WHAT DO THE DANES KNOW ABOUT INEQUALITY? REVIVING AN OLD, BUT UNRESOLVED, DEBATE FROM ACROSS THE ATLANTIC

Abstract

Recently, a prominent Danish union boasted that the level of inequality in Denmark has become obscene (3F, 2019). To contribute with scientific, evidence-based conclusions to the above statement, this thesis will attempt to explore how the Danish population truly assess and prefer the distribution of wealth in Denmark. The results indicate a preference among the Danish respondents to reside in a country that is generally more equal, than the one they believe to reside in, a finding that has been supported by comparable research on different populations. Additionally, in opposition with common beliefs and relevant theoretical contributions, this thesis finds a range of similarities between how Danes and Americans assess and prefer the distribution of wealth in their respective countries. Lastly, recommendations for future research is presented.

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Introduction

Of the many issues facing contemporary society, inequality was outlined by former American President Barack Obama as "the defining challenge of our time" (Obama, 2014). Surely, the level of inequality has received considerable attention in recent years, ranging from protest movements like Occupy Wall Street to leading academics in economy (Piketty, 2013) and psychology (Pinker, 2018). These authors seem to agree that the level of inequality is indeed rising in Western societies, when measured by, for instance, the Gini-Coefficient. However, scholars in psychology consistently find great discrepancies between the actual level of inequality, and the estimated level of inequality by Western populations (Norton and Ariely, 2011; Chambers, Swan and Heesacker, 2014; Arsensio, 2018). Thus, a primary concern for political psychology and behavioral economics in the 21st century, should be to establish the level of knowledge on inequality among Western populations. After all, people's perceptions of wealth distribution, rather than the true distribution, is what determines their conceptions of the issue (Tyler, 2011).

To the knowledge of this author, no previous research has attempted to account for the perceptions of wealth distribution among Danish respondents. This study aims to redeem this omission in reserach, by contributing with results from a Danish sample. To assist this, the following research question has been formulated:

What are the Danes' assessment and preferences on the wealth distribution in Denmark, and how can their assessment and preferences be explained by relevant research?

To answer this question, the study at hand aims to perform a replication of Michael Norton and Dan Ariely's:*" Building a Better America – One Wealth Quintile at a Time"* from 2011, using the latest methodological suggestions for improvement (Eriksson and Simpson, 2012). A replication using the exact method from Norton and Ariely (2011) is not feasible, since subsequent research has found considerable methodological disadvantages (Eriksson and Simpson, 2012). As a result, the replication performed here, will use the suggestions outlined by Eriksson and Simpson (2012).

The thesis will begin with a thorough review of the primary scientific contributions to the field of inequality perception, including relevant findings on gender differences and fairness-considerations. Following this will be a description of the methodological procedure of the study performed, through the academic debate between Norton and Ariely (2011) & Eriksson and

Simpson (2012). Next, the relevant results found in this thesis will be presented together with theoretical considerations. Inclusive to this part, will be a thorough analysis of the estimates and ideal distribution of American respondents compared with their Danish counterparts. Finally, a general discussion will scrutinize the current state of the research field, and present guidelines for future scientific work.

Previous findings

This section will give the reader a thorough overview on previous findings on perceptions of inequality. This has been included to compare the findings from this study, to relevant work already published, thus allowing for qualified and theoretically underpinned conclusions.

Perceptions of inequality

With a total of n=5.222 respondents, Norton and Ariely's (2011) study appears as a primary contribution to the field of inequality perception. The study received well deserved attention when it appeared in 2011, because of the remarkable finding that respondents seemed to dramatically underestimate the level of inequality in the United States.

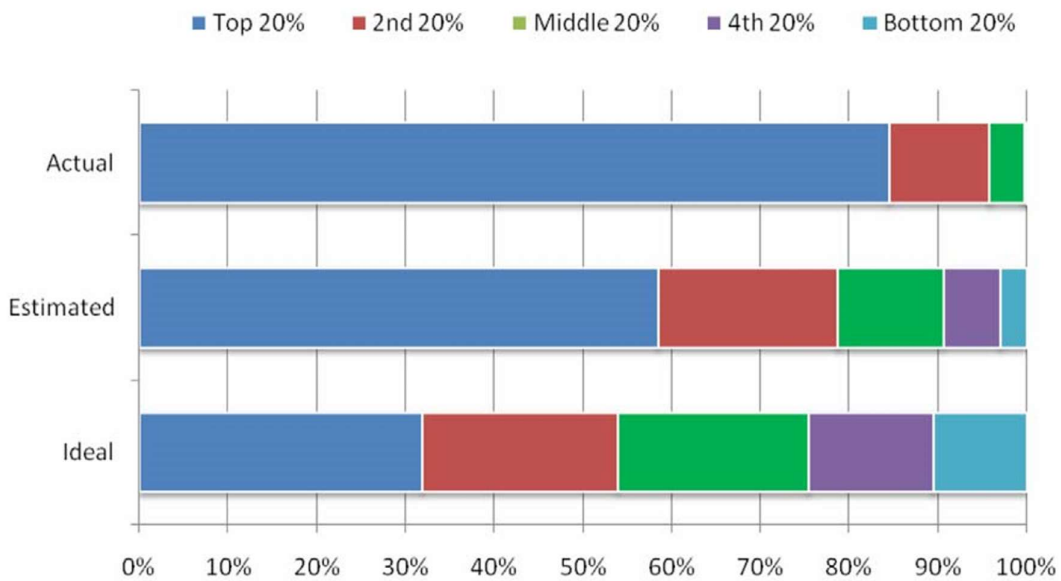
Fig. 1. From Norton and Ariely (2011), p. 11.

As figure 1 outlines, the participants estimate the bottom- and the 4th-quintile to have a total of 9% of the wealth, when the combined actual wealth of the two groups equals <1%. In a following

comment, Tyler (2011) noted that this remarkable finding can be reconciled by the fact that *"the key issue in justice research is not the distribution of resources but public understanding of the procedures through which that distribution occurs"* (p. 1). Herein, Tyler (2011) suggests if people are satisfied with the mechanisms through which society allocates resources, the level of actual inequality is less important, a hypothesis that will be elaborated in the part of this thesis concerning fairness.

In Norton, Neal, Govan and Ariely (2014), the findings from Norton and Ariely (2011) were sought replicated in Australia.
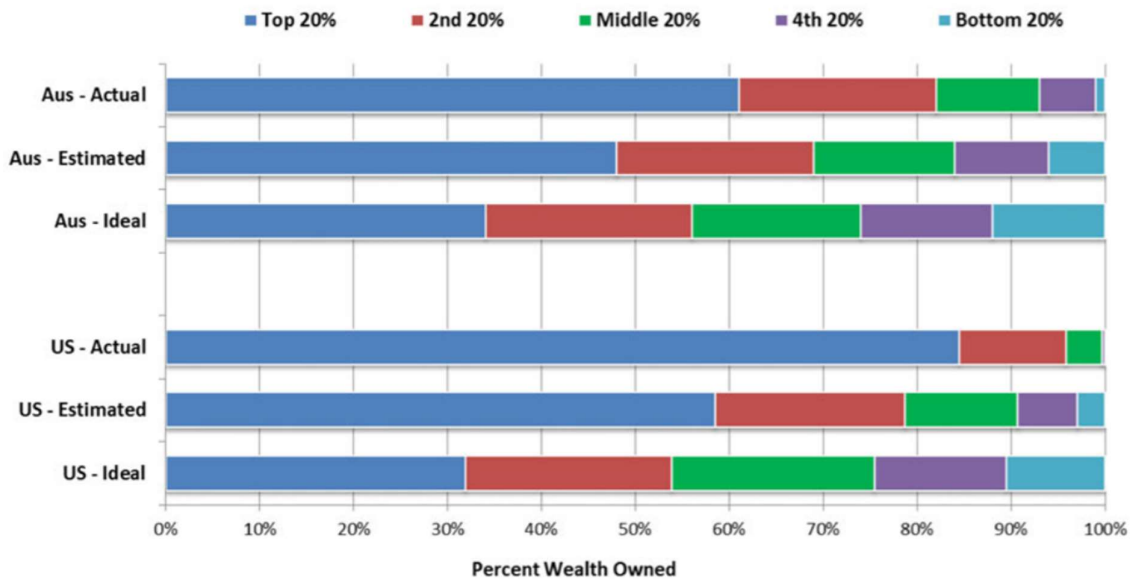
Fig. 2. Norton, Neal, Govan and Ariely (2014) p. 344

