Are Composers Different?
Historical Evidence on Conflict-induced Migration (1816-1997)

Karol Jan Borowiecki

Trinity Economics Papers

Department of Economics
Trinity College Dublin

Are Composers Different?

Historical Evidence on Conflict-induced Migration (1816-1997)

Karol Jan Borowiecki

Trinity College Dublin

ABSTRACT

In this paper we explore whether, and to what extent, the incidence of war affects the migration intensity of 164 prominent classical composers born after 1800. We model the aggregate stock of composers in a country and find that periods of war correspond negatively with the number of artists. We also find that conflict-induced migration intensity is considerably higher for composers than for the overall population and demonstrate that the share of composers in the overall population drops due to the incidence of war. We further find that the observed outmigration substantially diminishes the country's creative potential in the long-run.

Keywords: migration, refugee, conflict, war, geographic concentration, composer

JEL Classifications: D74, F51, J61, Z10

1. Introduction

History has shown the devastating consequences of wars for societies marred by violence. One consequence of periods of social upheaval is the massive dislocation of populations. Among those forced to emigrate are creative individuals (e.g. artists, composers, writers), who are particularly important in contributing to the attractiveness of a location. However little is known about how war affects those talented individuals.

Let us consider two exemplary cases found in biographies of prominent classical composers, who are the focus of this study. First Serge Rachmaninoff who fled from Moscow during the Revolution in 1905, where he spent the longest part of his life. The reason for the emigration of the prominent Russian composer was the incidence of an intra-state conflict that included terrorism, worker strikes, peasant unrest and military mutinies. Rachmaninoff left behind a lucrative job as conductor at the Bolshoi Theater and moved to Dresden. A second influential composer - Dmitry Shostakovich - was full professor at the Leningrad Conservatory when the Nazis invaded Russia and forced the artist to leave Leningrad in 1941. The composer of the 'Seventh Symphony' was evacuated by train through Moscow to Kuybishev, about 800 km to the east in the southern Urals. The choice of location and hence the lives of both composers were considerably affected by internal or international conflict. The undisclosed question is however whether composers, or more generally creative individuals, differ and to what extent from the average citizen with regard to conflict-induced migration?

We hypothesise that creative individuals might be relatively more prone to emigration in times of military conflict than the average citizen and there are three main reasons why this may be so. Firstly in times of war, when the fulfilment of basic needs is endangered, the demand for cultural goods diminishes or disappears. Secondly the artist is hindered in her creative work; be it a funding shortage or lack of security. Thirdly the laws of the potential host country might provide incentives to immigration of skilled labour. Therefore creative individuals are forced to leave the regions where war or civil unrest affects the social order. Forming a linkage between classical composers, as a sample of creative individuals, and the overall population is markedly important. The investigation provides a new and significant contribution to the knowledge on the consequences of war. While it is established that refuge flows increase due to conflict, it

is not clear how the migration intensity of sub-groups is affected. Are refugee flows homogeneous across the entire population or are certain groups more prone to be affected by war and hence more likely to emigrate in times of conflict. In this paper with the employment of a unique data set we are able to illuminate the war-impact on a particularly valuable part of the population – on the creative individuals

In this paper we conduct an econometric analysis of the hypothesis and investigate the impact of conflict on the aggregated number of composer in a country. The benefit of an aggregate analysis is threefold. First, it allows to conduct a comparison with the overall population and to draw conclusions on the relative conflict-induced migration intensity of the creative people. Second, a study of the share of composers in the total population becomes possible. Third, an investigation of the impact of composers' outmigration on the country can be conducted.

The data set used covers a global sample of the 164 prominent classical music composers, born after 1800.[3] For the selected composers we extract background information as well as migration records from large, comprehensive dictionaries of music and link the data with the incidence of wars. We find a significant highly negative relationship between wars and the stock of prominent composers within a country. In a rough comparison framework with the total population, the results imply that composers were markedly more likely to be forced into conflict-related emigration than an average citizen of a country. We also demonstrate that composers' share in the population declines by up to ten per cent. While the overall population is by far not a perfect benchmark, the findings tentatively indicate an important hidden cost of conflict for a country in terms of a marked loss of creative individuals.[4] Furthermore, we find a markedly persistent, large and negative impact of composers' war-related outmigration on a country's creative potential in the long run.

The rest of the paper proceeds as follows: in the next section we present related literature. In the third section, we introduce the methodology and describe the data. In the fourth section we present and discuss our findings and finally in the last section we

---

[3] With each further reference to composers we mean *prominent* composers who are in the focus of this study (see O'Hagan and Borowiecki, 2010, for a detailed discussion of the selection issue).

conclude.

2. Related Literature

There exists a large amount of research on the *causes* of conflict-induced migration. It is often argued that the extent of forced migration varies according to the different kinds of conflict involved. Wars between states have generated substantial refugee flows, however not as numerous as civil wars. The smallest emigration wave is caused by colonial wars (e.g. Schmeidl, 1997). Further studies investigate what country or war characteristics correlate most with forced migration and find violence as the most important determinant, be it government violence or dissident violence, while measures of economic conditions (e.g. GNP) are mostly insignificant (e.g. Moore and Shellman, 2004). The decision to emigrate is clearly based on *individual* motivations and there are many personal factors that facilitate or impede migration, such as personal sensitivities, intelligence or awareness of conditions elsewhere (e.g. Peterson, 1958). However the data employed in this research strand is usually on a macro level and faces the problem of over-aggregation. The data is available only for whole refugee communities and does not allow for studies of micro-motivations and incentives that theorists emphasize (Salehyan, 2007). To our knowledge, the only micro-level study of conclict-induced migration is conducted by Engel and Ibanez (2007), who investigate the determinants of displacement for the case of Colombia. They use household-level surveys and estimate a random utility model of displacement and confirm the high explanatory power of violence as well as perceptions of insecurity.[5] Furthermore, Borjas (1987) demonstrates that not necessary the most skilled individuals decide to emigrate and argues that self-selection is a very important driver to migration.

The second strand of the forced-migration literature explores the *consequences* of war-related migration flows. Scholars seem to agree that refugees have a negative impact on the security conditions of the source and host region or country as well as on relations

---

[4] Unfortunately disaggregated population data for the analyzed time period is not available and comparing the magnitude of composers' conflict-induced emigration flows against other comparison groups (e.g. other creative individuals) are not feasible in this research.

[5] Kondylis (2008) conducts also a household-level analysis and studies the determinants for return migration in post-conflict rural Rwanda. The survey used does not record however conflict-induced displacements but only return migration and hence is less relevant to the prime objective of this paper.

between the two (e.g. Zolberg et al., 1989). There have have been identified a series of spillover or external effects of conflicts in one country leading to lower economic growth and welfare (Murdoch and Sandler, 2002) or harmful health effects in neighboring states (e.g. Hazem et al., 2003). Sarvimaki et al. (2009) analyze long-term effects of forced migration after Finland ceded parts of its territory and find that being displaced had significant positive effects on economic performance.[6]

All in all this paper also relates to the cultural economics literature. A marked clustering activity was demonstrated among visual artists (O'Hagan and Hellmanzik, 2008) and composers (O'Hagan and Borowiecki, 2010). The authors suggest that war could bring an artistic cluster to an end and shift it to another location. Given the importance of geographic clustering for creative individuals the incidence of conflict might have a profound impact on their migration intensity. The understanding of geographic clustering or de-clustering, and also of the inter-temporal geographic shifts of artistic clusters, is fairly limited and based only on qualitative analyzes.

The weight of our findings builds upon a number of articles that have been written about the importance of creative individuals to the development and attractiveness of a region. The creative people supply cultural goods and have a direct impact on a country's cultural capital (Throsby, 1999). It is argued that the presence of cultural talent allows for higher quality of life (Nussbaum and Sen, 1993) and greater happiness (Layard, 2005) among the general population. Obviously creative individuals are necessary for the production of cultural goods and in diverse locations the nature of cultural goods can change and develop (Addison, 2006). A rich culture of arts and entertainment attracts entrepreneurs and creative individuals from other disciplines to a cluster (Andersson and Andersson, 2006). Florida (2002) asserts that creative people - located in diversified, creative cities - correlate with a higher level of economic development and posits the theory that the "creative class" fosters an open and dynamic environment that attracts

---

[6] This article also relates to studies of war within the literature of economic history. It is argued that aside from the high direct costs of war, conflicts comprise large indirect costs, such as a persistent decrease in bilateral trade, national income and global economic welfare (e.g. Findlay and O'Rourke, 2007), disadvantageous effects on relative prices (O'Rourke, 2007) or shrinkage of consumption (Goldin and Lewis, 1975). Or as argued more generally by social historians - wars are expensive, destructive and disruptive (e.g. Sorokin, 1937, Wright, 1965, Toynbee, 1972).

more creative individuals, as well as business and capital.

3. Methodology

3.1 Estimation Framework

We propose a model for composer's choice of location based on Krugman (1991) who developed a location-choice model for manufacturing firms. This parallel can be drawn as long as we treat classical composers of the 19th and 20th century as producers who supply cultural goods (i.e. new compositions). This proposition seems to be valid especially for the case of prominent composers that are encompassed by this study. Those artists became influential because of the compositions that they have "produced" and not due to, for example, provided services such as teaching or performing. Furthermore, composers of the period analyzed are independent individuals with a remarkable entrepreneurial drive (Scherer, 2001). They became market oriented and were free to choose their engagements. In the Appendix 1 we elaborate further on composers' conditions.

Krugman's influential model of economic geography suggests that supply and demand attract new firms to certain locations:

$$supply = f\ (supply,\ demand) \hspace{4cm} (1)$$
$$+ \hspace{2cm} +$$

In order to reflect most adequately the theory we propose the following empirical model:

$$Log(composer_{jt}) = \beta_0 + \sum_{i=1}^{4}\beta_i Log(composer_{j,t-1}) + \beta_{5,6}*D_{jt} + \beta_{7,8}*C_{jt} + decade_t + u_{jt}$$

$$D_{j,t} = \begin{bmatrix} Log(population_{jt}) \\ GDPpc_{jt} \end{bmatrix}$$

$$C_{j,t} = \begin{bmatrix} Inter-state\_war_{jt} \\ Intra-state\_war_{jt} \end{bmatrix}, \hspace{3cm} (2)$$

where $Log(composer_{jt})$ is the log number of composers in country j at year t, which is dependent on its four lagged values, on D_{jt} - a vector of country demand variables - and C_{jt} - a vector of conflict variables. The lagged $Log(composer_{jt})$ terms correspond with the

importance of supply concentration. In addition the lagged terms capture the trend of a country in relation to the concentration of composers and take account of the highly autocorrelated property of the underlying data. The persistency of the *Log(composer$_{jt}$)* term is particularly high because composers stayed in a country for long periods of time, sometimes for their whole lives.[7] The proposed demand vector (*D$_{jt}$*) intends to capture to some extent the contemporary demand for cultural goods and services provided by classical composers with the size of demand (*Log(population$_{jt}$))* and the approximate purchasing power of each individual (*GDPpc$_{jt}$*). Krugman's model is extended by the conflict vector (*C$_{jt}$*) that allows us to study how the number of composers in country *j* is affected when the country engages in year *t* in inter-state war (i.e. war fought with an other state) or in intra-state war (i.e. war fought within state borders between government and non-government forces). We also take account of inter-temporal changes of travel possibilities and composers' conditions with separate indicator functions for each decade (*decade$_t$*). Country fixed effects (*β$_0$*) are included in order to capture time-invariant country characteristics that may be related to composers' stock. The standard errors are clustered at the country level, allowing for correlations between observations of a single country (within *j*), but remaining independent between countries (i.e. countries *i* and *j* do not have correlated errors).

