

REPORT TO ANDREW W. MELLON FOUNDATION

The Economic Environment of American Symphony Orchestras

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Table of Contents

Acknowledgements	iv
Executive Summary	v
I. Historical Perspective on Symphony Economics	3
II. Symphony Orchestra Finances	5
Exhibit 1. Model of orchestra revenues and expenses	7
III. Overview of Recent Developments	8
Graph 1. Attendance per concert	11
Graph 2. Performance income gap	13
Graph 3. Symphony expenses and the producer prices	14
Graph 4. Private contributions	16
Graph 5. Government support	17
Graph 6. Distribution of symphony revenues, 1987 and 2000	18
Graph 7. Distribution of total expenses, 1987 and 2000	20
Graph 8. Overall financial balance	21
IV. Trends and Cycles in Orchestra Finances	23
V. Concert Attendance	31
Exhibit 2. Public participation in the arts	34
Exhibit 3. Consumption of broadcasts and recordings of performing arts	49
VI. Artistic costs	51
Graph 9. Musicians' salaries and consumer prices	53
VII. Private and public support for symphony orchestras	55
VIII. Endowment	66
Exhibit 4. Returns and Draws on Endowment	68
Exhibit 5. Endowment Required to Offset Performance Income Gap	70
IX. Conclusions	71
References	78

Appendix A. The sample of symphony orchestras	80
Table A1. Sample orchestras and data availability	81
Appendix B. Data from other performing arts	84
Appendix C. Cycle and trend analyses of symphony finances	85
Table C1. Effects of Cycle and Trend on Symphony Orchestra Finances	88
Appendix D. Statistical analyses of concert attendance and external support	89
Table D1. Regression analysis of regular season concert attendance	91
Table D2. Regression analysis of pops concert attendance	92
Table D3 Regression analysis of external support	96
Table D4 Regression analysis of competition from opera companies	97

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I have also benefited from the comments and criticisms of a remarkable group of symphony musicians, managers and board members now known collectively as the Elephant Task Force. Members of this group, constituted by the Mellon Foundation in 2003 to seek joint solutions to the challenges faced by symphony orchestras, read through two early drafts of the report and provided numerous insights and suggestions on how the final report might be improved. Professor Paul DiMaggio and Mr. Greg Sandow also provided helpful comments on an early draft.

Needless to say, none of these individuals or organizations is responsible for the contents of the final report. From the project's inception I was left free to develop my own analyses and conclusions, and while I have benefited immensely from the comments of these parties, I have not always accepted their suggestions.

EXECUTIVE SUMMARY

1. **What issues does the report address?** The Mellon foundation requested a fact-finding study of (1) cyclical and trend developments in the economic health of the symphony orchestra industry and (2) influences on performance and nonperformance revenues and expenses of orchestras. The hope is that analyses of these influences will clarify decisions facing symphony orchestras and help individual symphonies to assess and project their own economic health.

2. **Which symphony orchestras are included in the analyses?** The main sample includes every symphony orchestra that was one of the largest 50 symphonies in the United States (based on budget size) for at least two years during the 1987/88 through the 2003/04 concert seasons (the period covered by the data). Each symphony that meets this requirement remains in the sample throughout the 17-year period, irrespective of its rank in other years. This approach produced a sample of 63 symphony orchestras (listed in Table A1) that includes some orchestras whose “economic health” either declined or improved over the period along with orchestras whose economic health was stable. The sample represents over 70 percent of orchestra revenues and expenditures in the United States and provides the raw material for most of the analyses in this report.

Some descriptions of basic industry trends use data from the 32 symphony orchestras that reported information in every year during 1987-2003 seasons (Sections III and VI).

3. **Where do the data come from?** The League of American Orchestras (formerly the American Symphony Orchestra League) provided data on the financial and operating characteristics of symphony orchestras. (Individual orchestras submit these data following a template established by the League.) Information on local market characteristics, such as population and per capita income, come from publicly available U.S. government data. Opera America provided data on the financial and operating characteristics of their members. In presenting the results of statistical analyses of large numbers of arts organizations, the report preserves the confidentiality of the data provided by individual organizations.

4. **How is the report structured?** Section II (particularly Exhibit I) explains the model of orchestra finances underlying the analyses. The economic challenges faced by symphony orchestras begin with the fact that their *performance revenues* from concerts, broadcasts and recordings do not cover their *performance expenses* for artistic personnel, concert production, marketing, and general administration. The resulting *performance income gap* has worsened over time and will worsen in the future.

Symphonies try to offset the performance income gap with *nonperformance income*, including contributions (from individuals, businesses, and foundations), government support, and investment income. The *annual financial balance* of a symphony indicates the extent to which nonperformance income has offset the performance income gap.

This report seeks to describe how the various elements of performance revenues, performance expenses, and nonperformance income and expenses are linked to three sets of potential influences: (1) Policy decisions of symphony orchestras, (2) characteristics of the local market, and (3) competition from other performing arts organizations.

5. **Broad developments.** The graphs in Section III show the main trends based on the 32 continuously reporting orchestras, whose presence throughout the period signals their superior economic health. Even this group of comparatively healthy orchestras has encountered significant economic challenges, including a worsening of the performance income gap (Graph 2), declining attendance per concert (for virtually all types of concerts) that limits performance revenue growth (Graph 1), and a tendency of performance expenses to grow more rapidly than other costs in the economy (Graph 3). This group of larger orchestras has also experienced changes in the distribution of performance revenues (Graph 6), performance expenses (Graph 7), growth of private contributed support (Graph 4), and a decline of government support (Graph 5).

The remaining sections of the report explore linkages between these economic developments and orchestra policies, market characteristics, and competition for attendance and contributed support from other performing arts organizations using the complete sample of 63 symphonies. The analytical results therefore reflect the experience of orchestras at varying degrees of economic health.

6. **Cycles and trends in revenues, expenses and contributions** (Section IV).

The financial health of symphony orchestras is sensitive to the general state of the economy. The burden of recessions on orchestras results as much from the decline in contributed support—particularly private contributions—as from cyclical change in the performance income gap. Recessions worsened the overall surplus/deficit position of the average symphony in this sample, while business expansions improve the overall financial balance.

Holding the influence of general economic conditions on symphony finances constant, upward trends in *private* contributed support and investment income offset both a long term decline in *government* support and the long-term deterioration in the performance income gap. As a result, there was a modest trend improvement in the overall surplus/deficit position of orchestras in the late 20th century.

7. **Concert attendance** (Section V). Annual concert attendance declines sharply in recessions and increases during economic expansions. After holding general economic conditions constant, annual attendance has increased as orchestras have added concerts to their schedules, but adding concerts yields smaller and smaller attendance gains. In fact, attendance *per concert* declined throughout 1990s and into the new century. Even if every concert were sold out, however, the vast majority of U.S. orchestras would not earn sufficient income to cover all performance expenses.

Once the number of concerts has been set, an orchestra's ticket pricing and marketing policies influence attendance per concert. Higher ticket prices discourage some

attendance but raise performance revenues. Higher marketing expenditures increase attendance at regular season concerts. Only expenditures on mail and phone campaigns are significantly related to pops concert attendance. Incremental expenditures on all types of marketing activities are subject to diminishing returns—successively smaller gains in attendance per concert.

Location also influences attendance, which is positively related to an area's population (but is not significantly related to either the real per capita income or unemployment rate in an area). To a small degree, symphony and opera performances may compete for attendees: An increase in opera ticket prices raises symphony attendance (and conversely), with other influences held constant. This competitive effect is quantitatively small, however.

8. **Artistic Costs** (Section VI). Artistic costs constitute the major expense category of expense for orchestras but have declined as a percent of total costs. Most symphony musicians are unionized, and their salaries are set in collective bargaining agreements signed by both labor and management representatives. Between the 1987 and 2003 concert seasons, the minimum and average effective salaries of regular orchestra musicians increased more rapidly than consumer prices, the average wages and salaries of other unionized workers in the United States, and the average wages and salaries of nonunion workers. Payments to guest soloists and guest conductors have increased at about the same rate as the salaries of orchestra musicians.

9. **Public and Private Support** (Section VII). All symphony orchestras must rely on private philanthropy and government support to offset their performance income gap, but orchestras differ widely in the extent to which they rely on private contributions by individuals, businesses and foundations. Government support is invariably a less important source of funding than private philanthropy. The highly varied structure of nonperformance income for orchestras indicates that they do not follow a common model for achieving financial balance.

Philanthropic contributions to orchestras depend on the characteristics of their market areas, the development activities of the orchestras, and (to a small extent) the development activities of competing performing arts organizations. Orchestras in areas with higher per capita income receive more private contributions.

Orchestra ticket-pricing, concert programming, and fundraising policies also may influence the level of contributed support. Once the effects of an area's economic capacity are held constant, the effect of fundraising activities on contributed support appears more modest than sometimes claimed. For larger orchestras, there are indications that annual fundraising expenditures do not immediately pay for themselves.

There is some evidence of competition between different performing arts organizations for contributed support. Although the evidence is not ironclad, it appears that a small proportion of increased private contributions to operas comes at the expense of symphony orchestras in the same area, and vice versa. While, this competitive effect is small in the

data for the late 20th century, it could lead to a mutual and mutually unproductive escalation of development and fundraising expenditures by all competing arts organizations.

10. **Endowment** (Section VIII). The returns on endowment experienced by individual symphony orchestras are highly dispersed even though they all have access to the same capital markets when they invest their endowments. Returns to endowment investments are cyclically sensitive (Exhibit 4). In the early 21st century, the endowment policies of most symphony orchestras permit annual draws from the endowment of 5-7 percent in nominal terms. The actual draws of some symphony orchestras appear to exceed this policy. Actual symphony orchestra endowments are not sufficiently large to cover performance deficits at prudent endowment draw rates (Exhibit 5). Endowment draw rates that would offset performance deficits in the short run are so high that they would cannibalize endowments to a point where it could sustain only smaller draws in the future.

THE ECONOMIC ENVIRONMENT OF AMERICAN SYMPHONY ORCHESTRAS

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The genesis of this project could have been the following quote:

“In spite of their vitality, growth in numbers, and the volume of their attendance, all symphony orchestras are facing serious financial problems and their future rests on an unstable basis. Receipts from tickets have never been enough to balance the costs.... All, therefore, have had to resort to various kinds of deficit financing.... Endowments are becoming more difficult to build up and the income therefrom has been found uncertain when most needed in depressions. Annual maintenance fund drives are finding fewer large donors and are reaching out for more contributors of small sums. Subsidies have been little tried in this country and involve many problems.”

As it happens, the quote is from a book published in 1940—*America's Symphony Orchestras* by Margaret Grant and Herman S. Hettinger (pp. 21-22). Sixty-eight years later, the durability of the economic problems of symphony orchestras worries pessimists, while the continued survival of most major symphonies may encourage complacency among optimists, who conclude that solutions to chronic operating deficits will always emerge. In fact, the proportion of orchestra expenses covered by performance revenues has continued to decline. Grant and Hettinger report that by the late 1930s the three most successful major symphony orchestras earned “only [!!] an average of 85 percent of their

total budgets, while ... the whole group averages about 60 per cent.” (p. 21) By the 21st century, these results would be viewed with envy.

It would be another 26 years before William Baumol and William Bowen (1966) identified the economic roots of the financial problems facing symphonies (as well as other performing arts and many other not-for-profit and service organizations). Variouslly referenced as “Baumol’s curse” or “Bowen’s disease,” the crucial facts are that labor productivity advances more rapidly in the goods-producing sector than in the performing arts (and in many other service industries), but broadly speaking, both sectors compete in the same labor markets. People with a given level of skill expect to receive similar compensation no matter where they work. Increases in output per hour in the goods-producing sector limit increases in labor costs *per unit of output*. (Indeed, if hourly productivity increases more rapidly than hourly labor costs, labor costs per unit of output will actually decline.) As long as pay increases parallel productivity increases, pay increases do not necessitate price increases. In performing arts and other activities with low productivity growth, the situation is quite different. Artists and other employees expect their pay to keep pace with pay elsewhere in the economy, but with only small productivity gains, labor costs per concert or other unit of output increase. One way to cover increasing costs per unit of output is to raise prices, and a major conclusion of Baumol and Bowen’s analysis was that prices of arts performances would continue to rise relative to prices in the goods-producing industries. Unless they find alternative sources of funding their expenses, the arts and other low-productivity-growth industries face the “curse” or “disease” of increasing relative prices, a development that tends to discourage patronage (Section V).

Of course, other methods of addressing the cost disease, including private philanthropy and government support, can mitigate the need for price increases. Moreover, whether or not the increasing relative price of the symphonies and other performing arts discourages attendance depends on how the population's taste for symphony music changes as incomes increase. After all, the productivity increases that support higher wages produce higher incomes and changing expenditure patterns. If tastes for classical music increase sufficiently rapidly with real income growth, the effects of higher prices might be countered.

The simple arithmetic reviewed above indicates why the 68-year-old quote from Grant and Henninger remains apt. It also raises two kinds of questions. How have symphony orchestras survived in the face of the unpromising arithmetic highlighted by Baumol and Bowen? How effective are the alternative strategies for creating financial balance in symphony orchestras? This fact-finding report addresses these questions drawing on an extensive analysis of data for over 60 large U.S. symphony orchestras from 1987 to 2004. To set the context for that analysis, however, the report begins with a brief historical review of the economic environment of U.S. symphony orchestras.

I. Historical Perspective on Symphony Economics

The earliest classical music organizations in the United States existed mainly to accompany operas or choruses, rather than to perform concerts on their own. By the middle of the 19th century this situation began to change. The oldest symphony orchestra in the United States, the New York Philharmonic Society, was established in 1842. Like the New York Philharmonic, many early orchestras were organized as musicians' cooperatives. After acceptance into an orchestra, players paid an initiation fee and an

annual charge, chose their conductor, hired rehearsal and performance venues, and accepted a share of the net proceeds as their compensation. As the residual claimants, they bore most of the economic risk of early musical ventures and had to divide their time between artistic and management activities. Some musicians mitigated the risk by giving preference to outside paid performances over symphony rehearsals. The cooperative structure of some early symphonies gave musicians a property right in their positions, which proved a barrier to personnel changes needed to upgrade orchestra quality (Caves 2000). By the 20th century, the unpromising arithmetic caught up with symphony orchestras, and they no longer earned a surplus. Indeed, operating deficits became a way of life (Grant and Henninger 1940). Moreover, orchestras required a different organizational form if they were to improve performance quality.

Several major orchestras then acquired individual “angels” or groups of committed wealthy citizens, who pledged funds to cover the ubiquitous operating deficits. With this support, major symphonies were able to expand in size from around four-dozen to almost 100 musicians, to lengthen seasons, and to guarantee musicians a weekly salary for the duration of the season. Those who pledged the funds also took over or arranged for the management of symphony activities, and musicians were able to focus on their art.¹

By 1900, only 13 symphony orchestras of consequence existed in the United States, and further growth was slow until the 1920s. Writing in 1940, Grant and Henninger noted that over 80 percent of the existing orchestras at that time “have been

¹ There have been two comparatively recent reversions to musician ownership of an orchestra. The Denver Symphony Orchestra failed in 1989 and reformed the following year as the Colorado Symphony, which is owned by its musicians. The New Orleans symphony ceased operations in 1990 and reformed for the 1991-92 season as the Louisiana Symphony. Looking abroad, four symphony orchestras in London are organized as musicians’ cooperatives.

established since the close of the World War, over half since 1929. Paradoxical as it seems, the greatest growth occurred during the most severe years of the depression.” (p. 21) The authors also note that all symphony orchestras faced “serious financial problems” as of the late 1930s. However satisfying earning 60 percent of an orchestra’s performing expenses may seem from the perspective of today’s symphonies, it was a decided decline from the surpluses that permitted some early orchestras to be run as musicians’ cooperatives. Subsequent studies have documented increasing financial pressures on the nation’s symphony orchestras (Wolf Organization, 1992).

This fact-finding report provides a diagnosis of several key economic issues facing symphony orchestras at the turn of the new century. The objective of the diagnosis is to clarify both symphony orchestra policies that might mitigate some adverse economic trends documented in the report and the extent to which such trends are influenced by factors that are beyond the control of symphony organizations. The following section outlines the simple model of symphony finances that guides the organization of this report.

II. Symphony Orchestra Finances

This fact-finding report analyzes trends in the finances of symphony orchestras between the 1987/88 and 2003/04 concert seasons. A straightforward model of symphony revenues and expenditures informs the organization of the analysis. Read from left to right, Exhibit 1 illustrates the main elements of the model. Orchestras earn *performance revenues* from their concerts, broadcasts, and sales of recordings. Their revenues invariably fall short of their *performance expenses* for artistic personnel, concert production, marketing, general administration, and education, yielding a significant

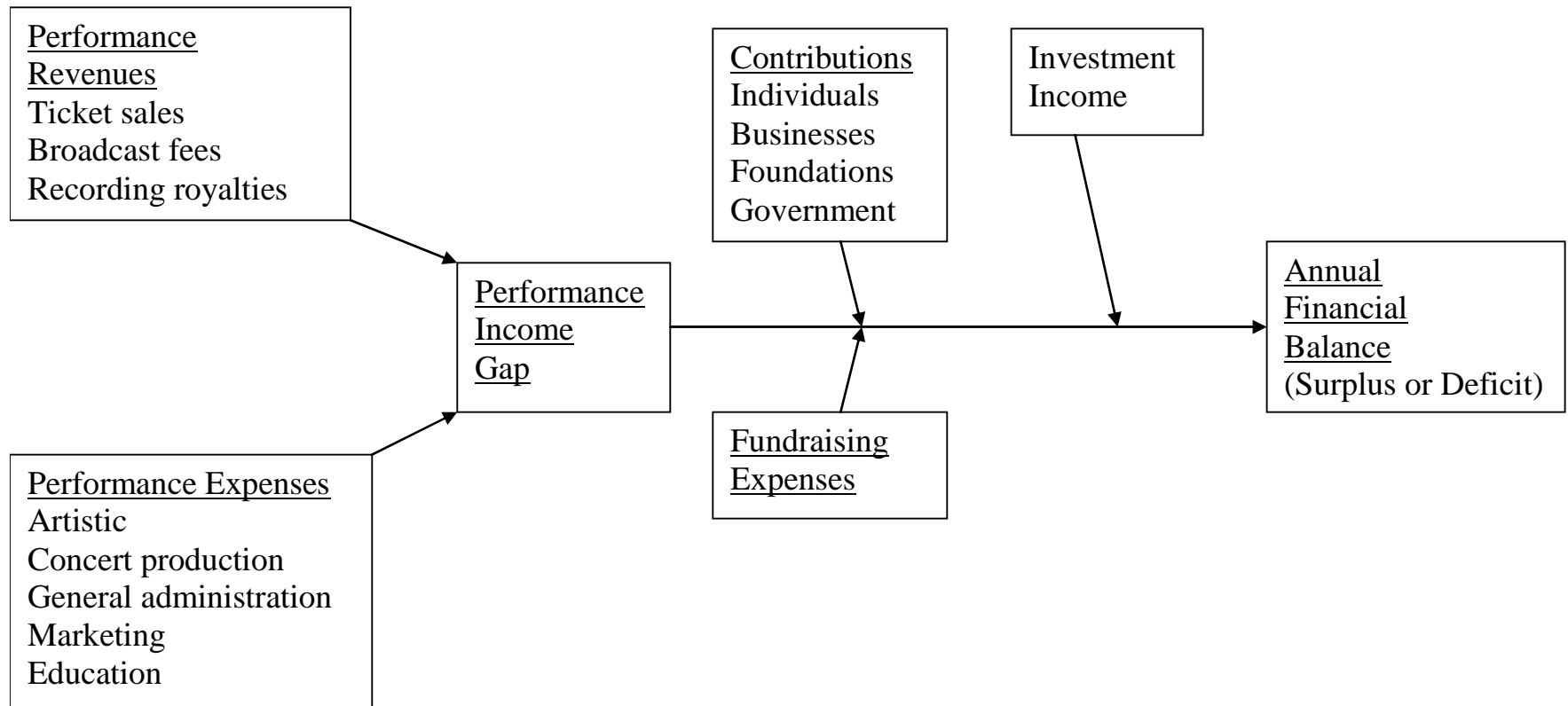
performance income gap – a deficit on current operations. The next section will describe trends in the performance income gap at the end of the 20th century and explain how changes in various revenues and expenses determined the evolution of the gap.

