Who Is an Artist?
Heterogeneity and Professionalism among Visual Artists

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by

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Abstract

The purpose of this article is twofold. Firstly, to investigate the heterogeneity among artists as an occupational category and secondly, to define arts as a profession and thereby to make a distinction between professional artists and amateurs. Artists' income and working conditions have been the subject of several studies, and many different sampling criteria have been used. Scholars have not yet achieved consensus on who should be included in the profession. In this article, we make an innovative contribution to this conversation. By applying a finite mixture model, which combines latent profile and latent class analysis, we have been able to identify different segments of artists in terms of professionalism. Each of these mutually exclusive classes is characterized by a particular income and working situation. We also include a membership function, estimated through a logistic regression, which allows prediction of the probability that an individual will belong to each class, given his/her socio-economic characteristics. The subject of our study is Danish visual artists. The dataset consists of a combination of register data from Statistics Denmark and data collected from a questionnaire survey with 892 respondents. Based on the artists' civil registration numbers, the two sources have been merged into a unique dataset. Our finite mixture model shows the heterogeneity among artists. Combined with a theoretically definition of arts as a profession, our research propose a distinction between professional artists and amateurs that cuts across categories used in prior literature. The results can be beneficial to cultural policy.

Keywords: Labour market; Visual artists; Finite mixture model

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1. Introduction

The issue of who can be considered an artist, and of how to define the boundaries of the artists' professions, is a contentious matter, and scholars have not yet achieved consensus on who should be included in these professions. The problems relate to the fact that artists cannot be limited by a specific occupation or education given that the concept of artists is more broadly related with the quality of the art produced. The quality of the art is, however, in itself a fluent and undefined concept (see e.g. Eliassen, Hovden and Prytz (ed.), 2018). While some theoreticians and artists, such as Joseph Beuys, consider every living person to be an artist, the theoretical discussion of the concept of artist relates mainly to the question of where the boundary between "professional artists" and "amateurs" should be drawn (Becker, 1982). The same problems arise at the empirical level, given that there is no single criterion for defining an artist, unlike the case of, for instance, a lawyer, a doctor, or a teacher. Many artists have multiple jobs, more or less related to the arts (Menger, 2006, Casacuberta and Gandelman, 2012, Bille, Løyland and Holm, 2017, Robinson and Montgomery, 2000, Throsby, 1994), and the quality of the artwork is difficult/impossible to conceptualize, let alone measure (Bille and Olsen, 2018). For practical empirical research, however, a definition of the population of artists is necessary in order to undertake research into the economic and social living conditions of artists.

Artists' income and working conditions have been the subject of several research studies, e.g. Alper and Wassall (2006), Bille et al. (2018), Menger (1999, 2006), Heian et al. (2012), and Throsby and Petetskaya (2017). Previous research highlights the challenges of studying artists as a category of workers (Menger 2001 and Throsby 1992) and proposes various criteria to establish "who is an artist". Some empirical studies use membership of artists' associations as the main selection criteria (Throsby and Petetskaya, 2017), sometimes combined with the receipt of national arts grants (Heian et al., 2012) and with an education in the arts (Bille et al., 2018), while other studies use occupation and income (Alper and Wassall, 2006, Higgs, Cunningham and Bakhshi, 2008). In other words, the studies use different criteria to define the group of artists they are including, and the results of these studies of artists' income will, of course, be dependent on the criteria used. The relatively inclusive demarcation criteria in most studies mean that a large and highly heterogeneous group of artists is often included: not only people with an ambition to work with or live from being an artist, but also people who have at some point worked as an artist, without necessarily considering arts practice to be the core of their employment.

The purpose of this article is to investigate the heterogeneity of artists as a population, and it aims at making a theoretically and empirically based distinction between professional artists and amateurs and thereby define arts as a profession We propose a new method of studying heterogeneity among artists, by defining a limited number of groups (classes) of artists with certain characteristics. These groups of artists, which vary in their degree of professionalism (defined by a multiple set of criteria), can be used for a more detailed study of the income conditions for different groups/classes of artists, as well as for making a distinction between professional artists and amateurs.

The study focuses on one group of artists, namely visual artists in Denmark. This population of artists is defined as those individuals who meet at least one of the following three criteria: a) membership

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of one of the two main artists' associations in Denmark, b) receipt of arts grants from the Danish Arts Foundation, and c) graduation from an arts academy. The dataset consists of a combination of microdata from the official tax, employment and educational registers in Statistics Denmark, and data collected in a survey submitted to the population of visual artists in Denmark. Using the artists' civil registration number, the two sources have been merged into a unique dataset at the level of the individual artist. Based on these data, a finite mixture model combining latent profile and latent class analysis has been conducted with the aim of identifying a set of discrete and mutually exclusive classes or categories of artists based on their response to a set of questions. The finite mixture model identifies different segments of artists (latent classes), each of which is characterized by a different pattern of answers that reveals a particular income and working condition. An extension of the finite mixture model includes a membership function, estimated through a logistic regression, which allows prediction of the probability that an individual will belong to each latent class, given his/her socio-economic characteristics.

The article contributes to the literature on "artists" as a classification, and the conceptualization of the artistic labor force more broadly, by showing the heterogeneity among artists and proposing a definition of art as a profession, and thereby a distinction between professional artists and amateurs.

Our research contains important information for policy makers and artists' organizations in the formulation of artist policy. In the context of cultural policy or in the work of artists' unions to ensure better social security for their members, it is obviously essential to know the size and composition of the group of artists and how much they earn. A clear definition of artists profession and a more nuanced division into sub-groups will therefore provide crucial information for policy makers.

The structure of the article can be outlined as follows: section 2 reviews the literature on defining the population of artists, section 3 defines the concepts of a profession and professionalism and discusses the concept of professional artists, section 4 describes the methodology, section 5 describes the dataset and the variables used, sections 6 and 7 show the empirical results, section 8 provides the conclusions and policy implications of our research.

2. Literature review

The previous literature has proposed and applied various criteria to define the boundaries of the population of artists. Two different approaches stand out. One major part of the previous literature have used membership of artists' association or organization (sometimes supplement with a self-rapport statement of being active in the field) , and the other major part have used occupation in the artistic field mainly drawing on official national statistics records. As we will argue in larger details in this section and in section 3, none of these approaches are able to properly define the population of professional artists, as the criteria used will potentially leave out substantial parts of the population of artists or include people, who (for different reasons, see further below) cannot be considered as part of the artists' profession. If the population of artists is not defined correctly, this will, of course, create biases, when artists' income and working conditions are examined, and this will subsequently make it difficult for policy makers to conduct an evidence based artists' policy and create efficient support schemes. In this section, we will show examples of the different approaches

that have been applied.

Since 1983, Thorsby and co-authors have regularly conducted surveys with artists in Australia (Thorsby and Petetskaya, 2017). They use membership of a long list of artists' organizations as an *ex ante* criterion for being included in the survey, and a number of screening questions to establish whether he or she is professional and "currently practicing or training in the arts". In the screening questions, respondents were asked "if at some time during the past 3-5 years (depending on practice area), they had had a piece of writing published or performed; a work or works shown at a professional gallery, or work commissioned; had a composition professionally performed live, broadcast, recorded or filmed; had an engagement as a professional director or actor, or dancer or choreographer, with a professional company, had an engagement as a musician or singer in a professional venue, contributed to the development of a major community arts project, festival or event; had created a serious and substantial body of work as an artist in the last five years; or had full-time training or received a grant to work as an artist." (Throsby and Petetskaya, 2017, p. 18). A similar type of survey has been conducted in Norway, where the population of artists was selected on the basis of membership of one or more of 33 artists' organizations, combined with data on recipients of national arts grants and those with their own registered business in the artistic field (Heian et al., 2012). As a screening criterion, respondents were asked if they had been actively working with their artistic occupation within the last five years, and it was up to the individual artist to determine if this was the case. Criteria for inclusion are broad in both studies, with the result that artists who are less active, and do not necessarily consider their artistic practice to be at the heart of their employment, are also included.