As suggested by theory we would expect the lagged terms and the demand vector to have a positive impact on the number of composers. The sign of the conflict parameters is not indisputable at this stage. War disables the circulation of ideas (Toynbee, 1972), destroys organizations and customs (Wright, 1942), causes upheaval in a system of social relationships (Sorokin, 1937) and most importantly endangers life and security. Therefore it might impact negatively on the number of composers in a country. Alternatively war could have also attracted creative individuals who were in search of inspiration and new experience hence the incidence of conflict might also have had a positive impact on composers stock in a country. In the following section we will describe the data sources and explain how the variables are measured.

---

[7] Given the extraordinary persistence of the data (the lagged *Log(composer)* terms are significant and positive up to the 7th lag) we believe that the proposed dynamic model would provide superior results, rather than, for example, integer-value time-series models. Note also that introduction of four lagged

3.2 Data Sources

Composer Database

In constructing the data set every effort was put into insuring maximum objectivity and reliability. The list of the most important composers is taken from Murray (2003) who provided a considerable and recognised survey of outstanding contributions to the arts and sciences from ancient times to the mid-twentieth century. Murray's work is based on numerous international references hence the risk of country- or marketing-biases in the selection is held to a minimum. The study of human accomplishment is conducted for several fields, including classical music, and for each outstanding individual in every discipline an index score is determined, based on the amount of space allocated to her or him in the reference works. The index score is normalised for all individuals listed in each disciplne so that the lowest score is 1 and the highest score is 100.

Given the limited time availability of the population, GDP and war data sets, we restrict the composers' database to individuals born after 1800. There are several implicit advantages of focusing on the 19th and 20th century. First, classical composers in the period analyzed were found to be extraordinary mobile individuals (O'Hagan and Borowiecki, 2010) and hence sensible mobility analyzes become possible. Second, data on the lives of composers are available and relatively reliable, as opposed to, for example, artists of earlier periods. Third, the geographic spread of composers is very high and hence a study covering several countries becomes enabled. Fourth, the period chosen covers wars that significantly shaped most recent history. Next, the period under consideration covers only deceased composers hence an analysis of whole life periods becomes possible and, finally, the study encompasses many of the most influential composers of all time.

For the composers covered by this study we extracted their background information and migration patterns from Grove Music Online (2009)[8], the leading online source for music research, provided by Oxford University Press. In this analysis the focus

---

Log(composer) terms maximizes model information criteria and is preferred by the *F*-test. In the Robustness Checks Section we investigate different model specifications.

[8] See Appendix 2 for a list of composers and their background information that are included in this study.

is directed only at the life periods of a composer in which music-related work dominated, i.e. when a composer was composing, giving tours, conducting philharmonic orchestras, teaching at music schools, managing music institutions or simply travelling in search of inspiration. The benefit of this restriction is the mitigation of individual's heterogeneity bias. It is obvious that, for example, a music student or an individual engaged only in non-music related activities would face very different migration propensities than a composer. By excluding the infancy, education and retirement life periods as well as periods in which only other professions were practised, we ensure that the individual from the sample was in fact a composer and hence comparable.[9] The location changes are recorded from the first year a composer becomes involved in a music-related activity other than learning, for example, the artist composes his first work. Moreover, in order to study the extent of war-related emigration from a country, the data set needs to be revised for composers who left the country in order to serve the army, sustained a conflict-related death, or were imprisoned abroad in forced labour camps. Consequently a total of seven composers are excluded from the sample and as a result this study encompasses 164 prominent composers.[10] In the Robustness Section we further exclude composers who died during the incidence of a war and find consistent results.

In order to observe variation in the data and still keep the research feasible we have restricted this study to the ten countries where the greatest number of classical composers was located. As this restriction is arbitrary, we will provide robustness checks and demonstrate that the results remain stable when a further three countries are included or when three countries are excluded. For the time period 1816 to 1997 we include Austria, England, France, Germany, Italy, Russia, Switzerland and USA, while for 1918-1997 the study in addition covers Czech Republic and Hungary.[11]

---

[9] See Robustness Checks Section for a discussion of a potential endogeneity bias.
[10] We exclude the following composers: Alban Berg, Henry Cowell, Olivier Messiaen, Nikolay Myaskovsky, Carl Orff, Richard Wagner and Ralph Vaughan Williams.
[11] Note that for 1816-1918, during the existence of the Austria-Hungary Union, the composers as well the wars in Austria and Hungary are aggregated and stored under "Austria". Likewise, as the authors of the conflict database aggregate the wars for Germany and Italy for the period before the unification in 1871 and during the 19th century, respectively, we similarly aggregate composers for both states. As all composers in Czechoslovakia (state existing from 1918 to 1993) were located within the boarders of Czech Republic, we use the contemporary name.

Population and GDP Database

The population and GDP per capita data sets are adapted from Maddison's (2006) widely cited statistics on world population. The data series are available annually, covering 1820 until 2006, for a number of countries. For a few missing years the population and GDP per capita series were linearly interpolated. Population is measured in thousands at mid-year and GDP per capita is measured in 1990 USD. We believe that composers in the 19th and 20th century would most probably select a country for settlement based upon population size (size of the potential demand) and GDP per capita (individual wealth). In Section 4.4 however we will investigate the stability of results when different measures are used, for example, population and wealth growth rates.

Conflict Database

The data on conflict is based on the Correlates of War (COW), a reliable database introduced and described by Sarkees (2000), and recognised by the broader scientific community. The COW data set identifies conflicts between states (inter-state wars) and within states (intra-state wars) that occurred between 1816 and 1997[12], and it lists a number of records for each war, e.g. the exact dates when a state became involved in a war, the number of battle-related deaths sustained by the participants' armed forces, the size of the pre-war population and pre-war armed forces, and dummies for the continent where the war occurred, whether the participant was victorious or has initiated the war.

The variables of main interest in the proposed model (2), inter- and intra-state wars, will be measured in several ways. Most simply, we propose dummies for the identity of a country that was involved in a war in a particular year. Next, taking into account the findings of recent research we propose three different ways to capture the varying levels of war-related violence. First we measure the war variables with the number of battle-related deaths sustained by the participant's armed forces.[13] Second we will create a ratio between the participant deaths sustained and the pre-war population

---

[12] The COW database also covers extra-state wars, i.e. wars between a state and a non-state entity. However, as none of these wars occurred within the boundaries of any of the countries analyzed, we will not include extra-state wars in our analysis.

[13] For intra-state wars the number of deaths covers the total battle deaths of all participants, i.e. of the government and non-government forces. We believe that this measure takes best account of civil war violence.

size. Third a ratio will be introduced between the participant deaths sustained and the size of pre-war armed forces. Taking account of the varying duration of wars we will express all three intensity measures per year of duration of a conflict.

In the case of inter-state wars, we will also differentiate between wars fought on the continent of the country and colonial wars, i.e. conflicts that occurred on other continents. The intra-state wars occurred per definition within the boundaries of the participating state.

3.3 Data Inspection

A summary of composer's characteristics is presented in Table 1. The data set encompasses individuals who were engaged in music-related work during most of their lives (around 47 out of 69 years). The mean duration of music-related education or training, as recorded in the source, lasted around 7.5 years. Approximately half of the composers had at least one family member involved in a music-related activity (e.g. mother played piano, brother was a conductor). The mean Murray's Index Score is 7.7 with a marked right skewed distribution. France and the Germanic countries accounted for the highest share of births of important composers – approximately 23% each, followed by Russia with 12% births, Italy and East European countries with each around 8% births.[14] The fairly wide geographic spread of composers' births in connection with their high migration intensity enables a study of various wars that have occurred in several countries. Approximately one third of the composers were born in the first half of 19th century, a half was born in the second part of 19th century and the remaining artists were born in the 20th century. In the last panel of Table 1 we observe that during each composer's career, his country of residence was involved during more than 8 years in international wars and 0.88 years in civil wars. Composers experienced during their music-related working lives on average 3.8 inter-state wars and 1.1 intra-state wars.

The relationship between the number of composers in England, France, Germany and Italy – the predominant countries for classical music – and the incidence of war is depicted in Figure 1. It can be observed that the French coup of 1851 corresponds with a

---

[14] See Table 1 Note for description of country grouping.

slight decrease in the total number of composers in France. The Crimean War of 1853 to 1856 brings the French rising composer stock to a temporary halt. The first decreasing trend in the number of composers in France can be observed during the civil unrest of 1871 when the communards took over Paris and during the incidence of the Franco-Prussian war in 1870 to 1871. Also Germany experienced a decrease in the number of composers during the Franco-Prussian war. A considerable drop in the number of composers can be observed in all countries during the First World War. In France the decrease is particularly marked during the early stages of the world war when the Allied Powers suffered considerably more causalities than the Central Powers. In later stages of the war after the Allied forces regained their strength the composer stock in France increases again, while in Germany, for example, it continues to drop until the very end of the conflict. The drop in the Italian composer stock during World War Two conflict is somewhat delayed and occurs only from 1915 onwards when Italy ceased being neutral and entered the war on the Entente side. A marked drop occurs also in England and the decrease roughly continues until the Second World War. The incidence of the Second World War coincides with a decrease in the number of composers in Italy and a large irreversible drop in France. It can be also observed that for certain types of war the number of composers actually increases, for example, in Italy during the Italo-Turkish war of 1911 to 1912. The war against the Ottoman Empira was fought in northern Africa - on a different continent; it was further clearly dominated by Italy and bestowed the European belligerent profitable territories in Libya and the Agean Sea. The emerging picture provides important graphical support for a negative impact of civil and continental wars on the the number of composers in England, France, Germany and Italy.

Further insights on the relationship between the composer stock and the incidence of wars can be gathered in Table 2 where we list the average number of composers before and during international and civil wars. The average number of composers located in a country declines only marginally during inter-state wars. The decrease is larger and statistically significant for international wars that occurred on the continent of composer's residence. During wars that took place on a different continent (i.e. colonial wars) the number of composers rises. Intra-state wars coincide with a large drop in composer stock.

4. Results

The regressions based on the proposed model (2) are presented in Table 3. The log number of composers in a country is mostly statistically significant and in such cases positively dependend on the previous log numbers of composers in a country. The relationship is also positive; however not significant with the population size and the individual wealth.

In the regression reported in the first column we observe that the influence of all inter-state wars on the dependent variable remains insignificant and only the impact of intra-state wars is significant, and as hypothesised, with a negative sign. In the second column we differentiate between inter-state wars fought on the continent of the country (i.e. continental wars) and inter-state wars that occurred on other continents (i.e. mostly colonial wars). We find that only wars fought within the continent impact negatively the log number of composers. The incidence of wars fought on other continents correlates positively with composers' choice of location. As colonial wars, which are fought by wealthy states with a high international prestige, can serve as a proxy for countries' overall economic and social welfare rather than the incidence of a conflict, we will exclude in the entire remaining analysis wars that are fought on other continents. The results are reported in column 3 and indicate that the incidence of continental inter-state wars and intra-state wars result respectively in a 7% and 11% decrease of the top composers in a country during each year of a war. Both estimates are significant at the 5% level. In column 4 a highly significant negative relationship can be observed between the numbers of battle-related deaths sustained by the participants' armed forces and the dependent variable. The number of the most important composers would decrease by roughly 22% for every 100'000 battle related deaths in intra-state wars. The corresponding impact of inter-state wars is considerably smaller but nonetheless significant at the 1% level. The further two measures of conflict violence are ratios between battle-related deaths sustained by the participants' armed forces and either the pre-war population size (column 5) or the pre-war armed forces (column 6). An annual battle-related loss of 1% population during an inter-state conflict would decrease composers' concentration in a country by over 26%. A 50% loss of the pre-war armed

forces during a year of inter-state wars would lead roughly to a 16% decrease in the number of composers in a country.[15] The coefficients for intra-state wars, while still negative and large in size, are not significant at conventional levels.