The performance income gap may be offset in whole or in part by *nonperformance income* received by the orchestra. There are three principle sources of nonperformance income: private philanthropy, government support, and investment income. As not-for-profit organizations, symphonies may receive tax-deductible private contributions from individuals, businesses, and foundations as well as grants from all levels of government. To obtain these contributions, however, orchestras must incur fundraising costs that could be avoided if performance revenues exceeded operating expenditures. Investment income mainly consists of income from an orchestra's endowment.

If philanthropy, government support, and investment income more than offset the performance income gap, the orchestra has an *overall financial surplus* for the year; if nonperformance income falls short of the gap, there is an *overall financial deficit*. (Note in Exhibit 1 that the model already accounts for any extraordinary fundraising efforts or draw from the endowment to address a projected annual orchestra deficit.)

The model outlined in Exhibit 1 permits one to “account” for changes in the performance income gap or the annual surplus or deficit. It provides a guide to organizing information on *how* these financial outcomes changed without providing insights on *why* the changes occurred. This behavioral question—*why* the changes occurred—can be

Exhibit 1. Symphony Orchestra Finances



raised with regard to each element of revenue and expense and provides the most helpful information for understanding financial outcomes.

Three types of influence on symphony finances receive attention throughout the report: policy variables controlled by symphony organizations, characteristics of the local market area, and competition with other performing arts organizations. In exploring the role of symphony orchestra policy variables, the findings may assist orchestras in relating their policy choices to financial outcomes. Tracing the role of market characteristics may help orchestras understand the opportunities and constraints offered by the economic capacity and social characteristics of their local market area. Previous discussions of the “Why” questions omit a potentially important element of the market for symphony orchestra concerts—the fact that orchestras may compete with other performing arts organizations (and more broadly, with other uses of leisure time) for patronage and philanthropic support. The current report recognizes that major symphony orchestras are one element of a much broader market for performing arts and examines how competition among some performing arts influences their performance revenues and expenses and the philanthropic contributions that they receive.

III. Overview of Recent Developments

This section provides a snapshot of the economic fortunes of U. S. symphony orchestras at the end of the 20th century, using data from 32 orchestras that submitted detailed reports on their finances and operations to the League of American Orchestras (“the League”) for *each* concert season between 1987/88 and 2003/04.² Although this sample includes most of the largest U.S. orchestras, there is considerable variation in

² Appendix A provides a list of these orchestras. Although 33 orchestras reported some data each year, one orchestra did not report sufficient data to be included in these exhibits.

their size and range of activities. The number of concerts, total attendance, and attendance per concert for the largest orchestra in the sample are 14-15 times larger than for the smallest orchestra, for example. Data from these orchestras provide an aggregate summary description of economic developments for a consistent group of symphonies, highlighting many issues to be analyzed later in the report using information from a much larger sample of orchestras.

Concerts and attendance. In 1987 the median number of concerts per season by orchestras in this group was 175. This number includes regular season, pops, educational, chamber, summer, and choral, ballet or opera concerts. For some orchestras the total also includes concerts performed during domestic and foreign tours. Subsequently, most orchestras added more concerts to their schedules, with larger symphonies expanding their concert schedules the most. Between the 1987 and 2003 concert seasons, the median number of concerts of all types rose about 11 percent to 195 per year. The mix of concerts played by U.S. symphony orchestras changed modestly as the total increased, with the share of regular season, summer and on-tour concerts declining and the share of pops and educational concerts increasing.

Median total attendance at concerts by these orchestras peaked in 2000 and then declined in the recession that began the new century. By 2003, the median annual concert attendance for these symphonies was only 91 percent of its 1987 level. Despite the increasing number of concerts, total attendance declined.³ The combination of increasing concerts and declining total attendance produced a precipitous decline in attendance per

³ For the 1991-1997 concert seasons, the League data permit a comparison of attendance at regular season and pops concerts with ticket sales for those concerts. For most of those years, attendance is a few percentage points higher than ticket sales for regular concerts and a few percentage points lower than ticket sales for pops concerts. There is no significant trend in the difference between attendance and ticket sales for either of these types of concerts during this seven-year period.

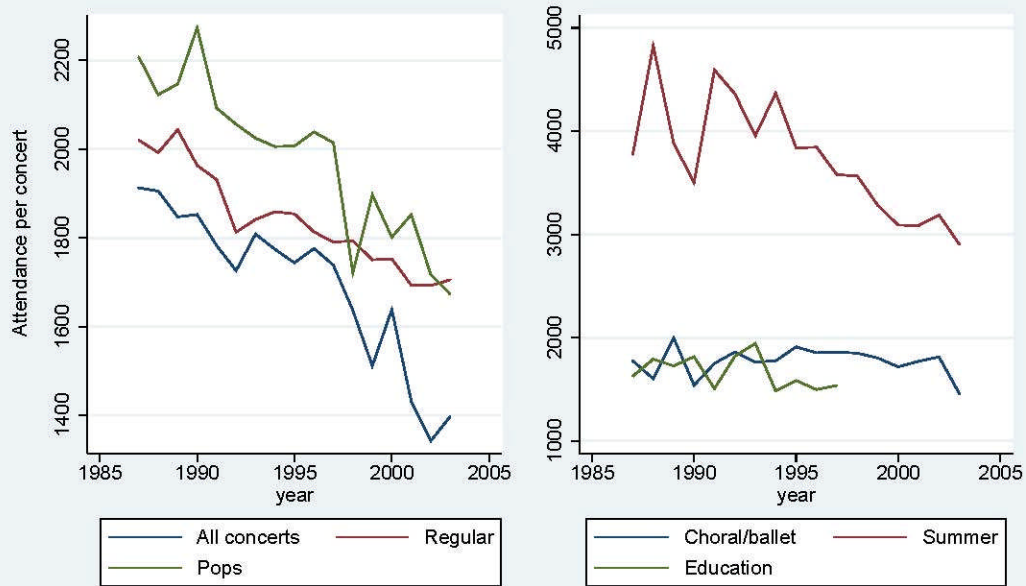
concert at the end of the 20th century (Graph 1). The decline is broad-based, ranging from the regular season concerts that historically have attracted the most dedicated patrons to concert halls to the educational concerts designed to build future audiences. No type of concert experienced a trend increase in attendance per concert.⁴ Since the broad decline in attendance per concert constitutes the major limitation on performance revenues, Section V of this report analyzes influences on this development.

A decline in the ratio of subscription to single tickets accompanied the drop in attendance per concert. Averaged over 1991 to 1997 (the only years for which these data are available), the median symphony orchestra sold four times as many subscription tickets as single tickets for both regular season and pops concerts. This average masks a significant trend *decline* in the ratio of subscription to single tickets, however. In 1991 the median orchestra sold five subscription tickets for every single ticket for both regular and pops concerts. By 1997 it sold only three subscription tickets for every single ticket sold for regular concerts. For pops concerts, the ratio declined to 3.5 subscription tickets per single ticket. Not only has attendance per concert dropped, but the loss is particularly large among the subscription patrons who are likely to have a long-term commitment to symphony orchestras. If it is more costly to sell single than subscription tickets, this development will add to the cost pressures on orchestras.

Performance income gap. What has been the effect of the twin forces of increasing numbers of concerts but declining attendance per concert on the balance between performance revenues and expenses? The median *performance income gap* for the 32 symphony orchestras continued to deteriorate in the last years of the 20th century,

⁴ Statistical analyses confirmed that these conclusions also apply to the full sample of 63 symphony orchestras.

Graph 1. Attendance per concert
Median, 32 symphonies, 1987–2003



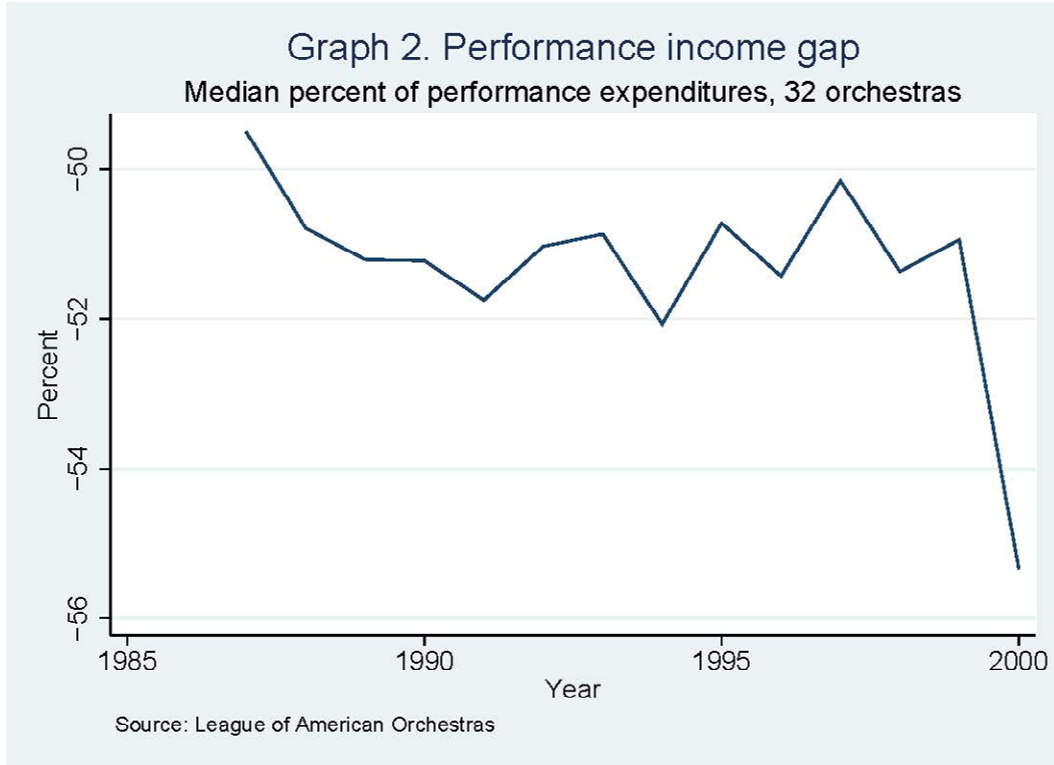
Source: League of American Orchestras

widening from 49 percent of performance expenditures in 1987 to 55 percent in 2000 (Graph 2). By 2000, the performance income earned by these orchestras covered only 45 percent of their performance expenses. The gap ranged from 23 percent to 77 percent of the performance expenses of symphonies in the sample. (That is, the performance income earned by individual symphonies in the sample covered from 77 to 23 percent of their performance expenses in 2000.) None of the 32 symphonies incurred even one year in which performance income exceeded performance expenses, although eight orchestras managed to reduce the gap as a percent of performance expenditures.

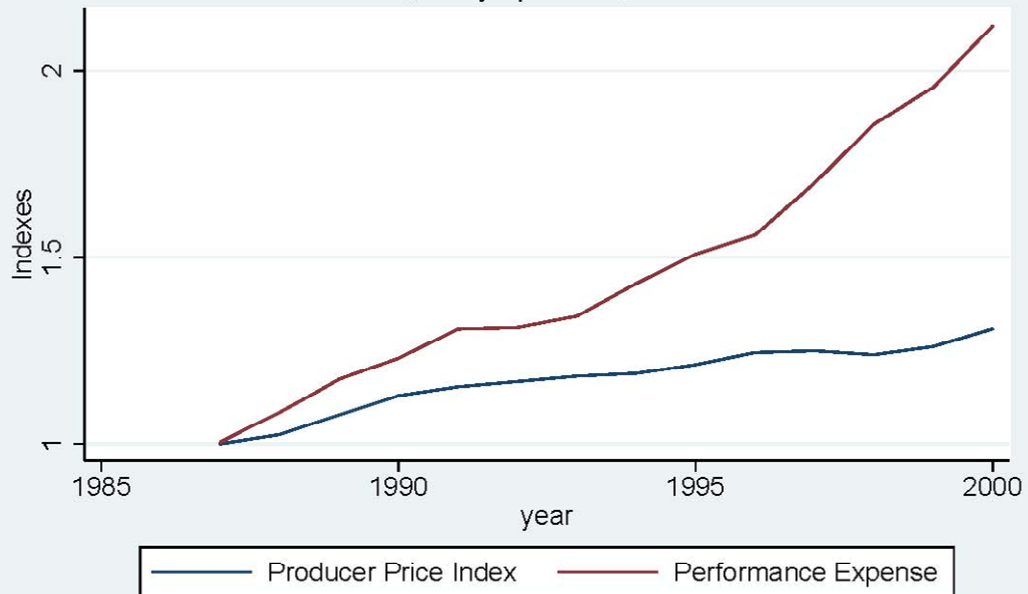
Notwithstanding efforts by symphonies to raise performance revenues by expanding their portfolio of concerts and to limit performance expenses, revenues failed to grow as rapidly as performance costs. Despite declining attendance per concert, median performance revenues per concert (adjusted for inflation) increased by 33 percent (2.2 percent per year), but real performance expenditures per concert increased even more rapidly—by 54 percent (3.4 percent per year).⁵ Had a rise in expenses of this magnitude occurred in the goods-producing sector, it would have been offset by the productivity increases that occurred in the late 20th century. In a sector without such productivity increases, however, the result is increased pressure on prices and the overall financial balance.

A comparison of the evolution of performance expenses for these 32 orchestras with the producer price index for finished goods illustrates this point (Graph 3). The latter index reflects the prices of finished goods as they leave the factory. The index changes as production expenses change in goods-producing industries. With both measures indexed

⁵ Revenues and expenditures are expressed in constant year 2000 dollars by deflating the nominal figures reported to the League of American Orchestras by the GDP deflator.



Graph 3. Symphony expenses and producer prices
Median, 32 symphonies, 1987-2000



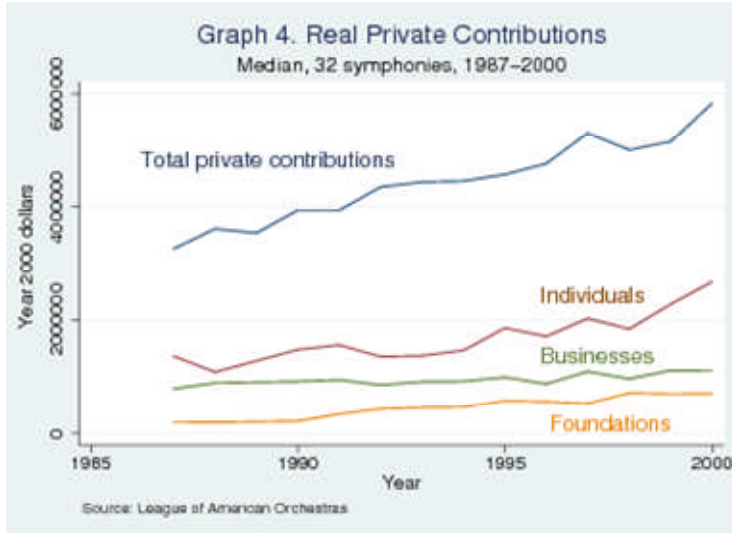
Source: League of American Orchestras, U.S. Bureau of Labor Statistics

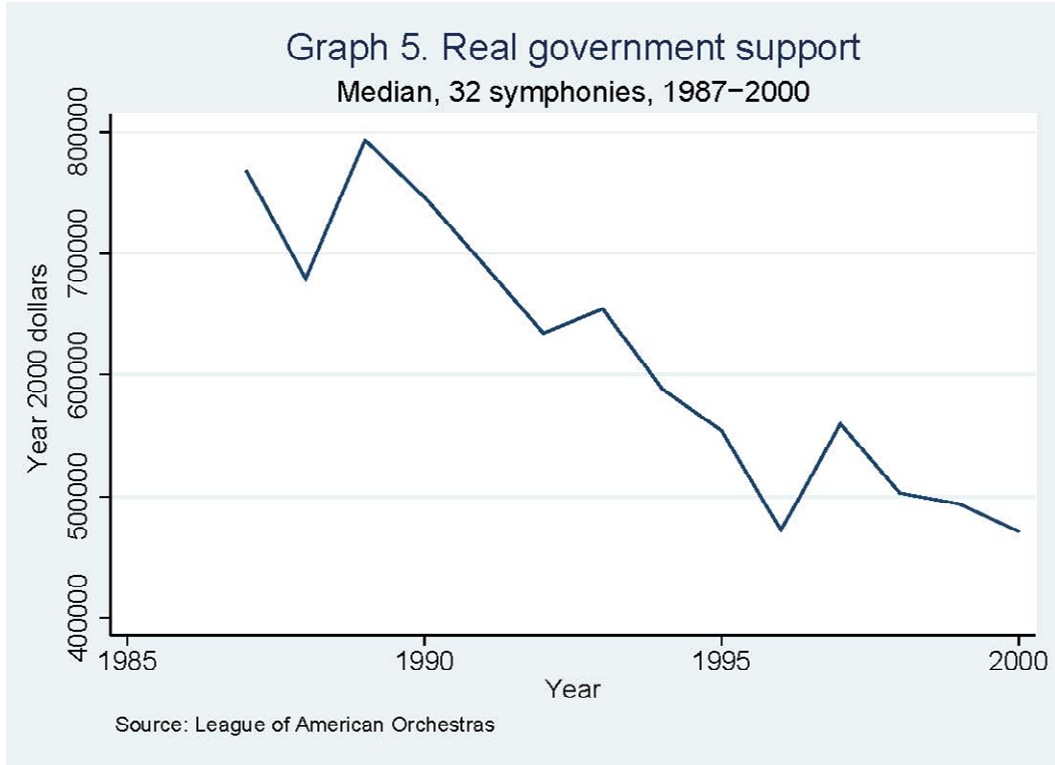
to equal 1 in 1987, we see how much more rapidly performance expenses evolve in the symphony sector, where only modest productivity gains are possible, relative to the goods-producing sector. To summarize, the historical growth of the performance income gap continued into the early years of the 21st century.

