A latent class analysis of visual artists' working and living conditions

by

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Abstract

Artists' working and living conditions have been the subject of several studies (e.g. Alper and Wassall, 2006, Menger, 2006). This paper will build on this literature but take a new approach in explaining artists' behavior and living conditions. A latent class analysis has been conducted, identifying different segments of artists, each of which are characterized by a different pattern of answers that reveals a particular working and living condition. The development of the latent class analysis includes a membership function, which is estimated through a logistic regression, which allows to predict the probability for an individual to belong to each latent class, given his/her socio-economic characteristics. The dataset consists of a combination of register data from Statistics Denmark and data collected in a survey to 3,028 visual artists in Denmark. Based on the personal identification number the two datasets have been merged. The results show that neither an artistic education, nor the gender differ significantly among latent classes. The visual artists can be segmented into 6 classes: Aspiring artists (10%), poor professional artists (19%), workers related to arts (13%), subsidized artists (26%), arts as a hobby or secondary activity (18%) and devoted to arts (14%). In this way, a latent class analysis can give a more nuanced picture of different groups of artists and their working and living conditions

1. Introduction

Artists' working and living conditions have been the subject of several studies (e.g. Alper and Wassall, 2006, Menger, 2006). Across countries and artists groups, all studies come to the same overall conclusions, such as that the average income of artists is very low compared to other groups in society, while at the same time there are large variations in income, so quite a few earn huge sums, while the clear majority earns little. Abbing (2002) has shown why the skewed income distribution is inevitable and an inherent tendency in the labor market for artists. Another important contribution is Throsby's (1994) work preference model, which shows how artists will act when the work itself is an important factor in artists' utility function (see Bille, Løyland and Holm, 2017). This paper will build on this literature but take a new approach in explaining artists' behavior and living conditions.

The dataset consists of a combination of register data from Statistics Denmark and data collected in a survey to 3,028 visual artists in Denmark. Using the personal identification number, the two datasets have been merged. Based on these data a latent class analysis has been conducted with the aim to identify a set of discrete and mutually exclusive classes or categories of artists based on their response to a set of questions.

The latent class analysis identifies different segments of artists, each of which are characterized by a different pattern of answers that reveals a particular living condition. The development of the latent class analysis includes a membership function, which is estimated through a logistic regression, and which allows to predict the probability for an individual to belong to each latent class, given his/her socio-economic characteristics.

The results show that neither an artistic education, nor the gender differ significantly among latent classes. The visual artists can be segmented into 6 classes: Aspiring artists (10%), poor professional artists (19%), workers related to arts (13%), subsidized artists (26%), arts as a hobby or secondary activity (18%) and devoted to arts (14%). The latent classes make it possible to interpret the artists working and living conditions based on a nuanced analysis of different groups of artists. This is a new contribution to literature.

The structure of the article can be outlined as follows: Section 2 reviews the literature on artists' working and living conditions, section 2 describes the methodology, namely the latent class model, section 3 describes the data set and the variables used, and section 4 shows the final results. Finally, section 5 provides some conclusions and implications of our research.

2. Literature review

There are many peculiarities in the artists' labor market that make it different from other labor markets. The literature has identified a large excess supply of artists (Abbing 2002), a very low average income and a skewed income distribution (e.g., Alper and Wassall 2006), as well as little or no impact of formal education on artists' earnings. Many studies have been conducted to get knowledge on the creative workers' employment, working conditions, careers, income and so on (e.g., Alper and Wassall 2006; Throsby 2001; Throsby and Hollister 2003; Heian et al. 2012; Abbing 2002; Menger 1999, 2006; Caves 2000; Coulangeon et al. 2005), and to compare it with other labor market groups. It is well known that many (young) people have given it a try in the arts and the creative industries, but few are able to make it into a career. However, less well researched is which exogenous factors have an impact on the survival in the arts and the creative industries (an exemption is Bille and Jensen 2017).