The estimated coefficient for intra-state wars is greater in absolute terms than the inter-state wars estimate.[16] The results indicate higher emigration intensity during civil wars than international conflicts and are consistent with previous literature. This could be the case due to the higher probability that a composer directly experiences an intra-state war as it was fought within the borders of the country where the composer resided. Whereas continental inter-state wars have been also fought abroad and would therefore influence composers' well-being only through an indirect channel, for example, through a reallocation of funds from cultural patronage to warfare. Furthermore, an additional source of disorganization during civil wars that might have lead to higher emigration rates is the ambiguity of the enemy. During inter-state wars however the enemy is clear and the propensity to emigrate could even diminish due to patriotic motives.

The estimated parameters are presumably biased downwards and there could be two reasons for this. Firstly we take into consideration emigration solely, i.e. leaving of one's native country. Because of data availability issues we do not take account of internal migration, despite the fact that the incidence of conflict has supposedly led in many cases to internal displacement of composers. Secondly the small estimates might be partly caused by the often criticised war selection criteria of the COW database authors. Wars in the COW data set cover conflicts in which there were at least 1.000 battle-related fatalities per year.

Conflict induced migration flows might not be homogeneous across the entire population. Little is known how various parts of the affected population respond to the incidence of war. In this analysis we are able to investigate the war impact on one particular group of conflict-induced migrants, the creative class, represented by classical composers. In the following we provide efforts to compare composers' war-related migration patterns with the overall population. It is a very risky exercise as the population benchmark obviously differs from classical composers in a number of dimensions.

---

[15] Note that as the pre-war armed forces are often much lower than the forces during wartime after conscription, a 50% loss in the size of pre-war armed forces seems possible.

Furthermore, with the population data we will not be able to disentangle population deaths from the emigration intensity. Nonetheless, we follow this approach motivated by the potential insights such comparison framework might deliver.

We first estimate the impact of wars on migration patterns within the whole population. We use an amended version of the Model (2) where we introduce the log population size as dependent variable and present in the first column of Table 4 the point estimates. The incidence of international continental war leads to a small, albeit statistically significant decrease of 0.26 per cent in the overall population and intra-state war reduces the population by around 0.11 per cent. The estimated parameters for the whole population are markedly smaller than the predicted impact of wars on composers stock in a country. If we could take account of war-related deaths of the population the parameters would be even smaller.

Next we link the number of composers in country and the population by creating a fraction term. We then investigate how the incidence of war affects the share of the composer stock in the overall population. The second column of Table 4 reports the coefficients. During continental inter-state wars the share of composers diminishes by 5.1 per cent and the occurrence of civil-wars result in a 9.9 percentage drop. Taking into account the previously observed decrease of the absolute number of composers in a country and also a significant decrease of the actual share of classical composers in the overall population, we conclude that the composer stock decreases more dramatically than the overall population. We conclude a significant, above-average loss of the creative stock due to the incidence of war.

The incidence of war results in a marked outmigration of classical composers and also the share of composers in the overall population drops. An arising question concerns the long run impact of the observed outmigration of creative people. How does the loss of composers affect a country's creative potential in the long term? Due to the unique length of the data set, an investigation of the long run impact of war becomes possible.

The impact of outmigration on composers' stock five years later is presented in Panel A and the effect for various other time periods is depicted in Panel B Table 5. The first column in Panel A presents the correlation coefficient between the growth rate of

---

[16] The difference is however not always statistically significant at conventional significance levels.

composers stock (i.e. overall outmigration) in year t and the logged size of composers' stock five years later (i.e. $t+5$). The estimation indicates that a one percent higher growth rate in composers' stock results in a 0.16 per cent higher number of composers in five years. The second and third columns present the relationship between composers' outmigration rates in times of continental inter-state war or intra-state war and composers' stock five years later. The results indicate that emigration of one per cent of composers' caused by an international conflict will lead to a decrease of around 0.58 per cent of the number of composers in five years time. The coefficient on the outmigration rate during civil wars is also negative however statistically undistinguishable from zero. In the fourth column we combine all three variables and can confirm the large negative impact of outmigration associated with inter-state wars. The fifth column presents results when further the incidences of war are introduced. The coefficients on intra-state and inter-state wars are negative albeit statistically insignificant. It is very interesting to observe that while the influence of wars has no impact on the number of creative people five years later, the negative effect of outmigration caused by international wars remains large and highly significant. This provides important evidence that the long term composers' stock is not so much affected by the incidence of war (and presumably the associated disorganization, decrease in wealth etc.) but rather by the outmigration of fellow composers.

The Panel B presents the impact of outmigration and the overall growth rate of composers on composers' stock one, two, three, five, ten, fifteen and twenty years later. The growth in the number of composers affects the composers stock for a period of around five years. After that period the coefficient looses the significance. The effect of outmigration related to intra-state wars is similar in size to the continental inter-state war outmigration in the first two years after the conflict and disappears afterwards. The only persistent impact can be observed for outmigration associated with continental inter-state war. While the overall growth rate of composers' stock has no long-term influence on the number of composers' in a country, it must be noted that the effect of war-related outmigration remains persistent and very stable in size over a very long time period. A war-related decrease in the aggregated number of composers by seven percent results in a presumably permanent drop of the composer stock by over three per cent. The findings

provide important evidence on the existence of a long-run destructive impact of continental wars on the creative potential of a country.

4.1 Robustness Checks

Disentangling the Effect of Migration

The empirical model proposed in this paper estimates the impact of conflict of war on the stock of composers per country. Focusing on aggregate numbers might not always allow us to disentangle convincingly the effects of death and migration; even though we have already excluded composers who sustained conflict-related deaths, left the country in order to serve the army or were imprisoned abroad in forced labour camps. For instance, if destruction and upheaval during wars creates significant health hazards, large numbers of composers could be dying not because of the fighting, but because of health risks associated with wars. Furthermore, during wars composers might have decided to retire, i.e. have ceased to be engaged in any music-related activity, and hence have dropped out from the data set.

In order to analyze these potential biases we restrict the sample by the observations that might have lead to spurious results. We first exclude from the analysis 23 composers who died in a country that was engaged in warfare in that particular year.[17] Second we further restrict the sample by 10 composers who retired in a year when their country of residence was engaged in war.[18] In Table A4.1 (Appendix 4, not for publication) we report the re-estimated relationship between the incidence of conflict and the restricted numbers of composers in a country. We observe that the coefficients decrease only marginally in dimension, remain always negative and significant, and hence we conclude consistency of the main findings.[19]

---

[17] We exclude the following composers: Adolphe Adam, Bela Bartok, Sir Arnold Bax, Arrigo Boito, Gustave Charpentier, Cesar Cui, Claude Debussy, Duke Ellington, Stephen Foster, Reingol'd Moritsevich Glier, Jerome Kern, Ernst Krenek, Charles Lecocq, Pietro Mascagni, Otto Nicolai, Max Reger, Ottorino Respighi, Carl Ruggles, Arnold Schoenberg, Alexander Scryabin, Igor Stravinsky, Sir Arthur Sullivan, Alexander von Zemlinsky.

[18] We further exclude the following composers: Arensky, Anton Stepanovich, Irving Berlin, Ernest Bloch, Aaron Copland, Henri Duparc, Ruggero Leoncavallo, Frederick Loewe, Camille Saint-Saens, Anton Webern, Ermanno Wolf-Ferrari.

[19] In the main results we decide to report the unrestricted sample, i.e. we do not restrict the sample by composer deaths or retirements, as likewise we do not restrict the sample by new entrants of composers (e.g. birth or beginning of career).

Endogeneity

Another worry might be that composers decision to enter the labour market or to leave it (i.e. retire) might be affected by the incidence of war and be hence endogeneous. The risk of endogeneity of entering the labour market is presumably low due to the way the data is recorded. The migration patterns of a composer are recorded from the first year he becomes involved in a music-related activity other than learning, which would be usually the composition of the first work. Now while the engagement in a new profession, for instance as a music teacher, might be postponed due to the incidence of war (and be hence endogeneous), there are hardly any reasons why a composer would not compose his first works during a conflict. A further source of endogeneity bias might be the decision to exit the labour market and to retire. However, as the underlying database covers prominent composers, whose lives evolved around classical music, retirement is hardly observable. The average duration of retirement is only 1.19 years (standard deviation 4.76). The only notable reason for retirement is an illness, which is sufficiently exogeneous.[20] Nonetheless, we address this issue by investigating the war-impact separately on the stock of composers in education and the stock of retired composers as well as on the aggregated stock of composers (i.e. artists during career, education or retirement). The estimations for the extended sample are reported in the second column of Table A4.2. The estimated coefficients for inter-state wars remain unchanged and for intra-state wars decrease marginally. It is encouraging to observe the consistency of the results for the aggregated composer stock.[21]

War Outbreak

The outbreak of wars is spread throughout the year and the annual observations often do not cover wars that lasted the entire year, i.e. from January 1st to December 30th. As it is possible that the outburst of a war during the later months of the year had a different or

---

[20] For example, Henri Duparc retired in 1885 for 48 years due to neurasthenia or Copland Aaron in 1972 for 19 years due to the Alzheimer disease.

[21] In a disaggregated analysis we also find that inter-state wars consistently decrease the number of composers in education by 8.9 per cent and no significant influence of intra-state wars. The incidence of inter-state wars increases composers' decision to retire by 2.3 percent and we lack of a sufficient number of observations in order to estimate the impact of intra-state wars on the retired composer stock (results not reported).

even no impact on composers stock, we investigate the consistency of the results depending on the timing of war. We therefore drop the annual observations in which a war started in the quarter of the year. The estimation is presented in the second column of Table A4.3 (the first column depicts the baseline results). As the risk of a war timing bias might exist also in the case of wars that ended early in the year, we further exclude conflicts that ended in the first quarter of a year and report the point estimates in the third column. The fourth column reports the strongest test in which we exclude entire wars if it started or ended in the last or first quarter of the year respectively. The estimated coefficients of the war impact in all three specifications remain consistent in significance, sign and size with the main results. With further confidence in the reliability of our results, we further disaggregate the annual war effect depending whether the conflict lasted a full year or less. The estimates can be viewed in the fifth column. As one might expect the annual impact of wars is somewhat larger in size for wars that lasted an entire year. The estimated coefficients for wars that lasted less than a full year are smaller in size and remain significant only for the intra-state wars. The negative impact for civil wars that lasted less than a full year, as well as the observed variation in the estimated coefficients for intra-state wars in the second to fourth columns, is presumably caused by substantially shorter duration of approximately 0.88 years (Table 1). In conclusion, it is encouraging that the negative impact of war on the composer stock despite minor variation caused by the timing of war remains strong and is persistent throughout all estimations.

Country Selection

Next we analyze how the results change when a different number of countries are considered in the study. Table A4.4 depicts the results when the original selection of ten countries, where most of the classical composers have been located, is extended by an additional three countries, or three countries are subtracted.[22] It can be observed that the estimates do not differ statistically for the changes conducted in the country selection. While we do not claim that the relationship between war and composer's migration is the

same for all countries, we conclude that the later countries played such a minor role in the development of classical music that they do not alter in any notable way the results.

Extreme Country Characteristics

This robustness test examines whether or not the results are biased by a country with some extreme characteristics. First we exclude France from the estimations – the country where the most composers were located. Second Russia is excluded as it was the country with the most wars and years of war. Third we exclude the USA as no wars were fought on its continent in the 20th century, while it was an important destination for composers. From Table A4.5 it can be concluded that the results remain stable. Next we exclude Austria as the dissolution of the Austro-Hungarian Empire in the early 20th century might have caused a jump in the data and hence a bias in our estimations. We conclude from Table A4.6 that the results are not affected.

