

**Musical Chairs:
A 28-Year Study of the Supply and Demand
of Orchestra Musicians in America**

Brandon VanWaeyenberghe
University of Cincinnati
College-Conservatory of Music

Abstract

The recent turmoil and work stoppages in symphony orchestras throughout the United States have called into doubt not only the stability of these organizations, but also the future of the orchestral workforce. In the past, winning a job in an orchestra was considered by many musicians as the definition of a successful career. There are now hundreds of applicants auditioning for every posted orchestral opening, demonstrating a saturation of supply, i.e. musicians. An analysis of students who pursue a music-focused education reveals that graduates with performance degrees in music have been increasing in number over the past 28 years, and are entering a marketplace with a decreasing number of job opportunities. This imbalance of musicians to orchestral jobs has been growing nearly three decades. This report details the data comparison in aggregate, by orchestra group (categorized by budget size) and by instrument family. There are three main conclusions: There is no point of equilibrium, enrollment and graduation rates reversed direction in the mid-1980s and graduate school enrollment is being fueled by instrument-focused performance majors.

The supply data is drawn from enrollment and graduation figures compiled by the National Association of Schools of Music for all music-degree granting institutions in United States. The demand data was compiled from the public job listings posted through the American Federation of Musicians for 61 orchestras. This research increases the industry's understanding of the orchestral job market and contributes to the growing conversation about including classes on entrepreneurship as a component of a postsecondary education focused on music.

Author's Note

This paper is not meant to be a comprehensive view of the potential employment for performance majors. These statistics only provide a snapshot of one specific career path. There is a wealth of opportunities available to students with a music degree. Some of them exist outside of a concert hall and others require an entrepreneurial attitude, but it is very possible to create a successful career in music outside of working for a symphony orchestra. And while there exists of a surplus of talent available, individual musicians are not interchangeable. It is the uniqueness of the performing ensemble that creates a distinct sound. That combination will continue to exist and define the live music experience.

The Orchestral Workforce (Supply)

Data Methodology

The numbers in this section of the study were obtained from the Higher Education Arts Data Services (HEADS) reports collected by the National Association of Schools of Music (NASM). The NASM began collecting statistics with the 1982-83 School Term. This annual report accumulates data related to enrollment, degrees conferred and the gender and racial composition of the student population. Information relating to the number of faculty members and budget of the music department is also collected. The survey gathers information on students enrolled in programs that award academic degrees at the associate,

bachelor's, master's and doctorate level. As of 2010, there were more than 600 music degree granting institutions reporting data for the HEADS report.

The NASM does not collect information on students enrolled in non-academic degree programs, sometimes referred to as artist diploma studies. Students in these specialized programs focus on their craft and typically forgo other academic courses. While graduates of these programs are the most likely to pursue orchestral careers, with no data being collected, they cannot factor into the scope of this research. They do, however, have an unseen effect on the educational and career landscape.

To remain relevant to the orchestra career field, the HEADS report data has been limited in two ways. The first limitation was to use only enrollment and graduation numbers from bachelor's, master's and doctoral programs. Associate degree programs require only two years of study and do not offer many robust options for an instrumental performance focus. In addition, most professional jobs require a degree beyond an associate to be eligible for hire.

The second limitation was to focus only on five academic areas: performance, education, business, therapy and liberal arts. A reference to the total number of music students refers only to the totals for the five programs highlighted. Additional fields of study exist, such as vocal studies, accompanying, music history and composition. These areas of study have no direct impact on orchestral career paths and are thus beyond the scope of this study. Each of the specific areas of study (performance, education, business and therapy) are designed for students to succeed in that specific field. A general degree in music provides students with a broad view of the field. A degree in music therapy is a recent creation, teaching individuals to use music to help clients to improve or maintain their health.

While the piano does not play a vital role within an orchestra, the instrument has been kept in the study because it is a popular instrument to pursue on at the collegiate level. Since many of the piano courses focus on solo repertoire, it can be assumed that many piano students do not aspire to careers in symphony orchestras. The graduation numbers must then be limited to a reasonable amount to not create inflated numbers. This is the only estimate used in the study.

One major and one minor inconsistency have been identified. The major one is the omission of enrollment statistics for the 1987-88 School Term. According to a NASM representative, the annual survey was not conducted during that academic term because of a change in the data collection method. The survey moved from a model of reporting actual figures to a projective model concerning fiscal matters. While the omission does not do significant damage to the overall supply-side figures, the late 1980s have turned out to be a formative time in the history of secondary music education. A better understanding of trends could be presented with these numbers, but the analysis was completed despite the interruption.

The minor inconsistency involves the notation of individual majors in instrument families. Until the 2003-04 School Term the NASM only required schools to report the total number of individuals studying in a particular family of instruments. In the 2003-04 report, the numbers are broken down into specific instruments, i.e. violins, violas, cellos and double basses for the string family. While it would have been extremely beneficial to review the changes in enrollment and graduate numbers for specific instruments, the lack of data across the entire observed time frame makes such an analysis impossible.