The literature offers different theoretical explanations for these peculiarities. The attractiveness of the occupation may explain the excess supply of artists and the low average income (Throsby's work preference model, 1992, 1994, 2001) and the happiness of artists (Bille et al. 2013; Steiner and Schneider 2013). The superstar model (Rosen 1981) can explain the extremely skewed income distribution. In addition, individual talent is an important (and unmeasurable) explanatory variable for the success and career of artists, which also means that formal education in the arts may not have as much impact on careers as a formal education have in other occupations (Alper and Wassall 2006).

Artistic educations, such as an education from the Academy of Fine Arts, may provide artists with important skills. But the literature has shown that artistic education may have little, if any, important impact on artists' incomes and careers (Towse 2006). Many artists are self-taught (Alper

and Wassall 2006), and individual artistic talent may be the important driver of a career within the arts. In artists' labor markets, indefinable features such as talent and artistic creativity apparently contribute more to success or higher rates of payment than education and training (Withers 1985).

Earning functions on a cross-sectional sample have been used to explore possible differences in the rewards of education, training and other labor market attributes. The results showed that artists do not seem to fit the standard earnings model as well as other workers, and for them, earnings functions have poorer goodness-of-fit. Rengers (2002) found that characteristics of the artists' education had little or no impact on the artists' career. Self-educated artists have the same earnings and the same supply behavior as those with a formal artistic education, for whom the prestige of the arts college attended does not have long-lasting effects. However, Filer (1986, 1989, 1990) found, looking at three-digit occupations, that measures of earnings inequality ''for occupations where individual talent and performance are important determinants of earnings tend to be similar to those for artists,'' making the arts similar to ''equal'' occupations.

In general, the empirical results of most studies show no or very weak correlation of education with artistic earnings, but a positive correlation with non-artistic earnings (Alper and Wassall 2006; Throsby 1992, 1994, 1996). Throsby (1996) differentiate between professional arts education and general education, expecting non-arts income to be affected by general education and income from arts-related work to be influence by professional arts education. However, this elaboration still confirmed the general results.

Bille and Jensen (2016) have readdressed the question by looking at the artists' survival in the arts occupations. Based on a unique longitudinal dataset for five different groups of artists in Denmark and using the Cox model to apply survival functions and semi-parametric analysis, the results show, among other things, that an artistic education has a significant impact on artists' careers in the arts, but there are important industry differences. For visual artists there are found no significant impact of an arts education on the artists' careers.

This review of the literature highlights the need to take a new approach in order to analyze the

very diverse group of artists in order to better understand their working and living condition. In this article latent class models are employed to explain heterogeneity. This is a new contribution to the literature.

3. Methodology: Latent class

Latent class analysis is a statistical technique that aims to identify a set of discrete and mutually exclusive classes or categories of individuals based on their response to a set of questions. The basic premise of the latent class analysis is that this interrelationship between observable variables/responses is due to the association of each observable variable to an underlying unobserved categorical variable, that divides the population into mutually exclusive and exhaustive latent classes. The effect of this unobserved categorical variable is such that, if we control for it, the relation among the observable variables will diminish. In other words, the latent class analysis aims to find a discrete number of classes or subgroups of individuals such that, conditional on their belonging to one of these classes, the individuals' responses are independent of each other as there is no longer a relationship between the observable variables/responses. That is, the association between the different responses given by an individual is caused by the belonging of this individual to a particular latent class, and each latent class can be considered representative of a distinctive pattern of response. The overall pattern of the responses is complex as there are potentially many combinations. However, we expect that the answers given by respondents show some degree of association. For example, we expect that artists who have an own company will say they perceived themselves as full time artist. Similarly, we expect that individuals who report to spend most of their time in activities related to art will perceive themselves as full time artist, and so on. Based on the responses given by the artists, the latent class analysis identifies different segments of artists each of which is characterized by a different pattern of answers that reveals a particular living and working condition.

