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Are composers different? Historical evidence on conflict-induced migration (1816–1997)

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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.

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 most 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 a conductor at the Bolshoi Theater and moved to Dresden. A second influential composer—Dmitry Shostakovich—was a 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 a 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 conflicts. The undisclosed question, however, is whether composers, or more generally creative individuals, differ and to what extent from the average citizen with regard to conflict-induced migration?

We hypothesize that creative individuals might be relatively more prone to emigration in times of military conflicts than the average citizen and there are three main reasons why this may be so. Firstly, in times of war, when the fulfillment 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 refugee flows increase due to conflicts, it is not clear how the migration intensity of subgroups 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, by using a unique data set, we are able to illuminate the impact of war on a particularly valuable part of the population—the creative individuals.

In this paper, we conduct an econometric analysis of the hypothesis and investigate the impact of conflicts on the aggregated number of composers in a country. The benefit of an aggregate analysis is three-fold. 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.[1] 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 significantly high negative relationship between wars and the stock of prominent composers within a country. The incidence of intra-state wars leads to a drop in the composer stock by around 11 percent and the occurrence of international non-colonial wars result in a decrease of roughly 7 percent. 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 10 percent. 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.[2] 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 results are consistent with previous findings of research on the causes of the overall conflict-induced migration. It is often argued that the extent of forced migration varies according to the different kinds of conflicts 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). This article adds also to research on 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 between the two

[1] 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).

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

(e.g., Zolberg *et al.* 1989). There 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). One of the few studies on the benefits associated with forced migration is presented in Sarvimaki *et al.* (2009) who 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.[3]

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 conflicts 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 analyses.

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. A rich culture of arts and entertainment attracts entrepreneurs and creative individuals from other disciplines to a cluster (Andersson and Andersson 2006). Geographic clustering and the associated peer effects are an important driver for creative production of classical composers (Borowiecki 2011a) and lead to better development of careers of visual artists (Hellmanzik 2010).

The rest of the paper proceeds as follows: in the following section, we introduce the methodology and describe the data. In Section 3, we present and discuss our findings and finally in Section 4 we conclude.

2. Methodology

2.1 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 nineteenth and twentieth centuries as producers who supply cultural goods (i.e., new compositions). This proposition seems to be valid especially for prominent composers who 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, we elaborate further on composers' conditions.

[3] 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).

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

$$\text{supply} = f(\text{supply},\ \text{demand}). \tag{1}$$

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

$$\log(\text{composer}_{jt}) = \beta_0 + \sum_{i=1}^{4} \beta_1 \log(\text{composer}_{j,t-1}) + \beta_5 \log(\text{population}_{jt}) + \beta_6 \text{GDPpc}_{jt} + \beta_7 \text{inter - state\_war}_{jt} + \beta_8 \text{inter - state\_war}_{jt} + \text{decade}_t + u_{jt}$$

where $\log(\text{composer}_{jt})$ is the log number of composers in country j at year t, which is dependent on its four lagged values, on a set of variables that approximate the national demand for cultural goods and the incidence of war. The lagged $\log(\text{composer}_{jt})$ terms correspond to 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 $\log(\text{composer}_{jt})$ term is particularly high because composers stayed in a country for long periods of time, sometimes for their whole lives.[4] The proxies for contemporary demand for cultural goods and services provided by classical composers are based on the size of demand ($\log(\text{population}_{jt})$) and the purchasing power of each individual (GDPpc_{jt}). Krugman's model is extended by war variables that account whether country j is engaged in year t in war fought with an other state (i.e., $\text{inter-state\_war}_{jt}$) or in war fought within state borders between government and non-government forces (i.e., $\text{intra-state\_war}_{jt}$). 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 remains independent between countries (i.e., countries i and j do not have correlated errors).

A possible criticism of our approach is that the involvement of a composer's country of residence in a war does not necessarily 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 nation's wealth due to a war and hence a change in demand, or through a change in societies' cognition of security in times of war.