Nonperformance income and expenses. Symphony orchestras have had to counter the performance income gap by attracting support from private and public sources and from investment income. Fundraising activities carry with them an expense that is unrelated to concert performance, and the fundraising and development expenses of these symphonies increased from the mid-1990s. During the same period, private contributed support also increased particularly rapidly (Graph 4). The evolution of private support was driven by the growth of giving by individuals—particularly during the late 1990s. Support from foundations and businesses increased at a more modest rate. In contrast, government support declined steadily after 1989. Nominal increases in government support to the median symphony orchestra in the sample did not even keep up with inflation (Graph 5).

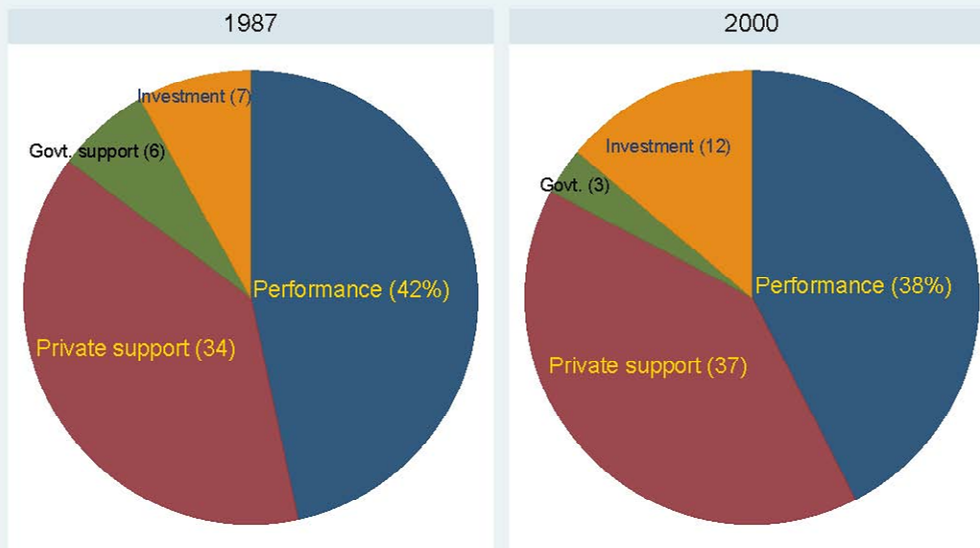
Distribution of revenues and expenses. During the last years of the 20th century, performance revenues constituted a minority and declining share of the income received by this sample of symphony orchestras. Between 1987 and 2000, the median share of performance revenues dropped from 42 to 38 percent of the total revenues (Graph 6). Indeed, by 2000, performance revenues and private philanthropy accounted for almost identical shares of median symphony revenues.⁶ The rising share of investment income in

⁶ Rulings by the Financial Accounting Standards Board significantly altered the conventions for reporting some financial variables by symphony orchestras and other not-for-profit organizations. As a result, data on contributions, investment income, and endowment are comparable only through the year 2000, limiting analyses of these variables to the 1987-2000 concert seasons throughout this report.





Graph 6. Distribution of symphony revenues, 1987 and 2000
Median, 32 symphonies



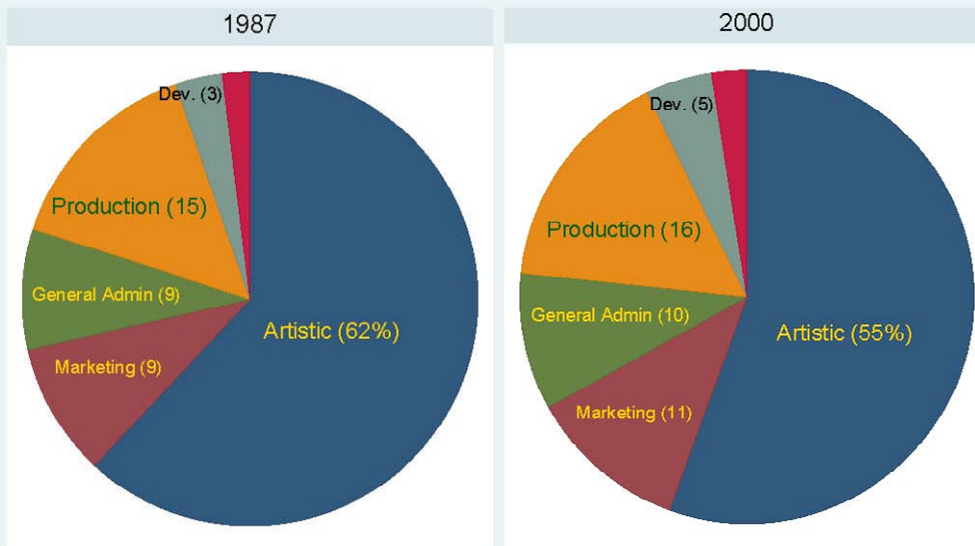
Source: League of American Orchestras

total orchestra revenue constituted another notable development (Graph 6). Clearly, the management of orchestra endowments and other investment decisions has become increasingly important for the financial balance of symphony orchestras.

The structure of expenses in these 32 symphony orchestras changed little between 1987 and 2000. The most notable change is a continuing decline in the share of artistic and non-artistic costs in total orchestra expenses. A decline in the median share of artistic costs from 62 percent to 55 percent of total expenses was accompanied by modest increases in the median shares of other expenses (Graph 7).

Overall financial balance. Changes in the balance between total revenues and total expenditures—the overall surplus or deficit of an orchestra—indicate the organization’s degree of success in offsetting the performance income gap through contributions and investment income. Averaged over the 1987 through 2000 seasons, the median financial balance of the 32 orchestras was slightly negative. As a percent of *total* expenses (performance expenses plus fundraising expenses), the average balance moved from negative numbers in the late 1980s and early 1990s to positive results with the growth of private contributions during the strong economy of the late 1990s (Graph 8). Whether negative or positive, the average annual balance is much smaller as a percent of total expenses than the performance income gaps discussed earlier. Contributions and investment income have permitted some symphony orchestras to narrow persistent performance income gaps. There is little evidence that individual orchestras persist in either a surplus or deficit position over time. In each year, some orchestras ran significant surpluses, while others ran significant deficits, but none of the 32 orchestras had surpluses (or deficits) throughout the entire period.

Graph 7. Distribution of total expenses, 1987 and 2000
Median, 32 symphonies



Note: Unlabeled slice is "Other Expenses"
Source: League of American Orchestras



Graph 8. Overall financial balance
Median percent of total expenses, 32 orchestras



Source: League of American Orchestras

Similar patterns emerge in the full sample of 63 orchestras that is analyzed in the rest of the report. Between 1987 and 2000, forty-six orchestras ran deficits on average, while seventeen orchestras ran surpluses on average. The average financial balance for all the symphonies over the 14 year period was negative (deficit), but the experience of individual orchestras was widely dispersed. In year 2000 dollars, the overall financial balance for the median orchestra in this sample changed from a deficit of almost \$49,000 in 1987 to approximate balance in 2000. Most orchestras achieved their strongest financial position during 1997-99, when very favorable general economic conditions prevailed. (This fact signals the importance of controlling for the effects of general economic conditions, as is done in the next section, before drawing conclusions on *trends* in the financial health of orchestras.)

This section has provided a snapshot of key developments in the economic environment of U.S. symphony orchestras at the turn of the new century. The continuation of the historical worsening in the performance income gap provides the point of departure. Developments on both the revenue and expense side of the balance sheet drive the continued deterioration. Declining total concert attendance and attendance per concert have limited the growth of performance revenues. For this group of orchestras, expanding the number and variety of concerts performed did not typically increase total concert attendance. At the same time, the costs incurred by symphony orchestras grew more rapidly than costs in the rest of the economy. Limited opportunities for productivity growth play an important role in the costs pressures.

With performance revenues covering increasingly smaller fractions of performance expenses, the ability of orchestras to grow nonperformance income has

become all important. Increases in private philanthropic support (particularly from individual contributors) and investment income played an important role in countering the performance income gap. Direct support received from all levels of government was quite limited and did not keep up with inflation. Net increases in nonperformance income approximately offset the performance income gap, producing a fragile financial balance for the median orchestra in the last years of the 20th century.

This snapshot describes but does not explain the main developments influencing the economic health of U.S. symphony orchestras in the late 20th century. Subsequent sections report on efforts to identify key factors that have influenced these developments. One open question is whether the developments reported in this section reflect genuine industry trends or simply short-term response to general business conditions. The next section examines the respective roles of cycle (variations in general business conditions) and trend factors. Sections V through VII examine the roles of symphony policies, local market characteristics, and competition between performing arts organizations on symphony revenues and expenses. A discussion of endowment policies (Section VIII) concludes the report.

IV. Trends and Cycles in Orchestra Finances

Changes in the financial balances of symphony orchestras can reflect the influence of both general economic conditions (“business conditions”) and trend factors, such as the “unpromising arithmetic” stressed by Baumol and Bowen and/or changing consumer preferences for live performance of symphonic music. Changing business conditions may influence revenues, since concert ticket sales and purchases of recorded music should increase in good times and decrease or grow less rapidly when business

conditions are poor. Orchestra expenses also may respond to general economic conditions. Salary and wage growth tends to accelerate when demand is strong and to decelerate in weak labor markets. Orchestras may adjust to weaker consumer demand by reducing the number or scale of concert performances. In contrast, trend or “structural” influences on the economic health of symphony orchestras do not vary with general economic conditions. They reflect the consequences of low productivity growth and long-term changes in how the population uses leisure time.

Discriminating carefully between the influence of cycles and trends on orchestra finances facilitates diagnoses of the long-term health of the symphony industry. This discrimination is crucial, because cyclical variations in general economic conditions can obscure underlying trends in revenues and expenses, leading to misinterpretations of current financial developments. Isolating the separate effects of cycle and trend on symphony finances reduces the risk of developing overly pessimistic views of industry trends during cyclical downturns and overly optimistic views of trends during improving economic conditions, for example.

Methods and Data

General economic conditions in the United States improved in the late 1980s, weakened in the early 1990s, and then began a long period of improvement from 1992 through 2000, which saw the beginning of another recession. The objective of this section is to separate the influence of these transitory, cyclical variations in economic conditions from long-term (trend) determinants of the financial wellbeing of symphony orchestras. When multiple factors (such as cycle and trend in the present case) simultaneously influence particular outcomes (such as measures of the financial health of orchestras), the

challenge is to determine the distinctive influence of each factor. Multiple regression analysis provides a statistical technique for meeting that challenge. Regression analysis isolates the distinctive influence of each factor on a measure of financial health after first holding constant the influence of all other factors included in the analysis. The analysis expresses the average correlation between the influences and financial health for the sample of orchestras and years for which data are available. In this section, regression analyses of the experience of 63 symphony orchestras will provide information on the extent to which the changing financial fortunes of the symphony orchestras reflect the influence of (1) changes in general economic conditions (i.e., the *cycle*) and (2) *trend* factors that are unrelated to changing economic conditions. The sample of symphony orchestras used in the regression analyses is much larger than the sample used in section III. The difference occurs because the snapshots in section III were for a common set of 32 orchestras that reported sufficient information in every year. For a variety of reasons, the other symphonies in the sample did not report data in every year.⁷ The statistical analysis procedure simply skips years in which data are missing, enabling the analysis of a larger number of orchestras and wider range of experience.

This study analyzes data provided by symphony orchestras to the League of American Orchestras and by opera companies to Opera America. Concerns have been expressed that different orchestras (or operas) may use different definitions for some of the information that they report. If that occurs, can analyses of the combined data for several organizations yield trustworthy results? There are two ways in which the impact of this concern is reduced in the current study. First, the League and Opera America each

⁷ See Appendix A for information about why information may be missing for some orchestras in some years.

provide member organizations with a questionnaire template, in an effort to have all members adhere to common definition for each variable. Nevertheless, variations in reporting may still occur. Second, and more importantly, this study mainly examines the correlations between measures of the financial health of symphony orchestras and factors that may influence that health by analyzing their interaction *over time*. For this analysis, it is important that the year-to-year variation recorded in the data be accurate. A reporting difference between two orchestras that does not change from year to year will not influence these correlations.⁸

Cycle and Trend in Revenues and Expenses

The net cyclical impact on the performance income gap of symphony orchestras depends on whether the effect of changing business conditions is stronger on performance-related revenues or expenses. If revenues are more sensitive to economic conditions than expenses, the performance income gap of symphonies should improve with good business conditions and deteriorate with poor conditions. Alternatively, if performance expenses are more sensitive to business conditions than revenues, the performance income gap will *improve* in recessions (because the growth of expenses slows more rapidly than the growth of revenues) and *deteriorate* in business expansions.

Real (adjusted for inflation) performance revenues were cyclically sensitive between 1987 and 2003, declining in recessions and increasing in economic expansions. In contrast, real performance expenses were not reliably correlated with variations in

⁸ More technically, much of the analysis of the experience of the panel of 63 orchestras between the 1987 and 2003 concert seasons uses a statistical technique (known as *fixed effects* analysis) that ignores ongoing differences in the ways that different orchestras report their data. Fixed effects analysis considers only how variables change *over time* for each orchestra and ignores differences in the level of variables in different orchestras. *Random effects* estimation uses both the “across orchestra” and the “over time” variation in the data.

business conditions. The difference in the cyclical sensitivity of revenues and expenses results in a worsening of the performance income gap in recessions and an improvement in the gap during business expansions.⁹

If only economic conditions mattered, the performance revenues and expenses of symphony orchestras would be in balance over the business cycle—the deterioration of the performance income gap that occurs in recessions would be offset when business conditions improved. In a sense, the financial problems that developed in a recession would tend to cure themselves when overall economic conditions improved. However, the regression analysis also finds significant *trend* increases in both real income and real expenses *after* controlling for the effects of business conditions. Between the 1987 and 2003 concert seasons, the trend increase in real performance expenses for this group of symphonies was *three times larger* than the trend increase in real performance income. For the average symphony in this sample, the performance income gap grew at about \$ 370,000 per year after controlling for the effects of economic conditions. Clearly, factors influencing the long-term growth of performance income and expenses dominated the evolution of the real performance income gap over this period. To put this point differently, each time economic conditions return to full employment (removing the cyclical effect), the industry confronts a worse performance income gap because of the influence of trend factors.

There is considerable variation in the cyclical sensitivity of the revenues and expenses of individual orchestras. For most orchestras the *trend* increase in real performance expenses is two to four times as large as the trend increase in real performance income. There are a few dramatic extremes where the expense trend is over

⁹ Appendix C provides details of the statistical analysis underlying this discussion.

eight times as large as the revenue trend, however. At the other extreme, there are a very few orchestras where the trends are approximately in balance. In short, the majority of orchestras have continued to experience a *long-term worsening* of the performance income gap, even after controlling for the perturbations introduced by changes in general economic conditions that are beyond the control of the symphony community. Even if orchestras adjust successfully to the cyclical “weather,” the long-run economic “climate” of the industry produces ever-increasing performance deficits.

How successfully have symphony orchestras countered the long-term deterioration in the performance income gap? Symphonies cannot survive without significant nonperformance income from private philanthropy, government support, and investment income. Understanding how such support changes over time is crucial to understanding the financial issues currently facing symphony orchestras in the United States. Private philanthropic support may depend on personal incomes, corporate profits, and asset values—all of which are likely to vary with general business conditions. Investment income may also vary cyclically.

The cycle and trend analysis of inflation-adjusted private philanthropy and government support for 63 symphony orchestras in the United States covers the concert seasons 1987-2000. The total external support received by orchestras in this sample was significantly related to the general state of the economy, decreasing in recessions and increasing in economic expansions. Private philanthropy, government support, and investment income all varied with economic conditions, although private philanthropy was most responsive to changes in the state of the economy. Cyclical variations in private philanthropy mainly reflected the influence of economic conditions on individual giving.

Business and foundation support was not reliably related general economic conditions. Efforts to detect the role of stock prices on private support for symphonies were not successful.¹⁰

Symphony orchestras cannot by themselves reverse economic cycles, but with sufficient advance warning they can take actions to mitigate the impact of cyclical changes. How can symphony orchestras obtain an early warning of cyclical changes? The local unemployment rate used as the key indicator of changing business conditions in the statistical analyses tends to rise *after* a recession begins and to fall *after* a recovery has started. In contrast, there are *leading indicators* of economic activity that provide *advance* warning of changes in business conditions. For example, each month The Conference Board publishes an “index of leading indicators.”¹¹ For almost 50 years, the index has on average predicted the onset of recessions about 11 months in advance and the onset of recoveries about 7 months in advance. That is, the index provides longer advance warning of the onset of a recession than of recovery from a recession. Leading indicators can provide all parties in the orchestra industry with information that assists forward planning to address the variations in the performance income gap and contributed support that accompany cyclical fluctuations. In particular, mitigating the impact of cyclical factors on orchestras may require allocating some of the gains in good times to reserves to be used in bad times.

¹⁰ Stock price indices tended to be highly correlated with the unemployment rate (which represents the general state of business conditions in this analysis), and it was not easy to detect the separate influence of each variable in this small sample.