Lena and Lindemann (2014) have used the US Strategic National Arts Alumni Project survey (N=13,581), the largest survey undertaken of individuals who have pursued arts degrees in the US, to explore who self-defines as a "professional artist". They have explored the professional artist as being the outcome of an identity process. They find some meaningful differences in artists who perceive themselves as "professional artists", various markers of cultural capital, and social integration within artistic communities.

Alper and Wassall (2006) have used US census data to study artists' occupations. The census requires respondents to choose a single occupation. This choice is based on time spent at work during a single reference week. This can of course create biases in the artists' population, as we know from prior research that many artists hold multiple jobs (Menger, 2006).

Another branch of the literature (the creative industry approach) has studied the contribution of the creative industries to the general economy in terms of growth and employment. In these studies, the classification of creative worker (artist) is based on ICSO (job content) and NACE (industry) codes in the official national statistics records. A decision has to be taken as to which of the ICSO codes counts as creative, and similarly for the NACE codes. By doing this, it is possible to calculate the share of the economy that can be attributed to the creative economy. These mappings require subjective decisions as to whether or not an occupation or an industry is creative, with the added problem that many creative jobs are outside the creative industries, and there are many non-creative or humdrum jobs in the creative industries. Higgs, Cunningham and Bakhshi (2008) have proposed the model of a "Creative Trident" that differentiates between three employment

"modes": 1) the specialist mode: workers within a creative occupation within a creative industry, 2) the support mode: workers in a non-creative profession within a creative industry, and 3) the embedded mode: workers in a creative occupation outside the creative industries.[1] This allows for calculation of the number of people employed in the creative industries and holding creative jobs, as well as their average incomes. The findings show that more people with a creative occupation are employed outside the creative industries than inside them. A similar approach has been applied in Bille (2012), but she has included a third dimension, namely an arts training. She finds little correlation between having an artistic education, having an artistic occupation, and working in the creative sector.

This review of the literature shows that many and various selection criteria have been used to select the population of artists to be studied, and it is evident that scholars have not yet achieved consensus on who should be included in the artists' profession and count as "professional artists". Furthermore, there is a lack of theoretical basis for defining who counts as an artist. In order to fill this gap and take the necessary next step of filling this gap, the next section will provide a theoretical bases defining the concepts of art as a profession and professional artists, drawing on the literature on professions (Wilensky, 1964 and Abbott, 1988) as well as the literature on artists above and the different criteria proposed. Such an exercise is needed to properly define the profession and the population of artists, and to delineate different kind of artists (in terms of professionalism) from another. As elaborated on in the final discussion of this article, it is of immense importance for reaching unbiased results when it comes to artists' income and working conditions, and for developing policy and efficient funding schemes.

3. The concept of professional artists

In the everyday language, the word "professional" has two meanings. It can mean profession, as in main occupation, or it can be used to characterize work that meets the (high) professional standards within a particular profession. In most sectors, the word "professional" is used in the meaning of profession. In sports, you are considered a professional if you can earn all or part of your living through your participation in sports events, as opposed to amateurs, who do sports in their spare time. The professional normally meets the high professional standards of the chosen profession, and therefore the two interpretations of the word coincide. In many occupations a specialized education or training is a prerequisite for achieving high professional standards as well as for being accepted into profession. That is case for a doctor, a dentist, a schoolteacher, a lawyer, and for many other professions.

To make a distinction between professional versus amateur visual artist, it implies that we consider "visual artist" as a profession rather than an occupation. This distinction, as well as the process that that leads an occupation to become a profession, has been an object of debate in the sociological literature. In the functionalist approach, Wilenski (1964) identifies 5 phases that mark a profession in opposition to occupation: the emergence of a certain work activity as a full-time occupation; the establishment of schools for specialized training; the creation of professional associations; the legal

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[1] In Bakhshi et al. (2013), the model is further developed into what is called Dynamic Mapping.

protection of the monopoly of skills, and the adoption of a formal code of ethic. All these criteria can be met in the profession of visual arts, but as we will discuss below, should a visual artist necessarily comply all of them in order to be considered a member of this profession?

The functionalist approach has been criticized by later scholars. In particular, the seminal contribution to the theory of profession by Abbott (1988) does not agree with the notion of professionalization as a set of discrete phases, where each profession evolves independently of another. Instead, Abbott argues that professions are constantly in flux, competing each other for jurisdiction (i.e by claiming expertise) over certain types of work, so that the boundaries of professions are continually negotiated and contested. In this setting, a key concept is the abstract knowledge, based on academic knowledge, whose application to particular cases is what define a profession. Then, the educational system through which individuals acquire this abstract knowledge – the arts academies in the visual art profession - becomes crucial.

The cultural economics literature review shows no conformity in the definition of artists profession and in turn "professional artists": Is a professional artist defined by "occupation" or in terms of "professional work" in the sense of meeting high professional standards? Furthermore, the two interpretations may not go hand-in-hand, as some artists might earn a decent living from their arts practice, but never receive a quality stamp from their peers. On the other hand, there can be artists who are widely recognized among their peers and art critics, but who are not able to earn a living from their arts practice.

The origins of the problems defining art as a profession are at least threefold. Firstly, the lack of objective criteria in defining quality in the arts, and thereby reaching definitions of professional standards; secondly, the characteristics of the labor market for artists that result in very few being able to live from their arts practice, and many artists therefore holding multiple jobs and "patchwork" careers (Abbing, 2002, Mathieu (ed.), 2012). And thirdly, the fact that many artist are self-taught and a formal education is not significant for a career in the arts (Towse, 2006). This makes the definition of arts as a profession and the demarcation between professional and amateur artists extremely difficult, and perhaps therefore has the label "professional artist" become contaminated and sidestepped in many contexts.

In addition, assessment of who is an artist is not static, but dynamic. We all know the example of Van Gogh, who was not acknowledged as an artist in his own lifetime, neither in terms of his earnings nor in an artistic sense, but achieved posthumous recognition, and his paintings are now sold for staggering sums of money. However, in this article we will not include a dynamic and longer-term perspective, as we are only dealing with contemporary visual artists.

Frey and Pommerehne (1989) have suggested eight criteria that might be applied to determine who is an artist:
1. Professional qualifications (graduation from art school)
2. The amount of income derived from artistic activities
3. The amount of time spent on artistic activities
4. Membership of a professional artists' group or association
5. Recognition among other artists

6. Reputation as an artist among the general public
7. The quality of the artistic work produced (which means that artistic "quality" must be defined)
8. The subjective self-evaluation of being an artist

Of these eight criteria proposed by Frey and Pommerehne (1989), two relate to "occupation", namely income and hours worked, and five relate to being professional in the sense of meeting high professional standards and thereby to the quality of the artistic work (as assessed by peers, the general public, arts associations, or by the artist personally). Education relates to the human capital approach, and in most other sectors an education will lead to professionalism (Abbott, 1988).. In the following, we will further elaborate on these definitions of professionalism based on prior research and the literature review.

Meeting high professional standards: Membership of a professional artists' group or association, recognition among other artists, reputation as an artist among the general public, and the self-evaluation of being an artist, are all related to the quality of the artistic works produced in the sense of meeting high professional standards. The problem is that the quality of the art is a fluent and undefined concept (see e.g. Eliassen, Hovden and Prytz (ed.), 2018), and the understanding and perception of the quality will be dependent on the viewer, who can be a peer, the artist or the general public. It is a widely held view that only the art world itself (i.e. the arts experts/peers) can assess artistic quality.[2] This so-called Institutional Theory states that an object is art if acknowledged as such by the art world (Dickie, 1974). One of the strengths of this theory is its capacity to accommodate the changes that characterize modern art. The theory can thus accommodate future concepts of art and thereby the dynamics of art. The Institutional Theory is reflected in the way in which arm's-length bodies such as Arts Foundations are organized: when works of art are to be purchased and grants are to be awarded to artists, the quality of the art is evaluated by other artists and other representatives of the art world. In other words, the arm's-length principle draws on Institutional Theory. Likewise, membership of professional artists' groups or associations relates to the concept of quality, as most artists' associations have a set of criteria concerning the quality of the artists' work (as the artists having achieved a certain number of curated and peer-reviewed exhibitions). These criteria are defined by experts and peers, who decide if the artists applying for membership meet the required professional standards.