First, Australians also underestimate the level of inequality in their country, thus replicating the original study on American respondents. Second, it is remarkable that both American and Australian respondents seem to agree highly on the ideal distribution of wealth, thus completely replicating the original finding (Norton et al., 2014; Norton and Ariely, 2011)

In another study, Kiatpongsan and Norton (2014) showed that among respondents in 16 countries, people consistently underestimate the level of wage inequality between unskilled workers and CEO's. The finding from Kiatpongsan and Norton (2014) should be mentioned, because it falls in line with the aforementioned studies, but will not be considered further, since its targeting perceptions of wage, whereas this study focuses on perceptions of net worth.

Despite the volume of interest and attention Norton and Ariely (2011)'s study has generated, there has been scientific questioning of both the method and the results.

Regarding the results, Chamber, Swan and Heesacker's (2014) study draws a completely different picture on how the American population perceives inequality in their country.
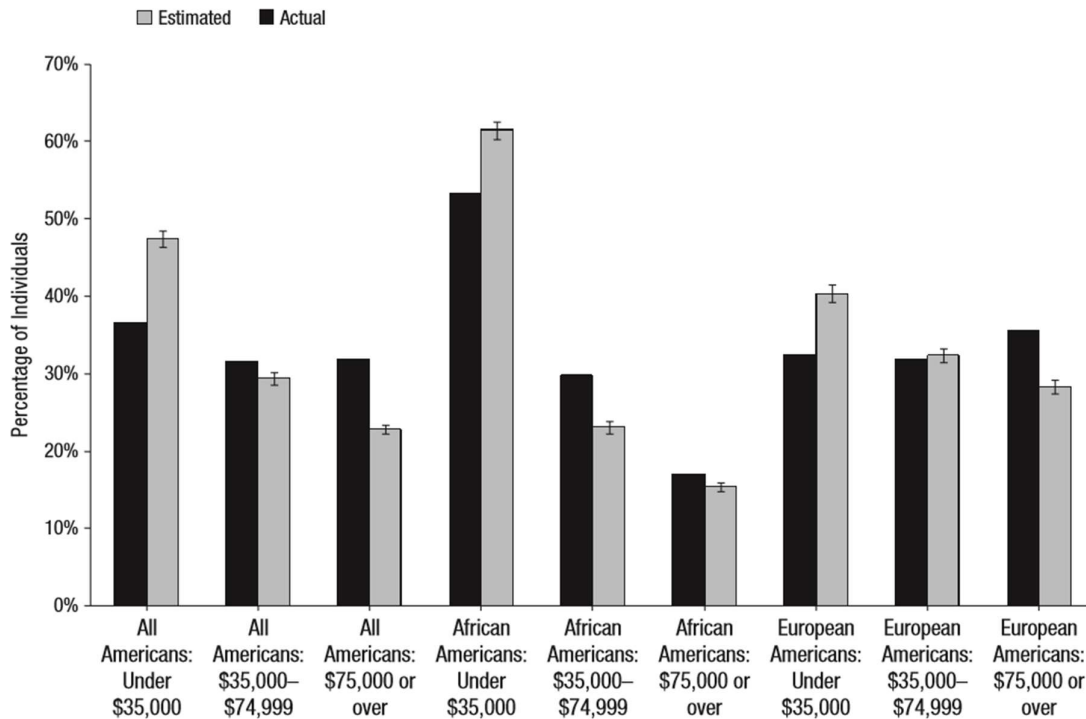
Figure 3. Chambers, Swan and Heesacker, (2014), p. 615

In figure 3, which constitutes study 1 in Chambers et al. (2014), the authors asked n=273 respondents, to estimate the number of Americans, African Americans and European Americans that fall into 3 different annual income groups. Considering the results for the All Americans group, respondents estimate more people to have a low annual income than is the case. This and other findings, allows Chambers et al. (2014) to conclude that *"economic conditions in America are more favorable than people seem to realize"* (p. 1), a different finding than Norton and Ariely (2011).

Another relevant finding from Chambers et al. (2014), is the results obtained in study 2. Here, n=112 Americans were asked to estimate the average household income in US Dollars for the top 20%- and bottom 20% in 1970, 1980, 1990, 2000 and 2010. Chambers et al. (2014) found that participants

highly overestimated the rise in income for the top quintile, while having an accurate idea of the development in income for the bottom quintile.

Another criticism to the results from Norton and Ariely (2011), are presented by Eriksson and Simpson (2012). In addition to displaying how wrongly Americans estimated the wealth distribution, Norton and Ariely (2011) also found an inclination towards a highly egalitarian ideal wealth distribution. Using a different methodological approach, Eriksson and Simpson's (2012) work strongly refutes this finding.

Mean (± SE) response to the Percent measure and median response to the Average measure in estimations of the bottom and top quintiles in various domains.

Estimation task	N	Measure	Bottom quintile	Top quintile	Ratio	Lower inequality
Ideal household wealth	249	Percent	9.2(±0.5)%	36.9(±0.9)%	1:4.0	82%***
		Average	$20,000	$1,000,000	1:50	
Household wealth	570	Percent	3.1(±0.2)%	65.0(±0.8)%	1:21.2	75%***
		Average	$1,000	$1,500,000	1:1,500	

Figure 4. Eriksson and Simpson (2012), p. 743.

When looking at figure 4, it is evident that the percent measure induces a much more egalitarian distribution, than the average measure, when looking at the distribution for the ideal society. This and other methodological arguments enabled Eriksson and Simpson (2012;2013) to advice against using the percent measure. These will be elaborated in the methodology section.

Next to all these findings, other studies have also investigated perceptions of inequality, using very different methods, compared to those outlined previously. When searching for "wealth distribution"*AND perception* on Scopus, 21 results appear. Among these, Barreiro, Arsensio and Wainryb (2019) use a method developed by Evans and Kelley (2017), where respondents are asked to choose one of 5 diagrams best describing their perception of the distribution of wealth in society. Results from this work indicates a tendency among respondents to also underestimate the level of inequality, thus like conclusions from Norton and Ariely (2011).

Summarizing this brief review of key contributions to the field, it should be highlighted how previous results mainly finds respondents to be wrong in their estimates, both under- and overestimating the level of inequality in the United States. This issue highlights the need for careful methodological analyses of why the studies reviewed yield different results when inquiring respondents on the same matter. This will be further discussed in the final part of this thesis. Additionally, it should be stressed that the great majority of studies has been conducted with American respondents, from an American point of view. This study hopes to redeem this narrow focus in research, by contributing with findings from Danish respondents.