¹¹ <http://www.conference-board.org/economics/>. The Conference Board also publishes monthly updates to the index in *Business Cycle Indicators*. The leading indicators used to construct the overall index include the average workweek in manufacturing (because most employers alter the weekly work hours of current employees before laying off workers (in a recession) or hiring new employees (in an expansion)), new orders for consumer and capital goods (because changes in orders precede changes in production), an index of consumer expectations (which predicts future consumption expenditures), and new claims for unemployment insurance. Data for most leading indicators are only available for the national economy.

While private philanthropy and government support followed similar cyclical patterns, the trends in these two sources of support for symphony orchestras diverged sharply over the period analyzed. For the average symphony in this sample, government support *diminished* by about \$30,000 per year, after controlling for the effects of economic conditions. More than counterbalancing this decline were trend increases in private support (about \$189,000 per year) and investment income (about \$65,000 per year) after holding the effects of business conditions constant. On balance, the trend in nonperformance income was therefore significantly positive. About half of the trend increase in private support for symphony orchestras came from individuals. Of the remainder, the trend increase in foundation support was about twice as large as the trend increase in business support.

This brings us to the bottom line—the role of cyclical and trend factors in the evolution of the overall financial balance of symphony orchestras in the United States. The analysis of the full sample of orchestras showed some *cyclical* variation in the performance income gap. But contributed support is more sensitive to general economic conditions than development and fundraising expenses, with the result that recessions worsened the overall surplus/deficit position of the average symphony in this sample, while economic expansions improved the overall financial balance. It may be worth emphasizing that the financial burdens that recessions place on orchestras reflect their impact on *both* performance *and* nonperformance revenues and expenses. Recessions aggravate the financial balance of symphony orchestras to an important extent by depressing private contributions and investment income when they are needed most to offset growing performance deficits.

Each year, the *trend* increase in *total* revenue modestly exceeds the trend increase in *total* expenses. As a result, there is a small but statistically significant trend improvement in the overall financial balance of the average symphony in the sample. In interpreting this gentle trend toward surplus between the 1987 and 2000 concert seasons, however, consider the following factors: (1) A trend toward surplus is different from a surplus. Most of the 63 orchestras continued to run an overall deficit at the end of the sample period. (2) To the extent that the trend toward surplus reflects excessive draws of investment income from endowments, it masks a serious long run financial challenge to orchestras (see Section VIII). (3) The effects of small adverse cyclical changes can overwhelm the positive trend. The statistical results indicate that the financial consequences of a one-half of a percentage point increase in the unemployment rate would completely counter the trend toward surplus in any year.

To summarize, the analysis of cycle and trend effects identified an ongoing and widely-shared *trend* deterioration in the performance income gap as well as a tendency for the gap to worsen in recessions and improve in good times. The burden of recessions on orchestras is increased by a cyclical decline in contributed support—particularly private contributions—but a *trend* increase in private support countered much of the trend decline in both the performance income gap and government support. The data underlying these findings reflect the symphony orchestra policies, market characteristics, and policies of other performing arts organizations in effect during that period. Financial outcomes and trends may change, for better or for worse, as any of these conditioning factors change. The remaining sections of this report explore the role of these factors to obtain guidance about how the trends that have been described might be altered.

V. Concert Attendance

The performance income of symphony orchestras flows mainly from concert attendance. Attending symphony concerts requires significant expenditures of both time and money—expenditures that could be allocated instead to other performing arts or many activities outside of the arts. This section examines symphony attendance in the context of general developments in how Americans use their time away from work.

Trends in Leisure Time

There were significant changes in how adult Americans allocated their time in the last decades of the 20th century. Data from time diary surveys in which respondents record the amount of time spent in various activities throughout the day reveal that while the weekly hours of market work (roughly, work for pay) remained steady between 1965 and 2003, hours of unpaid work in the home declined. (In these surveys, work in the home includes food preparation, other household chores, shopping, and obtaining goods and services.) The time diaries also record the time that respondents spend in various categories of leisure activities, although they do not define activities as narrowly as “attending a symphony orchestra concert” or “patronizing the performing arts.”

Nevertheless, time spent in the broader categories of leisure activities that would include concert attendance (along with many other entertainment and social activities) has increased by over 5 hours per week since 1965 for the average adult, according to a recent study (Aguiar and Hurst 2006). In short, the time available for patronizing symphonies and other performing arts increased in the last decades of the 20th century. The study also finds, however, that more educated people—the traditional supporters of the arts—experienced smaller increases in leisure than less educated people. Another

study of these data noted that “attendance at museums, concerts and other cultural events....translates to an average of 5 minutes a week or just over 4 hours a year of arts participation per capita” (Robinson and Godbey 1997, p. 174).

Against this background of increasing leisure time, surveys by the National Endowment for the Arts (NEA) record how public participation in symphony orchestra concerts and other performing arts has changed since 1982. Unlike the time use surveys used to establish the broad trends in hours of work and leisure, surveys sponsored by the NEA in 1982, 1992, and 2002 focus on public participation in specific performing arts (NEA 2004). (“Participation” is defined as attending at least one performance.)

Notwithstanding the increase in leisure time, the NEA surveys indicate little change in public participation in the performing arts. The proportion of the adult population reporting that they attended at least one performance of various arts remained quite stable between 1982 and 2002 (Exhibit 2). That is, the number of attendees has at most kept pace with population increases; increased leisure time has not significantly broadened the audiences attending performances. This finding is as true for individual performing arts as it is for the arts in general. In the NEA surveys of the U.S. population, the percent of adults who say they attended at least one classical music performance remained roughly constant (at about 12-13 percent) between 1982 and 2002 (Exhibit 2). Interestingly, this stability in patronage emerges for the other performing arts as well, irrespective of their general popularity with the public. Despite changes in the income, education, and age distribution of the American population, the proportion of Americans patronizing each of these arts remained stable during the last two decades of the 20th

century.¹² This is a remarkable finding to which we shall return below: The various marketing strategies developed and implemented by symphony orchestras and other performing arts organizations are not associated with any proportionate increase in participation, despite the growth of leisure time. Moreover, no performance art appears to be growing at the expense of others.

The NEA also gathered information on the *frequency* of attendance at arts performances. While the proportion of the population attending performances has been stable, the frequency of attendance by each patron declined for theater and dance but grew for classical and other types of music. The number of classical concerts per year attended by the average concert patron increased from 2.6 to 3.1 between 1992 and 2002. In each survey year, both the likelihood and frequency of attending a concert (or another arts performance) increase with income and particularly education. It is therefore puzzling that the proportion of the population attending symphony concerts has been so stable during a period in which both real income and the proportion of the population with at least a college education increased.

¹² While there may be no significant shift in the patronage patterns of Americans among the various performing arts, many other activities also compete for leisure time. The NEA survey also explored the public's participation in several alternative uses of leisure time, including movies, sporting events, outdoor activities, visiting museums, exercise and gardening. Interestingly, none of these activities shows a significant increase in the percent of adult participation since 1992, and some show significant declines (NEA (2004)). If anything, a smaller proportion of Americans appear to be allocating time away from work to some of the activities that might compete with attending symphonies or other arts performances.

Exhibit 2. Performing Arts Attendance (Percent of U.S. Adults)

	<u>1982</u>	<u>1992</u>	<u>2002</u>
Classical music	13	13	12
Opera	3	3	3
Jazz	10	11	11
Musical theater	19	17	17
Non-Musical theater	12	14	12
Ballet	4	5	4

Source: National Endowment for the Arts (2004)

Clearly, the proportion of highly educated Americans attending classical music concerts must have declined in the late 20th century. In fact, analyses of the NEA surveys reveal that the participation of college-educated people in classical concerts declined by 30 percent between 1982 and 2002. Participation in opera, ballet, and theater also declined, although by smaller proportions. The only increases in participation noted for college graduates were in jazz concerts (13%) and art museums (5%) (DiMaggio and Mukhtar 2004). In order to better understand these patterns of participation in live symphony orchestra performances and to determine strategies for increasing attendance, this section explores the importance of several influences on concert attendance.

Attendance and the Number of Concerts

The overview provided in section III noted that between the 1987 and 2003 concert seasons, total concert attendance had declined for the group of 32 symphony orchestras that reported data in each year of the period. For the larger sample of

orchestras analyzed in this section, the median annual attendance also declined over the period. Median annual attendance was about 218,000 in 1987. After declining during the first half of the 1990s, median annual attendance recovered to a new peak of about 215,000 in 2000, before declining to almost 199,000 in the 2003, a recession year.¹³ Changing business conditions exert a powerful influence on concert attendance; a one percentage point increase in the local unemployment rate (say, from five to six percent) is associated with a loss of eleven thousand patrons annually for the average orchestra. The fact that concert attendance generally rises in good times and falls in bad times is the major source of the cyclical sensitivity of performance revenues discussed in the previous section. After holding the impact of unemployment constant, the statistical analysis shows a trend increase in average annual attendance, which must be interpreted carefully.

An increasing number of concerts per year (about five concerts per year for the average orchestra) was the main factor behind rising attendance. Regression analysis clarified that while total concert attendance increases with the number of concerts performed, the effect of adding concerts to an orchestra's schedule has diminishing effects on attendance. Each additional concert yields a smaller increase in attendance. Adding a concert to the schedule of an orchestra performing the median number of concerts raises *annual* attendance by about 555 patrons, while adding a concert to the schedule of orchestras performing a much larger number of concerts would increase *annual* attendance by less than 450 patrons. Even though many costs incurred by symphony orchestras are fixed annually, the incremental costs of adding another concert are not zero. The evidence that additional concerts have diminishing effects on

¹³ The average experience should not obscure the variation in the experience of individual orchestras. Of the orchestras reporting sufficient data for analysis, 17 experienced a general increase in attendance over the period, while 38 experienced declining attendance.

attendance implies that there are limits on the extent to which a concert schedule can productively be expanded.

Once the influence of business conditions and the number of concerts performed is held constant, there is a trend *decline* in total attendance. (This statistical result confirms the decline in attendance per concert that appears earlier in Graph 1 for a smaller group of orchestras.) Perhaps the most interesting result of this analysis is that the positive effect of another concert on attendance is small relative to the negative effect of another year on attendance. The average orchestra would have to add six concerts *per year* to its schedule to counter the effects of one year's decline in attendance. Because of the diminishing effects of concerts on attendance, orchestras with the largest concert schedules would have to add even more concerts *annually* to overcome the trend decline in attendance.

Attendance and Seating Capacity

For most U.S. symphony orchestras, attendance at regular season concerts was well below the seating capacity of their performance venues. Attendance at regular season concerts averaged between 65 and 76 percent of seating capacity during the 1987-2003 seasons for these orchestras. These averages conceal considerable variation among individual orchestras, with a few averaging over 95 percent of seating capacity, while others barely filled half of their seats. Regression analysis confirmed that the percent of available seats filled by orchestras varies with business conditions, which partially explains the fact that these orchestras filled a smaller fraction of their seats during the recession at the beginning of the new century. But the regression analysis also uncovered a small but statistically significant downward trend in the fraction of seats that are filled.

After holding the effects of business conditions constant, the proportion of available seats filled by concert patrons declined by about .4 percentage points per year. If the trend continues, the percentage of regular season seats sold will decline by about four percentage points (e.g., from 70 percent to 66 percent) every ten years for the average orchestra.¹⁴

How much better off would orchestras have been at the end of the 20th century if they had been able to fill every seat at every regular-season concert? On average, the orchestras in this sample filled about 71 percent of their regular-season seats between the 1987 and 2003 concert seasons, although the fraction filled was lower at the end of the period than at the beginning. Under rather strong assumptions, the actual concert revenue from regular season concerts therefore averaged 71 percent of potential concert revenue. Assuming that vacant seats can be filled for the same prices charged for occupied seats, one can estimate each orchestra's potential concert income from a full house for every performance. The procedure undoubtedly produces an overestimate of the revenues from a full house, because it is unlikely that a full house would be achieved without altering ticket pricing policies. Lower ticket prices would most likely be necessary to fill empty seats.

The performance income gaps of symphony orchestras can be recomputed using the estimate of *hypothetical* concert income with a full house. While higher concert income will reduce the performance income gap, this procedure will overestimate the

¹⁴ Regression analyses also turned up evidence that *actual seating capacity* declined during this period for the average orchestra in this sample. Seating capacity, which is linked to the size of concert venues and the number of regular season concerts performed during a year, exhibits no cyclical sensitivity (in contrast to the percent of seats sold). The regression analyses confirm the positive relationship between the number of concerts and seating capacity, but also reveal a negative time trend in capacity after controlling for the number of concerts performed. The sources of this trend could not be determined with the data available for this study.

extent of the reduction because it ignores possible additional costs incurred to fill the vacant seats as well as the overestimate of concert revenue. Applying these very optimistic assumptions about ticket pricing and costs, selling out each concert performance would eliminate about 45 percent of the performance income gap on average, with considerable variation among individual symphonies. Only a few orchestras might completely eliminate the performance income gap by filling every seat, even under these assumptions. In short, even if every seat were filled, U.S. symphony orchestras still would face a significant financial challenge that would have to be met by actions to reduce the performance income gap or raise nonperformance revenues. The remainder of this report provides information that may help guide those actions.

Influences on Attendance per Concert

The analysis of attendance per concert follows a simple economic model of the supply of and demand for symphony concerts. Symphony orchestras supply concerts (or rather a block of seats for a concert performance). The number of seats is set by the capacity of the hall, but the *capacity* is rarely reached by most of orchestras.

Ticket pricing. Symphony orchestras also set *ticket prices* for admission to a concert, and their ticket price policies influence attendance. Ticket prices rarely vary over the season for a given category of concert (e.g., regular season concerts). Two questions arise in setting ticket prices: (1) how sensitive is concert attendance to the average ticket price? (2) What is the structure or menu of ticket prices for different customers that will maximize symphony revenues?

Virtually all products and services face a tradeoff between the price charged and the quantity sold. Raising prices invariably reduces sales. Nevertheless, if a ticket price

increase is proportionately greater than the reduction in tickets sold, symphony revenues will increase. The key empirical question is whether ticket sales are sufficiently “inelastic” in response to ticket price increases to produce a revenue increase. In general, the sales response will be least sensitive to price changes when there are fewer substitutes (related products or services) that the consumer can shift to in the face of a price increase. In the case of symphony orchestra performances, a perfect substitute would be the same program performed by another orchestra of comparable quality on the same night in a nearby venue—an unlikely event. However, other cultural experiences can provide near substitutes. In cities with a relatively large number of alternative cultural experiences, ticket sales may be more sensitive to ticket pricing than in cities with few cultural alternatives.

Orchestra revenues may also be enhanced by carefully designed ticket-price structures. The key idea is to charge higher prices to groups who have the strongest inclination to attend a concert and lower prices to groups who are less inclined to attend.¹⁵ At first glance, it may seem that some symphony-pricing policies violate this basic principle of revenue maximization. Subscribers—arguably the patrons with the strongest demand for symphony concerts—generally pay a *lower* price per concert than purchasers of single concert tickets. (Of course, principles of revenue maximizing pricing are applied to the extent that ticket prices vary with the desirability of different seats in a concert hall.) However, symphony orchestras and other cultural organizations often encourage “voluntary” annual, lump-sum donations by subscribers in order to maintain or improve the quality of their seat. This practice, which cannot be applied to sales of single

¹⁵ This principle is not applied uniformly. At major rock concerts, for example, a single price often applies to all seats (Connolly and Krueger (2005)).

tickets, moves in the direction of optimal price discrimination principles (Caves 2000). The data available for this report permit limited exploration of links between the structure of ticket prices and performance revenues. The data submitted to the League of American Orchestras permit one to estimate subscription and single ticket prices for regular-season and pops concerts. Reporting orchestras do not submit information on the structure of ticket prices by location of seating or day of the week, however.

Symphony orchestras do not report exact ticket price data to the League. Instead, they report data on revenues and attendance for some types of concerts. Average ticket price data were constructed for this study by dividing concert revenues by attendance for each orchestra in each season. Separate ticket price data were constructed for regular season concerts and pops concerts. The ticket price estimates have two limitations. As constructed averages they may not be a price that any individual concert patron faces, even though they provide an indication of an orchestra's general ticket price level. Moreover, ticket price estimates do not bundle in "voluntary" contributions that may be expected of subscribers, thus understating the effective price that they pay.

A statistical analysis of variations in attendance per concert confirmed the importance of the ticket pricing policies of symphony orchestras.¹⁶ Attendance at both regular season and pops concerts is inversely related to the ticket prices charged for those events, for example. Higher ticket prices are associated with lower attendance and conversely. However, the relationship between ticket prices and attendance is "inelastic" so that the loss in revenues from diminished attendance does not completely offset the gain in revenues from charging a higher price to the people who do attend. Not surprisingly, symphony patrons can turn to alternative uses of their leisure time as the

¹⁶ Appendix D includes the technical details of the statistical analysis underlying this discussion.

price of symphony tickets rises, but those alternatives are imperfect substitutes for a concert. For regular season concerts, for example, a 10 percent increase in the average ticket price is associated with a five percent decline in attendance per concert.¹⁷

Attendance at pops concerts is somewhat less responsive to differences in price: a 10 percent increase in the average price of a pops concert ticket is associated with a two and one half to three percent decline in attendance. These results are in line with estimates of the price sensitivity of concert attendance in earlier studies (Seaman 2005).

Marketing activities. Attendance per concert may also be influenced by the *marketing activities* of a symphony orchestra. Indeed, the very success of marketing expenditures may be assessed by their influence on attendance. Orchestras may develop and implement a variety of marketing activities to increase the number of patrons per concert at the selected ticket price. Telephone and mail campaigns tend to be used to acquire and retain season subscribers. (As noted in Section III, subscribers still account for a majority of ticket sales, although the ratio of subscription to single tickets *declined* during the 1990s.) In contrast, media advertising tends to be used to stimulate sales of single concert tickets.

We have seen that marketing expenses not only increased but accounted for an increasing share of symphony budgets between the 1987 and 2003 concert seasons (Graph 7), a period in which attendance per concert generally declined (Graph 1). These twin developments raise questions about how marketing expenditures are linked to concert attendance. Without further analysis, one might conclude that marketing

¹⁷ Data that symphony orchestras provided to the League included breakdowns of income and attendance by single concerts and season subscribers for some types of concerts only until 1998. With more extensive data on ticket prices for subscribers and single ticket purchasers, the price sensitivity of different groups of symphony patrons could be explored.

expenditures by orchestras were unproductive, but this conclusion would ignore the fact that many other factors also influence concert attendance. The key question is whether marketing activities and attendance are linked, *after* holding the effects of other influences on attendance constant. If marketing activities and attendance per concert are correlated, orchestras may also benefit from knowing whether the effects of marketing activities change with the level of marketing expenditures. If the best marketing opportunities are exploited first, incremental marketing expenditures may be subject to diminishing returns, yielding smaller and smaller increases in attendance per concert. On the other hand, if there are economies of scale in marketing activities, large expenditures may produce successively larger attendance gains. Data on annual marketing expenditures reported to the League permit analyses of the nature of the links between marketing activities and attendance per concert.

