How Are You, My Dearest Mozart?
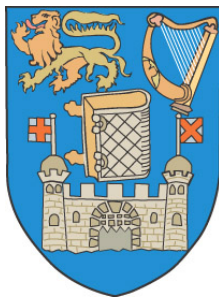# Well-being and Creativity of Three
Famous Composers Based
on their Letters

Karol Jan Borowiecki

Trinity Economics Papers

Department of Economics

Trinity College Dublin

How Are You, My Dearest Mozart? Well-being and Creativity of Three Famous Composers Based on their Letters

Karol Jan Borowiecki[*][1]

[1]Department of Business and Economics, University of Southern Denmark
[1]Department of Economic History, Lund University

January 5, 2014

Abstract: The well-being of a person is reflected in the language used. Building on 1,400 letters written by three famous music composers, I obtain well-being indices that span their lifetime. The validity of this methodology is shown by linking the indices with biographical information and through estimation of the determinants of well-being. I find, consistent with the literature, that work-related engagements and accomplishments are positively related with well-being, while poor health or death of a relative is detrimental. I then exploit the data and provide quantitative evidence on the existence of a causal impact of negative emotions on outstanding creativity, an association hypothesized across several disciplines since the Antiquity; however, not yet convincingly established for the case of extraordinary achievers.

Keywords: Well-being, happiness, positive emotions, negative emotions, creativity, health, labor, composer, letters, methodology, music history.

JEL Classification Numbers: D60, I31, J24, N33, Z11.

1 Introduction

Anecdotal accounts on the presence of psychological anomalies can be found in the biographies of numerous great artists, scientists, social activists, politicians, and entrepreneurs (e.g. Ludwig, 1995; Jamison, 1996). This is an astonishing disclosure, especially if one considers that these famous and extremely creative people have shaped our cultural heritage, pushed the boundaries of knowledge, contributed to the development and growth of countries, and created economic welfare. Consequently, the existence of a link between negative emotions and creativity has been hypothesized and studied in a variety of forms and across several disciplines.[1] Despite those efforts, the association between outstanding creativity and psychopathology remains controversial, and it rather lacks convincing evidence (e.g. Waddell, 1998).

The creativity of great achieveres is usually portrayed as a result of various psychotic anomalies (e.g. depression rates); however, this link is created by relying on references to the presence of extremely negative moods found in their biographies. Constructing measures of a person's psychological well-being from biographical accounts might be neither complete nor accurate (Andreasen, 2008), and relying on the content provided in a biography is subject to omission bias of emotional states that have not been known to the biographer (or not regarded to be important enough to be included in the entry). Furthermore, extracting indicators on the presence of a depressive state at some time in the life of a person does not adequately capture the temporal dimension nor the intensity of negative feelings. This could also lead to a number of biases related to omitted variables or reverse causality.[2] Finally, those studies observe only extremes and rely on the strong assumption that the historical

---

[1]See for example Kaufman and Sternberg (2007) for a review of creativity research across such fields as psychology, economics, education, and the arts. The notion that creativity and emotional state are somehow related goes back to the time of Aristotle.

[2]One possibility is that outstanding achievers are not understood by contemporary audiences and fail to receive the deserved recognition for their work, which might lead to depressed moods after a particularly innovative work has been created. The association would thus be the reverse: creativity leads to negative emotions.

distribution of psychological anomalies in a population used to be the same as it is nowadays.

This study provides a contribution to that literature by introducing a measure of well-being that varies in intensity and over time for three famous music composers. I construct lifetime well-being indices using around 1,400 letters written by Wolfgang Amadeus Mozart, Ludwig van Beethoven, and Franz Liszt throughout their lives.[3] This is done by the employment of a linguistic analysis software which is able to illuminate to what extent a written text uses words related to positive emotions (e.g. happiness) or negative emotions (e.g. grief). What emerges is a unique longitudinal dataset for, agreeably, only three subjects; however, with a coverage of the lifespan and a large number of observation points. The immediate contribution of this research design is that it allows unique insights into the dynamics of a person's emotional state throughout life.

Emotional content is embedded in our communication and it is fairly established that the words used by individuals, whether verbally or in written texts, are related with mental health (e.g. Pennebaker et al., 2007). The registration of the mood of a person might be particularly precise for the case of historical correspondence from the late eighteenth and nineteenthcenturies, which is noted for its expressive nature. Furthermore, the three music creators covered are known for their sensitive and yet explosive nature, as disclosed in their writing where they have shared their deepest thoughts, emotions, and beliefs. For example, already Mozart's contemporaries described his letters as "simple outpourings of his heart" that are a mirror of his sensitive soul and hence "rather resemble a journal than a correspondence" (Wallace, 1866b, preface).

The main contribution of this research is the exploration of a causal relationship be-

---

[3]These are the only three composers who were writing extensively and in the same language, their letters have been collected by their contemporaries and cover their lifetime. See Section 3.2 for a more detailed discussion of the selection.

tween negative moods and creativity. Using the created index of negative emotions and utilizing instrumental variables, I am able to study the causal impact of negative emotions on creativity, measured as the number of important, quality-adjusted compositions written by each composer in a given year. I use the incidence of unexpected death of a composer's family member as an exogenous source of variation of his negative feelings.[4] The identification exploits the historical vulnerability of people to various life incidences, such as illnesses that have usually resulted in imminent death. The emerging findings imply that the number of works written is causally attributable to an increase in negative emotions. Disaggregating negative moods into anger, anxiety, and sadness, I further identify sadness as the main negative feeling that drives creativity. This new evidence comes close to the previously posited association between creativity and depression, which is a form of chronic sadness.

In developing the methodological framework, I also show that studying the emotional content based on historical letters may enable insights into the well-being of a person.[5] This potentially constitutes a useful contribution towards the fast growing field of happiness economics, which is usually constrained to cross-section data, available for a person only at a point in time, and is often self-reported. Panel data are relatively rare and available for a couple of years at the most (Dolan et al., 2008). At the same time, panel data are required as they might allow to reliably assert what the determinants of well-being are as well as address a number of issues related to causality, on which the current knowledge, as argued by Dolan et al. (2008), is far from satisfying.

---

[4]See Kessler (2001) for a review of the literature on how stressful life experiences worsen the well-being of a person or Monroe et al. (2001) on how severe life events increase the risk of depression. Note also that I will show later that the unexpected death of a family member drives artistic productivity through emotional fluctuations, as opposed to through some other channels, for example, a change in the composer's financial situation.

[5]This is achieved by anecdotally linking the obtained well-being indices with biographical information of a person. Therefore, it is crucial to focus on the case of a small group of famous creators for whom detailed biographical information is available.

The obtained data are further used in an econometric context, and I estimate the well-being determinants for this sample. To my knowledge, this constitutes the first analysis based on data for the entire lifespan of a person. Moreover, the fact that the analysis looks at the lives of three music giants, who have left their permanent imprint on our cultural heritage, makes this study particularly interesting and inter-disciplinary.[6] In the analysis, by disentangling emotions into positive and negative, I am able to contribute insights on the relative importance of the determinants for either type of emotion.[7] The results indicate that labor market outcomes (in partic-ular artistic production or touring activity) increase positive emotions and decrease negative, whereas an illness strongly leads to the opposite effect. Negative emo-tions are also found to be sensitive to an extreme case of worsening of a composer's personal relationship, reflected by the unexpected death of a family member.

This study also provides an exploration of the letter writing patterns and intensities, so contributing to studies on the history of written correspondence.[8] I estimate what the determinants of writing intensities are in a given year and shed light on the determinants of probability to write to close contacts (i.e. family or friends) or other acquaintances (i.e. professional partners, fellow composers or strangers). The results imply a lower writing intensity in general if the composer exhibits positive emotions. Interesting differences are also disclosed depending on the type of addressee. While negative emotions are usually shared with relatives or friends, positive emotions are predominantly communicated with less acquainted associates. It is, however, not clear whether these writing patterns are driven by the composer's emotional moods, or whether he simply adjusts the language used depending on the addressee.[9]

---

[6]Numerous music historians devoted their careers to the study of either of these composers. See, for example, Saffle (2009) for an impressive 520-page review of research and data sources concerning Franz Liszt alone.

[7]See Fredrickson (1998) for a detailed discussion on the unique qualities associated with positive and negative emotions.

[8]For an overview of theoretical issues concerning letters and a review of applied research using historical letters, see Dossena and van Ostade (2008).

[9]Note that either possibility is not a concern for the main results, as the varying writing patterns are accounted for by inclusion of addressee fixed effects.

The paper is organized as follows. Section 2 provides a literature review. Section 3 discusses the chosen methodology, motivates the selected sample and presents the emerging well-being indices in light of biographical anecdotes from the lives of the composers covered. Section 4 introduces the set of models to be estimated and reports summary statistics for the variables used. Section 5 presents the results for the determinants of well-being and the effect of negative emotions on creativity. Finally, Section 6 provides concluding remarks.

2   Literature Overview

Psychologists acknowledge the difficulty in obtaining information on how a person feels, by simply asking her about her well-being. The respondent's answer might not be accurate due to her wishful thinking and various mechanisms of defense. A potentially superior way of obtaining insights on a person's anxieties and conflicts is to study the way she communicates. This psychoanalytical method is formulated by Gottschalk and Gleser (1969). Research on the use of words has especially increased recently due to the access to increasingly versatile computer programs that are able to provide various indicators on the social, personality, cognitive, and biological processes of an author of any text (Chung and Pennebaker, 2007).

It has been shown that the language people use is affected by various factors. Pennebaker and Stone (2003) build on a sample of 10 famous literary artists born between 1762 and 1895, and show how language changes over the course of a person's life. They show that older people appear to disclose an increased cognitive complexity in the linguistic styles, and even if these results could be distorted by cohort effects, the role of age appears as an important factor. It is also established that significant events might affect the mood (and language use) of a person. Cohn et al. (2004) show how the vocabulary used by users of an U.S. online journaling

service changed due to the traumatic incident of the September 11 attacks. Immediately after the attacks, the investigated users expressed more negative emotions, were more cognitively and socially engaged, and wrote with greater psychological distance.

A study that comes close to the methodology of the underlying research is provided by Danner et al. (2001), who obtain indicators on the extent of positive emotions from autobiographies written by Catholic nuns. The authors show that positive emotional content in early-life autobiographies is related to longevity later in life. However, these findings are largely based on the assumption that the emotional well-being of a person remained stable throughout life.

According to my knowledge, linguistic features of written texts have been not yet used by economists, who usually rely on subjective well-being indicators (e.g. Helliwell, 2003) or the occurence of various medical conditions (e.g. Brown, 2000). One of the main research areas within happiness economics deals with the determinants of well-being. A review of this research is provided by Dolan et al. (2008) and previously by Frey and Stutzer (2002). The authors conclude that a person's well-being depends on labor market involvement and outcomes, in particular on income and employment status (Clark et al., 2008). Personal relationships, especially with family members (Martin and Westerhof, 2003), play a vital role as does being in a stable partnership with another person (Helliwell, 2003), independent of whether the relationship is certified by marriage or occurs as cohabitation (Brown, 2000). Furthermore, various health conditions have been shown to have an effect on subjective well-being (e.g. Shields and Price, 2005). Certainly, there exists a range of other potentially valid determinants of a person's emotional feelings; however, the presented results are often inconclusive.

