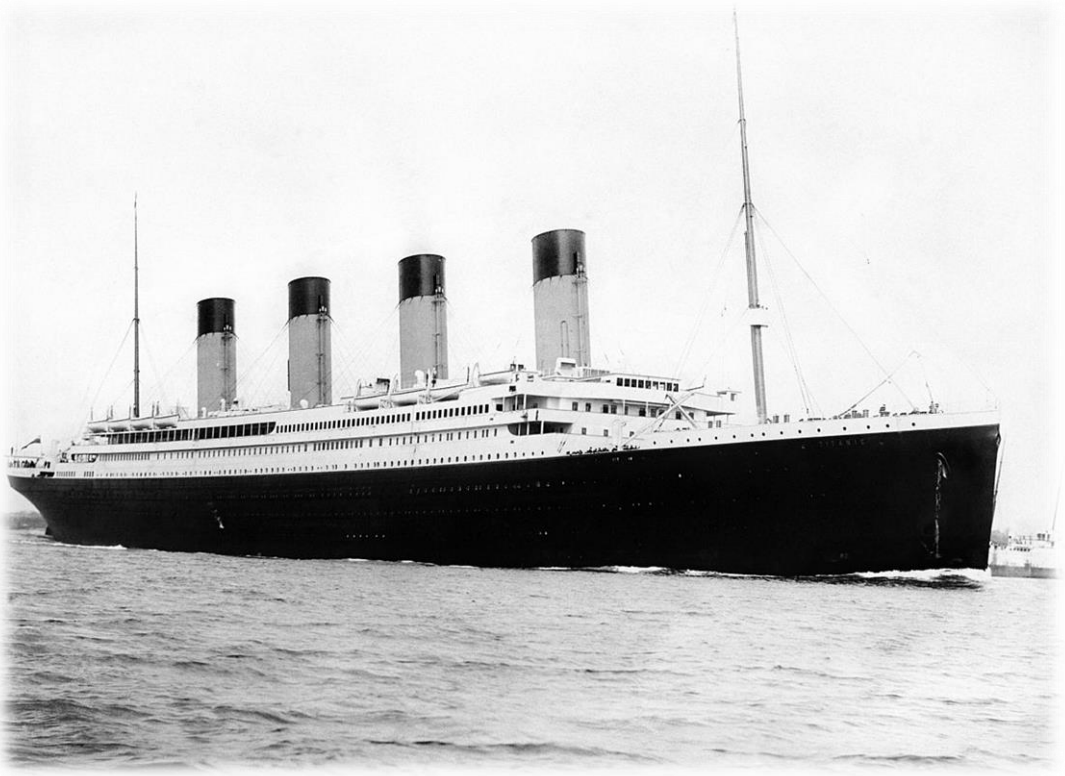
Universiteit Utrecht

Prestige, strength or altruism?

An investigation into the role of occupation on the chance of survival on board of the RMS Titanic



Bachelor thesis Sociology

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Abstract

Since the sinking of the Titanic, many researchers have investigated in greater detail who survived the disaster and who did not. The exceptional high rate of survival of women and children on board of the Titanic, in contrast to other maritime disasters, is explained by the strong adherence to the 'Women and Children first' norm (Frey, Savage & Torgler, 2010a, 2010b, 2011; Elinder & Erixson, 2012). However, male passengers did not receive this preference treatment and were thus allocated to their own resources in order to survive the disaster. Many research has already focused on the role of passenger class and the chance of survival (Frey et al., 2010a, 2010b, 2011; Elinder & Erixson, 2012). This thesis seeks to examine the role of the resources of male passengers on the chances of survival in greater detail. These resources are investigated by means of occupation. Three hypotheses are derived; one about the level of prestige, the level of physical abilities, and the level of caring traits someone has in their occupation. Both quantitative and qualitative data with information about passengers of the Titanic is used. Regression analyses are conducted to examine the relations between different occupational resources and the chance of survival. Results show that both prestigious occupations, physical occupations, and caring occupations do not significantly influence the chance of survival of a male passenger on board of the Titanic. Implications of these findings are discussed.

Keywords: occupation, resources, life-threatening situations, survival, Titanic.

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The sinking of the 'unsinkable' RMS Titanic is one of the most well-known maritime disasters. Over 1500 people died when the ship struck an iceberg on April 15th in 1912. Because the ship was thought to be unsinkable, the ship missed an accurate sinking procedure and did not have enough lifeboats to get everyone out of the sinking ship (Bijan, 2014). Soon it became clear that a remarkable phenomenon had taken place during the sinking of the ship; because of the adherence to the order 'Woman and Children First' [WCF] more than 70 percent of woman and children were saved (Elinder & Erixson, 2012; Frey et al., 2010a; Hall, 1986). This phenomenon demonstrates the power of internalised social norms, because even in life-threatening situations people seem to behave in socially expected manners instead of acting rational in a selfish sense (Elinder & Erixson, 2012).