Graduation Numbers

The data curve of graduates with music degrees follows the following pattern: A slide from 1982 to 1986, a climb from 1986 to 2004, a slight dip in 2004 and an increase above 2004 numbers in 2005. Between 1981-82 and 1986-87 the number of bachelor's degrees awarded steadily declined. By the 1986-87 School Term the graduation rates had declined 37 percent, or by nearly 3,000 students. Then following the decline, graduation numbers began to increase.

However, the number of graduates took up to 14 years to pass the numbers established at the beginning of the observation period. Again, very similar to the enrollment numbers, the first steep decline in graduates happened in the 2002-03 School Term. This drop is offset by a number of graduates starting in 2005-06 and grows through the end of the study. Over the course of the entire time frame, the number of graduates with bachelor's degrees rose 27 percent from 8,062 to 10,213.

Since the lowest graduation numbers in 1986-87, the number of master's graduates increased by 200 percent. The number of graduates with master's degrees had a greater amount of variation than the nearly stagnant trend line established in with the enrollment numbers. Just like in enrollment, the number of graduates decreased from 1982-83 through 1989-90, which was followed by a gradual increase through the early 2000s. The number of graduates decreased in the 2000-01 School Term but then increased for the remainder of the observation period. Over the course of 28 years, the number of master's degrees awarded grew from 2,285 the first year to 2,921 in the final year, a total increase of 28 percent. Overall, the graduation numbers for master's studies was between 1,500 and 3,000 each school term, with an average of 1,900 per year.

The number of doctoral graduates had a minimal amount of annual variation. Over the course of 28 years, the graduate numbers steadily climbed from 172 in 1982-83 to 450 in 2008-09, a 161 percent increase. Similar to the trend in doctoral enrollment, these numbers are unique among the observed data sets as the data curve remained relatively steady and yielded a large increase.

Music Program Graduates in Detail

Bachelor's Degrees.

With music education being the dominant major in enrollment, it follows that the same program would annual award the most degrees. The numbers fell after the start of the study to an all-time low of 2,598 graduates in the 1987-88 School Term but steadily climbed throughout the rest of the research period.

The music therapy graduate line experienced a steady decline over the course of the 28-year observation period. The initial year of the study had the highest number of degrees conferred, with 402 graduates entered the world with music therapy degrees. By the end of the study, only 242 degrees were awarded, a 40 percent reduction. Music business degrees, on the other hand, doubled over the course of the research period. Despite the amazing growth, they still were the smallest degree program observed for much of the study. Liberal arts degrees suffered a 500 degree decline in the first six years observed, but rapidly reversed the trend and grew to have nearly 3,000 awarded in the concluding year of the study.

Music performance graduates increased by only 14 percent in 28 years, but that was after contracting by 30 percent in the first six years. In 1987-88, music performance programs only awarded 1,166 degrees. At the end of the study in 2009-10, the number had increased to 2,323 and all orchestra instrument-specific majors experienced increases in their own families. String graduates increased by 75 percent, from 411 to 696. Woodwinds,

brass, and percussion had only slight increases, with numbers of graduates peaking in the years prior to the end of the study. Harp students matriculated only 5 more degrees in 2008 than the number first established in the study. Only piano degrees declined, from 643 in 1982-83 to only 442 in 2009-10. The largest decrease was in the 1984-85 School Term, when piano graduates dropped more than 150 from the previous year.

Over the entire course of the time observed, nearly 93,000 music education degrees were awarded at the bachelor's level. In that same 28 year time span over 48,000 performance degrees were handed out, followed closely by 46,000 liberal arts degrees. String-focused degrees lead the performance graduate numbers with a total of 12,507. Woodwind and piano graduates were virtually identically in number at more than 11,000 each.

Master's Degrees.

In a change from undergraduate numbers, at the master's level performance degrees became the dominant degree program. A 49 percent, or 563 degree, increase from the initial year of the study to the conclusion was fueled by growth in all orchestral instruments.

Music education graduates entered the workforce on a declining trend for most of the observation period, but began to grow in the final four years of the study. Music education graduates fell to the lowest numbers in 1994-95, which did not align with any identified trends in enrollment.

Music therapy graduates experienced a decline from the beginning of study through the mid-'90s. Between 20 and 65 music therapy students graduated each year of the study, with the smallest class being 10 in 1990-91. Music business master's degrees set the lowest bar with only a single degree awarded in 1982-83. The only direction to travel was up, but the programs did experience some severe retraction, going from eight to zero in 1993-94. The only school year that recorded enrollment in a liberal arts master's degree program was 1982-83, which suggests a change in the NASM's data collection methods.

The number of master's degrees awarded in string studies was up 100 percent in 28 years to just less than 500 degrees. Woodwind graduates grew over the length of the study, with strong swings throughout the 2000s. Brass master's degrees wandered for most of the study, finally settling at a 35 percent increase over the research period. Percussion and harp had the most drastic increases due to the small initial numbers. Percussion master's degrees increased from 51 to 115 – an improvement of 125 percent. Harp programs only had single digit graduates for the first six years, ending that time with only two graduates in 1987-88. Since then the program increased in jumps, finally ending up nearly three times the initial number. The number of piano graduates remained relatively unchanged in the 28 years, only increasing by seven graduates.