The literature on the effects of mood and thought on creativity is vast. As Jamison (1989) observes, in relation to artistic creativity, psychological aspects have been

studied for "as long as man has observed and written about those who write, paint, sculpt or compose." Andreasen (2005) reviews research on the relationship between creativity and mental distress and concludes that mood disorders could possibly be conducive to artistic creation. Andreasen explains that in some instances those negative emotions may provide fertile material upon which the creative person could draw. Akinola and Mendes (2008) discuss how intense negative emotions can create powerful self-reflective thought and perseverance, leading to increased creativity. Furthermore, Akinola and Mendes demonstrate in a laboratory experiment that individuals exposed to a situation that causes intense negative feelings exhibit the greatest degree of creativity. Kyaga et al. (2013) draw on a large sample of 1.2m patients from the register in Sweden and find that people in creative professions are linked to an increased risk of manic depression. Further, for a sub-sample of writers, an increased risk of other mental health condition has been observed. While these results have been enthusiastically acclaimed by the media as the final proof of the existence of an association between creativity and mental anomaly, the issue of endogeneity remains open and is not even considered as a possibility by the authors.

Furthermore, a distinction has to be made between everyday creativity and eminent creativity, termed by Kaufman and Beghetto (2009) as the "Big-c". It is only the latter which constitutes a remarkable and lasting contribution in a domain and usually influences the further developments in a field. Obviously, outstanding creative accomplishments that become history might be triggered, if at all, to a different extent by negative emotions than everyday creativity. Psychologists have repeatedly studied distinguished creativity, the "Big-c", in relation to mental abnormalities, by identifying such states using information found in biographies of prominent achievers. For example, Post (1994, 1996) studies a sample of famous men in science, thought, politics, and art and finds that certain pathological personality characteristics, as well as tendencies towards depression, are linked to the creativity of

those individuals. This association is especially strong for the case of poets and writers, who also come closest to the artists covered in this research. Schildkraut et al. (1994), based on a small sample of mid-twentieth-century artists, argue that depression may have driven these artists to produce. Ludwig (1995) analyzes the biographies of famous people from a number of creative professions and concludes that his sample is about twice as likely to experience some mental disorder in life as noncreative individuals.[10]

There is also some research on the association between happiness and innovation. Dolan and Metcalfe (2012) relate subjective well-being to creativity of people approximated with self-reported creativity and incidence of working in creative environments. The authors disclose a significant correlation between innovation and well-being, but acknowledge also that causality in the relationship has yet to be established. Binder (2013) posits the validity of using subjective well-being to assess the welfare effects of innovative change and outline a framework of how can the effect of innovativeness on a society be measured.

Finally, the good data availability on music composers has previously been exploited within psychology (Simonton, 1977, 1998) and economics (O'Hagan and Borowiecki, 2010; Borowiecki and O'Hagan, 2012; Borowiecki, 2013a; Borowiecki and Kavetsos, 2011; Borowiecki, 2012; Borowiecki and O'Hagan, 2013; Borowiecki, 2013b, 2014).

---

[10]As outlined in the introductory remarks, those studies might be biased if not all psychological states of a person were recorded in biographical sources. Furthermore, this research does not usually consider emotional variation over time, which means that it does not shed light on the issue of causality. Finally, only extreme emotional conditions are considered and it is assumed that the distribution of psychological anomalies in a population remained constant over several centuries.

3 Data

3.1 Emotional content of written text

Relying on the assumption that emotional content is embedded in written texts, this research utilizes the Linguistic Inquiry and Word Count (LIWC) text analysis software.[11] The software processes each word of a text by searching for a match with an on-purpose developed dictionary. If the analyzed word matches the dictionary word, the appropriate word category and the scale for that word are incremented. In total, the dictionary includes around 4,500 words and word stems, such as "*happ**" which allows for any target word that matches the first four letters to be counted as an ingestion word (including happy, happier, happiest).[12]

The software considers a wide range of word categories tapping on psychological constructs (e.g. affect, cognition, biological processes). Out of those, of primary interest to this research are two categories that indicate either positive or negative emotions, which are measured by the means of 406 words (e.g. love, joyful, nice) and 499 words (e.g. hurt, grief, nervous), respectively. The occurrence of these words is counted and expressed as a fraction of the total word count. In other words, with a rising relative occurrence of words reflecting positive emotions, one observes a higher value on the scale of positive emotions.

The internal and external validity of LIWC has been demonstrated in various contexts and by utilization of different approaches (Pennebaker and Francis, 1996; Pennebaker et al., 2007). These analyses included a range of cross-checks using expert opinions and have been carried out over a range of different types of texts, including personal writing, blogs, novels, science articles, or orally communicated texts. Pen-

---

[11]The first version of the software was introduced by Pennebaker and Francis (1996) and has been further developed since then. Here the last available version of 2007 is used.

[12]Note that the software does not include in its word count terms that have a similar stem, but no emotional content, for example "happen". Note also that describing other people's feelings is not an issue, as long as there is no systematic difference in the type of emotion described.

nebaker et al. (2007) also show that the LIWC software performs well for historically written texts. Based on 209 novels published in English between 1700 and 2004, a match of 84% with the dictionary vocabulary is disclosed, which is indistinguishable from the mean dictionary match of 83% for all studied contemporary types of texts.

3.2 The letters

This research requires a sample of creative people for whom good biographical information is available as well as a sufficiently large selection of letters covering their lives. Therefore, the focus is on letters written by Wolfgang Amadeus Mozart, Ludwig van Beethoven, and Franz Liszt, and there are several reasons for this particular selection. First, the available selections of letters cover the entire lives of each composer. This is not obvious, as some other available compendiums of letters written by composers (or other creative people) cover only specific periods of their lives, a dialogue with a particular peer (e.g. Hueffer, 2006), or correspondence with a number of music composers (e.g. Nohl and Wallace, 2009). Any of these selections might provide some insights on the writing habits in the profession, however, would not allow me to shed light on the lifetime well-being of a person. Second, the chosen sources include only letters, as opposed to a heterogeneous selection of writings, such as reports, testimonials, complaints, thank-you notes, and other texts (e.g. David et al., 1999). Third, the selected compendiums of letters are currently the only selections of letters written by composers that are available electronically and are provided in the Gutenberg database.[13] A further, implicit advantage of the choice of these three composers is that their lives evolved around roughly the same time period and there is a reasonably large overlap of the years covered. Mozart

---

[13]This is connected to the fact that the works have been compiled a long time ago and their copyrights have expired. Note also that using pre-edited electronic formats ensures a high degree of accuracy in the further conducted processing of those texts.

died when Beethoven was just turning 21, and Beethoven died when Liszt was 16. Finally, during the turn of 1800s the Germanic countries, particularly Austria and some parts of Germany (e.g. Bayreuth), were globally the main centers for music. It is therefore not a coincidence that there also exists a fair overlap in the geography of the composers covered, whose longest parts of life took place in Austria and south-east Germany.

The letters of each composer have been collected, edited and translated in all three cases from German to English by established contemporary figures. It is regarded as an advantage that all three composers covered wrote in the same language and that the used resources are based on direct translations into English. Furthermore, since the selection and translation occurred soon after each composer's death, the historical character of the original writings survived and has not been distorted by later trends or preferences.[14] Below I show that the letters have been selected with rather scholarly accurateness aimed at bringing to light all available writings, as opposed to a subjective selection of a sample that might perhaps be particularly attractive to the reader.

Mozart's letters were curated in 1864 by Ludwig Nohl, a highly regarded writer on music of his time, and translated by Lady Wallace in 1866.[15] The selection arguably constitutes a "full and authentic edition of Mozart's Letters" and is aimed at providing a "faithful production of the letters, nothing being omitted (...)" (Wallace, 1866b, preface). It is further interesting to observe that already Mozart's contemporaries commented on the expressive nature of his writings that illuminates "the impulses of his own heart" and is a relation to others of what the composer "saw and heard, and felt and thought" (Wallace, 1866b, preface).

---

[14]This is another benefit of building on these particular composers who became famous already during their lifetime. Many great artists become regarded as outstanding only post-mortem, sometimes even several decades later, and it would not be before that time that scholars begin to write about them or collect their letters.

[15]Nohl's contribution was already regarded as being of high value by his contemporaries and resulted in him being awarded, at the age of 34 years, by King Ludwig II the title of Professor of Music at the University of Munich.

The translation of the letters written by Beethoven was likewise conducted by Lady Wallace in 1866 and was based on the compilation of Ludwig Nohl from 1865. Also here the aim is "to bring to light, at all events, the letters that could be discovered" (Wallace, 1866a, preface). Interestingly, the translator was somewhat perturbed by Beethoven's emotional fluctuation "between explosions of harshness and almost weak yieldingness, while striving to master the base thoughts"; however, none of "this less pleasing aspect of the Letters ought to be in the slightest degree softened". This decision is important for this research, as we are left with an authentic and emotionallyloaded content.[16]

Liszt's voluminous correspondence has been collected and edited by La Mara Marie Lipsius, who worked under the pen name of "La Mara" and has spent 25 years editing Liszt's correspondence. The translation into English was conducted by Constance Bache in 1893. As in the case of the previous composers, the translator has endeavored to "adhere as closely as possible to all the minute characteristics that add expression to Liszt's letters" (Bache, 1893, preface). It is further instructive to note that all these selections have remained influential reference works within music history, as reflected in the continuous citations throughout most biographies of the composers covered.

Figures 3, 4, and 5 visualize time-series data reflecting positive emotions in the left panel and negative emotions in the right panel, as a function of time, for each of the composers. The correlation coefficient between the pooled negative and positive indices is equal to -0.13 (p-value < 0.01), implying a statistically significant negative association. Appendix A shows two exemplary letters, together with the emerging metric of positive and negative emotions. Appendix B discusses the emerging indices in relation to corroborating evidence found in the biographies of the composers.

---

[16]The allegedly substantial variation in Beethoven's mood will later be observed in the standard deviation coefficients of his negative or positive emotions, which are found to be significantly higher (p-value < 0.01) than for the other two composers (Table 2).

4 Methodology

4.1 The models

In order to formally test the reliability of the underlying data, I first introduce a model that sheds light on the association between various life incidences and the well-being indices. The selection of the key explanatory factors is based on a recent review of the well-being literature provided by Dolan et al. (2008), who conclude that labor market involvement and outcomes as well as personal relationships including marital status and health are the crucial determinants. In constructing a model of a composer's well-being these variables are reflected (approximated) as accurately as the data availability allows. Formally, the model to estimate is given as follows:

$$Emotions = \alpha_0 + \alpha_1 \boldsymbol{Age} + \alpha_2 \boldsymbol{Labor} + \alpha_3 \boldsymbol{Relationships} + \alpha_4 Health +$$
$$+\alpha_5 \#Letters + \alpha_6 Composer_{FE} + \alpha_7 Addressee_{FE} + \epsilon \quad (1)$$

where $Emotions$ measures the extent of either positive or negative emotions. The Age vector is a fourth order age polynomial to allow for multiple turns of a person's well-being index. The $Labor$ vector measures labor market involvements in three different ways.[17] First, it is measured how many compositions have been written in a given year. This productivity measure is available on a yearly basis and is obtained from Gilder and Port (1978), who conducted a selection of the most important works for a number of famous composers, including the three covered in this research. The fact that only important works are considered constitutes an implicit advantage, as those are the compositions that made a significant contribution to the classical music canon. Therefore, the selection is free from biases caused by pieces of no lasting

---

[17]The proposed baseline specifications includes all three measures of labor market involvements or accomplishments. One might prefer to include each of these labor variables separately, as they might be related in some way. The further presented findings would nonetheless remain consistent (not reported).

value, such as the jottings of composers, trifling pieces, or unfinished works. As such, this variable will later also serve as a measure of a composer's creativity.

