

Assessing the relationships
between engagement in music
and subjective wellbeing.



music, singing and wellbeing

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Executive summary

This report is concerned with the association between engagement in music and subjective wellbeing (SWB). Previous research has shown that *evaluative* measures of SWB (in particular, global assessments of life satisfaction) are positively related to attending music events, but negatively related to performing music. In contrast, attending music events, performing music and listening to music are all positively associated with *experiential* measures of SWB (based on reports of happiness felt in the moment).

The report presents new evidence on how engagement in music relates to SWB. It examines more specific music activities than previous research, as well as a wider range of SWB measures. The report also investigates the association between engagement in music and basic socio-demographic background. The new evidence comes from the analysis of large datasets that have not been explored for similar purposes before: 1) Taking Part; 2) Understanding Society; 3) American Time Use Survey; and 4) LSE Olympics Study. The first two datasets were used to study evaluations of SWB in relation to overall participation in various music activities, and the latter two were used to look at experiences of the SWB associated with listening to music and other daily activities.

The findings are consistent with previous research, and they provide further insight. At the evaluation level, life satisfaction, happiness, anxiety and worthwhileness emerged to be significantly associated mainly with attending some music events (e.g., musicals, concerts of classical, gospel, jazz, pop and rock music) and listening to music. These associations are generally positive, though they appear relatively weak when compared to how evaluative SWB is related to important policy outcomes, such as employment. As an example, consider listening to music: on a 0-10 scale, participation in this activity is linked to increased life satisfaction by about 0.1 units on average, whereas the contribution to life satisfaction of being employed compared to unemployed is around 0.5 units.

At the experience level, the findings confirm that listening to music is positively related to happiness, and positive relationships were also found for meaning, reduced stress and reduced tiredness (experienced worthwhileness seems instead negatively related to listening to music). These associations are comparatively stronger than those recorded between listening to music and evaluative SWB, and also compared to the association between experiential SWB and important policy outcomes. For instance, the average increment in experienced happiness from listening to music was estimated to be 0.8 (again, on a 0-10 scale); this compares to the contribution of being employed compared to unemployed, which does not exceed 0.3 units. Similar comparative results hold for experiential measures of SWB other than happiness.

In terms of the socio-demographic correlates of engagement in music, age, ethnicity and education level appear the most important ones. Engagement in music mostly declines as people get older; ethnic minorities are less likely to take part in most of the music activities considered; while having a higher education level predicts attending concerts of classical, pop, rock and jazz music, as well as performing music. Income, health, employment and not having children exhibit positive relationships mostly to attending music events.

Bearing in mind their correlational nature, these findings demonstrate that the measure of SWB matters in establishing what works for music and wellbeing, and in particular they reveal much stronger associations for experiential as compared to evaluative measures. These results have implications for policymakers, who should pay due regard to the importance of the measure when appraising the benefits of interventions promoting engagement in music. Future research should be directed to determining the causal relationships between music and SWB.

1. Introduction

1.1. Aims, scope and research questions

This report was written with the intent of better understanding what works with regard to engagement in music and subjective wellbeing (SWB). It presents new evidence on how taking part in music activities is related to SWB, and it then discusses the current state of knowledge about such a relationship.

The report is only concerned with *associations* between engagement in music and SWB: the new evidence presented below and the existing one most frequently cited throughout are correlational in nature, whereby no causal statements should be extrapolated from them. Further, the report focuses on *average* associations, and it does not consider how third variables (e.g., socio-demographic background) moderate the relationship between engagement in music and SWB.

The evidence presented in this report comes from the analysis of large datasets that have not been analysed for the same purpose before. The data analysis was conducted with three research questions in mind, which are also three ways in which this report improves upon previous research.

1. Does the relationship between engagement in music and SWB depend on which forms of engagement and which mental states are considered?

Engagement in music can take many forms, depending on which activities people take part in (e.g., attending a rock concerts, playing the guitar), and SWB consists of an array of mental states and feelings (e.g., anxiety, happiness, meaningfulness, life satisfaction). Previous research conceived engagement in music very broadly (e.g., as attending any music events, or as performing music in any way) and focused on a few mental states (mostly life satisfaction and happiness). This report considers more specific forms of engagement (e.g., particular music events or ways of performing music), including whether people take part in music activities in a group or by themselves; and many more mental states, covering both hedonic and eudemonic feelings. Increasing the spectrum of music activities and mental states examined allows understanding which forms of engagement in music are related to which mental states.

2. Does the relationship between engagement in music and SWB depend on the level at which engagement in music and SWB are assessed?

The relationship between engagement in music and SWB can be analysed at the evaluation level (i.e., looking at people's overall participation in music activities, and at their overall feelings in life) or at the experience level (i.e., looking at people's actual experiences of engagement in music, and at their feelings in the moment). Previous research has never compared the two levels of assessment, although they are fundamentally different standpoints to study music and SWB. Analysis the

relationship at the evaluation level means looking at whether the people who generally engage in music differ, in the way they feel overall in life, from the people who do not engage in music. Conversely, the analysis at the experience level concerns whether the way people feel when they are taking part in music activities are any different from the way they feel on average when taking part in other activities. This report seeks to investigate both levels, so as to establish whether they give rise to different insights about how engagement in music relates to SWB.

3. How does engagement in music relate to people's socio-demographic characteristics?

Different socio-demographic groups are likely to exhibit different tendencies to engage in music, and people's socio-demographic background can in part predict the specific music activities they take part in. Previous research largely overlooked the socio-demographic correlates of engagement in music. This report attempts to shed light on this aspect, so as to understand which groups are more likely to participate in which music activities and thus identify populations to whom potential music-based policy interventions can be addressed.

1.2. Subjective wellbeing

In recent years, academics and policy-makers have been showing increasing interest in measuring SWB for monitoring wellbeing trends in society and conducting the cost-benefit appraisal of policy interventions.¹ SWB is a mental state account of wellbeing, focusing on people's feelings. Several measures of SWB are currently in use in research and policy settings, which can be conveniently classified along two dimensions (Dolan, 2014; Dolan & Kudrna, 2016).

Along the first dimension, SWB measures can be defined as either hedonic or eudemonic, depending on which mental states are assessed. Hedonic SWB captures such feelings as happiness, anxiety and stress. Eudemonic SWB, conversely, identifies such feelings as meaningfulness, purpose and worthwhileness.

Along the second dimension, SWB measures can be characterised as either evaluative or experiential, depending on the level at which mental states are assessed. SWB is measured at the evaluation level when it reflects people's global judgements concerning how their lives are going in general, or how they feel overall. SWB is measured at the experience level when it instead captures the flow of feelings over time, as based on what people are doing in the moment.

Evaluative measures of SWB are normally collected in national surveys by having people report on their overall feelings. The most common evaluative measure is life satisfaction, which is typically assessed by asking the question "*Overall, how satisfied*

¹ See the pronouncements of, for example, Dolan and Kahneman (2008), Dolan et al. (2011), Layard (2005), National Academy of Sciences (2014), Organisation for Economic Cooperation and Development (2013), Stiglitz et al. (2009) and Waldron (2010).

are you with your life?” (Layard, 2005).² Life satisfaction is generally considered a summary measure of evaluative SWB, which entails both hedonic and eudemonic aspects. Other evaluation-based measures include overall happiness (*How happy are you these days, all things considered?*), which is an example of hedonic measure; overall worthwhileness (*How worthwhile are the things that you do in your life?*), which is an example of eudemonic measure; and overall daily feelings (e.g., *How anxious did you feel yesterday?*), which can be both hedonic or eudemonic, depending on the feeling being assessed.³

By contrast, experiential measures of SWB require a direct assessment of people’s experiences, which normally involves asking them to report how they spend their time and how they feel meanwhile. The most widely used technique for assessing experienced SWB is the Experience Sampling Method (ESM; Stone et al., 1999), which involves asking people to report (among other things) what they are doing and how they are feeling at random moments in a day. Other assessment techniques include the Day Reconstruction Method (DRM; Kahneman et al., 2004), which requires people to list the activities they have done throughout a day and report, for each activity, for how long they have done it and how they felt while doing it.

1.3. Summary of previous research

Previous research generally documented at least an association between engagement in music and SWB. Some controlled studies actually demonstrated a seemingly causal, positive impact of the former on experienced feelings, as revealed by psychophysiological measures and self-reports. Recent correlational studies (those this report can be more closely compared with) examined the relationship between engagement in music and SWB at both the evaluation and the experience level.

At the evaluation level, previous research has only been concerned with life satisfaction (see Fujiwara et al., 2014; Marsh et al., 2010). The available evidence suggests that life satisfaction is positively related to attending music events and, if anything, negatively related to performing music. In other words, on average, the people who generally attend music events and the people who generally perform music report to be, respectively, more and less satisfied with their lives, as compared to the people who do not generally engage in these activities.

At the experience level, previous research examined experienced feelings of happiness and relaxation only (see Fujiwara & McKerron, 2015). The evidence pinpoints a positive correlation between these feelings and attending music events, performing music and listening to music. In other words, on average, people report to

² A close relative of life satisfaction is the so-called Cantril’s ‘ladder of life’ scale, which captures where people would locate themselves on imaginary ladder whose bottom represents the worst possible life for them and whose top represents the best possible life for them.

³ Measures of overall daily feelings are in fact a hybrid between evaluative and experiential measures, as they require people to make an evaluation but they somehow capture the flow of feelings on a daily basis. In this report, however, overall daily feelings are contemplated among the evaluative measures, since they are not collected with reference to what people do (as experiential measures generally are).

feel happier and more relaxed when they are spending time in these activities than when they are spending time in other ways.

Evidently, the results arising are partly inconsistent across the evaluation and the experience levels: only some forms of engagement in music are positively related to life satisfaction, but many more exhibit a positive association with experienced happiness and relaxation. Moreover, the associations found for experiential measures of SWB are comparatively stronger than those recorded for life satisfaction (see Appendix for further details), suggesting that engagement in music is a better predictor of experienced happiness and relaxation than it is of life satisfaction.

Some scholars (e.g., Roederer, 1984; Russell, 1997) noted that music promotes social cohesion. Hence, at least part of the above (positive) associations can be explained as the aftermath of the positive contribution that being with other people generally has on SWB, however measured. There is however mixed evidence on whether group participation in music activities is related to SWB any differently than solo participation (cf. Stewart & Lonsdale, 2016; Valentine & Evans, 2001).

Previous research sporadically examined which socio-demographic characteristics predict engagement in music. The closest piece of evidence available (Marsh et al., 2010) suggests that participation in culture, which was measured including attendance at music events, is positively related to education level and income, is more common among women, and increases with age.

Previous correlational research is not devoid of limitations (mostly because its primary focus was never on engagement in music). First, it measured engagement in music broadly (attending any music event; performing music in any way), without disentangling the relationships to SWB of more specific music activities (e.g., attending particular music events, playing an instrument, singing, writing music). Second, previous research has considered only a narrow range of mental states and overlooked others (above all, eudemonic measures of SWB). Third, results at the evaluation and the experience levels have never been compared explicitly. Fourth, there has been no major investigation of the socio-demographic correlates of engagement in music. Further research is required to fill these voids, and this report is a first step in this direction.

2. Methodology

2.1. Data

The following datasets were chosen for the analysis, for they cover a wide range of music activities and of mental states, and because they have not been analysed for the purposes of this report yet.

1. **American Time Use Survey** (ATUS), 2010, 2012 and 2013
2. **LSE Olympics Study** (OS), 2011, 2012 and 2013
3. **Taking Part** (TP), 2011-12, 2012-13, 2013-14 and 2014-2015
4. **Understanding Society** (USoc), 2010 and 2013

The following music activities are covered across all four datasets:

- Attending concerts of:
 - African music
 - Brass music
 - Celtic music
 - Choral music
 - Classical music
 - Dance music
 - Folk or country music
 - Gospel music
 - Jazz music
 - Pop or rock music
 - Reggae music
 - Soul or hip-hop music
 - Southern Asian music
 - Spanish music
- Attending musicals
- Attending the opera or operetta
- Listening to music
- Performing for the opera
- Playing an instrument for leisure
- Playing an instrument for performance or rehearsal
- Singing to an audience
- Writing music

Among the above activities, only listening to music is measured both at the evaluation and at the experience levels. All the other music activities listed above are only captured at the evaluation level.

For the following activities, information on whether people participated by themselves or in a group context is available: performing for the opera, playing an

instrument for leisure, playing an instrument for performance or rehearsal, singing to an audience and writing music. This information is taken into account, in order to study whether group engagement differs from solo engagement in its relationship to evaluative SWB.

Moreover, when listening to music is measured at the experience level, it is known whether people were listening to music by themselves or in the presence of other people, and this information is taken into account in order to study differences between listening to music alone and with other people in their relationships to experiential SWB.

The following mental states were available across all four datasets:

- Anxiety
- Happiness
- Life satisfaction
- Meaning
- Pain
- Sadness
- Stress
- Tiredness
- Worthwhileness

Life satisfaction is only measured at the evaluation level, while meaning, pain, sadness, stress and tiredness only at the experience level. All the other mental states are measured at both levels of assessment. All measures of SWB were converted to a 0-10 metric prior to the analysis (if they were not measured on this scale already), so as to facilitate comparisons across mental states and levels of assessment.

The following socio-demographic measures were considered when analysing the relationship between engagement in music and basic socio-demographics background:

- Gender
- Age
- Geographical region
- Ethnicity
- Education
- Marital or civil partnership status
- Having children aged 16 or less
- Employment status
- Household income
- House tenure
- Health
- Disability

2.2. Analysis

Three types of analysis were conducted in order to study three different types of relationship.

1. The relationship between engagement in music and SWB at the evaluation level.

In this type of analysis, engagement in music is measured as *overall* participation in music activities (i.e., whether or not people generally take part in these activities), and SWB as evaluations of mental states. The objective is to assess whether people report significantly different levels of evaluative SWB depending on their overall engagement in music.

