51 Information (AGG)	0	109	13	122
52 Finance & insurance (AGG)	0	41	44	84
53 Real estate & rental (AGG)	0	71	34	105
54 Professional- scientific & tech svcs (AGG)	0	146	27	174
55 Management of companies (AGG)	0	9	6	15
56 Administrative & waste services (AGG)	0	230	30	260
61 Educational svcs (AGG)	0	1	33	34
62 Health & social services (AGG)	0	1	127	128
71 Arts- entertainment & recreation (AGG)	3,563	1,698	18	5,279
72 Accommodation & food services (AGG)	0	34	108	142
81 Other services (AGG)	0	37	99	136
92 Government & non NAICs (AGG)	0	5	5	10
Institutions (AGG)	0	0	0	0
Total	3,563	2,540	799	6,903
Multiplier				1.94

Belmont Study	Direct	Induced/Indirect	Total
Music-related self-employed	5361	944	6305
Multiplier			1.18

Table 11

Output Impact	Nashville Music			
Music Groups & Artists				
Industry	Direct	Indirect	Induced	Total
11 Ag, Forestry, Fish & Hunting (AGG)	0	39,429	70,981	110,410
21 Mining (AGG)	\$0	\$17,633	\$31,410	\$49,043
22 Utilities (AGG)	\$0	\$454,819	\$741,310	\$1,196,129
23 Construction (AGG)	\$0	\$1,281,004	\$527,125	\$1,808,129
31-33 Manufacturing (AGG)	\$0	\$5,803,989	\$3,507,367	\$9,311,356
42 Wholesale Trade (AGG)	\$0	\$4,415,049	\$4,766,821	\$9,181,870
48-49 Transportation & Warehousing (AGG)	\$0	\$3,796,516	\$2,372,976	\$6,169,492
44-45 Retail trade (AGG)	\$0	\$1,676,851	\$9,974,474	\$11,651,325
51 Information (AGG)	\$0	\$22,089,624	\$2,586,210	\$24,675,834
52 Finance & insurance (AGG)	\$0	\$6,554,257	\$7,492,467	\$14,046,724
53 Real estate & rental (AGG)	\$0	\$15,181,648	\$4,775,968	\$19,957,616
54 Professional- scientific & tech svcs (AGG)	\$0	\$11,675,686	\$2,227,045	\$13,902,731
55 Management of companies (AGG)	\$0	\$1,093,807	\$650,356	\$1,744,163
56 Administrative & waste services (AGG)	\$0	\$11,493,526	\$1,421,885	\$12,915,411
61 Educational svcs (AGG)	\$0	\$84,496	\$1,705,157	\$1,789,653
62 Health & social services (AGG)	\$0	\$90,937	\$12,766,758	\$12,857,695
71 Arts- entertainment & recreation (AGG)	\$278,150,016	\$62,974,140	\$1,203,738	\$342,327,904
72 Accommodation & food services (AGG)	\$0	\$1,596,344	\$4,639,766	\$6,236,110
81 Other services (AGG)	\$0	\$2,593,048	\$4,171,549	\$6,764,597
92 Government & non NAICs (AGG)	\$0	\$2,231,207	\$11,974,567	\$14,205,773
Institutions (AGG)	\$0	\$0	\$0	\$0
Total	\$278,150,016	\$155,144,007	\$77,607,928	\$510,901,963
Multiplier				1.84

Belmont Study	Direct	Induced/Indirect	Total
Musical groups & Artists	\$278,150,000	\$30,360,000	\$308,520,000
Multiplier			1.11