In total, music schools awarded more than 33,000 performance degrees, outpacing music education degrees by 13,000. Piano performance degrees awarded lead with 9,234 (28 percent). Strings and woodwinds graduates followed with 8,873, and 7,175 degrees, 27 and 22 percent respectively.

Doctoral Degrees.

The majority of doctoral graduates are focused in an instrumental area (Figure 20). This majority became severely lopsided, with the greatest difference being a ratio of four instrument-specific degrees to one music education degree, and graduation numbers increased by nearly four times the initial amount – from 96 to 370. Music education doctoral graduates stayed to nearly the same numerically, fluctuating between 70 and 96 per year. While the numbers stayed approximately the same, the graduates experienced a drastic

change as a percentage of total graduates, shifting from 44 percent of all degrees to only 18 percent.

The growth in instrument-specific degrees was driven by increases in all of the instrument families. Doctoral studies with an emphasis in strings experienced the most amazing factor of growth. Over the course of the study, degrees conferred increased by a factor of 5.5 from 14 to 76. Woodwind doctoral degrees also grew by three times from 17 to 55 in 28 years. Brass and percussion graduates also posted increases by a factor of four and five over the course of study. Graduates with doctorates in harp had no relative change over the 28 years, with multiple years having no graduates. The program with the slowest percentage of growth was piano doctorates, only increasing from 49 to 154, or 200 percent.

In total, nearly 6,000 doctoral degrees in specific instrumental areas were conferred over the course of the study, with piano studies being 42 percent of that number. Among orchestral instruments, woodwinds had the most graduates (1,114), followed closely behind by strings (1,086) and brass (816).

Pursuit of Multiple Levels of Education

Students continue their studies beyond baccalaureate programs for a variety of reasons: the pursuit of knowledge, a love of research or a desire to improve career prospects. The co-efficient Pearson's R reveals strong, statistically significant correlations between most of the instrumentally-focused degrees and the transition between education levels (Table 1). For example, Bachelor of Music (BM) graduates from 1981-82 could enroll in Master of Music (MM) programs for the 1982-83 School Term. While correlation does not provide enough information to report a cause, it can be strongly inferred that graduates of one education level (bachelors or masters) will likely pursue additional studies (masters or doctorate, respectively). Music education focused studies have the strongest link between bachelor's and master's degree programs, a strong indicator that many who receive a bachelor's degree will go on to obtain a master's degree.

Correlation (Pearson's R) Between Graduates and Enrollments the Following Year		
	BM Graduates/ Following-year MM Enrollment	MM Graduates/ Following-year DM Enrollment
Performance		
Strings	.917***	.955***
Brass	.902***	.796***
Woodwinds	.819***	.765***
Percussion	.794***	.838***
Piano	.686***	.730***
Harp	.088	.461*
<i>Total</i>	.872***	.943***
Music Business	-.016	N/A
Liberal Arts	-.157	N/A
Music Education	.696***	.322
Music Therapy	.322	N/A
***Significant at 0.001 level		

**Significant at 0.01 level			
*Significant at 0.05 level			

Table 1

In 28 years, 263,979 music degrees have been awarded, and more than 115,000 were in music education and instrument-focused programs accounted for more than 87,000 degrees.

The Orchestral Job Market (Demand)

Data Methodology

In order to provide an accurate picture of the job openings in American orchestras, a sample of orchestras was needed to be followed throughout the research period. The basis of this list was the set of orchestras who received grants from the Ford Foundation. Of these 61 orchestras, five orchestras did not advertise openings during the 28 years reviewed during this study. These orchestras are the American Symphony (NYC), the Festival Orchestra (NYC), the Hudson Valley Symphony (Poughkeepsie), the Little Orchestra (NYC) and the Puerto Rico Symphony (San Juan). Additional orchestras were added to keep the number equal to the amount established by the Ford Foundation. The additional six organizations were selected because they posted frequent job openings and were consistently providing musicians with work opportunities. These replacement orchestras were the Charlotte Symphony Orchestra, the Florida Orchestra, the Fort Worth Symphony Orchestra, the Grand Rapids Symphony, the Naples Philharmonic and the Virginia Symphony. A full list of orchestra and their budget sizes are detailed in Appendix C. During the course of the study, some of the orchestras experienced work stoppages that affected the labor market. A list of these orchestras and the work stoppages are included in Appendix D.

The job numbers in this report were collected from the job posting in the *International Musician* magazine. The *International Musician* is a trade publication for the American Federation of Musicians (AFM), the union for both American and Canadian musicians. In addition to articles about relevant topics and member profiles, the magazine offers a comprehensive listing of the open positions at orchestras nationally and internationally.

The magazine is printed monthly, and the job listings are updated at every printing. Some openings are only posted in one issue while others may last two or three, depending on the importance of the position within the orchestra. Positions are also reposted if the audition process did not yield a suitable candidate. The job numbers in this report represent the advertised jobs in the *International Musician*, not the number actually hired by orchestras. The data pool drawn from was nearly complete with the only omissions being the issues of May 1999, July 1999, April 2006 and August 2008 from all of the issues between August 1979 and February 2010. All jobs posted starting in the March 2010 issue were already listed or started in the 2010-11 Season. Despite these omissions, there is more than enough information to make a complete analysis of the career landscape in the top orchestras in the United States.

