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1

In Search of Musical Greatness

When you can measure what you are speaking about, and express it in numbers, you know something about it.¹

—WILLIAM THOMSON, 1ST BARON KELVIN

An eminent artist will bring about a considerable change in the established modes of each of those arts, and introduce a new fashion of writing, music, or architecture.²

—ADAM SMITH

Be not afraid of greatness: some are born great, some achieve greatness, and some have greatness thrust upon them.³

—WILLIAM SHAKESPEARE

Why do we still listen to Mozart's music but not Salieri's?

How did Beethoven's personal afflictions—deafness, illness, and financial stress—shape his creative output?

Would Nadia Boulanger be better known as a composer than a teacher if she were a man?

Why did so many composers move to Vienna, Paris, and London, despite the hardships of city life?

1.1 The Mystery of Composer Greatness

Musicians, musicologists, cultural historians, and lovers of Western classical music have long been captivated by questions such as these. The mystery of what makes a composer “great”—what elevates some to immortality while

others are forgotten—has inspired not only countless biographies, but a substantial body of scholarship.⁴ Yet, despite the wealth of research and reflection on this subject, much of what we believe about musical greatness remains shaped by anecdote, tradition, and received wisdom.

This book takes a different approach. Rather than relying solely on individual case studies or qualitative analysis, we study the question of what makes a composer great using quantitative, data-driven methods. By examining the lives and works of thousands of composers over nearly one millennium, we uncover measurable forces that have shaped musical creativity and prominence. Bringing together large-scale data and economic insight, we trace how factors such as education, training, networks, and opportunity shaped composers' careers and creative success across time and place. Unlike prior scholarship, which largely focuses on a handful of famous figures, our approach is systematic and comprehensive, offering new insights into the conditions that foster creative brilliance in one of humanity's most celebrated art forms.

A key challenge we face involves making meaningful comparisons among thousands of composers who lived in vastly different times and places. Skeptics may wonder whether useful parallels can be drawn between figures like Adam de la Halle, who lived in the thirteenth century, and Philip Glass, who is still alive. Or even between contemporaries like Charles Ives, a New Englander, and Richard Strauss, a Bavarian, whose geographic and cultural contexts differed significantly. Although we do not compare *all* of these composers in every part of our work, statistical tools allow us to account for differences arising from time period, location, or other observable factors, helping us uncover the underlying forces that shape musical greatness. Readers unfamiliar with these methods need not worry: the book can be read without any statistical background. For those interested in learning more, a short appendix introduces the key concepts and explains the logic behind the methods we use.

Understanding these forces requires more than just data, however. It also demands a theoretical framework to guide our exploration and make sense of the patterns we uncover. Although our approach is data driven, data do not "speak for themselves"—they become informative only when viewed through a theoretical lens. In this book, we apply an economic perspective, using concepts like human capital, agglomeration economies, and incentives to make sense of creativity and artistic output. This combination of big data and economic theory not only allows us to identify key factors behind composer greatness but also reveals how broader economic forces have shaped artistic innovation across history. By integrating data with theory, we offer fresh insights into what drives musical achievement and, more generally, the conditions that foster creativity across many fields.

At the same time, an economic approach does not replace the rich literature by music historians and musicologists who have explored the lives and

works of individual composers or specific musical eras.⁵ We recognize the value of approaches that engage directly with the music itself, through close listening, interpretation, and aesthetic analysis. Greatness in music can be understood through multiple, complementary perspectives. Our aim is not to evaluate the artistic value of particular works, but to examine the broader conditions that shaped who composed, under what circumstances, and how those conditions influenced what was created and what endured, including, where relevant, analysis of the music itself to identify patterns of creativity, originality, and influence. While our primary focus is on economic factors, we incorporate insights from history, sociology, psychology, and musicology to build a more comprehensive understanding of what shapes a great composer.

We recognize that the data we rely on are drawn from a historical record shaped in part by patterns of exclusion, especially in access to training, recognition, and documentation. Not all composers had the same opportunity to study, publish, be performed, or remembered. Women, composers of color, and individuals from underrepresented regions or social backgrounds often faced structural barriers that limited their ability to fully participate in the classical tradition. As a result, some of the patterns we document reflect not only differences in creative output, but also differences in access to the systems through which musical legacies are established and preserved. We return to some of these issues later in the book, but note them here because they shaped the landscape of opportunity and recognition that our analysis seeks to understand—and remind us that the history we can observe is only a partial view of the creative lives that once unfolded.