In our case, each artist was asked to answer questions regarding the sources of their income, how they spend their time, if they perceived themselves to be full/part time artist and if they have their own company. Each response provides a value to the corresponding categorical variable. Let denote with $Y_i = (Y_{i1}, Y_{i2}, \ldots Y_{iM})$ the vector of the responses given by individual i to a set of M items identified as

categorical variables, where the possible values of Y_{im} are $= 1, 2, \ldots r_m$. y represents a particular response pattern, and C is the number of latent classes with $c = 1, 2, \ldots C$. The latent class model can be expressed as:

$$P(Y = y) = \sum_{c=1}^{C} \gamma_c \prod_{m=1}^{M} \prod_{k=1}^{r_m} \rho_{mk|c}^{I(y_m=k)} \qquad (1)$$

where $P(Y = y)$ is the probability to observe a particular pattern and $I(y_{im} = k)$ is an indicator function equal to 1 if the response y_m equals k and 0 otherwise. The parameters to be estimated are: γ_c which is the probability of membership in class c; and $\rho_{mk|c}$ which is the probability to respond k to item m, conditional on latent class c membership. As each individual belong to one and only one class, we have $\sum_{c=1}^{C} \gamma_c = 1$.

A development of the Latent class analysis considers the inclusion of a membership function, in case socio-demographic data (otherwise called covariates), of the respondents are available (e.g. age, gender, etc.). The membership function allows to predict the probability for an individual to belong to each latent class, given the individual characteristics. Including covariate, equation (1) change to the following form:

$$P(Y = y \mid X = x) = \sum_{c=1}^{C} \gamma_c(x) \prod_{m=1}^{M} \prod_{k=1}^{r_m} \rho_{mk|c}^{I(y_m=k)} \qquad (2)$$

where $P(Y = y \mid X = x)$ is the probability to observe a particular pattern given the values x of the covariates X; whereas $\gamma_c(x)$ is the probability to belong to the latent class c, given the values of the covariates. The likelihood $\gamma_{ic}(x_i)$ of the individuals i belonging to class c can be inferred through a probabilistic assignment process called membership function, which includes individual-specific variables. A multinomial logit specification is a convenient form for the class membership model. Hence, the probability $\gamma_c(x_i)$ is given by:

$$\gamma_{ic}(x) = \frac{\exp(\beta'_c X_i)}{\sum_{c'=1}^{C-1} \exp(\beta'_{c'} X_i)} \qquad (3)$$

where $c' = 1, \ldots, C-1$. Including the covariates, an additional set of parameters β'_c, that is the vector of parameters of the multinomial logit (one for each latent class). Notice that for one latent class (the last one, C) the parameters are normalized to 0 to secure identification of the model.

The model is estimated with PROC LCA (Lanza *et al.*, 2007), a SAS procedure for the latent class analysis, which estimates the parameters by maximum likelihood using the EM (expectation-maximization) algorithm.

The number of classes are not decided *a priori* but are determined by statistical criterion that evaluates which model with different number of classes fits better. Usually the Bayesian information criterion (BIC) and Akaike information criterion (AIC) are used as a guide to determine the number of classes. These tests are calculated as follows:

AIC = −2LL + 2K

BIC = −2LL + Ln(N)K

where LL is the value of the log-likelihood function, K the number of parameters and N the sample size. These tests are calculated for models with different numbers of classes. The final number of classes selected is the one for which the value of the test is the smallest.

4. Data and variables

For our research we have sampled visual artists in Denmark based on the following criteria: members of one or both the main arts organizations in Denmark, persons with an artistic education form an arts academy, and/or artists who have received grants from The Danish Arts Foundation during the period 2006-2016. These in total 3,028 visual artists have received the questionnaire. A total of 1,071 answers were received, giving a response rate of 35%. The sample is deemed representative (Bille et al., forthcoming).

These survey data have been merged with register data from Statistics Denmark. From Statistics

Denmark, we have used a combination of labor, income and education data in the period 2010-2015. Via the artists' personal identification numbers, it is possible to link the survey data with information from the public registers in Statistics Denmark.