Therefore, membership of a professional artists' group or association and the receipt of recognized arts grants (such as grants from national arts foundations) can be used as proxies for meeting high professional standards and thereby for inclusion in the population of professional artists. How effective membership of professional arts associations is in terms of defining the population of artists will depend on the degree of organization among the artists, which will differ according to genres (e.g. musicians versus visual artists). Furthermore, it is well known that artists' associations differ widely in terms of their membership criteria and requirements when it comes to artistic qualifications and track record, some being highly elitist while others are broader and more inclusive with loose and wide-ranging admission criteria. This means that membership of these associations is not necessarily an ideal defining indicator – or to put it more precisely: as an *ex ante* criterion for

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[2] Based on this view, the reputation of the artists among the general public cannot be seen as an indicator of high professional standards.

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delimit the population of artists it cannot stand alone. The same goes for recipients of national arts grants, because only a small proportion of artists get these grants (as they are limited in number).

Arts as an occupation: Artists who are able to live primarily from their artistic occupation and spend most of their working time on their artistic practice, must be considered members of the profession. As shown in the literature review, artists' working conditions in terms of hours worked and income from the arts are sometimes used as criteria for defining the population of artists, especially when US Census data are used (Alper and Wassall, 2006) and in the creative industries' approach (Higgs, Cunningham and Bakhshi, 2008, Cunningham and Potts, 2015). The obvious problem is that this approach will exclude artists whose primary occupation is in a non-arts field. As many artists live on a broadly-composed income from many different types of jobs and employment (see e.g. Menger, 2006; Mathieu (ed.), 2012, and Alacovska and Bille, 2020), this definition would rule them out as potential members of the profession.

Arts education and human capital: Many studies have found little or no impact of a formal arts education on an artist's income (see e.g. Throsby, 1996, Bille and Jensen, 2016). Based in human capital theory, Towse (2006) has discussed success and career in relation to artists, and why a formal education in the arts may not have as much impact (if any) on income and careers as a formal education has for other professions. In many other professions, a training in the subject is a condition for learning high professional standards as well as for working in the profession (Abbott, 1988). In the arts, a formal training may not lead to "professionalism". Many artists are self-taught, and individual talent seems to be more important than a formal education (Alper and Wassall 2006, Throsby, 1996) for a professional career in the arts. As an *ex ante* selection criterion for delimit the population of artists, the use of graduation from art school has serious drawbacks in terms of defining the population of artists, given that it will exclude all the artists who are self-taught, and furthermore, many art graduates do not work as artists. Therefore; a formal education in the arts not be used to define the population of professional artists, as prior literature clearly has demonstrated.

To sum up, we will not expect a formal education in the arts to be important for defining the artists profession, as is the case for many other professions (Abbott, 1988). However, indicators for working in the profession (income and time spent) are required, along with indicators of meeting high professional standards (such as membership of artists' associations and receipt of important (national) arts grants). As professional artists do not comprise a uniform population, a combination of defining criteria is required. This has led us to take a new approach in our analysis of a very diverse group of artists in order to facilitate a better understanding of their income and working conditions, and thereby to differentiate between professionals and amateurs. To explain the heterogeneity, this article employs a finite mixture model, which is an innovative contribution to the literature.

4. Methodology: finite mixture model
A finite mixture model refers to a probabilistic model-based clustering approach, which aims to identify a set of discrete and mutually exclusive classes or profiles of individuals based on their patterns associated with different observed variables/indicators of interest. It is defined as a mixture modeling, in the sense that it is assumed the distribution of such variables can be expressed as a mixture of a finite number *k* of component distributions, where the number *k* (representing the

number of latent classes) is unknown. Given this, individuals belonging to the same class are such that they exhibit a similar pattern across the observed set of variables, which are assumed to come from the same probability distributions. Thus, the goal of such analysis is to sort individuals into mutually exclusive clusters that maximize between-group variance and minimize within-group variance (Collins and Lanza, 2010). From the data, each individual is probabilistically assigned into sub-populations by calculating his/her probabilities of being a member of each resulting profile.

According to the literature taxonomy, latent profile analysis uses continuous variables, which are assumed to be normally distributed within each profile; whereas when the observed variables are dichotomous or categorical, we talk about latent class analysis. However, recent developments allow for a combination of continuous and categorical variables (Berlin *et al.*, 2014); we also combine both types of variables, using the generic term "finite mixture model" with regard to the model we employ.

In our case, each artist was asked to answer questions regarding the sources of their income and how this income relates to their work as an artist, if their private economy is dependent on other factors (partner's income or loan), how they divide their working-time between jobs more or less related to their art, if they perceive themselves to be a full/part-time artist, and if they have registered a company in their own name. Some of these questions provide a numerical (continuous) value, others are closed questions (see table 1).

Let denote with $\boldsymbol{y_i}$ the vector of values on a set of *J* continuous and categorical variables (indicators) for individual *i*, so that y_{ij} represents the value of a particular variable *j*; and with *K* the total number of classes. The basic model can be expressed as (Vermunt and Magidson, 2002):

$$f(\boldsymbol{y_i} \mid \theta) = \sum_{k=1}^{K} \pi_k \prod_{j=1}^{J} f_k(y_{ij} \mid \theta_{jk}) \qquad (1)$$

which is a finite mixture of *K* class-specific distribution functions f_k for the observed variables, with class-specific set of parameters θ_{jk} estimated by the model. π_k is the estimated probability to belong to class *k* or, in other words, the proportion of the total population in each profile *k*. As each individual belongs to one and only one class, we have $\sum_{k=1}^{K} \pi_k = 1$.

We specify the univariate distribution function for each y_{ij}: we choose normal and binomial distribution for continuous and dummy variables, respectively.

A development of our analysis considers the inclusion of a membership function, should socio-demographic data (otherwise called covariates) of the respondents be available (e.g. age, gender, etc.). The membership function allows for prediction of the probability for an individual to belong to each latent class, given the individual characteristics. Including covariates, equation (1) changes to the following form:

$$f(\boldsymbol{y_i} \mid \boldsymbol{x_i}, \theta) = \sum_{k=1}^{K} \pi_{k|x_i} \prod_{j=1}^{J} f_k(y_{ij} \mid \boldsymbol{x_i}, \theta_{jk}) \qquad (2)$$

where $\boldsymbol{x_i}$ represents the set of the covariates, and $\pi_{k|x_i}$ is the probability of belonging to the latent class *k*, given the values of the covariates. The likelihood $\pi_{k|x}$ of the individual *i* belonging to class *k* 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 $\pi_{k|x_i}$ is given by:

$$\pi_{k|x_i} = \frac{exp\ (\beta'_k \boldsymbol{x_i})}{\sum_{k=1}^{K-1} exp(\beta'_{k'} \boldsymbol{x_i})} \tag{3}$$

where $k = 1, \ldots, K - 1$. Including the covariates, an additional set of parameters β'_k, that is the vector of parameters of the multinomial logit (one for each latent class), is estimated. Notice that for one latent class the parameters are normalized to 0 in order to secure identification of the model.