2.2 Data sources

2.2.1 Composer database. In constructing the data set, every effort was put into ensuring maximum objectivity and reliability. The list of the most important composers is taken from Murray (2003) who provided a considerable and recognized survey of outstanding

[4] Given the extraordinary persistence of the data (the lagged log(composer) terms are significant and positive up to the seventh 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 log(composer) terms maximizes model information criteria and is preferred by the *F*-test. In Section 3.1, we investigate different model specifications.

contributions to the arts and sciences from ancient times to the mid-twentieth century. Murray's work is based on numerous international references, and 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/him in the reference works. The index score is normalized for all individuals listed in each discipline 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 nineteenth and twentieth centuries. First, classical composers in the period analyzed were found to be extraordinarily mobile individuals (O'Hagan and Borowiecki 2010) and hence sensible mobility analyses 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 and 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),[5] the leading online source for music research, provided by the Oxford University Press. In this analysis, the focus 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 traveling 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 practiced, we ensure that the individual from the sample was in fact a composer and hence comparable.[6] 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.[7] In Section 3.1.1, 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

[5] See Borowiecki (2011b) for a list of composers and their background information that are included in this study.
[6] See Section 3.1 for a discussion of a potential endogeneity bias.
[7] We exclude the following composers: Alban Berg, Henry Cowell, Olivier Messiaen, Nikolay Myaskovsky, Carl Orff, Richard Wagner, and Ralph Vaughan Williams.

three countries are excluded. For the time period 1816–1997, we include Austria, England, France, Germany, Italy, Russia, Switzerland, and USA, while for 1918–1997, the study, in addition, covers Czech Republic and Hungary.[8]

2.2.2 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 1820–2006, 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 nineteenth and twentieth centuries 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.

2.2.3 Conflict database. The data on conflict is based on the Correlates of War (COW), a reliable database introduced and described by Sarkees (2000), and recognized 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,[9] 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.[10] Second, we will create a ratio between the participant deaths sustained and the pre-war population 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.

[8] Note that in 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 in the period before the unification in 1871 and during the nineteenth century, respectively, we similarly aggregate composers for both states. As all composers in Czechoslovakia (State existing from 1918 to 1993) were located within the borders of Czech Republic, we use the contemporary name.

[9] 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.

[10] 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.

Table 1. *Descriptive statistics: composers' summary* (n = *171*)

	Mean	Standard deviation
A. General characteristics		
Lifespan (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		
1800–1849	0.32	0.47
1850–1899	0.54	0.50
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 are employed from the COW data set (Sarkees, 2000).
Notes: The summary is based on 171 prominent composers. A comprehensive list of all composers covered in this study can be viewed in Borowiecki (2011c) or obtained from the authors. 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.

2.3 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 percent each, followed by Russia with 12 percent births, Italy and East European countries with each around 8 percent births.[11] The fairly

[11] See notes to table 1 for description of country grouping.

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 the nineteenth century, a half was born in the second part of the nineteenth century, and the remaining artists were born in the twentieth 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 figures 1–4. It can be observed that the French coup of 1851 corresponds with a slight decrease in the total number of composers in France. The Crimean War of 1853–1856 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 1870–1871. 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 II 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

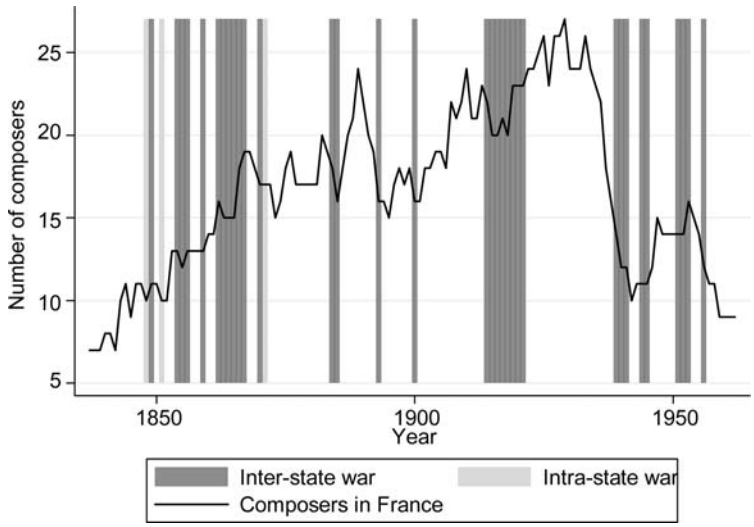

Figure 1. *Wars and composers in France. Source: Grove Music Online (2009) and Sarkees (2000). Note: The number of composers is depicted with a black line. Dark grey/light grey bars indicate the incidence of an inter-state war/intra-state war*