Regression analysis confirms that attendance per regular season concert increases with marketing expenditures by symphony orchestras, but also indicates that marketing activities encounter diminishing returns. That is, incremental increases in marketing expenditures produce smaller and smaller gains in attendance per concert. For regular season concerts, expenditures for phone and mail campaigns and for media advertising are significantly correlated with attendance. As noted above, these marketing activities tend to be directed at separate populations—subscription and single ticket patrons respectively. The analysis indicates that the phone/mail expense per additional attendee is lower than the media advertising expense per attendee. Combined with the declining ratio of subscription to single ticket sales, this finding implies increasingly higher overall marketing expenses for a given level of attendance. The statistical analyses also indicate

that *both* phone/mail campaigns and media advertising are subject to diminishing returns in raising attendance at regular season concerts. Past marketing results tend to provide an overly optimistic prediction of the effects of incremental marketing expenditures.

Characteristics of market area. The pricing, programming, and marketing policies of symphony orchestras are not the only influence on attendance per concert. The potential audience for symphony concerts also may vary with the economic and demographic characteristics of the markets in which orchestras operate. Some symphonies exist in the country's largest metropolitan areas, while others are based in cities of modest size. Other studies have shown that concert attendance is strongly correlated with per capita income and education, which play an important role in defining tastes for cultural experiences.¹⁸ In our analysis of how concert attendance varies between symphonies and over time for individual symphonies, we include variables for population, real per capita income, and the unemployment rate in each area in which a sample symphony orchestra is located. Population captures the potential size of an audience, while real income and unemployment signal the economic capacity of the population to attend concerts and support a local orchestra.

The key local area characteristic that emerges from the statistical analysis is population size. Orchestras in areas with larger populations experience higher attendance per concert; within an area, attendance per concert rises as population increases. In contrast, attendance per concert is not significantly related to either the real per capita income or the unemployment rate of an area.

¹⁸ The NEA surveys discussed earlier find that education is the most powerful determinant of attendance of any performing art (NEA (2004)). There is some controversy about the respective roles of income and education, however, since the latter is an important determinant of the former (Seaman 2005). Limitations in government reporting of educational attainment (the percent of the population with at least a college degree) by local area prevented its use as an explanatory variable in this study.

Competition from other performing arts. Finally, attendance at symphony concerts may be influenced by the presence of other performing arts organizations operating in the same market area. A salient characteristic of performing arts performances is that they require significant time as well as income from attendees. While income increases over time for most people, time constraints are less elastic. Time constraints force patrons of the arts to choose among arts performances, and performing arts organizations may compete with each other for the scarce time of arts patrons. How performing arts organizations compete and the consequences of such competition for the financial balance of arts organizations has received little study in the past.

Ticket pricing policies and marketing activities that attract new patrons to an opera, dance, or theater performance may do so at the expense of attendance at a concert by the local symphony orchestra. And conversely: pricing and marketing activities by orchestras may cut into attendance at other performing arts. This kind of competition can have very serious implications for the financial balance of all performing arts organizations. Higher marketing expenses by arts organizations seeking to increase attendance may be countered by other arts organizations in order to prevent a loss of attendance. If an opera increases its marketing effort to fill its hall, a nearby symphony orchestra may have to increase advertising and marketing expenditures to prevent an erosion of patronage. The outcome could be an escalating war of marketing expenditures whose only purpose is to prevent a loss of market share. The escalating expenditures may produce no net gain in attendance for either organization. Attendance and related revenues may remain roughly flat while expenses escalate.

One cannot rule out a more appealing alternative hypothesis, however: self-interested pricing and marketing activities by any arts organization will raise general interest in and attendance at all performing arts. Ultimately, the nature and effects of competition between different performing arts organizations must be settled by an analysis of actual experience. An analysis of competitive interactions between symphony orchestras and opera companies is feasible thanks to extensive financial and operational data for U.S. opera companies made available for this study by Opera America. These data make it possible to analyze the effects of the presence of competing opera companies, the ticket prices charged by those companies, and their level of advertising and marketing expenditures on attendance per symphony concert.

The statistical analysis tested for several potential competitive interactions between symphony orchestras and local opera companies. There is evidence of a statistically significant but quantitatively small relationship between opera ticket prices and regular season symphony attendance (and conversely) in *some* analyses. Higher *season* ticket prices charged by a local opera are associated with higher symphony attendance. Alternatively, if the price of a *season* ticket for a local opera falls relative to the price of symphony tickets, symphony attendance per concert will decline. Note that the relative price of an opera could fall either because the opera reduces its price relative to the symphony ticket price or because the symphony raises its ticket price relative to the price of opera tickets. (No statistically significant relationship between the price of *single* opera tickets and regular season symphony attendance, and no relationship between the price of any opera tickets and pops concert attendance emerges in the statistical analysis.)

The direct relationship between opera ticket prices and regular season symphony concert attendance in some analyses confirms the intuition that these two performing arts are to some degree substitutes: When the relative price of opera tickets increases, some opera patrons reduce their opera attendance and increase their symphony attendance (and conversely). Nevertheless, this effect is quantitatively small and not always reliable: if an opera doubled its ticket price (relative to symphony ticket prices) attendance per concert at the local symphony would at most increase by three percent. Scheduling can influence the strength of competition between performing arts. In some communities, the symphony and opera performances occur at different times of year, an arrangement that not only reduces direct competition for patrons between the two performing arts, but also permits musicians to play in both orchestras.

The statistical analysis did not reveal further significant impacts of opera companies on attendance at a symphony's regular season concerts in the same market area. In particular, neither the presence of an opera company in the market area nor the level of marketing expenditures by that opera company had a reliable impact on attendance at those concerts during the time period studied. No aspect of a local opera's operations, including its ticket pricing, had a significant impact on attendance at pops concerts.

Broadcasts and recordings. We should not leave the topic of arts competition without raising the intriguing question of whether some symphony orchestras effectively compete with themselves when they broadcast their concerts or make and sell sound recordings. These activities raise all of the issues posed by the presence of competing

performing arts organizations. Do live broadcasts and recordings of the symphony repertoire substitute for live performances or raise the demand for them?

The availability of high quality broadcasts and sound recordings of classical music could raise attendance at symphony concerts. Throughout most of the history of classical music in the United States, symphony orchestras appear to have assumed that broadcasts and recordings stimulate the demand for live performances. From the vantage point of the early 20th century, Grant and Henninger (1940, p. 21) comment that “...there is considerable evidence that these media have created wider interest in symphonic music and have contributed to the growth in the number of symphony orchestras and the size of their audiences.” Early sound reproduction was mediocre, and exposure to symphonic music on radio and, later, television may have built demand for superior quality of live performances.

Over the decades, the quality of sound recordings increased immensely, however, raising the possibility that recordings no longer raise the demand for and may even substitute for concert attendance. NEA surveys again provide some evidence on the use of potential substitutes for live performances in the late 20th century. While a larger proportion of the population listens to broadcast and recorded classical music than attends concerts, the use of these alternatives has *declined* since 1992 (Exhibit 3). This decline coincides with the rise of the internet as a source of recorded and broadcast music—an option not anticipated in the design of these surveys. Notwithstanding the dramatic improvements in the quality of broadcast and recorded sound since the early 1980s, the survey data do not support the hypothesis that performing arts attendance stabilized because people allocated *more* time to broadcast and recorded performances.

Programming choices. Once the ticket price has been set, attendance per concert generally varies with shifts in demand for particular concerts. Shifts in demand from concert to concert may reflect variations in *programming* and the appeal of guest soloists and guest conductors. For symphonies that provide multiple performances of a program each week, these demand-shift factors will mainly determine weekly variations in attendance per concert. Symphony orchestras do not report data on individual concerts to the League, so it was not possible to explore the interesting question of how programming choices influence attendance with the data available for this study.

Exhibit 3. Performing Arts Broadcasting and Recording (Percent of U.S. Adults)

	<u>1982</u>	<u>1992</u>	<u>2002</u>
Watch on TV, Video or DVD			
Classical music	25	26	18
Opera	12	12	6
Jazz	18	22	16
Musical theater	21	17	12
Non-Musical theater	26	18	9
Dance		20	13
Museums	23	34	25
Listen to on the radio			
Classical music	20	31	24
Opera	7	9	6
Jazz	18	28	24
Musical theater	4	4	2
Non-Musical theater	4	3	2
Listen to Recordings			
Classical music	22	24	19
Opera	8	7	6
Jazz	20	21	17
Musical theater	9	6	4

Source: NEA (2004), p. 55 - 58.

Conclusions Regarding Concert Attendance

Concert performance is the central objective of symphony orchestras. Addressing the relentless deficits—performance income gaps—that accompany this central activity requires attention to enhancing performance revenues and controlling performance costs. Concert attendance produces the major flow of performance revenue for orchestras and hence has been isolated for analysis in this section. These are the main conclusions of that analysis. (1) The vast majority of symphony orchestras would fail to cover performance expenses with performance revenues, even if they were able to fill every available seat for every concert. (2) Adding concerts to an orchestra's schedule produces smaller and smaller attendance gains on average. Attendance per concert has declined. (3) Ticket pricing policies have an important influence on performance revenues. Because the demand for symphony performances is only moderately sensitive to ticket price, higher ticket prices will raise *performance* revenues, even though they discourage some attendance. A full evaluation of the effect of higher ticket prices should consider the following complication, however: To the extent that private philanthropic contributions to orchestras flow from concert patrons, the gains in performance revenue from higher ticket prices may be offset to an unknown extent by reductions in nonperformance income from fewer attendees. (4) Marketing activities are associated with higher attendance per concert, after holding the effects of ticket prices and other influences on attendance constant. However, the declining ratio of subscription to single ticket sales experienced on average by this group of orchestras implies an increase in marketing costs per ticket sold. Even more important is the fact that marketing expenditures are subject to diminishing returns. Past performance is an overly optimistic guide to the yield of

incremental marketing expenditures, and beyond some point, marketing expenditures may not pay for themselves. (5) In some analyses, there is a statistically significant but quantitatively small competitive interaction between symphony orchestras and operas. In these analyses, changes in the relative price of symphony and opera tickets in the same area are associated with small changes in relative attendance. Whether such competitive interactions occur between symphony orchestras and other performing arts remains an important topic for future research. (6) Some influences on attendance, like the population of a local market area, are beyond the influence of specific symphony orchestra policies.

VI. Artistic Costs

If concert attendance constitutes the major source of performance revenue for symphony orchestras, artistic costs—mainly the compensation of regular and substitute orchestra musicians, regular and guest conductors, and guest soloists—comprise the major category of expense. Because they average over half of the total annual expenses (Graph 7), even small changes in artistic costs can have a notable impact on the overall financial balance of orchestras. Between the 1987 and 2003 concert seasons, for example, the total artistic costs of the orchestras in this study increased less rapidly (about 2.1 percent per year) than total marketing expenses (4.3 percent per year) and total fundraising and development expenses (3.9 percent per year) but nonetheless had two to five times more impact on total costs because of their large share of total expenses. The share of artistic costs in total orchestra expenses varies quite widely among the orchestras

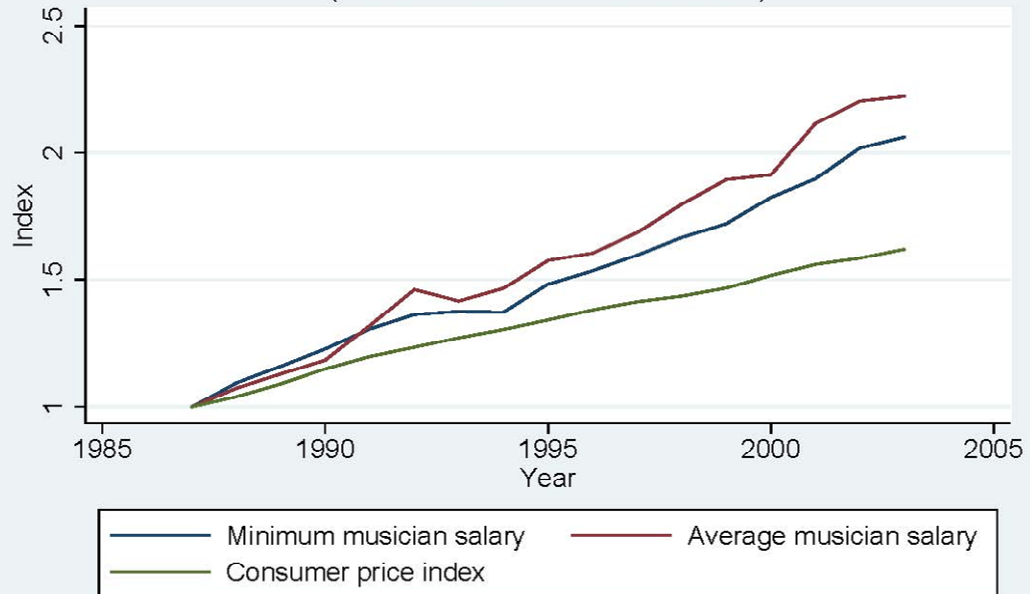
in our sample—from about 37 to 65 percent in a typical year. This section describes the recent evolution of artistic costs within the symphony industry.¹⁹

Salary payments to regular orchestra musicians averaged 57 percent of total artistic costs. Guest soloists and guest conductors accounted for the next largest share of artistic expense—15 percent of artistic costs. The salary of an orchestra’s regular conductor averaged five percent of the artistic budget, as did the share of salary payments to substitute musicians. Various payroll taxes and benefits account for the remaining artistic costs.

Virtually all salaries for symphony orchestra musicians are determined in local collective bargaining negotiations between symphony management and symphony musicians or their union representatives. Since 1987, the *minimum weekly* salary for orchestra musicians established in collective bargaining agreements signed by management and labor at the 63 orchestras in our sample increased at about 4.0 percent per year. *Average weekly* musicians’ salaries, which include seniority payments and “over scale” payments to musicians who play a prominent musical role (e.g., first-chair) in the orchestra, increased at slightly over 3.8 percent per year. Along with the wages of most other workers in society, musicians’ salaries increased more rapidly than the cost of living, as captured by the evolution of the Consumer Price Index (CPI). (See Graph 9, in which both measures of musician salaries and the CPI have been indexed to equal 1 in 1987.) Between the 1987 and 2003 seasons, the weekly salaries of symphony orchestra musicians also increased more rapidly than the average wages and salaries of other unionized workers in the United States, of nonunion workers, and of other professional

¹⁹ Because information on some dimensions of artistic costs were not reported in all years, the period of analysis is sometimes shorter than in earlier sections of this report.

Graph 9. Musicians' Salaries and Consumer Prices
(Indexes: 1987=1 for all variables)



Source: League of American Orchestras; U.S. Bureau of Labor Statistics

service workers. Some of these groups, notably employees in the education sector, also work in industries with very low productivity gains.

Annual musicians' salaries also reflect the number of weeks worked. Forty-five years ago, very few orchestras provided 52-week guarantees to musicians. Over subsequent decades, many orchestras raised the number of guaranteed weeks per concert season, but increases in guaranteed weeks appear to have stopped by the mid-1980s. No trend in the paid weeks per year emerges in the sample orchestras between the 1987 and 2003 concert seasons. In short, the growth of weekly salaries alone accounts for virtually all of the increase in musicians' annual salaries since 1987.

Employment arrangements in symphony orchestras appear to limit the adjustment of artistic costs to changes in business conditions. The discussion in section IV noted that performance expenses were much less sensitive to changes in business conditions than performance revenues, resulting in a significant increase in the performance income gap during recessions. The fact that artistic costs do not vary significantly with business conditions is an important source of this outcome. In an effort to stabilize the annual incomes of symphony musicians, collective bargaining agreements in the industry now typically specify the number of regular musicians in an orchestra, a guaranteed number of annual weeks of employment for musicians, and a maximum number of services per week, as well as the minimum weekly salary and salary supplements discussed earlier. Collective agreements or other employment arrangements that set *both* salary and employment levels limit the ability of organizations to adjust their operations to changes in business conditions and exacerbate the size of the performance income gaps of symphony orchestras in recessions. In contrast, most collective bargaining agreements in

private sector industries in the United States establish a wage or salary level and leave decisions regarding employment levels to the employer.

Payments to soloists, which include the combined effect of individual fees and the number of soloists engaged by orchestras, increased about 2.8 percent per year. There was no significant trend in payments to conductors in the full sample of orchestras, although payments to regular conductors in larger orchestras did appear to increase more rapidly than the pay of musicians in those orchestras.

In summary, the pay of symphony orchestra musicians increased more rapidly than the pay of most other groups of workers in the United States in the late 20th century. Collective bargaining agreements signed by representatives of both management and labor have also limited the ability to adjust labor costs during cyclical or other sources of economic adversity. These limitations contribute to the worsening of the performance income gap during periods of poor economic conditions.

VII. Private and Public Support for Orchestras

With their persistent gaps between earned income and performance expenses, symphony orchestras and other performing arts organizations must rely on private philanthropy, government grants, and investment income in trying to achieve financial balance. More than half of the budget of many orchestras must be financed from these sources of nonperformance income. Section IV of this report examined the cyclical and trend behavior of private support from individuals, businesses, and foundations and public support from all levels of government. This section extends that discussion to consider the role of several other influences on private and public support for orchestras.

There was remarkable variation among orchestras in the amount and composition of external support received in the late 20th century. Philanthropic contributions by individuals ranged between six and 60 percent of the private support received by individual orchestras in the sample. Support from businesses ranged between 5 and 53 percent of private support; for independent foundations the range was 2 to 35 percent. Shares also ranged widely over time for individual orchestras. Clearly, the composition of external support for U.S. symphonies varies widely across orchestras and over time. Government support was invariably a less important source of funding than private philanthropy. Neglecting two outliers, support from all levels of government ranged between one and 25 percent of the total income received by orchestras in the sample. The highly varied structure of nonperformance income for these orchestras undermines any notion that they followed a common model of external financial support in the late 20th century. This section examines influences on these variations in contributed support, both across symphonies and across time.