2. The relationship between engagement in music and SWB at the experience level.

In this type of analysis, engagement in music is measured as *experiences* of participation in music activities (i.e., when people are actually taking part in those activities), and SWB as experienced mental states. The objective is to assess whether people report significantly different levels of experiential SWB in the moments in which they are engaged in music and in the moments in which they are engaged in some other activities.

3. The relationship between engagement in music and basic socio-demographic background.

This type of analysis examines whether the likelihood of participation in music activities is significantly related to basic socio-demographic characteristics. In this case as well, engagement in music is measured as *overall* participation in music activities, because the focus is on how socio-demographic background predicts whether people generally participate in music activities (regardless of how their experiences of participation look like).

TP and USoc data were used for the first and the third types of analysis only, since they capture engagement in music and SWB at the evaluation level and not at the experience level. ATUS and OS, conversely, were used for the second type of analysis only, since they capture engagement in music and SWB at the experience level but not at the evaluation level.

The analysis was based on linear regression modelling, which is standard practice in related research.

3. Summary of findings

3.1. Engagement in music and evaluative SWB

The analysis of the relationship between engagement in music and SWB at the evaluation level gave rise to the following results (estimated regression coefficients in parentheses).

- **Anxiety** is positively related to playing an instrument for performance or rehearsal (+0.20), and negatively related to attending concerts of gospel music (-1.41).
- **Life satisfaction** is positively related to attending classical music concerts (+0.19) and attending pop, rock or jazz concerts (+0.11), attending musicals (+0.15) and listening to music (+0.09).⁴
- **Happiness** is positively related to attending concerts of gospel music (+0.72), attending concerts of soul or hip-hop music (+0.11), attending musicals (+0.10) and listening to music (+0.12).
- **Worthwhileness** is positively related to attending concerts of Southern Asian music (+0.31), attending musicals (+0.12), listening to music (+0.15) and playing an instrument for leisure in a group (+0.29).

For all the other music activities considered, SWB is not significantly related to engagement in music in any way at this level of assessment. Moreover, group engagement does not generally moderate the above relationships (the only exception, as shown above, is found for playing an instrument for leisure in a group, which is related to worthwhileness only when performed in a group).

Most of the above associations are comparatively weak, when confronted with the relationships between evaluative SWB and policy-relevant outcomes. As an example, consider the relationship between SWB and being employed (compared to unemployed). This relationship is estimated to be positive for life satisfaction (+0.48), happiness (+0.41) and worthwhileness (+0.27), and negative for anxiety (-0.39). Evidently, these associations largely outweigh those recorded for almost all the music activities considered.⁵ Similar comparative results arise when looking at other policy-relevant outcomes (e.g., health, owning a house).

3.2. Engagement in music and experiential SWB

⁴ Notably, attending classical music concerts and attending pop, rock or jazz concerts are not significantly related to life satisfaction based on TP, but only based on USoc. Such inconsistency across TP and USoc might reflect differences in the populations these two datasets represent (people from England and people from all over the UK, respectively).

⁵ A notable exception is given by attending concerts of gospel music, which outweighs employment in its relationships to happiness and anxiety.

The analysis of the relationship between engagement in music and SWB at the experience level gave rise to the following results (estimated regression coefficients in parentheses).

- **Happiness** is positively related to listening to music (+0.85).
- **Meaning** is positively related to listening to music (+0.71).
- **Stress** is negatively related to listening to music (-0.48).
- **Tiredness** is negatively related to listening to music (-0.67).
- **Worthwhileness** is negatively related to listening to music (-0.38).

No significant associations were observed for the other mental states considered at the experience level of assessment (i.e., anxiety, pain, sadness). Moreover, it was found that listening to music with other people does not moderate the relationship between listening to music and experiential SWB.

Compared to how important policy-relevant outcomes relate to experiential SWB, listening to music shows quite a strong association. For example, take employment (relatively to unemployment) as benchmark. Employment is significantly associated with happiness (+0.27), stress (-0.38), tiredness (+0.76) and worthwhileness (+0.38), but no significant association was found with meaning. Aside from worthwhileness, listening to music overweighs employment in all such cases, and it also exhibits an opposite association in the case of tiredness). Although not always as prominent, similar comparative results emerge when considering other policy outcomes (e.g., health, owning a house).

3.3. Engagement in music and socio-demographics

The analysis of the relationship between engagement in music and basic socio-demographic background gave rise to the following results (estimated regression coefficients in parentheses).

- **Gender.** Women are more likely than men to attend musicals (+12%), and slightly more likely to attend classical music performances (+2%) and listen to music (+2%). Men, by contrast, are more likely to play an instrument (+5%) and to write music (+2%).
- **Age.** As compared to the young (30 or less years old), middle-aged people (between 31 and 60 years old) and the elderly (61 or more) are more likely to attend classical music performances (+3%; +9%) and the opera (+1%; +5%). Yet participation in most music activities decreases with age: these are the cases of, for example, attending concerts (-3%; -16% for pop, rock or jazz music; -5%; -10% for soul or hip-hop), listening to music (-7%; -11%), playing a musical instrument (-5%; -8%), singing (-2%; -2%) and writing music (-3%; -4%).
- **Ethnicity.** Compared to White people, people with Black or Asian background are significantly less likely to attend classical music performances (-8%; -6%), musicals (-11%; -9%) and pop, rock or jazz

concerts (-18%; -23%), as well as to play a musical instrument (-3%; -7%) and to sing (-2%; -3%). The Asian are also less likely to listen to music compared to both Black and White people (-6%). Yet, while Black people are more likely than White people to attend gospel (+2%) and soul or hip-hop concerts (+3%), the Asian are more likely to attend Southern Asian music concerts (+5%).

- **Education.** Compared to people with only GCSE or less, those coming from higher education are more likely to attend classical music performances (+13%), musicals (+7%), concerts (+13% for pop, rock or jazz music; +8% for other music genres on average) and the opera (+7%). They are also more likely to play an instrument (+10%), sing (+5%), write music (+2%) and also slightly more likely to listen to music (+3%). The people whose highest qualification stands in between these two groups tend to stand in between also in terms of engagement in music.
- **Marital status.** Married people or those in a civil partnership are more likely to attend musicals, as compared to the unmarried ones (+4%). Yet, compared to the same group, they are less likely to attend concerts (-4% for pop, rock or jazz; -2% for soul or hip-hop) and play an instrument (-2%).
- **Having children aged 16 or less.** Having at least one child is associated with a reduced likelihood of attending classical music performances (-4%), musicals (-7%), concerts (-7% for pop, rock or jazz; -3% for soul or hip-hop; -4% for other genres) and the opera (-2%).
- **Employment status.** The unemployed and the people outside of the labour force are less likely than the employed to attend musicals (-6%; -3%) and concerts of pop, rock or jazz music (-8%; -5%). Yet those outside of the labour force are more likely to play an instrument, as compared to the other two groups (+2%).
- **Household income.** Those whose yearly income is above the median are significantly more likely to attend music events, and in particular classical music performances (+3%), musicals (+2%) and concerts of pop, rock or jazz music (+4%).
- **Owning a house.** The people who own a house are more likely to attend classical music performances (+3%), musicals (+5%) and concerts (+6% for pop, rock or jazz; +3% for soul or hip-hop), as well as to play a musical instrument (+2%).
- **Health.** The people who report being in good or excellent health are also more likely to attend classical music performances (+2%), musicals (+4%) and concerts (+4% for pop, rock or jazz; +2% for soul or hip-hop). They are also more likely to play an instrument (+2%).

No remarkable associations have been found for geographical region and disability.

4. Discussion and policy implications

Overall, the findings presented above are fairly consistent with what previous research documented about the relationship between engagement in music and SWB. At the evaluation level, the above findings confirm that the people who generally attend music events report to be more satisfied with their lives, while taking part in activities that involve performing music does not exhibit any positive association with life satisfaction. At the experience level, the above findings endorse existing evidence that people report to be happier when they are listening to music than when they are spending time in other ways.

The evidence presented above is also a step forward towards answering the research questions that motivated this report in the first place. Based on the new evidence on what works between music and SWB, and on the former studies this report has built on, it is possible to make the following statements and draw related policy implications.

1. The relationship between engagement in music and SWB depends on which music activities and which mental states are considered.

Many forms of engagement in music are related to SWB, and some certainly exhibit consistent relationships across mental states. Thus, attendance at musicals and listening to music show similar associations to evaluative SWB across life satisfaction, happiness and worthwhileness. Likewise, experiences of attending, performing and listening to music are positively associated with both experienced happiness and experienced relaxation; consistently, it was shown here that listening to music is linked to lower levels of tiredness.

Nonetheless, the evidence suggests that both the music activity and the mental state that are taken into consideration shape the relationship between engagement in music and SWB. The specific music activity matters because not all forms of engagement in music are related to SWB, independently of the mental state. It was shown above that attendance at many kinds of concerts and other music-based performances (e.g., opera or operetta) is in no way linked to evaluative SWB, and performing music in the form of playing an instrument, singing or writing music also seems to lack any connection with SWB at the evaluation level. Furthermore, engagement in music within a group setting does not seem to make any difference compared to participating individually, at both the evaluation and the experience level.

Which mental state is considered matters because the same activity might be related to SWB as according to some mental state, but it might not according to another. Discrepancies can be observed, first, across hedonic and eudemonic mental states: for example, only attendance at certain kinds of concert is associated with happiness (namely, concerts of soul, hip-hop or gospel music), while attendance at others (concerts of Southern Asian music) is more related to overall worthwhileness, and yet at others (classical, pop, rock, jazz music) more with the hybrid life satisfaction.

Similarly, people generally feel happier when they are listening to music, but they seem to find spending time in this activity less worthwhile.

Some inconsistencies also arise within hedonic and eudemonic measures. The people who generally attend musicals, for instance, report greater overall happiness but not lower overall daily anxiety. Experiences of listening to music are characterised by higher levels of happiness, but not necessarily by lower levels of anxiety and sadness. Moreover, while these experiences are found to be more meaningful than other experiences on average, they do not appear to be more worthwhile.⁶

In addition, different mental states can drastically affect the strength with which the same form of engagement in music is related to SWB. Attending gospel music concerts is linked to both evaluative happiness and anxiety, and yet it is more strongly related to the latter than to the former. In a similar fashion, listening to music is a more important predictor of experienced happiness than it is of experienced meaning and stress.

What are the policy implications? Given how the relationship between engagement in music and SWB is shaped by which form of engagement and which mental state are considered, policymakers should pay due regard to both aspects before implementing interventions to promote engagement in music. It should not be taken for granted that promoting engagement in music in any form works for SWB, because for many music activities this might not to be the case, and careful consideration of the specific music activity to build an intervention on is critical to the success of the intervention.

The importance of taking judicious account of the mental state is especially manifest in the cost-benefit appraisal of music-based interventions. Focusing on some mental states only and neglecting others can lead into miscalculating the SWB benefits of an intervention and miss opportunities for fruitful policymaking: cost-benefit analyses rigidly based on life satisfaction and that overlooks happiness and anxiety, for example, might not be able to correctly assess the benefits related to attendance at concerts of soul, hip-hop or gospel music.

2. The relationship between engagement in music and SWB depends on the level at which engagement and SWB are assessed.

Sometimes, measuring engagement in music and SWB at the evaluation level gives rise to results that are consistent with an assessment at the experience level. The findings presented above, for example, demonstrate that the people who generally listen to music report to feel happier in life overall, which is consistent with the fact that people report to feel happier when they are listening to music than when they are doing other things. Equally, listening to music is related neither to evaluative nor to

⁶ It is also possible that the opposite associations found for experiential meaning and worthwhileness reflect differences inherent to the people who reported on their experiences of meaning and of worthwhileness. Meaning was measured in ATUS, which surveys American people, while worthwhileness was measured in OS, which surveys people from London, Paris and Berlin.

experienced anxiety. Similar consistencies across evaluations and experiences are found also for attending music events in previous research.

Often, however, evaluation-based and experience-based perspectives generate different insights. At the evaluation level, no or even negative associations are found between SWB and active forms of engagement involving doing music (such as playing an instrument, singing and writing). Conversely, when studies have looked at experiences, these activities appear to be associated with increased levels of SWB, at least as measured by happiness and relaxation. Based on other mental states, however, the experience level can show negative associations when the evaluation level shows positive association: for example, the findings of this report show that people report to find listening to music less worthwhile than other activities, but those that generally listen to music find their lives more worthwhile than those who do not.

The two levels of assessment do not agree on the strength of the association between engagement in music and SWB. The findings of previous research imply that engagement in music is a more important predictor of SWB at the experience level than it is at the evaluation level. The findings presented above show similar tendencies: thus, listening to music is more related to experienced happiness, meaning and stress than it is to life satisfaction, overall happiness and overall worthwhileness.

Another difference between the evaluation and the experience levels lies in how the relationship between SWB and engagement in music compares to the relationship between SWB and such policy-relevant outcomes as employment status, health and housing. At the evaluation level, the former appears rather weak, when confronted with how evaluative SWB correlates to those policy outcomes. To the contrary, the contribution to experiential SWB of being engaged in music seems to outweigh those of other policy outcomes (though not for all mental states). The case of listening to music is emblematic: this form of engagement in music is a poor predictor of SWB relatively to policy outcomes at the evaluation level, but it is a comparatively better predictor of SWB at the experience level.

It is tempting to make sense of the different insights emerging at the two levels of assessment by appealing to an explanation based on how people use their attention. When evaluating their lives, people are likely to focus their attention more on their goals and achievements (e.g., having a job, being in good health, owning a house) and less on their engagement in music. Conversely, when experiencing their lives, people are more likely to focus on the things they are doing in the moment (for instance, music activities) and less on their goals and achievements. This would explain why engagement in music matters so little or not at all to evaluative SWB relatively to other policy outcomes, while making such a comparatively large contribution to experienced SWB.