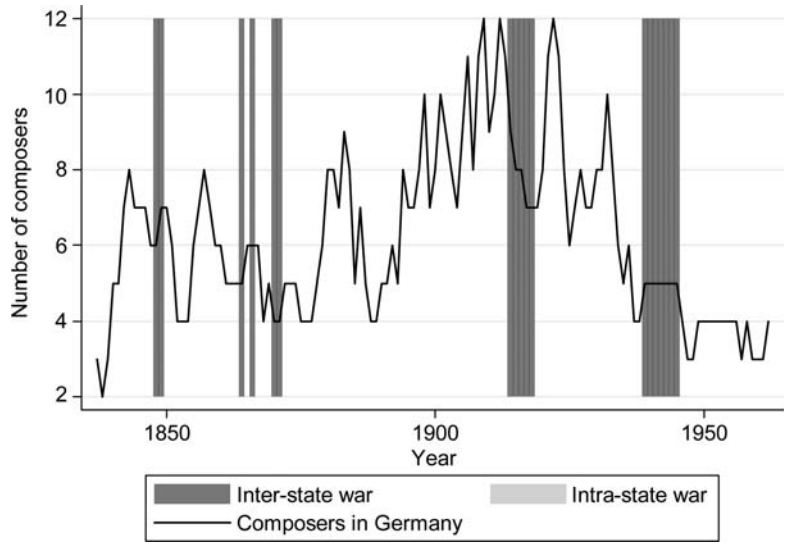

Figure 2. *Wars and composers in Germany. Source/note: See figure 1*

Figure 3. *Wars and composers in Italy. Source/note: See figure 1*

number of composers in Italy and a large irreversible drop in France. It can also be observed that for certain types of war, the number of composers actually increases, for example, in Italy during the Italo-Turkish war of 1911–1912. The war against the Ottoman Empire 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 number of composers in England, France, Germany, and Italy.

Figure 4. *Wars and composers in England. Source/note: See figure 1*

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 (0.46)	5.79 (0.48)	−0.04 (0.68)
Continental war	6.87 (0.41)	7.84 (0.48)	−0.98 (0.63)*
Colonial war	8.52 (0.66)	11.21 (0.84)	2.68 (1.07)***
Intra-state war	4.51 (0.64)	2.51 (0.45)	−2.00 (0.81)***

Note: Standard errors are in parentheses.
*Estimates that are significantly different from zero 90 percent confidence.
**Estimates that are significantly different from zero at 95 percent confidence.
***Estimates that are significantly different from zero at 99 percent confidence.

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.