Different Methodological Approaches

We have conducted a number of alterations to the econometric model and also to the ways in which variables are measured. The results remain consistent in sign and significance when, for example, the lagged values and country characteristics are included at first difference, with different measures of population and GDP and also with different number of lagged terms (Table A4.8 and Table A4.9).

Ideally one would further investigate the consistency of the results when controls for wealth inequalities are included. It might be possible that a country with a very rich elite would be more attractive for a composer than a country where wealth is spread out in a more even manner. The lack of data on wealth distribution within nations however does not allow for any further specifications. The available data on income inequalities are scarce, lack the required continuity and do not sufficiently cover the countries or time periods analysed in this article. The bias arising due to the lack of those controls is nevertheless of marginal importance. The national wealth seems to be a predominant determinant for cultural infrastructure and hence a superior control. Only wealthy

---

[22] The original selection of ten countries, as described in Section 3, is extended by Denmark, Netherlands, Spain (study of 13 countries) or restricted by Czech Republic, Hungary and Switzerland (study of 7

countries are financially capable to, for example, build and maintain expensive concert halls or opera houses. Moreover, the introduction of country controls that also take to some extent account of heterogeneous behaviour of the population caused by wealth inequalities should further mitigate the arising bias.

5. Conclusion

In this study we provide important insights into the relationship between the incidence of wars and the migration of important classical composers, who in a broad sense serve as a representation of creative individuals. We employ a unique database that contains detailed records on migration of prominent composers, extracted from large music dictionaries, and link it with the occurrence of inter-state and intra-state wars for the time period 1816 to 1997. Based on dynamic fixed-effects estimation techniques we demonstrate a negative relationship between the incidence of wars and the number of composers in a country. The findings that are robust to a number of tests are consistent with research conducted on the causes of war-related migration: wars within states lead to higher emigration rates compared with wars between states, albeit the difference is not statistically significant. We further propose a rough comparison framework and conclude that composers are considerably more prone to forced emigration than an average citizen and also that the share of composers in the overall population decreases due to the incidence of war. And finally, we demonstrate that outmigration related to international wars decreases in the long-term the creative potential of a country.

A possible criticism of our approach is that the involvement of a composer's country of residence in a war does not necessary mean that the artist must have witnessed the conflict. Nevertheless, we believe that direct experience of a war is not the only channel through which a creative individual might get affected. The impact might work for example through a change in a nations wealth due to a war and hence a change in demand, or through a change in societies cognition of security in times of war.

This paper complements studies on the consequences of forced migration, which proclaim a strong negative impact of forced migrants on the receiving countries. In the period analyzed, as creative individuals might be expected to be relatively numerous

countries).

among the forced migrants, some positive effects for the host countries can also be observed. Consider for example the European composers who emigrated to the USA during the Second World War and gave considerable benefit to the cultural life of several American cities. Furthermore this study sheds some light on the understanding of the marked geographic clustering of artists. The incidence of conflict is a significant driver of composers' location choice and hence wars might have contributed to geographic shifts of creative clusters. For example, after the Second World War the prominence of Paris as a cluster for classical music decreased, while the importance of New York strongly increased. Taking into consideration the literature on the importance of creative individuals for a location, the loss of the most talented individuals should be regarded as an important cultural cost of conflict that is faced by countries engaged in warfare. The disclosed cost might lead to the conclusion that the total cost of historical wars is higher than previously estimated. In particularly since the war-related outmigration has a permanent negative impact on composers' stock in the country. Further research with a focus on individual characteristics of the forced migrant is needed to illuminate precisely the micro-level determinants of conflict-induced migration. In particular, studies on the destination of forced migrants, such as that of Borowiecki (2010), could potentially provide new insights.

References

Addison, T. 2006. "The International Mobility on Cultural Talent." *UNU-WIDER Research Paper,* 108.

Andersson, A.E. and D.E. Andersson. 2006. *The Economics of Experiences, the Arts and Entertainment*. Northhampton (MA): Edward Elgar Publishing.

Borjas, G.J. 1987. "Self-Selection and the Earnings of Immigrants." *The American Economic Review*, 77(4):531-553.

Borowiecki, K.J. 2010. "Conflict-induced Migration of Composers: An Individual-level Study." *Trinity College Dublin Working Paper*, June 2010.

Engel, S. and A.M. Ibanez. 2007. "Displacement Due to Violence in Colombia: A Household-Level Analysis." *Economic Development and Cultural Change*, 55:335-365.

Findlay, R. and K.H. O'Rourke. 2007. *Power and Plenty: Trade, War and the World Economy in the Second Millennium.* Princeton: Princeton University Press.

Florida, R. 2002. *The Rise of the Creative Class*. New York: Basic Books.

Goldin C.D. and F.D. Lewis. 1975. "The Economic Cost of the American Civil War: Estimates and Implications." *Journal of Economic History*, 35(2):299-326.

Grove Music Online, Oxford Music Online. 2009. Oxford University Press. http://www.oxfordmusiconline.com (accessed March-November 2009).

Hazem G., P. Huth, and B.M. Russett. 2003. "Civil Wars Kill and Maim People-Long after the Shooting Stops." *American Political Science Review*, 97(2):189–202.

Kondylis, F. 2008. "Agricultural Outputs and Conflict Displacement: Evidence from a Policy Intervention in Rwanda." *Economic Development and Cultural Change*, 57(1):31-66.

Krugman, P. 1991. "Increasing Returns and Economic Geography." *The Journal of Political Economy*, 99(3):483-99.

Layard, R. 2005. *Happiness: Lessons from a New Science.* London: Allen Lane.

Madisson, A. 2006. Historical Statistics for the World Economy, 1-2006 AD, http://www.ggdc.net/maddison (accessed on 04.03.2009).

Moore W. and S. Shellman. 2004. "Fear of Persecution: Forced Migration, 1952–1995." *Journal of Conflict Resolution*, 40(5):723–45.

Murdoch J. and T. Sandler. 2002, "Economic Growth, Civil Wars, and Spatial

Spillovers." *Journal of Conflict Resolution*, 46(1):91–110.

Murray, C. 2003. *Human Accomplishment - The Pursuit of Excellence in the Arts and Sciences, 800 B.C. to 1950.* New York: Harper Collins.

Nussbaum, M. and A. Sen. 1993. *The Quality of Life.* Oxford: Oxford University Press for UNU-WIDER.

O'Hagan, John and Karol J. Borowiecki. 2010. "Birth Location, Migration and Clustering of Important Composers: Historical Patterns." *Journal of Historical Methods*, 43(2): 81-90.

O'Hagan, John and Christiane Hellmanzik. 2008. "Clustering and Migration of Important Visual Artists: Broad Historical Evidence", *Journal of Historical Methods*, 41(3): 121-136.

O'Rourke, K.H. 2007. "War and welfare: Britain, France, and the United States 1807–14." *Oxford Economic Papers*, 59:8-30.

Peterson, W. 1958. "A General Typology of Migration." *American Sociological Review*, 23(3):256-66.

Salehyan, I. 2007. "Refugees and the Study of Civil War." *Civil Wars*, 9(2):127-41.

Sarkees, M.R. 2000. "The Correlates of War Data on War: An Update to 1997." *Conflict Management and Peace Science*, 18(1):123-44.

Sarvimaki, M., R. Uusitalo, M. Jantti. 2009. "Long-Term Effects of Forced Migration." *IZA Discussion Paper*, 4003.

Scherer, F.M. 2001. "The Evolution of Free-Lance Music Composition, 1650-1900." *Journal of Cultural Economics*, 25:307-19.

Schmeidl, S. 1997. "Exploring the Causes of Forced Migration: A Pooled Time-Series Analysis, 1971-1990." *Social Science Quarterly*, 78(2):284-307.

Sorokin, P.A. 1937. *Social and Cultural Dynamics, Vol. 3.* New York: American Book.

Throsby, D. 1999. "Cultural Capital." *Journal of Cultural Economics*, 23:3-21.

Toynbee, A. 1972. *A study of history.* New York: Oxford University Press.

Wright, Q. 1965. *A study of war* (2nd ed.). Chicago: University of Chicago Press.

Zolberg A., A. Suhrke, and S. Aguayo. 1989. *Escape from Violence: Conflict and the Refugee Crisis in the Developing World.* New York: Oxford University Press.

Tables

TABLE 1

DESCRIPTIVE STATISTICS: COMPOSERS' SUMMARY (n=171)

	Mean	Standard Deviation
A. General characteristics		
Life-span (years)	69.45	15.18
Duration of career (years)	46.55	15.71
Duration of music-related education or training (years)	7.57	6.01
Involvement of any family member in any music-related activity	0.56	0.41
Murray's Index Score	7.74	10.80
B. Birth country		
British Isles	0.07	0.26
Eastern Europe	0.08	0.28
France	0.23	0.42
Germanic Countries	0.23	0.42
Italy	0.08	0.28
Russia	0.12	0.33
Rest of Europe	0.07	0.17
USA	0.10	0.3
World	0.01	0.11
C. Birth period		
Born 1800-1849	0.32	0.47
Born 1850-1899	0.54	0.50
Born 1900-1949	0.14	0.34
D. Wars experienced during career		
Inter-state wars (years)	8.34	6.21
Intra-state wars (years)	0.88	1.88
Inter-state wars (count)	3.81	1.87
Intra-state wars (count)	1.13	1.27

SOURCE: Data on composers are obtained from Grove Music Online (2009) and Murray (2003). War data is employed from the Correlates of War data set (Sarkees, 2000).

NOTE: The summary is based on 171 prominent composers as listed in Appendix 3. The British Isles includes composers from England, Scotland, Ireland and Wales. Eastern Europe relates to composers born in any of the Eastern Europe countries as classified by United Nations Statistical Division, with the exclusion of Russia. The Germanic Countries relate to the three German-speaking countries of Germany, Austria and Switzerland. Rest of Europe covers composers from all other European countries. Rest of the World relates to composers that do not fit in any of the other categories. Inter-state wars/intra-state wars occurred in the country of residence of 152 composers/54 composers.

TABLE 2

DESCRIPTIVE STATISTICS: WARS AND COMPOSERS

	Average number of composers		
	During 4 years before war (1)	During war (2)	Difference (2) - (1)
Inter-state war (Continental or Colonial)	5.83	5.79	-0.04
	(0.46)	(0.48)	(0.68)
Continental war	6.87	7.84	-0.98
	(0.41)	(0.48)	(0.63)*
Colonial war	8.52	11.21	2.68
	(0.66)	(0.84)	(1.07)***
Intra-state war	4.51	2.51	-2.00
	(0.64)	(0.45)	(0.81)***

NOTE: Standard errors are in parentheses. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