The combination of register data and survey data offers several advantages. Firstly, register data from Statistics Denmark provides a wide range of variables, which provide concrete information about, e.g. income and demographic data. On the other hand, a questionnaire allows for a more detailed examination of the living conditions and working conditions of visual artists than those available from Statistics Denmark. Secondly, merging the two sets of data provides special options for analyzes of drop-outs, since data from Statistics Denmark also provides information for those who have not answered the questionnaire.

As the primary concern of our analysis is to explore artists' living and working conditions, the variables used to identify the latent class refer to artists income, how they spend their working time and their perception as being an artist. As such, these variables will allow to cluster the artists in relation to the focus of this research, which is the living and working condition in terms of income and time spent. The variables used in the latent class analysis are mostly expressed as ordinal categorical variables: concerning income, we ask to the responders the percentage of income derived from: art work (*pct art*), job related to arts (*pct related job*) in which the respondent uses skills from the work as visual artist, other sources not related to art (*pctother*), and government subsidies (*pct gov*)[1]. These variables have 5 different levels: a percentage equal to 0, between 1 and 19, between 20-39 and so on (see the Table 1 for details). Additionally, we ask the respondents if they have their company, and the variable takes the form of a dummy equal to 1 if the answer is yes, that is if the artist is self-employed. The artist yearly income was obtained from Statistics Denmark, and the variable has 11 eleven different levels (see the Table 1 for details).

Concerning the artists working time, the artists have reported the percentage of working time spent for art (*timeart*), for related activities (*time rel*) and for other activities not related with (*time other*). These categorical variables can take 5 different values similarly to the variables concerning

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[1] Danish students' Grants and Loans Scheme, sick leave benefits, unemployment benefits etc.

the percentage of income described above. Finally, we ask the artsit about their perception of being an artist: these variables have 3 levels: full-time artist, part-time artist and not an artist.

Whereas these variables aim to describe the artists' living and working condition, the variables used for the membership function fulfill a different aim. Indeed, as we cannot directly identify to which latent class a particular artist belongs, we need some "external" variables, related to the respondents' characteristics but not directly related with the artists' working and living condition, to include in the membership function that allows to predict class membership probabilities. Normally, such variables are related to socio-demographic characteristics. We use as variables of the membership function: a dummy variable denoting the gender, a categorical variable with 6 levels for age (see Table 1 for details), and a dummy variable indicating whether the respondents is retired. Moreover, we include also three dummy variables that may characterize the level of professionalism by an artist based on: a visual artist education, membership of The Danish Arts Society[2] and grant received form The Danish Arts Foundation. Table 1 summarizes the variables used in the Latent Class Analysis.

Table 1. Variables in the Latent Class Analysis

Variable	Description	Level
Company	The artist is self-employed	1 = yes; 0 = no
Perception	How the artist perceives himself/herself	1=Fulltime Artist; 2= Part-time Artist; 3=Does not work with art
Pct art	Percentage of income from work as visual artist	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Pct related job	Percentage of income from work where the artist has used his/her skills from work as visual artist (as an artistic consultant, teacher, lecturer etc.)	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%

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[2] For membership of the Danish Arts Society (Kunstnersamfundet), a jury assesses the quality of a candidate's artistic production and qualifications. Membership depends therefore solely on the person's artistic skills and the quality of the artistic works.

Pct government	Percentage of income from government subsidies	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Pct other	Percentage of income from work without relation to the work as visual artist	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Time art	Percentage of working time as a visual artist	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Time related	Percentage of working time devoted to activities where skills from work as a visual artist are used	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Time other	Percentage of working time not dedicated neither to art nor to activities related to art	1= 0%; 2= 1-19%; 3= 20-39%; 4= 40-59%; 5=50-79%; 6= more or equal of 80%
Income	Yearly total income before taxes	1 = Less than 100 000 DKK; 2 = 100 000-200 000; 3= 200 000-300 000; 4= 300 000-400 000; 5=400 000-500 000; 6=500 000-600 000; 7= 600 000-700 000; 8= 700 000-800 000; 9= 800 000-900 000; 10= 900 000-1 000 000; 11= More than 1 000 000
Class membership		
Gender	Gender of the artist	1= Male; 0=Female (base variable)
Age	Age of the artist	1= 18-29 (base variable); 2= 30-39; 3= 40-49; 4= 50-59; 5= 60-66; 6= more than 67
Retired	The artist is retired	1= yes; 0= no