Another remarkable fact was that most survivors of the disaster were first class passengers, and especially members of elite families. Upper class male passengers who did not survived the tragic disaster were seen as true heroes by the media, because they sacrificed themselves in order to save woman and children. However, middle and lower class deceased men were barely noticed in the media (Bijan, 2014). The way in which the media responded to the disaster forms a clear demonstration of the presence of a strict class society in the 20th century. Belonging to a wealthy family apparently offered advantages in life-threatening situations such as maritime disasters (Argyle, 1994; Goodman & Gareis, 1992).

Because the Titanic disaster gives more insight in how individuals behave collectively in life-threatening circumstances, a lot of social research has already been conducted on this topic (Elinder & Erixson, 2012; Frey, Savage & Torgler, 2010a; Hall, 1986). These studies investigated the determinants of survival, considering both individual attributes of the passengers (e.g., economic resources and physical strength), and the social aspects of the situation (e.g., the presence of the WCF norm). As mentioned before, female passengers and children had a relatively advantage over male passengers to survive, because of the WCF norm. All male passengers were more or less equal given the fact that they had to wait until the women and children were rescued; their chances of survival were mainly dependent on their individual traits and resources (Elinder & Erixson, 2012).

In the study of Frey et al. (2010a, 2010b) it was argued that male passengers with greater material and communicative resources would have had a greater probability of survival. They hypothesized that upper class passengers were more likely than middle and lower class

passengers to have these resources because of their status and affluence (Frey et al., 2010a, 2010b). However, passenger classes on the Titanic were divided based on ticket price, and therefore passenger class only gives information about the financial capital of the male passengers (Elinder & Erixson, 2012; Frey et al., 2010a; 2010b; Hall, 1986). Financial capital is an important source of economic status, but this source does not completely determines someone's social status in society.

In this thesis we will investigate the role of male passenger's non-financial resources on the chance of survival in greater detail. We will extend the knowledge by using information of male passenger's occupation instead of passenger class. The reason for using the information of male passenger's occupation is twofold. Firstly, occupation is a more representative measure of status since it does not only tell something about the level of earnings, but also represents the extent of social prestige someone has (Argyle, 1994). Secondly, occupation provides information about an individual's personality traits and skills. Some traits or skills can be important in order to survive (Midlarsky & Jones, 2005; Visser & Roelofs, 2011). An individual's occupation tells something about the daily activities and circumstances of that person, and which social and technical skills are needed (Argyle, 1994). Some occupations require physical traits such as strength and height. Other occupations, such as caring professions, require a caring and empathetic personalities (Treiman, 1977).

We will focus on three dimensions of occupations which we seek to relate to the way people behave in life-threatening situations. These three dimensions of occupation are divided in the level of prestige a person acquires with that occupation, the level of physical abilities which are required within the occupation, and the level of caring traits which are required within the occupation. The main question of this thesis is:

'How does the chance of survival depend on the occupation of male passengers on board of the RMS Titanic?'

By using information about the occupation of Titanic male passengers, we will contribute to the large sociological literature about social determinants and differences in life chances. This thesis can be considered as scientifically and societal relevant for several reasons. First of all, this thesis will bring more insight in the way individuals behave in life-threatening circumstances in which resources are scarce and the pressure is extremely high. Because the Titanic is a controlled event, where all passengers on board had to deal with the same situational conditions, it can be seen as a natural field experiment. This means that the

behaviour of passengers is not affected by exogenous factors. This enables us to investigate accurately who survived and what the underlying mechanisms were that caused the unequal life outcomes between passengers (Frey et al., 2011). Second of all, the use of occupation as a measure to predict individual life outcomes in an extreme situation has, to our knowledge, never been done before. Since occupation gives information about someone's resources, skills and characteristics we add a lot of useful information to the dataset of the Titanic. Third of all, this research will also bring more insight in the role of resources on differences in life outcomes and health inequalities in general. The theoretical approaches used in this thesis do not only hold for life-threatening situations, but also brings better understanding of the existence of social inequalities in society.

Theoretical background

Investigating the sinking of the Titanic is linked to one of the head questions of sociology, namely the question of inequality. This question asks: Who gets what and why? On board of the RMS Titanic this question is asked in the most extreme form; who got to survive and, more importantly, why. The inequality of survival of male passengers on board of the Titanic can be explained by the different resources of passengers. To gain insight in what resources were important for survival and who had what kind of resources, we will first highlight sociological theories of the question of inequality. These theories explain what resources are important in daily-life, how these resources are divided over individuals and how this leads to different life-outcomes. After this we will look into the resources on board of the Titanic and explain the distribution of these resources by means of occupation.

Friedrich Engels and Karl Marx argue that inequality is caused by the unequal distribution of economic capital as a result of the capitalistic system (Abrahamson, 1981; Ultee et al., 2009). According to them, two groups can be divided in society, the ones with economic capital on one hand, and the working class without it on the other hand. They state that when a society becomes more dependent on machines instead of manpower, and the competition between individuals increases, the group with economic capital gains more power over the working class. This power results in lower wages for the last group, and thus a growing inequality between the two groups (Abrahamson, 1981; Lenski & Nolan, 1995). The growing inequality in economic capital and power also leads to different health outcomes between the members of the two groups, since more wealth enables an individual to make better and healthier life-decisions and prevents the individual from hard and highly demanding labour. The amount of economic capital is dependent on the occupational position

an individual has, according to Engels and Marx. This position is also indicated with the term social class, in which higher classes possess more economic capital than lower classes in society (Abrahamson, 1981; Ultee et al., 2009).