TABLE 3

WARS AND COMPOSERS

EXPLANATORY VARIABLE	Dependend variable: Log(composer)					
	(1)	(2)	(3)	(4)	(5)	(6)
Log(composer), t-1	0.727***	0.721***	0.724***	0.705***	0.721***	0.725***
	(0.0387)	(0.0366)	(0.0369)	(0.0398)	(0.0375)	(0.0381)
Log(composer), t-2	0.134**	0.135**	0.137**	0.136**	0.136**	0.135**
	(0.0545)	(0.0531)	(0.0528)	(0.0531)	(0.0533)	(0.0542)
Log(composer), t-3	-0.0238	-0.0231	-0.0242	-0.0147	-0.0226	-0.0221
	(0.0338)	(0.0356)	(0.0349)	(0.0392)	(0.0349)	(0.0345)
Log(composer), t-4	0.0791**	0.0817**	0.0810**	0.0858**	0.0829**	0.0795**
	(0.0312)	(0.0301)	(0.0308)	(0.0331)	(0.0335)	(0.0320)
Log(population)	0.0990	0.0956	0.102	0.0943	0.0819	0.0882
	(0.0741)	(0.0764)	(0.0737)	(0.0665)	(0.0756)	(0.0771)
GDP per capita	0.00206	0.00179	0.00240	0.00196	0.00126	0.00130
	(0.00598)	(0.00605)	(0.00618)	(0.00594)	(0.00538)	(0.00554)
Inter-state war (all)	-0.00840					
	(0.0117)					
Inter-state war (colonial)		0.0601**				
		(0.0226)				
Inter-state war		-0.0643**	-0.0709**			
		(0.0210)	(0.0228)			
Intra-state war	-0.125***	-0.112***	-0.111***			
	(0.0202)	(0.0213)	(0.0209)			
Inter-state war deaths				-0.0342***		
				(0.00545)		
Intra-state war deaths				-0.225***		
				(0.0479)		
Inter-state war deaths adjusted by pre-war population					-0.261***	
					(0.0719)	
Intra-state war deaths adjusted by pre-war population					-1.397	
					(0.925)	
Inter-state war deaths adjusted by pre-war armed forces						-0.00328***
						(0.000963)
Intra-state war deaths adjusted by pre-war armed forces						-0.00797
						(0.00613)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1163	1163	1163	1163	1163	1163
R-squared	0.947	0.945	0.945	0.946	0.944	0.944
Number of countries	10	10	10	10	10	10

NOTE: All specifications are estimated by generalized least-squares and contain time-controls (that are estimated with an indicator function equal to one for each decade; not reported). Heteroscedasticity robust standard errors are clustered at the country level and reported in parentheses. All inter-state wars are continental inter-state wars (i.e. wars that occurred on the continent of the participating country), unless stated otherwise. All variables are included at year t, unless stated otherwise. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

TABLE 4

WARS AND POPULATION

| EXPLANATORY | Dependend variable (DV): | |
	Log(population)	Log(composers share in population)
VARIABLE	(1)	2)
Log(DV), t-1	1.510***	0.711***
	(0.0984)	(0.0408)
Log(DV), t-2	-0.510**	0.155**
	(0.204)	(0.0548)
Log(DV), t-3	0.0731	-0.0407
	(0.136)	(0.0330)
Log(DV), t-4	-0.0748**	0.0827**
	(0.0281)	(0.0339)
GDP per capita	0.000120	0.000157
	(9.81e-05)	(0.00733)
Inter-state war	-0.00267*	-0.0517***
	(0.00123)	(0.0157)
Intra-state war	-0.00117*	-0.0989*
	(0.000602)	(0.0460)
Country fixed effects	Yes	Yes
Time controls	Yes	Yes
Observations	1704	1060
R-squared	0.759	0.914
Number of countries	10	10

NOTE: All specifications are estimated by generalized least-squares and contain time-controls (that are estimated with an indicator function equal to one for each decade; not reported). Heteroscedasticity robust standard errors are clustered at the country level and reported in parentheses. All inter-state wars are continental inter-state wars (i.e. wars that occurred on the continent of the participating country). Each dependent variable is estimated as a function of its four lagged terms. All remaining variables are included at year t. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

TABLE 5

EMIGRATION AND THE LONG-TERM

EXPLANATORY VARIABLES	Dependend variable: Log(composer)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	A: Mid-term impact						
	t+5	t+5	t+5	t+5	t+5		
Composers growth, t	0.159***				0.109**	0.109**	
	(0.0401)				(0.0438)	(0.0437)	
Intra-state war outmigration, t			-0.314	0.0682	0.147		
			(0.265)	(0.342)	(0.368)		
Inter-state war outmigration, t		-0.577***		-0.481***	-0.452***		
		(0.123)		(0.109)	(0.131)		
Intra-state war, t					-0.144		
					(0.0827)		
Inter-state war, t					-0.0328		
					(0.0664)		
Population and wealth controls	Yes	Yes	Yes	Yes	Yes		
Time controls	Yes	Yes	Yes	Yes	Yes		
Country fixed effects	Yes	Yes	Yes	Yes	Yes		
Observations	1144	1144	1144	1144	1144		
R-squared	0.579	0.580	0.577	0.582	0.583		
Number of countries	10	10	10	10	10		
	B: Long-term impact						
	t+1	t+2	t+3	t+5	t+10	t+15	t+20
Composers growth, t	0.170***	0.195***	0.0897*	0.109**	0.0511	0.0360	0.0284
	(0.0430)	(0.0496)	(0.0436)	(0.0438)	(0.0622)	(0.0431)	(0.0529)
Intra-state war outmigration, t	-0.415***	-0.439***	-0.111	0.0682	0.140	0.0545	-0.0298
	(0.0964)	(0.0944)	(0.403)	(0.342)	(0.192)	(0.363)	(0.226)
Inter-state war outmigration, t	-0.554***	-0.286**	-0.457***	-0.481***	-0.467**	-0.329***	-0.421**
	(0.0529)	(0.101)	(0.104)	(0.109)	(0.169)	(0.0694)	(0.132)
Population and wealth controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1200	1184	1169	1144	1093	1044	992
R-squared	0.592	0.584	0.579	0.582	0.553	0.563	0.558
Number of countries	10	10	10	10	10	10	10

NOTE: All specifications are estimated by generalized least-squares and contain time-controls (that are estimated with an indicator function equal to one for each decade; not reported). Heteroscedasticity robust standard errors are clustered at the country level and reported in parentheses. All inter-state wars are continental inter-state wars (i.e. wars that occurred on the continent of the participating country). Population and wealth controls are estimated with log population and GDP per capita. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

Figures

FIGURE 1. WARS AND COMPOSERS

1

Appendix

APPENDIX 1
CONDITIONS FOR COMPOSERS IN THE 19TH AND 20TH CENTURY

Scherer (2001) observed that in the late seventeenth century a transition was already taking place from a century-old system of private patronage to a new market for musical services and freelance composing activity. The role of royal appointments or employment by the church and nobility of composers gradually decreased and was replaced by musical composition as an entrepreneurial activity. A new classical composition developed into a product which had a value and a market price and the composer became a producer who faced diverse incentives to "produce" in certain cities and countries. This trend was leveraged by the Industrial Revolution of the late 18th century and early 19th century when the middle-class rapidly expanded, becoming prosperous and so developing an interest in classical music. With the industrial revolution there also came better techniques in the manufacture of instruments allowing for cheaper production and several technological improvements of instruments – most importantly – the Fortepiano was introduced. The benefits of the new technological advancements were manifold in the market for new compositions. First concert performances were no longer restricted to churches and it was possible to perform before larger audiences.[23] Groups of individuals and investors, sometimes under the directives of a composer, came together and provided the funding for public performances in the newly-built concert halls now in existence in numerous cities. Second the demand for new music and teaching increased as there was a growing trend among the middle-class of holding private musical performances in their homes to entertain guests. In many European - and later American - middle-class families, children demonstrated their social graces by playing the piano, the violin, or other instruments. Along with the development of musical journals and reviews there was an increase in the publication of sheet music which facilitated a wide dissemination of new compositions. Third, with the introduction of better instruments composers could create more sophisticated works and hence become more distinguishable by their

---

[23] For example, before the emergence of the piano in the second half of the XVIII century, the organ, the clavichord and the harpsichord were the only keyboard instruments available. Each of those instruments had some deficiency: the clavichord was soft and low and hence only suitable for intimate use, the harpsichord could not deliver subtle gradations of volume and the organ was restricted to being played only in the building where it was located.

composition. In the era of Romanticism in music (ca. 1815-1910), for example, composers have expanded the formal structures within a work, making a piece more passionate and expressive. Previously unused chords or innovative chord progressions were introduced, enriching the harmonic language. Moreover, audiences became more sophisticated and were generally prepared to listen only to new music, usually works written no more than a decade earlier. Classical music clearly lost its elitist image and was broadly composed for the individual.

With uniquely distinguishable and internationally well-known works composers were not restricted to any particular location. With the decrease in travel costs especially the geographic impediments became practically non-existent. It must be stressed that composition was not the only source of income. Composers could find employment as directors of private orchestras, conservatory professors, private teachers or they could act as impresarios and organize their own opera or concert performances. Despite the growth of nationalism during the Romantic Era which reached its peak during the World Wars, composers possessed an unprecedented wealth of opportunities and hence their migration intensity remained very high and their geographical spread was wider than it had ever been historically (compare O'Hagan and Borowiecki 2010). Composers became independent freelancers and could seek employment in a variety of countries.

APPENDIX 2 (NOT FOR PUBLICATION)

COMPOSERS INCLUDED IN THIS STUDY

Name	Birth Country	Birth Year	Death Year	Duration of Career	Duration of Education	Musical Background			Murray's Index Score
						Father	Mother	Other Family Members	
Adam, Adolphe	France	1803	1856	32	0	1	0	0	3
Albeniz, Isaac	Spain	1860	1909	30	11	0	0	1	4
Alfano, Franco	Italy	1875	1954	52	8	0	0	0	1
Arensky, Anton Stepanovich	Russia	1861	1906	25	3	1	1	0	1
Auric, Georges	France	1899	1982	74	16	0	0	0	2
Badings, Henk	Netherlands	1907	1986	57	0	0	0	0	1
Balakirev, Mily Alekseyevich	Russia	1836	1910	56	0	0	1	0	6
Barber, Samuel	USA	1910	1981	42	19	0	0	1	4
Bartok, Bela	Hungary	1881	1945	50	2	1	1	0	18
Bax, Sir Arnold	England	1883	1953	49	5	0	0	0	3
Beck, Conrad	Switzerland	1901	1989	69	5	0	0	0	1
Bellini, Vincenzo	Italy	1801	1835	11	6	1	0	1	9
Benoit, Peter	Belgium	1835	1900	45	5	1	0	0	1
Berg, Alban	Austria	1885	1935	25	7	0	0	0	14
Berlin, Irving	Russia	1888	1987	58	0	0	0	0	1
Berlioz, Hector	France	1803	1869	39	0	1	0	0	41
Bizet, Georges	France	1838	1875	17	0	1	1	0	10
Blacher, Boris	Germany	1903	1974	43	8	0	0	0	2
Bliss, Sir Arthur	England	1891	1975	57	4	0	0	0	2
Bloch, Ernest	Switzerland	1880	1959	42	10	0	0	0	3
Boito, Arrigo	Italy	1842	1917	55	16	0	0	0	3
Borodin, Aleksandr	Russia	1833	1887	26	0	0	0	1	8
Brahms, Johannes	Germany	1833	1897	41	0	1	0	0	35
Bruch, Max	Germany	1838	1920	59	0	0	1	0	2
Bruckner, Anton	Austria	1824	1896	57	2	1	0	0	19
Bruneau, Alfred	France	1857	1933	52	9	0	0	0	2
Burkhard, Willy	Switzerland	1900	1954	31	8	0	0	0	1
Busoni, Ferruccio	Italy	1866	1924	41	9	1	1	0	8
Carter, Elliott	USA	1909	2000	63	13	0	0	0	4
Casella, Alfredo	Italy	1883	1947	48	6	0	1	0	4
Chabrier, Alexis	France	1841	1894	33	1	0	0	0	5
Chabrier, Emmanuel	France	1841	1894	39	0	0	0	0	5
Charpentier, Gustave	France	1860	1956	70	11	1	0	1	2
Chausson, Ernest	France	1855	1899	19	2	0	0	0	3
Chavez, Carlos	Mexico	1899	1978	58	11	0	0	1	2
Chopin, Fryderyk Franciszek	Poland	1810	1849	9	0	0	0	0	32
Copland, Aaron	USA	1900	1990	48	17	0	0	1	7
Cornelius, C. Peter	Germany	1825	1874	29	7	0	0	0	2
Cowell, Henry	USA	1897	1965	58	7	0	0	0	4
Cui, Cesar	Russia	1835	1918	63	0	0	0	0	3
Dallapiccola, Luigi	Croatia	1904	1975	51	6	0	0	0	7
Dargomizhsky, Aleksandr Sergeyevich	Russia	1813	1869	37	10	0	1	1	3
David, Felicien	France	1810	1876	43	12	1	0	0	1
Debussy, Claude	France	1862	1918	40	7	0	0	0	45