Education	The artist has completed a visual art education	1= yes; 0= no		
Member Arts Society	The artist is a member of the Danish Art Society (Kunstnersamfundet)	1= yes; 0= no		
Received grant	The artist has received grants by the Danish Arts Foundation in the period 2010-2015	1= yes; 0= no		

5. Results

We have conducted a latent class analysis based on the dataset, and Table 2 shows the results of the analysis.

Table 2. Estimation of the Latent Class Analysis

	CLASS1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6
Percentage	0.1048	0.1923	0.1272	0.2582	0.1772	0.1403
No company	0.6411	0.4468	0.6868	0.7733	0.8991	0.1668
Own company	0.3589	0.5532	0.3132	0.2267	0.1009	0.8332
Feel full time artist	0.4936	0.9594	0.2205	0.8094	0.1150	0.9705
Feel part time artist	0.5064	0.0406	0.5255	0.1784	0.8019	0.0114
No feel artist	0	0	0.2540	0.0123	0.0832	0.0181
pct art 0	0.3038	0.0649	0.5781	0.4969	0.7461	0
pct art 1-19	0.4046	0.2040	0.3319	0.2647	0.1996	0.0699
pct art 20-39	0.2040	0.2173	0.0784	0.1234	0.0463	0.0591
pct art 40-59	0.0876	0.2585	0	0.0900	0	0.1069
pct art 60-79	0	0.1755	0	0.0071	0	0.1436
pct art > 80	0	0.0797	0.0117	0.0179	0.0080	0.6205
pct related job 0	0.1304	0.0904	0	0.9647	0.8847	0.5586
pct related job 1-19	0.3675	0.3017	0.0481	0.0353	0.0966	0.3366
pct related job 20-39	0.2229	0.1780	0.0197	0	0.0187	0.0935
pct related job 40-59	0.1584	0.2229	0.0278	0	0	0.0113
pct related job 60-79	0.0522	0.1377	0.1593	0	0	0
pct related job > 80	0.0686	0.0693	0.7451	0	0	0

pct gov 0	0.6693	0.7785	0.8840	0.7951	0.7238	0.9240
pct gov 1-19	0	0.0407	0.0732	0	0.0434	0.0281
pct gov 20-39	0.0736	0.0520	0.0236	0.0089	0.0185	0.0240
pct gov 40-59	0.1800	0.0555	0	0.0539	0.0403	0.0210
pct gov 60-79	0.0547	0.0531	0	0.0381	0.0243	0
pct gov > 80	0.0144	0.0279	0.0192	0.1054	0.1484	0
pct other 0	0.4666	0.4794	0.9007	0.7417	0.1826	0.5559
pct other 1-19	0.0678	0.4241	0	0.2583	0.2061	0.2196
pct other 20-39	0.2053	0.0703	0.0993	0	0	0
pct other 40-59	0.2603	0.0261	0	0	0.1562	0
pct other 60-79	0	0	0	0	0.4551	0.2245
pct other > 80	0	0	0	0	0	0
time art 0	0.0841	0.0061	0.2166	0.0711	0.3231	0.0172
time art 1-19	0.0477	0	0.2205	0.0606	0.2630	0.0074
time art 20-39	0.4816	0.0149	0.4176	0.0960	0.2650	0.0163
time art 40-59	0.3438	0.2975	0.1338	0.1687	0.1071	0
time art 60-79	0.0428	0.4216	0.0116	0.1421	0.0418	0.0134
time art > 80	0	0.2599	0	0.4616	0	0.9458
time related 0	0	0	0.0329	0.8740	0.7882	0.5117
time related 1-19	0.3923	0.2571	0	0.0402	0.1731	0.4210
time related 20-39	0.4784	0.3963	0	0.0290	0.0387	0.0672
time related 40-59	0.1194	0.2976	0.1805	0.0325	0	0
time related 60-79	0.0099	0.0332	0.3599	0.0078	0	0
time related > 80	0	0.0158	0.4267	0.0166	0	0
time other 0	0	0.6239	0.7846	0.6949	0.0121	0.9704
time other 1-19	0.0092	0.1526	0.1159	0.1746	0	0
time other 20-39	0.2216	0.2235	0.0893	0.1079	0.0963	0
time other 40-59	0.5303	0	0.0102	0	0.0331	0
time other 60-79	0.2389	0	0	0.0226	0.4164	0.0147