The model is estimated with Stata 15, which estimates the parameters by the maximization of the overall log-likelihood function, using the EM (expectation-maximization) algorithm. Denoting the total number of observations with *N*, and assuming each observation *i* is conditionally independent of the other observations, the overall log-likehood function is given by:

$$L(\theta) = \sum_{i=1}^{N} \sum_{k=1}^{K} \lambda_{ik} \left[log\ \pi_{k|x_i} + \sum_{j=1}^{J} log\ f_k\left(y_{ij} \mid \boldsymbol{x_i}, \theta_{jk}\right) \right] \tag{4}$$

where λ_{ik} is an indicator variable equal to 1 if individual *i* belongs to class *k*, 0 otherwise.

Having specified different distributions according to the type of variable, the estimated parameters for continuous and categorical indicators are different: for the former, we estimate the mean value for each class; for the latter, we estimate the coefficient of the underlying logistic regression for each class.

The number of classes is not decided *a priori*, but determined by statistical criteria. The Bayesian information criterion (BIC) and Akaike information criterion (AIC) are usually used as a guide to determine the number of classes that fit the data best. These tests are calculated as follows:

AIC = −2LL + 2p

BIC = −2LL + Ln(N)p

where LL is the value of the log-likelihood function, p the number of parameters, and N the sample size. These criterions are calculated for different 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.

5. Data and variables

For our research, we have considered the population of visual artists in Denmark, defined as those individuals who meet at least one of the following criteria: being a member of one or both of the main arts organizations in Denmark (namely, Danish Artists' Society (Kunstnersamfundet) and Danish Visual Artists' Association (BKF)); having an artistic education from an arts academy; and/or having received government grants from The Danish Arts Foundation during the period 2006-2016. Each of these in total 3,028 visual artists were sent a long questionnaire, electronically via Statistics

Denmark, to be answered online. Several reminders were made, in writing and by telephone, in order to increase the response rate. A total of 1,071 replies were received, giving a response rate of 35%. Of these, 892 have fully completed the questionnaire.[3]

These survey data have been merged with microdata from the official registers held by Statistics Denmark.[4] From Statistics Denmark, we have used a combination of labor, income and education data for the period 2010-2015. Via the artists' civil registration numbers[5], it is possible to link the survey data with information from the public registers held by 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 demographics. On the other hand, a questionnaire allows for a more detailed examination of the living and working conditions of visual artists than does the information available from Statistics Denmark. Secondly, merging the two sets of data provides special options for analyzes of drop-outs. As register data from Statistics Denmark provide a large amount of basic information on those who have not answered the questionnaire, we have examined the representativeness of the study by comparing the distribution of a number of key variables for those who answered the questionnaire with the entire population of visual artists. In particular, we have implemented both chi-square goodness of fit and z-test respectively for the categorical and continuous variables. We found that there are no significant differences between the final sample and the population for the variables: income, grants, membership of artist associations and retired. For the variable related to arts education we found no significant difference only at a 10% level, while in the final sample women are overrepresented by almost four percentage points compared to the population. In addition, the average age in the sample is significantly different.

Thus, the sample can be assumed to be representative of the population except for age and gender (see Appendix) and we don't expect any bias in our result. Concerning gender, it is a common finding that women are overrepresented as they are more likely to participate in surveys (Curtin *et al.*, 2000; Moore and Tarnai, 2002).

Informed by the literature review, we want to explore arts as a profession (artists' income and working conditions), and how it relates to our indicators of quality (high professional standards). Therefore, the variables used to identify the latent class refer to artists' income, how they spend their working time and their self-evaluation of being an artist. Concerning income, from Statistics Denmark we have details of the annual income before taxes for each artist.[6] In the survey, we have asked the respondents to provide information about the percentage of their income derived from: art work (*pct income art)*, job related to arts (*pct income related job*) in which the respondent uses

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[3] 179 individuals have not reported how their income is divided between jobs with more or less connection to the arts and/or how their working time is divided between these jobs. Because of these missing values, we have excluded them from the analysis.

[4] Statistics Denmark is a governmental organization collecting and maintaining statistical data on Danish society.

[5] In Denmark, every resident has a Central Person Register number.

[6] This variable comes from information from the tax authorities.

skills from their work as visual artist, government subsidies *(pct income gov)*,[7] and other income, including income from jobs not related to art *(pct income other)*. We know which respondents have registered a company *(own company)*, and the variable takes the form of a dummy equal to 1 if the artist is self-employed. In addition, we consider the private economy of the artist: thus, we ask the artists whether they are dependent on other sources, such as his/her partner's income *(dep partner)* or loans *(dep loans)*. In the latter case, we consider loans either with security in property or without collateral (bank credit, etc.). This information takes the form of two dummy variables.

Concerning working time, the artists reported the percentage of working time spent on art (*timeart*), on arts-related jobs (*time related job*), and for other income not related to art (*time other*). These are continuous variables. Finally, we ask the artists about their perception of being an artist: we use a dummy variable (*full time*) equal to 1 if the respondent perceives himself/herself as a full-time artist, otherwise equal to 0.

Clarification is needed concerning the percentages reported by respondents to the variables related to sources of income and how artists allocate their working time. In the sample considered, 639 out of 892 individuals (71.6%) answered in such a way that the sum of their percentages is 100%. All the others provided logically inconsistent responses. We decided to normalize the responses of this latter group, such that each sum of percentages adds up to 100%: this decision derives from the assumption that people give a gut-feeling estimate for the income and time categories, tending to be more aware of the size of income/time relative to each other than to each part to the total. In this perspective, normalization of the percentage data to a sum of 100% would seem to be the ideal solution.

These variables aim to describe the artists' incomes and working conditions, whereas the variables used for the membership function fulfill a different aim. Indeed, as we cannot directly identify the latent class to which a particular artist belongs, the membership function needs some "external" variables, related to the respondents' characteristics but not directly related to the artists' income and working condition, that allow for prediction of class membership probabilities. Such variables are normally related to socio-demographic characteristics. In the membership function, we use the following variables: A dummy variable denoting gender and a dummy variable indication of whether the artist has an education from an arts academy (human capital approach). Career stage is measured by age as a continuous variable, with a dummy variable indicating if the respondent is a retiree. Moreover, we include two dummy variables that can characterize the professional standards of the artist: membership of The Danish Artists' Society[8] and receipt of working-grants from The Danish Arts Foundation (grants from the government arts scheme). Table 1 summarizes the variables used in the Finite Mixture Analysis.

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[7] This includes Danish students' Grants and Loans Scheme, sick leave benefits, unemployment benefits, and cash benefits. Pensions are excluded from this income category.

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

Table 1. Variables used in analysis

Variable	Description	Type	Source
Income	Annual total personal income before taxes (scaled by 10.000)	Continuous	Register data, Statistics Denmark
Pct. income art	Percentage of income from work as visual artist	Continuous	Survey
Pct. income related job	Percentage of income from work in which the artist has used his/her skills from practice as visual artist (as an artistic consultant, teacher, lecturer, etc.)	Continuous	Survey
Pct. income government	Percentage of income from government subsidies (Danish students' Grants and Loans Scheme, sick leave benefits, unemployment benefits and cash benefits). Pensions are not included in this category.	Continuous	Survey
Pct. income other	Percentage of other income, including income from jobs with no relation to the practice as visual artist	Continuous	Survey
Company	The artist is self-employed	1 = yes; 0 = no	Register data, Statistics Denmark and survey
Dep. partner	The artist's private economy is also dependent on partner's income (self-assessed)	1 = yes; 0 = no	Survey
Dep. loan	The artist's private economy is also dependent on loans (self-assessed)	1 = yes; 0 = no	Survey
Time art	Percentage of working time as a visual artist	Continuous	Survey
Time related	Percentage of working time devoted to activities where skills from practice as a visual artist are used	Continuous	Survey
Time other	Percentage of working time with no relation to the art	Continuous	Survey

Full-time	How the artist perceives himself/herself	1=Full-time Artist; 0= Part-time Artist	Survey
Class membership			
Gender	Gender of the artist	1= Male; 0=Female (base variable)	Register data, Statistics Denmark
Age	Age of the artist	Continuous	Register data, Statistics Denmark
Retired	The artist is a retiree (living mainly on pensions)	1= yes; 0= no	Register data, Statistics Denmark
Education	The artist has completed a visual art education from an art academy	1= yes; 0= no	Register data, Statistics Denmark
Member Artists' Society	The artist is a member of the Danish Artists' Society (Kunstnersamfundet)	1= yes; 0= no	Member register from Danish Artists' Society
Received grant	The artist received grants from the Danish Arts Foundation in the period 2010-2015	1= yes; 0= no	Registers from the Danish Arts Foundation

6. Results

For the model selection, we fit the data with finite mixture models that include from 2 to 6 number of classes. Table 2 summarizes the statistics for the models tested.