Second, the model includes an indicator for whether the composer was permanently employed in a given year. Since tenured occupations were usually official posts (e.g. as court organists), this type of information has been recorded in historical archives and is relatively accurate. Furthermore, tenured positions were per definition offered for at least a couple of years and should indicate some extent of occupational stability of the individual, which is potentially conducive to his well-being. These data are obtained from Grove Music Online (2013).

It is fairly out of scope to depict adequately whether and how much a composer has been performing at a given time. The numbers of performances are simply too large and too heterogeneous to be measured in a reliable way. It is nonetheless possible to introduce a further of indicator whether a composer has been touring in a given period of time. The location choices of a composer are sufficiently well recorded in order to identify the years that he spent traveling and performing across different locations. This variable might be interpreted as an approximation of the intensity of performing. An alternative, perhaps more conservative, interpretation of the variable is that it indicates the demand for the composer's works, as travels have usually been planned before departure and in response to received invitations.

Data on earnings are not consistently available. However, in two robustness estimations in the Appendix C, I show that the well-being indices perform in accordance with theory, using tentative indicators on the financial situation of a composer.[18]

It would also be interesting to measure the teaching commitments of each composer. Liszt, for example, taught from his late teenage years and was still giving lessons

---

[18]First, I approximate for income with a measure of the intensity with which a composer was writing in his letters about money-related concerns. Second, I use income information for 11 years of Mozart's life, as provided by Baumol and Baumol (1994).

during the last month of his life, nearly 60 years later. Walker et al. (2013) describe that more than 400 students studied with Liszt; however, they also acknowledge that the number is impossible to prove. A further difficulty lies in the definition of a "pupil", as it is likely that Liszt's involvement and well-being differed depending on the number of students, the continuity of the education and perhaps even the quality of a pupil. Unfortunately, this type of information is not available.

Next, the *Relationships* vector includes variables that are related to the structure or quality of the personal relationships of a composer. This is measured in two ways. First, I record whether a composer was married or living in cohabitation at a given time, as recorded in Grove Music Online (2013). Second, since relationships with family members are arguably an important determinant of happiness, I introduce an indicator for the death of a family member, which constitutes the extreme case of worsening of a composer's family ties.

In order to measure the physical health of a composer, a dummy variable is included measuring the years when he was suffering health problems. This variable includes, for example, the years when Beethoven was experiencing serious hearing problems is based on data from Grove Music Online (2013).

A number of additional control variables are included to ensure the reliability of the estimations. In order to deal with any possible differences in the writing frequency depending on the emotional state, I account for the number of letters written in a given year ($\#Letters$). The model also includes composer fixed effects to account for any other unobserved differences across composers. Moreover, each specification includes controls for the relationship with the addressee. This set of variables mitigates the bias arising from the possibility that a person exhibits different degrees of openness depending on the nature of the relationship with the receiver. In some specifications, I further include a set of time controls to deal with any unobserved differences arising over time (decade fixed effects) or controls for the city where the

letter has been written (city fixed effects).

Building on the insights and the introduced variables of model 1, I next introduce a two-stage least-square model that enables an analysis of the causal association between negative emotions and creativity. The focus of this specification is on negative emotions for two reasons. First, the relevant literature usually claims the existence of an association with negative, rather than positive emotions. Second, the chosen research methodology enables the employment of a unique instrumental variable for negative emotions.

The employment of instrumental variables is important as it might make it possible to overcome biases that could simply result from studying the correlation between creative output and negative emotions. There are several reasons why this could be so. First, certain potentially valid explanatory variables are not available, and this might lead to an omitted variable bias. One such variable could be income, which might be related to both negative emotions and output. Second, one might be concerned with reverse causality. It is possible that the completition of a composition leads to a worsening of a person's well-being, since the pleasure derived from creating something new ceases (Steiner and Schneider, 2013). Alternatively, some of the finished works might not have been understood nor sufficiently appreciated by contemporaneous audiences, and hence the supply of an outstanding work might actually contribute to a worsening of the creator's mood. This is a nonnegligible scenario given the covered sample of composers, who have been far more innovative in their compositions than the standards of their time. A further possibility is that the individual who "made it" and became a public figure, became exposed to harmful critique, which could be detrimental to his well-being.

I will thus estimate the following pair of equations:

$$Negative\ emotions = \beta_0 + \beta_1 Unexpected\ death\ of\ relative + \beta_2 \boldsymbol{Z} + \mu \qquad (2)$$

$$Output = \gamma_0 + \gamma_1 Negative\ emotions + \gamma_2 \boldsymbol{Z} + \nu \tag{3}$$

where Z is a vector consisting of the previously introduced control variables reflecting factors that are potentially conducive to creativity, such as age, labor market characteristics, relationship indicators, health measures, and a set of letter-related controls. In its structure and set of control variables equation 2 closely resembles equation 1 for the case of negative emotions. The *Output* variable approximates for creativity and measures the number of important works composed. The works covered have been identified as lasting contributions to the classical music canon by two music experts, Gilder and Port (1978), as previously described. Equation 2 is the first-stage regression that makes use of the instrumental variable (*Unexpected death of relative*). It is required that the instrument predicts negative emotions, $\rho(Unexpected\ death\ of\ relative, Negative\ emotions)! = 0$, but must be conditionally uncorrelated with the error term from the final equation 3, $\rho(Unexpected\ death\ of\ relative, \mu) = 0$.

It is important for the identification strategy that in the period covered catching an illness was as good as randomly assigned and this could lead to a quick death, fairly independent of the status or health endowments of a person. Mozart's mother, for example, unexpectedly succumbed to an undiagnosed illness about mid-June of 1778 and, despite being treated by a doctor, died few days later on 3 July. Table 1 provides a list of relatives that died unexpectedly along with the date and cause of death.[19] Figure 6 presents how negative emotions evolve on a monthly basis around the incident of an unexpected death of a family member. Negative emotions remain stable before the death at around 1.07 which lies close to the lifetime average. In the month the death occurs, the series has a break and the index increases by approximately half before gravitating back towards the average.

---

[19]These incidences are usually described by the biographer as "unexpected", "sudden", or "within days".

In order to fulfill the exclusion restriction, the unexpected death of a family member cannot affect the composition intensity in any other way than through the impact on negative emotions. A concern might be that the death of a parent has affected the financial situation of the composer. The income shock could be positive due to inheritance. Upon reading of biographical entries, however, no indication on inheritance could be found. Alternatively, and possibly more likely, the shock might be negative if the family loses a family member who would otherwise contribute to the household budget. This effect is possibly the strongest for the loss of a father, who is usually the main breadearner in a household. Either shock (positive or negative) would affect the financial capabilities of the composer, which is likely to be correlated with his creative output, and would hence violate the exclusion restriction. Appendix D shows that the further presented results would hold if one excludes the death of a father from the analysis. The Appendix also shows that there is no statistical association between the death of any relative and the intensity with which the composer was writing about financial matters. These results strengthen the argument that the death of a relative affects emotions directly and not through any fluctuation of the composer's finances.

4.2 Descriptive statistics

Table 2 provides summary statistics. For each individual basic biographical record the first part of the table reports background information on labor market variables, measures of social relations, frequency of family death, and a health indicator. The latter part summarizes statistics on the letters including the measures of emotional content, the frequency of writing, and the occurence of writing to a specific type of addressee.

Figure 1 provides an overview of the number of letters written throughout the life of each composer. It can be seen that the intensity of writing is higher later in life;

however, the composer would typically begin to write already in his mid-teenage years. This allows the first insights into the person's well-being already at an early stage in life. We can further observe that there exists a relatively high volatility in the writing patterns. This variation is later explored in an attempt to determine when a composer writes more frequently. Note also that in all models investigating the determinants of emotional well-being or the impact of emotions on creativity, I will deal with this variation by accounting for the number of letters written in a given year.

Figure 2 shows to whom the letters are addressed and how this frequency changes throughout life. During youth most letters are written to family members who constitute the composer's network since birth. The share of family members among the addressees decreases during mid-life before somewhat bouncing off again later in life. Friends become an increasingly important share of addressees over the course of life. These two groups of receivers are most common and account for almost two thirds of all letters. Professional correspondence over the course of life follows the shape of an inverted-U and, interestingly, comes close to the typical pattern of many labor market variables, such as income or working time. A somewhat similar shape is disclosed by letters written to strangers - a category that includes potential professional associates or public figures. Correspondence with peers is rather low and declines slowly throughout life.

5 Results

5.1 The determinants of well-being

The regression results from estimating model 1 are presented in Table 3 for positive emotions and in Table 4 for negative emotions. All results are reported with com-

poser fixed effects and addreessee fixed effects (column 1 in either table), and then further extended by including decade fixed effects (column 2) and city fixed effects (column 3).

Age is found to be significantly related to positive emotions, but only in the baseline model with composer fixed effects and addressee fixed effects (Table 3). Output exhibits a positive correlation with positive emotions throughout all three specifications. The other two variables reflecting labor market involvements (tenure and touring) deliver mostly positive estimates, however are found to be outside the usual confidence intervals. The variables measuring social relationships also turn insignificant. Perhaps it is not a surprise that marriage (or cohabitation) does not improve the well-being of the composers covered, since their relationships have been often unhappy. For example, Liszt's relationship with Princess Carolyne von Sayn-Wittgenstein constituted a bitter 13-year fight to secure her annulment from a previous unhappy marriage (Walker et al., 2013).[20] A strong negative effect is found for the illness indicator, implying that poor health is associated with a marked decrease in positive emotions. It is also interesting to observe the significant negative coefficient on the number of letters written in a given year. This suggests that composers have been writing less when their positive emotions were high. A more detailed analysis of the determinats of writing patterns and of the probability of writing to a specific type of addreessee is presented in Appendix C.1.

Looking at the results for negative emotions (Table 4), it can be observed that the only significant measure of labor market involvements is the touring indicator. It remains consistent in size and significance across all three specifications. The negative sign implies that composers involved in intense work-related travelling exhibit a lower degree of negative emotions. A highly significant driver of negative emotions is the death of a family member. The disclosed coefficient comes close to one im-

---

[20]The insignificant association is robust to alternative ways of measuring the relationships, for example, as the number of years spent in a relationship or as the incidence of getting married (or entering into cohabitation).

plying an almost doubling of negative emotions in the case of the death of a family member. Negative emotions also increase strongly due to poor health.

While some variables turn insignificant, those estimated with sufficient statistical precision appear with the expected sign. As such, despite the obvious measurement difficulties, these results support the validity of the calculated well-being indices.

5.2 Creativity and negative emotions

Next, I study the existence of a causal link between negative emotions and creativity and begin by estimating OLS coefficients between the two variables of interest. As can be seen in columns 1 and 2 of Table 5, the emerging correlation estimates on negative emotions come with the plus sign—however, rather small in size and statistically insignificant. In analogy to the previous estimations, the baseline specification is extended by the inclusion of decade and city fixed effects. An interesting finding is that obtaining a permanent position (tenure) exhibits a strong negative correlation with the productivity measure. This is consistent with what one might expect and also in line with previous research.[21] Obtaining job security or, alternatively becoming involved in new duties not directly related to composing results in a lower creative output of a composer. Being married or living in cohabitation is also negatively related with compositions written; however, the association disappears if time and place fixed effects are introduced. Finally, the number of works composed is positively related with the letter writing frequency, which possibly indicates the periods when a composer was professionally more active or perhaps wrote more letters in order to promote a new piece.