Gender differences

The growing body of research outlining differences in financial literacy between men and women, also deserves to be mentioned in this study, since it is likely to skew data. Using data from American, Dutch and German respondents, Bucher-Koenen, Lusardi, Van Roti and Alessie (2017) finds men to be significantly more financial literate than their female counterparts, in all three countries. This finding is cooperated in Cupák, Fessler, Schneebaum and Silgoner (2017), which also finds the differences between men and women to be more salient in developed countries. Additionally, it should be noted that the general knowledge of financial instruments in large populations from developed countries is poor (Atkinson and Messy, 2012). As a result, it is possible that the significant differences between men and women stems from the fact that men underperform less than women. Considering the literature on how the two genders distribute wealth in the ideal society, Norton and Ariely (2011) found women to award more wealth to the bottom 3 quintiles, than men. Because of these finding, the study performed by this author will test for significant difference in female and male answers.

Fairness

Following now will be an account of the primary scientific contributions to the field of fairness. This has been included since research into macroeconomic fairness is one of the primary new contributions to the field on perceptions of inequality. As the following section will show, research into this trajectory offers a completely different approach to the field.

In Starmanns, Sheskin and Bloom (2017)'s *"Why people prefer unequal societies"*, the authors attempt to give an overview into the current scientific findings on fairness. Drawing upon a vast body of research, including Norton and Ariely (2011), they present the hypothesis that *"there is no evidence*

that people are bothered by economic inequality itself. Rather, they are bothered by something that is often confounded with inequality: economic unfairness" (Starmans et al., 2017, p. 1). This seminal article constitutes, to the understanding of this author, the first thorough review of current findings on fairness. Starmans et al. (2017) are also the first in attempting a scientific explanation as to why a highly unequal ideal distribution of wealth is demonstrated by research subjects in both Norton and Ariely (2011) & Eriksson and Simpson (2012). The point being that respondents favor a fair, but unequal society (Starmans et al., 2017)

Fairness in experimental settings

Considering the body of research currently available on fairness, a lot of studies has been performed on children from various cultures (Rochat et al., 2009; Schaefer and Haun, 2015; Silk and House, 2016) and children in experimental laboratory settings (Shaw and Olson, 2012; Baumard, Mascaro and Chevallier, 2012). The primary finding these studies has in common, is the fact that children will allow for an unequal distribution of resources, if it's mediated by merit. In other words, children prefer the fair distribution over the equal one.

The literature on how wealth is distributed in experimental settings is abundant, trailing back to the famous ultimatum-game (Oosterbeek, Sloof and Van de Kuillen, 2002). Newer evidence with more relevance for the study being performed in this thesis, is for example the materiel gathered by Kimbrough, Sheremata and Shields (2013). These authors found that a highly unequal distribution of wealth can be considered fair, if it is mediated by randomization, i.e. a coin toss. The point is once again that participants don't seem to show an aversion towards inequality, since a highly unequal distribution can be accepted if it governed by a fair mechanism (Starmans et al., 2017).

Next to these findings, a lot of research also targets happiness and fairness (Cai, Zhang, Zhao and Coyte, 2018; Katic and Ingram, 2018; Shapiro, Ryland, De Lima, Vidaurri and Van de Werfhorst, 2017; Bjørnskov, Dreher, Fischer and Schnellenbach, 2013) and perceptions of fairness regarding CEO pay (Pfeifer and Schenck, 2016)

Fairness, inequality and mobility

In Starmans et al. (2017) the authors suggest that the level of mobility in a given society is likely to influence people's acceptance of inequality, i.e. the level of social mobility in a given country might determine whether we consider society fair.

When searching for "fairness"* AND "inequality"* AND "mobility"* on Scopus, 25 results appear. Among these, Monusova (2016) and Sharif, Wiwad and Aknin (2016) both support this hypothesis. For instance, Monusova (2016) argues that *"public attitude towards inequality depends little on the actual level of inequality. What appears to be more important is whether the society provides functioning escalators to individuals for moving up the socio-economic ladder and whether individuals have recently experienced actual upward mobility"* (p. 1). Monusova (2016) has reviewed data from the International Social Survey Program and the European Social Survey to perform this analysis.

Additionally, in an important contribution to the field of societal fairness at the macroeconomic level, the study by Sharif et al. (2016) should also be highlighted. Using an experimental approach, Sharif et al. (2016) recruited n=521 American respondents by Qualtrics Panel (similar to MTurk), and made each half read made up articles describing either high or low levels of mobility in the United States. After this, Sharif et al. (2016) had respondents contemplate a variety of statements and state to which extend they agreed, including *"I think that the income inequality in the United States is unacceptable"* (p. 377) (1 strongly disagree, 7 strongly agree).

Variable	Low-mobility condition	High-mobility condition	t	p
Likelihood of movement for average American after 10 years (%)	45.22 (33.29)	52.52 (32.39)	5.70	<.001
Satisfaction with current levels of mobility (%)	28.87 (19.58)	36.01 (17.52)	4.38	<.001
Inequality intolerance (out of 7)	5.18 (1.58)	4.77 (1.85)	−2.71	.007
Estimated change in own relative income after 10 years (%)	8.02 (16.78)	10.69 (19.34)	1.68	.093
Estimated change from current relative income to children's income when same age (%)	15.10 (26.68)	20.33 (28.30)	2.17	.030
Degree to which economic status due to own efforts (100) vs. external circumstances (0)	54.08 (30.07)	59.65 (30.24)	2.10	.036
Positive affect	46.15 (21.96)	51.29 (22.58)	2.63	.009

Figure 5. From Sharif (et. al. 2016) p. 377. Mean Differences (SDs in Parentheses) Between Conditions for Tested Variables.

The results from figure 5 suggests that respondents who were told mobility is high in the United States, were more prone to tolerate income inequality, indicated by the lower mean in that condition (4.77 compared with 5.18). This result is significant with p=.007. Nonetheless, one of the other findings is not, and two are close to the limit at 5%. Since effect sizes were not displayed in the table by Sharif et. al. (2016), the author of this study took the liberty of calculating Cohens D, just for the "inequality tolerance" measure. The effect size equals d=0.24, thus revealing that the mock articles describing either high or low mobility failed to induce even a moderate shift in tolerance of inequality (Howell, 2014). Overall, these findings suggest that researchers should be

aware of the link between acceptance of income inequality and perceptions of societal mobility, but also, that societal mobility is unlikely to be the only factor influencing people's apprehension of inequality.

Concluding this review on primary findings into fairness considerations, the primary point worth accentuating is that a highly unequal distribution of wealth can be accepted by research participants, if it mediated by a fair mechanism (Starmans et al., 2017; Tyler, 2011). This finding also helps explain why respondents consistently desire a highly unequal distribution; the unequal distribution is fairer than an equal one. In sharp opposition to this work, Wilkinson and Pikett (2017) suggests many negative personal and social consequences of unequal societies. For instance, they argue that inequality is causally related to levels of mental illness and unhappiness among the population. Nonetheless, other scholars have criticized these findings for leaping to conclusions on behalf of correlational data (Pinker, 2018).

Method

The following section will outline the method used in this study, including how research participants were recruited, how data was gathered and how the debate between Norton and Ariely (2011) & Eriksson and Simpson (2012) qualified the chosen procedure in this study.

Research participants

When recruiting research participants, the questionnaire was distributed mainly by posts in various groups on Facebook. The disadvantage of this is of course representativity, since most people in these groups are of similar age (20-25) and profession (college/university students). To gain respondents from different ages and professions, the questionnaire was also distributed by e-mail to people in the authors personal network, inviting these people to forward the questionnaire to their friends and colleagues. A smaller amount of respondents was also recruited on 2 Danish high schools. Here, the author could distribute the questionnaire to pupils in a classroom, in exchange for a small lecture on life as a university student. The students were free to reject participation.