The attention-based explanation, however, implies that engagement in music has a causal impact on SWB, but whether there is indeed such a causal nexus is not clear yet and cannot be ascertained based on correlational research only. All that may be said is that evaluations and experiences are fundamentally different standpoints from which to look at the relationship between engagement in music and SWB.

What are the policy implications? Given that the two levels of assessment provide inherently different, and sometimes inconsistent evidence on what works in relation to engagement in music and SWB, it is vital that policymakers do not overlook any of them. Policymakers should not contemplate the evaluation and the experience levels as substitutes for one another, but rather as complements to simultaneously use in policy analysis. Only by looking at both levels of assessment may the account of the SWB benefits of alternative courses of action be considered complete.

Omitting the experience level from cost-benefit analysis means that opportunities for improving SWB could be missed out. Consider, for example, how the prospect of intervening to promote listening to music would look like based on the findings outlined above. At the evaluation level, the intervention would not look very attractive in terms of potential SWB benefits (whatever mental state is used to measure SWB), especially when compared to alternative policies aiming at increasing SWB by reducing unemployment or at improving health. Contrariwise, only by considering the experience level can policymakers fully appreciate the benefits of promoting listening to music, and relevant interventions could then be put forward alongside interventions directed at achieving other important outcomes.

3. Engagement in music is related to basic socio-demographic background, but it is largely explained by other factors.

People's socio-demographic characteristics can predict their participation in music activities quite well. In particular, age, ethnicity and education are the most important predictors of both more active and more passive forms of engagement in music. Attending music events, performing and listening to music are all more common among young, White and highly educated people. The elderly are more likely to attend classical music concerts and the opera, but less likely to attend other concerts and to listen to music. Ethnic minorities are somewhat cut off from all music activities considered (especially Asian people), although they are more likely to attend specific kind of concerts (e.g., gospel and soul for Black; Southern Asian music for Asian). Having a University degree is associated with all sorts of music events, playing a musical instrument and singing.

Other factors are important, too, but to a lesser degree, and they mostly predict attendance at music events. Being married and especially having children are negatively associated with attending concerts, perhaps for the extra commitments that people in these circumstances have. Income and employment are positively related to attending music events, most likely because access to these events is generally costly. Being in good health matters as well, though disability does not seem to preclude engagement in music.

Nevertheless, the above socio-demographic characteristics rarely contribute towards the likelihood of engagement in a substantive manner: most socio-demographic factors entail changes in likelihood below 10%. This means that other variables that have not been taken into account must correlate with participation in music activities. It is possible that such unobserved variables are themselves related to socio-

demographics, whereby the association between basic socio-demographic background and engagement in music might have been overestimated, and be liable to adjustment once unobserved factors are accounted for.

The unobserved variables have presumably to do with, among other things, personality traits, contingent life circumstances, attitudes towards music, cultural influences, social norms, local services and supply of relevant facilities and, more in general, with people's preferences. It is important to account for these variables in order to predict who is more likely to take part in which music activity as precisely as possible.

What are the policy implications? Policymakers can use the evidence on the relationship between socio-demographic background and engagement in music in a number of ways. This information allows, first, targeting socio-demographic groups that are most likely to benefit from interventions promoting engagement in music, based on how people in these groups 'self-select' into music activities: for example, if it is known that the tendency to attend classical music concerts increases with age, the elderly (and not the young) are those to whom interventions promoting attendance at these concerts should be addressed. Once target groups have been identified, interventions can be designed to promote engagement in music among the people in these groups who happen to be less engaged in music for other reasons (e.g., high costs of engagement).

Alternatively, information on the socio-demographic correlates of engagement in music can be used to target the people who do not take part in music activities, provided that there is evidence that participation in these activities entails benefits for them. Thus, if it is known that ethnic minorities are less likely to engage in music, but there is evidence that engagement in music would improve their SWB, policymakers can design interventions to promote engagement in music among ethnic minorities. It is also important, though, that policy does not rely too much on the relationship between socio-demographics and participation in music activities, as other variables play a role in explaining participation.

5. Future research

Current evidence on what works for music and SWB is far from conclusive and limited in many respects. Future research should keep investigating how engagement in music and SWB are related to one another. Based on the current state of knowledge, the following recommendations for future research can be made.

1. Future research should seek to investigate more music activities, more contexts in which these take place and more correlates of engagement.

This report sought to study more specific forms of engagement in music, compared to previous research. In order to establish what works for SWB, it is crucial that future research enlarges the spectrum of music activities to examine even further. For example, it would be interesting to study whether playing different kinds of musical instruments, listening to different music genres or composing different pieces of music are differently associated with SWB. Many other activities can be studied, such as taking music classes, learning to play an instrument, singing in a karaoke context.

It is also important that future research keeps exploring participation in music activities across different contexts. For instance, current evidence on whether or not solo engagement differs from group engagement is far from conclusive and needs further endorsement, perhaps controlling for whom people engage in music with (e.g., family, friends, strangers). Very little is known so far on how taking part in music activities relates to SWB depending on when and where the activities are conducted: for example, performing or rehearsing in a school, in a conservatory or in a club or community; listening to music while at home, at work, commuting or waiting; attending concerts in open or closed venues, or in large or small venues, during the day or at night, etc.

Future research should always attempt to shed light on who is more likely to engage in which music activities. In addition to the basic socio-demographic characteristics that have been examined in this report, there are plenty of variables that remain to be accounted for. Such variables as personality traits, contingent life circumstances, attitudes towards music, cultural influences, social norms and the local supply of relevant facilities are especially worth exploring.

2. Future research should seek to study the relationship between music and various measures of SWB, and at the experience level in particular.

This report has shown that not only the measure of engagement in music matters to the conclusions that can be drawn on what works for SWB, but the measure of SWB matters as well. Studying how engagement in music relates to different measures of SWB is an imperative concern for future research. Previous studies extensively investigated life satisfaction, and other measures have been considered in this report, but further data are required to establish which music activities relate to which mental states, and whether or not relationships are consistent across different mental states.

Evidence is especially needed for eudemonic measures of SWB, which have been sparsely explored relatively to hedonic measures.

There is currently a wealth of evidence on music and evaluative measures of SWB, while the relationship between music and experience-based measures of SWB is relatively understudied. Previous research focused on experiences of music activities broadly conceived as attending music events and performing, and most of the music activities considered above were not measured at the experience level. Future research should attempt to fill this void, as this report and previous research spotted systematic incongruences across experience-based and evaluation-based measures. To do so, more data on experiences of participation in music activities have to be collected by means of the methods that are typically used in experiential SWB research, such as the DRM and the ESM.

3. Future research should seek to establish whether there is a causal nexus between engagement in music and SWB.

In addition to analysing correlations between taking part in music activities and SWB, it is vital to establish whether engagement in music actually has a direct impact on SWB. Correlational research is an important corollary to causal research, but it is the latter that ultimately allows understanding what works for SWB. If engagement in music does not entail any direct benefits to how people feel, or such benefits are too small in relation to the costs incurred to achieve them and to the benefits that can be gained in other ways than, then interventions promoting engagement in music are not worth the allocation of public resources.

Future research should consider the use of randomised controlled trials in the study of music and SWB, which are the gold standard for studying causal relationships. The literature on music and SWB features some examples of research that used randomised experiments, which generally demonstrated a positive impact of engaging in music on SWB. Nevertheless, such research used highly heterogeneous measures of SWB, which makes results difficult to compare, and they rarely conformed to the measures normally used in current SWB research and policy settings. New randomised controlled trials are required to remedy against these pitfalls.

A1. Literature review

A1.1. Engagement in music and SWB

Many forms of engagement in music, such as attending music events and concerts, listening to music, playing musical instruments, and singing, have been traditionally linked to higher levels of SWB – at least based on some measures of it. For instance, therapies based on listening to music, performing and songwriting have been successfully used for centuries to treat a wide range of physical and mental health conditions (e.g., Aldridge, 1993; Davis et al., 2008; Staricoff, 2004), which are important predictors of SWB, however measured.

Some findings, in fact, suggest a seemingly causal nexus between engagement in music and experienced SWB. Controlled studies in medical and psychological research, for example, have demonstrated that mood and relaxation, as revealed by psycho-physiological indices and brain activity, improve during and after taking part in various music activities (e.g., Blood & Zatorre, 2001; Hargreaves & North, 1997; Hodges, 1980; Juslin & Sloboda, 2001; MacDonald et al., 2012).

Recent correlational studies based on the analysis of large datasets have examined the relationship between engagement in music and SWB at both the evaluation and the experience levels. In a study of the impacts and value of culture and sport based on the British Household Panel Survey, Marsh et al. (2010) discovered a positive association between life satisfaction and attending concerts (the only measure of engagement in music considered in the study), especially for the people who attend concerts more regularly. The authors did not distinguish among different types of concerts.

Yet the above relationship appears relatively weak, confronted with the relationships they estimated between life satisfaction and outcomes relevant to policy, such as employment. On a 1-7 life satisfaction scale, the people who attend concerts report to be more satisfied with their life by an average amount of 0.02 units. Conversely, the estimated relationship to life satisfaction of being employed relatively to being unemployed or outside the job market was +0.06 using the same 1-7 scale.

Fujiwara et al. (2014) conducted a similar study on culture and sport based on Wave 2 of Understanding Society, which includes measures of participation in a larger number of music activities, as well as a measure of life satisfaction. Consistently with the above, they found that attending various concerts and other music events (all integrated in one measure) was positively related to life satisfaction. Though the association they estimated was even weaker, relatively to the one recorded for employment, than the one mentioned above (+0.03 on a 1-7 scale, as compared to the coefficient of +0.12 of employment relatively to unemployment or not working).

In the same study, Fujiwara et al. (2014) also found that performing music in the form of playing an instrument, singing and writing music (all integrated in one measure)

exhibits a negative association with life satisfaction. They estimated that the people who generally perform music report, on average, to be less satisfied with their life by about 0.05 (again, on a 1-7 scale) units, compared to the people who do not perform music. Even such an association looks though comparatively weak.

The trends emerging at the experience level are somewhat different from those at the evaluation level. In another study on the SWB impact of culture and art, Fujiwara and McKerron (2015) analysed the UK Mappiness dataset, which collects reports of experiences in an ESM fashion, including music-related experiences. They observed that, on average, people reported higher feelings of happiness and relaxation when devoting their time to such activities as attending music concerts (measured jointly with attending plays and dance performances), listening to music, and performing music and singing (measured together), as opposed to when their time was spent in other activities.

More specifically, attending concerts entails the highest estimated relationship to experienced SWB of all the music activities considered (+8.7 for happiness, +4.5 for relaxation, both on a 0-100 scale), followed by performing and singing (+7.7 for happiness, 4.2 for relaxation) and by listening to music (+3.5 for happiness, 3.0 for relaxation). Unfortunately, the authors did not provide comparative estimates of the relationship to experienced SWB of other policy-relevant outcomes. Yet it is clear that these associations are stronger than the ones recorded between the same music activities and life satisfaction when compared on the same scale.⁷

A1.2. Group vs. solo engagement

Some scholars (e.g., Roederer, 1984; Russell, 1997) have noted that music promotes social cohesion and bonding. People tend to report higher levels of SWB when they have solid social relationships and spend time with others, and this result generally holds for both evaluative (e.g., Powdthavee, 2008) and experiential measures (e.g., White & Dolan, 2009). Therefore, at least part of the liaisons between music and SWB may be due to the group context in which music activities may take place.

Though, the extent to which group participation yields extra benefits to SWB is unclear, as the evidence is quite mixed. For instance, in a controlled experimental setting, Stewart and Lonsdale (2016) demonstrated that group singing improved self-reported mood more than solo singing did, but Valentine and Evans (2001) previously showed that there was no difference between the two modes of signing based on psycho-physiological responses.

⁷ A caveat of all the above correlational studies is that they do not seem to have conducted robustness checks. The unrestricted model of SWB (i.e., controlling for engagement in music) should be tested against more restricted models (i.e., controlling for engagement in some music activities only) and fully restricted models (i.e., without controlling for engagement in music at all), in order to see whether there is sufficient evidence of an association between engagement in any music activity and SWB. To be precise, Fujiwara et al. (2014) did perform diagnostic tests on their models, but not specific to check the robustness of the results relative to engagement in music (see Fujiwara et al., 2014, p. 37).

Fujiwara and McKerron (2015), moreover, found that, if anything, people reported lower experienced SWB when they engaged in music with others than when they did by themselves. The only exception was observed for singing with children, in which case people reported to feel more relaxed than when they sang alone.

A1.3. Socio-demographic correlates of engagement in music

Previous research has scarcely investigated which socio-demographic groups are more likely to engage in music, and in particular which groups are more likely to participate in which music activities. The only study that has partly studied these relationships was the aforementioned one by Marsh et al. (2010), which looked at the correlates of participation in culture more in general, though including attending music concerts. The authors found that education and income were important predictors of engage in cultural activities, and that women are more likely to engage than men are (especially more than single men). They also found that participation increases with age, and those that were used to participate during childhood are more likely to participate in also adulthood.

A2. Datasets

A2.1. American Time Use Survey

The American Time Use Survey (ATUS) is a cross-sectional study of how American people allocate their time in a typical day of their life. It is sponsored by the US Bureau of Labor Statistics, and it has been conducted by the US Census Bureau on a yearly basis since 2003. The ATUS data are publicly available for download from the survey website.⁸

The core of the ATUS consists of a DRM-type of study. People are requested to report, in an open-ended format, the main activities they were engaged in throughout the day prior to the interview, as well as, for each activity reported, where they were, with whom they were, and the duration of the experience.⁹ The activities reported include many of the usual daily activities people do: from commuting to working, from relaxing to socialising, from doing sport to attending museums. For the complete list of activities reported, see the survey website.¹⁰

In addition to surveying time use, the 2010, 2012 and 2013 waves subsumed the ‘Well-being Modules’, which measured the feelings each person experienced when engaged in three activities randomly selected from the set of activities he or she reported in the DRM (thus, experiential SWB was not measured for all the activities each respondent reported). These waves also assessed health and life satisfaction.