In order for an orchestra to expand past its compliment, the orchestra can either temporarily hire additional musicians to bolster its core group or permanently employ additional musicians as part of collective bargaining agreement between the orchestra's management and the musician's union. While most of the jobs recorded in the study were due to musician's vacating a position, jobs were also created by the collective bargaining

agreement. With no major orchestras being formed in the last 30 years, the total number of jobs available in orchestras has remained relatively.

Job Openings

While there have been upward fluctuations at points throughout the length of the study, the overall trend has been a decrease in number of orchestral jobs (Figure 1). Since the 1980-81 Season, the numbers of jobs available annually have declined by 50 percent. During the length of the survey, the 1985-86 Season saw the most jobs listed at 322. The least number of jobs was at 126 in the final year of the research period, the fourth time the number dropped below 200 and third time in the last seven years. There appears to be a three-year cycle that continues to influence the job curve – almost every third year the number of openings spikes starting in 1984-85.

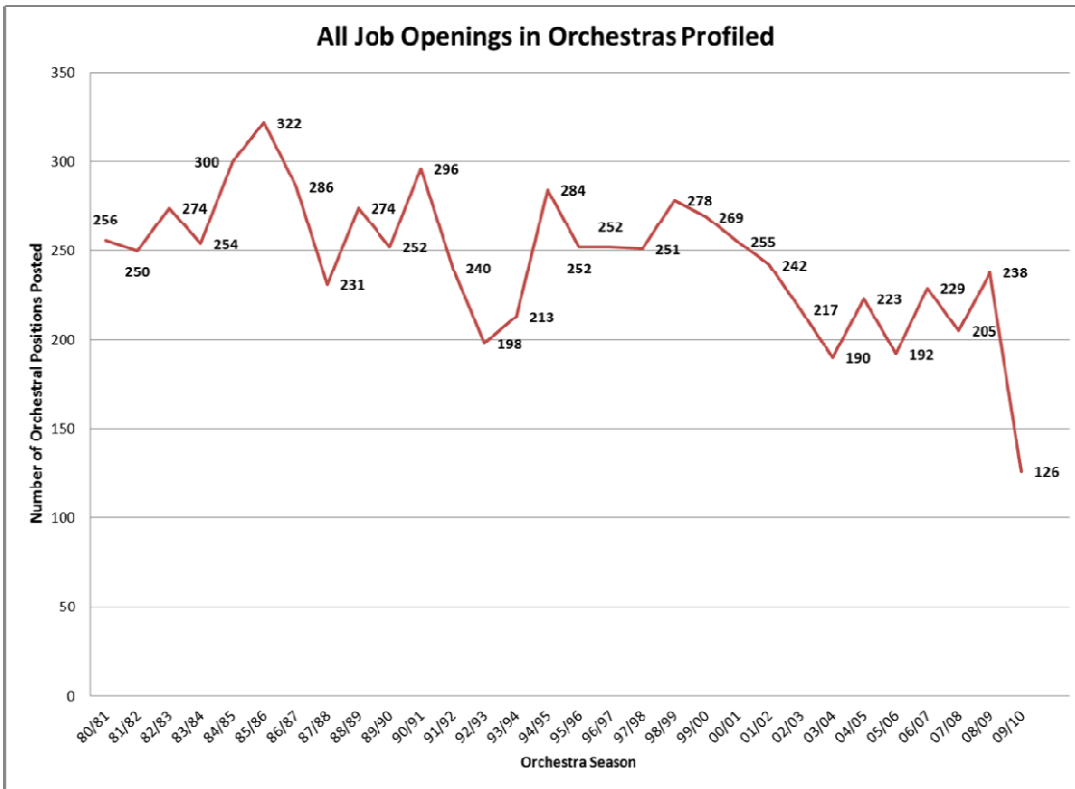


Figure 1

The League of American Orchestras (LAO) is a member organization that comprises 850 North American orchestras and works on behalf of the orchestra field. The LAO uses budget size to classify the orchestras, calling each category a “group”. For example, a Group 5 orchestra is has a budget between \$870,000 and \$1,650,000 while a Group 1 orchestra has a budget greater than \$13,600,000. While not a direct indicator of the success or artistic quality, orchestras with larger budgets are able to provide full-year employment for their musicians, offer longer and typically more involved programming for their audiences and supply the community with more robust educational opportunities.

There is a distinct division between orchestras offering 52-week salaried positions and those providing shorter, seasonal work. Working concert to concert, or per service, forces the musicians to find additional sources of income to made a living, while musicians employed full-time can find other pursuits. These could include teaching, recording,

conducting – any number of focus areas that can supplement their salaried position. All of the orchestras researched were Group 5 or larger, forming the strongest employment pool for orchestra musicians seeking to earn a living wage.