Delibes, Clement	France	1836	1890	38	6	0	1	1	2
Delibes, Leo	France	1836	1891	39	6	0	1	1	2
Delius, Frederick	England	1862	1934	46	12	0	0	0	7
d'Indy, Vincent	France	1851	1932	57	4	0	0	0	9
Dohnanyi, Ernst von	Hungary	1877	1960	64	3	1	0	0	2
Dukas, Paul	France	1865	1935	50	5	0	1	1	4
Duparc, Henri	France	1848	1932	17	0	0	0	0	3
Durey, Louis	France	1889	1978	60	7	0	0	0	1
Dvorak, Antonin	Czech	1841	1904	27	22	1	0	0	13
Elgar, Edward	England	1857	1934	50	0	1	0	1	8
Ellington, Duke	USA	1899	1973	58	10	0	0	0	2
Enesco, Georges	Romania	1881	1955	59	9	0	0	0	2
Falla, Manuel de	Spain	1876	1946	52	9	0	1	0	9
Faure, Gabriel	France	1845	1924	57	12	0	0	0	13
Fibich, Zdenek	Bohemia	1851	1901	33	5	0	1	0	2
Flotow, Friedrich Freiherr von	Germany	1812	1883	39	2	1	1	1	2
Flotow, Friedrich von	Germany	1812	1882	53	2	0	1	0	2
Fortner, Wolfgang	Germany	1908	1987	57	6	0	0	0	2
Foster, Stephen	USA	1827	1863	17	0	0	0	0	2
Franck, Cesar	France	1822	1890	48	8	0	0	0	15
Franz, Robert	Germany	1815	1892	44	6	0	0	0	1
Gade, Niels Wilhelm	Denmark	1817	1890	48	0	1	0	0	3
Gerhard, Roberto	Spain	1896	1970	42	14	0	0	0	1
Gershwin, George	USA	1898	1937	24	4	0	0	0	6
Glazunov, Aleksandr Konstantinovich	Russia	1865	1936	56	7	0	1	0	4
Glier, Reingol'd Moritsevich	Russia	1875	1956	57	9	0	0	0	1
Glinka, Mikhail Ivanovich	Russia	1804	1857	25	4	0	0	0	8
Gottschalk, Louis	USA	1829	1869	20	15	0	0	0	1
Gounod, Charles-Francois	France	1818	1893	48	3	0	1	1	13
Grieg, Edvard Hagerup	Norway	1843	1907	45	4	0	0	1	11
Haba, Alois	Bohemia	1893	1973	57	12	1	1	0	2
Harris, Roy	USA	1898	1979	55	5	0	1	0	3
Hartmann, Karl	Germany	1906	1963	32	8	0	0	0	1
Hauer, Josef	Austria	1883	1959	48	0	0	0	0	1
Hindemith, Paul	Germany	1895	1963	49	8	1	0	1	19
Holst, Gustav	England	1874	1934	37	7	1	1	1	5
Honegger, Arthur	France	1892	1955	40	7	0	0	0	9
Humperdinck, Engelbert	Germany	1854	1921	41	12	0	0	0	3
Ibert, Jacques	France	1890	1962	44	20	0	1	1	2
Ives, Charles Edward	USA	1874	1954	67	8	1	0	0	8
Janacek, Leos	Czech	1854	1928	60	4	1	0	1	7
Jolivet, Andre	France	1906	1974	42	6	0	1	0	3
Kabalevsky, Dmitry Borosovich	Russia	1904	1987	58	0	0	0	0	2
Kern, Jerome	USA	1885	1945	42	1	0	1	0	1
Kjerulf, Halfdan	Norway	1816	1868	24	3	0	0	0	1
Kodaly, Zoltan	Hungary	1882	1967	61	14	1	1	1	7
Koechlin, Charles	France	1868	1950	53	7	0	0	0	2
Krenek, Ernst	Austria	1901	1991	74	13	0	0	0	6
Lalo, Edouard	France	1823	1892	46	8	0	0	0	3
Lanner, Josef	Austria	1801	1842	26	0	0	0	0	1

Name	Country	Born	Died	Age					
Lecocq, Charles	France	1832	1918	66	4	0	0	0	1
Leoncavallo, Ruggero	Italy	1857	1919	37	12	0	0	0	3
Liszt, Franz	Hungary	1811	1886	45	13	1	0	0	43
Loewe, Frederick	Germany	1901	1987	57	0	1	0	1	1
Lortzing, Albert	Germany	1802	1850	28	0	0	0	0	4
Macdowell, Edward	USA	1860	1908	29	4	0	0	0	3
Mackenzie, Alexander	Scotland	1848	1934	61	8	1	0	0	1
Mahler, Gustav	Austria	1860	1911	31	7	0	0	0	23
Malipiero, Gian Francesco	Italy	1882	1973	69	8	1	0	1	5
Martin, Frank	Switzerland	1890	1974	47	2	0	0	0	3
Martinu, Bohuslav	Czech	1890	1959	43	16	0	0	0	3
Mascagni, Pietro	Italy	1863	1945	61	2	0	0	0	3
Massenet, Jules Emile Frederic	France	1842	1912	47	19	0	1	0	9
Mendelssohn, Felix	Germany	1809	1847	18	12	0	0	0	30
Messiaen, Olivier	France	1908	1992	63	11	0	0	0	13
Milhaud, Darius	France	1892	1974	53	20	1	1	0	13
Musorgsky, Modeste Petrovich	Russia	1839	1881	15	18	0	1	0	16
Myaskovsky, Nikolay	Russia	1881	1950	36	9	0	0	0	2
Nicolai, Otto	Germany	1810	1849	16	8	0	0	0	2
Nielsen, Carl	Denmark	1865	1931	46	2	1	0	0	3
Novak, Vitezlsav	Bohemia	1871	1949	53	7	0	1	0	1
Offenbach, Jacques	Germany	1819	1880	45	3	1	0	1	6
Orff, Carl	Germany	1895	1982	67	14	0	0	0	5
Parker, Horatio	USA	1864	1919	34	8	0	1	0	2
Petrassi, Goffredo	Italy	1905	2000	68	22	0	0	0	2
Pfitzner, Hans	Russia	1869	1948	56	5	1	0	0	4
Pijper, Willem	Netherlands	1895	1948	24	10	0	0	0	1
Pizzetti, Ildebrando	Italy	1880	1968	68	6	1	0	0	4
Poulenc, Francis	France	1899	1962	93	26	1	1	0	8
Prokofiev, Sergey	Russia	1891	1953	48	9	0	1	0	12
Puccini, Giacomo	Italy	1858	1924	32	17	1	0	1	10
Rachmaninoff, Serge	Russia	1873	1943	43	8	0	1	0	7
Ravel, Maurice	France	1875	1937	74	35	1	0	0	23
Reger, Max	Germany	1873	1916	19	10	1	0	0	7
Respighi, Ottorino	Italy	1879	1936	36	10	1	0	0	3
Reyer, Ernest	France	1824	1908	61	10	0	0	0	1
Rimsky-Korsakov, Nikolay Andreyevich	Russia	1844	1908	38	10	0	0	1	15
Roussel, Albert	France	1869	1937	31	15	0	0	1	5
Ruggles, Carl	USA	1876	1971	72	6	0	1	0	1
Saint-Saens, Camille	France	1835	1921	65	20	0	1	0	13
Satie, Erik	France	1866	1925	36	15	1	0	0	7
Schaeffer, Pierre	France	1911	1995	41	0	1	1	0	2
Schmitt, Florent	France	1871	1958	58	13	1	1	0	4
Schoenberg, Arnold	Austria-Hungary	1874	1951	55	15	0	0	1	39
Schreker, Franz	Austria	1878	1933	39	8	0	0	0	2
Schuman, William	USA	1910	1992	63	2	0	0	0	2
Schumann, Robert	Germany	1810	1856	23	0	0	0	1	42
Scryabin, Alexander	Russia	1872	1914	21	10	0	1	1	8
Sessions, Roger	USA	1896	1985	61	7	0	0	0	4
Shostakovich, Dmitry	Russia	1906	1975	56	5	0	1	1	12

Sibelius, Jean	Finnland	1865	1957	68	5	0	0	1	10
Sinding, Christian	Norway	1856	1941	64	4	0	0	0	1
Smetana, Bedrich	Czech	1824	1884	45	6	1	0	0	12
Stanford, Sir Charles Villiers	Britain	1852	1924	49	5	1	0	0	3
Strauss, Johann (Jr.)	Austria	1825	1899	56	0	1	0	1	5
Strauss, Richard	Germany	1864	1949	63	14	1	0	0	26
Stravinsky, Igor	Russia	1882	1971	64	3	1	1	1	45
Sullivan, Sir Arthur	England	1842	1900	40	4	1	0	0	5
Szymanowski, Karol	Poland	1882	1937	31	9	0	1	0	4
Tailleferre, Germaine	France	1892	1983	88	0	1	0	0	2
Tavener, John	England	1944	2008	42	6	1	0	0	3
Tchaikovsky, Pyotr Il'yich	Russia	1840	1893	18	4	1	1	0	20
Thomas, Ambroise	France	1811	1896	65	4	1	1	1	3
Thomson, Virgil	USA	1896	1989	67	11	0	0	0	3
Tippett, Sir Michael	England	1905	1988	59	7	0	0	0	5
Vaughan Williams, Ralph	England	1872	1958	58	11	0	0	1	9
Verdi, Giuseppe	Italy	1813	1901	48	13	0	0	0	30
Villa-Lobos, Heitor	Brazil	1887	1959	56	0	1	0	0	4
Vogel, Wladimir	Russia	1896	1983	63	6	0	0	0	1
Wagner, Richard	Germany	1813	1883	41	11	0	0	0	79
Walton, Sir William	England	1902	1983	40	8	0	0	0	3
Webern, Anton	Austria	1883	1945	39	17	0	0	0	19
Weill, Kurt	Germany	1900	1949	36	22	1	0	1	5
Wellesz, Egon	Austria	1886	1974	63	3	0	1	0	2
Wolf, Hugo	Austria	1860	1903	23	6	1	0	1	11
Wolf-Ferrari, Ermanno	Italy	1876	1948	26	4	1	0	0	2
Zemlinsky, Alexander von	Austria	1872	1941	49	6	0	0	0	1

SOURCE: Composers' Index Score is taken from Murray (2003). All remaining records are obtained from Grove Music Online (2009).
NOTE: If *Father* had any musical background, we denote in the series 1, 0 otherwise. Same applies for *Mother* and *Other Family Members*. *Duration of Education* and *Duration of Career* are expressed in years.