Within the surviving record, however, composers' careers were shaped by a mixture of broad contextual forces and individual choices. Some aspects of creative development reflect recurring patterns, such as the influence of training, geographic mobility, or social norms governing who could compose and be heard. Bach's contrapuntal mastery was grounded in rigorous early training within a musical family and deep immersion in Lutheran sacred traditions. Mozart's extensive travels as a child prodigy brought him into contact with a wide range of musical styles across Europe, fostering the cosmopolitan character that defined his mature compositions. Clara Schumann sustained a remarkable career as a performer and teacher, but her compositional activity was constrained by domestic responsibilities and the expectations placed on women in her era. Other trajectories reflect greater individual variation, shaped by personal beliefs, ambitions, or constraints. Liszt deliberately crafted a public persona that merged virtuosity with artistic idealism and nationalist identity, shaping both his compositional output and its reception. Sibelius, meanwhile, withdrew from composition later in life, despite early acclaim and lasting fame, leaving a prolonged creative silence

that has long puzzled scholars and admirers. Fauré and Saint-Saëns, by contrast, remained prolific into old age, supported by formal appointments and sustained access to publishing and performance networks. While each composer's path was unique, the ways in which context and choice shaped those paths often followed recognizable lines. These patterns—explored throughout this book—help explain the forces that shape artistic greatness. While we emphasize statistical regularities, we also use individual examples to illuminate broader patterns. These vignettes are not intended as representative cases or normative endorsements, but as narrative complements to the data. They serve to humanize and contextualize the broader forces we identify.

In sum, this book explores the forces that have shaped the lives and legacies of composers throughout history. By combining rigorous statistical analysis with historical evidence, we uncover patterns that help explain why some composers achieved lasting prominence while others faded into obscurity. More generally, our findings provide a new perspective on the nature of artistic achievement, offering insights not only into the world of music but into creativity, innovation, and greatness across many fields.

1.2 A Different Way to Ask an Old Question

1.2.1 WHAT ECONOMICS HAS OVERLOOKED

Why should a pair of economists write a book about Western classical composers? One answer is simple: opportunity. Despite their cultural significance, composers have attracted surprisingly little interest from economists. By contrast, over the past two decades, economists have devoted considerable attention to art markets and the careers of visual artists.⁶ Since the publication of F. M. Scherer's *Quarter Notes and Bank Notes: The Economics of Music Composition in the Eighteenth and Nineteenth Centuries* more than two decades ago, there has been no book-length study of composers from an economic perspective.⁷ This absence is striking, given the prominence of figures like Bach, Beethoven, and Brahms, whose innovations reshaped music just as groundbreaking scientists and inventors transformed their fields. Since Scherer's time, advances in digitization have made it possible to convert data sources that were previously difficult to quantify—such as thematic catalogs, teacher-student genealogies, biographical entries, and composers' personal correspondence—into structured datasets suitable for empirical analysis. In addition, entirely new data sources, such as streaming statistics, now provide insight into audience reception and popularity in ways that were previously unimaginable. Coupled with improvements in empirical methods, these developments allow for a more rigorous exploration

of composers' creative output and influence, and the various forces shaping musical creativity. By leveraging these tools, this book pioneers a new approach to understanding composer greatness, one that combines large-scale data analysis with historical and economic insights to uncover patterns that have long been hidden.

In studying composers, rather than performers, we focus on the primary creative agents behind the works of Western classical music. While the distinction between composer and performer was fluid for much of music history—many musicians both composed and performed, as we shall see—the tradition gradually elevated the role of the composer as the originator of the musical text. The Nobel prize-winning economic historian Joel Mokyr describes “prescriptive knowledge” as codified instructions that guide action or production.⁸ Such knowledge is necessarily incomplete; no set of instructions can fully determine an outcome. Musical compositions illustrate this: Performers shape the experience of a work through interpretation, ornamentation, and expressive nuance, but they do so within a structure created by the composer. As notated scores gained authority, they came to be seen not just as guides to performance but as representations of the composer's intentions—reinforcing the idea of the composer as a distinct creative originator. Many pianists may perform Chopin, but the musical material they draw on—the melody, harmony, and formal design—is Chopin's. By focusing on composers, we examine creativity at its generative point, where new musical ideas take form and are committed to notation, shaping the works that performers later bring to life.

1.2.2 CAN GREATNESS BE MEASURED?

Analyzing composers poses unique challenges, particularly when it comes to measuring quality or greatness. In the visual arts, economists can use auction prices as a proxy for artistic value. For composers, however, such market-based measures are largely unavailable: Musical manuscripts seldom reach the market, and even when they do, their prices reflect rarity and provenance rather than the enduring cultural worth of the music itself. The amount paid for the manuscript of a Schumann song cycle, for instance, tells us little about its enduring impact on audiences or its place in the Western canon. Such limits make alternative measures of musical greatness essential.