3. 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

Table 3. *Wars and composers*

Explanatory variable	Dependent variable: log(composer)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log(composer), $t-1$	0.727*** (0.038)	0.721*** (0.037)	0.724*** (0.037)	0.727*** (0.037)	0.705*** (0.040)	0.721*** (0.038)	0.725*** (0.038)
log(composer), $t-2$	0.134** (0.054)	0.135** (0.053)	0.137** (0.053)	0.136** (0.053)	0.136** (0.053)	0.136** (0.053)	0.135** (0.054)
log(composer), $t-3$	−0.023 (0.030)	−0.023 (0.036)	−0.024 (0.035)	−0.025 (0.035)	−0.015 (0.039)	−0.023 (0.035)	−0.022 (0.035)
log(composer), $t-4$	0.079** (0.031)	0.082** (0.030)	0.081** (0.031)	0.081** (0.031)	0.086** (0.033)	0.083** (0.034)	0.079** (0.032)
log(population)	0.099 (0.074)	0.096 (0.076)	0.102 (0.074)	0.103 (0.076)	0.094 (0.067)	0.082 (0.076)	0.088 (0.077)
GDP per capita	0.002 (0.006)	0.002 (0.006)	0.002 (0.006)	0.002 (0.006)	0.002 (0.006)	0.001 (0.005)	0.001 (0.006)
Inter-state war (all)	−0.008 (0.012)						
Inter-state war (colonial)		0.060** (0.022)					
Inter-state war		−0.064** (0.021)	−0.07** (0.023)				
Intra-state war	−0.125*** (0.02)	−0.112*** (0.021)	−0.111*** (0.021)				
Non-colonial war				−0.078*** (0.018)			
Inter-state war deaths					−0.034*** (0.005)		
Intra-state war deaths					−0.225*** (0.048)		
Inter-state war deaths adjusted by pre-war population						−0.261*** (0.072)	
Intra-state war deaths adjusted by pre-war population						−1.397 (0.925)	
Inter-state war deaths adjusted by pre-war armed forces							−0.003*** (0.001)
Intra-state war deaths adjusted by pre-war armed forces							−0.008 (0.006)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,163	1,163	1,163	1,163	1,163	1,163	1,163
R^2	0.947	0.945	0.945	0.909	0.946	0.944	0.944
Number of countries	10	10	10	10	10	10	10

Notes: All specifications are estimated by generalized least-squares and contain time controls (that are estimated with an indicator function equal to 1 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.

*Estimates that are significantly different from zero at 90 percent confidence.

**Estimates that are significantly different from zero at 95 percent confidence.

***Estimates that are significantly different from zero at 99 percent confidence.

dependent 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 hypothesized, 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 on 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 percent decrease of the top composers in a country during each year of a war. Both estimates are significant at the 95 percent level. The fourth column presents a specification with only one dummy variable that accounts for any non-colonial war (i.e., either continental inter-state wars or intra-state wars). The coefficient on non-colonial wars is highly significant and indicates a 7.8 percent decrease in the composer stock due to the incidence of non-colonial war. In column 5, a 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 percent 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 99 percent confidence level. Also the difference between both coefficients is statistically significant at a p-value <0.01. 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 6) or the pre-war armed forces (column 7). An annual battle-related loss of 1 percent population during an inter-state conflict would decrease composers' concentration in a country by over 26 percent. A 50 percent loss of the pre-war armed forces during a year of inter-state wars would lead roughly to a 16 percent decrease in the number of composers in a country.[12] 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 that of the inter-state wars. The difference, however, is only statistically significant for the specification when one accounts for war-related deaths (as reported in the fifth column). 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. Continental inter-state wars have also been 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,

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

however, the enemy is clear and the propensity to emigrate could even diminish due to patriotic motives.

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's 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. Furthermore, with the population data, we will not be able to disentangle population deaths from the emigration intensity. Despite the shortcomings, this approach is followed as it might potentially provide insights on how the composer sample compare with the overall population.

We first estimate the impact of wars on migration patterns within the whole population. We use an amended version of 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 percent in the overall population and intra-state war reduces the population by around 0.11 percent. 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

Table 4. *Wars and population*

Explanatory variable	Dependent variable (DV)	
	log(population) (1)	log(composers share in population) (2)
Log(DV), $t-1$	1.510*** (0.098)	0.711*** (0.041)
Log(DV), $t-2$	−0.510** (0.204)	0.155** (0.054)
Log(DV), $t-3$	0.073 (0.136)	−0.041 (0.033)
Log(DV), $t-4$	−0.075** (0.028)	0.083** (0.034)
GDP per capita	0.0001 (0.00001)	0.0002 (0.007)
Inter-state war	−0.0027* (0.0012)	−0.0517*** (0.0157)
Intra-state war	−0.0012* (0.0006)	−0.099* (0.046)
Country fixed effects	Yes	Yes
Time controls	Yes	Yes
Observations	1,704	1,060
R^2	0.759	0.914
Number of countries	10	10

Notes: All specifications are estimated by generalized least-squares and contain time controls (that are estimated with an indicator function equal to 1 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.