APPENDIX 3 (NOT FOR PUBLICATION)

LIST AND DESCRIPTION OF VARIABLES

VARIABLE NAME	DESCRIPTION
A. COMPOSER VARIABLES	
Log(composer)	Logged number of all composers located in country
B. COUNTRY CHARACTERISTICS	
GDP per capita	GDP in 1990 USD adjusted by population size
Log(population)	Population in thousands at mid-year (in logs)
C. WAR VARIABLES	
Inter-state war (all)	Inter-state war dummy (=1 if inter-state war occurred in year t, 0 otherwise)
Inter-state war (colonial)	Inter-state war dummy (=1 if inter-state war occurred in year t *on other continent than country j*, 0 otherwise)
Inter-state war	Inter-state war dummy (=1 if inter-state war occurred in year t *on the continent of country j*, 0 otherwise)
Intra-state war	Intra-state war dummy (=1 if intra-state war occurred in a year t, 0 otherwise)
Inter-state war deaths	Annual battle-related deaths of a continental inter-state war (in 100'000)
Intra-state war deaths	Annual battle-related deaths of an intra-state war (in 100'000)
Inter-state war deaths adjusted by pre-war population	Annual battle-related deaths of a continental inter-state war adjusted by the pre-war population size (in percentage points)
Intra-state war deaths adjusted by pre-war population	Annual battle-related deaths of an intra-state war adjusted by the pre-war population size (in percentage points)
Inter-state war deaths adjusted by pre-war armed forces	Annual battle-related deaths of a continental inter-state war adjusted by the pre-war population size (in percentage points)
Intra-state war deaths adjusted by pre-war armed forces	Annual battle-related deaths of a intra-state war adjusted by the pre-war population size (in percentage points)

SOURCE: Composer variables are created based on information obtained from Grove Music Online (2009) and Murray (2003). Country characteristics are taken from (Madisson 2006). War variables are employed from the Correlates of War data set (Sarkees, 2000).

ROBUSTNESS CHECKS

TABLE A4.1

WARS AND COMPOSERS (Robustness Check: Disentangling the Effect of Migration)

	Dependend variable: *Log(composer)*							
	141 Composers (23 composers who *died* in a country that was engaged in warfare in that year are exluded.)				131 Composers (33 composers who *died or retired* in a country that was engaged in warfare in that year are exluded.)			
EXPLANATORY VARIABLE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(composer), t-1	0.762***	0.751***	0.762***	0.762***	0.750***	0.736***	0.748***	0.750***
	(0.0508)	(0.0567)	(0.0504)	(0.0500)	(0.0489)	(0.0550)	(0.0479)	(0.0480)
Log(composer), t-2	0.0526	0.0530	0.0588	0.0579	0.0698*	0.0710**	0.0764**	0.0750**
	(0.0378)	(0.0345)	(0.0327)	(0.0332)	(0.0323)	(0.0293)	(0.0298)	(0.0298)
Log(composer), t-3	0.00320	0.0106	-0.00174	-0.00121	-0.0143	-0.00675	-0.0192	-0.0184
	(0.0431)	(0.0493)	(0.0476)	(0.0466)	(0.0606)	(0.0662)	(0.0653)	(0.0638)
Log(composer), t-4	0.0870*	0.0861*	0.0881*	0.0877*	0.0918	0.0911	0.0926	0.0916
	(0.0450)	(0.0453)	(0.0440)	(0.0438)	(0.0516)	(0.0525)	(0.0513)	(0.0502)
Log(population)	0.0650	0.0822	0.0557	0.0553	0.130*	0.152**	0.122*	0.121*
	(0.0677)	(0.0669)	(0.0636)	(0.0635)	(0.0592)	(0.0603)	(0.0567)	(0.0552)
Log(GDP)	-0.0379	-0.0440	-0.0307	-0.0312	-0.0904***	-0.0993***	-0.0837***	-0.0833***
	(0.0440)	(0.0456)	(0.0437)	(0.0434)	(0.0266)	(0.0300)	(0.0252)	(0.0235)
Inter-state war	-0.0424*				-0.0526*			
	(0.0226)				(0.0244)			
Intra-state war	-0.0929***				-0.0911***			
	(0.0163)				(0.0184)			
Inter-state war deaths		-0.0202***				-0.0243**		
		(0.00567)				(0.00797)		
Intra-state war deaths		-0.209***				-0.216***		
		(0.0332)				(0.0330)		
Inter-state war deaths adjusted by pre-war population			-0.136*				-0.178*	
			(0.0634)				(0.0789)	
Intra-state war deaths adjusted by pre-war population			-2.894***				-2.881***	
			(0.381)				(0.378)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00121				-0.00170
				(0.00108)				(0.00132)
Intra-state war deaths adjusted by pre-war armed forces				-0.0306***				-0.0301***
				(0.00387)				(0.00371)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1126	1126	1126	1126	1114	1114	1114	1114
Adjusted R-squared	0.875	0.877	0.876	0.875	0.862	0.865	0.863	0.863
Number of countries	10	10	10	10	10	10	10	10

NOTE: All specifications are estimated by generalized least-squares and contain time-controls (that are estimated with an indicator function equal to one for each decade; not reported). Heteroscedasticity robust standard errors are clustered at the country level and reported in parentheses. All inter-state wars are continental inter-state wars (i.e. wars that occurred on the continent of the participating country). All variables are included at year t, unless stated otherwise. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

TABLE A4.2
WARS AND COMPOSERS (Robustness Check: Sample Selection)

EXPLANATORY	Dependend variable (DV):			
	Log(composer)	Log(composers in education)	Log(composers in retirement)	Log(composers during career, education or retirement)
		(COLUMN NOT FOR PUBLICATION)	(COLUMN NOT FOR PUBLICATION)	
VARIABLE	(1)	2)	(3)	(4)
Log(DV), t-1	0.724***	0.803***	0.488*	0.732***
	(0.0369)	(0.0647)	(0.194)	(0.0327)
Log(DV), t-2	0.137**	-0.0517	0.0494	0.132***
	(0.0528)	(0.0821)	(0.0479)	(0.0198)
Log(DV), t-3	-0.0242	0.0300	-0.0220	0.0271
	(0.0349)	(0.0546)	(0.0171)	(0.0315)
Log(DV), t-4	0.0810**	-0.0550	0.0430	0.0305
	(0.0308)	(0.0493)	(0.137)	(0.0246)
Log(population)	0.102	-0.0464	-0.367	0.115**
	(0.0737)	(0.0557)	(1.418)	(0.0362)
GDP per capita	0.00240	0.105**	-0.0961***	0.00337
	(0.00618)	(0.0338)	(0.0139)	(0.00583)
Inter-state war	-0.0709**	-0.0890*	0.0234*	-0.0702**
	(0.0228)	(0.0397)	(0.00815)	(0.0234)
Intra-state war	-0.111***	0.0468	0	-0.0839***
	(0.0209)	(0.0906)	(0)	(0.0196)
Country fixed effects	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Observations	1163	400	95	1258
Adjusted R-squared	0.909	0.705	0.738	0.931
Number of countries	10	8	4	10

NOTE: See Table A4.1.

9

TABLE A4.3
WARS AND COMPOSERS (Robustness Check: War Outbreak)

EXPLANATORY VARIABLE	Dependend variable: Log(composer)				
	Baseline (1)	Annual observations excluded if war started in last quarter of year (2)	Annual observations excluded if war started in last quarter or ended in first quarter of year (3)	Wars excluded if started in last quarter or ended in first quarter of year (4)	Disaggregated war-impact depending on war duration (5)
Log(composer), t-1	0.724***	0.727***	0.703***	0.704***	0.724***
	(0.0369)	(0.0359)	(0.0394)	(0.0389)	(0.0364)
Log(composer), t-2	0.137**	0.134**	0.160**	0.157**	0.139**
	(0.0528)	(0.0534)	(0.0576)	(0.0583)	(0.0516)
Log(composer), t-3	-0.0242	-0.0366	-0.0397	-0.0409	-0.0261
	(0.0349)	(0.0309)	(0.0297)	(0.0299)	(0.0355)
Log(composer), t-4	0.0810**	0.0921**	0.0973**	0.0992**	0.0805**
	(0.0308)	(0.0308)	(0.0326)	(0.0336)	(0.0315)
Log(population)	0.102	0.109	0.102	0.105	0.101
	(0.0737)	(0.0702)	(0.0710)	(0.0707)	(0.0749)
GDP per capita	0.00240	0.00190	0.00258	0.00188	0.00213
	(0.00618)	(0.00592)	(0.00610)	(0.00593)	(0.00604)
Continental war	-0.0709**	-0.0723**	-0.0689***	-0.0676**	-0.108**
	(0.0228)	(0.0259)	(0.0188)	(0.0230)	(0.0429)
Intra-state war	-0.111***	-0.111***	-0.0829**	-0.153**	-0.148***
	(0.0209)	(0.0214)	(0.0366)	(0.0629)	(0.0247)
Continental war (< 1 year)					-0.0287
					(0.0173)
Intra-state war (< 1 year)					-0.0890**
					(0.0339)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes
Observations	1163	1128	1063	1038	1163
Adjusted R-squared	0.909	0.910	0.913	0.913	0.909
Number of countries	10	10	10	10	10

NOTE: See Table A4.1.

TABLE A4.4

WARS AND COMPOSERS (Robustness Check: Country Selection)

Dependend variable: *Log(composer)*

	GENERALIZED LEAST-SQUARES							
	13 countries (Austria, Czech Republic, Denmark, England, France, Germany, Hungary, Italy, Netherlands. Russia, Spain, Switzerland and USA)				7 countries (Austria, England, France, Germany, Italy, Russia and USA)			
EXPLANATORY VARIABLE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(composer), t-1	0.740*** (0.0371)	0.724*** (0.0398)	0.737*** (0.0377)	0.741*** (0.0383)	0.727*** (0.0395)	0.701*** (0.0440)	0.722*** (0.0410)	0.726*** (0.0411)
Log(composer), t-2	0.111* (0.0530)	0.110* (0.0532)	0.110* (0.0533)	0.109* (0.0541)	0.125* (0.0607)	0.124* (0.0604)	0.124* (0.0609)	0.123* (0.0619)
Log(composer), t-3	-0.00701 (0.0343)	0.00102 (0.0370)	-0.00578 (0.0341)	-0.00516 (0.0339)	-0.0179 (0.0401)	-0.00603 (0.0458)	-0.0160 (0.0402)	-0.0153 (0.0399)
Log(composer), t-4	0.0690** (0.0294)	0.0732** (0.0316)	0.0705** (0.0317)	0.0673** (0.0303)	0.0873** (0.0329)	0.0941** (0.0354)	0.0898** (0.0363)	0.0864** (0.0342)
Log(population)	0.128* (0.0624)	0.120* (0.0574)	0.110 (0.0631)	0.116* (0.0639)	0.112 (0.0716)	0.105 (0.0650)	0.0912 (0.0764)	0.0990 (0.0765)
GDP per capita	0.00297 (0.00639)	0.00237 (0.00611)	0.00185 (0.00550)	0.00183 (0.00566)	0.00249 (0.00632)	0.00139 (0.00584)	0.000522 (0.00516)	0.000974 (0.00548)
Inter-state war	-0.0746*** (0.0222)				-0.0766** (0.0227)			
Intra-state war	-0.109*** (0.0197)				-0.107*** (0.0217)			
Inter-state war deaths		-0.0346*** (0.00504)				-0.0377*** (0.00562)		
Intra-state war deaths		-0.220*** (0.0457)				-0.231*** (0.0545)		
Inter-state war deaths adjusted by pre-war population			-0.267*** (0.0699)				-0.279*** (0.0715)	
Intra-state war deaths adjusted by pre-war population			-1.341 (0.867)				-1.369 (0.975)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00344*** (0.000955)				-0.00390*** (0.000848)
Intra-state war deaths adjusted by pre-war armed forces				-0.00752 (0.00555)				-0.00762 (0.00637)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1335	1335	1335	1335	1000	1000	1000	1000
Adjusted R-squared	0.901	0.903	0.901	0.901	0.918	0.920	0.918	0.917
Number of countries	13	13	13	13	7	7	7	7

NOTE: See Table A4.1.