In *What Makes a Great Composer?*, we develop a comprehensive set of measures to assess composer greatness. These include rankings by expert musicians and musicologists, the length of biographical entries in musical dictionaries, influence on other composers (measured through thematic similarity), and contemporary popularity (reflected in streaming data). Greatness is inherently multifaceted, and no single metric can fully capture

its complexity, particularly when it comes to artistic value, which resists easy quantification. By examining these dimensions together, we gain a richer, more nuanced understanding than would be possible to achieve through any single measure alone.

Most of these measures reflect the judgment of posterity, shaped by the cumulative processes of canon formation and cultural survival. This long-run perspective is central to our framework: Our goal is to understand how later generations have come to evaluate compositional achievement, not to reconstruct fame during a composer's lifetime. At the same time, we complement these retrospective measures with an indicator of influence, which shows how composers affected the work of their peers and successors. In this way, we emphasize that enduring reputations were often grounded in the creative impact composers had on those around them, even as our focus remains on how posterity has defined greatness.

1.2.3 WHY THIS MATTERS BEYOND MUSIC

Creativity is a cornerstone of innovation, providing the ideas that drive scientific progress, economic growth, and cultural development. It fuels advancements in technology, the arts, and even business, making it essential to human welfare. However, creativity remains challenging to define, measure, and understand. By studying composers, this book offers new insights into the factors that foster creativity in one of the most celebrated realms of human accomplishment.⁹

Classical composers provide a particularly useful lens through which to view creativity as their work combines adherence to structured forms with the freedom to innovate within those constraints. For instance, composers like Gustav Mahler and John Adams expanded the expressive possibilities of the symphony and opera, respectively, illustrating how innovation can flourish within formal boundaries. Similarly, Claude Debussy and Igor Stravinsky redefined musical language, not by rejecting tradition outright, but by reshaping it in ways that challenged prevailing conventions. That same balance between structure and imagination drives progress in fields like science and engineering, where breakthroughs often arise from working creatively within established frameworks.

The findings in this book have implications beyond classical music. The drivers of creativity that we explore—such as education, agglomeration, and institutions—are relevant to a variety of fields. For example, early exposure to craft and the clustering of talent in creative hubs can also be seen among painters in Renaissance Florence, playwrights in Shakespearean London, filmmakers in Hollywood, and scientists in Silicon Valley. Understanding the forces that shaped the creativity of composers may therefore inform efforts to

cultivate creativity in science, engineering, entrepreneurship, and other fields where innovation drives progress and cultural enrichment.

Ultimately, *What Makes a Great Composer?* uses the history of classical music to shed light on a universal question: What stimulates human creativity? By addressing this question in the context of composers, we contribute to a deeper understanding of the conditions that foster creativity across all domains.

1.2.4 HOW OUR APPROACH DIFFERS

This book builds on and extends the growing body of research on the economics of art and culture. Among economists, F. M. Scherer's book remains the seminal study of composers, focusing on the eighteenth and nineteenth centuries. Although Scherer's book, along with an earlier study by William and Hilda Baumol, provided a foundation for the economic study of composers, our analysis expands the scope to include additional centuries, larger datasets, and more refined methodologies.¹⁰ We also address questions that Scherer could not explore, such as the influence of gender disparities, emotions, and income on the creative output of composers.

Our book also contributes to broader discussions about how markets shape artistic output. Tyler Cowen's *In Praise of Commercial Culture* argues that markets and commercial incentives play a crucial role in driving artistic innovation and expanding cultural production.¹¹ Cowen supports his argument through historical examples drawn from classical music, literature, and the visual arts. We complement this approach by offering empirical evidence based on quantitative data. For example, in our chapter on institutions and incentives, we investigate how variations in composers' income influenced their creative output. This allows us to empirically test and extend Cowen's insights, showing not only how economic conditions enable the creation of great works but also how these conditions shape patterns of creative output over time.

Beyond economics, musicological works have also examined composers within their wider cultural and social settings. The *Man and Music* series (published in the United States as *Music and Society*) situates musical developments within broad historical contexts. Lorenzo Bianconi and Giorgio Pestelli's *Opera Production and Its Resources* examines the economic and organizational aspects of opera production through history, while William Weber's *Music and the Middle Class* shows how the rise of bourgeois audiences, subscription systems, and canon formation reshaped concert life.¹² These works illuminate the environments in which composers lived and worked, but they do not systematically analyze the determinants of composer prominence. Our contribution differs in focusing directly on composers,

applying large-scale quantitative evidence and economic analysis to explain why some achieved enduring reputation while others did not.