When looking at the recruitment of research participants, the major difference between this study, and the studies by both Norton and Ariely (2011) & Eriksson and Simpson (2012), is that the last-mentioned studies used participants from the Amazon Mechanical Turk (MTurk). Much research has

scrutinized the pros and cons for using MTurk (Cyr, 2018). For instance, Buhrmeister, Kwang and Gosling (2011) found that MTurk respondents were *"significantly more diverse than American college graduates"* (p. 1), a similar finding also reported in Paolacci, Ipeirotis and Chandler (2010). Looking at the cons when using MTurk, there has been considerable research into the term *"Insufficient Effort Responding"* (IER) (Huang, Liu and Bowling, 2015; Lovett, Bajaba, Simmering, Lovett, 2018) and the detrimental effects this might have on data. IER occurs when respondents do not use the necessary time and energy to answer the posed question (Lovett et al., 2018). A large array of IER-detection methods exists today (Cyr, 2018), but the studies by Norton and Ariely (2011) & Eriksson and Simpson (2012) doesn't specify using any of these techniques – possibly because they weren't developed at the time. As a result, IER might have affected the data in these 2 studies.

In this study, however, participants volunteered completely and were free to end the survey at any time. Thus, it is unlikely that the participants would have continued filling in the survey if they did not wish to do so, therefore reducing the chance of IER. Also, Cyr (2018) examined which factors contribute to the presence of IER and concluded that length of survey contributes to higher likelihood of IER. Since this study is substantially shorter than the ones by Norton and Ariely (2011) & Eriksson and Simpson (2012), the risk of IER is further reduced, compared to the previous studies.

The questionnaire

The survey used in this study was developed in SurveyXact, a program available to students and staff at the University of Copenhagen. As the first part of the study, the respondents were met by a page ascertaining their full and unconditional anonymity throughout the study. Additionally, it was described how data would be saved and for what use data was collected. It was further stressed that it would be impossible for anyone, including the author, to identity participants by analysing data. Thus, the criterions for adhering to GDPR standards were met. Contact information for the author was listed and participants were notified that the study was being conducted at the Department of Psychology, University of Copenhagen.

After this, respondents were asked to fill in some background information, including gender (male, female, other), age and occupation (highschool or similar, graduate or similar, in labour, jobseeking and other).

The following page included a brief description of what the study sought to investigate. Importantly, as done in both Norton and Ariely (2011) & Erikson and Simpson (2012), participants were given a definition of net worth. Here, the proper Danish translation of the definition used in the aforementioned studies were used. The Danish translation reads: *"Ved formue forstås den samlede mængde af økonomiske værdier, som en familie har, inkl. ejendomme, biler, aktier, indestående på konti o.s.v., minus evt. gæld. Du kan tænke på formue som den mængde penge, familien ville have, hvis den solgte alle sine værdier."* Since SurveyXact didn't allow for any signs other than numbers to be typed as answers, respondents were informed to give their answer in whole numbers. Following this, the survey consisted of 3 parts.

1. part

In the 1. part, participants were asked: *"Hvad tror du, den gennemsnitlige formue er blandt de 20% (mest velhavende, næstmest velhavende, 3. mest velhavende, næstmindst velhavende, mindst velhavende) familier i Danmark?"* This question is the equivalent Danish translation of the one used in Eriksson and Simpson (2012). It should be noted, however, that in Eriksson and Simpson (2012), the participants were only asked to determine the total net worth for the top and bottom quintile, not the intermediate ones. This study has chosen to include the intermediate groups, since this is done in Norton and Ariely (2011) and it allows for a more thorough understanding of participants perception of wealth in the middle-class.

For each question posed, a small graphical illustration was also presented. This illustration sought to visualize what group (wealthiest, least wealthy, etc), participants was asked to regard. Here, the illustration used for the middle quintile is showed:
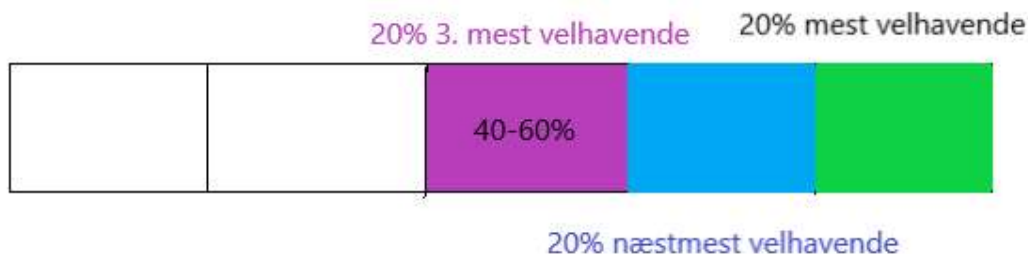

Fig. 6. Example of illustration included in questionnaire. Made by author.

This was included to assist participants understanding of each question.

One vital difference between the study by Eriksson and Simpson (2012) and the study by Norton and Ariely (2011) should be recognized here. In Norton and Ariely (2011) participants were asked to estimate what *percentage* of the total wealth each quintile possess; in Eriksson and Simpson (2012) and in this study, the participants are asked to estimate the *average* net worth in each quintile. This substantial difference was introduced by Eriksson and Simpson (2012), since their research indicated that the *percentage* measure is likely to induce a common heuristic, the anchoring and adjustment heuristic (Epley and Gilovich, 2006; Tversky and Kahnemann, 1974). When participants in Norton and Ariely (2011) were asked *"What percent of the United States' total wealth is controlled by the richest 20% of Americans?"* the anchoring and adjustment heuristic assumes that respondents might take an equal distribution of 20% as their point of origin and perform an inadequate estimation because of this (Epley and Gilovich, 2006). This constitutes the first primary reason for choosing the average measure in this study.

Additionally, Eriksson and Simpson (2012) asked their participants to estimate the wealth for each quintile by using both the *average* measure and the *percent* measure. If their participants have performed a logically valid computation, the ratio between the average and the percent measure should be identical when regarding any given pair of quintiles (Eriksson and Simpson, 2012). A logically valid computation would thus be, if a participant had estimated the bottom quintile to have 1.000 USD and estimating the percent measure to yield 1% of the total worth for the same quintile. If the same participant estimates the top quintile to have 50.000 USD, and estimating the percent measure to be 50%, then the ratios are equivalent of 1:50, thus logically valid.

Participants are generally unable to make this computation and end up with very different ratios, as illustrated in figure 4 (Eriksson and Simpson, 2012). The important thing in this context is, however, that when respondents are asked which measure (the one for average or the one for percentage) most clearly resembles their genuine believe, the answer is the average measure (Eriksson and Simpson, 2012). This constitutes the second primary reason for choosing the average measure in this study.

2. part

The second part of the questionnaire asked participants to state the ideal net worth also in quintiles. The question is once again the equivalent Danish translation, of the one used in Erikson and Simpson

(2012), thus reading: *"Hvad synes du, den gennemsnitlige formue bør være, blandt de 20% (mest velhavende, næstmest velhavende, 3. Mest velhavende, næstmindst velhavende, mindst velhavende) familier I Danmark?"*. As also done in the 1. part of the study, graphical illustrations were included to assist participants.

3. part

In the last part of the survey, respondents were asked to give a brief description of what they consider to be a fair society. The question in Danish reads: *"Beskriv kort (1-2 sætninger) hvad der gør et samfund fair for dig"*.