The analysis was restricted to the data of the 2010, 2012 and 2013 waves, since they are the only ones to comprise SWB measures. All activity reports with no experiential SWB assessment were excluded from the analysis.

Engagement in music could only be determined based on the DRM reports, and it was therefore measured at the experience level only (ATUS data do not account for overall engagement). There was only one form of engagement in music among the activities that were considered for the analysis, and that was the activity of listening to music. By combining these data with the information people provided about whom they were with during their experiences, it is possible to infer whether people were listening to music by themselves or in the presence of other people

Since the measure of engagement in music is experience-based, only the experience-based measures of SWB were considered among all those available in ATUS. Precisely, six mental states are measured in this datasets:

- Happiness
- Meaning

⁸ http://www.bls.gov/tus/datafiles_0315.htm

⁹ People submitted their reports via telephone, and interviewers thereafter coded them according to the type of activity reported.

¹⁰ <http://www.bls.gov/tus/lexiconnoex0314.pdf>

- Pain
- Sadness
- Stress
- Tiredness

All these feelings are assessed on a 0-6 scale, where 0 means ‘not at all’ and 6 means ‘very’.

A2.2. LSE Olympic Study

The LSE Olympics Study (OS) is a survey primarily designed to investigate the impact of the London 2012 Olympic Games on engagement in sport, on health, and on SWB among people living in Berlin, London, and Paris. It is a longitudinal survey embracing three waves (2011, 2012, and 2013), which was conducted by researchers at the LSE in collaboration with Ipsos MORI. The data are not publicly available.

OS mainly consists of a wide range of questions assessing sport participation, health, and evaluation-based SWB, and it also involve a hybrid of a DRM and an ESM study. Specifically, in each wave, people were asked to report the activity they were doing at a random time on the previous day and how they felt meanwhile (as well as where and with whom they were), although without reconstructing the whole day. In practice, each person reported one experience per wave. When reporting their experiences, people had to choose from a list of 15 different activities: 1) getting ready, washing, bathing; 2) cooking, preparing, eating food; 3) commuting; 4) walking, cycling, driving to get to/from somewhere; 5) working; 6) doing housework; 7) doing voluntary work; 8) exercising, doing sport; 9) attending a sports event or match; 10) relaxing, napping; 11) watching TV; 12) listening to music; 13) using the internet; 14) socialising; 15) other.

Once again, engagement in music could only be determined based on the experiences reported, and any measure of engagement is then experience-based (overall engagement was not assessed in this survey either). Of the 15 activity people could choose when reporting their experiences, one was listening to music. Information on whether people were alone or with others while listening to music is available.

Because of the way engagement in music is measured, only experiential measures of SWB were taken from this dataset. There are three measures of experiential SWB:

- Anxiety¹¹
- Happiness;
- Worthwhileness¹²

¹¹ In the 2011 wave, half of the people were asked about their experienced anxiety, and the other half about their experienced worry. In the 2012 wave, half of the people were asked about their experienced anxiety, and the other half about their experienced ‘stress. In the 2013 wave, everyone was asked about their experienced anxiety. Wording was not controlled for in the data analysis.

¹² Half of the people in the 2012 and 2013 were asked about their experienced worthwhileness, whereas the other half about their experienced purpose. Wording was not controlled for in the analysis.

All these mental states are measured on a 0-10 scale, where 0 means ‘not at all’ and 10 means ‘completely’.

A2.3. Taking Part

The Taking Part survey (TP) is a face-to-face, partly cross-sectional and partly longitudinal study of engagement in culture and sport among English households. This survey is commissioned by the Department of Culture, Media and Sport of the UK Government, by Arts Council England, by Historic England, and by Sport England, and it has been running on a quarterly basis since 2005-2006 (with the longitudinal waves starting in 2011-2012). The data are publicly accessible through the UK Data Service.

TP covers a wide range of detailed assessments of people’s attitudes towards culture and sport, participation patterns in cultural and sport activities, frequency of participation, reasons for taking part (e.g., leisure, work, etc.), whether participation was in group or solo, and so forth. Since 2011-2012, moreover, the survey has been measuring life satisfaction and other, evaluation-based measures of SWB.

The analysis was restricted to the waves from 2011-2012 to 2014-2015, for they subsume SWB measures.

Engagement in music was measured based on what people answered to specific questions assessing their overall participation in various music-related activities. These questions asked specifically whether respondents had taken part in those activities at least once over the twelve months prior to being surveyed. In TP, hence, engagement in music is assessed at the evaluation level. A large number of music activities is available in this dataset, and they were all considered for the analysis:

- Attending concerts of:
 - African music
 - Brass music
 - Celtic music
 - Choral music
 - Classical music
 - Dance music
 - Folk or country music
 - Gospel music
 - Jazz music
 - Pop or rock music
 - Reggae music
 - Soul or hip-hop music
 - Southern Asian music
 - Spanish music
- Attending musicals

- Attending the opera or operetta
- Listening to music
- Performing for the opera or operetta
- Playing an instrument for leisure
- Playing an instrument for performance or rehearsal
- Singing to an audience
- Writing music

For all these activities except for listening to music, the survey asked the reasons for participation. Only if people stated they had participated in a given activity for reasons other than paid work did they count as participants in that activity. Furthermore, for the last five measures in the above list, the survey asked whether or not these activities were performed as part of a group. These data allowed distinguishing between solo and group participants.

TP includes only evaluative measures of SWB. There are precisely four evaluation-based measures of SWB:

- Daily anxiety
- Overall happiness
- Life satisfaction;
- Overall worthwhileness

All these measures are expressed on a 0-10 scale, where 0 means ‘not at all’ and 10 means ‘completely’, except for general happiness, which is measured on a 1-10 scale, where 1 means ‘extremely unhappy’ and 10 means ‘extremely happy’.

A2.4. Understanding Society

Understanding Society (USoc) is the largest longitudinal study in the UK, aiming at monitoring the evolution of UK households’ living conditions over time. This survey, which has taken place since 2009 on an annual basis, is funded by the Economic and Social Research Council and designed by the Institute of Social and Economic Research at the University of Essex. The data are available through the UK Data Service.

USoc asks a number of questions appraising people’s socio-economic status, health, life satisfaction, and various attitudes, habits and life circumstances. Wave 2 and Wave 5, in particular, subsumed the ‘Leisure, Culture and Sport’ module, which assessed people’s participation in activities pertaining to these domains (including music activities) through some of the questions included in TP.

The analysis was focussed on Wave 2 (2010) and Wave 5 (2013).

Engagement in music was determined based on people’s answers to questions on whether they had participated in various music-related activities at least once over the

twelve months prior to the survey. The measures of engagement in music available in USoc therefore capture overall engagement in those activities. Six measures of engagement in music were considered:

- Attending classical music concerts
- Attending pop, rock, or jazz concerts
- Attending the opera or operetta
- Playing a musical instrument
- Singing to an audience (aside from karaoke)
- Writing music¹³

USoc includes only evaluative measures of SWB. Among these, only life satisfaction was analysed.¹⁴ In USoc, life satisfaction is measured on a 1-7 scale, where 1 means ‘completely dissatisfied’ and 7 means ‘completely satisfied’.

¹³ USoc also included a measure of whether people had performed or rehearsed for play, drama, opera, operetta or musical theatre, and a measure of whether they had attended plays, pantomime or musicals. These measures were though excluded, because they do not reflect engagement in music exclusively.

¹⁴ There are also other evaluative measures assessing, for example, depression and worthwhileness. Though these mental states are measured on an atypical 1-3 scale, and therefore were excluded form the analysis.

A3. Statistical analysis

The data analysis was based on linear regression modelling, which is regular practice in related research. Three types of model were estimated, one for each type of relationship being investigated. All models used sets of controls, as appropriate to the type of analysis being conducted.

All models were also endowed with normally distributed random intercepts, varying across people and experiences. One reason for using such random effects is to control for correlations in the data due to the fact that there are multiple observations for the same person and the same experience. The function of random effects is also to control for unobserved differences among different people and experiences, while also accounting for the fact that the available samples of people and experiences are just one of many possible random samples from the populations of people and experiences.

One could also employ fixed intercepts by person and experience, and this is normally the standard practice. But using fixed effects allows controlling for unobserved differences only within the specific sample of people and experiences at hand. Therefore, a model that uses fixed effects has less external validity to the population.¹⁵

The following equation describes the model for the first type of analysis (i.e., the relationship between engagement in music and SWB at the evaluation level). Each observation refers to person i at time t (time is to be accounted for because the data are longitudinal).

$$(1) \quad eval.SWB_{i,t} = \alpha_0 + \alpha_1 \mathbf{M}_{i,t} + \alpha'_1 \mathbf{M}'_{i,t} + \alpha_2 \mathbf{X}_{i,t} + \alpha_3 \mathbf{W}_t + \pi_i + \epsilon_{i,t},$$

where $eval.SWB_{i,t}$ is evaluative SWB as measured by some mental state; α_0 is the grand intercept; $\mathbf{M}_{i,t}$ is a vector of 0-1 indicators of overall participation in the music activities considered; α_1 are the corresponding regression coefficients; $\mathbf{M}'_{i,t}$ is a vector of 0-1 indicators of whether participation in the music activities occurred in a group; α'_1 are the corresponding regression coefficients; $\mathbf{X}_{i,t}$ is a set of socio-demographic controls; α_2 is the vector of their coefficients; \mathbf{W}_t is the vector of indicators of survey waves; α_3 is the vector of corresponding coefficients; π_i is a random intercept specific to person i (capturing unobserved factors specific to person i related to SWB); and $\epsilon_{i,t}$ is the error term.

¹⁵ Unless the focus of the analysis is on the sample at hand, random effects are generally preferred to fixed effects when the number of clusters among which unobserved differences may hold (in this case, the number of people or of experiences) is large enough to enable inference at the population level. For all the datasets analysed, this number is large enough (see Snijders, 2005) Using fixed intercepts by respondent and experience, anyhow, does not change the results presented in this report. The normal distribution assumed for the random intercepts is just one of many possible choices for the distribution, but it is a good choice in that, if one tries to estimate the fixed effects in a separate model, their distribution closely resembles the normal distribution with a variance that is very close to the one estimated in the random effects model.

The following equation describes the model for the second type of analysis (i.e., the relationship between engagement in music and SWB at the experience level). Each observation refers to person i and activity j at time t .

$$(2) \quad w_{i,j,t}(\exp.SWB_{i,j,t}) = w_{i,j,t}(\beta_0 + \beta_1 \mathbf{M}_j + \beta'_1 \mathbf{M}'_j + \beta_2 \mathbf{E}_j + \beta_3 \mathbf{X}_{i,t} + \beta_4 \mathbf{W}_t + \rho_i + \sigma_{i,j} + \eta_{i,t}),$$

where $\exp.SWB_{i,j,t}$ is experiential SWB as measured by some mental state; $w_{i,j,t}$ is a regression weight indicating how long person i was engaged in activity j at time t ;¹⁶ β_0 is the grand intercept (capturing how people felt on average across all non-music activities); \mathbf{M}_j is a vector of 0-1 indicators of whether activity j is a music activity; β_1 are the corresponding coefficients; \mathbf{M}'_j is a vector of 0-1 indicators of whether activity j is a music activity done in presence of other people; β'_1 are the corresponding coefficients; \mathbf{E}_j is a vector of 0-1 indicators controlling for where person i performed activity j at time t , and whether he or she was alone or with others; β_2 are the corresponding coefficients; ρ_i is a random intercept specific to person i ; $\sigma_{i,j}$ is another random intercept specific to person i and to activity j (capturing unobserved factors specific to person i and activity j related to experiential SWB); and $\eta_{i,t}$ is the error term (all other terms are as in (1) and in (2), except for the change in how their coefficients are labelled). In practice, \mathbf{M}_j and have only one component, as only the activity of listening to music is measured at the experience level in the data analysed.

The following equation describes the model for the third type of analysis (i.e., the relationship between engagement in music socio-demographic background). Each observation refers to person i at time t .

$$(3) \quad M_{i,t} = \gamma_0 + \gamma_1 \mathbf{X}_{i,t} + \gamma_2 \mathbf{W}_t + \tau_i + v_{i,t},$$

where $M_{i,t}$ is a 0-1 indicator of participation in one music activity; γ_0 is the grand intercept; τ_i is a random intercept specific to person i ; and $v_{i,t}$ is the error term (all the other terms are as above, except for the different labels for their coefficients).

The set of socio-demographic controls, $\mathbf{X}_{i,t}$, used in all models includes all the most important socio-demographic characteristics, as set out in Fujiwara and Campbell (2011):

- Gender: male or female
- Age: 30 or less; 31-60; 61 or more
- Geographical region: the geographical region a person comes from
- Ethnicity: White; Black; Asian; other or mixed
- Education: high-school or below; title below degree level; degree or higher

¹⁶ Weighting by duration reflects the assumption that experiential SWB depends on both the intensity and the duration of the feelings experienced (Kahneman et al., 1997; Kahneman & Krueger, 2006). Hence, observations related to longer experiences are given more importance when estimating regression coefficients.

- Marital or civil partnership status: unmarried; married; separated or divorced; widowed.
- Children aged 16 or less: 0, 1, 2 or 3 or more
- Employment status: employed, unemployed, not in labour force
- Household income: below sample median; above or equal to sample median
- House tenure: house owned or not owned
- Health: bad or good (self-assessed)
- Disability: yes or no.