*Estimates that are significantly different from zero at 90 percent confidence.

**Estimates that are significantly different from zero at 95 percent confidence.

***Estimates that are significantly different from zero at 99 percent confidence.

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 percent 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 5 years later is presented in panel A and the effect for various other time periods is depicted in Panel B of table 5. The first column in panel A presents the correlation coefficient between the growth rate of composers stock (i.e., overall outmigration) in year t and the logged size of composers' stock 5 years later (i.e., log(composer), $t + 5$). The estimation indicates that a 1 percent higher growth rate in composers' stock results in a 0.16 percent higher number of composers in 5 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 5 years later. The results indicate that emigration of 1 percent of composers' caused by an international conflict will lead to a decrease of around 0.58 percent of the number of composers in 5 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 5 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.

Panel B presents the impact of outmigration and the overall growth rate of composers on composers' stock 1, 2, 3, 5, 10, 15, and 20 years later. The growth in the number of composers affects the composers stock for a period of around 5 years. After this period, the coefficient looses the significance. The effect of outmigration related to intra-state wars is similar in size to that of continental inter-state war in the first 2 years after the conflict and disappears afterwards. The only persistent impact can be observed for outmigration associated with continental inter-state wars. 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 7 percent results in a presumably permanent drop of the composer stock by over 3 percent. The findings provide important evidence on the existence of a long-run destructive impact of continental wars on the creative potential of a country.

Table 5. *Emigration and the long-term*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A: Mid-term impact							
	log(composer), $t+5$	log(composer), $t+5$	log(composer), $t+5$	log(composer), $t+5$	log(composer), $t+5$		
Composers growth, t	0.159*** (0.0401)			0.109** (0.043)	0.109** (0.044)		
Intra-state war outmigration, t			−0.314 (0.265)	0.068 (0.342)	0.147 (0.368)		
Inter-state war outmigration, t		−0.577*** (0.123)		−0.481*** (0.109)	−0.452*** (0.131)		
Intra-state war, t					−0.144 (0.083)		
Inter-state war, t					−0.033 (0.066)		
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	1,144	1,144	1,144	1,144	1,144		
R^2	0.579	0.580	0.577	0.582	0.583		
Number of countries	10	10	10	10	10		
B: Long-term impact							
	log(composer), $t+1$	log(composer), $t+2$	log(composer), $t+3$	log(composer), $t+5$	log(composer), $t+10$	log(composer), $t+15$	log(composer), $t+20$
Composers growth, t	0.170*** (0.043)	0.195*** (0.049)	0.0897* (0.044)	0.109** (0.044)	0.051 (0.062)	0.036 (0.0431)	0.028 (0.053)
Intra-state war outmigration, t	−0.415*** (0.096)	−0.439*** (0.094)	−0.111 (0.403)	0.068 (0.342)	0.140 (0.192)	0.0545 (0.363)	−0.029 (0.226)
Inter-state war outmigration, t	−0.554*** (0.053)	−0.286** (0.101)	−0.457*** (0.104)	−0.481*** (0.109)	−0.467** (0.169)	−0.329*** (0.069)	−0.421** (0.132)
Population and wealth controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(*Continued*)

Table 5. *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Time controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,200	1,184	1,169	1,144	1,093	1,044	992
R^2	0.592	0.584	0.579	0.582	0.553	0.563	0.558
Number of countries	10	10	10	10	10	10	10

Notes: All specifications are estimated by generalized least-squares and contain time controls (that are estimated with an indicator function equal to 1 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.

*Estimates that are significantly different from zero at 90 percent confidence.