The first-stage results are presented in columns 3 and 4 of Table 5. Consistent

---

[21]See for example Holley (1977), who finds a negative impact of tenure decisions on the research productivity of academics.

with previous specifications explaining negative emotions, the variable measuring the unexpected death of a family member is found to be a significant determinant. The second-stage results are presented in columns 5 and 6. It can be observed that the IV-estimates are positive, large, and statistically significant, implying a causal impact of negative emotions on the number of compositions written. The coefficient indicates that a 0.1 point rise (approx. 9.3% increase) in negative emotions leads to the creation of additional 0.25 works in the following year (approx. 6.3% increase). Considering the average value of the negative emotions index (Table 2), an increase in negative emotions by 36.7% inspires one additional important composition the following year.[22]

An arising question deals with the precise type of emotion that raises creativity. A way to address this issue is to use a disaggregated measure of negative emotions, which is provided by the LIWC software for anxiety, anger, and sadness. In analogy to the previous approach, I instrument for each of these three types of negative emotions with the incidence of death of a family member in order to find the causal impact on productivity and present the results in Table 6. The first-stage coefficients indicate that the instrumental variable exhibits a positive and significant association with each type of negative mood, even if it somewhat decreases in size and precision for anxiety and anger. Interestingly, the IV parameters imply that a significant causal effect on creativity can be detected only for the case of sadness. Since depression is strongly related with sadness (Monroe et al., 2001) and is sometimes even defined as a state of chronic sadness, this result comes very close to the previous claims made by psychologists that depression leads to increased creativity (e.g. Andreasen, 2005).

It is interesting to note the coefficients on the intensity of letter writing visible in the first-stage regressions. It can be seen that composers have been writing more letters when they were angry, perhaps in an attempt to release their anger. However,

---

[22]For further discussion of the timing issue, see Appendix E.

the association is negative with sadness, which is consistent with the notion that isolation and solitude is the most common coping mechanism for sadness (Goleman, 1996).

6   Conclusions

In recent years, psychologists have increasingly often relied on the analysis of word use in order to shed light on various psychological or cognitive processes of a person. Building on the association between a person's emotional state and his language use, I utilize an innovative computer software in order to calculate the extent of positive and negative emotions expressed in a large number of letters written by three famous composers. This allows me to create unique well-being indices that reflect emotional fluctuations of three famous artists throughout their lifetime.[23] I further show that the shape and patterns of the emerging well-being indices find corroborating support in the biographies of the composers covered.

In further support of the validity of the methodology, I quantitatively investigate the determinants of well-being. The results indicate that emotionally the artists covered reacted to various life incidences in a similar fashion to people in general. Labor market achievements, measured as the composition of an important piece and touring activity, increase positive or decrease negative emotions, while the illness or death of a family member is conducive to negative emotions. It might almost come as a surprise that the three music geniuses, who have shaped the classical music canon like probably nobody else in history, are only human after all and are affected by life events in a similar way anybody else would be.

The data is then used to explore how negative emotions are associated with outstand-

---

[23]Despite its shortcoming and possible measurement imprecision, this research design will perhaps provide the best insights on the emotional well-being of a deceased famous person, until it becomes possible to time-travel back in time and directly survey one of those great achievers.

ing creative achievements. By utilizing instrumental variables and by exploiting the temporal dimension of the data, I show that creativity, measured with the number of important compositions, is causally attributable to negative moods, in particular to sadness.

Limited by the availability of coherent and extensive compendiums of letters for other famous artists, this research builds only on a small sample, which makes any generalisation to other composers or creative people certainly difficult. However, building on the case of these three outstanding achievers provides fertile ground to illuminate the issue of eminent creativity, the "Big-c". The achievements of the composers covered provide pathbreaking and timeless contributions, which are of remarkable cultural and economic value, and hence probably of a large enough significance to motivate this research.

The underlying article utilizes a novel methodology and addresses a tantalising question that has fascinated many since the Antiquity. Despite the small sample and the risk of some degree of measurement imprecision, the disclosed results appear to be consistent across different specifications and throughout several robustness tests. While further research on the potential of generalization of this study is required, the presented research design and findings contribute to the methodology and knowledge within several disciplines, ranging from economics of happiness, history, labor, and health, through psychology to art history, and even if the question is potentially not answered with complete accurateness, it is hoped that the analysis will be of broad interest.

7   Tables

	Date of death	Relationship	Cause
Mozart:	3 July 1778	Mother	Illness
	19 August 1783	Son	Infancy
	15 November 1786	Son	Infancy
	28 May 1787	Father	Illness
	29 June 1788	Daughter	Infancy
	25 December 1789	Daughter	Infancy
Beethoven:	17 July 1787	Mother	lllness
	18 December 1793	Father	Illness/Alcoholism
	15 November 1815	Brother	Illness
Liszt:	28 August 1827	Father	Illness
	13 December 1859	Son	Illness
	11 September 1862	Daughter	Giving birth

Source: Grove Music Online (2013).

Table 1: List of unexpected deaths of family members

	(1)	(2)	(3)	(4)	(5)	(6)
	Mozart		Beethoven		Liszt	
VARIABLES	mean	sd	mean	sd	mean	sd
Background						
year of birth	1756		1770		1811	
longevity	36		58		76	
country of birth	Austria		Germany		Hungary	
place of birth	Salzburg		Bonn		Raiding	
output	9.529	5.027	4.976	3.231	0.658	0.971
tenure	0.260	0.439	0.0815	0.274	0.684	0.465
touring	0.216	0.417	0.0169	0.130	0.117	0.323
marriage (or cohabitation)	0.283	0.451	0	0	0.355	0.479
death of relative	0.081	0.273	0.025	0.157	0.018	0.133
illness	0.027	0.164	0.153	0.363	0.026	0.160
Letters						
positive emotions	4.979	2.007	4.584	2.819	6.340	2.614
negative emotions	1.067	0.714	1.273	1.283	0.932	0.797
word count	557.5	454.3	198.5	189.8	339.2	257.1
# letters	13.13	14.84	14	14.88	11.26	8.043
Addressee						
family	10.35	14.23	1.176	6.167	0.817	1.330
friend	1.435	1.805	5.971	7.538	6.064	5.265
peer	0	0	1.382	2.188	1.308	1.812
business	0.783	1.506	5.412	6.021	2.644	2.670
stranger	0.0870	0.288	0	0	0.407	0.853
unknown	0.522	1.410	0.0588	0.239	0.0169	0.130

Table 2: Summary statistics

	(1)	(2)	(3)
		Positive emotions	
VARIABLES		OLS	
age	0.598*	0.395	0.222
	(0.343)	(0.539)	(0.685)
age^2	-0.0245*	-0.0205	-0.0151
	(0.0134)	(0.0218)	(0.0259)
age^3	0.000398*	0.000406	0.000336
	(0.000215)	(0.000352)	(0.000401)
age^4	-2.19e-06*	-2.46e-06	-2.14e-06
	(1.21e-06)	(1.96e-06)	(2.18e-06)
output	0.0566**	0.0637**	0.0587**
	(0.0251)	(0.0276)	(0.0289)
tenure	0.125	0.0429	0.161
	(0.185)	(0.235)	(0.254)
touring	0.480	-0.00835	0.276
	(0.311)	(0.373)	(0.441)
marriage (or cohabitation)	-0.0528	-0.0605	-0.0924
	(0.260)	(0.316)	(0.338)
death of relative	0.481	0.185	0.335
	(0.620)	(0.629)	(0.664)
illness	-1.569***	-1.330**	-1.274**
	(0.580)	(0.630)	(0.633)
# letters	-0.0169***	-0.0159**	-0.0170**
	(0.00632)	(0.00687)	(0.00712)
Observations	1,432	1,432	1,432
R-squared	0.141	0.075	0.086
Composer FE	✓	✓	✓
Addressee FE	✓	✓	✓
Decade FE		✓	✓
City FE			✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: The determinants of positive emotions

	(1)	(2)	(3)
		Negative emotions	
VARIABLES		OLS	
age	0.122	0.192	0.181
	(0.131)	(0.208)	(0.264)
age^2	-0.00569	-0.00875	-0.00743
	(0.00512)	(0.00842)	(0.00998)
age^3	0.000101	0.000154	0.000126
	(8.21e-05)	(0.000136)	(0.000155)
age^4	-6.14e-07	-9.18e-07	-7.42e-07
	(4.60e-07)	(7.54e-07)	(8.40e-07)
output	0.00486	0.00626	0.00315
	(0.00958)	(0.0107)	(0.0111)
tenure	0.0128	0.0598	0.0422
	(0.0707)	(0.0906)	(0.0980)
touring	-0.303**	-0.276*	-0.389**
	(0.119)	(0.144)	(0.170)
marriage (or cohabitation)	-0.0214	-0.0250	-0.0118
	(0.0993)	(0.122)	(0.131)
death of relative	0.854***	0.895***	0.893***
	(0.236)	(0.243)	(0.256)
illness	0.601***	0.608**	0.625**
	(0.221)	(0.243)	(0.244)
# letters	0.00189	0.00125	0.00255
	(0.00241)	(0.00265)	(0.00275)
Observations	1,432	1,432	1,432
R-squared	0.054	0.035	0.045
Composer FE	✓	✓	✓
Addressee FE	✓	✓	✓
Decade FE		✓	✓
City FE			✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: The determinants of negative emotions

	(1)	(2)	(3)	(4)	(5)	(6)
	Output	Output	Negative emotions	Negative emotions	Output	Output
	OLS	OLS	First-stage	First-stage	IV	IV
VARIABLES						
negative emotions	0.0777	0.0527			2.537**	1.401*
	(0.0738)	(0.0667)			(1.016)	(0.765)
tenure	-0.577***	-2.223***	0.0103	0.0461	-0.543**	-2.254***
	(0.197)	(0.219)	(0.0705)	(0.0875)	(0.263)	(0.250)
touring	0.309	0.163	-0.302**	-0.275*	1.045*	0.525
	(0.333)	(0.361)	(0.119)	(0.144)	(0.543)	(0.458)
marriage (or cohabitation)	-1.094***	0.449	-0.0264	-0.0221	-0.979***	0.502
	(0.277)	(0.306)	(0.0988)	(0.122)	(0.371)	(0.349)
illness	-1.550	-0.0312	0.611***	0.608**	0.480	-0.843
	(1.566)	(0.611)	(0.220)	(0.243)	(1.016)	(0.832)
# letters	0.0477***	0.0575***	0.00214	0.00162	0.0473***	0.0557***
	(0.00646)	(0.00647)	(0.00236)	(0.00258)	(0.00899)	(0.00742)
death of relative			0.865***	0.903***		
			(0.235)	(0.242)		
Observations	1,432	1,432	1,432	1,432	1,432	1,432
R-squared	0.182	0.341	0.032	0.035		
Composer FE	✓	✓	✓	✓	✓	✓
Age FE	✓	✓	✓	✓	✓	✓
Addressee FE	✓	✓	✓	✓	✓	✓
Decade FE		✓	✓	✓		✓
City FE		✓		✓		✓
F-statistic			17.13	10.71		

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Creativity and negative emotions