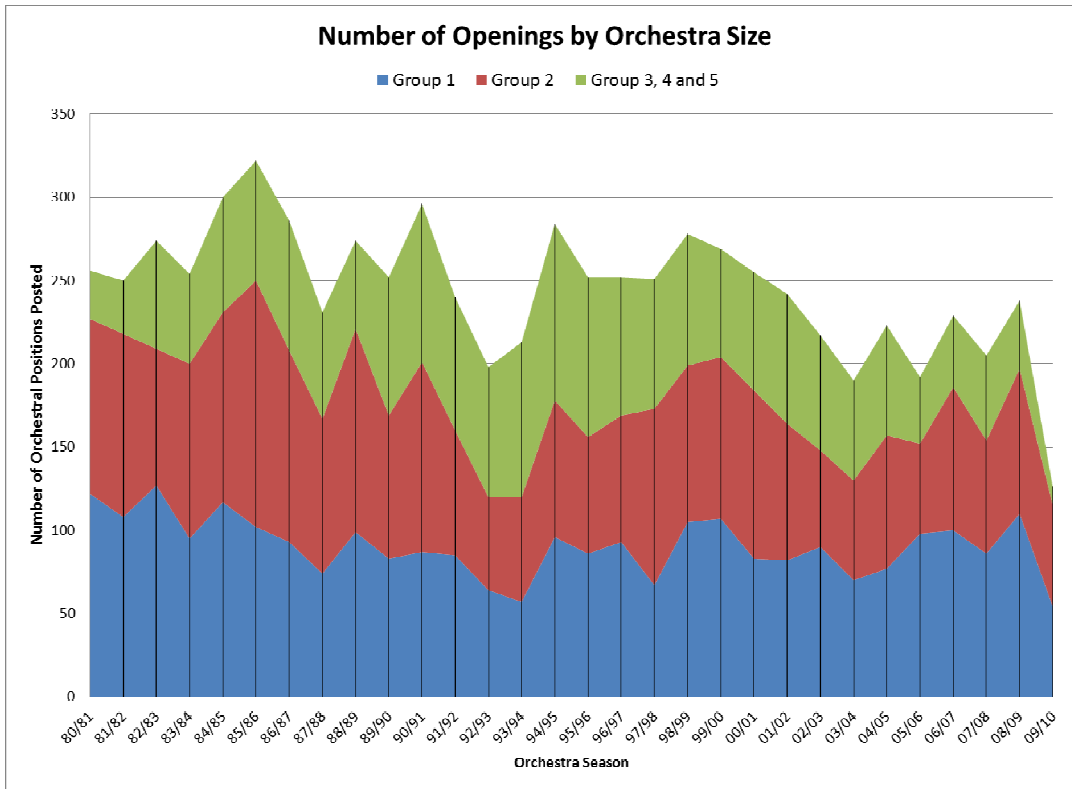


Figure 2

When the number of job opening is broken down based on orchestra size, a pattern to the job curve emerges from the data (Figure 2). With only a few variations, the curves follow the same patterns for each of the three groups. While the share of jobs may change, the repeated pattern suggests that all of the orchestras are linked to the same talent pool, regardless of the orchestra size. By reviewing the same data with trend lines overlaid, we find the shallowest decline in Group 3, 4 and 5 orchestras. The steepest trend is in Group 2 orchestras. The Group 1 orchestra trend line is in between the two groups, with moderate changes in job postings over the past 30 years.

Group 1 Job Openings.

Jobs in the largest orchestras across the United States declined slowly since the start of the study. The number of openings reached a floor in the early 1990s and hit a second bottom in the mid-2000s. By the end of the study, the number of jobs posted each year had declined by more than half.

The number of jobs in orchestra strings sections decreased by more than half since the initial year of the study. Violins still consisted of fifty percent of all openings, but even their numbers were shrinking. There were two seasons in which there were no posted openings for double bass jobs. Viola and cellos job remained throughout this study. Woodwind jobs remained relatively stable through the observation period. Flute and

bassoons lead instruments with the most openings, even with the bassoons posting two seasons without any bassoon jobs in Group 1 orchestras.

Jobs for the brass family of instruments experienced a few years of large dips but stabilized by the end of the study. Horns lead the share of job openings by more than forty over trumpet openings. Trombones had two seasons with no job postings, while tuba had 12 seasons. Percussion jobs remained a steady source of potential employment, with only three seasons of no jobs. Harp openings were severely limited, only having 17 seasons with an opening – most seasons with one or two but a few with three. Keyboard (piano) jobs were even scarcer, with only two seasons out of 28 having listed openings.

Group 2 Job Openings.

Similar to the openings in Group 1 orchestras, there is a downward trend of jobs available in Group 2 orchestras. The highest number of jobs was in the mid 1980s at 161 openings, but by the end of the study the number decreased by more than half. String jobs decreased during the years observed in this study. Openings were at the highest in the mid-'80s but at their lowest in the early 2000s. Violins accounted for half of all of the job openings, followed by violas cellos and double basses. There was no relative change in the number of job openings for woodwinds. Oboes and clarinets had nearly identical job numbers, but both of them having distinct hiring patterns.

Brass openings remained steady until the 2000s, after which the numbers decreased sharply. Horns accounted for nearly half of all brass openings across the study. In 11 seasons, there were no job postings for a tuba player with a Group 2 orchestra. Percussion openings again stayed steady throughout the study at an average of four postings per season. Harp employment was advertised in 13 seasons, with a large numbers of listings from 1998 through 2002. Keyboard jobs were again in short supply, with only three seasons posting a single job opportunity in this group of orchestras.