Table 2. Criteria for determining the optimal number of classes

N° of classes	N° of observations	Log-likelihood value	Degree of freedom	AIC	BIC	ENTROPY
2	892	- 34,081.13	39	68,240.26	68,427.20	0.8569
3	892	-33,257.93	58	66,631.86	66,909.88	0.8981

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4	892	-32,485.15	77	65,124.30	65,493.39	0.8914
5	892	-31,590.11	96	63,372.21	63,832.38	0.9054
6	892	-31,280.37	115	62,790.74	63,341.99	0.9087

We have opted for the model with six classes as it provides the smaller values of AIC and BIC, thus this model fits the data better. These values suggest that increasing the number of classes leads to a better model-fit: indeed the 7-class model provides even better values of both AIC (62,286.29) and BIC (62,928.62). However, we have chosen the 6-class model as the fit improves relatively little from 6-classes onwards; moreover, contrary to the 7-class model, the 6-class model produces reasonable sample size (> 5% of the sample), which makes the estimated parameters more stable, and allows for an easier interpretation of the model.

We have also calculated the entropy, which is a type of statistics that assesses the accuracy with which the individuals are assigned their most likely profile. Its value ranges from 0 (classification is no better than random guessing) to 1 (perfect classification). The entropy is calculated as follows:

$$E \;=\; 1 \;-\; \frac{\sum_{i=1}^{n} \sum_{k=1}^{K} \text{-}\left[-\, \widehat{\pi_{\iota k}} \; ln(\widehat{\pi_{\iota k}})\,\right]}{n \; log(K)}$$

where n indicates the number of observations and $\widehat{p_{\iota k}}$ is the estimated probability for individual i to be assigned to class k.

As a value larger than 0.70 is considered acceptable (Jung and Wickrama, 2008), we can claim that all the models provide a clear classification of individuals, with the 6-class model providing the greatest value of entropy.

We have conducted a finite mixture analysis based on the dataset. Table 3 shows the estimated parameters of the model

Table 3. Estimation of the finite mixture model

	CLASS1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6	WALD test
Percentage	0.21	0.14	0.11	0.16	0.26	0.12	
Income	28.55****	16.55****	18.98****	29.06****	22.82****	29.44****	
	(2.20)	(2.67)	(3.04)	(2.56)	(2.01)	(3.01)	
Pct income art	80.48****	11.29****	33.54****	8.58****	11.40****	7.10****	
	(1.22)	(1.28)	(1.58)	(1.26)	(1.01)	(1.45)	
Pct income related job	6.25****	7.01****	50.00****	4.84****	2.09****	88.08****	
	(0.70)	(0.84)	(1.19)	(0.85)	(0.63)	(1.01)	

Pct income government	1.50** (0.71)	68.39**** (0.90)	4.23**** (1.01)	2.24*** (0.81)	0.20 (0.64)	1.08 (0.95)	
Pct income	11.77**** (1.30)	13.32**** (1.42)	12.23**** (1.67)	84.34**** (1.41)	86.31**** (1.21)	3.74** (1.57)	
Time art	85.81**** (1.51)	56.81**** (1.86)	55.53**** (2.11)	28.04**** (1.83)	90.09**** (1.46)	29.10**** (2.12)	
Time related job	18.50**** (1.78)	26.31**** (2.20)	34.90**** (1.92)	14.87**** (2.38)	26.22**** (2.28)	68.32**** (1.93)	
Time other	3.77*** (1.23)	28.97**** (1.53)	10.58**** (1.71)	64.65**** (1.61)	2.04* (1.17)	4.58*** (1.67)	
Full-time	2.90**** (0.33)	0.71**** (0.19)	2.09**** (0.34)	- 0.92**** (0.19)	0.92**** (0.15)	- 0.42** (0.21)	
Own company	1.02**** (0.17)	- 1.63**** (0.24)	0.28 (0.21)	- 1.02**** (0.20)	- 0.93**** (0.15)	- 0.62*** (0.21)	
Dep. partner	- 0.65**** (0.15)	- 1.13**** (0.21)	- 0.35* (0.21)	- 0.99**** (0.19)	- 0.19 (0.14)	- 0.81**** (0.22)	
Dep. loan	- 1.84**** (0.21)	- 1.20**** (0.21)	- 1.74**** (0.28)	- 1.86**** (0.25)	- 1.74**** (0.19)	- 2.12**** (0.32)	
CLASS MEMBERSHIP							
Male	-	- 0.52** (0.26)	- 0.33 (0.26)	0.001 (0.24)	- 0.51** (0.25)	- 0.33 (0.26)	8.23 (0.144)
Age	-	-0.10**** (0.01)	0.01 (0.01)	- 0.01 (0.01)	0.04** (0.01)	0.01 (0.01)	84.86 (0.000)
Retired	-	1.59**** (0.49)	- 1.51** (0.62)	- 1.55*** (0,57)	2.08**** (0.37)	- 1.88*** (0.67)	89.69 (0.000)
Education	-	- 0.28 (0.42)	- 0.1 (0.29)	0.41 (0.26)	0.24 (0.29)	0.21 (0.28)	7.79 (0.168)
Member Arts Society	-	- 0.40 (0.42)	- 0.21 (0.32)	- 1.01*** (0.36)	- 0.75** (0.30)	- 1.21*** (0.41)	16.47 (0.005)
Received grant	-	- 1.15**** (0.30)	0.30 (0.28)	- 1.14**** (0.28)	- 0.53* (0.32)	- 0.66** (0.29)	35.42 (0.000)

| Constant	-	4.53****	- 1.06	0.55	- 2.36***	- 0.24	102.05
		(0.63)	(0.77)	(0.63)	(0.82)	(0.69)	(0.000)

The last column of Table 3 shows the value of the Wald test, with the respective *p-value* in brackets. The Wald test is a test for the equality of effects of the covariates between classes, indicating whether a variable is equal across classes, and thus class independent.

The results of the Wald test show that artistic education (in accordance with earlier research such as Alper and Wassall, 2006; Throsby, 1996; Bille and Jensen, 2016) and gender do not differ significantly among latent classes; so, these variables cannot be used to predict the class to which an individual belongs.

As already mentioned, for the continuous observed variables, the estimated parameters represent the class-specific mean values. For example, members of Class 1 have an estimated mean income of 3,806 EUR (28,550 DKK[9]), on average 80.48% of their income derives from an art job, 6.25% from activities related indirectly to art, etc.