29

VARIABLES	(1) Anxiety First-stage	(2) Output IV	(3) Anger First-stage	(4) Output IV	(5) Sadness First-stage	(6) Output IV
death of relative	0.158*		0.180*		0.305**	
	(0.0886)		(0.0988)		(0.126)	
tenure	0.00106	-0.639	0.0119	-0.768*	0.0250	-0.804**
	(0.0264)	(0.414)	(0.0295)	(0.417)	(0.0377)	(0.342)
touring	-0.0688	1.223	-0.0521	0.902	-0.0801	0.844
	(0.0446)	(0.931)	(0.0498)	(0.804)	(0.0636)	(0.638)
marriage (or cohabitation)	0.00815	-1.274**	0.00683	-1.244**	-0.0185	-1.029**
	(0.0370)	(0.579)	(0.0412)	(0.573)	(0.0527)	(0.474)
illness	0.0125	1.796	0.102	0.730	-0.110	2.761**
	(0.0828)	(1.298)	(0.0924)	(1.484)	(0.118)	(1.130)
# letters	0.000442	0.0471***	0.00267***	0.0209	-0.00217*	0.0688***
	(0.000836)	(0.0135)	(0.000932)	(0.0238)	(0.00119)	(0.0134)
anxiety		13.85				
		(8.778)				
anger				12.14		
				(7.632)		
sadness						7.171*
						(3.659)
Observations	1,432	1,432	1,432	1,432	1,432	1,432
R-squared	0.008		0.012		0.014	
Composer FE	✓	✓	✓	✓	✓	✓
Age FE	✓	✓	✓	✓	✓	✓
Addressee FE	✓	✓	✓	✓	✓	✓
F-statistic	20.24		26.30		37.69	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

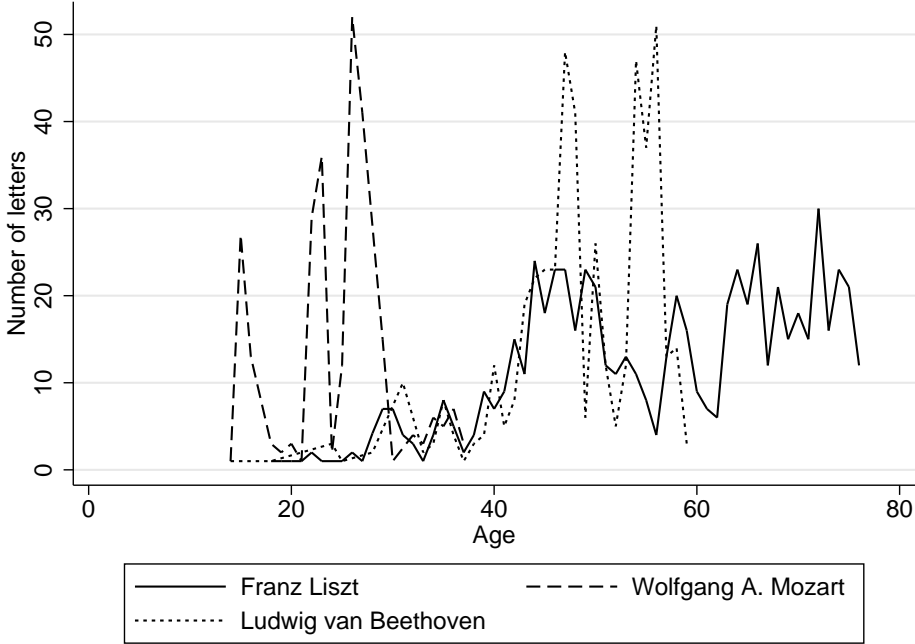Table 6: Creativity gains by type of negative emotion

8 Figures

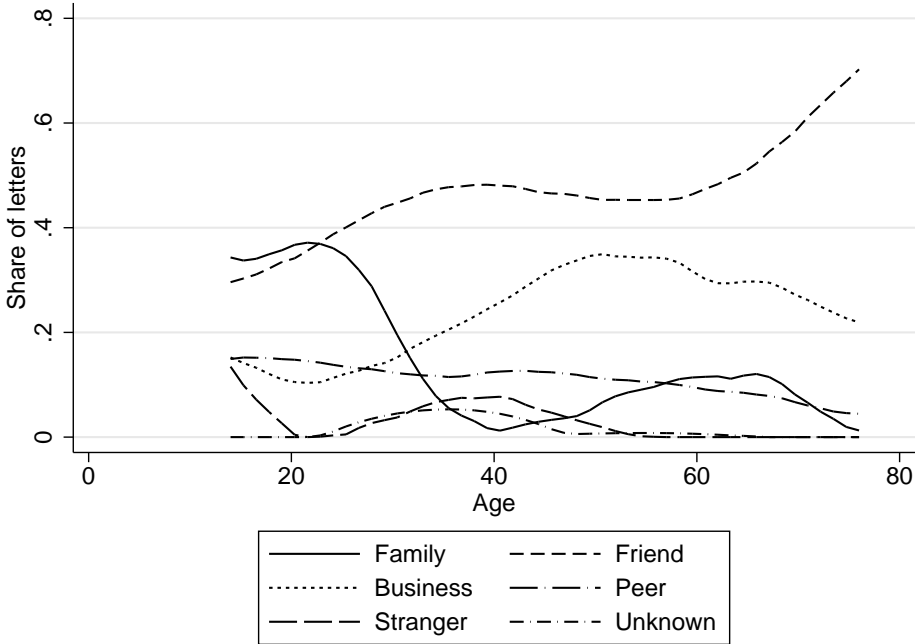Figure 1: Number of letters by age
Sources: See text.

Figure 2: Share of letters by type of addressee and age
Sources: See text.

31
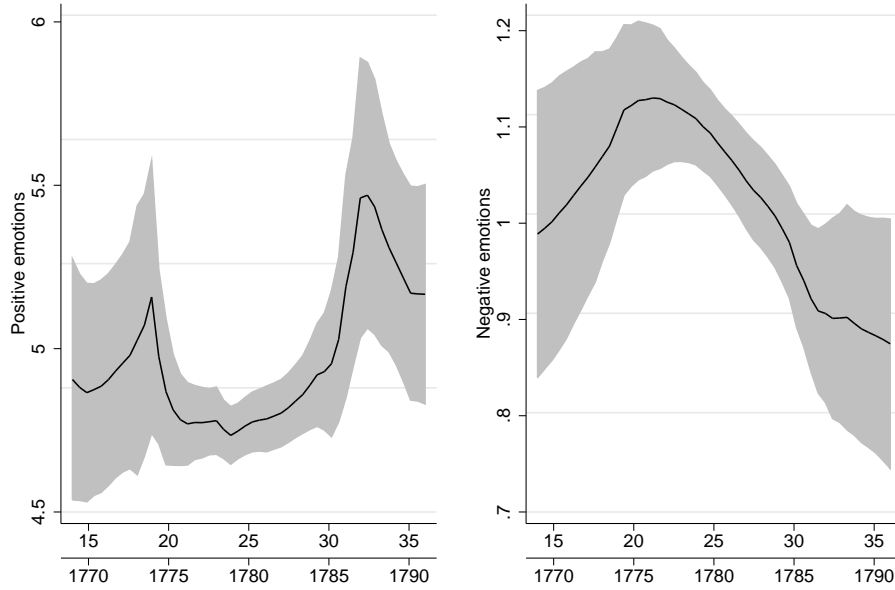
Wolfgang Amadeus Mozart (1756-1791)

Figure 3: Positive and negative emotions of Wolfgang Amadeus Mozart
Note: The depicted prediction is based on a local polynomial regression method with an
Epanechnikov kernel, and it is presented along with a 95% confidence interval.
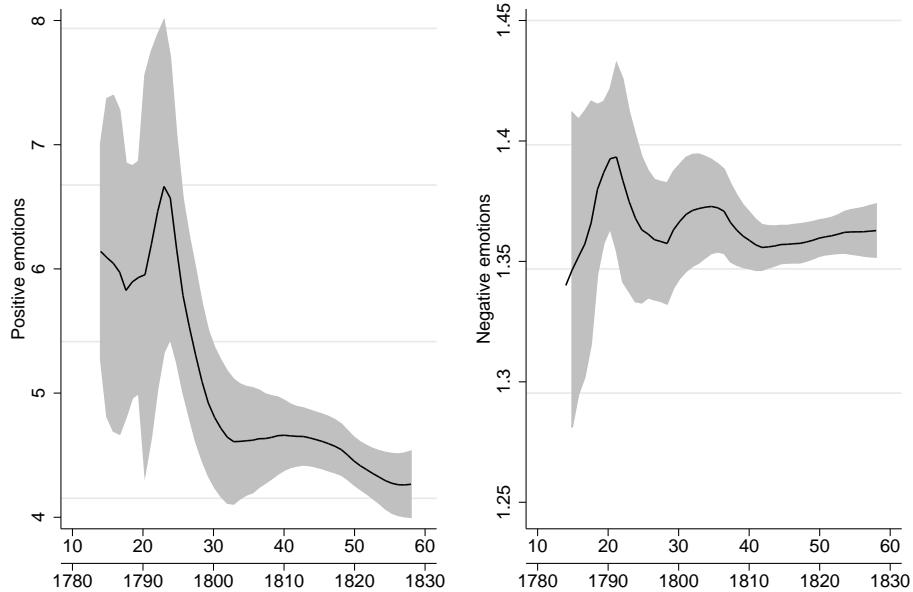
Ludwig van Beethoven (1770-1827)

Figure 4: Positive and negative emotions of Ludwig van Beethoven
Note: See figure 3.
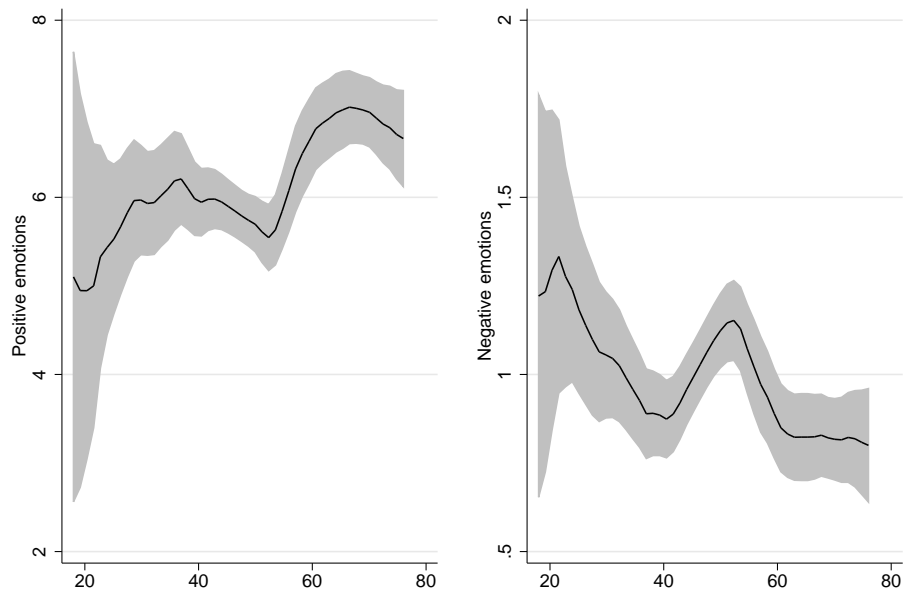
Franz Liszt (1811-1886)