The model in (1) was fitted to TP and USoc separately. The models fitted were as many as the measures of SWB available in these datasets. The model in (2) was fitted to ATUS and OS separately. The models fitted were as many as the measures of SWB available in these datasets. The model in (3) was fitted to the aggregate of TP and USoc if they shared the music activity being analysed, or to TP alone otherwise (never to USoc alone, as all music activities measured in USoc are also measured in TP). The models fitted were as many as the number of music activities available in these datasets.

The models in (1) and in (2) were fitted in its unrestricted version (accounting for participation in all music activities considered) and its restricted versions (accounting for participation in a subset of music activities). The best version was selected and used to present the results in the report. Model selection was based on the Akaike Information Criterion, which selects models accounting for how well they fit the data and how complex they are.

A6. Regression outputs

Taking Part

Dependent variable: life satisfaction	Unrestricted model	Best model
Listening to music	0.0846** 0.0298	0.0915** 0.0295
Singing to an audience	-0.011 0.0987	
Singing to an audience (group)	-0.0139 0.1109	
Playing an instrument for performance or rehearsal	0.1261 0.1054	
Playing an instrument for performance or rehearsal (group)	-0.1322 0.1333	
Playing an instrument for leisure	-0.034 0.0446	
Playing an instrument for leisure (group)	0.2302 0.1285	
Writing music	-0.0967 0.1088	
Writing music (group)	0.1103 0.2324	
Performing for the opera	0.1492 0.2569	
Performing for the opera (group)	-0.2173 0.2812	
Attending musicals	0.136*** 0.0286	0.1469*** 0.028
Attending the opera	0.0929 0.0442	
Attending concerts: classical music	0.0415* 0.0586	
Attending concerts: jazz	-0.0052 0.0504	
Attending concerts: pop or rock	0.0195 0.0293	
Attending concerts: soul or hip-hop	-0.0136 0.0414	
Attending concerts: folk or country	0.026 0.0464	
Attending concerts: reggae	0.06 0.0777	
Attending concerts: African music	0.0374 0.1031	
Attending concerts: Southern Asian music	0.0635 0.1445	
Attending concerts: Spanish music	-0.0565 0.0997	
Attending concerts: Celtic music	-0.5137 0.4344	
Attending concerts: brass	-0.0084 0.1805	
Attending concerts: gospel	0.0479 0.3339	
Attending concerts: dance music	0.1191 0.1418	
Attending concerts: choral music	0.0546 0.1966	
Gender: female	0.0625* 0.0295	0.0625* 0.0292
Age: 31-60	-0.5287***	-0.5278***

	0.0435	0.0433
Age: 61 or higher	-0.002	0.0017
	0.0584	0.0578
Ethnicity: Black	-0.1451	-0.1532
	0.0934	0.0926
Ethnicity: Asian	-0.0042	-0.012
	0.0744	0.0736
Ethnicity: other	-0.2005*	-0.1982*
	0.0928	0.0923
Region: London	-0.1371**	-0.1282**
	0.0487	0.0484
Education: A levels or title below degree level	0.0112	0.014
	0.0309	0.0308
Education: degree or higher	-0.092*	-0.0787*
	0.0359	0.0353
Marital status: married or in civil partnership	0.4246***	0.4235***
	0.0369	0.0369
Marital status: separated or divorced	-0.0862	-0.087
	0.0461	0.046
Marital status: widowed	-0.0425	-0.0393
	0.0665	0.0663
Children: 1	0.1401***	0.1349***
	0.0403	0.0402
Children: 2	0.1002*	0.0951*
	0.0434	0.0433
Children: 3 or more	0.1783**	0.1722*
	0.0682	0.0681
Labour force status: unemployed	-0.4805***	-0.477***
	0.0732	0.0731
Labour force status: not in labour force	-0.0337	-0.0322
	0.0369	0.0368
Income: median or above	0.0933**	0.0952***
	0.0286	0.0285
House owned	0.2826***	0.2846***
	0.0332	0.0332
Good health	0.6324***	0.6364***
	0.0338	0.0337
Disability	-0.3313***	-0.3294***
	0.0344	0.0343
Wave: 2012-2013	0.068	0.0652
	0.0407	0.0406
Wave: 2013-2014	0.0242	0.0239
	0.0412	0.0411
Wave: 2014-2015	0.1144**	0.111**
	0.0393	0.0392
Intercept	6.9578***	6.9562***
	0.0739	0.0732
*: p-value < .05	Obs: 15,983	Obs: 15,983
**: p-value < .01	Resp: 11,362	Resp: 11,362
***: p-value < .001		

Taking Part

Dependent variable: overall happiness	Unrestricted model	Best model
Listening to music	0.1255*** 0.0314	0.1243*** 0.0312
Singing to an audience	0.115 0.1131	
Singing to an audience (group)	0.0244 0.0784	
Playing an instrument for performance or rehearsal	0.1935 0.1134	
Playing an instrument for performance or rehearsal (group)	0.0383 0.11	
Playing an instrument for leisure	-0.0811 0.047	
Playing an instrument for leisure (group)	-0.0495 0.1349	
Writing music	-0.1367 0.1196	
Writing music (group)	-0.6565* 0.2922	
Performing for the opera	0.6823* 0.3	
Performing for the opera (group)	-0.0772 0.1604	
Attending musicals	0.0988** 0.0301	0.0999*** 0.0295
Attending the opera	0.0579 0.0465	
Attending concerts: classical music	-0.0011 0.0617	
Attending concerts: jazz	0.0557 0.0531	
Attending concerts: pop or rock	-0.0325 0.0308	
Attending concerts: soul or hip-hop	0.1214** 0.0437	0.1129** 0.041
Attending concerts: folk or country	0.0129 0.0489	
Attending concerts: reggae	-0.0067 0.0819	
Attending concerts: African music	0.0331 0.1088	
Attending concerts: Southern Asian music	0.2102 0.1525	
Attending concerts: Spanish music	-0.1368 0.105	
Attending concerts: Celtic music	-0.6075 0.4608	
Attending concerts: brass	0.0348 0.1906	
Attending concerts: gospel	0.6798 0.3513	0.7185* 0.347
Attending concerts: dance music	-0.0937 0.1494	
Attending concerts: choral music	-0.0162 0.2073	
Gender: female	0.1093*** 0.0308	0.1172*** 0.0306
Age: 31-60	-0.4746*** 0.0456	-0.4688*** 0.0455
Age: 61 or higher	0.1088 0.0612	0.1259* 0.0607
Ethnicity: Black	-0.0484	-0.0435

	0.0979	0.0974
Ethnicity: Asian	-0.1104	-0.0951
	0.0779	0.0771
Ethnicity: other	-0.2266*	-0.2183*
	0.0974	0.0972
Region: London	-0.144**	-0.1397**
	0.0509	0.0507
Education: A levels or title below degree level	-0.0018	-0.0032
	0.0325	0.0324
Education: degree or higher	-0.1026**	-0.0988**
	0.0376	0.0371
Marital status: married or in civil partnership	0.4778***	0.4817***
	0.0387	0.0387
Marital status: separated or divorced	-0.0016	-0.0017
	0.0483	0.0483
Marital status: widowed	-0.1194	-0.1112
	0.0696	0.0696
Children: 1	0.202***	0.1981***
	0.0423	0.0422
Children: 2	0.0912*	0.0871
	0.0455	0.0454
Children: 3 or more	0.1356	0.1307
	0.0715	0.0714
Labour force status: unemployed	-0.408***	-0.4033***
	0.077	0.077
Labour force status: not in labour force	-0.0405	-0.0378
	0.0387	0.0387
Income: median or above	0.1438***	0.1465***
	0.0301	0.03
House owned	0.2076***	0.2056***
	0.0348	0.0348
Good health	0.8184***	0.8197***
	0.0356	0.0356
Disability	-0.3477***	-0.3475***
	0.0362	0.0362
Wave: 2012-2013	0.0605	0.0646
	0.0433	0.0432
Wave: 2013-2014	0.0393	0.0459
	0.0438	0.0436
Wave: 2014-2015	0.068	0.0694
	0.0417	0.0416
Intercept	6.7724***	6.7483***
	0.0778	0.0772
<hr/>		
*: p-value < .05	Obs: 15,983	Obs: 15,983
**: p-value < .01	Resp: 11,362	Resp: 11,362
***: p-value < .001		

Taking Part

Dependent variable: daily anxiety	Unrestricted model	Best model
Listening to music	-0.0648 0.059	
Singing to an audience	0.0975 0.199	
Singing to an audience (group)	-0.0996 0.2227	
Playing an instrument for performance or rehearsal	-0.2598 0.2098	
Playing an instrument for performance or rehearsal (group)	0.33 0.2633	0.2028** 0.0769
Playing an instrument for leisure	0.1911* 0.0861	
Playing an instrument for leisure (group)	0.1655 0.2566	
Writing music	0.1466 0.2259	
Writing music (group)	-0.3399 0.4498	
Performing for the opera	0.5179 0.5153	
Performing for the opera (group)	-0.4732 0.5641	
Attending musicals	-0.0224 0.0565	
Attending the opera	0.0236 0.0876	
Attending concerts: classical music	0.074 0.1155	
Attending concerts: jazz	0.0227 0.0993	
Attending concerts: pop or rock	-0.013 0.0579	
Attending concerts: soul or hip-hop	-0.1891* 0.0826	
Attending concerts: folk or country	0.1029 0.0922	
Attending concerts: reggae	0.1204 0.1559	
Attending concerts: African music	0.1845 0.2071	
Attending concerts: Southern Asian music	0.0118 0.2923	
Attending concerts: Spanish music	-0.2912 0.1986	
Attending concerts: Celtic music	4e-04 0.9438	
Attending concerts: brass	-0.6549 0.3703	
Attending concerts: gospel	-1.4168* 0.6468	-1.4085* 0.6393
Attending concerts: dance music	0.1048 0.2812	
Attending concerts: choral music	0.2383 0.3932	
Gender: female	0.4277*** 0.0537	0.4209*** 0.0529
Age: 31-60	0.4319*** 0.0804	0.4481*** 0.0799
Age: 61 or higher	-0.2185* 0.1085	-0.1875 0.107
Ethnicity: Black	0.1524	0.1521

	0.1734	0.1722
Ethnicity: Asian	0.3062*	0.3078*
	0.1365	0.1347
Ethnicity: other	0.288	0.2694
	0.1763	0.1756
Region: London	0.0853	0.0968
	0.0886	0.088
Education: A levels or title below degree level	-0.0232	-0.0215
	0.0594	0.0593
Education: degree or higher	0.2166**	0.2262***
	0.0678	0.0669
Marital status: married or in civil partnership	-0.0484	-0.0502
	0.0684	0.0682
Marital status: separated or divorced	-0.033	-0.0342
	0.086	0.0859
Marital status: widowed	-0.0889	-0.085
	0.1223	0.1221
Children: 1	-0.0319	-0.0323
	0.0754	0.0751
Children: 2	-0.0368	-0.0365
	0.0802	0.0798
Children: 3 or more	0.0848	0.0921
	0.1258	0.1255
Labour force status: unemployed	0.3885**	0.3896**
	0.1427	0.1426
Labour force status: not in labour force	-0.0858	-0.0814
	0.0701	0.0699
Income: median or above	-0.0378	-0.0424
	0.0551	0.0549
House owned	-0.2446***	-0.2501***
	0.0617	0.0615
Good health	-0.8442***	-0.8454***
	0.0667	0.0666
Disability	0.3877***	0.3875***
	0.0677	0.0676
Wave: 2012-2013	0.0271	0.0323
	0.0933	0.093
Wave: 2013-2014	0.0539	0.0538
	0.0907	0.0904
Wave: 2014-2015	0.0487	0.051
	0.0878	0.0876
Intercept	3.2246***	3.1483***
	0.1468	0.1364
<hr/>		
*: p-value < .05	Obs: 15,983	Obs: 15,983
**: p-value < .01	Resp: 11,362	Resp: 11,362
***: p-value < .001		

Taking Part

Dependent variable: overall worthwhileness	Unrestricted model	Best model
Listening to music	0.1438*** 0.0291	0.149*** 0.0289
Singing to an audience	0.0242 0.0968	
Singing to an audience (group)	0.0646 0.1087	
Playing an instrument for performance or rehearsal	0.2149* 0.1032	
Playing an instrument for performance or rehearsal (group)	-0.2571* 0.1303	
Playing an instrument for leisure	0.0479 0.0434	
Playing an instrument for leisure (group)	0.294* 0.1258	0.2936* 0.1154
Writing music	-0.1411 0.1072	
Writing music (group)	-0.0885 0.2263	
Performing for the opera	-0.3469 0.2517	
Performing for the opera (group)	0.3587 0.2755	
Attending musicals	0.1168*** 0.0279	0.1244*** 0.0274
Attending the opera	0.0426 0.0432	
Attending concerts: classical music	0.0374 0.0573	
Attending concerts: jazz	-0.0794 0.0492	
Attending concerts: pop or rock	-0.023 0.0286	
Attending concerts: soul or hip-hop	0.0263 0.0405	
Attending concerts: folk or country	0.0226 0.0454	
Attending concerts: reggae	0.0064 0.0761	
Attending concerts: African music	0.0381 0.1011	
Attending concerts: Southern Asian music	0.292* 0.1418	0.3078* 0.1365
Attending concerts: Spanish music	0.0288 0.0975	
Attending concerts: Celtic music	0.0903 0.4312	
Attending concerts: brass	0.1649 0.1776	
Attending concerts: gospel	0.2608 0.3253	
Attending concerts: dance music	0.1986 0.1387	
Attending concerts: choral music	-0.0464 0.1926	
Gender: female	0.2072*** 0.0284	0.2099*** 0.0282
Age: 31-60	-0.1927*** 0.0421	-0.1962*** 0.0419
Age: 61 or higher	0.2054*** 0.0565	0.209*** 0.0559
Ethnicity: Black	0.0571	0.0633