How the artists' incomes are composed (in percentage) and how artists spend their working time represent two important aspects in the classification of our sample of artists. Figure 1 and figure 2 summarize the comparison of the different classes.[10]

Figure 1. Estimated mean (in percentage) related to income sources across classes
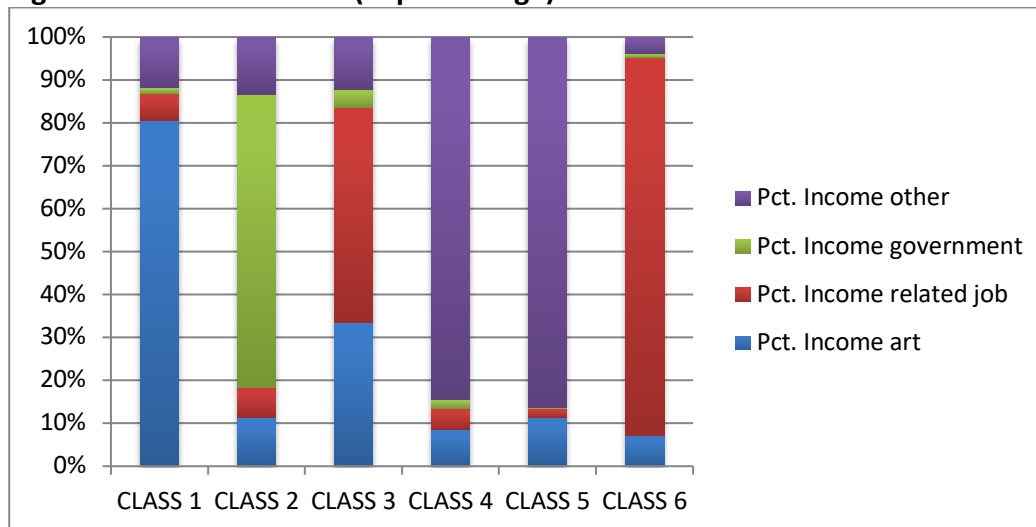
Figure 2. Estimated mean (in percentage) related to working time across classes

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[9] Exchange rate: 1 EUR = 7.5 DKK (June 28, 2020)

[10] Notice that, for each class, the sum of the percentage of income equals 100. For some classes, the sum of the percentage of working time does not equal 100: this is because Stata treats each individual working time indicator as independent of the other two in the set. Even if this seems to violate the conditional independence assumption, in our estimation it has been relaxed by allowing the error terms to be correlated. In Figure 2, for visualization purposes, we have normalized the percentages such that all the vertical bars add up to 100.
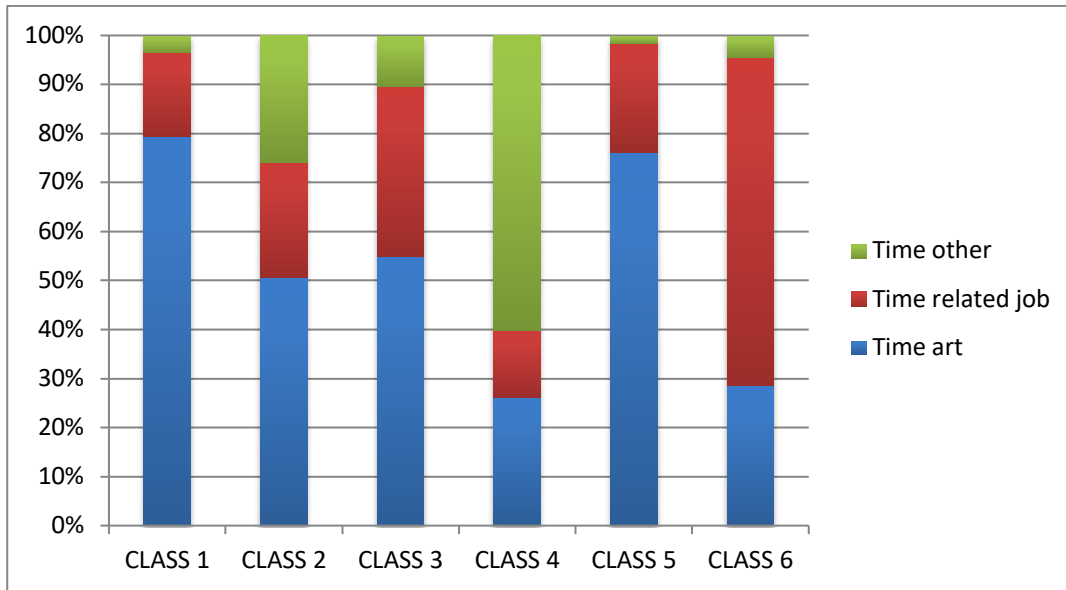
Concerning the binary variables, the reported coefficients are not particularly informative. For a better interpretation, we consider the mean of the probabilities, conditional on the class. Such probabilities are shown in Table 4.

Table 4. Probabilities conditional on the class

	CLASS1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6
Full-time	0.948 (0.016)	0.670 (0.042)	0.889 (0.034)	0.286 (0.040)	0.716 (0.030)	0.396 (0.050)
Own company	0.734 (0.033)	0.163 (0.033)	0.570 (0.051)	0.264 (0.039)	0.282 (0.031)	0.349 (0.048)
Dep. partner	0.342 (0.035)	0.244 (0.038)	0.413 (0.051)	0.272 (0.038)	0.452 (0.034)	0.308 (0.046)
Dep. loan	0.137 (0.025)	0.232 (0.037)	0.150 (0.036)	0.135 (0.029)	0.149 (0.024)	0.107 (0.031)

Table 4 can be interpreted in this way: 94.8% of individuals in Class 1 consider themselves to be full-time artists; 67% of individuals in Class 2, 88.9% of individuals in Class 3, and so on.

The coefficients of the membership functions, estimated through multinomial logit, indicate how much the variables account for membership of that particular class. They should be interpreted in relation to Class 1 (the reference class), which is normalized to zero.

To facilitate an interpretation of the composition of each latent class, in the post-estimation phase we assign each individual to one of the six classes, based on the maximum posterior probability. Once the parameters in (2) and (3) are estimated, it is possible to calculate the probability for each

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individual of belonging to the latent *class k*:

$$\pi_{k|y_i,x_i} = \frac{\pi_{k|x_i} \prod_{j=1}^{J} f_k (y_{ij} \mid x_i, \theta_{jk})}{\sum_{k=1}^{K} \pi_{k|x_i} \prod_{j=1}^{J} f_k (y_{ij} \mid x_i, \theta_{jk})} \qquad (4)$$

Finally, each individual is assigned to the class *c* that provides the maximum value of (4). Such assignment, based on the posterior probability analysis, will be useful for the interpretation of the latent classes, summarized in the following section.[11]

7. Interpretation of the latent classes

The analysis identifies six different typologies of Danish visual artists.

Class 1 (21%). *Devoted to arts or Professional*. This class is composed of people who are professional artists, in both the acceptations mentioned in Section 3. Most members of this class (73%) are self-employed, and their income derives mainly from artistic work (mean value of 80.5%). 95% perceive themselves as full-time artists. They devote their working time almost exclusively to art (85.81% of working time as mean value). From the posterior probability analysis, we find that this class is the most heterogeneous from an income perspective: more than half of its members earn less than 27,000 EUR (200,000 DKK); however, almost all artists with an income above one million DKK belong to this class. The latter contribute to raise the mean annual income. This seems to confirm Rosen's theory (Rosen, 1981) of the skewness of artists' earnings. Members of this class are professional, given that this class has the highest share of members of the Danish Artists' Society (32%) and, with the exception of Class 3, the highest share of individuals who have received grants from The Danish Arts Foundation (41%). This can be deduced by looking at the coefficients of the covariates and by considering that Class 1 is the reference class: the values of the variable *Member Artists Society* is negative for all the other classes, whereas the values of the variable *Received grant* is only positive for Class 3.