TABLE A4.5
WARS AND COMPOSERS (Robustness Check: Countries with Extreme Characteristics)

Dependend variable: *Log(composer)*

GENERALIZED LEAST-SQUARES

EXPLANATORY VARIABLE	(1)	France dropped (2)	(3)	(4)	Russia dropped (5)	(6)	(7)	(8)	USA dropped (9)	(10)	(11)	(12)
Log(composer), t-1	0.753***	0.738***	0.750***	0.755***	0.760***	0.760***	0.760***	0.763***	0.744***	0.728***	0.744***	0.748***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Log(composer), t-2	0.143***	0.142***	0.143***	0.141***	0.154***	0.153***	0.153***	0.153***	0.140***	0.139***	0.140***	0.139***
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.039)	(0.038)	(0.037)	(0.038)	(0.038)
Log(composer), t-3	-0.0234	-0.0147	-0.022	-0.0219	-0.039	-0.0369	-0.0369	-0.0367	-0.0263	-0.0149	-0.0244	-0.0247
	(0.038)	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.037)	(0.037)	(0.037)	(0.037)
Log(composer), t-4	0.0858***	0.0912***	0.0880***	0.0836***	0.0842***	0.0852***	0.0858***	0.0816***	0.0925***	0.0991***	0.0937***	0.0899***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)
Log(population)	-0.0905***	-0.0953***	-0.0837***	-0.0836***	-0.100***	-0.0936***	-0.0921***	-0.0933***	-0.0887***	-0.0975***	-0.0845***	-0.0830***
	(0.027)	(0.027)	(0.028)	(0.028)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
GDP per capita	0.153**	0.169**	0.137*	0.137*	0.191***	0.173**	0.165**	0.171**	0.134*	0.174**	0.131*	0.124*
	(0.077)	(0.077)	(0.078)	(0.079)	(0.074)	(0.075)	(0.074)	(0.075)	(0.074)	(0.074)	(0.074)	(0.075)
Inter-state war	-0.0818***				-0.0543**				-0.0712***			
	(0.028)				(0.026)				(0.024)			
Intra-state war	-0.0977**				-0.116*				-0.104**			
	(0.047)				(0.067)				(0.045)			
Inter-state war deaths		-0.0316***				-0.0306***				-0.0306***		
		(0.008)				(0.011)				(0.007)		
Intra-state war deaths		-0.203***				-0.167*				-0.244***		
		(0.048)				(0.091)				(0.052)		
Inter-state war deaths adjusted by pre-war population			-0.271***				-0.175**				-0.219***	
			(0.074)				(0.068)				(0.064)	
Intra-state war deaths adjusted by pre-war population			-1.240**				-1.086**				-3.509***	
			(0.510)				(0.491)				(0.918)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00327**				-0.00184				-0.00268**
				(0.001)				(0.001)				(0.001)
Intra-state war deaths adjusted by pre-war armed forces				-0.00684*				-0.00593				-0.0366***
				(0.004)				(0.004)				(0.010)
Observations	1014	1014	1014	1014	1012	1012	1012	1012	1045	1045	1045	1045
Adjusted R-squared	0.9	0.902	0.901	0.9	0.905	0.906	0.906	0.905	0.894	0.897	0.895	0.895
Number of countries	9	9	9	9	9	9	9	9	9	9	9	9

NOTE: See Table A4.1. All regressions contain country fixed effects (not reported).

1

TABLE A4.6

WARS AND COMPOSERS (Robustness Check: Countries with Extreme Characteristics)

Dependend variable: *Log(composer)*

EXPLANATORY VARIABLE	GENERALIZED LEAST-SQUARES			
	Austria dropped			
	(1)	(2)	(3)	(4)
Log(composer), t-1	0.707***	0.688***	0.706***	0.708***
	(0.0395)	(0.0433)	(0.0410)	(0.0415)
Log(composer), t-2	0.179***	0.178***	0.179***	0.178***
	(0.0393)	(0.0391)	(0.0389)	(0.0399)
Log(composer), t-3	-0.0191	-0.00905	-0.0176	-0.0175
	(0.0413)	(0.0461)	(0.0411)	(0.0408)
Log(composer), t-4	0.0569*	0.0605*	0.0566*	0.0547*
	(0.0253)	(0.0286)	(0.0272)	(0.0265)
Log(population)	0.0910	0.0848	0.0833	0.0859
	(0.0775)	(0.0724)	(0.0807)	(0.0803)
GDP per capita	0.000217	-0.000363	-0.000661	-0.000629
	(0.00599)	(0.00551)	(0.00505)	(0.00523)
Inter-state war	-0.0722**			
	(0.0277)			
Intra-state war	-0.0983***			
	(0.0199)			
Inter-state war deaths		-0.0305***		
		(0.00464)		
Intra-state war deaths		-0.196***		
		(0.0481)		
Inter-state war deaths adjusted by pre-war population			-0.240**	
			(0.0983)	
Intra-state war deaths adjusted by pre-war population			-0.705	
			(0.534)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00319**
				(0.00120)
Intra-state war deaths adjusted by pre-war armed forces				-0.00416
				(0.00282)
Country fixed effects	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Observations	1024	1024	1024	1024
Adjusted R-squared	0.914	0.916	0.914	0.914
Number of countries	9	9	9	9

NOTE: See Table A4.1.

TABLE A4.7

WARS AND COMPOSERS (Robustness Check: Model Selection)

Dependend variable: *Log(composer)*

EXPLANATORY	GENERALIZED LEAST-SQUARES			
VARIABLE	(1)	(2)	(3)	(4)
D.Log(composer), t-1	-0.246***	-0.260***	-0.248***	-0.246***
	(0.0430)	(0.0448)	(0.0434)	(0.0439)
D.Log(composer), t-2	-0.0699**	-0.0830*	-0.0724**	-0.0706**
	(0.0294)	(0.0367)	(0.0300)	(0.0294)
D.Log(population)	0.445	-0.155	0.406	0.691
	(0.955)	(1.120)	(0.974)	(0.984)
D.GDP per capita	0.0337*	0.0330*	0.0296*	0.0340*
	(0.0168)	(0.0164)	(0.0153)	(0.0168)
Inter-state war	-0.0706**			
	(0.0238)			
Intra-state war	-0.0881***			
	(0.0185)			
Inter-state war deaths		-0.0306***		
		(0.00324)		
Intra-state war deaths		-0.199***		
		(0.0434)		
Inter-state war deaths adjusted by pre-war population			-0.237***	
			(0.0597)	
Intra-state war deaths adjusted by pre-war population			-1.201	
			(0.831)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00307***
				(0.000903)
Intra-state war deaths adjusted by pre-war armed forces				-0.00663
				(0.00503)
Country fixed effects	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Observations	1181	1181	1181	1181
Adjusted R-squared	0.090	0.104	0.093	0.087
Number of countries	10	10	10	10

NOTE: See Table A4.1.

TABLE A4.8

WARS AND COMPOSERS (Robustness Check: Model Selection)

Dependend variable: *Log(composer)*

EXPLANATORY	GENERALIZED LEAST-SQUARES			
VARIABLE	(1)	(2)	(3)	(4)
Log(composer), t-1	0.728***	0.709***	0.723***	0.727***
	(0.0395)	(0.0424)	(0.0395)	(0.0402)
Log(composer), t-2	0.141**	0.140**	0.140**	0.139**
	(0.0501)	(0.0508)	(0.0511)	(0.0514)
Log(composer), t-3	-0.0247	-0.0145	-0.0234	-0.0234
	(0.0352)	(0.0396)	(0.0351)	(0.0347)
Log(composer), t-4	0.0884**	0.0920**	0.0882**	0.0857**
	(0.0299)	(0.0319)	(0.0322)	(0.0307)
D.Log(population)	-0.136	-0.815	-0.101	0.157
	(1.249)	(1.352)	(1.264)	(1.253)
D.Log(GDP)	0.239***	0.220**	0.212**	0.242***
	(0.0673)	(0.0678)	(0.0653)	(0.0730)
Inter-state war	-0.0573**			
	(0.0243)			
Intra-state war	-0.117***			
	(0.0214)			
Inter-state war deaths		-0.0317***		
		(0.00483)		
Intra-state war deaths		-0.234***		
		(0.0364)		
Inter-state war deaths adjusted by pre-war population			-0.229**	
			(0.0717)	
Intra-state war deaths adjusted by pre-war population			-1.569*	
			(0.818)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00263**
				(0.00102)
Intra-state war deaths adjusted by pre-war armed forces				-0.00956
				(0.00557)
Country fixed effects	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Observations	1163	1163	1163	1163
Adjusted R-squared	0.909	0.911	0.910	0.909
Number of countries	10	10	10	10

NOTE: See Table A4.1.

TABLE A4.9. WARS AND COMPOSERS (Robustness Check: Model Selection). Dependend variable: *Log(composer)*

EXPLANATORY VARIABLE	Model with no lags				Model with two lags				Model with six lags			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log(composer), t-1					0.712***	0.689***	0.707***	0.710***	0.729***	0.702***	0.725***	0.729***
					(0.0431)	(0.0413)	(0.0430)	(0.0438)	(0.0450)	(0.0495)	(0.0466)	(0.0467)
Log(composer), t-2					0.181**	0.194***	0.184***	0.182**	0.133	0.135	0.134	0.134
					(0.0499)	(0.0497)	(0.0494)	(0.0500)	(0.0725)	(0.0724)	(0.0725)	(0.0735)
Log(composer), t-3									-0.0449	-0.0334	-0.0444	-0.0432
									(0.0457)	(0.0532)	(0.0462)	(0.0460)
Log(composer), t-4									0.0520	0.0509	0.0509	0.0497
									(0.0353)	(0.0367)	(0.0370)	(0.0363)
Log(composer), t-5									0.0650*	0.0682**	0.0658*	0.0640*
									(0.0283)	(0.0257)	(0.0272)	(0.0269)
Log(composer), t-6									-0.00426	0.00180	-0.00263	-0.00442
									(0.0268)	(0.0287)	(0.0278)	(0.0270)
Log(population)	1.014**	1.015**	1.008**	1.009**	0.0962	0.0978	0.0805	0.0840	0.0720	0.0609	0.0448	0.0529
	(0.413)	(0.387)	(0.408)	(0.408)	(0.0729)	(0.0664)	(0.0752)	(0.0740)	(0.0615)	(0.0570)	(0.0670)	(0.0671)
GDP per capita	0.114*	0.109*	0.109*	0.109*	0.00565	0.00499	0.00377	0.00401	4.49e-05	-0.000953	-0.00185	-0.00133
	(0.0522)	(0.0503)	(0.0498)	(0.0501)	(0.00790)	(0.00774)	(0.00690)	(0.00718)	(0.00620)	(0.00558)	(0.00530)	(0.00570)
Inter-state war	-0.0581				-0.0733**				-0.0736***			
	(0.0491)				(0.0228)				(0.0221)			
Intra-state war	-0.301**				-0.0882***				-0.114***			
	(0.0839)				(0.0234)				(0.0242)			
Inter-state war deaths		-0.0667***				-0.0368***				-0.0376***		
		(0.0139)				(0.00494)				(0.00616)		
Intra-state war deaths		-0.537***				-0.232***				-0.238***		
		(0.0769)				(0.0396)				(0.0553)		
Inter-state war deaths adjusted by pre-war population			-0.411**				-0.265***				-0.279***	
			(0.130)				(0.0666)				(0.0727)	
Intra-state war deaths adjusted by pre-war population			-2.982*				-1.532				-1.507	
			(1.444)				(0.816)				(0.942)	
Inter-state war deaths adjusted by pre-war armed forces				-0.00611*				-0.00366***				-0.00381***
				(0.00252)				(0.000752)				(0.000800)
Intra-state war deaths adjusted by pre-war armed forces				-0.0202				-0.00910				-0.00873
				(0.0111)				(0.00538)				(0.00632)
Observations	1054	1054	1054	1054	1023	1023	1023	1023	982	982	982	982
Adjusted R2	0.633	0.643	0.633	0.632	0.915	0.917	0.915	0.915	0.917	0.920	0.918	0.917
Number of countries	7	7	7	7	7	7	7	7	7	7	7	7

NOTE: See Table A4.1. All regressions contain country fixed effects (not reported).