The primary reason for including this qualitative part lies in the sheer lack of research within the empirical and theoretical underpinnings of macroeconomic fairness among Scandinavian research participants. Starmans et al. (2017) invites future research into this precise problem, which is why an explorative, qualitative point on fairness has been included in this study.

Data analysis

The subsequent calculations and statistical tests have been performed using Excel and SPSS 25. Importantly, when outlining results from this analysis, values will be presented using the median, instead of the average. Using the median was also introduced by Eriksson and Simpson (2012), since the average measure is skewed by the many respondents grossly overestimating wealth among the top quintile. Though it is convenient for scientists simply to use the median- instead of the average measure, the fact that many respondents highly overestimate the wealth distribution is valuable information. This will be further elaborated in the discussion.

A series of t-tests will also be performed, and the results will be considered significant if p<5%.

Results and Discussion

Following now will be a presentation of all relevant results from the analysis performed in this study, presented in conjunction with theoretical considerations. First, however, general characteristics from the gathered sample, including reasons for excluding participants from analysis, will be highlighted.

Background information

A total of 486 respondents opened the survey. Unfortunately, 116 of these decided not to answer any part of the questionnaire, simply exiting after reading either the consent form or the introducing

materiel. 370 participants thus began filling in background information (age, gender, occupation), but 102 of these escaped before answering the first question on estimating the average net worth for the top 20%.

2 respondents were excluded due to severe suspicion of IER, since both answered the same number (123 and 123123, respectively) for all questions.

Note, that a pool of respondents has been kept despite signs of IER. Some respondents, for example, has given illogically high (billions) or low (tens) estimates. These has been included, since no guideline has been found in previous research that explains what a reasonable estimate consists of. Therefore, it cannot be concluded that the respondent necessarily was inattentive when answering; he or she might simply be completely unaware of the wealth distribution. Importantly, when attempts were made to exclude the 17 respondents who estimated the top 20% in Denmark to possesses 100.000.000 DKK or more, it had no effect on median values.

Of the 266 participants included, 163 were female (61.5%), 101 male (37.9%) and 2 answered "other" (0.6%) (one was non-binary, and one did not wish to disclose gender).

141 participants answered university student when asked for occupation, 55 for fulltime job, 58 for high school, 3 for unemployed and 9 "other" (4 retirees, 4 self-employed, 1 voluntarily unemployed).

The average age among the participants was 29 years, with a standard deviation on 14.3 years. The median, however, was 23 years. 75% of the respondents was 25 years or younger.

Comparing this background information with the other studies in the field, it is evident that studies using MTurk can achieve higher variability than studies recruiting primarily among college students. Norton and Ariely (2011) had for instance 5.522 participants, 51% female, with a mean age of 44.1. Eriksson and Simpson (2012) used 570 respondents, 53% female, with a mean age of 39, standard deviation 11.

Ideal distribution for Danish respondents – results and discussion

To the great surprise and disappointment of this author, no reliable data could be found that outlines the actual wealth distribution in Denmark when adjusting for household net worth in quintiles. A lot of statistical materiel scrutinizes wealth distribution when adjusting for age differences or for individuals (See Cepos (2019) for thorough review), but not for households.

Consequently, the results outlined will focus on other relevant aspects, for instance the relationship between Danish respondents estimated and desired distribution. To explain, nuance and elaborate these findings, the thesis will also include statistical comparisons between Danish and American respondents estimated and desired distribution. Finally, the result section will test for gender differences, and include a presentation of the qualitative findings on fairness.

To begin with, consider figure 7 which displays the estimated and ideal wealth distribution among Danish respondents.
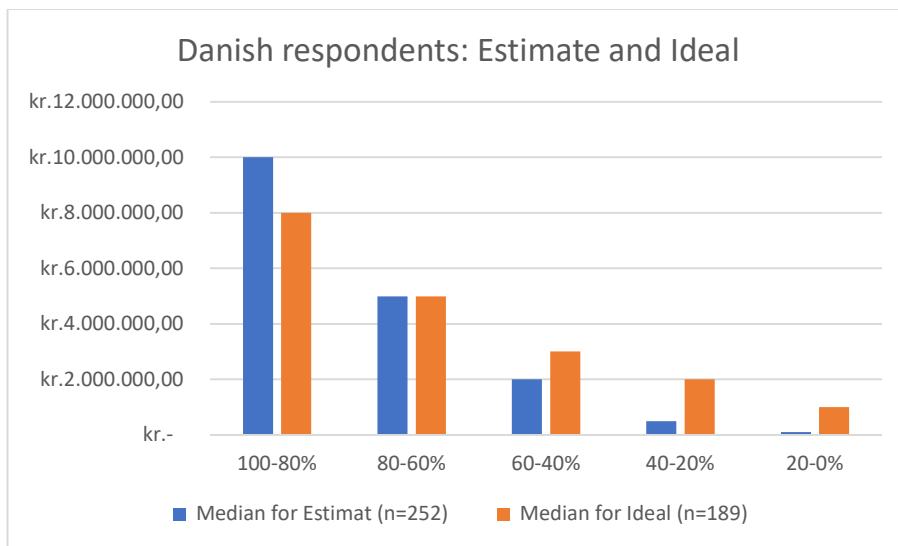

Fig. 7. Danish participants estimate and ideal distribution.

3 primary findings should be accentuated. First, Danish respondents wish to reduce the total net worth among the wealthiest. Second, data indicates that people in the 2nd highest quintile should be exactly as wealthy, as the respondents estimate them to be. Third, respondents wish to increase the total net worth among the 3 least wealthy quintiles. These 3 points completely replicate the findings from Norton and Ariely (2011), were respondents also wish to reduce wealth among the richest and give to the 3 poorest quintiles, keeping status quo among the 2nd richest. On a different note, it should also be addressed that the participants undeniably desire a country which is highly unequal – the wealthiest being 8 times richer than the poorest.

Presenting a probable explanation as to why participants wish to remove wealth from the top quintile to the bottom 3 quintiles, can be done using the scores of studies underlining growth in wealth for the richest (See Piketty (2013) for thorough review). As Stephen Pinker (2018) neatly

describes it: *"The new conventional wisdom is that the richest one percent has skimmed off all economic growth of recent decades, and everyone else is treading water or slowly sinking (p. 97)"*. Though it would be interesting to include an analysis on economic development in the 21st century to establish how accurate this description is, it exceeds the scope of this thesis. Here it should just be noted how the narrative, Pinker (2018) describes offers a sound explanation as to why participants remove wealth from the top.

In offering a viable account of why participants wish to keep the wealth constant among the 2nd highest quintile (compared to their estimates), one could benefit from regarding literature on fairness (Starmans et al., 2017). Using the fairness-argument, participants are likely to regard people in the upper middle-class as being sincere, hard-working men and women, who puts in extra hours and needs to be compensated accordingly. This is also the essence of the meritocratic society western communities has evolved into (Starmans et al., 2017).

The same argument, though, can also be used to address why participants wish to increase wealth among the bottom 60% of households. It is not because there exists a generic aversion towards inequality, but because people simply consider it to be fairer that everyone gets a larger slice of the pie (Starmans et al., 2017).

Comparing Danes to Americans – results and discussion

Since data from Eriksson and Simpson (2012) is available online, it has been possible to perform a range of interesting analyses, comparing Danish to American respondents. These analyses have been included, since a comparison with American respondents can help put the Danish findings in perspective and illuminate interesting similarities and differences between the two countries.