Private Support

This analysis of private contributed support between the 1987 and 2000 concert seasons considers the role of three potential influences—the financial capacity of a local market area to support orchestras and other performing arts, symphony orchestra policies, and competition with other performing arts. The underlying statistical analysis of data for 62 symphony orchestras examines the relationship between each of these potential influences policies, and the amount of private support for symphony orchestras.²⁰

²⁰ Appendix D reports technical details of the statistical analyses discussed in this section. One of the original 63 orchestras lacked sufficient data to be included in these analyses.

The *capacity* of parties with a taste for symphonic music *to provide financial support* to a local orchestra should depend on the size of the local area population and its financial capacity as indicated by its real per capita income. The local area unemployment rate may provide further information on capacity for private philanthropic support. Since changes in the value of assets may account for changes in support from both individuals and foundations, changes in stock market prices, a major influence on asset values, also may influence private contributions. Furthermore, since philanthropic contributions may be used to reduce taxable income in the United States, the incentive to contribute to philanthropic and charitable organizations increases with the marginal income taxes paid by individuals. This familiar fact motivates a test for the effect of marginal income tax rates on contributed support.²¹

Analyses of variations in support between orchestras and within orchestras over time confirm the influence of an area's population size and real per capita income on real private contributions to the area's symphony orchestra. Orchestras in areas with more people and higher per capita income receive more private support. Once the effects of population and income are held constant, the unemployment rate has no significant impact on private contributions, however. Broad stock price indices also are not significantly related to overall private support. (Stock market indices are so closely correlated with the unemployment rate and other measures of general economic conditions in annual data that it is difficult to disentangle the unique influence of stock

²¹ The NEA surveys discussed in Section V find that concert attendance increases with education. Tastes for symphonic music apparently increase with schooling. This finding suggests that *other factors equal*, areas with a more highly educated population will provide more philanthropic support to orchestras. The hypothesis must be examined with care, since there is a strong correlation between education and real income. A more basic difficulty confronted efforts to address the hypothesis in this study: Data on educational attainment are only available for a limited number of years and for only some areas.

prices in statistical analyses.) The limited variation in federal personal income tax rates over this 14 year period provides little traction for a statistical analysis, and no statistically significant relationship between marginal federal income tax rates and contributions by individuals emerge from the analysis. (Progress in detecting linkages between tax policies and private support for orchestras must await data providing greater variation in tax rates.²²) Similar patterns emerge from analyses that focus only on changes *within* orchestras over time. Increases in local population and per capita income raise private contributions.

Symphony orchestra policies constitute a second influence on the level of contributed support. The earlier discussion of ticket pricing noted that some orchestras may expect “voluntary” donations from patrons who wish to preserve their seating assignments, for example. Concert programming choices may also influence the level of support that an orchestra receives.

Orchestras also initiate a variety of fundraising activities to increase contributed support from private and public sources. This report noted earlier that the share of fundraising in total orchestra expenses increased in the late 20th century (Graph 7). Assessing the links between fundraising activities and contributed support requires care, however, because an area’s economic capacity and other orchestra policies also influence an orchestra’s nonperformance income. The statistical procedures used to assess these links account for other influences on nonperformance income before estimating the independent contribution of fundraising activities. These procedures are designed to

²² A useful extension of this analysis would be to combine information on federal *and state* income tax rates—a strategy that would introduce more variation in tax rates over time as well as between areas. Because corporate income tax rates changed only once over the period, no attempt was made to relate business contributions to tax rates.

address the following policy questions faced by symphony orchestras: What is the return on another dollar of fundraising expenditure, given other influences on an orchestra's nonperformance income? Do *further* expenditures pay for themselves? To address these questions the statistical analysis examines how development and fundraising expenses are related to philanthropic contributions *over time within* symphony orchestras. These "fixed effects" analyses show the effect of an average symphony spending one more dollar on fundraising activities on private support.

Preliminary analyses of the data indicated that the relationship between fundraising expenditures and private contributions was different for large and small orchestras. When the orchestras are split into a group of "small" symphonies (with total budgets under \$9 million in the late 1990s) and "large" symphonies (with budgets over \$9 million in the late 1990s), an additional dollar of fundraising expense is associated with increased private contributions of \$1.96 for small orchestras and 51 cents for large orchestras. Taken at face value, this finding implies that from the first dollar spent, fundraising does not pay for itself in large orchestras.

This provocative finding emerges from statistical analyses that assume that the returns to fundraising activity do not vary with the level of fundraising expense. It does not allow for the possibility that fundraising may become more or less productive with the level of fundraising expenditure by an orchestra. If fundraising departments pursue their best opportunities first, for example, fundraising expenditures may eventually be subject to diminishing returns. On the other hand, if there are economies of scale in fundraising activities, large expenditures may yield disproportionately larger contributions than small expenditures. By a small margin, regression analyses that

checked these possibilities by permitting the effects of fundraising expenditures to change as the level of expenditure changes did *not* describe the data as well as the analyses that assumed that fundraising expenditures yield constant returns for both smaller and larger orchestras. Yet, the “constant returns” results imply that fundraising expenditures by large orchestras fail to pay for themselves, a result that many readers may find implausible.

A key reason for the statistical finding is that factors other than fundraising activities typically account for some of the philanthropic contributions to symphony orchestras. In particular, per capita real income in an orchestra’s market area is strongly correlated with private contributions, independently of what the orchestra spends on fundraising. To make this point differently, simple ratios of total contributions to fundraising expense grossly overstate the return on fundraising activities, because they effectively credit fundraising activities with many contributions that an orchestra would have received anyway, including the economic capacity of an area, a desire to maintain seating preferences, and appreciation for the musical director’s programming choices.

Readers of preliminary drafts of this report suggested other factors that might account for the low (and even negative) returns to fundraising and development activities found in the statistical analysis of the orchestra data. Current development and fundraising expenses may be incurred to lay the groundwork for significant contributions in future years. There are expenses associated with the stewardship of past donors that are intended in part to encourage additional giving in the future, for example. Planned giving commitments also require significant current costs to generate future nonperformance income. The interval between incurring costs and receiving returns may lengthen to the

extent that orchestras turn their attention to commitments from younger patrons. These are very sensible and well-informed observations about the nature of some development activities. It is also true, however, that over the fourteen-year period covered by the statistical analysis, the promise of an eventual positive return on fundraising investments is not reflected in the data for larger orchestras.

The return to fundraising activities by symphony orchestras may also be challenged by increasing competition for philanthropic contributions. In principle, such competition can be quite broad and changing tastes about the direction of philanthropy can influence the return on an orchestra's efforts. The following paragraphs focus more narrowly on competition for contributions between performing arts organizations.

Competition from other local performing arts organizations for philanthropic donations may not be as sharp as the competition for patronage discussed in section V, because the time constraint that may influence current attendance choices is not relevant for philanthropic support. Assuming that the philanthropic budgets of individuals and organizations are limited, however, competition for private support (like competition for patronage) may mean that gains in nonperformance income by one organization come at the expense of another performing arts organization. Efforts by each arts organization in turn to preserve or increase donations may produce escalating fundraising expenses. With this possibility in mind, this section explores the sensitivity of orchestra philanthropy to the presence of opera companies in the same market and the scale of their competing fundraising activities.

This report extends the analysis of philanthropic support for symphony orchestras to include variables indicating the presence of competing opera companies in a market,

the amount of private and government support received by operas, and the level of development and fundraising expenditures by local operas.²³ The presence of at least one opera company in a symphony orchestra's market area is associated with a decline in total private contributions to symphony orchestras. On average, the decline is equal to \$364,000 or about seven percent of total private support. Government support for symphony orchestras is also lower (by \$ 145,000 on average) in markets in which there is also an opera company. While the statistical foundation for this finding is quite strong for *total* private contributions, it weakens when the three main sources of private support—individual, business, and independent foundation support—are analyzed separately. The finding is strongest for individual support (where it is marginally significant on statistical grounds) and weakest for support from private foundations.

How does the decline in revenue associated with the presence of a competing opera company occur? Answering these questions require a very cautious interpretation of the data and careful consideration of different lines of causation. If we identify a positive correlation between philanthropic support for symphony orchestras and support for nearby opera companies, for example, does it mean that the support generated by the opera has spilled over into support for the local symphony, or does it mean that higher support for a local symphony induces extra (costly) development efforts by the competing opera company. One approach to addressing this puzzle is to test for a *sequence* of reactions by lagging key explanatory variables.

After holding the effects of an area's economic capacity *and* an orchestra's development/fundraising expenditures constant, the data reveal a small but statistically significant *inverse* correlation between support for an opera company in one year and

²³ Appendix D contains details on the underlying statistical analysis.

support for a nearby symphony in the subsequent year. In fact, the data reveal a broader story: There is also an inverse relationship between an opera's fundraising expenditures in one year and the level of external support for a nearby symphony the following year. These results are consistent with a scenario in which higher development expenditures by an opera company raise support for the opera at the partial expense of the nearby symphony orchestra a year later. This pattern appears for total private support, for its three main components (support from individuals, businesses, and independent foundations), and for public sources. (Some public funding comes from state and local governments, which may have to respond to many or all arts organizations of consequence in an area.) The effect is very small, however. Each additional dollar of private contributions to an opera company in one year is associated with a decline of three cents in contributions to a nearby symphony orchestra in the following year.²⁴

Public Support

Direct government support of symphony orchestras in the United States is quite limited in comparison with other industrialized countries.²⁵ Earlier in this report, Graph 5 described the decline in real government support received by major orchestras at the end of the 20th century. Government support for performing arts in dollars increased during the 1990s, but public support as a fraction of income dropped from 9 % to 6 % as “larger appropriations are being divided among more and more constituencies through the very politicized process of public arts funding.” (Dempster 2002, p. 14). Indirectly, the federal

²⁴ This finding requires cautious interpretation, for when the level of support received by a neighboring opera company is not lagged, the support received by operas and orchestras are *positively* correlated—the opposite of what is observed when opera support is lagged. The sequence of actions that emerges with the use of the lagged support for operas would seem to clarify the causality. But they do not constitute absolute proof.

²⁵ A study of data for the 1970s documented how public support for the arts in the United States lagged behind Europe (Montias 1986).

government supports symphony orchestras (and other not-for-profit organizations) through the tax deductibility of philanthropic donations. We now move to an analysis of factors determining variations in the level of support from all levels of government between orchestras and over time.

The analysis can address questions about how the underlying political processes allocate support for the arts. To what extent is government support allocated on the basis of an area's ability to pay? In particular, do funding allocations compensate for area differences in ability to pay? Do an orchestra's fundraising activities influence the amount of government support that it receives? If so, is the effect of fundraising sufficiently large that marginal fundraising expenditures pay for themselves when both private and public returns to fundraising are considered?

The results of the statistical analysis provide mixed signals regarding the political values underlying the allocation of government support to symphony orchestras. Symphonies in high income areas receive less support than orchestras in low income areas. In this sense public support tends to offset private support and equalize performing arts activities geographically. However, areas with high unemployment receive less government support than areas with low unemployment, an outcome that reinforces geographical differences in economic capacity. Fixed effects estimates indicate that over time, government support flows toward areas experiencing the largest gains in real per capita income and the largest reductions in unemployment. The regression analyses also find that fundraising expenditures produce diminishing amounts of government support, a result that is driven mainly by the relationship in small orchestras.

Conclusions about Contributed Support

To some extent the private philanthropy and government support that a symphony orchestra may receive to help defray the performance income gap depend on ability-to-pay factors that characterize the market in which it is located. By combining the financial data reported to the League of American Orchestras with government data on the economic characteristics of these markets, the regression analyses discussed in this section provided information on how sensitive government support and the major varieties of private philanthropy are to the ability to pay characteristics. For better and for worse, these characteristics change slowly and cannot be influenced quickly by private or public policy actions.

External support also depends on the development and fundraising activities of orchestras, and this section has provided the most detailed analysis to date of the relationship between development/fundraising expenditures and contributions to symphony orchestras. A key point is that simple comparisons of levels of contributed support and levels of fundraising expense can provide a seriously misleading picture of the results of incremental expenditures on fundraising, because such comparisons err in attributing all contributed support to fundraising activities. In fact, an area's economic capacity for philanthropy and other orchestra policies constitute important independent influences on contributions. The findings in this section therefore caution against expanding fundraising budgets on the basis of simple comparisons of contributions and fundraising expenses. Indeed, they raise the possibility that fundraising expenditures in some orchestras may not pay for themselves.

Symphony orchestras face sharp competition in the market for philanthropic contributions. For a given ability to pay and a given level of fundraising expense, contributions to orchestras decline with the presence of opera companies in the same market. Competition with other performing arts organizations may be a part of the diminishing returns to fundraising expense found in the statistical analysis. To the extent that ability to pay limits total contributions to the performing arts, development activities by different performing arts organizations may be little more than a battle to maintain each organization's share of a more or less fixed contributions pie. In this situation, the financial balance of all organizations could be improved by a mutual de-escalation of the battle over market share.

Perhaps the evidence questioning the efficacy of some orchestra fundraising activities will eventually be mitigated by future returns that are not yet reflected in the orchestra data. It may also be the case that the findings in this section reflect a broader bias in the way that orchestras address deficits—a preference for searching for new revenues over controlling the costs of running a symphony orchestra.

VIII. Endowment

Symphony orchestras may also draw income from their endowments in order to achieve financial balance. The size of an orchestra's endowment depends on (1) current and past contributions to endowment, (2) the market returns on the investments that comprise the endowment, and (3) withdrawals from endowment. Market returns on stocks, bonds and other investments vary from year to year. While positive in most years, negative returns can and do occur in some years, an outcome that reduces the value of an

endowment. Market returns tend to be lowest in cyclical downturns, when orchestras are most likely to need additional nonperformance income.

Data reported to the League permit an overview of endowment policies since the 1998-99 concert season. This period includes the last two years of an economic boom, followed by a significant recession beginning in 2000 and the beginnings of an economic recovery at the end of the period. The cyclical impact on investment returns is clearly visible in column (1) of Exhibit 4 for two groups of orchestras. Respectable positive rates of return on endowment investments at the beginning of the period gave way to losses (negative returns) as economic conditions deteriorated at the beginning of the new century, followed by a return to positive returns with the partial recovery. Returns on investment experienced by individual orchestras also became more dispersed (column (2)). Since all orchestras have access to the same national and international capital markets, the highly dispersed returns on investment indicate that individual orchestras follow very different investment strategies.

Endowment draws (as a percent of the market value of endowments) increased for the largest orchestras (column (3)). In any given year, endowment draw rates vary substantially across orchestras (column (4)). During the early years of the new century, the number of orchestras for which endowment draws exceeded market returns increased notably, but this tendency began to reverse in the 2002/03 season (column (5)). Continual endowment draws in excess of market returns leaves orchestras with fewer resources to offset the ongoing performance deficits. Beginning with the 2002-03 season, data reported to the League includes a statement of each orchestra's endowment policy. Most

Exhibit 4. Returns and Draws on Endowment

Exhibit 1: Returns and Draws on Endowment					
Year	Return on Investment		Endowment Draw As Percent of Market Value		(5) Number of Orchestras Where (3) > (1)
	(1) Median	(2) Range	(3) Median	(4) Range	
<u>25 Largest Orchestras</u>					
1998-1999	14.0%	4.9 to 27.9%	5.0%	3.13 to 8.0%	2
1999-2000	9.7%	4.3 to 30.1	5.0%	2.7 to 14.0	2
2000-2001	-9.7%	- 26.0 to 15.7	5.1%	0 to 10.5	17
2001-2002	-7.4%	- 15.0 to 13.0	6.2%	3.7 to 16	20
2002-2003	6.5%	- 9.4 to 22.3	5.9%	1.7 to 12.2	8
<u>Next 25 Largest Orchestras</u>					
1998-1999	9.7%	4.4 to 23.2%	5.0%	2.9 to 8.0%	2
1999-2000	7.0%	4.7 to 12.0	4.5%	0 to 7.5	0
2000-2001	-5.4%	- 24.0 to 12.5	3.8%	0 to 8.4	11
2001-2002	-5.9%	- 14.0 to 5.0	4.1%	2.6 to 8.1	13
2002-2003	5.2%	- 3.5 to 12.0	4.7%	0.6 to 11.1	6

Source: League of American Orchestras

symphonies now have policies that permit annual draws in the range of 5 to 7 percent of the market value of their endowment, but some have clearly exceeded this range.

How large would endowments have to be for prudent annual endowment draws to offset the performance income gaps of symphony orchestras? Exhibit 5 provides the estimates of the required endowment for the median orchestra and orchestras at the 25th and 75th percentile of performance income gaps.²⁶ Estimates of required endowment are provided for three endowment draw rates (four, five, and six percent) along with the actual endowment of orchestras at those three positions in the distribution. The main point that emerges from Exhibit 5 is that actual endowments are not sufficiently large to cover performance deficits at these endowment draw rates. To make the same point a different way: with endowment levels that existed at the beginning of the 21st century, it would take an endowment draw rate of at least 20 percent to fully offset the performance income gap of the median orchestra. This point applies more broadly. *None* of the orchestras in the sample have endowments large enough to offset performance deficits at prudent endowment draw rates. Endowment draw rates that would offset performance deficits in the short run are so high that they would cannibalize endowment to a point where it could sustain only smaller draws in the future.

The incapacity of current symphony orchestra endowments to offset performance deficits is in fact larger than the presentation in Exhibit 5 indicates. As indicated in section IV of this report, the performance income gap tends to get worse over time, even after controlling for its cyclical fluctuations. As a result, estimates of required endowment

²⁶ The estimates in Exhibit 5 use the average of the performance income gaps for 1998, 1999 and 2000—years which capture the end of an economic boom and the beginning of a recession. The average performance income gaps are divided by the alternative endowment draw rates to obtain the estimates of the required endowments. The actual endowment figures are also averages of 1998, 1999, and 2000.

Exhibit 5. Endowment Required to Offset Performance Income Gap, 2000
(millions of dollars)

<u>Orchestra at:</u>	<u>Endowment Draw Rate</u>			<u>Actual Endowment</u>
	<u>4 %</u>	<u>5 %</u>	<u>6%</u>	
25 th Percentile	\$ 70.7	\$ 56.6	\$ 47.1	\$ 7.4
Median	\$ 129.6	\$ 103.7	\$ 86.4	\$ 24.4
75 th Percentile	\$ 295.0	\$ 236.0	\$ 196.7	\$ 62.2

Source: Orchestra reports to League of American Orchestras

at any point in time—such as year 2000 in Exhibit 5—ignore the endowment growth that would be needed to offset increases in performance deficits over time.