Class 2 (14%). *Subsidized artists*. Members of this class receive most of their income from government subsidies (on average 68.4% of their total income) and only 11.3% from their artistic work. This class is characterized by its age composition: more than 60% of members of this class are under 39 years of age, and 60% of all the 18-29-year-old individuals in our total sample belong to this class. Moreover, it is the only class that does not include individuals over the age of 67. It makes sense that this class comprises mostly young people who receive a large share of their income from government subsidies. These subsidies consist of Danish students' Grants and Loans Scheme, sick leave benefits, unemployment benefits and cash benefits. It is difficult to live on these subsidies for years on end, which means that those who are older have probably found other means of support. Members of this class devote just over half (56.8% on average) of their working time to art, and the

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[11] Many contingency tables (not reported here) are built crossing the assigned class with the variables used, in order to analyze the main characteristics of each class. Concerning the continuous variables of income and age, we have converted these into categorical variables with 11 categories for the income variable (from less than 100.000 DKK to over one million DKK, with a range of 100.000 DKK for each level of income), and six categories for the age variable (from the category 18-29 to over 67, with a range of 9 years for each level of age).

other half is split between activities in which they use skills from the work of a visual artist and activities not related to arts. Most of them (67%) perceive themselves as full-time artists. From an income perspective, this class has the lowest average income: the posterior analysis shows that individuals in this class are concentrated in the low-income categories, and no artists in this class earn more than 53,000 EUR (400,000 DKK) per annum. In addition, this class has the highest share of members whose private economy depends on a loan, but the lowest share of individuals dependent on a partner's income (probably because of their young age). Most members of this class (84%) do not have a company registered in their own name. Finally, this class has the lowest share (10%) of individuals who have received a grant from the Danish Arts Foundation.

Class 3 (11%). *Aspiring artists*. This is the smallest class in terms of size. It is composed of individuals who cannot support themselves exclusively from their visual arts practice. Members of this class have heterogeneous sources of income: on average, half of their income is derived from art-related activities, 33.5% from their art job, and 12.2% from activities not related to art. Despite more than half of their income being derived from activities related to art, they only devote 34.9 % (on average) of their working time to such activities, whereas most of their working time is devoted to artistic work (55.5% on average). A majority of members (57%) are self-employed, and 88.9% perceive themselves as full-time artists. Most are low-medium income individuals (86 % earn less than 40,000 EUR (300,000 DKK) per annum, and the overall average income is slightly higher than that of Class 2. A relatively large share (41.3%) depend financially on a partner's income. This class is mainly composed of middle-aged individuals (65% between 40 and 59 years old), with very few retirees (4%), and it has the highest share of individuals (50%) who have received grants from the Danish Arts Foundation. Overall, it seems that members of this class would like to live exclusively from their visual arts practice, but they struggle to achieve this goal and are forced to find alternative sources of income, either by working with activities in which they can use their artistic skills, by relying on a partner's income, or by applying for grants.

Class 4 (16%). *Arts as a hobby (or secondary activity)*. This class is composed of people who do not consider art to be their main activity. Most (83.6%) are not self-employed, and a few (28.6%) see themselves as part-time artists. Members of this class receive a lower share (8.6% on average) of their income from art jobs. Instead, their income mainly derives from activities not related to arts (84.3% on average). Overall, compared to the other classes, they dedicate fewer working hours to art jobs or to activities related to art and more working hours to activities not related to art. In comparison with the other classes, fewer individuals in this class have a very low income (under 27,000 EUR (200,000 DKK)) and more individuals earn a middle income (between 27,000 and 80,000 EUR (200,000 DKK - 600,000 DKK). This class has a low share (3.5%) of retirees, as well as a low share of members of the Danish Artists' Society (only 11%) and beneficiaries of grants (21%).

Class 5 (26%). *Senior*. The main characteristic of this class is given by the fact that members devote almost all their working time (90.08% on average) to artistic practice, but this only generates a minor part (11.4%) of their income. Most of their income is derived from sources not related to art, probably from pensions. Indeed, approximately 77% of individuals in this class are retired, and 82% are over 60 years of age. From the income perspective, this class, much like Class 1, is heterogeneous: 50% earn less than 27,000 EUR (200.000 DKK) and 80% earn less than 40,000 EUR

(300.000 DKK), and as many as 45% rely on a partner's income. However, the few individuals who have a very high income are found in this class, as well as in Class 1. The majority of individuals of this class (71.6%) consider themselves a full-time artist, and a few (28.2%) are self-employed.

Class 6 (12%). *Workers related to arts*. This is a small-sized class. The main characteristic of this class is that most of the income and most of the working time are dedicated to activities related indirectly to art: 88.1% on average of income, and more than 68% of working time; only 29.10% of working time is devoted to artistic practice. Only 39.6% perceive themselves as a full-time artist, and 34.5% are self-employed. This class has the lowest share of individuals whose private economy depends on loans. Although having the highest average income, in this class distribution is not skewed as in the case of Class 1: like Class 4, few individuals have a very low income (less than 27,000 EUR) and more individuals have a middle income (between 27,000 and 80,000 EUR). This class has the lowest share of retirees (less than 3%) and is composed mainly of middle-aged individuals (between 40 and 59 years old). Furthermore, very few people in this class are members of the Danish Artists' Society (only 4%).

Table 5. Summary of classes

	Class 1 Professionals	Class 2 Subsidized artists	Class 3 Aspiring artists	Class 4 Arts as a hobby	Class 5 Senior	Class 6 Workers related to arts
Share	21%	14%	11%	16%	26%	12%
Full-time artist	Full-time	Full-time	Full-time	Part-time	Full-time	Part-time
Pct of income from art jobs	High	Low	Hetero-geneous source of income	Low (mostly activities not related)	Low (mostly pensions)	Arts related
Self-employed	Yes	Few	Half	Few	Few	Few
Government subsidies	Low	High	Low	Low	Low	Low
Time spend on art	High	Half	Half	Low	High	Arts related
Annual total income	Hetero-geneous (skewed)	Low income	Low-medium income	Medium income (high average)	Hetero-geneous (skewed)	Middle income (highest average)

Economy depending on loans		High				Low
Economy depending on partner's income		Low	High			
Age	Hetero-geneous	Young	Middle-aged	Hetero-geneous	Old - retired	Middle-aged
Member of the Danish Artists' Society	High			Low		Low
Received art grants	High	Low	High	Low		

8. Discussion and conclusion

The purpose of this article is to explore heterogeneity among artists, and it aims at making a distinction between professional artists and amateurs, and thereby a definition of arts as a profession. We have shown how a finite mixture model can be used to investigate heterogeneity among artists and their incomes and working conditions. We find six distinctive groups of artists. Each of the groups includes between 11% and 26% of the artists in the population studied. The six distinctive groups can be used to make a distinction between professional artists and amateurs

Of our artists' population, we find only 21% to be "professional artists". This is the only class that meets both the expected criteria for being in the profession, as the class members work full time with their visual arts practice and are mostly able to live from this work, and at the same time they meet high professional standards (as measured by our quality proxies).

Members of three other groups consider themselves in the main to be full-time artists, namely "aspiring artists", "subsidized artists", and "seniors". "Aspiring artists" (11%) are striving to be artists. They are middle-aged and have on average a low income. They are not able to live from their visual arts practice, and they have multiple jobs. In this sense, they are not professional artists, but many have received national art grants, and thereby meet professional standards (quality stamp). Then we have the subsidized artists (14%), who are young and largely live on government subsidies. They would seem to be struggling to establish a career in the arts and enter the profession.

Career stages emerge as an important aspect to be considered in relation to professional artists. As pointed out in earlier literature (Matheiu (ed.), 2012), it takes time to become established as a

professional artist, and as a formal education don't seem to be of significance in establishing a career, "learning by doing" and finding your own stile as an artist seems to be of immense importance. While "subsidized" artists are young and at an early stage in their careers, "aspiring artists" are mid-career, have multiple incomes, and have achieved some recognition.