As mentioned previously, Eriksson and Simpson (2012) only gathered data for the average measure on the top and bottom quintile, which is why the following sections deal with only this aspect. Participants from Eriksson and Simpson (2012) gave their answers in USD, since they were inquired for their knowledge on American households. Therefore, these answers have been converted to Danish Krone, using todays (16.04.2019) exchange rate, which equals 1USD=6.5 Danish Krone.

First, considering the top 20% quintile, it is striking how alike the numbers seem to be.
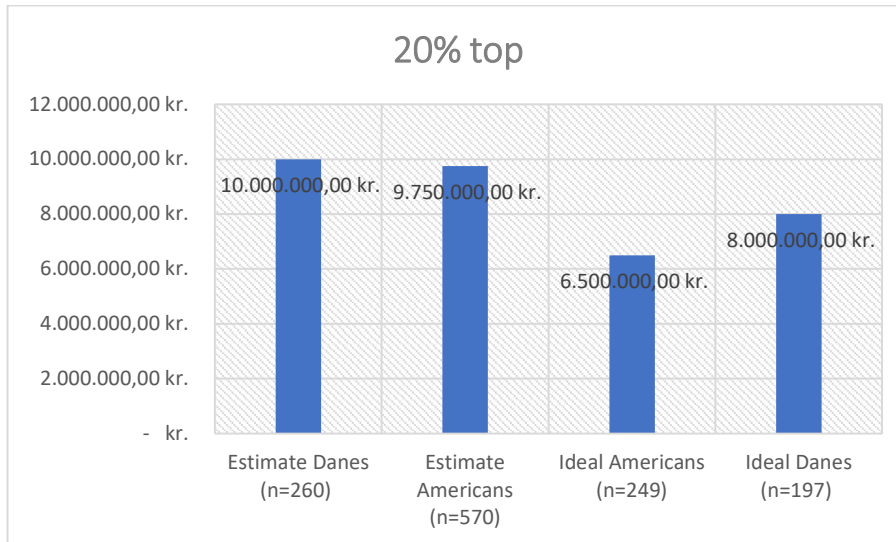
Fig. 8. Using own data for Danish respondents and Eriksson & Simpson (2012) for American respondents. Danish Krone. US Data converted exchange rate 1USD=6.5 Danish Krone. Median.

Both Danish and American respondents seem to estimate the top 20% in their respective countries to possess nearly identical net worth, despite haven given their answers almost 7 years apart and in different currencies. Strikingly, an independent samples t-test revealed no significant difference between American and Danish respondents for the estimate in the top 20% quintile (t(645)=1.860, p=.063). These results do not assume equal variance, since the number of American respondents was more than twice the number of Danish respondents (Howell, 2014).

Before scrutinizing the results for the bottom 20%, these findings should be briefly compared to Chambers et al. (2014). Here, the authors found that respondents estimate the top 20% of American households to have an annual income equal to 13.376.693 DKK in 2010 (converted from USD using the same exchange rate as listed before). It is interesting that this finding equals a higher amount than the median of 9.750.000 DKK reported above from American respondents (Eriksson and Simpson 2012), since Chambers et al. (2014) inquired respondents on *income*, not *total net worth*. Since a part of one's income is invested in goods and alike that comprise one's total net worth, it is likely that the general pattern is that one's total net worth is higher than one's income. Therefore, this discrepancy in finding might simply stem from low statistical power (Howell, 2014).

Nonetheless, future research should be aware that these results indicate a slight confusion among participants between the income and net worth measure.
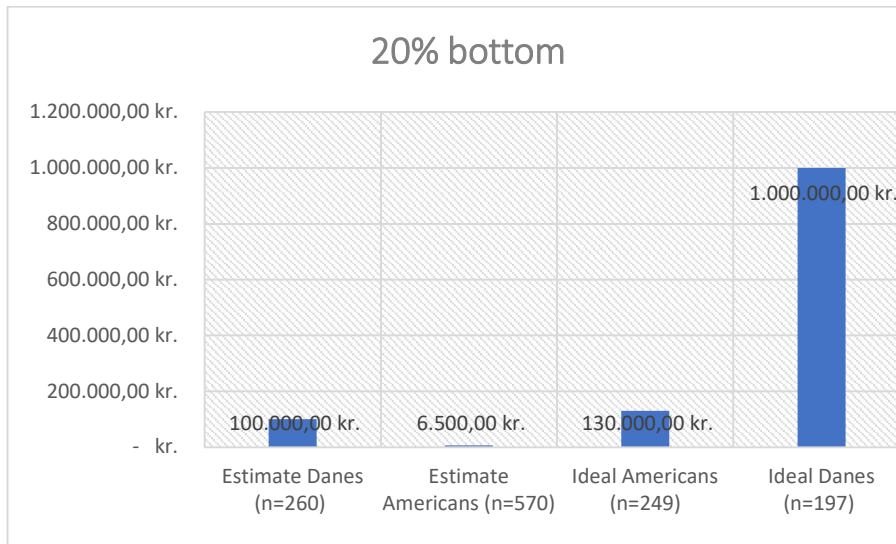

Fig. 9. Using own data for Danish respondents and Erikson & Simpson (2012) for American respondents. Danish Krone. US Data converted exchange rate 1USD=6.5 Danish Krone. Median.

Moving on to consider the bottom 20%, figure 5 has been computed for an overview. A superficial glance would reveal that Danish respondents seem to be more generous than their American counterparts. Nonetheless, American participants wish a 20-fold increase in household net worth for the bottom 20%, where Danish participants only dream of a 10-fold increase. This is likely to stem from the fact that the Danish and American estimates differ substantially; the Danes have a much higher estimate of the average net worth than the Americans, likely inclining the Danes to be less generous since their point of anchor is much higher. Once again, an independent samples t-test failed to identity any significant difference between American and Danish respondents $(t(256)=1.883, p=0.61)[1]$ for their estimates on the bottom 20% quintile, rendering probable the existence of a cross-national understanding of wealth distribution – or perhaps just similar mechanisms for computing large numbers using the average measure.

Comparing Danes to Americans – the ideal society
Figure 8 and 9 also display interesting results regarding the ideal distribution of wealth. For instance, some of the results point in the direction that Americans desire a far more unequal country than

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[1] Equal variance not assumed (Howell 2014). When assuming equal variance, the test is significant t(256)=883, p=.004.

Danes. The reported ratio between the top and bottom in the United States for the ideal distribution is 50:1 (6.500.000:130.000). Thus, Americans want the wealthiest to be 50 times wealthier than the least well off. Among Danish respondents the ratio equals 8:1 (8.000.000:1.000.000), a far more equal distribution. Respondents from both countries also wish to reduce net worth amongst the wealthiest in their country, with 2.000.000 DKK (Danish) and 3.250.000 DKK (American), respectively. Theories on "American exceptionalism" (Larsen, 2016), has been used to explain this high tolerance for income inequality among people in the United States compared to the populations of other western countries. Unfortunately, a thorough theoretical examination of this material exceeds the boundaries of this thesis.

A different finding though is the fact that an independent samples t-test found no significant differences between the ideals for the top (t(440)=-.913, p=.362) and bottom (t(439)=-.618, p=.537) quintiles considering American and Danish respondents[2]. Though the median values presented in figure 8 and 9 do seem to be highly different, especially for the bottom 20% quintile, they are not statistically significant.

Thus, two slightly opposing findings can be presented: 1) The ratio measure indicates a great difference among Danish and American respondents for their ideal distribution of wealth between the top and bottom quintile. 2) The absence of significant differences between the ideals for the top and for the bottom indicates similarities among Danish and American respondents in their visions for the utopic society.