	0.0903	0.0895
Ethnicity: Asian	-0.1504*	-0.1513*
	0.0718	0.0714
Ethnicity: other	-0.1005	-0.0826
	0.0901	0.0897
Region: London	-0.1658***	-0.1635***
	0.0469	0.0467
Education: A levels or title below degree level	0.0369	0.0397
	0.0301	0.03
Education: degree or higher	-0.0056	0.0049
	0.0348	0.0343
Marital status: married or in civil partnership	0.3481***	0.3469***
	0.0357	0.0357
Marital status: separated or divorced	0.0486	0.0457
	0.0446	0.0446
Marital status: widowed	0.0684	0.0686
	0.0642	0.0641
Children: 1	0.183***	0.1813***
	0.039	0.0389
Children: 2	0.2078***	0.2066***
	0.0419	0.0418
Children: 3 or more	0.3456***	0.3445***
	0.0659	0.0658
Labour force status: unemployed	-0.2671***	-0.2656***
	0.0714	0.0713
Labour force status: not in labour force	-0.0324	-0.0299
	0.0358	0.0357
Income: median or above	0.0635*	0.0648*
	0.0278	0.0278
House owned	0.1568***	0.158***
	0.0321	0.0321
Good health	0.5257***	0.5244***
	0.0331	0.033
Disability	-0.2149***	-0.2141***
	0.0336	0.0336
Wave: 2012-2013	0.0726	0.0705
	0.0407	0.0406
Wave: 2013-2014	0.0447	0.0462
	0.041	0.0408
Wave: 2014-2015	0.0898*	0.0882*
	0.0391	0.039
Intercept	6.9753***	6.9746***
	0.0722	0.0715
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*: p-value < .05	Obs: 15,983	Obs: 15,983
**: p-value < .01	Resp: 11,362	Resp: 11,362
***: p-value < .001		

Understanding Society

Dependent variable: life satisfaction	Unrestricted model	Best model
Singing to an audience	0.1011*	
	0.0445	
Playing an instrument	0.0716*	
	0.035	
Writing music	-0.1806**	
	0.0697	
Attending the opera or operetta	0.0859	
	0.0519	
Attending concerts: classical music	0.1586***	0.1902***
	0.0379	0.0359
Attending concerts: pop, rock or jazz	0.1099***	0.1145***
	0.0244	0.0241
Gender: female	0.0372	0.0402*
	0.0194	0.0192
Age: 31-60	-0.5386***	-0.5389***
	0.0319	0.0318
Age: 61 or higher	0.437***	0.4391***
	0.0423	0.0421
Ethnicity: Black	-0.2052***	-0.2065***
	0.0568	0.0567
Ethnicity: Asian	-0.3185***	-0.3235***
	0.0411	0.041
Ethnicity: other	-0.2595***	-0.2618***
	0.06	0.06
Region: London	-0.0964**	-0.0969**
	0.0358	0.0358
Region: Wales	-0.0011	-6e-04
	0.0469	0.0469
Region: Scotland	-0.0195	-0.0205
	0.0391	0.0391
Region: Northern Ireland	0.1998***	0.2001***
	0.0508	0.0508
Education: A levels or title below degree level	-0.0121	-0.0095
	0.0227	0.0227
Education: degree or higher	0.088**	0.0992***
	0.0287	0.0285
Marital status: married or in civil partnership	0.3258***	0.3253***
	0.0299	0.0299
Marital status: separated or divorced	-0.2124***	-0.2122***
	0.038	0.038
Marital status: widowed	0.1621**	0.1602**
	0.0505	0.0505
Children: 1	-0.058	-0.0601
	0.0329	0.0329
Children: 2	0.014	0.0117
	0.0349	0.0349
Children: 3 or more	0.0083	0.0064
	0.0508	0.0508
Labour force status: unemployed	-0.6761***	-0.6767***
	0.0462	0.0462
Labour force status: not in labour force	-0.0355	-0.0348
	0.026	0.0259
Income: median or above	0.2357***	0.2376***
	0.024	0.024
House owned	0.3509***	0.3528***
	0.0249	0.0249
Good health	0.9178***	0.9207***
	0.0215	0.0215
Disability	-0.5603***	-0.5595***
	0.0233	0.0233
Wave: 2013	-0.3177***	-0.3181***
	0.0205	0.0205

Intercept	6.4301*** 0.041	6.4306*** 0.0407
*: p-value < .05	Obs: 59,252	Obs: 59,252
**: p-value < .01	Resp: 39,435	Resp: 39,435
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced happiness	Unrestricted model	Best model
Listening to music	1.0286*** 0.2236	0.86*** 0.1866
Listening to music (with others)	-0.4783 0.3499	
Where: Home	-0.0855*** 0.0199	-0.0852*** 0.0199
Where: Work	-0.7744*** 0.0328	-0.7742*** 0.0328
Where: Someone else's home	0.3421*** 0.0408	0.3415*** 0.0408
Where: Restaurant or bar	0.4044*** 0.0505	0.4026*** 0.0505
Where: Outdoors	0.5865*** 0.0616	0.5865*** 0.0616
Alone	-0.645*** 0.018	-0.6441*** 0.018
Gender: female	0.1839*** 0.0257	0.1839*** 0.0257
Age: 31-60	0.0778* 0.0394	0.0776* 0.0394
Age: 61 or higher	0.4873*** 0.0528	0.4872*** 0.0528
Ethnicity: Black	0.4155*** 0.0371	0.4156*** 0.0371
Ethnicity: Asian	0.0372 0.0682	0.037 0.0682
Ethnicity: other	-0.0074 0.0835	-0.0078 0.0835
Region: Midwest	0.0248 0.0395	0.0249 0.0395
Region: South	0.1984*** 0.037	0.1985*** 0.037
Region: West	0.111** 0.0404	0.111** 0.0404
Education: title below degree level	-0.2156*** 0.0395	-0.2155*** 0.0395
Education: degree or higher	-0.5168*** 0.0446	-0.5168*** 0.0446
Marital status: married or in civil partnership	0.4095*** 0.0376	0.4093*** 0.0376
Marital status: separated or divorced	0.1177** 0.0436	0.1176** 0.0436
Marital status: widowed	0.344*** 0.0582	0.344*** 0.0582
Children: 1	0.0392 0.0367	0.0394 0.0367
Children: 2	0.0387 0.0387	0.0389 0.0387
Children: 3 or more	0.0664 0.0483	0.0662 0.0483
Labour force status: unemployed	-0.2454*** 0.0554	-0.2452*** 0.0554
Labour force status: not in labour force	-0.1724*** 0.0324	-0.1724*** 0.0324
Income: median or above	-0.0928** 0.0302	-0.0927** 0.0302
House owned	-0.1008** 0.0307	-0.1008** 0.0307
Good health	0.7143*** 0.026	0.7144*** 0.026
Wave: 2012	0.1774*** 0.0306	0.1775*** 0.0306

Wave: 2013	0.1829***	0.183***
	0.0312	0.0312
Intercept	6.9576***	6.9572***
	0.0647	0.0647
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*: p-value < .05	Obs: 90,876	Obs: 90,876
**: p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced meaning	Unrestricted model	Best model
Listening to music	0.9247*** 0.2688	0.7068** 0.225
Listening to music (with others)	-0.6192 0.4178	
Where: Home	0.0119 0.0237	0.0123 0.0237
Where: Work	0.02 0.0393	0.0202 0.0393
Where: Someone else's home	0.6064*** 0.0486	0.6057*** 0.0486
Where: Restaurant or bar	0.4303*** 0.0602	0.4277*** 0.0601
Where: Outdoors	0.9277*** 0.0736	0.9277*** 0.0736
Alone	-0.9221*** 0.0214	-0.921*** 0.0214
Gender: female	0.3085*** 0.0292	0.3084*** 0.0292
Age: 31-60	0.6783*** 0.0449	0.6781*** 0.0449
Age: 61 or higher	1.0619*** 0.06	1.0617*** 0.06
Ethnicity: Black	0.6284*** 0.0422	0.6285*** 0.0422
Ethnicity: Asian	0.2351** 0.0775	0.2348** 0.0775
Ethnicity: other	0.1926* 0.0949	0.1921* 0.0949
Region: Midwest	-0.1183** 0.045	-0.1183** 0.045
Region: South	0.154*** 0.042	0.1541*** 0.042
Region: West	-0.001 0.0459	-0.001 0.0459
Education: title below degree level	0.1197** 0.0449	0.1198** 0.0449
Education: degree or higher	-0.2576*** 0.0507	-0.2576*** 0.0507
Marital status: married or in civil partnership	0.5103*** 0.0427	0.51*** 0.0427
Marital status: separated or divorced	0.3571*** 0.0496	0.357*** 0.0496
Marital status: widowed	0.4288*** 0.0662	0.4288*** 0.0662
Children: 1	0.0326 0.0417	0.0328 0.0417
Children: 2	0.082 0.044	0.0823 0.044
Children: 3 or more	0.2285*** 0.0549	0.2282*** 0.0549
Labour force status: unemployed	-0.0301 0.063	-0.0299 0.063
Labour force status: not in labour force	-0.1893*** 0.0368	-0.1894*** 0.0368
Income: median or above	-0.2307*** 0.0343	-0.2306*** 0.0343
House owned	-0.1676*** 0.035	-0.1676*** 0.035
Good health	0.2762*** 0.0296	0.2763*** 0.0296
Wave: 2012	0.1121** 0.0348	0.1123** 0.0348

Wave: 2013	0.0348	0.0348
	0.0355	0.0355
Intercept	6.3446***	6.344***
	0.0738	0.0738
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*: p-value < .05	Obs: 90,876	Obs: 90,876
** : p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced stress	Unrestricted model	Best model
Listening to music	-0.5335*	-0.4758*
	0.2304	0.1931
Listening to music (with others)	0.1642	
	0.3578	
Where: Home	-0.1855***	-0.1856***
	0.0205	0.0205
Where: Work	1.3614***	1.3613***
	0.034	0.034
Where: Someone else's home	-0.4507***	-0.4505***
	0.042	0.042
Where: Restaurant or bar	-0.5095***	-0.5088***
	0.0516	0.0516
Where: Outdoors	-0.4639***	-0.4639***
	0.0633	0.0633
Alone	0.1845***	0.1842***
	0.0185	0.0185
Gender: female	0.3567***	0.3567***
	0.0281	0.0281
Age: 31-60	0.1343**	0.1343**
	0.0431	0.0431
Age: 61 or higher	-0.5266***	-0.5266***
	0.0577	0.0577
Ethnicity: Black	-0.3626***	-0.3626***
	0.0406	0.0406
Ethnicity: Asian	-0.1378	-0.1378
	0.0746	0.0746
Ethnicity: other	0.0696	0.0697
	0.0914	0.0914
Region: Midwest	-0.0318	-0.0318
	0.0433	0.0433
Region: South	-0.0166	-0.0166
	0.0405	0.0405
Region: West	-0.0503	-0.0503
	0.0442	0.0442
Education: title below degree level	-0.0429	-0.0429
	0.0432	0.0432
Education: degree or higher	0.2789***	0.2788***
	0.0488	0.0488
Marital status: married or in civil partnership	-0.0614	-0.0613
	0.0411	0.0411
Marital status: separated or divorced	0.16***	0.1601***
	0.0477	0.0477
Marital status: widowed	-0.1871**	-0.1871**
	0.0637	0.0637
Children: 1	0.0507	0.0506
	0.0401	0.0401
Children: 2	0.1411***	0.141***
	0.0423	0.0423
Children: 3 or more	0.2073***	0.2074***
	0.0528	0.0528
Labour force status: unemployed	0.3776***	0.3776***
	0.0606	0.0606
Labour force status: not in labour force	0.1574***	0.1574***
	0.0354	0.0354
Income: median or above	-0.0666*	-0.0666*
	0.033	0.033
House owned	-0.1549***	-0.1549***
	0.0336	0.0336
Good health	-0.8955***	-0.8955***
	0.0285	0.0285
Wave: 2012	-0.1374***	-0.1374***
	0.0335	0.0335

Wave: 2013	-0.0996***	-0.0997**
	0.0342	0.0342
Intercept	2.5534***	2.5536***
	0.0706	0.0706
<hr/>		
*: p-value < .05	Obs: 90,876	Obs: 90,876
**: p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced tiredness	Unrestricted model	Best model
Listening to music	-0.7886** 0.2599	-0.6714** 0.2164
Listening to music (with others)	0.3323 0.4079	
Where: Home	0.496*** 0.0234	0.4958*** 0.0234
Where: Work	0.0212 0.0384	0.0211 0.0384
Where: Someone else's home	-0.091 0.0477	-0.0906 0.0477
Where: Restaurant or bar	-0.4274*** 0.059	-0.4261*** 0.059
Where: Outdoors	0.117 0.0719	0.117 0.0719
Alone	0.0148 0.0212	0.0142 0.0212
Gender: female	0.555*** 0.0318	0.5551*** 0.0318
Age: 31-60	-0.3645*** 0.0489	-0.3643*** 0.0489
Age: 61 or higher	-1.1459*** 0.0654	-1.1458*** 0.0654
Ethnicity: Black	-0.3629*** 0.046	-0.363*** 0.046
Ethnicity: Asian	-0.2936*** 0.0846	-0.2934*** 0.0846
Ethnicity: other	0.0916 0.1036	0.0919 0.1036
Region: Midwest	-0.0832 0.049	-0.0832 0.049
Region: South	-0.0178 0.0459	-0.0178 0.0459
Region: West	-0.0607 0.0501	-0.0607 0.0501
Education: title below degree level	-0.065 0.049	-0.0651 0.049
Education: degree or higher	0.0055 0.0552	0.0055 0.0552
Marital status: married or in civil partnership	-0.103* 0.0466	-0.1028* 0.0466
Marital status: separated or divorced	0.086 0.0541	0.0861 0.0541
Marital status: widowed	-0.2041** 0.0722	-0.2041** 0.0722
Children: 1	0.2082*** 0.0455	0.2081*** 0.0455
Children: 2	0.2353*** 0.048	0.2352*** 0.048
Children: 3 or more	0.2323*** 0.0599	0.2325*** 0.0599
Labour force status: unemployed	-0.7617*** 0.0687	-0.7618*** 0.0687
Labour force status: not in labour force	-0.2115*** 0.0401	-0.2114*** 0.0401
Income: median or above	0.0466 0.0374	0.0465 0.0374
House owned	-0.0983** 0.0381	-0.0983** 0.0381
Good health	-1.0618*** 0.0323	-1.0619*** 0.0323
Wave: 2012	-0.1346*** 0.0379	-0.1347*** 0.0379