Group 3, 4 and 5 Job Openings.

The job openings for Group 3, 4 and 5 orchestras over the course of the years studied had the shape of a bell curve – low on the two extremes and reaching its height at the midway point. In 1994-95, the number of jobs available was 107 – the only season the number broke above 100 in the 28 years observed. The last five years of the study registered openings in the 40s and 50s, a drop from the 70s and 80s in previous years. The lowest season was the 2009-10 Season with 11 jobs posted.

String openings followed the same curve as all the openings, with a crescendo in the mid-'90s at 77 openings. Violins, as in the previous data collections, lead the share of jobs with over 50 percent of all string jobs every season. Woodwinds had a stable number of openings after the mid-'80s, with oboes garnering the largest share of postings. Brass also had a stable job curve, with openings between eight and 12 in most seasons. The majority of openings were for horn positions, and tuba positions were only posted for 11 of the 28 years. Harp only had seven openings across six seasons. Percussion openings were steadier than harp, but often only a single opening was posted each season for this orchestral group. Keyboard, again, registered the smallest number of available spots at six, with one opening in six individual seasons.

Openings by Instrument Family

Overall, there exists symmetry between each of the orchestral instrument families. All of the data lines move together, but at different rates. This happens in every instance save one – woodwinds between the 1980-81 and the 1981-82 seasons.

Jobs available for string musicians have been on a steady decline since reaching peaks in both the mid-'80s and the mid-'90s. The number of jobs reached its low point at 112 jobs in 2005-06. Over the course of the entire period, available string openings fell by 36 percent.

Violins lead the openings, consisting of nearly 50 percent of the jobs per season. Violas experienced a dramatic slide in enrollment numbers from the 2000-01 year through 2003-04, bottoming at nine – the lowest number throughout the study for violas. The cello and double bass job lines experience sharp movements in the early and mid-'80s and then again in the mid-'90s.

Over the course of the observational period, jobs for woodwind players more than doubled. Openings reached their height in the 1990-91 Season at 61. The most drastic shifts between seasons occurred for flute openings, while the most stable was oboes. At the end of the study, the numbers had not experienced much of a change from the initial years, showing little dramatic change in demand.

Brass openings experienced a decline over the research period of this study. The highest number of 53 openings was recorded in 2008-09, only the second year to surpass 50. After reaching a low point in the early 1990s, openings have consistently registered between 30 and 40 per season. Horn openings accounted for 40 percent of all jobs available in brass each season. In four seasons there were no tuba jobs in any of the orchestras in the study group.

Percussion job openings remained the most constant of all the orchestral families, with an average of seven jobs per year across the length of the study. Harp openings experienced peaks in both 1988-89 and 1989-90, but also had seven seasons without a single job posting. Of all the orchestral jobs, keyboard openings were the most inconsistent. In the 28 years of this study, only nine seasons had openings for a keyboard player with an orchestra. There is not enough data on hand to create a continuous demand line.

Supply versus Demand

Data Methodology

All of the data used to create these graphs are the actual numbers presented in the earlier sections, save one. The number inserted for supply from piano majors is 1 percent of total piano graduates each school year. To use the unedited number of piano graduates for the graph would have falsely inflated the numbers. The majority of students studying piano at any level are pursuing solo careers. While programs do exist for accompanying on the graduate and doctoral level, most of the focus on opera and ballet piano skills and repertoire. The 1 percent provides a realistic approximation of job seekers for that current season without destroying the integrity of the research. This is the only estimate used in the study.

These graphs only plot one small aspect of the total individuals who could potentially choose to compete for a job opening. These numbers do not represent any musicians in another orchestra that may choose to audition. These musicians could come from orchestras at a lower tier (Group 2 auditioning for a Group 1 opening), but sometimes come from parallel organizations (Group 1 to Group 1). This number cannot be accurately predicted. Also, as the world becomes more interconnected, overseas competition for a Group 1 or 2 job opening is not uncommon. There also exists the possibility for a “dark

horse” candidate – a current student who is not slated for graduation or a musician coming from another line of work. Both overseas and the dark horse job seekers are even harder to predict than the ones in current positions at U.S. symphonies.

Here is an example of the potential number of job seekers for one position. The New York Philharmonic posts an opening for Principal Trumpet in the 2005-06 Season. If every trumpet player currently playing in one of the top 61 orchestras auditions for the position, it would result in 182 applicants. Add to that the number of brass graduates in 2006 with an emphasis in trumpet (800 graduates with an estimated third of them studying trumpet) equals 267 potential job seekers just entering the workforce from all education levels. Conservatively add another dozen as dark horse and international candidates and potentially 461 trumpeters could audition to become the next Principal Trumpet of the New York Philharmonic.

The preceding example is based on several assumptions, thus the reason for only comparing the number of jobs with the only actual number on hand – the graduation rates for performance majors in the relevant instrument family.