Table 12

Table 12				
Output Impact	Nashville Music			
Music Groups & Artists				
Industry Sort by Indirect	Direct	Indirect	Induced	Total
Promoters of performing arts and sports and agents	\$0	\$56,156,952	\$95,785	\$56,252,736
Sound recording industries	\$0	\$13,449,133	\$112,373	\$13,561,506
Real estate	\$0	\$8,003,006	\$3,919,597	\$11,922,603
Lessors of nonfinancial intangible assets	\$0	\$5,656,081	\$184,691	\$5,840,773
Independent artists- writers- and performers	\$278,150,016	\$5,200,128	\$74,042	\$283,424,192
Wholesale trade	\$0	\$4,415,049	\$4,766,821	\$9,181,870
Advertising and related services	\$0	\$3,666,011	\$225,134	\$3,891,145
Employment services	\$0	\$3,108,643	\$337,608	\$3,446,251
Nondepository credit intermediation and related a	\$0	\$2,944,711	\$842,017	\$3,786,728
Telecommunications	\$0	\$2,497,791	\$1,271,754	\$3,769,544
Business support services	\$0	\$2,411,905	\$228,626	\$2,640,531
Newspaper publishers	\$0	\$2,139,259	\$164,325	\$2,303,585
Other support services	\$0	\$2,135,181	\$81,194	\$2,216,374
Subtotal Top 13		\$111,783,850		\$402,237,838
Total	\$278,150,016	\$155,144,006	\$77,607,929	\$510,901,956

Table 13

Table 13				
Output Impact	Nashville Music			
Music Groups & Artists				
Industry Sort by Induced	Direct	Indirect	Induced	Total
Owner-occupied dwellings	\$0	\$0	\$9,667,195	\$9,667,195
Wholesale trade	\$0	\$4,415,049	\$4,766,821	\$9,181,870
Hospitals	\$0	\$0	\$4,525,681	\$4,525,681
Offices of physicians- dentists- and other health	\$0	\$27	\$4,080,586	\$4,080,613
Food services and drinking places	\$0	\$1,037,727	\$4,016,631	\$5,054,358
Real estate	\$0	\$8,003,006	\$3,919,597	\$11,922,603
Insurance carriers	\$0	\$561,449	\$2,162,835	\$2,724,284
Monetary authorities and depository credit interme	\$0	\$1,875,914	\$2,121,169	\$3,997,082
Motor vehicle and parts dealers	\$0	\$320,721	\$2,001,716	\$2,322,436
Food and beverage stores	\$0	\$221,825	\$1,509,239	\$1,731,064
Automotive repair and maintenance- except car wash	\$0	\$160,021	\$1,410,125	\$1,570,146
Nursing and residential care facilities	\$0	\$0	\$1,334,645	\$1,334,645
General merchandise stores	\$0	\$242,920	\$1,281,504	\$1,524,424
Telecommunications	\$0	\$2,497,791	\$1,271,754	\$3,769,544
Securities- commodity contracts- investments	\$0	\$1,033,404	\$1,202,610	\$2,236,014
Other ambulatory health care services	\$0	\$90,510	\$1,165,390	\$1,255,900
Colleges- universities- and junior colleges	\$0	\$69,174	\$1,018,248	\$1,087,422
Subtotal Top 17			\$47,455,746	
Total	\$278,150,016	\$155,144,006	\$77,607,929	\$510,901,956

Table 14

Employment Impact	Nashville Music			
Music Groups and Artists	Direct*	Indirect*	Induced*	Total*
Industry				
11 Ag, Forestry, Fish & Hunting (AGG)	0	1	4	4
21 Mining (AGG)	0	0	0	0
22 Utilities (AGG)	0	1	1	2
23 Construction (AGG)	0	17	6	23
31-33 Manufacturing (AGG)	0	33	14	47
42 Wholesale Trade (AGG)	0	32	34	66
48-49 Transportation & Warehousing (AGG)	0	40	21	62
44-45 Retail trade (AGG)	0	28	164	192
51 Information (AGG)	0	105	12	117
52 Finance & insurance (AGG)	0	39	42	81
53 Real estate & rental (AGG)	0	68	33	101
54 Professional- scientific & tech svcs (AGG)	0	140	26	166
55 Management of companies (AGG)	0	9	5	14
56 Administrative & waste services (AGG)	0	220	29	249
61 Educational svcs (AGG)	0	1	31	33
62 Health & social services (AGG)	0	1	122	122
71 Arts- entertainment & recreation (AGG)	3,409	1,624	18	5,051
72 Accommodation & food services (AGG)	0	33	103	136
81 Other services (AGG)	0	35	95	130
92 Government & non NAICs (AGG)	0	5	5	10
Institutions (AGG)	0	0	0	0
Total	3,409	2,431	765	6,605
Multiplier				1.94

Belmont Study	Direct	Induced/Indirect	Total
Musical groups & Artists	2124	307	2431
Multiplier			1.14