Concluding: Comparing Danes and Americans.
Concluding this section, the interesting finding that no significant differences were found, between American and Danish respondents for their estimates and ideals for the top and bottom 20%, should be briefly addressed. First, considering the probability of a type 2 error. A type 2 error describes a study that fails to find a difference that *is* there (Howell, 2014). Using theories describing the highly different views on inequality in Europe and America (Larsen, 2016), one should expect significant differences to be found, thus increasing the probability that this study has performed a type 2 error. Second, if the results are statistically valid, and no type 2 error is present, they indicate either 1) a generic computational mechanism for computing averages on net worth among different

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[2] These results *do* assume equal variance, since equal sample sizes were observed. Results were almost identical when not assuming equal variance.

populations or 2) a common perception and ideal for wealth distribution across cultures. Future research is invited to address these different hypothesizes.

Differences in gender for Danish respondents – results and discussion

As noted previously, a great body of work has found differences between men and women's knowledge of financial instruments. To test whether a similar pattern is visible in this study, the following tables has been computed.

T-test between female and male estimates on average household net worth. Danes.			
	T	Df	Sig. (2-tailed)
Estimate 100-80%	-1,440	256	,151
Estimate 80-60%	-1,249	250	,213
Estimate 60-40%	-1,149	248	,252
Estimate 40-20%	-1,311	248	,191
Estimate 20-0%	-,985	255	,326

Figure 10. Results from Independent Samples T-test, between Men and Women. Estimates. Equal Variance Assumed.

T-test between female and male ideals for average household net worth. Danes.			
	T	Df	Sig. (2-tailed)
Ideal 100-80%	,578	192	,564
Ideal 80-60%	,855	185	,394
Ideal 60-40%	,804	185	,422
Ideal 40-20%	,838	185	,403
Ideal 20-0%	,454	191	,650

Figure 11. Results from Independent Samples T-test, between Men and Women. Ideal. Equal Variance Assumed.

As figure 10 show, this study failed to find any significant difference between men and women, when looking at their estimates for the average net worth quintiles. This finding can be interpreted in multiple ways. For one thing, it indicates that both genders understood the questions posed equally well. Using this argument, one can argue that this study failed to replicate the finding that women underperform on questions relating financial literacy. If one assumes that both genders understood the questions equally way, the results can be interpreted as indicating equal understanding of the general distribution of wealth in society between male and female respondents.

Also, as highlighted figure 11, it was not possible to determine any difference in the ideal distribution of wealth between female and male respondents. These results thus indicate equal preferences for the ideal society between female and male respondents, contrary to Norton and Ariely (2011).

Note, that it has been chosen not to include the two respondents who gave a non-binary answer to "gender", since it would be pointless to perform statistical test on such a low sample size (Howell, 2014). One could then ask what the point is to include the "other" gender option in the first place. The answer to this, is of course an ethical consideration of not discriminating any respondents, who identifies with a non-binary gender. Nonetheless, it can be argued that it is equally discriminating simply to exclude these respondents from the statistical tests. This author invites further ethical considerations into this predicament.

Qualitative part on fairness – results and discussion

Following now will be a presentation of the qualitative findings gathered in this study. This part has been included to theoretically elaborate the construct of macroeconomic fairness, since the specific underpinnings of this is highly unexplored, as also noted by previous research (Starmans et al., 2017).

The qualitative material has been coded using techniques described in Tangaard & Brinkmann (2010). The coding has been based on an inductive approach, where the quotes from n=176 were read, and given one or more labels matching the overall idea(s) in the quote.

As described in the methodology section, participants were asked to give a brief description of what they consider to be a fair society. A description was labelled as being directly concerned with

- **Social safety net (14)** if the quote stated that a fair society is one where all people are eligible for social benefits
- **Redistribution (6)** if the quote stated that a fair society is one that promotes redistribution of wealth
- **Equal opportunity (81)** if the quote stated that a fair society is one where all people have equal access to education, health care and the possibility to do what one desires
- **Equal rights (18)** if the quote stated that a fair society is one where all people, no matter gender, race, sexual orientation have equal access to education, health care and the possibility to do what one desires
- **High quality of life (6)** if the quote stated that a fair society is one where all people enjoy a life of highest quality
- **Social mobility (16)** if the quote stated that a fair society is one where members easily can move between social classes

- **Meritocracy (42)** if the quote stated that a fair society is one where people are rewarded according to effort
- **Desire for low inequality (12)** if the quote stated that a fair society is one that promotes equality
- **Inequality is desired (1)** if the quote stated that a fair society is one that promotes inequality
- **The wealthiest should contribute more (1)** if the quote stated that a fair society is one where more wealthy members pay accordingly higher taxes
- **Legal rights (4)** if the quote stated that a fair society is one where all members have equal legal rights
- **Employment possible (2)** if the quote stated that a fair society is one where all members can get a job if they wish
- **Obscene wealth (4)** if the quote stated that a fair society is one where the wealthiest members don't have more money than an amount that serves a function
- **Equal distribution of resources (7)** if the quote stated that a fair society is one where resources are distributed equally
- **Poverty (19)** if the quote stated that a fair society is one where all members have their most basic requirements meet
- **Equal respect among social groups (1)** if the quote stated that a fair society is one that regards members of different ethnic and social groups equally
- **Democracy (1)** if the quote stated that a fair society is one which is democratic
- **Method (2)** if the quote stated that fairness is not a useful term
- **Indiscernibility (20)** if the quote stated ideas that were of no relevance to fairness of it no meaningful materiel could be understood by the interpreter
- **Not used/partly not used due to insignificants (6)** if the quote could not be meaningfully used in this analysis.

In parenthesis next to each label is given the number of times each label was presented in a quote. The combined amount of values in the parenthesis exceeds n=176, because many quotes consisted of multiple points and ideas.

Equal opportunity

The most notable finding from the qualitative coding listed above, is the high preference (81 respondents, 46%) for "equal opportunity" as a prerequisite for a fair society. The specific wording used by Danish respondents is the term "lige muligheder", which is the verbatim translation of "equal opportunity". To the knowledge of this author, there is no previous literature that has empirically examined this finding; that equal opportunity is the primary construct unpinning fairness.

Inequality aversion and meritocracy

A different finding which also should be highlighted, is the surprising fact that 12 respondents describes that a fair society is one with low inequality. This is in direct opposition to Starmans (et al., 2017), who empirically and theoretically claim that no aversion to inequality is discernible in reserach. However, in corroboration with Starmans (et al., 2017), 42 respondents (23%) indicated that they consider a society fair where people are awarded according to effort, and that inequality thus is acceptable.

Social mobility

As described earlier, Sharif (et al., 2016) found significant, though modest, results when examining whether the level of social mobility makes respondents tolerant of income inequality. Using this finding, one might expect that respondents would also indicate social mobility as a governing feature behind fairness. Though, only 16 respondents indicated that mobility in society was an important prerequisite of fairness. This might also explain why Sharif's (et al., 2016) results was modest indeed; social mobility might not be a dominant feature in mediating tolerance for income inequality or fairness.

Overlap between constructs?

A striking methodological difficulty in performing this qualitative analysis, is to differentiate the labels and constructs given to the descriptions by research participants. When one respondent explains how he/she believes social mobility in society to be a prime feature of fairness considerations, it is possible that he/she simply uses a different wording, but means the same thing as a respondent describing equal opportunity as a prominent feature? This issue raises concerns as to the validity of the analysis just performed (Tangaard & Brinkmann, 2015). It does not mean, however, that the results should be dismissed, but simply treated with professional academic caution. Future research is invited into the qualitative underpinnings of fairness considerations.