Our book is also closely related to the work of psychologist Dean Keith Simonton, who takes a data-driven approach to studying creativity. Simonton examines composers alongside scientists, writers, and other historical geniuses, identifying common patterns in their careers.¹³ In his view, creative greatness arises through a Darwinian process of blind variation and selective retention, a framework originally proposed by Donald T. Campbell to explain knowledge acquisition as an evolutionary process. Simonton extends this model to creativity, where new ideas arise without intentional design (“blind variation”) and are retained based on their success or appeal (“selective retention”). In the context of classical music, composers generate a high volume of musical ideas, most of which are forgotten, while a few survive and gain lasting recognition. This process suggests that prolific composers are more likely to achieve greatness, not because they only produce masterpieces, but because greater output increases the probability of creating enduring works. Simonton also identifies broader patterns in composers’ careers, including the tendency for creative output to follow predictable life-cycle trajectories.

While Simonton acknowledges external influences, his primary focus is on individual traits, such as cognitive ability, personality, and openness to experience, as drivers of creative success. In contrast, our analysis takes a broader approach, considering how factors such as education, geographic mobility, financial constraints, and institutions shaped composers’ careers and creative trajectories. While we also examine psychological aspects of creativity, particularly the role of emotions, we do so within a historical and economic context rather than treating them as isolated determinants. By situating composers within their professional and cultural environments, our approach provides a complementary perspective on the forces that shaped artistic greatness.¹⁴

Our work complements Sherwin Rosen’s “economics of superstars,” which provides a useful framework for understanding certain patterns in classical music.¹⁵ His theory explains why markets with a high degree of agreement about quality and relatively low barriers to reaching large audiences often concentrate rewards among a small number of top creators. In classical music, this phenomenon is reflected in the enduring prominence of a highly select group of composers. While Rosen’s framework helps explain the “winner-take-all” tendency among leading composers, it does not address what distinguishes one composer from another or the deeper forces that shape greatness. By examining the determinants of greatness across a broader range of composers, our work goes beyond describing market concentration to uncover the underlying patterns that drive long-term prominence.

Finally, this book connects to the literature on exceptional talent and creative genius. Economists have studied how innovators, artists, and

entrepreneurs cluster geographically, benefit from early immersion in their craft, enjoy improvements in longevity before the general population, and leverage social networks to achieve success.¹⁶ Composers exhibit many of these same patterns: They trained under established masters, gravitated toward major cultural centers, and relied on patronage, publishers, and performance networks to sustain their careers. Our work extends this literature by examining how these forces shaped creative output in the distinct world of classical music.

By addressing gaps in the literature, refining methodologies, and introducing novel datasets, *What Makes a Great Composer?* transforms the way we understand creativity and artistic achievement. This book not only complements existing research but also sets a new standard for studying how greatness is cultivated in music and beyond.

1.3 How the Book Unfolds

Having discussed the motivation behind this book, let us now briefly outline its contents.

Chapter 2 begins by conceptualizing greatness as a multidimensional phenomenon, shaped by the interplay of quality and quantity in a composer's output. Building on this foundation, we outline an economic theory for understanding greatness. At the heart of this framework is a model that explores how composers develop their skills, draw on life experiences, and channel inspiration into creative output. The chapter also explores how contextual factors, including institutions, agglomeration, and chance events, shape the production process by influencing resources and incentives. These insights provide a structured lens for understanding the drivers of creative success. Finally, we introduce various metrics for measuring quality and quantity, laying the groundwork for the empirical analyses in later chapters.

Chapter 3 presents descriptive data on composers' lives and careers. We track where composers were born, where they lived and worked, and how they moved, providing insights into the prominence of different cities as musical centers. We also investigate the prevalence of composition as a primary occupation, the types of secondary roles composers held, and the extent to which creative output changed over a composer's lifetime. By establishing these empirical regularities, the chapter lays essential groundwork for the subsequent analysis of what distinguishes great composers from their peers.

Our investigation of the determinants of composer greatness begins in **Chapter 4**, where we examine the development of composers' *human capital*—the skills and knowledge they acquire through training and experience. In our theoretical framework, human capital is a key input in

the production function for greatness, as technical mastery and stylistic innovation require training, guidance, and accumulated knowledge. Composers typically learned their craft through direct mentorship, but how significant was this mentorship in determining their productivity and success? To explore this, we combine information on teacher-student lineages with biographical data from *Grove Music Online* and newly assembled data on thousands of musical themes. The chapter uncovers how training, mentorship, and the evolution of musical education—from family-based instruction and private tutelage to formal study in conservatories—shaped the transfer of knowledge across generations.