Total Supply and Demand

After plotting the number of music graduates versus the number of jobs available, the data clearly shows two separate and unconnected lines (Figure 4). The most stable one is the demand curve, staying well below the 500 mark for the length of the study. The more dynamic curve follows the supply of musicians coming directly out of educational institutions. This line starts around 2,200 musicians, and then dips to approximately 1,400 before climbing to its height of 3,405 at the end of the analysis. At no point in the history of the study do the two lines cross. In addition, the direction of both curves indicates a confluence will not occur in the foreseeable future, barring any dramatic alteration in the either one or both data sets.

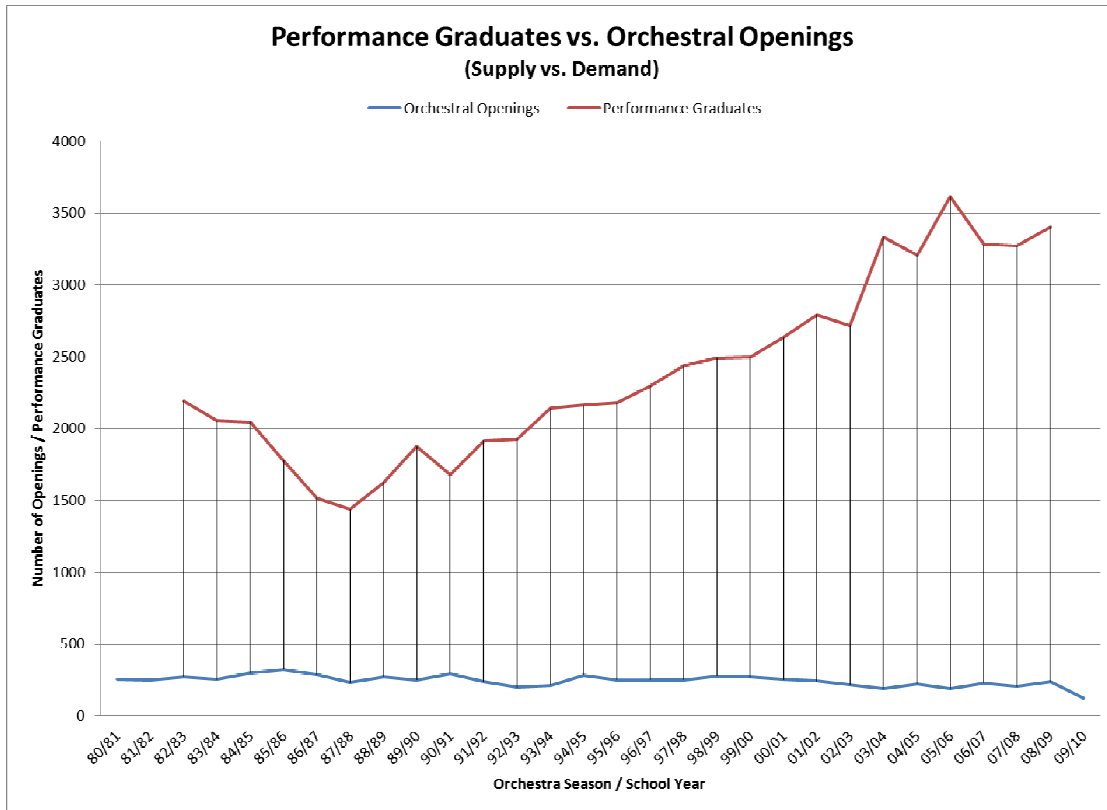


Figure 4

An alternate view of the data is a review of the percentage of all orchestral openings to all instrument-specific graduates. The ratio of jobs to graduates climbs to a height of 19 percent in 1986-87. During the mid-'80s enrollment and graduation numbers were at their lowest while employment postings were at record highs, causing the largest ratios. Afterward, employment numbers stayed relatively the same while enrollment numbers, and by consequence graduation numbers, grew at a nearly geometric rate. A 7 percent opening to graduate ratio means that for every one opening posted there are 14 degrees conferred upon graduates pursuing careers in instrumental musical performance. While the numbers may not line up to be 14 for each specific opening (i.e. harp), the excess of job candidates can clearly be seen.

Supply versus Demand – Strings.

From 1981-82 through 1986-87, the graduate (supply) curve was moving at a downward angle. After the 1986-1987 School Term/Season, the numbers of graduates continued to climb, peaking only in the final year of observation. By comparison, the job openings (demand) line experienced little change over the course of the research period, with the exception of a slow and gradual decay in the height of the graph, i.e. the numbers of job openings posted each season. There is no intersection between these two lines during the observed research period. The conclusion remains the same as in the previous section – if progress continues in a similar fashion into the future, there will be no intersection.

Supply versus Demand – Woodwinds.

In 1985-86, the supply curve bottomed out at five straight years of decline in the number of graduates. Since the low point, the curve accelerated upwards, with its largest leap coming between the 2001-02 and the 2002-03 School Terms. The demand line remained very constant, modulating between the openings in the mid-30s to mid-40s for a majority of the seasons. Again, there is no point of intersection between the two lines and not projected point of intersection in the future.

Supply versus Demand – Brass.

Brass supply followed the same trends established by the string and woodwind families – a decline from the start of the observation period until the mid-‘80s and then climbs for the rest of the research study. The brass supply numbers do experience an abnormal jump, drop and jump sequence in the final years of the study with no direct correlation to the other instrumental families. The demand line was flat. As with the previous supply versus demand graphs, this one also reveals no point of intersection, observed or projected.