Concluding this final part of the result-section, it should be highlighted how this qualitative investigation finds "equal opportunity" and "meritocracy" to be the chief factors underpinning macroeconomic fairness.

General Discussion and recommendations for future research

The general discussion of this thesis will attempt to explain what research, especially within the judgement and decision-making literature, can help explain the findings of this thesis. Using these remarks, suggestions for future research will be presented.

Methodological considerations

As also reported in the "result"-section, this study focused on the median score since the average measure yielded unreliable results due to outliers. This was chosen in Eriksson and Simpson (2012) as well because of the same reason. The interesting question is, however, why some respondents performs highly poor calculations.

Difficulty with large numbers

Considering this issue, the research on financial literacy, accounted for earlier in this thesis, found people in developed countries to possess little knowledge on a range of financial instruments (Atkinson and Messy, 2012). As an example of this, 17 respondents in this study estimated the top 20% of households to possess 100.000.000 DKK or more. Also, 2 respondents estimated the top 20% to possess 4.000.000.000 DKK and 35.000.000.000 DKK, respectively. A simple explanation to this predicament might be that some respondents simply loses track of how many 0's they have entered. SurveyXact, the program with which data was collected, doesn't allow for commas or dots to be entered. Thus, if the respondent isn't adequately attentive, he/she might be confused in the forest of 0's being entered.

Substitution of questions & heuristics

Another explanation, as to why some of the respondents in this study, and in Eriksson and Simpson (2012) seem to have difficulty answering the questions, comes from literature on heuristics. For instance, Kahnemann (2011) suggests that when people are faced with a hard, demanding question one often swaps this question for an easy one. It's easy to imagine how this theory plays a prominent role in the calculations performed by the respondents used in this study. For instance, respondents might substitute the difficult question on estimating the average net worth, with a question more along the lines of estimating the average income for the top 20%, or maybe even just estimating the average net worth for the wealthiest 20 people they know.

Additionally, it can also be argued that the questions used in this study, easily trigger the availability heuristic (Kahnemann and Tversky, 1973), which describes how *"a person evaluates the frequency of*

classes or the probability of events by availability, i.e., by the ease with which relevant instances come to mind" (p. 1). Using this explanation as a tool, it is conceivable that when respondents are asked to estimate the average net worth in a given quintile, they simply think of a person they know in the given quintile and estimates hers/his net worth.

In Eriksson and Simpson (2012), the authors argued that using the percentage measure, as Norton and Ariely (2011) did, yield imprecise results, partly due to the anchoring and adjustment heuristic. However, Eriksson and Simpson (2012) does not deliver any convincing reason, as to why the very same heuristic is not also influential when using the average measure. As accounted for earlier, the anchoring and adjustment heuristic assumes that respondents *"anchor on information that comes to mind and adjust until a plausible estimate is reached"* (Epley and Gilovich, 2006, p. 1). Using this work, Eriksson and Simpson (2012) argued that respondents in Norton and Ariely (2011) are likely to anchor on an equal distribution of 20% when answering, thus performing an inadequate adjustment in the subsequent questions. When respondents are asked to estimate the average measure, it is equally likely that they anchor on their first answer for the top 20% quintile and uses this answer as a point of origin for estimating the average in the following group.

Concluding this brief discussion, the findings from Chambers et al. (2014) should once again be brought to readers attention. As the result section showed, American participants estimates the top 20% households to have a higher *income* (Chambers et al., 2014) than total net worth (Eriksson and Simpson, 2012). This peculiar comparison surely calls for further research into the feasibility of using the average measure.

Methodological considerations for future research

Despite the theoretical implications of the previous arguments describing how and why different heuristics might be influential, it is unfortunately impossible to causally infer that the respondents in this study was affected by any one of them when answering, a problem which the literature is aware of (Gigerenzer, 2008). This predicament is closely related to the subsequent academic debate between Norton and Ariely (2011) & Eriksson and Simpson (2012) following their original publications.

In a response to Eriksson and Simpson (2012), Norton and Ariely (2013) acknowledged that the average measure yields more precise results, though still too inaccurate for definitive conclusions.

Norton and Ariely (2012) further reiterated one of their primary arguments, which Eriksson & Simpson (2012) and this study supports, being that respondents unanimously desire a more equal country than the one they estimate. In a response to this argument, Eriksson and Simpson (2013) conducted a small new study, finding further evidence for their original hypothesis being that the percentage measure is an unreliable tool.

Amid all this debate, the researchers unfortunately seem to forget the most important question: *why* does the two methods (percentage vs. average) yield so different results?, a point also raised briefly by Norton & Ariely (2013), though not addressed adequately. To answer this highly important question, the author of this study suggests adopting a qualitative approach, since the quantitative measures used in the abovementioned studies have not reached satisfying conclusions. A qualitative study could be devised, where a group of respondents first are asked to give their estimates in percentages and averages for the 5 quintiles; then, the researcher, using a structured interview, asks the respondent to describe how he/she arrived at the given answers.

Norton & Ariely (2011;2013) and Eriksson & Simpson (2012;2013) might also benefit from using a completely different approach when studying perceptions of inequality, for example, the method used by Evans & Kelley (2017), Barrerio et al. (2019) and Arsensio (2018). Here, research participants are asked to indicate which of 5 diagrams best indicate their understanding of the wealth distribution in society. This approach relives respondents of the demanding computational exercise that is giving one's answer in either percentage or average. As also noted by Arsenio (2018), future research should seek to address the pros and cons for using these different methods.

As a last note, it should be highlighted how future research might also benefit from adjusting for age when inquiring respondents on distribution of wealth. A study investigating the actual wealth distribution in Denmark found a very high age dependency (Cepos, 2019), meaning that wealth increases critically with age. Future work should attempt to account for this, as wealth related age-dependency highly skews the level of inequality throughout society.

Conclusion

This thesis set out to offer an empirical investigation on how a sample of Danish respondents assess and interpret the wealth distribution in Denmark.

The results show that Danish respondents desire a country, that is more equal than the one, they believe to reside in: respondents wish to take from the wealthiest quintile, and give to the 3 least wealthy quintiles, while keeping the wealth intact in the 2. highest quintile. As this finding replicates Norton and Ariely (2011), who use a different method on different research subjects, it emerges as the most robust and scientifically valid conclusion from this thesis.

Considerable attention throughout this thesis has been awarded to the differences and similarities between Danish- and American respondents. The findings on this matter are slightly mixed. For one thing, no significant differences could be found, between Danish and American estimates and ideals for the top and bottom quintile. This finding induces the conclusion, that Danish and American respondents have equal assessment strategies and preferences for the distribution of wealth in society. Considering the results using the ratio measure, the picture changes. From this point of view, it seems as if the American participants desire a far, far more unequal country than Danes.

As this sort of mixed findings is the rule, rather than the exception, among research in perceptions of societal inequality (Norton and Ariely, 2011; Chambers et al., 2014; Arsensio, 2018; Eriksson and Simpson, 2011), the pivotal future challenge is to establish why the methods yield so different results when investigating the same matter. Future research might benefit from combining the different methodological approaches reviewed throughout this thesis and assess both quantitatively and qualitatively what judgement and decision strategies respondents use when answering.

The importance for research to develop a method that cogently examines perceptions of wealth inequality cannot be exaggerated. The rising level of inequality in Western democracies, coupled with the vast attention inequality receives in the public debate, it's influence on policymaking and ideological standpoints, further highlights the need for science to deliver it's unbiased and well-informed conclusions. This author invites this research, rather sooner than later.

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