Chapter 5 examines how institutions shaped composers' productivity and creativity by structuring the incentives that governed their careers. The chapter explores the patronage system, which provided financial security but sometimes constrained creative autonomy, and its gradual decline, which left composers increasingly dependent on market-oriented forms of support and exposed them to greater income volatility. We analyze how income insecurity in this more market-driven environment influenced the quantity and quality of creative work, highlighting the relationship between financial stability and artistic risk-taking. We also discuss how copyright protections further altered this incentive structure, enabling composers to capture the returns from the dissemination of their music and raising rewards from innovation. Together, these institutional changes reveal how the broader economic environment shaped composers' opportunities to flourish—or struggle—in their pursuit of lasting artistic achievement.

Chapter 6 shifts the focus from institutions to geography. It asks how cities shaped creative production through *agglomeration economies*—the advantages and disadvantages that arise from geographic clustering, as individuals or firms locate near one another to share resources, exchange knowledge, and compete. The term *agglomeration economies* refers to the advantages and disadvantages of geographic clustering, where individuals or firms locate near one another to share resources, exchange knowledge, and compete. We apply this concept to composers, arguing that they clustered in cities for two primary reasons. First, cities provided essential infrastructure—concert halls, opera houses, and skilled musicians—allowing composers to take advantage of shared resources. Second, in an era of high information and transportation costs, co-location facilitated knowledge spillovers, enabling composers to learn from and challenge one another. Using detailed data on composers' annual output and locations, the chapter explores how urban clustering influenced creative productivity and the environments that fostered collaboration and competition. It also considers the hidden costs of these dense artistic hubs—including the pressures of rivalry and overwork, which in some cases

were linked to early mortality. Finally, the chapter asks why certain cities became enduring centers of musical innovation while others declined.

Chapter 7 explores the role of emotions in musical creativity, investigating how a composer's psychological state influences productivity. Drawing on the concept of psychological capital—the reserve of confidence, motivation, and resilience that sustains creative work—we examine how emotions shape effort costs and engagement. Using sentiment analysis of personal correspondence, the chapter reconstructs emotional patterns in the lives of selected composers and connects them to fluctuations in their creative output. It also asks whether a composer's emotional state can be heard in the music itself, revealing how personal experience may find expression in sound. By linking inner life and outward creation, the chapter offers new perspectives on how emotion fuels the act of composition.

Western classical composers lived during periods of profound upheaval, from wars and revolutions to natural disasters and pandemics. How did these shocks shape their creative output? **Chapter 8** explores these questions within our framework, where chance events—such as wars, natural disasters, and epidemics—reshape the environments in which composers create. The chapter traces how conflict and crisis affected not only individual lives and careers but also the wider geography of musical innovation. It examines how wars prompted migration and disrupted artistic networks, how political and social instability altered opportunities for patronage, and how moments of destruction sometimes gave rise to renewal and creativity. By exploring these shocks and their aftermath, the chapter reveals how resilience, adaptation, and circumstance intertwined in shaping the course of musical history.

Chapter 9 turns our attention to the much-neglected female composer, asking why so few women are included in rankings of the greatest composers. If musical greatness depends in part on human capital development, then examining the historical barriers women faced in accessing training, professional networks, and public recognition provides essential context. The chapter traces how opportunities for women to compose were shaped by family background, education, and social expectation, and how institutional structures limited or enabled their artistic growth. It also explores the creative strategies women adopted to pursue their craft within restrictive environments—writing for smaller ensembles, publishing under pseudonyms, or building reputations as teachers and mentors. Through this lens, the chapter illuminates how talent and ambition often confronted the constraints of gender, revealing a broader story about access, recognition, and the unequal conditions under which musical creativity evolved.

Chapter 10 brings the book to a close. We begin by examining why a small number of composers have come to dominate concert programs. While

economic models help explain this concentration, they do not address how these composers became great in the first place—our primary focus throughout this book. The chapter revisits the key themes that have guided our inquiry—training, institutions, geography, emotion, and chance—and considers how they intersect to shape enduring artistic legacies. It also reflects on the lasting imprint of institutions and cultural infrastructure on the classical canon and their role in reinforcing long-term patterns of recognition. Finally, we turn to the present, exploring how the traditions of classical composition continue to influence modern music—from concert halls to film studios—and whether the forces that once nurtured musical greatness might allow new composer superstars to emerge today.

(continued...)

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