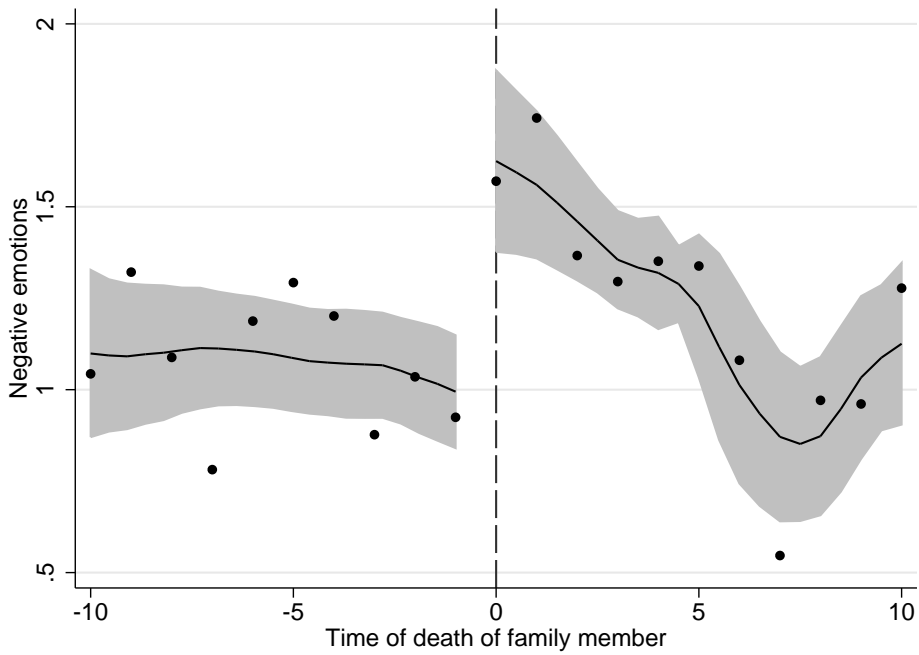Figure 5: Positive and negative emotions of Franz Liszt
Note: See figure 3.

Figure 6: Timing of unexptected death of a relative
Sources: See text.

9 Appendix

A Two exemplary letters

Below are two exemplary letters, presented along with the resulting metric for positive and negative emotions.

My Honored Patroness, Your kind promise to translate the "Chopin" into beautiful German rejoices me extremely. Hearty thanks for it. I will soon send the revised (French) copy, and I hope the work will be easy and pleasant to you. In the 3rd edition of "Musikalische Studienkopfe" I lately read "Berlioz"—an excellent characterisation and recognition of this extraordinarily great master, who perhaps hovers more in the untrodden regions of genius than anywhere else. The addition of the "index" is a valuable completion of this third edition. Its success augurs well for what will follow. With much respect and gratitude, F. Liszt

Villa d'Este, February 3, 1876

Positive emotions: 10.57. Negative emotions: 0.

Dear Ries, The Cardinal's stay here of a month robbed me of a great deal of time, being obliged to give him daily lessons of two or three hours each; and after such lessons I was scarcely able next day to think, far less to write. My continued melancholy situation compels me, however, to write immediately what will bring me in sufficient money for present use. What a sad revelation is this! I am, besides, far from well, owing to my many troubles,–weak eyes among others. But do not be uneasy, you shall shortly receive the Symphony; really and truly, my distressing condition is alone to blame for the delay. In the course of a few weeks you shall have thirty-three new variations on a theme [Valse, Op. 120][24] dedicated to your wife. Bauer [First Secretary to the Austrian Embassy] has the score of the "Battle of Vittoria," which was dedicated to the then Prince Regent, and for which I have still to receive the costs of copying. I do beg you, my dear friend, to remit me as soon as possible anything you can get for it. With regard to your tender conjugal discussion, you will always find an opponent in me, that is, not so much an opponent of yours as a partisan of your wife's. I remain, as ever, your friend, Beethoven

Vienna, April 25, 1823

Positive emotions: 2.34. Negative emotions: 4.21.

---

[24]Some letters included notes attached by the collector or translator, like the ones shown here in brackets. These remarks were excluded from the letter before it was analyzed by the software.

B Lifetime well-being indices

This appendix provides a discussion of the introduced well-being indices in relation to corroborating evidence found in the biographies of the composers. In the further analysis it has to be kept in mind that for the earliest periods of life for each composer a relatively low number of letters is available, which leads to a somewhat greater variation and imposes more caution in the interpretation of the results.[25]

B.1 Wolfgang Amadeus Mozart (1756-1791)

Wolfgang Amadeus Mozart was born in 1756 in Salzburg. The young Mozart together with his family made a number of journeys across Europe in the years from 1763 to 1773. During that time, Mozart's prodigious talents, shown in his performances and early compositions, in combination with his good-natured modesty brought him the greatest praise. Mozart's days as a child prodigy and exciting touring were, however, over in 1773, once he arrived back to Salzburg and began his tenure at the court. This appears to be reflected in the sudden turn of his positive emotions (Figure 3).

Serving at the court of the newly elected Prince-Archbishop Hieronymus Colloredo turned out to be quite tedious, partly due to a range of new reforms introduced by the ruler that negatively affected the local cultural life. Over the next years, Colloredo gradually eliminated opportunities for music composition, by closing the university theatre (the nearest Salzburg equivalent to an opera), restricting performances of instrumental music at the cathedral or curtailing concerts at the court. These reforms, in connection with a policy of promoting Italian musicians, led to increasing dissatisfaction among local artists and also affected the well-being of the Mozart family. The Mozarts became increasingly irritated by the difficult personality of Colloredo and in an attempt to leave Salzburg, Amadeus was looking for employment opportunities in Vienna and Italy, although with no success to his written applications. By then some of the European nobility regarded Mozart's family as 'useless people' who go 'about the world like beggars' (Beales, 2008). The change in Mozart's reception in Europe and his constrained prospects at the court were likely factors leading to the worsening of his moods.

In 1777 he was dismissed by Colloredo and set out to southern Germany in search of better opportunities. His services were refused in Munich and later in Mannheim. There he met Aloysia Lange, a woman whom Mozart fell in love with; however, his father forbad him to continue the journey with her. Instead, the composer was ordered to travel to Paris, a city that he never grew to like, partly due to

---

[25]It would perhaps be academically more elegant to first introduce the life histories of each composer, develop hypotheses on their well-being, and then test these using the emerging indices. For the sake of efficiency, this good scholarly practice is abandoned here, and this article provides only a brief, anecdotal discussion of the indices in light of biographies, while the curious reader is refered to one of the many detailed accounts on the lives of the composers covered (e.g. Grove Music Online, 2013).

French music, which he detested, but also due to being mistreated by some of the patrons (Angemuller, 1982). Moreover, his mother got severely ill and died later in 1778. This family tragedy further worsened Mozart's relationship with his father (Halliwell, 1998) and culminated in a peak of his negative emotions as well as a low of his positive emotions.

From now on, Mozart's life began slowly to take a turn for the better. Later in the year, Mozart returned to Salzburg, as he was offered a post as court organist at an increased salary and generous leave. In 1780 the composer received a commission to write a major opera for Munich. After a successful premiere in 1781, which warmed the relationship with Mozart's father somewhat, he decided to continue his endeavours as a freelancer in Vienna. During a series of concerts and commissioned compositions, his reputation was increasing steadily and soon he had established himself as the finest keyboard player in Vienna. In 1782 also his private life was enriched when he got happily married to Constanze Weber (Eisen et al., 2013), who gave birth to their first child a year later.

During the early 1780s most of Mozart's important works were written. It was also a time of intense delivering of public and private performances. However, the composer quickly noticed that his publications delivered him the greatest financial gains, and so he shifted his attention to producing for publication, rather than delivering performances (Hunter, 1999). 1786 saw a successful premiere of his opera work *LenozzediFigaro*. In addition to his diverse freelancing activities as a composer and an occasional performer, he took on an appointment at the Viennese court. These years are associated with a continuous increase in positive emotions and a fall in negative ones.

In 1787 his father died, which perturbed Mozart and led to the ultimate breakdown of the Salzburg Mozart family. This is visible in another turn of Mozart's positive emotions and a break in the downward trend of negative emotions. The following years he spent teaching, performing, and composing, however faced a decreasing demand for his services after his novelty value waned in Vienna (Moore, 1989). At the end of 1791 Mozart unexpectedly caught a fever and died a few days later.

B.2 Ludwig van Beethoven (1770-1827)

Ludwig van Beethoven was born in Bonn in 1770. His mother died in 1787, and later a series of events reduced the ability of Beethoven's father to support the family. To counter the deteriorating financial situation of the family, young Beethoven was forced to take over some of his father's professional duties for half of the salary. In accordance, one could cautiously observe a decline of the positive emotions, while the negative feelings increased.

In 1792 Beethoven moved to Vienna in order to receive tuition from Haydn. Demand for music in the Austrian capital was remarkably high, and the domicile artistocracy spent fortunes on the indulgence of their taste. Beethoven, who arrived from Bonn as the court organist and had some contacts with aristocratic circles, benefited from

that demand. In the 1790s he successfully published some of his works, making a decent profit, and kept on receiving increasingly prestigious commissions (Kerman et al., 2013). His positive emotions peaked in this period, and his negative moods were in a steady decline.

Around the turn of 1800, Beethoven made the appalling discovery that he was going deaf. The illness affecting his hearing had an impact on not only Beethoven's professional but perhaps even more his social life. According to contemporaries, the deafening composer was 'leading a very unhappy life, and was at variance with Nature and his Creator' (Kerman and Tyson, 1997). This period corresponds with a temporary increase in negative emotions and the lowest extent of positive feelings, which from then on remained fairly stable over the next 15 years.

Beethoven's financial problems became resolved once he obtained a generous offer from the court in Vienna in 1809, which even covered accidents and old age, hence serving as an insurance policy and a pension. Perhaps this somewhat decreased his negative emotions. Soon afterwards the composer was considering marriage and proposed to a woman, however turned down. Kerman and Tyson (1997) regard the beginning of 1812 as a turning-point in Beethoven's emotional life, when he gave up hope of getting married and apparently became depressed. In 1815 Beethoven's brother died and appointed him guardian of his nine-year-old child. The relationship with young Karl developed violently over the years and culminated in the boy's attempted suicide in 1826, which left Beethoven in shatters and aged him. His positive emotions reached the lowest point of his life, while negative emotions appeared to be slightly increasing. The composer died in 1827.

B.3 Franz Liszt (1811-1886)

The Hungarian composer Franz Liszt was born in Raiding in 1811. In 1827 Liszt's father succumbed to typhoid fever and died, leaving the family in financial difficulties and the 16-year-old boy as the sole breadwinner, which forced him into teaching duties. He fell in love with one of his pupils, Caroline de Saint-Cricq, but was rejected by her family and banned from their house, which ultimately led to Liszt's nervous breakdown (Walker et al., 2013). Those events correspond with a lifetime peak of his negative emotions and a low in his positive emotions.

At the age of 22 Liszt met Countess Marie d'Agoult and embarked on a close relationship with her for the next 12 years. In 1835 they had their first daughter and two more children in later years. The years from 1839 to 1847 are denoted as *TheGlanzzeit* in Liszt's career, when his career as a pianist unfolded, and he gave over 1000 recitals in a wide range of European countries. Over this happy period, the positive emotions increased, while negative dropped.