time other >80	0	0	0	0	0.4421	0.0149
income1	0.0926	0.2798	0.0179	0.1689	0.0828	0.1926
income2	0.3803	0.3631	0.1729	0.4163	0.2434	0.2267
income3	0.3299	0.2257	0.2746	0.2949	0.3330	0.2056
income4	0.0992	0.0706	0.1949	0.0583	0.1946	0.1736
income5	0.0798	0.0334	0.1694	0.0276	0.0890	0.0672
income6	0	0.0062	0.1227	0.0204	0.0368	0.0375
income7	0.0090	0.0162	0.0260	0	0.0070	0.0144
income8	0	0.0050	0.0080	0	0.0052	0.0205
income9	0.0092	0	0	0.0037	0	0
income10	0	0	0	0	0.0055	0.0137
income11	0	0	0.0137	0.0098	0.0027	0.0483

CLASS MEMBERSHIP

p-value

male	0.3637 0.8666	0.1507	0.0683	0.2127	−0.0684	-
age2	−3.9685 0.0002	−3.9957	−2.3108	−5.2834	−2.6978	-
age3	−4.4312 0	−4.2033	−1.7537	−5.6750	−3.3292	-
age4	−4.0342 0	−3.9390	−1.8937	−5.2859	−2.9851	-
age5	−5.1767 0	−4.2688	−2.5857	−5.0561	−3.9095	-
age6	−5.7816 0	−5.7403	−3.3330	−6.4592	−5.2228	-
retired	0.1545 0	0.7709	−0.8131	2.7677	1.7345	-

education	−0.1216 0.2392	−0.1869	−0.3151	−0.0462	0.3850	-
member kunst	−1.0808 0.0010	−0.5224	−1.0102	−0.3924	−1.3905	-
received grant	−0.7667 0	0.1859	−1.2196	−0.8129	−2.1890	-
const	4.3842 0	4.5061	2.8797	5.2079	4.0064	-

Concerning the class membership function, the $p-value$ reported in the table tells us if the variable is significant in explaining class differences. The results show that neither an artistic education (in accordance with earlier research), nor the gender significantly differ among latent classes; that is, these variables cannot be used to predict to which class an individual belongs.

The variables (except for the covariates of the membership function) can be understood in this way: For example, 30.4% of members of Class 1 do not have income deriving from an art job; 40.5% of members of Class 1 has a percentage of income deriving from an art job between 1 and 19; 20.4% between 20 and 39 per cent; 8.8% between 40 and 59 per cent, and so on so forth.

The interpretation of the variables of the membership function is not straight forward: they have to be interpreted in relation to Class 6 (the reference class). Moreover, for the age component, this is more difficult, as it needs to be read not only in relation to the 6th class, but also in relation to the dummy age1 (18- 29 years old) set to 0 as base variable. To facilitate the interpretation, the posterior probability analysis has been made and some of them, useful for the interpretation of the latent classes, are reported. Basically, based on the estimation of the coefficients of the latent class analysis, the probability to belong to each class is calculated for each individual, and the individuals is assigned to the class with the highest probability.