"Seniors" represent the late career stage, and it is highly interesting that this class represents the largest group in our population of artists, namely 26%. This group is composed of retired/old individuals, living mainly on their pensions. In this sense, they cannot be considered part of the profession (a retired lawyer is no longer part of the legal profession), but many of the retired artists consider themselves to be full-time artists. Our analysis does not indicate whether or not they are professional in terms of meeting high professional standards. One hypothesis could be that they are former members of Class 4 (Arts as a hobby) or Class 6 (Workers related to arts), who no longer have day jobs, and can devote all their time to their art hobby, but the "seniors" class might of course also include former professionals. The fact that a tiny fraction of this class has a very high income, points in the direction of former members of Class 1 (Professional artsits). In other similar studies, it is not uncommon to find a large share of old people/retired artists. In Throsby and Petetskaya (2017), 18% of the artists in their study are 65+ compared to 3% of the labor force in Australia. Retired artists have not received much attention in prior literature, and it would be an interesting topic for further research. If a substantial number of the seniors/retired artists are former "professionals", their ongoing contribution to the art markets could be a constraint on the ability of younger "subsidized" and "aspiring" artists to enter the market.

The last two groups cannot be considered professional artists in any definition of the word. Members of the "arts-as-a-hobby" group (16%) mostly work full time in other jobs, and their income is high compared to the other classes. Likewise, the "workers related to arts" (11%) are mainly working in jobs related to arts, and they have the highest average income.

To sum up, we find that a little less than half of the population (46%) of visual artists in Denmark can be considered professional artists (Classes 1, 2 and 3). 26% are seniors (Class 5), and about 28% have other careers outside the arts or related to the arts (Classes 4 and 6). With a total population of 3,028 visual artists in Denmark, we estimate that about 636 are fully professional and are able to live from their visual arts practice, and about 757 artists are subsidized or aspiring, still struggling to make a career in the arts. 787 artists are seniors, and, in that sense, they are out of the profession, and 848 artists cannot be considered professional artists ("art-as-a-hobby" and "workers related to arts"). It is interesting to note that gender and a formal artist education have no significant impact on class membership. The non-significant impact of an arts education is in accordance with prior research (Towse, 2006).

Our "classes" cut across previous classifications and demarcations of visual artists, and thereby problematize the classification of visual artists as a category in earlier research. It is evident that none of the criteria relating to occupation (income from arts, working hours and being self-employed) can be used solely to define the population of professional artists. In that case we will lose a big share of artists – especially early career artists, working seriously with their careers, some of whom might already have received recognition among peers.

Likewise, our analysis shows that differentiating between full-time and part-time artists is not an efficient way in which to differentiate between professional artists and amateurs: "part-time artists" in particular will be a heterogeneous group including aspiring artists, who are not able to live fully from their arts practice even though they are striving to do so, and amateurs/non-professionals such as those in Class 4 and Class 6; similarly, the group of full-time artists will include a large section of "seniors" who can be considered to be out of the profession.

It is necessary to differentiate between *ex ante* population selection criteria and analytical subgroups *ex post*. For our research, we have considered the population of visual artists in Denmark based on the satisfaction of at least one of the following conditions: membership of one or both of the main arts organizations in Denmark, an artistic education from a recognized arts academy, and/or receipt of government grants from The Danish Arts Foundation during the period 2006-2016. This is a quite common way in which to delimit a population of artists, as we have used the *ex ante* available criteria, as in similar studies. Our results show that the initial criteria for inclusion in the survey have led to a broad and heterogeneous population of visual artists. Furthermore, our results show that several criteria are required in order to differentiate between professional and amateurs. Variables measuring profession (income and working time) are not enough. Indicators of the quality of the art works (professional standards) are necessary in order to make a meaningful demarcation. Finally, it is important to include career stages, both in terms of early career artists and seniors at the other end of the career spectrum. Therefore, *ex post* analytical groups are needed in order to differentiate between mutually exclusive groups of artists in terms of professionalism.

In this article, we have proposed a theoretical and empirical based and argued definition of arts as a profession and a demarcation between professional artists and amateurs/non-professionals. Such a clear demarcation is important for several reasons.

A clear definition of "professional artist" is important for the branch of the literature aimed at gaining knowledge about artists' and creative workers' employment, working conditions, careers, income, and so forth (e.g. Alper and Wassall 2006; Throsby and Petetskaya, 2017; Heian et al., 2012; Bille et al., 2018, Bille, 2020). The choice of the criteria to determine who is an artist has major consequences for the number of identified artists as well as their income levels. The existing empirical studies of artists' income conditions have not considered the impact of delimitation criteria on the results concerning the artists' average income. An exception is Bille and Fjællegaard (2017), which demonstrates how the application of various criteria has a huge impact on results concerning Danish authors' income. Furthermore, a coherent and universal agreement on a definition would enable comparisons across countries and creative industries (visual arts, music, performing arts, etc.). We hope our methods and results may help to redefine and lead to greater consensus among scholars about the definition of "professional artist" as a profession. From our research follows several concrete suggestions to improve future research in artists' income and working conditions. Firstly, we suggest ex ante criteria, where occupation as well as indicators of quality are included. These criteria cut across simple demarcations like part/time full time artists and must be carefully considered. Secondly, our research shows that career stages are just as important as the hobbyist/professional delineation. On the one hand, early career artists may fall outside most definitions of professional artists but can still be an important part of professional artists as they are building their careers on truly little income (Alacovska and Bille, 2020). On the

other hand, senior artists on pension may be considered outside the profession (at least for policy purposes). Finally, there are a large group of artists that can be considered amateurs and workers related to the arts. Both these groups are not striving for a career in the arts, and we suggest them to be considered outside the profession. This will leave us with a much smaller population of artists with a different income-profile, than the population original considered.

Therefore, the definition of artists and the results in the article have important when it comes to policy implications. The prior lack of consensus on who should be included in artists' professions means that it has been difficult to develop appropriate policy measures (Abbing, 2002). With the proliferation of floating boundaries between what is art and non-art, new art forms and new kinds of producers (Zolberg, 1997), the issue becomes ever more present. The justification of arts subsidies or policy intervention is mostly based on the public good nature of artistic works and human capital, both in terms of their present realizations and future contribution. With this in mind, justification for subsidy can mainly be found for "aspiring" artists and "subsidized" artists, summing up 25% of the total population initially surveyed. For these two classes, we could expect some of their members to produce great works of art in due course, but without subsidies they may not be able to stay in the profession. On the other hand, class 4 (Arts a hobby) and class 6 (Workers related to arts) can be considered outside the artists' profession. The same goes for the seniors. When it comes to class 1 (professional artists) they are already able to live from their arts, and public support may not be necessary to any large extent for this group of artists. This leave us with a much smaller are clearer delimited population of artists where support schemes and policy measures can more easily be developed, and the support can be targeted more directly.

Appendix. The representativeness of the research sample

Variable	Group	N	% of sample	% of population	Test
Gender	Male	386	43.27	46.90	χ^2= 4.72; d.f=1;
	Female	506	56.73	53.10	*p-value*=0.029
Received grants	Yes	234	26.23	24.21	χ^2= 1.99; d.f=1;
	No	658	73.77	75.79	*p-value*=0.158
Arts education	Yes	317	35.45	38.65	χ^2= 3.65; d.f=1;
	No	575	64.46	61.35	*p-value*=0.056
Members of Artists society	Yes	190	21.30	20.31	χ^2= 0.54; d.f=1;
	No	702	78.70	79.69	*p-value*=0.462
Retired	Yes	227	25.45	27.18	χ^2= 1.35; d.f=1;
	No	665	74.55	72.82	*p-value*=0.245

The *p-value* is for the Chi-squared test under the null hypothesis of no difference between the distribution in the sample and in the population

Variable	Sample	Population	Test
Income	Mean = 244514.2 St.dev. = 307100.6	Mean = 243780.4 St.dev. = 449872	*z* = 0,0487 *p-value* = 0.9612

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| Age | Mean = 52.05 | Mean = 50.88 | z = 2,1502 |
| | St.dev. = 14.86 | St.dev. = 16.19 | *p-value* = 0.0315 |

The *p-value* is for the z-test under the null hypothesis that the sample mean is equal to the population mean.

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