In 1847 he met the second great love of his life, Princess Carolyne von Sayn-Wittgenstein, and a year later moved with her to Weimar to take on employment at the court. The 13-year long stay in Weimar resulted in some of his best works; however, a range of life difficulties took its toll on Liszt's well-being. In this period Liszt

got drawn into a fierce discourse between "progressive" and "conservative" forces in nineteenth-century music. Much of the critique of the "War of the Romantics" was aimed at Liszt's person or creations, and he faced hostile demonstrations after performances.

Liszt's tenure in Weimar was further affected by a significant evolution in his private life. His relationship with Carolyne was never official, as she was already married. The couple engaged in a 13-year long fight to secure an annulment, however failed, eventually giving up all hope of having their marriage approved. In addition, Liszt lost his son in 1859 and his elder daughter in 1862. These years made Liszt old and burnt out (Gregorovius, 1893, p.201) and correspond with a sharp increase in negative emotions as well as a drop in positive ones.

The anguished composer entered a two-year retreat at a monastery and received the tonsure in 1865. From then on for the rest of his life, he would be known as "Abbé Liszt". The composer apparently regained his emotional balance, reflected in a steady decrease of negative emotions. Liszt's intensive travels between Rome, Weimar and Budapest in his older age, were financed from own means, and since he often refused any remuneration, those activities strained his already precarious financial situation. This might have contributed to a slight decrease in positive emotions. He died at the age of 75.

C The effect of income

Consistent information on income for the composers covered is not available. In an attempt to shed light on the role of income, I present two approaches that provide tentative evidence indicating that the well-being indices perform as one would expect. First, I use information on the intensity with which a composer was writing in each letter about money-related concerns, based on a variable that is automatically calculated by the LIWC software. Columns 1 and 2 in Table 7 report the baseline model 1 extended by the measure of financial concerns. The coefficient of interest is negative and significant, which implies that when a composer is more concerned about money his positive emotions dwindle.

Second, I utilize the only available records on income, which are provided by Baumol and Baumol (1994) and cover the years from 1781 to 1791 of Mozart's life. The real income variable is provided in forints, the currency of the lands of the House of Habsburg, and has a mean of 1550.3 (st. dev. 894.8). This data is not sufficient to be used in a rigorous quantitative analysis. Therefore, I estimate only a simple OLS-model, where I regress either of Mozart's well-being indices on the income measure, an output indicator and age variable. Columns 3 and 4 show the results, which imply a weak positive association between income and positive emotions, suggesting an improved emotional state with higher income. The association with positive emotions is further visualized in Figure 7.

The results presented in this section tentatively imply that an improvement in the

financial situation of the composer is conducive to his positive emotions. This is consistent with the theory.

	(1) Positive emotions	(2) Negative emotions	(3) Positive emotions	(4) Negative emotions
			Only Mozart	
VARIABLES	OLS	OLS	OLS	OLS
financial concerns	-0.256**	0.0157		
	(0.104)	(0.0399)		
output	0.0544**	0.00499	0.0139	0.0285
	(0.0251)	(0.00959)	(0.302)	(0.0486)
income			0.00146*	3.51e-05
			(0.000642)	(0.000103)
Observations	1,432	1,432	10	10
R-squared	0.144	0.054	0.492	0.302
Composer FE	✓	✓		
Age FE	✓	✓	✓	✓
Addressee FE	✓	✓		
Background controls	✓	✓		

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Financial situation and well-being
Note: Columns 1 and 2 include a wide set of background controls as introduced in model 1 and presented in Table 3. The age controls are estimated with a quartic age polynomial in columns 1 and 2 and with a linear age variable in columns 3 and 4.

C.1 The determinants of writing patterns

This appendix provides a brief analysis of the writing patterns of the composers covered. Column 1 of Table 8 reports OLS estimates for a model estimated on composer-year level explaining the annual patterns of writing intensity.[26] Composers wrote fewer letters in years when their positive emotions were high or when they were ill, whereas the writing frequency was higher in years when they composed more, or were married (or lived in cohabitation).

Next, I use information on the type of addressee and estimate the probability of writing to a specific receiver. For this reason I aggregate letters written to family members or friends into a personal writing category, and letters written to business

---

[26]Note that this estimation exploits the variation in the writing intensity by considering only positive outcomes. Substituting missing values with zeros is not a suitable strategy, as in years when no letter has been written (or no observation is available in the data), there is also no record available for a number of explanatory variables, including emotional indicators.
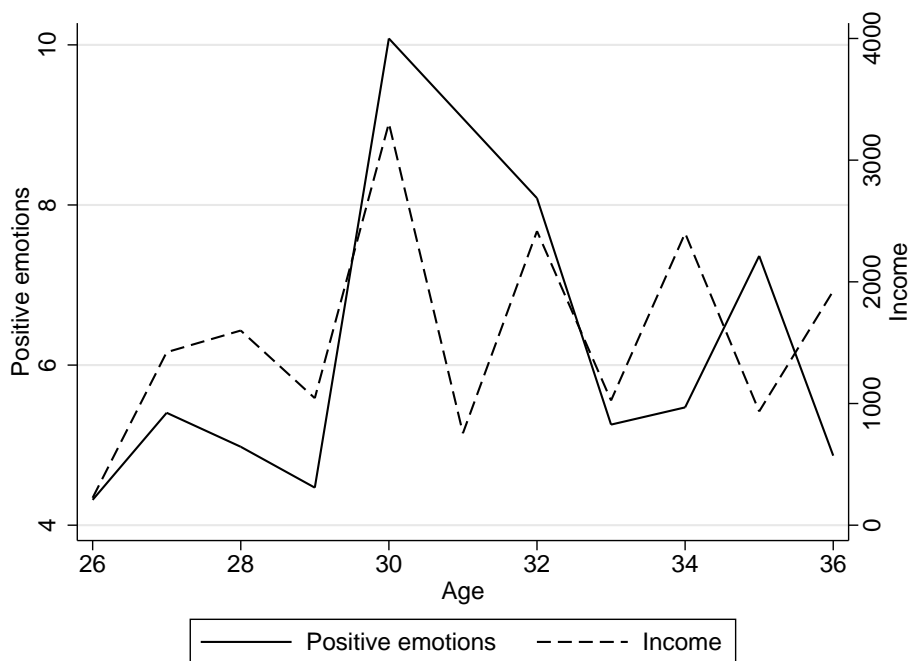
Figure 7: Mozart's positive emotions and income, 1781-1791
Sources: See text.

associates, fellow composers, or strangers into a professional category. Columns 2 and 3 of Table 8 report the estimated probit marginal effects. A composer is less likely to write to relatives or friends if he feels well, and more likely if feeling low. The opposite results are disclosed in correspondence to professional acquaintances: positive emotions are more likely to be communicated, while negative emotions are restrained.

Since endogeneity is an issue in this setting, these results indicate one of the two following possibilities. The composer writes more often to people close to him, such as family members or friends, if he feels unwell, possibility in an attempt to share his negative emotions, whereas he avoids communicating with professional partners, when he feels low. Alternatively, these results could simply indicate that the composer is more restrictive in expressing his negative moods (or more conservative in his language use) in professional exchange, while being more expressive and open on his feelings with family and friends.

D   Robustness of the IV-identification

A potential violation of the exclusion restriction of the model presented in equations 2 and 3 is related to the possibly of a change in the financial situation of the composer due to the death of a family member. For example, it is possible that the composer experienced a negative shock to his finances if the father, who was typically the main income earner of a household, deceased. Therefore I reestimate the model by

VARIABLES	(1) # letters OLS	(2) personal (family or friend) Probit	(3) professional (business or peer or stranger) Probit
positive emotions	-1.393**	-0.0124**	0.0118**
	(0.580)	(0.00500)	(0.00489)
negative emotions	-0.381	0.0353***	-0.0350***
	(2.319)	(0.0137)	(0.0134)
output	0.652**	0.0221***	-0.0178***
	(0.328)	(0.00654)	(0.00647)
tenure	-3.250	0.00623	-0.0367
	(2.311)	(0.0529)	(0.0525)
touring	7.170	0.0481	-0.0381
	(5.843)	(0.0801)	(0.0791)
marriage (or cohabitation)	5.636*	-0.157*	0.129
	(3.256)	(0.0827)	(0.0830)
death of relative	1.406	-0.0569	0.114
	(9.106)	(0.147)	(0.152)
illness	-16.30***	-0.167	0.149
	(5.321)	(0.131)	(0.129)
Observations	113	1,420	1,415
R-squared	0.508	0.149	0.155
Composer FE	✓	✓	✓
Age FE	✓	✓	✓
Decade FE	✓	✓	✓
Addressee FE	✓		
City FE		✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Column 1 reports OLS coefficients. Columns 2 and 3 report probit marginal effects and pseudo
R-squared coefficients.

Table 8: Number of letters and type of addressee

excluding the death of the father from the list of unexpected deaths (Table 1). It
can be seen in columns 1 to 4 of Table 9 that both the first- and second-stage results
imply very similar coefficients, now measured with somewhat greater precision.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Negative emotions	Negative emotions	Output	Output	Financial concerns	Financial concerns	Income
	OLS	OLS	IV	IV	OLS	OLS	OLS
VARIABLES	Father deaths excluded	Father deaths excluded					Only Mozart
death of relative (father deaths excluded) negative emotions	1.025*** (0.250)	1.035*** (0.255)					
negative emotions			2.916*** (0.977)	1.822** (0.759)			
death of relative					0.205 (0.157)	0.232 (0.170)	3,528 (3,864)
Observations	1,432	1,432	1,432	1,432	1,432	1,432	11
R-squared	0.034	0.036			0.063	0.038	0.161
Composer FE	✓	✓	✓	✓	✓	✓	
Age FE	✓	✓	✓	✓	✓	✓	✓
Addressee FE	✓	✓	✓	✓		✓	
Background controls	✓	✓	✓	✓		✓	
Decade FE		✓		✓		✓	
City FE		✓		✓		✓	
F-statistic	17.13	10.71					

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness of the identification

Another way to study whether a death in the family impacts the financial situation of a composer is to look at the extent to which he was writing about money-related concerns. The *Financial concerns* variable is provided by the LIWC software and is similarly based on the occurence of pre-defined words. Columns 5 and 6 report the associations between the death of any family relative and the intensity with which the composer was writing about financial concerns. It can be seen that in neither specification the association turns out significant.[27]

Finally, using the only available records on income, which are available for the years from 1781 to 1791 of Mozart's life (see Appendix C), I study the effect of income fluctuations directly. Column 7 summarizes the OLS results for a specification that also includes an age variable (not reported). The emerging coefficient of interest is insignificant, providing some indication that Mozart's income is not correlated with the death of his family members.

E   Timing of the effect

The output variable measures the number of compositions written within one year. This appears to be a long enough time window to observe the creation of most works and yet sufficiently short to reliably link the creation of a composition with the emotional state of a composer. Nonetheless, a concern might be theatrical productions, such as opera, ballet, or other theater forms. Those works are much larger and more complex, and hence usually take more time to compose.[28]

In a robustness test this potential bias is examined by excluding all theater works. The emerging results are summarized in Table 10 and imply consistent coefficients that are now estimated with somewhat greater precision.

---

[27]Similarly, no significant relationship was found between the death of a family member and any of the other labor market measures (not reported).

[28]Arguably, it is possible that even some of the large works are finished within one year. It could also be the case that the unhappy composer was able to add the final touch to a piece, which made it outstanding, and is thus recognized in the underlying output database.