To summarize, symphony orchestras that pursue financial stability *solely* through endowment policies face three challenges. First, they require extremely large increases in current endowments to offset current performance deficits using prudent endowment draw rates. Second, endowments must continue to grow at rates sufficient to offset the trend increase in performance deficits with prudent draw rates. Third, the dispersed returns indicate that many orchestras could gain by improving the management of endowment investments.

IX. Conclusions

This fact finding report first documented several trends in the economic health of symphony orchestras in the United States. As orchestras have increased the number and variety of concerts that they provide, total annual concert attendance increased somewhat, but attendance per concert has declined sharply. Moreover, those who attend concerts are increasingly likely to purchase single tickets rather than season subscriptions. At the same time, limited opportunities for productivity gains guarantee that the costs of running a symphony orchestra increase more rapidly than costs in the private sector. With performance-related expenses increasing more rapidly than performance revenues, revenues cover a diminishing fraction of expenses. As symphony orchestras try to address growing performance income gaps by attracting more patrons and donors, expenditures for marketing and fundraising comprise an increasing—although still small—share of total costs. Artistic expenses, which constitute over half of the average orchestra's costs, increased less rapidly even though musicians' salaries have increased

more rapidly than the average wages of other union and nonunion workers in the United States.

Increased contributed support from private sources (mainly individuals) has helped orchestras meet their ubiquitous performance income gaps, but this support is sensitive to general economic conditions. Once the effects of business conditions are held constant, there is a trend increase in private support that more than offsets a trend decline in public support. The overall financial balance between the performance and nonperformance revenues and expenses of orchestras are thus sensitive to general economic conditions, deteriorating when conditions are poor and improving when conditions are good. During the boom of the late 1990s, for example, overall financial balance was achieved *on average* for the larger orchestras. After holding the effects of business conditions constant, there is a small trend improvement in the overall financial balance.

These developments will not surprise most students of symphony orchestras. Most are not new, although the remarkable database assembled for this project enabled a more thorough documentation of the changing economics of symphony orchestras than has been possible in past studies.

This report then examined the importance of three categories of influence on these trends: the policies of symphony orchestras, characteristics of an orchestra's market area, and competition with other performing arts. The statistical analyses discussed in the report document the importance of economic characteristics of a market area, such as the size and real income of the area population, on an orchestra's performance revenues and contributed support. The impact of these characteristics is often significant, but they are

the factors that are least likely to change rapidly and they are unlikely to be changed by the policies of symphony organizations. To some degree, symphonies must live with the luck of where they are located.

In contrast, many policy decisions made by orchestra organizations influence their economic balance. Decisions on ticket pricing and the budgets for marketing activities influence performance revenues by altering concert attendance. Decisions on the scale of development and fundraising activities influence the level of contributed support. The statistical analyses discussed in this report confirm a tradeoff between ticket prices and attendance that may influence pricing decisions by orchestras. Higher prices reduce attendance, although not by enough to reduce revenues. Marketing activities raise attendance but are subject to distinct diminishing returns. That is, incremental marketing expenditures yield smaller and smaller gains in concert attendance.

Turning to nonperformance revenues and costs, higher fundraising expenditures are associated with larger donations, but the returns to fundraising activities seem larger for smaller orchestras. Some of the statistical results imply that fundraising expenditures may not pay for themselves in larger orchestras. Even when fundraising activities produce a net gain, the size of that gain is smaller than is often claimed in casual discussions of fundraising impact. Development and fundraising activities may be given credit for private support that orchestras would receive anyway, given the economic capacity of their area market.

Finally, symphony orchestras (a) vary widely in the rate of returns that they receive on their endowment investments, (b) vary widely in the extent to which they draw on their endowments to achieve financial balance, and (c) often exceed their stated

endowment policies. No symphony orchestra has sufficient endowment to offset performance income gaps at prudent rates of endowment draw. Higher rates of endowment draw would diminish the endowment resources available for achieving long-term financial balance.

The question of how competition between different performing arts organizations might influence patterns of attendance and philanthropic support has been all but ignored in past studies. This report examined how the presence of one or more opera companies might influence the economic fortunes of symphony orchestras in the same market area. Broadly speaking, the analyses identified statistically significant but quantitatively small interactions between these two performing arts. Attendance at symphony orchestra concerts is slightly but inversely related to relative price of tickets to local opera performances. On the other hand, the analysis detected no significant relationship between the marketing expenditures of opera companies and attendance at symphony orchestras. There is also evidence that a small fraction of the private philanthropic support received by opera companies consists of a diversion from support for the local symphony orchestra.

An objective of this fact-finding project is to provide information that will prove useful for decision making by the various parties that have a stake in the wellbeing of symphony orchestras in the United States. Several provocative facts that emerge from the report raise issues that can be evaluated by individual symphony organizations as they develop their policies for the future. The first provocative fact is the sheer variety of policies currently practiced by individual orchestras. The structures of revenues and expenses, patterns of contributed support, returns on investments, and endowment draw

practices all vary widely. What does this imply about the concept of “best practice” for each of these issues? While no single model may fit all organizations and while this is not an industry in which competitive forces may provoke an aggressive search for better practices, the variance in actual practice at least raises the question of how much symphony orchestras try to learn from each other’s policies and experience.

A second set of provocative facts are the findings that marketing activities (and their associated expenses) are subject to diminishing returns and that in some cases fundraising expenditures may not pay for themselves. These findings signal the importance of evaluating the efficacy of *incremental* expenditures on these activities and to be wary of assigning benefits to these activities that might have been received anyway.

A third provocative fact is the *relative* increase in musicians’ pay. These pay increases, which are jointly agreed to by symphony artists and management, influence the largest component of every orchestra’s expenses. As with expenditures for marketing and fundraising, the consistency of current policies with long-run financial and artistic stability merits assessment. The same may be said of symphony endowments: The current endowment-draw policies of some orchestras may not be consistent with the use of endowment to achieve long-term financial stability.

A review of these “provocative facts” and the report that generated them is likely to frustrate anyone searching for a *single* solution to the economic challenges faced by symphony orchestras. Taken as a whole, the report documents the futility of single solutions. Most orchestras cannot achieve economic stability by selling out their concert halls, or by ever-increasing marketing expenditures, or by drawing prudent amounts from their endowments, or by relying on direct government support. The prospects for filling

the gap through private philanthropy are more ambiguous. Federal tax policies continue to provide incentives for philanthropic donations. On the other hand, (1) the number of organizations competing for such donations continues to increase, (2) the ratio of subscribers, who are more likely to donate, to single-ticket purchasers has declined, and (3) this report finds mixed evidence on the returns to fundraising. Note that each of these strategies seeks economic balance through revenue enhancement. The evidence implies that orchestras that are limited to revenue enhancement must adopt a portfolio of strategies, since no single strategy will achieve economic balance for an orchestra. Greater emphasis on cost control provides a clear alternative approach, and an implicit theme of this report has been that an evaluation of what an orchestra gets for the costs that it incurs should guide a cost control strategy.

These final paragraphs are perhaps the place to note a few potentially important issues that could not be fully explored with the data available for this project. This report does not fully explain why successive cohorts of an increasingly educated population are less likely to attend symphony concerts. In particular, the report does not address the formation of tastes for symphonic music—the financial reports of arts organizations do not provide the requisite raw material. A full analysis of this phenomenon should consider the match between current symphonic concert programming and listening tastes of an increasingly heterogeneous U.S. population.

The range of activities that compete for the time and money of symphony patrons is potentially quite large. In exploring competitive interactions between symphony orchestras and opera companies, this study assumed that other performing arts with rich symphonic musical traditions would offer the strongest competition. This assumption

may not be correct. The extent and nature of competition between performing arts and even other potentially important uses of nonmarket time is poorly understood and merits much more investigation in the future.

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APPENDIX A

THE SAMPLE OF SYMPHONY ORCHESTRAS

The League of American Orchestras provided the annual financial and operating reports for over 180 symphony orchestras for the period from the 1983/84 season to the 2003/04 season. The fact that some of the variables of greatest analytical interest do not appear in the reports before 1987/88 determined the 17 year time period of the analysis—the 1987/88 through 2003/04 concert seasons.

Three considerations influenced the selection of orchestras for the analytical sample. First, it seemed desirable to analyze data from select a sample large enough to account for most symphonic activity in the United States. Selecting a group of symphony orchestra representing a variety of economic circumstances was equally important: A statistical analysis would add little to a case study if each orchestra faced identical circumstances. Finally, in addition to being representative of the industry, the sample had to consist of orchestras that reported to the League for at least some years during the sample period. As a practical matter, many of the League's members are sufficiently small that they report irregularly and provide incomplete data when they do report.

To be included in the analysis, a symphony orchestra had to have been ranked as one of the top 50 symphonies (based on budget size) in at least two years during the 17-year sample period. Each symphony that met this requirement for inclusion remained in the sample throughout the 17 year period of the analysis, irrespective of its rank in other years. This approach produced a sample of 63 symphony orchestras, which are listed in Table A1, along with a record of the years for which data are available for each

Appendix Table A1. Sample Symphonies

	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	YEARS
<u>Symphony</u>																		
1 Alabama	X	X	X	X	X						X	X	X	X	X	X	X	12
2 Atlanta	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
3 Baltimore	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
4 Boston	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
5 Buffalo	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	16
6 Charlotte	X	X	X	X		X	X	X	X	X	X		X	X	X	X		14
7 Chicago	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
8 Cincinnati	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
9 Cleveland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
10 Columbus	X	X	X	X	X	X	X	X	X	X	X	X	X				X	14
11 Dallas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
12 Denver	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	15
13 Dayton	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
14 Detroit	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
15 Florida Orchestra	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	16
16 Florida Philharmonic	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			15
17 Florida Symphony	X	X	X	X														4
18 Fort Wayne	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
19 Fort Worth	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
20 Grand Rapids	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
21 Grant Park				X	X	X	X	X	X	X					X	X	X	10
22 Hartford	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	17
23 Honolulu	X	X	X	X	X	X						X		X	X	X	X	11
24 Houston	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	16
25 Indianapolis	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
26 Jacksonville	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
27 Kansas City	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
28 Knoxville	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
29 LA Chamber	X	X	X	X	X	X	X	X	X	X			X	X	X			13
30 Los Angeles	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
31 Louisville	X	X	X	X	X	X	X	X				X	X	X	X	X	X	14
32 Memphis	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	16
33 Milwaukee	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
34 Minnesota	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
35 N Carolina			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
36 Naples						X	X	X	X	X	X	X	X	X	X	X	X	12
37 Nashville		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
38 National	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
39 New Jersey	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
40 New Mexico	X	X	X				X	X	X	X	X	X	X	X	X	X	X	13
41 New World	X	X	X	X	X	X	X	X	X	X						X	X	12
42 New York	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
43 Omaha	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
44 Oregon	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
45 Pacific	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
46 Philadelphia	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
47 Phoenix	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
48 Pittsburgh	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
49 Richmond	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
50 Rochester	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	16
51 Sacramento	X	X	X	X	X		X											6
52 Saint Louis	X	X	X	X	X	X			X	X	X		X	X	X	X	X	14
53 Saint Paul	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
54 San Antonio	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
55 San Diego	X	X	X	X	X	X	X						X	X	X	X	X	12
56 San Francisco	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
57 San Jose	X	X	X	X		X	X	X	X	X	X	X	X					12
58 Seattle	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	17
59 Syracuse	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X	15
60 Toledo	X	X	X	X	X						X	X	X	X	X	X	X	12
61 Tulsa	X	X	X	X	X	X		X	X	X	X							10
62 Utah	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	17
63 Virginia	X	X	X	X	X		X	X					X	X	X	X	X	12

Total Symphonies	59	60	60	61	55	56	57	56	52	55	52	53	57	55	57	55	55
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Number represented 17 years:	33
Number represented 16 years:	8
Number represented 15 years:	4
Number represented 14 years:	4
Number represented 13 years:	2

symphony. The sample represents over 70 percent of orchestra revenues and expenditures in the United States.

Stable, ongoing organizations dominate the sample; the majority of the orchestras reported data for 16 or 17 years during the period. One can learn much from the experience of declining or expanding organizations, however, and the selection procedure was designed to avoid biases that might exclude such orchestras. (A sample consisting only of the largest orchestras at the end of the sample period would have been biased toward survivors, losing potentially valuable information about the experience of orchestras that had failed. Similarly, a sample consisting only of the largest orchestras at the beginning of the period would have been biased against rapidly growing orchestras, whose experience is also potentially valuable.)

The gaps in data availability observed in Table A1 occur for two reasons: Some orchestras cease to exist; some surviving orchestras may fail to report for various extraordinary circumstances (including strikes or recent changes in management) or because they no longer affiliate with the League. Since symphonies that have encountered extraordinary economic difficulties may be of particular interest, a list of orchestra closures during 1987-2004 follows. The fact that 17 percent of the orchestras in the sample encountered temporary or permanent closures over this period signals the fragile economic circumstances of many leading symphonies.

Symphony Orchestra Closures, 1987-2003

<u>Orchestra</u>	<u>Time Period</u>	<u>Event</u>
Alabama	1992-93 through 1996-97	Formerly the Birmingham Symphony, which declared bankruptcy in 1993. Reborn as the Alabama Symphony Orchestra in 1994-96.
Denver	1989-90	Denver orchestra went bankrupt in 1989 and later reformed as the Colorado Symphony Orchestra
Florida Philharmonic	2002-2004	Closed in 2002 (strike in 2000)
Florida Symphony	1991-92 through 2003-04	Closed in 1991. Succeeded in 1995 by the (smaller) Orlando Philharmonic Orchestra
Honolulu	1993-95	Hiatus as they shifted from Hawaii Symphony to Honolulu Symphony
Louisville	1995-96 through 97-98	Filed for bankruptcy. Now functioning without an executive director.
Sacramento	1996-2004	Closed in 1996
San Antonio	2003-2004	Work hiatus
San Diego	1996 through 1998-99	Spring 1996 bankruptcy. Reorganized and reopened 1998.
San Jose	2002	Closed. Filed for chapter 7 in 2002.
Tulsa	1998-2004	Closed 98-04. Efforts to restart the orchestra began in 2005 but failed as of 2006.

APPENDIX B

DATA FOR OTHER PERFORMING ARTS

One objective of this study is to examine how the financial performance of symphony orchestras is linked to the presence and policies of other performing arts organizations in the same market areas. Data provided by Opera America are used to test for potential economic interactions between symphony orchestras and opera companies. Opera America was able to provide extensive financial and operating data on opera companies around the United States. These data indicate the presence or absence of opera companies in the market areas of the sample symphonies along with information on their income and expenses, private and government support, and attendance and ticket prices.

In market areas in which there were multiple opera companies, the information on income, expenses, outside support and attendance were summed over all the opera companies in order to represent the uses of resources that might otherwise be available for symphony orchestras. The minimum single and season ticket prices of the largest opera company in an area were used as an indication of price of alternative performing arts opportunities available to potential symphony patrons.

Dance/USA provided similar information on dance companies, but the time span of the financial information was too short to be incorporated in the analysis. An attempt was made to use measures of the presence of dance companies in the market areas of the sample symphony orchestras, but with dance companies in each market area throughout the sample period, the data lacked the variation needed to produce statistical estimates.

APPENDIX C: Cycle and Trend Analyses of Symphony Finances

This appendix presents the results of the statistical analysis underlying the discussion in Section IV of cycle and trend behavior of the revenues and expenses of the 63 symphony orchestras in the sample. The analysis first explores the extent to which variations in performance income and expenses reflect cyclical and trend factors. Cyclical factors stem from changes in overall business conditions, while trend factors reflect the operation of structural factors that are not correlated with the overall state of the economy. The primary “structural” factors are very slow productivity growth in symphony orchestras (and other performing arts) and changes in the use of leisure time.

The statistical analysis is conducted on an unbalanced panel of annual data for 63 orchestras over 17 concert seasons (1987-2003). Table C1 reports the results of fixed effects regression analyses of real earned income, real performance expenses, the performance income gap (the difference between real earned income and expenses), measures of nonperformance income and overall financial balance. The table reports the regression coefficients expressing the sensitivity of each of these variables (in year 2000 dollars) to the local unemployment rate (the indicator of cyclical conditions) and a linear time trend. The numbers in parentheses are robust standard errors. The table also reports the level of statistical significance and the R^2 (proportion of variance in the dependent variable that is accounted for by the cycle and trend variables). Results with no asterisk do not reach conventional levels of statistical significance.

Each regression coefficient in the Unemployment Rate column indicates the response of the associated dependent variable to a one percentage point change in the unemployment rate for each symphony’s local area, holding the effects of the time trend

constant. Each coefficient in the Time Trend column indicates the response of the dependent variable to a one year change, holding the effects of the local unemployment rate constant. The statistical results in Table C1 show that each percentage point increase in the unemployment rate significantly reduces real earned income of the average orchestra in the sample by about \$186,000. Real performance expenditures are not reliably correlated with the unemployment rate, however. (The negative coefficient on unemployment in the performance expense regression (regression 2) is not statistically significant.) With performance revenues more responsive to general economic conditions than performance expenses, the performance income gap gets worse (becomes more negative) in recessions and improves when unemployment declines during economic expansions (regression 3).

The time trend in real performance expenses is about three times as large as the trend in real earned income, so over time the performance income gap is growing at a statistically significant \$370,000 per year for the average symphony. Private philanthropic contributions, government support, and investment income may be used to address the growing deficits. The trend in total outside support is positive, but smaller than the annual deterioration in the performance income gap (regression 4). The increase in total support obscures the very different trends for private and government support. Real government support declined by almost \$30,000 per year for the average symphony in the sample (regression 5). Increases in individual, foundation and business support more than countered the declining government support (regressions 6a, 6b, and 6c). An upward trend in real investment income of about \$80,000 per year (after holding constant the effects of unemployment) also helps to offset the trend deterioration in the

performance income gap (regression 7). Cyclical changes in investment income contribute to the decline in orchestra revenues when unemployment increases, however.

Combining both performance and nonperformance sources of income and expenses, the analysis shows that both total symphony revenue (including contributed support and investment income) and total expenses (including fundraising expenses) vary with overall economic conditions, but total revenue is more sensitive to the cycle than total expenses (regressions 8 and 9). As a result, the overall financial balance of symphony orchestras is cyclically sensitive – moving further into deficit when unemployment rises and toward surpluses when unemployment declines.