**Estimates that are significantly different from zero at 95 percent confidence.

***Estimates that are significantly different from zero at 99 percent confidence.

3.1 Robustness checks

3.1.1 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 twenty-three composers who died in a country that was engaged in warfare in that particular year.[13] Second, we further restrict the sample by ten composers who retired in a year when their country of residence was engaged in war.[14] The re-estimated coefficients on the relationship between the incidence of conflicts and the restricted numbers of composers in a country decrease only marginally in size, remain always negative and significant.[15] The emerging picture indicates the robustness of the main findings.[16]

3.1.2 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 are 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 (with a standard deviation of 4.76). The only notable reason for retirement is an illness, which is sufficiently exogeneous.[17] Nonetheless,

[13] 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, and Alexander von Zemlinsky.

[14] 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, and Ermanno Wolf-Ferrari.

[15] We do not report the results of the robustness tests. All results can be viewed in Borowiecki (2011b) or upon request.

[16] 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 a career).

[17] For example, Henri Duparc retired in 1885 at the age of 48 due to neurasthenia or Copland Aaron in 1972 at the age of 19 due to the Alzheimer disease.

we address this issue by investigating the impact of war 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). We find for the extended sample that 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.[18]

A related concern is the risk of endogeneity of war. It is possible that some omitted variables are correlated with the number of composers in a country and the incidence of war. If such variables are country-specific and varying over time, the introduced controls might not capture that variation adequately. To address this potential bias, a large set of country-decade controls is introduced. The additional control variables are indicator functions that take the value one for each country and each decade. Encouragingly, the coefficients on the war variables remain consistent and we conclude that the results are not biased by any factors that vary over time within a country.

A final concern related to endogeneity of a variable is reverse causality. In this research design, however, this potential bias is hardly an issue. The causal relationship between composer stock and war appears to be clear: war influences the number of composers in a country and not the other way round.

3.1.3 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 1 January to 30 December. As it is possible that the outburst of a war during the later months of the year had a different or 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 last quarter of the year. 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. Finally, in the strongest test, 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 on whether the conflict lasted a full year or less. 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 of civil wars that lasted less than a full year might be 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.

3.1.4 Country selection. Next we analyze how the results change when a different number of countries are considered in the study. For this reason, we extend or restrict the original selection of ten countries, where most of the classical composers have been located. We first extend the selection by an additional three countries. Second, we subtract

[18] In a disaggregated analysis, we also find that inter-state wars consistently decrease the number of composers in education by 8.9 percent and there was no significant influence of intra-state wars. The incidence of inter-State wars increases composers' decision to retire by 2.3 percent and the 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).

three countries that were less important destination for composers.[19] 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.

3.1.5 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 twentieth century, while it was an important destination for composers. Finally, we exclude Austria as the dissolution of the Austro-Hungarian Empire in the early twentieth century might have caused a jump in the data and hence a bias in our estimations. From the conducted estimations, it can be concluded that the results seem not to be affected by any extreme country characteristic.

3.1.6 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.

Ideally, one would further investigate the consistency of the results when controls for wealth inequalities are included. It could 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 available data on income inequalities are, however, scarce, lack the required continuity, and do not sufficiently cover the countries or time periods analyzed in this article. Therefore, any further specifications accounting for wealth distribution within nations are very difficult to be executed in this research. On the other hand, the national wealth might be a superior determinant for cultural infrastructure, as only wealthy countries are financially capable of, for example, building and maintaining expensive cultural infrastructure, such as concert halls or opera houses. Furthermore, 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.

4. 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 1816–1997. 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

[19] The original selection of ten countries, as described in Section 3, is extended to Denmark, the Netherlands, and Spain (study of thirteen countries) or restricted by Czech Republic, Hungary, and Switzerland (study of seven countries).

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.

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 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 conflicts 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 particular, 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 in order to illuminate the micro-level determinants of conflict-induced migration. In particular, studies on the destination of forced migrants, such as that of Borowiecki (2011c), could potentially provide new insights.

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Appendix. Conditions for composers in the nineteenth and twentieth centuries

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 eighteenth century and early nineteenth 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.[20] 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 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.

[20] For example, before the emergence of the piano in the second half of the eighteenth century, the organ, the clavichord, and the harpsichord were the only keyboard instruments available. Each of these 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, whereas the organ was restricted to being played only in the building where it was located.