Class 1 (10.5%). It can be called *Aspiring artists* class. This is the smallest class in terms of size. Members of this class have heterogeneous sources of income: government subsidies, arts job, art-related activities and other activities not related to art. This is the class with the lowest share of

individuals who declare to not receive government subsidies, and for 33.1% of them this source represents more than 20% of their income. Their time is devoted mainly by activities not related to art (for 76.9% of them, more than 40% of their working time is dedicate to this kind of activities), but they also devote a smaller amount of working time to art or art-related activities. It seems that members of this class would like to live solely from their art, but they either have little time for it, or they are risk-adverse and prefer to dedicate more time to activities not related to art, but that can guarantee a stable income. The majority of them (64.1%) does not have a company, and approximately half of them perceive themselves as full time artist, whereas the other half as part-time artist. Most of them are low-medium income individuals (80.3% of them earn less than 300.000 DKK per year). This class is composed mainly by young-middle age individuals and few of them (10.1%) are members of The Danish Arts Society.

Class 2 (19.2%). It can be called *Poor professional* class. This class is composed by people who are professional artist but can't support themselves solely based on their art, and so they make up their wages with jobs related to art. The majority of individuals of this class (55.3%) have a company, and almost all (95.9%) perceive themselves as a full-time artist. Compared to other classes, their income derives mainly from artistic jobs (excluding the Class 6, which is the class where the art job is the most important component of their income). However, their income derives also from jobs related to art and, to a lesser extent, by governmental subsidies and other activities. Their working time is devoted mainly to art and/or activities related to art. This is the class characterized by the lowest level of income: 28.0% earn less than 100,000 DKK per year and 86.9% of them earn less than 300,000 DKK. Probably this is the reason why these individuals need a related-art job as they cannot support themselves only through their art. Moreover, this is the class with the highest share of individuals who have received grant by The Danish Arts Foundation (47.2%). Related to age, this class is heterogeneous.

Class 3 (12.7%). It can be called *Workers related to arts* class. The main characteristics of this class is that most of their income and most of their time are dedicated to activities related indirectly to art. In details, 74.5% declare that more than 80% of their income derive by this kind of activities, and more than 78% dedicated more than 60% of their working time on activities related to art. Although 91% of them receive less than 20% of their income by artistic work, they devote part of their working

time to art (41.8 % of individuals of this class dedicate between 20-39 % of their working time on art, and 13.4% between 40-59 %). Approximately half of members of this class perceive themselves as part time artist; whereas it is interesting to observe that this is the class with the highest share of individuals who do not perceive themselves as artist (25.40 %). Moreover, this is the class with the lowest share of individuals with an income per year lower than 100 000 DKK (1.8%). Most of them are more or less equally distributed among all the income categories between 100,000 DKK and 600, 000 DKK; whereas a small share of individuals (1.4%) earns more than 1 million DKK (4.83%) per year. Compared to the other classes, it seems the class that, on average, has the highest level of income. From a socio-demographic perspective, this is the class with less retired people (only 3.7% of individuals of this class), and with a low share of member of The Danish Arts Society (only 12.5% of individuals of this class). Moreover, most of them (68.4%) are between 40 and 59 years old: there are very few individuals under 29 years old or over 67 years old.

Class 4 (25.8%). It can be called *Subsidized artists* class. This is the biggest class in terms of size. Members of this class receive their income from arts job, but an important part of their income derives also from government subsidies: for 10.5% of members of this class, such government contribution represents more than 80% of their income. Members of this class devote their time mainly to art: 46.2% of them dedicate more than 80% of their working time to art. Indeed, most of them (80.9%) perceive themselves as full time artists. A small amount of their time is dedicated to other activities not related with art. From an income perspective, individuals of this class are concentrated in the low-income categories: approximately 70% of them have an income between 100 000 and 300 000 DKK. However, there is a very small share of high-income individuals. Most members of this class (83.3%) do not have a company. Interestingly, this Class is composed by both very young individuals and old individuals. Among individuals between 18 and 29 years old, 44.6% of them belong to this Class. Similarly, if we consider all the individuals that are more than 67 years old, 54.2% of them belong to this class. Moreover, 62.9% of individuals in this class are retired. Excluding Class 6, this is the class with the highest share of members of The Danish Arts Society (28.5%).