The trend in total performance plus nonperformance revenue (regression 8) is modestly higher than the trend in total expenses (regression 9), so the overall financial balance improves slightly over time, after controlling for the effect of general economic conditions.

Table C1. Effects of Cycle and Trend, 1987-2003

<u>Dependent Variable</u>	<u>Unemployment Rate</u>	<u>Time Trend</u>	<u>R²</u>	<u>Time Period</u>
1. Earned Income	-186,008 (47,735)*	121,529 (11,410)*	0.16	1987 - 2003
2. Performance expense	-118,130 (76480)	374,725 (18,288)*	0.35	1987 - 2003
3. Performance income gap	-102,563 (59,312)***	-370,290 (14,240)*	0.45	1987 - 2003
4. Total support	-166,745 (43,623)*	157,929 (12,972)*	0.28	1987 - 2000
5. Government support	-37,516 (14,086)*	-30,548 (4,188)*	0.07	1987 - 2000
6. Private contributions	-124,656 (41,257)*	188,681 (12,302)*	0.35	1987 - 2000
6a. Individual	-44,059 (24,042)***	84,018 (7,372)*	0.25	1987 - 2000
6b. Business	-16,212 (14,807)	14,866 (4,541)*	0.03	1987 - 2000
6c. Foundation	7,305 (16,278)	42,531 (4,991)*	0.14	1987 - 2000
7. Investment Income	-60,843 (22,136)*	65,042 (6,597)*	0.19	1987-2000
8. Total Revenue	-433,076 (81,449)*	341,312 (24,272)*	0.35	1987 - 2000
9. Total Expense	-261,980 (76,677)*	329,247 (22,850)*	0.33	1987 - 2000
10. Overall surplus or deficit	-52,563 (31,855)***	22,455 (9,431)**	0.03	1987 - 2000

* p-value < .01 ** p-value < .05 *** p-value < .10

Note: Fixed effects estimates. All monetary variables adjusted for inflation.

APPENDIX D: Analysis of Attendance and External Support

This appendix provides details of statistical analyses underlying discussions in Sections V and VII of the report.

Concert Attendance Analysis

Section V of the report discusses the influences on attendance per concert in an effort to understand more fully the decisions that influence a major part of the performance revenues of U.S. symphony orchestras. The statistical analyses reported in that section test for the influence of symphony orchestra policy variables, economic characteristics of the local market area, and competition from opera companies on symphony orchestra attendance. The key orchestra policy variables are average ticket prices for regular-season and pops concerts and measures of expenditures on various marketing activities (in thousands of dollars) by each orchestra. The average ticket price data were constructed by dividing concert revenue by concert attendance (separately for regular and pops concerts). The financial and operating data were provided by the League of American Orchestras. Information on the characteristics of each orchestra's market area was obtained from government sources. The statistical analysis examines the role of an area's population size (U.S. Bureau of Economic Analysis, 2006), per capita income (U.S. Bureau of Economic Analysis, 2006), and unemployment rate (U.S. Bureau of Labor Statistics, 2006). The ticket price and marketing expenditures of opera companies in the same market area were used to test for possible interactions between orchestras and other performing arts. These data were provided by Opera America.

The regression analysis was conducted on a panel data set consisting of 62 symphonies for which annual financial data are available for some or all of the concert

seasons between 1987 and 2003. Most estimates are obtained from samples of between 511 to 765 orchestra years, depending on the availability of data for competing opera companies. Both random effects and fixed effects models were estimated. The discussion emphasizes fixed effects estimates, since the effects of changes in the independent variables over time are most relevant for policymaking in most symphony orchestras. Fixed effects estimates also remove ongoing differences in reporting practices between orchestras. Separate regression analyses were conducted for regular season (Table D1) and pops concerts (Table D2). The dependent variable is the natural logarithm of attendance per concert. Independent variables include the natural log of the constructed ticket price, several specifications of marketing expenditures on media advertising and on phone and mail campaigns, and the natural logs of the area population, the area real income, price of local opera tickets, local opera marketing expenditures, and attendance at local operas.

The results of the regression analyses confirm the statistical and economic significance of the orchestra policy variables. The price elasticity of demand for seats is about $-.5$ for regular season concerts and $-.3$ for pops concerts. Both media advertising and telephone/mail campaigns have a significant positive influence on attendance per *regular season* concert, and each activity is subject to diminishing returns. (The nonlinear specifications of marketing activities (regressions 3 and 4), which support this conclusion, fit the data better than the linear specification (regressions 1 and 2) in Tables D1 and D2.) Only expenditures on telephone and mail campaigns are significantly correlated with attendance per *pops* concert, but they also yield diminishing returns. In

Table D1. Analysis of Attendance per Regular Season Concert, 1987-2003
(Regression coefficients and standard errors)

Regression number:	1	2	3	4	5	6	7
Ticket price	-.525 (.039) *	-.549 (.042) *	-.554 (.038) *	-.571 (.042) *	-.632 (.045) *	-.520 (.039) *	-.633 -0.047 *
Media ads	.00013 (.00004) *	.00012 (.00004) *	.00300 (.00008) *	.00033 (.00008) *	.00190 (.00008) *		.00020 -0.00009 *
(Media ads) ²			-1.37E-07 (4.39E-08) *	-1.33E-07 (4.42E-08) *	-7.22E-08 (4.20E-08) ***		-7.28E-08 (4.35E-08) ***
Phone/mail	.00016 (0.00003) *	.00014 (0.00003) *	.00040 (0.00006) *	.00350 (0.00006) *	.00034 (0.00006) *		.00035 (0.00007) *
(phone/mail) ²			-7.09E-08 (1.71E-08) *	-6.13E-08 (1.77E-08) *	-6.02E-08 (1.66E-08) *		-6.20E-08 (1.71E-08) *
Marketing exp.						.00028	
Population	.105 (.036) *	.280 (.176)	.068 (.037) ***	.205 (.175)	.315 (.193)	.196 (.150)	.390 (.206) ***
Real Income	.277 (.132) **	.191 (.170)	.128 (.133)	.037 (.171)	.109 (.182)	-.006 (.125)	.137 (.198)
Opera Ticket price						0.025 (.015) ***	0.018 (.016)
Opera Marketing expense					.028 (.017) ***		
(Marketing exp) ²					-3.90E-08 (6.67E-09) *		
R ²	.194	.295	.253	.322	.402	.261	.404
Number of concert years	591	591	591	591	421	511	379
Estimation method	RE	FE	RE	FE	FE	FE	FE

Dependent variable: Logarithm of attendance per regular season concert

* p-value < .01, ** p-value < .05, *** p-value < .10

Table D2. Analysis of Attendance per Pops Concert, 1987-2003
(Regression coefficients and standard errors)

Regression number:	1	2	3	4	5	6
Ticket price	-.263 (.046)	-.330 (.053) *	-.278 (.047) *	-.344 (.052) *	-.286 (.050) *	-.340 (.055) *
Media ads	-6.99E-06 (.00007)	-.00004 (.00007)	.00022 (.00015)	.00020 (.00016)	-.00020 (.00018)	-.00029 (.00018)
(Media ads) ²			-2.07E-07 (1.31E-07)	-2.16E-07 (1.33E-07)	7.27E-08 (1.34E-07)	1.10E-07 (1.37E-07)
Phone/mail	.00013 (.00005) *	.00011 (.00006) **	.00035 (.00013) *	.00035 (.00014) *	.00048 (.00013) *	.00051 (.00014) *
(phone/mail) ²			-9.49E-08 (5.20E-08) ***	-9.76E-08 (5.40E-08) ***	-1.45E-07 (5.20E-08) *	-1.59E-07 (5.48E08) ***
Population	.019 (.058)	.756 (.268) *	-.025 (.061)	.715 (.267) *	-.101 (.085)	.338 (.303)
Real Income	-.063 (.193)	-.268 (.276)	-.123 (.196)	-.366 (.278)	-.085 (.231)	-.046 (.309)
Opera Marketing expense					.053 (.024) **	.040 (.027)
R ²	.067	.124	.075	.136	.094	.211
Number of concert years	487	487	487	487	326	326
Estimation method	RE	FE	RE	FE	RE	FE

Dependent variable: Logarithm of attendance per pops concert

* p-value < .01, ** p-value < .05, *** p-value < .10

short, incremental marketing expenditures yield successively smaller gains in attendance for both regular season and pops concerts.

Of the market area variables, the area population and real income were occasionally significantly correlated with attendance. (Always insignificant in trial regressions, the area unemployment rate was dropped from the reported regressions. A variable for the proportion of the population with at least a college degree, potentially an important indicator of tastes for symphony music, was available for too few years to be used in the analysis.)

Turning to competition from other performing arts, neither the presence of an opera company or attendance at local opera performances are significantly correlated with regular season symphony attendance. Marketing expenditures by a local opera have a small, marginally significant but positive correlation with symphony attendance at regular season concerts (regression 5 in Table D1). No significant correlation with a local opera's marketing expenditures emerges in the analysis of attendance at pops concerts. The effects of ticket pricing by local opera companies on attendance at regular season symphony concerts is sensitive to how an orchestra's marketing expenditures enter the analysis, however. When the analysis controls for total marketing expenditures (regression 6), an increase in the relative price of opera season tickets (effectively, a decrease in the relative price of symphony tickets) is associated with higher symphony attendance—presumably because some arts patrons who would have attended the opera go instead to a symphony concert. This statistically significant effect is quantitatively very small. When the analysis enters expenditures on media and phone/mail campaigns

separately, however, the price of opera tickets is not a statistically significant determinant of attendance at symphony concerts (regression 7). Opera ticket prices are not significantly correlated with attendance at pops concerts. The price of single tickets to local opera performances was never statistically significant in the regression analyses. Overall, the analysis does not uncover evidence of strong competition between these performing arts organizations.

External Support Analysis

Section VII of the report discusses the determinants of private philanthropic contributions and public support for symphony orchestras in the United States. The underlying statistical analyses again examine the respective roles of the policies of orchestras, an area's economic capacity for supporting an orchestra, and competition from other performing arts on external support for symphonies. Measures of private philanthropy (including contributions from individuals, businesses, and independent foundations) and support from all levels of government, expressed in year 2000 dollars, constitute the dependent variables in the analyses. Development and fundraising expenditures constitute the key orchestra policy variable in seeking contributions. Measures of an area's economic capacity for philanthropy include population, per capita income, and the local unemployment rate. Measures of stock prices (U.S. President 2005, statistical appendix) and federal income tax rates (Sagoo 2005) were added to capture national influences on the capacity and incentive to support performing arts. Data on the presence, fundraising efforts, and fundraising success of opera companies in the same market area provide an indication of competition from other performing arts organizations.

The analysis was conducted on the same panel data set used in the analysis of attendance per concert. Most estimates are obtained from a sample of 759 orchestra years. The text discussion again emphasizes the results of fixed effects estimates. The analyses test for both linear and nonlinear relationships between development expenditures and private contributions. The nonlinear specifications test for the possibility that the influence of incremental fundraising expenditures on contributions depends on the overall level of fundraising expenditures. If fundraising activities are subject to diminishing returns, the impact of a marginal dollar spent on fundraising will diminish with the size of the fundraising budget. (In the quadratic specification used in the analyses, the linear fundraising expenses (FE) term will be positive and the squared term (FE²) will be negative.) If fundraising expenditures exhibit economies of scale, the impact of a marginal dollar spent will increase with the size of the budget. (The linear term in the regression will be negative and the squared term will be positive.) Table D3 reports the results of the fixed effects regression analyses discussed in Section VII.

Establishing the nature of the relationship between contributions and fundraising expenditures was somewhat complicated (Tables D3 and D4). The results of an initial, exploratory fixed effects analysis of the full sample of orchestras were consistent with diminishing returns to fundraising expenditures: In a comparison of linear and nonlinear specifications of fundraising expense, the latter provided a superior fit of the data and indicated that increasing fundraising expenses yielded successively smaller incremental contributions (regressions 1 and 2 in Table D3). However, this pattern in the data could also emerge if larger-budget orchestras receive smaller returns to fundraising than

Table D3. Analysis of External Support for U.S. Symphony Orchestras, 1987 - 2000
(Regression coefficients and standard errors)

Type of Support-Sample	Estimation Method	Area Population	Real per Capita Income	Unemployment Rate	Fund raising Expense (FX)	FX ²	Time	R ²
1. Private - All	FE	1.45 (.29)*	269.1 (37.3)*	4,962 (41,018)	1.33 (.36)*	-1.54E-07 (7.02E-08)**	-35,570 (23,025)	.46
2. Private - All	FE	1.527 (.291)*	303.2 (37.3)*	10,964 (41,039)	.63 (.17)*		-34,061 (23,078)	.44
3. Private-Small	FE	-.41 (.26)	75.72 (29.90)**	-17,314 (28,800)	-.10 (.98)	3.17E-06 (1.29E-06)**	46,021 (15,981)*	.44
4. Private-Small	FE	-.32 (.26)	74.2 (30.10)**	-14,458 (28,982)	1.96 (.27)*		42869 (16,044)*	.45
5. Private-Large	FE	1.13 (.48)**	293.2 (62.4)*	-49,978 (72,545)	.84 (.56)	-6.75E-08 (1.05E-07)	45,814 (46,599)	.53
6. Private-Large	FE	1.16 (.48)	294.5 (62.3)*	-44,017 (71,891)	.51 (.22)**		49,227 (46,257)	.53
7. Government- All orchestras	FE	-.10 (.11)	25.9 (13.4)***	-35,382 (14811)**	.33 (.13)**	-7.30E-08 (2.54E-08)*	-50,471 (8297)*	.13

Notes: All monetary variables are in year 2000 dollars.

FE = Fixed effects estimation

* p-value < .01 ** p-value < .05 *** p-value < .10

smaller-budget orchestras, even though neither group is experiencing diminishing returns to their fundraising efforts. To test for this possibility, the sample of orchestras was divided roughly in half based on total budget size, and each group was analyzed separately. For each group of orchestras, F-tests indicated that a *linear* (constant) relationship between fundraising expenses and private contributions provided a slightly superior fit of the data (regressions 3 and 4 in Table D3 for smaller orchestras; regressions 5 and 6 for larger orchestras). The returns for smaller orchestras (\$1.96 in private contributions per dollar of fundraising expense) exceeded the returns obtained by larger orchestras (\$.51 per fundraising dollar). Not only are the returns for large orchestras smaller than the returns for small orchestras, but taken at face value, fundraising expenditures by larger orchestras do not pay for themselves. Some possible rationales for this result are discussed in the main text, but the finding remains puzzling and worthy of further consideration. These estimates also confirm the influence of two economic capacity variables (area population and per capita income) on private contributions, but find that the area unemployment rate is not significantly related to private contributions.

Another point of interest is the absence of a statistically significant time trend in regressions 1 and 2 in Table D3. The apparent trend in private support visible in Graph 5 is “explained” by the economic capacity and development expense variables. That is, once the effects of these variables are held constant in the regression analysis, there is no significant time trend in private support over time. On this dimension, the disaggregated results differ. While the statistical model fully explains the growth of private contributions to larger orchestras, some unexplained trend remains for smaller orchestras.

The analysis of real government support for symphony orchestras confirms the negative trend in public support apparent in Graph 6 (regression 7 in Table D3). However, the analysis also reveals that government support favors orchestras in high income areas with low unemployment rates. That is public support tends to reinforce the geographical inequalities in economic capacity to support symphony orchestras rather than equalize the resources available to different areas. In interpreting this result, recall that the government support data pertain to all levels of government support combined. The results also indicate that increased fundraising expenditures are associated with diminishing increments of government support.

Section VII also discusses the role of competition from other performance arts organizations on the external support received by a symphony orchestra. A key point of that discussion is that there is a statistically significant (but quantitatively small) inverse correlation between support received by an orchestra and the level of support received by an opera company in the same market area one year earlier, but the correlation is significant and positive when support for the opera is not lagged. (There is also a discussion of the causality issues that may account for these strikingly different results.)

The discussion is based on a statistical analysis of real private (including individual, business and foundation) and public support for opera companies and symphony orchestras for 1987-2000 reported in Table D4. The regression model is identical to the model generating the results in Table D3, except for the addition of variables representing competition from opera companies. For each symphony orchestra in the sample, the database records whether there is an opera company present, the annual

Table D4. Opera Companies and Contributed Support, 1987 - 2000
(Regression coefficients and standard errors)

Type of Orchestra Support	Estimation Method	Opera Presence	Support for Opera		Opera fundraising expense	
			Lagged	Current	Lagged	Current
Private	FE	-363,926 (177934)**	-0.03 (.01)**	.16 (.03)*	-.18 (.06)*	.56 (.08)*
Private	RE	-115,133 (173,009)	-0.03 (.01)*	.09 (.03)*	-.20 (.06)*	.48 (.07)*
Individual	FE	-141,735 (112,368)	-0.02 (.01)**	.10 (.01)*	-.07 (.03)**	.28 (.04)*
Individual	RE	1,365 (100,234)	-0.014 (.077)**	.08 (.01)*	-.08 (.03)**	.26 (.04)*
Business	FE	-84,023 (72,892)	0.1 (.04)**	-.15 (.07)**	.005 (0.025)	.03 (0.03)
Business	RE	9,248 (69,327)	0.12 (.04)*	-.04 -0.07	.02 (0.020)	-.02 (0.030)
Foundation	FE	-60,373 (80,622)	-0.01 (.006)***	.002 -0.004	-.06 (.03)**	.10 (.04)**
Foundation	RE	39,657 (69,218)	-0.01 (.006)	.008 (.004)***	-0.04 (0.025)	0.15 (.03)*
Government	FE	-144,580 (65,625)**				

Notes: Each coefficient is from a separate regression that also includes as independent variables the area population, real per capita income and unemployment rate as well as the orchestra's development/fundraising expenditures specified as a quadratic. All monetary variables are in year 2000 dollars.

RE = random effects estimation

FE = fixed effects estimation

* p-value < .01 ** p-value < .05 *** p-value < .10

development and fundraising expenditures by that opera, and the annual levels of private and public support received by that opera. As with the orchestra data, the data on private support includes separate information on support from individuals, businesses, and foundations.

The addition of different variables representing the presence, fundraising expenditures, and external support of opera companies did not change any of the qualitative findings in Table D3. The relationships between explanatory and dependent variables describing an area's economic capacity and an orchestra's fundraising expenditures remained the same, with some modest changes in the exact value of the coefficients. As a result, Table D4 reports only the regression coefficients and standard errors for the opera variables that were added to the analysis to test for possible effects of competition between the performing arts.