Supply versus Demand – Percussion.

The supply line for percussionists is the most volatile of the orchestra families observed over the course of this study. While the line itself experiences many negative shifts between data points, the overall direction continues to be a positive slope when viewed on the long term. The demand line (again) remains unremarkable flat and unchanging. No point of interception was experienced during the observed research period, nor will be in the future if both lines continue to act in similar manners.

Supply versus Demand – Harp.

By the numbers, harp is almost as safe of a career path as strings. The small number of graduates each school year is increasing, and every orchestra requires at least one harp on its roster. However, the openings are quite erratic, with several seasons having one or fewer job postings.

The supply versus demand graph for pianos does not require a review due to both the small number of annual openings and the estimated numbers used to project the total openings.

In summary, no matter if comparing the number of jobs by specific instrument family or in aggregate, the data shows no point of confluence during the research period. Furthermore, if both lines were extended at their current rates into future years, the divergence between the points would continue to grow. With no point of intersection being established or currently predicated, it can be assumed that equilibrium will never be established without a change the fundamentals driving one or both data lines. While there might have been a point of intersection in the mid-‘80s, the supply line rapidly changed directions, ceasing its downward progression. With the supply numbers presented in this paper only represent a small fraction of those individuals who wish to pursue an available position, they do highlight the growing disproportion between the number of positions and those being instructed to perform in today’s orchestras.

Conclusions

There is no equilibrium point between the supply and the demand for orchestra musicians. With the supply numbers at times overwhelming the demand numbers by a factor of three or five, there is no occurrence of the data lines reaching an intersection point. Collegiate enrollment is increasing, and as a result schools are preparing more and more performance-focused students only to introduce them into a world where there are fewer and fewer employment opportunities as an orchestral musician. Both of these factors combine to create a growing imbalance between talents musicians and available orchestral jobs. In strictly economic terms, the only ways to create equilibrium would be to increase demand (create more orchestral jobs), decrease supply (limit the number of performance degree programs and/or the degrees conferred) or both.

The data itself actually overstates the issue of excessive supply. While there no point of equilibrium for all of performance graduates for all of the orchestral jobs, the music field is not limited to this singular career path. There are over 800 orchestras in the United States in addition to opera and ballet orchestras, touring and house ensembles for musicals and many more other performance opportunities. An job with a symphony orchestra provides a direct career path, but it is not the definition of success. Defining success should come from the individual pursuing the career and finding pleasure in performing, whatever the venue. Even if it were possible to create equilibrium of employment for orchestra musicians, would it be positive for the field to do so? How would other ensembles be able to recruit talent, and what other potential musical venture would we be losing as result? These are the questions many colleges and universities are answering by adding entrepreneurship classes on top of music curriculum. In all professions, there is never any way to guarantee employment. And while there have been informal studies showing what happens to students following their graduation from conservatory, it is very positive to see music schools beginning to prepare their wards for careers in the 21st century.

During the mid-1980s, the supply curve rapidly reversed direction. For the first six schools terms observed in this study, enrollment numbers (and by result graduation numbers) were on the decline. Some programs experienced declines of about one third, which could almost label this time period as a crisis for collegiate music programs. What is not readily apparent is the cause for this dramatic shift, but there are several possible explanations. One potential impetus could be the downfall of communism. Capped off with the fall of the Berlin Wall in November of 1989, the decline of communist states opened American universities to students from those nations. While this is a valid argument, it does not completely explain the sudden upward direction in 1987.

A second cause could be the influence the Ford Foundation's grants had on orchestras. When the Ford Foundation provided grants to American orchestras, three goals were pursued – to make orchestras more fiscally stable, to increase the musician's wage to living one, and to make pursuing an orchestra career more appealing to music students. In the 1980 report *Sharps and Flats*, the Ford Foundation reported success in two out of the three goals. Only the third, encouraging the careers of musicians, could not be proven at the time. The 1986-87 School Term would mark the first college class to be directly affected by the expansion of education and outreach activities spurred by the Ford Foundation grants. The statistical figure Pearson's R has demonstrated strong correlations between the Ford Foundation grants and bachelor's degree enrollment, but this figure cannot prove that one caused the other. The numbers can only strongly imply a dependent relationship.

There is also the possibility of another force exerting influence to cause an increase in enrollment and of which the nature is not readily apparent. Whatever the cause – the

downfall of communism, the Ford Foundation grants or another force – the force has drastically altered the course of music degree enrollment for the past two decades.

Graduate school enrollment is being driven by instrumental-focused performance majors. The exponential growth experienced by the number of students in master's and doctoral instrument-focused programs might be a result of the lack of jobs available to graduates. Returning to scholastic pursuits has two distinct benefits for the student. One benefit is to delay entry into the job market until the employment opportunities improve. The other benefit is to allow student to perfect their skills. This hopefully would help make the student more employable and able to win a job. Universities and conservatories should acknowledge this trend and anticipate the growth in advanced degree programs will continue.

The research contained in this study was organized by Brandon VanWaeyenberghe. This article remains the property of Brandon VanWaeyenberghe.