Wave: 2013	-0.0177	-0.0177
	0.0387	0.0387
Intercept	4.4378***	4.4381***
	0.08	0.08
<hr/>		
*: p-value < .05	Obs: 90,876	Obs: 90,876
**: p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced sadness	Unrestricted model	Best restricted model
Listening to music	-0.3694*	
	0.174	
Listening to music (with others)	0.3325	
	0.2713	
Where: Home	-0.0095	-0.0103
	0.0156	0.0156
Where: Work	0.214***	0.2138***
	0.0258	0.0258
Where: Someone else's home	-0.1085***	-0.1089***
	0.0319	0.0319
Where: Restaurant or bar	-0.1283**	-0.1273**
	0.0392	0.0392
Where: Outdoors	-0.1476**	-0.1474**
	0.048	0.048
Alone	0.1523***	0.1514***
	0.0141	0.0141
Gender: female	0.0947***	0.0952***
	0.0224	0.0224
Age: 31-60	0.3879***	0.3884***
	0.0343	0.0343
Age: 61 or higher	0.0763	0.0769
	0.046	0.046
Ethnicity: Black	-0.0683*	-0.0685*
	0.0323	0.0323
Ethnicity: Asian	0.1646**	0.1644**
	0.0594	0.0594
Ethnicity: other	-0.0293	-0.029
	0.0728	0.0728
Region: Midwest	-0.1295***	-0.1296***
	0.0344	0.0344
Region: South	-0.063	-0.0629
	0.0322	0.0322
Region: West	-0.0838*	-0.084*
	0.0352	0.0352
Education: title below degree level	-0.2881***	-0.2879***
	0.0344	0.0344
Education: degree or higher	-0.2792***	-0.2789***
	0.0388	0.0388
Marital status: married or in civil partnership	-0.0669*	-0.0665*
	0.0327	0.0327
Marital status: separated or divorced	0.1302***	0.1305***
	0.038	0.038
Marital status: widowed	0.0223	0.0225
	0.0507	0.0507
Children: 1	-0.1866***	-0.1869***
	0.0319	0.0319
Children: 2	-0.2176***	-0.2178***
	0.0337	0.0337
Children: 3 or more	-0.3165***	-0.3164***
	0.042	0.042
Labour force status: unemployed	0.3036***	0.3034***
	0.0482	0.0482
Labour force status: not in labour force	0.241***	0.2408***
	0.0282	0.0281
Income: median or above	-0.2052***	-0.2053***
	0.0263	0.0263
House owned	-0.0753**	-0.0753**
	0.0268	0.0268
Good health	-0.6551***	-0.6552***
	0.0227	0.0227
Wave: 2012	-0.083**	-0.0831**
	0.0266	0.0266

Wave: 2013	-0.0752**	-0.0753**
	0.0272	0.0272
Intercept	1.5575***	1.5572***
	0.0561	0.0561
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*: p-value < .05	Obs: 90,876	Obs: 90,876
**: p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

American Time Use Survey

Dependent variable: experienced pain	Unrestricted model	Best restricted model
Listening to music	-0.3789*	
	0.1675	
Listening to music (with others)	0.4271	
	0.2615	
Where: Home	0.0631***	0.0623***
	0.0152	0.0152
Where: Work	0.1878***	0.1876***
	0.0252	0.0252
Where: Someone else's home	-0.0819**	-0.0821**
	0.0312	0.0312
Where: Restaurant or bar	-0.187***	-0.1855***
	0.0379	0.0379
Where: Outdoors	0.2634***	0.2636***
	0.0466	0.0466
Alone	0.0997***	0.0986***
	0.0138	0.0138
Gender: female	0.1517***	0.1522***
	0.0279	0.0279
Age: 31-60	0.6048***	0.6053***
	0.0429	0.0429
Age: 61 or higher	0.2738***	0.2744***
	0.0574	0.0574
Ethnicity: Black	-0.2031***	-0.2034***
	0.0404	0.0404
Ethnicity: Asian	-0.1183	-0.1184
	0.0742	0.0742
Ethnicity: other	0.3307***	0.3311***
	0.091	0.091
Region: Midwest	-0.0098	-0.0099
	0.043	0.043
Region: South	0.0255	0.0255
	0.0403	0.0403
Region: West	0.0047	0.0046
	0.044	0.044
Education: title below degree level	-0.2223***	-0.2222***
	0.043	0.043
Education: degree or higher	-0.3475***	-0.3473***
	0.0485	0.0485
Marital status: married or in civil partnership	0.1589***	0.1592***
	0.0408	0.0408
Marital status: separated or divorced	0.443***	0.4433***
	0.0474	0.0474
Marital status: widowed	0.1289*	0.1291*
	0.0633	0.0633
Children: 1	-0.1956***	-0.1959***
	0.0399	0.0399
Children: 2	-0.3508***	-0.3511***
	0.042	0.042
Children: 3 or more	-0.4441***	-0.444***
	0.0524	0.0524
Labour force status: unemployed	0.1233*	0.1231*
	0.0602	0.0602
Labour force status: not in labour force	0.6777***	0.6775***
	0.035	0.035
Income: median or above	-0.2905***	-0.2907***
	0.0328	0.0328
House owned	-0.0859*	-0.0858*
	0.0335	0.0335
Good health	-1.3057***	-1.3058***
	0.0283	0.0283
Wave: 2012	-0.033	-0.0332
	0.0333	0.0333

Wave: 2013	-0.0256	-0.0257
	0.034	0.034
Intercept	1.9159***	1.9158***
	0.0693	0.0693
<hr/>		
*: p-value < .05	Obs: 90,876	Obs: 90,876
**: p-value < .01	Resp: 30,914	Resp: 30,914
***: p-value < .001		

LSE Olympic Study

Dependent variable: experienced anxiety	Unrestricted model	Best restricted model
Listening to music	0.295 0.1857	
Listening to music (with others)	-0.0081 0.306	
Alone	-0.094 0.0489	-0.0928 0.0489
With spouse	-0.193*** 0.0493	-0.1927*** 0.0493
With children	-0.2674*** 0.0531	-0.2672*** 0.0531
With friends	-0.1412** 0.0533	-0.14** 0.0533
With colleagues	-0.1518** 0.0531	-0.1515** 0.0531
Where: Home	-0.3724*** 0.0426	-0.3684*** 0.0426
Where: Work	0.7954*** 0.0485	0.7955*** 0.0485
Where: Someone else's home	-0.2709*** 0.0599	-0.2698*** 0.0599
Where: Outdoors	-0.1427** 0.0464	-0.1418** 0.0464
Where: Restaurant or bar	-0.2622** 0.0815	-0.2624** 0.0815
Gender: female	0.0047 0.0336	0.0032 0.0336
Age: 31-60	-0.2801*** 0.0437	-0.28*** 0.0437
Age: 61 or higher	-0.6456*** 0.0641	-0.6449*** 0.0641
Region: London	0.192*** 0.0441	0.191*** 0.0441
Region: Paris	0.1237** 0.0428	0.1226** 0.0428
Education: title below degree level	-0.0643 0.0384	-0.064 0.0384
Education: degree or higher	-0.1011* 0.0412	-0.1014** 0.0412
Marital status: married or in civil partnership	0.0752 0.0402	0.0743 0.0402
Marital status: separated or divorced	0.0929 0.0583	0.0924 0.0583
Marital status: widowed	-0.0884 0.1081	-0.0895 0.1081
Children: 1	0.2044*** 0.0467	0.2037*** 0.0467
Children: 2	0.2873*** 0.057	0.2866*** 0.057
Children: 3 or more	0.3552*** 0.094	0.3536*** 0.094
Labour force status: unemployed	0.1308 0.0735	0.1326 0.0734
Labour force status: not in labour force	0.0406 0.0442	0.0406 0.0442
Income: median or above	-0.1819*** 0.0445	-0.1824*** 0.0445
House owned	-0.0674 0.0362	-0.0679 0.0362
Good health	-0.5702*** 0.0287	-0.5702*** 0.0287
Wave: 2011	0.1488*** 0.0303	0.1489*** 0.0303

Wave: 2012	0.1745***	0.1753***
	0.0336	0.0336
Intercept	3.1478***	3.1505***
	0.0855	0.0855
<hr/>		
*: p-value < .05	Obs: 32,906	Obs: 32,906
**: p-value < .01	Resp: 20,872	Resp: 20,872
***: p-value < .001		

LSE Olympic Study

Dependent variable: experienced happiness	Unrestricted model	Best restricted model
Listening to music	0.9262*** 0.1565	0.8357*** 0.1255
Listening to music (with others)	-0.25 0.2581	
Alone	-0.315*** 0.0411	-0.313*** 0.041
With spouse	0.1861*** 0.0414	0.1855*** 0.0414
With children	0.3278*** 0.0446	0.3278*** 0.0446
With friends	0.3483*** 0.0447	0.3479*** 0.0447
With colleagues	0.0836 0.0446	0.0841 0.0446
Where: Home	0.2422*** 0.0358	0.2418*** 0.0358
Where: Work	-0.6434*** 0.0408	-0.6437*** 0.0408
Where: Someone else's home	0.555*** 0.0503	0.5547*** 0.0503
Where: Outdoors	0.516*** 0.039	0.5159*** 0.039
Where: Restaurant or bar	0.6578*** 0.0686	0.6579*** 0.0686
Gender: female	0.0137 0.0277	0.0134 0.0277
Age: 31-60	0.1527*** 0.0361	0.1524*** 0.0361
Age: 61 or higher	0.5888*** 0.0529	0.5883*** 0.0529
Region: London	0.0667 0.0363	0.067 0.0363
Region: Paris	-0.1741*** 0.0351	-0.1736*** 0.0351
Education: title below degree level	-0.0581 0.032	-0.058 0.032
Education: degree or higher	-0.0224 0.0342	-0.0223 0.0342
Marital status: married or in civil partnership	0.1088** 0.0332	0.1087** 0.0332
Marital status: separated or divorced	0.1141* 0.0481	0.1146* 0.0481
Marital status: widowed	0.2307** 0.0891	0.2312** 0.0891
Children: 1	-0.0545 0.0387	-0.0544 0.0387
Children: 2	-0.0128 0.0472	-0.0128 0.0472
Children: 3 or more	-0.01 0.0777	-0.0096 0.0777
Labour force status: unemployed	-0.2946*** 0.0613	-0.2938*** 0.0613
Labour force status: not in labour force	-0.0607 0.0366	-0.0606 0.0366
Income: median or above	-0.099** 0.0372	-0.099** 0.0372
House owned	-0.0229 0.0299	-0.0227 0.0299
Good health	0.8376*** 0.0239	0.8374*** 0.0239
Wave: 2011	-0.1195*** 0.0255	-0.1194*** 0.0255

Wave: 2012	-0.0993***	-0.0991***
	0.0283	0.0283
Intercept	6.1697***	6.1693***
	0.0712	0.0712
<hr/>		
*: p-value < .05	Obs: 32,906	Obs: 32,906
**: p-value < .01	Resp: 20,872	Resp: 20,872
***: p-value < .001		

LSE Olympic Study

Dependent variable: experienced worthwhileness	Unrestricted model	Best model
Listening to music	-0.4242*	-0.3761*
	0.1982	0.1593
Listening to music (with others)	0.1334	
	0.3269	
Alone	-0.3582***	-0.3592***
	0.0514	0.0513
With spouse	-0.1672**	-0.1669**
	0.0519	0.0519
With children	0.2626***	0.2626***
	0.056	0.056
With friends	0.397***	0.3972***
	0.0561	0.0561
With colleagues	-0.2657***	-0.266***
	0.0558	0.0558
Where: Home	-0.1272**	-0.127**
	0.0449	0.0449
Where: Work	0.2066***	0.2068***
	0.0512	0.0512
Where: Someone else's home	0.4932***	0.4934***
	0.0631	0.0631
Where: Outdoors	0.3882***	0.3882***
	0.0488	0.0488
Where: Restaurant or bar	0.2322**	0.2322**
	0.0864	0.0864
Gender: female	0.1545***	0.1546***
	0.0348	0.0348
Age: 31-60	0.2918***	0.2919***
	0.0454	0.0454
Age: 61 or higher	0.7539***	0.7542***
	0.0663	0.0663
Region: London	-0.5364***	-0.5365***
	0.0457	0.0457
Region: Paris	-1.761***	-1.7613***
	0.0441	0.0441
Education: title below degree level	0.0074	0.0074
	0.0399	0.0399
Education: degree or higher	0.028	0.0279
	0.0428	0.0428
Marital status: married or in civil partnership	0.3741***	0.3742***
	0.0417	0.0417
Marital status: separated or divorced	0.229***	0.2288***
	0.0604	0.0604
Marital status: widowed	0.171	0.1707
	0.1116	0.1116
Children: 1	0.1962***	0.1961***
	0.0485	0.0485
Children: 2	0.2571***	0.2571***
	0.0592	0.0592
Children: 3 or more	0.6334***	0.6331***
	0.0975	0.0975
Labour force status: unemployed	-0.3823***	-0.3827***
	0.0768	0.0768
Labour force status: not in labour force	-0.238***	-0.2381***
	0.0459	0.0459
Income: median or above	-0.1486**	-0.1486***
	0.0466	0.0466
House owned	0.0716	0.0715
	0.0375	0.0375
Good health	0.7193***	0.7194***
	0.0298	0.0298
Wave: 2011	-0.1295***	-0.1295***
	0.0314	0.0314