Class 5 (17.7%). It can be called *Arts as a hobby (or secondary activity)* class. This class is composed by people who do not consider art as their main activity. Most of them (89.9%) don't have a

company, and most of them (80.2%) feel themselves as part-time artists. Compared to other classes, members of this Class receive a lower share of their income from art jobs. Even 74.61% of them declare that this percentage is zero. Instead, their income derives mainly from other activities not related to arts (61.13% declare that this percentage is between 40 and 79%), but also by government subsidies: 14.84% of members of this class state that this source represents more than 80% of their total income. Overall, they dedicate few working hours to art or to activities related to art compared to other classes, as they dedicated their working time mainly to activities not related to art. Compared to the other classes, there are few individuals with very low income (under 100,000 DKK) and more individuals with middle income. This is the class with the lowest share of both individuals who have received grant by The Danish Arts Foundation (only 5.5%) and members of Det Danish Arts Society (9.3%). Indeed, this class shows the lowest value for these two variables of the membership function. Related to age, the class is heterogeneous.

Class 6 (14.0%). It can be called *Devoted to arts or Professional* class. This class is composed by people who are professional artist and can support themselves through their art job. Most members of this class (83.32%) have a company, and their income derives mainly from artistic work (62.1% says that it represents most of 80% of their total income and, interestingly, it is the only class in which there are no people who declares this percentage is 0). 97.1% of them perceive themselves as full time artist. They devote their working time almost exclusively to art (for 94.6% more than 80% of their working time). This class is the most heterogeneous from an income perspective: indeed, this is the class with the highest percentage of individuals who earn more than 1 million DKK (4.8%) per year; however, almost 80% earn less than 400,000 DKK and 19.3% less than 100.000 DKK per year. This seems to confirm the Rosen's theory (Rosen, 1981) of the skewness of artist income: there are many low-income people and few people with very high income. Moreover, this is the class that receive less money from government subsidies. Opposite to Class 5, members of this class are professional as this class has the highest share of members of The Danish Arts Society (39.2%) and, with the exception of Class 2, the highest share of individuals who have received grant by The Danish Arts Foundation (39.9%). Looking at table 2, this can be deduced by the fact that the values of these two variables is negative for all the other classes, considering that this class is the reference class in the membership function. Related to age, the main characteristic of this class is that, according to the posterior probability analysis, there are no individuals under 29 years. This demonstrates that years of

experience are needed in order to become a professional artist.

Table 3. Summary of latent classes

	Class 1 Aspiring artists	Class 2 Poor Professionals	Class 3 Workers related to arts	Class 4 Subsidized artists	Class 5 Arts as a hobby	Class 6 Professionals
Share	10.5	19.2	12.7	25.8	17.2	14.0
Full time/part time artist	Half/half	Full time	Part time Not artists	Full time	Part time	Full time
Pct of income from art jobs	Hetero-geneous source of income	High	Arts related	High	Low	High
Self-employed	No	Yes		No	No	Yes
Government subsidies	Low	Low		High		Low
Time spend on art	Low	High	Arts related	High	Low	High
Yearly total income	Low-medium income	Low income	High income	Low income	Middle income	Hetero-geneous
Age	Young-middle aged	Hetero-geneous	Middle aged	Young Old	Hetero-geneous	Middle aged and old
Member of the Danish Art Society	Few		Few	High	Low	High
Received art grants		High			Low	High

6. Conclusion

In this article we have shown how a latent class analysis can give a more nuanced picture of different classes/groups of artists and their working and living conditions. We find six distinctive groups of artists. The groups cover between 10% and 25% of the artists. The biggest group is the subsidized artists and the smallest group the aspiring artists. Our research shows, that artists cannot be seen as one group, but there exist many subgroups with different working and living conditions. Very few artist, namely 14% (the professionals) are able to live of their art job. The rest are struggling in different ways to make a living related to the arts, using different strategies and sources of income.

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