	(1)	(2)	(3)	(4)
	Output (theater works excluded)			
VARIABLES	OLS	OLS	IV	IV
negative emotions	0.0637	0.0502	2.668***	1.366*
	(0.0729)	(0.0646)	(1.033)	(0.742)
Observations	1,432	1,432	1,432	1,432
R-squared	0.178	0.360	0.109	0.171
Composer FE	✓	✓	✓	✓
Age FE	✓	✓	✓	✓
Addressee FE	✓	✓	✓	✓
Background controls	✓	✓	✓	✓
Decade FE		✓		✓
City FE		✓		✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Creativity and negative emotions: Excluding theater works

References

Akinola, Modupe and Wendy Berry Mendes, "The Dark Side of Creativity: Biological Vulnerability and Negative Emotions Lead to Greater Artistic Creativity," *Personality and Social Psychology Bulletin*, 2008, *34* (12), 1677–1686.

Andreasen, Nancy C., *The Creating Brain. The Neuroscience of Genius*, New York: Dana Press, 2005.

_ , "The relationship between creativity and mood disorders," *Dialogues in Clinical Neuroscience*, 2008, *10* (2), 251–255.

Angemuller, R., *W.A. Mozarts musikalische Umwelt in Paris (1778): eine Dokumentation*, Munich: Katzbichler, 1982.

Bache, Constance, *Letters of Franz Liszt, Vol. 1 and 2. Collected by La Mara and translated by Constance Bache*, Project Gutenberg: eBook Collection (accessed June 12, 2013), 1893.

Baumol, William J. and Hilda Baumol, "On the economics of musical composition in Mozart's Vienna," *Journal of Cultural Economics*, 1994, *18*, 171–198.

Beales, Derek, *Joseph II: Volume 1, In the Shadow of Maria Theresa, 1741-1780*, Cambridge: University Press, 2008.

Binder, Martin, "Innovativeness and Subjective Well-Being," *Social Indicators Research*, 2013, *111* (2), 561–578.

Borowiecki, Karol Jan, "Are composers different? Historical evidence on conflict-induced migration (1816-1997)," *European Review of Economic History*, 2012, *16* (3), 270–291.

_ , "Conflict-induced migration of composers: an individual-level study," *Cliometrica, Journal of Historical Economics and Econometric History*, 2013, *7* (3), 237–266.

_ , "Geographic clustering and productivity: An instrumental variable approach for classical composers," *Journal of Urban Economics*, 2013, *73* (1), 94–110.

_ , "Agglomeration Economies in Classical Music," *Papers in Regional Science, forthcoming*, 2014.

_ **and Georgios Kavetsos**, "Does Competition Kill? The Case of Classical Composers," Trinity Economics Papers tep1111, Trinity College Dublin, Department of Economics June 2011.

_ **and John O'Hagan**, "Impact of war on individual life-cycle creativity: tentative evidence in relation to composers," *Journal of Cultural Economics*, 2013, *37* (3), 347–358.

_ **and John W. O'Hagan**, "Historical Patterns Based on Automatically Extracted Data: The Case of Classical Composers," *Historical Social Research (Section 'Cliometrics')*, 2012, *37* (2), 298–314.

Brown, Susan L., "The effect of union type on psychological well-being: Depression among cohabitors versus marrieds," *Journal of Health and Social Behaviour*, 2000, *41* (3), 241–255.

Chung, Cindy and James W. Pennebaker, "The Psychological Functions of Function Words," in K. Fiedler, ed., *Social Communication*, New York: Psychology Press, 2007.

Clark, Andrew, Paul Frijters, and Michael A. Shields, "Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and Other Puzzles," *Journal of Economic Literature*, 2008, *46* (1), 95–144.

Cohn, M.A., M.R. Mehl, and James W. Pennebaker, "Linguistic markers of psychological change surrounding September 11, 2001," *Psychological Science*, 2004, *15* (10), 687–693.

Danner, Deborah D., David A. Snowdon, and Wallace V. Friesen, "Positive emotions in early life and longevity: Findings from the nun study," *Journal of Personality and Social Psychology*, 2001, *80* (5), 804–813.

David, Hans T., Arthur Mendel, and Christoph Wolff, *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents*, New York: W.W. Norton, 1999.

Dolan, Paul and Robert Metcalfe, "The relationship between innovation and subjective wellbeing," *Research Policy*, 2012, *41* (8), 1489 – 1498.

_ , **Tessa Peasgood, and Mathew White**, "Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being," *Journal of Economic Psychology*, 2008, *29* (1), 94–122.

Dossena, Marina and Ingrid Tieken-Boon van Ostade, *Studies in Late Modern English Correspondence: Methodology and Data*, Bern: Peter Lang, 2008.

Eisen, Cliff, Eva Rieger, Stanley Sadie, Rudolph Angermüller, C.B. Oldman, and William Stafford, *Mozart*, Grove Music Online (accessed July 10, 2013). Oxford University Press, 2013.

Fredrickson, Barbara L., "What Good Are Positive Emotions?," *Review of General Psychology*, 1998, *2* (3), 300–319.

Frey, Bruno S. and Alois Stutzer, *Happiness and economics*, Princeton: University Press, 2002.

Gilder, Eric and June G. Port, *The Dictionary of Composers and their Music*, New York and London: Paddington Press Ltd., 1978.

Goleman, Daniel, *Emotional Intelligence: Why It Can Matter More Than IQ*, New York: Bantam Doubleday Dell, 1996.

Gottschalk, Louis A. and Goldine C. Gleser, *The measurement of psychological states through the content analysis of verbal behavior*, Berkeley: University of California Press, 1969.

Gregorovius, Ferdinand, *Römische Tagebücher, 1852–1874*, Stuttgart: F. Althaus, 1893.

Grove Music Online, *Oxford Music Online*, Oxford University Press, 2013.

Halliwell, Ruth, *The Mozart family: four lives in a social context*, New York: Clarendon Press, 1998.

Helliwell, John F., "How's life? Combining individual and national variables to explain subjective well-being," *Economic Modelling*, 2003, *20* (2), 331–360.

Holley, John W., "Tenure and research productivity," *Research in Higher Education*, 1977, *6* (2), 181–192.

Hueffer, Francis, *Correspondence of Wagner and Liszt, Vols 1 and 2*, Fairford: Echo Library, 2006.

Hunter, Mary, *The Culture of Opera Buffa in Mozart's Vienna: A Poetics of Entertainment*, Princeton: University Press, 1999.

Jamison, Kay R., "Mood Disorders and Patterns of Creativity in British Writers and Artists," *Psychiatry*, 1989, *52* (2), 125–134.

＿ , *Touched with Fire: Manic-Depressive Illness and the Artistic Temperament*, New York: Free Press, 1996.

Kaufman, James C. and Robert J. Sternberg, "Resource review: Creativity," *Change*, 2007, *39*, 55–58.

＿ **and Ronald A. Beghetto**, "Beyond Big and Little: The Four C Model of Creativity," *Review of General Psychology*, 2009, *13* (1), 1–12.

Kerman, Joseph, Alan Tyson, Scott G. Burnham, Douglas Johnson, and William Drabkin, *Beethoven, Ludwig van*, Grove Music Online (accessed July 21, 2013). Oxford University Press, 2013.

＿ **and** ＿ , *The New Grove Beethoven*, New York: W. W. Norton and Company, 1997.

Kessler, Ronald C., "The effects of stressful life events on depression," *Annual Review of Psychology*, 2001, *48*, 191–214.

Kyaga, S., M. Landén, M. Boman, C.M. Hultman, N. Långström, and P. Lichtenstein, "Mental illness, suicide and creativity: 40-year prospective total population study," *Journal of Psychiatric Research*, 2013, *47* (1), 83–90.

Ludwig, Arnold M., *The Price of Greatness: Resolving the Creativity and Madness Controversy*, New York: The Guilford Press, 1995.

Martin, Mike and Gerben J. Westerhof, "Do you have to have them or should you believe you have them? Resources, their appraisal, and well-being in adulthood," *Journal of Adult Development*, 2003, *10* (2), 99–112.

Monroe, Scott M., Kate Harkness, Anne D. Simons, and Michael E. Thase, "Life Stress and the Symptoms of Major Depression," *Journal of Nervous and Mental Disease*, 2001, *189* (3), 168–175.

Moore, Julia V., "Mozart in the Market-Place," *Journal of the Royal Musical Association*, 1989, *114* (1), 18–42.

Nohl, Ludwig and Grace Stein Don Wallace, *Letters Of Distinguished Musicians: Gluck, Haydn, P. E. Bach, Weber, Mendelssohn (1867)*, Montana: Kessinger Publishing, 2009.

O'Hagan, John W. and Karol Jan Borowiecki, "Birth Location, Migration and Clustering of Important Composers: Historical Patterns," *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 2010, *43* (2), 81–91.

Pennebaker, James W. and Lori D. Stone, "Words of Wisdom: Language Use Over the Life Span," *Journal of Personality and Social Psychology*, 2003, *85* (2), 291–301.

_ **and Martha E. Francis**, "Cognitive, emotional, and language processes in disclosure," *Cognition and Emotion*, 1996, *10*, 601–626.

_ , **Cindy K. Chung, Molly Ireland, Amy Gonzales, and Roger J. Booth**, *The development and psychometric properties of LIWC2007*, Austin, TX: LIWC.net, 2007.

Post, Felix, "Creativity and psychopathology. A study of 291 world-famous men," *British Journal of Psychiatry*, 1994, *165* (2), 22–34.

_ , "Verbal creativity, depression and alcoholism. An investigation of one hundred American and British writers," *British Journal of Psychiatry*, 1996, *168* (5), 545–555.

Saffle, Michael, *Franz Liszt: A Research and Information Guide*, London: Routledge, 2009.

Schildkraut, Josehp J., Alissa J. Hirshfeld, and Jane M. Murphy, "Mind and mood in modern art, II: Depressive disorders, spirituality, and early deaths in the abstract expressionist artists of the New York School," *American Journal of Psychiatry*, 1994, *151* (4), 482–488.

Shields, Michael A. and Stephen W. Price, "Exploring the economic and social determinants of psychological wellbeing and perceived social support in England," *Journal Royal Statistical Society (Part 3)*, 2005, *168* (3), 513–537.

Simonton, Dean K., "Creative productivity, age, and stress: A biographical time-series analysis of 10 classical composers," *Journal of Personality and Social Psychology*, 1977, *35*, 791–804.

_ , "Fickle fashion versus immortal fame: Transhistorical assessments of creative products in the opera house," *Journal of Personality and Social Psychology*, 1998, *75*, 198–210.

Steiner, Lasse and Lucian Schneider, "The happy artist: an empirical application of the work-preference model," *Journal of Cultural Economics*, 2013, *37* (2), 225–246.

Waddell, Charlotte, "Creativity and mental illness: is there a link?," *Canadian Journal of Psychiatry*, 1998, *43* (2), 166–172.

Walker, Alan, Maria Eckhardt, and Rena Charnin Mueller, *Liszt, Franz, §4: The death of Adam Liszt*, Grove Music Online (accessed July 3, 2013). Oxford University Press, 2013.

Wallace, Lady, *Beethoven's Letters, Vol. 1 and 2. From the collection of Dr. Ludwig Nohl. Translated by Lady Wallace*, Project Gutenberg: eBook Collection (accessed May 28, 2013), 1866.

‒ , *The Letters of Wolfgang Amadeus Mozart, Vol. 1 and 2. Translated, From The Collection Of Ludwig Nohl, By Lady Wallace*, Project Gutenberg: eBook Collection (accessed May 10, 2013), 1866.