Wave: 2012	-0.1111**	-0.1112**
	0.0349	0.0349
Intercept	6.625***	6.6252***
	0.0894	0.0894
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*: p-value < .05	Obs: 32,906	Obs: 32,906
**: p-value < .01	Resp: 20,872	Resp: 20,872
***: p-value < .001		

Taking Part & Understanding Society

Dependent variable: likelihood of participation	Attending concerts: classical music	Attending concerts: pop, rock, jazz music	Attending concerts: soul, hip-hop music
Gender: female	0.0208*** 0.0023	-0.0117*** 0.0034	0.0098 0.0054
Age: 31-60	0.026*** 0.0034	-0.0303*** 0.0051	-0.0521*** 0.0082
Age: 61 or higher	0.0876*** 0.0044	-0.1552*** 0.0067	-0.1019*** 0.011
Ethnicity: Black	-0.0756*** 0.0064	-0.1765*** 0.0096	0.0396* 0.0176
Ethnicity: Asian	-0.058*** 0.0046	-0.2292*** 0.0069	-0.0203 0.0139
Ethnicity: other	-0.0295*** 0.0069	-0.1185*** 0.0104	0.0242 0.018
Region: London	0.0484*** 0.0039	0.0091 0.0058	-5e-04 0.0091
Region: Wales	-0.0138* 0.0057	-0.0233** 0.0086	
Region: Scotland	-0.0093 0.0049	0.0132 0.0073	
Region: Northern Ireland	-0.0182*** 0.0062	-0.0345*** 0.0093	
Education: A levels or title below degree level	0.0354*** 0.0026	0.0526*** 0.0039	0.0157* 0.0061
Education: degree or higher	0.1349*** 0.0031	0.1283*** 0.0047	0.0147* 0.0068
Marital status: married or in civil partnership	0.0037 0.0032	-0.0407*** 0.0048	-0.0175* 0.007
Marital status: separated or divorced	0.0036 0.0041	5e-04 0.0062	0.0079 0.0088
Marital status: widowed	0.014* 0.0056	-0.0694*** 0.0084	-0.0429*** 0.0126
Children: 1	-0.0313*** 0.0033	-0.0492*** 0.005	-0.0255** 0.0077
Children: 2	-0.0437*** 0.0036	-0.0682*** 0.0054	-0.0275*** 0.0082
Children: 3 or more	-0.0453*** 0.0054	-0.1042*** 0.0081	-0.0344** 0.0129
Labour force status: unemployed	0.0037 0.0049	-0.0829*** 0.0074	-0.0067 0.0147
Labour force status: not in labour force	0.0161*** 0.0028	-0.0521*** 0.0042	-0.0189** 0.0072
Income: median or above	0.0162*** 0.0023	0.0411*** 0.0035	0.001 0.0057
House owned	0.025*** 0.0026	0.0566*** 0.004	0.0269*** 0.0063
Good health	0.0216*** 0.0023	0.0366*** 0.0035	0.0158* 0.0068
Disability	7e-04 0.0025	-0.0085* 0.0038	0.008 0.007
Wave: USoc 2013	-0.01*** 0.0018	-0.0079** 0.0028	
Wave: TP 2011-12	0.0163 0.0087	0.0322* 0.0132	
Wave: TP 2012-13	-0.018*** 0.0062	-0.0225* 0.0094	-0.0335*** 0.0096
Wave: TP 2013-14	-0.013*** 0.0037	3e-04 0.0055	-0.0243** 0.0093
Wave: TP 2014-15	-0.0233*** 0.0038	-0.0103 0.0057	-0.0284** 0.009
Intercept	-0.0354*** 0.0044	0.2827*** 0.0066	0.1553*** 0.014
*: p-value < .05	Obs: 75,235	Obs: 75,235	Obs: 15,983

**:	p-value < .01	Resp: 50,797	Resp: 50,797	Resp: 11,362
***:	p-value < .001			

Taking Part

Dependent variable: likelihood of participation	Attending concerts: gospel music	Attending concerts: Southern Asian music	Attending concerts: other
Gender: female	-2e-04	0.003*	-0.0112
	7e-04	0.0014	0.0059
Age: 31-60	8e-04	0.0026	0.0033
	0.001	0.0022	0.0089
Age: 61 or higher	0.0021	-1e-04	9e-04
	0.0014	0.0029	0.0119
Ethnicity: Black	0.0208***	0.0028	0.0357
	0.0022	0.0047	0.019
Ethnicity: Asian	-0.0012	0.0555***	-0.0686***
	0.0018	0.0037	0.015
Ethnicity: other	0.0162***	0.0139**	0.0296
	0.0022	0.0048	0.0195
Region: London	0.0013	0	-0.0113
	0.0012	0.0024	0.0098
Education: A levels or title below degree level	6e-04	0.0015	0.0326***
	7e-04	0.0016	0.0066
Education: degree or higher	8e-04	0.0044*	0.0809***
	8e-04	0.0018	0.0074
Marital status: married or in civil partnership	5e-04	-6e-04	-0.0188*
	9e-04	0.0019	0.0076
Marital status: separated or divorced	-0.002	-0.0016	0.0104
	0.0011	0.0024	0.0095
Marital status: widowed	5e-04	7e-04	-0.0388**
	0.0016	0.0033	0.0136
Children: 1	0.0015	-0.0016	-0.0248**
	0.001	0.0021	0.0083
Children: 2	9e-04	-9e-04	-0.0414***
	0.001	0.0022	0.0089
Children: 3 or more	0.0057***	-0.0037	-0.048***
	0.0016	0.0034	0.0139
Labour force status: unemployed	-0.0024	0.0032	0.0137
	0.0018	0.004	0.0158
Labour force status: not in labour force	-0.0014	-4e-04	-0.0169*
	9e-04	0.0019	0.0078
Income: median or above	-8e-04	0.0025	-0.0018
	7e-04	0.0015	0.0061
House owned	-6e-04	7e-04	0.0044
	8e-04	0.0017	0.0068
Good health	-7e-04	4e-04	-7e-04
	8e-04	0.0019	0.0074
Disability	0	0.0025	0.0079
	8e-04	0.0019	0.0075
Wave: TP 2012-13	-1e-04	0.0025	-0.0339***
	0.001	0.0028	0.0102
Wave: TP 2013-14	-2e-04	0.0015	-0.0229*
	0.001	0.0026	0.01
Wave: TP 2014-15	-8e-04	-3e-04	-0.0261**
	0.001	0.0026	0.0096
Intercept	9e-04	-0.0038	0.1289***
	0.0016	0.0038	0.015

*: p-value < .05

**: p-value < .01

***: p-value < .001

Obs: 15,983
Resp: 11,362

Obs: 15,983
Resp: 11,362

Obs: 15,983
Resp: 11,362

Taking Part & Understanding Society

Dependent variable: likelihood of participation	Playing an instrument	Singing to an audience	Writing music
Gender: female	-0.0521*** 0.0026	0.0143*** 0.0019	-0.0228*** 0.0012
Age: 31-60	-0.0514*** 0.0037	-0.022*** 0.0028	-0.0274*** 0.0018
Age: 61 or higher	-0.0832*** 0.0049	-0.0225*** 0.0036	-0.0433*** 0.0023
Ethnicity: Black	-0.0272*** 0.0073	0.0226*** 0.0053	0.0039 0.0034
Ethnicity: Asian	-0.0715*** 0.0052	-0.0295*** 0.0038	-0.018*** 0.0024
Ethnicity: other	-0.0014 0.0079	0.005 0.0058	0.0112** 0.0037
Region: London	-0.0059 0.0044	0.0028 0.0032	0.0052* 0.0021
Region: Wales	0.0025 0.0066	0.0027 0.0048	0.004 0.0031
Region: Scotland	0.0073 0.0056	-0.0077 0.004	0.0052* 0.0026
Region: Northern Ireland	-0.0121 0.0072	-0.0064 0.0052	-0.0109** 0.0033
Education: A levels or title below degree level	0.0278*** 0.0029	0.0152*** 0.0021	0.0068*** 0.0014
Education: degree or higher	0.1024*** 0.0035	0.0501*** 0.0026	0.0153*** 0.0016
Marital status: married or in civil partnership	-0.0287*** 0.0035	-0.0018 0.0026	-0.0119*** 0.0017
Marital status: separated or divorced	-0.0172*** 0.0046	0.0012 0.0034	-0.0055* 0.0022
Marital status: widowed	-0.0287*** 0.0062	-0.0057 0.0046	-0.0088** 0.0029
Children: 1	-0.0177*** 0.0035	-0.0215*** 0.0027	-0.0103*** 0.0017
Children: 2	-0.0088* 0.0039	-0.0231*** 0.0029	-0.008*** 0.0019
Children: 3 or more	-0.0076 0.0059	-0.0186*** 0.0044	-0.0058* 0.0028
Labour force status: unemployed	0.0034 0.005	1e-04 0.0039	0.0046 0.0025
Labour force status: not in labour force	0.0219*** 0.0029	0.0094*** 0.0022	0.0091*** 0.0014
Income: median or above	0.0115*** 0.0024	0.0069*** 0.0019	0.0016 0.0012
House owned	0.0158*** 0.0029	0.0128*** 0.0022	0.0035* 0.0014
Good health	0.0164*** 0.0024	0.011*** 0.0018	5e-04 0.0012
Disability	0.0017 0.0026	0.0015 0.002	-1e-04 0.0013
Wave: USoc 2013	-0.0027 0.0017	-0.0014 0.0014	0.0023** 9e-04
Wave: TP 2011-12	0.0084 0.0084	-0.0153* 0.0068	0.0041 0.0042
Wave: TP 2012-13	-0.0108 0.006	-0.0178*** 0.0049	-0.0029 0.003
Wave: TP 2013-14	-0.0079* 0.004	-0.0197*** 0.003	-0.0237*** 0.0019
Wave: TP 2014-15	-0.0071 0.004	-0.0177*** 0.0031	-0.0041* 0.0019
Intercept	0.146*** 0.0048	0.0351*** 0.0036	0.0582*** 0.0023
*: p-value < .05	Obs: 75,235	Obs: 75,235	Obs: 75,235

** : p-value < .01
*** : p-value < .001

Resp: 50,797

Resp: 50,797

Resp: 50,797

Taking Part & Understanding Society

Dependent variable: likelihood of participation	Attending the opera	Attending musicals	Listening to music
Gender: female	0.017*** 0.0017	0.1237*** 0.0077	0.0224** 0.0073
Age: 31-60	0.0145*** 0.0025	-0.0126 0.0116	-0.0723*** 0.011
Age: 61 or higher	0.0511*** 0.0032	0.0301 0.0156	-0.1057*** 0.0147
Ethnicity: Black	-0.044*** 0.0046	-0.1097*** 0.025	-0.0375 0.0236
Ethnicity: Asian	-0.0315*** 0.0033	-0.085*** 0.0197	-0.0986*** 0.0186
Ethnicity: other	-0.0163** 0.005	-0.0304 0.0254	0.0062 0.024
Region: London	0.0335*** 0.0028	0.0761*** 0.0129	-0.0348** 0.0121
Region: Wales	0.0041 0.0041		
Region: Scotland	0.0065 0.0035		
Region: Northern Ireland	-0.0106* 0.0045		
Education: A levels or title below degree level	0.0173*** 0.0019	0.0218* 0.0086	0.0081 0.0081
Education: degree or higher	0.0699*** 0.0022	0.0713*** 0.0097	0.0256*** 0.0091
Marital status: married or in civil partnership	-0.0056* 0.0023	0.0429*** 0.0099	-0.0146 0.0094
Marital status: separated or divorced	8e-04 0.003	0.0212 0.0125	-0.0067 0.0118
Marital status: widowed	-0.0031 0.004	0.0239 0.0178	0.0014 0.0168
Children: 1	-0.0235*** 0.0024	-0.0675*** 0.0109	-0.0158 0.0103
Children: 2	-0.0306*** 0.0026	-0.0747*** 0.0116	-0.0121 0.011
Children: 3 or more	-0.0248*** 0.0039	-0.0774*** 0.0183	-0.0412* 0.0173
Labour force status: unemployed	5e-04 0.0036	-0.0591** 0.0205	0.0274 0.0194
Labour force status: not in labour force	0.0011 0.002	-0.0267** 0.0101	-0.0128 0.0096
Income: median or above	0.0108*** 0.0017	0.0299*** 0.0079	0.0155* 0.0075
House owned	0.0103*** 0.0019	0.0507*** 0.009	-0.0047 0.0085
Good health	0.0133*** 0.0017	0.0385*** 0.0096	0.0108 0.0091
Disability	0.0022 0.0018	-0.0205* 0.0097	-0.0027 0.0092
Wave: USoc 2013	-0.0058*** 0.0014		
Wave: TP 2011-12	0.0054 0.0064		
Wave: TP 2012-13	-0.0037 0.0045	-0.06*** 0.0129	-0.0297* 0.0123
Wave: TP 2013-14	-0.0017 0.0027	-0.0528*** 0.0126	-0.0229 0.012
Wave: TP 2014-15	-0.0109*** 0.0027	-0.0582*** 0.0122	-0.0227 0.0116
Intercept	-0.0204*** 0.0032	0.1185*** 0.0195	0.8892*** 0.0184
*: p-value < .05	Obs: 75,235	Obs: 15,983	Obs: 15,983

** : p-value < .01

*** : p-value < .001

Resp: 50,7975

Resp: 11,362

Resp: 11,362

A5. References

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