Sociologist Max Weber agrees in a large extend with the point of view of Engels and Marx, since he argues that economic capital is dependent on the occupational position an individual has, and influences their life outcomes (Abrahamson, 1981). However, Weber argues that having prestige in society is as important as economic capital because prestige gives the ability to have power over others (Abrahamson, 1981; Ultee et al., 2009). Having prestige can therefore be seen as a resource that can be used by individuals to achieve goals (Lenski & Nolan, 1995; Lenksi, 1966). Prestige is as well as economic capital gained through occupation. The allocated place of a certain occupation in the stratification is quite fixed in societies, meaning that there is a large consensus and thus individuals place an occupation on the same place in the stratification (Ultee et al., 2009; Lenski & Nolan, 1995). According to Weber, having prestige and having economic capital is not necessarily equivalent to one another. For example small businessman, such as bookmakers and plumbers, make more money than teachers or clergyman, but receive lower social status (i.e. prestige) in society (Ultee et al., 2009; Lenski, 1966).

Resources on board of the Titanic

Prestige as a resource. Economic capital and prestige are thus seen as important resources to influence life-outcomes in daily life by sociologists. These resources are unequally divided in daily life, and will be unequally divided on board of the Titanic, since the passengers brought most of their resources with them on board. Frey et al. (2011) state that having economic resources influenced the chance of survival on board of the Titanic resulting in higher survival rates of upper passenger class men in comparison to other passenger class men. Upper passenger class men, who paid the most for their tickets and thus had more economic resources than the lower two passenger classes, had more and easier access to lifeboats. These passengers also could have been informed earlier than other passenger classes about the seriousness of the situation, because it is likely that they had earlier and more direct access to the captain and the crewmembers (Frey et al., 2010a, 2010b, 2011; Elinder & Erixson, 2012). However, one can question if these advantages are due to either the higher economic resources or prestige. According to Goodman & Careis (1993) individuals are more prone to helping others when these others have more prestige. It could be that upper class passengers also received more help getting into lifeboats then other passenger

class men. Besides this, Hall (1986) argues that individuals in life-threatening situations are more likely to obey the orders of authorial others, because obeying these rules provides a sense of safety. These are, apart from the crewmembers, the individuals with high prestige (Hall, 1986). Furthermore it is assumable that having prestige in this situation was more important than economic resources. Bribing to get into lifeboats did not happen on a large scale, because money is quite irrelevant in life-threatening situations (Hall, 1986). Having prestige on board of the Titanic will thus probably increase the chances of survival.

Physical strength as a resource. Having physical strength is another important determinant of survival in life-threatening situations (Aldrich & Sawada, 2015). Titanic passengers who had more physical strength had an advantage with survival over others (Frey et al., 2011; Elinder & Erixson, 2012). Individuals with more muscle-strength and a better endurance can overcome obstacles more easily, are faster and the body is better able to endure pain, extreme cold or heath (Frankenberg, Gillespie, Preston, Sikoki & Thomas, 2011). With the sinking of the Titanic passengers had to overcome many obstacles. The ship counted many hallways, staircases and doors through which passengers had to move in order to escape the rising water. Moreover, many passengers were kept downstairs as the Titanic sank and had to, after finding their way to the deck, compete with others for lifeboats. Many passengers eventually landed in the ice cold sea, in which they needed to keep swimming until they got help of a lifeboat. Having physical strength is likely to increase the chances of survival, because it gives the advantage of being faster and stronger than others (Frey et al., 2011; Elinder & Erixson, 2012).

Altruism as a resource. Apart from physical strength and a prestigious occupation as resources which influence the chance of survival positively, some resources, skills or personality traits can influence this chance negatively (Saks, 2012). These skills can be effective in daily life to accomplish goals but can lead to negative outcomes or irrational behaviour in life-threatening situations (Frey et al., 2010b). Altruism is such a skill or personality trait. Perlow & Weeks (2002), who conducted research in altruism within organisations, show that when co-workers the team collaborated more. Also when helping others within organisations, the work is done more effectively, goals are more clearly formulated and it enhances learning within organisations. Furthermore, individuals feel better about themselves when helping others (Perlow & Weeks, 2002). So, helping others does not only benefit others. However, when helping others in life-threatening situations, called extreme altruism, the chances of survival of the helper decreases (Frey et al., 2010a). Despite

endangering themselves, some individuals still help others in those situations (Rushton, 1980; Midlarsky & Jones, 2005). Some male passengers on board of the Titanic did not only help women and children in the lifeboats, but also other male passengers (Frey et al., 2010a; Bijan, 2014). Extreme altruism is illustrated by this example of a middle passenger class man:

The young Lithuanian priest, Juozas Montvila, served his calling to the very end by refusing a place on one of the ship's lifeboats, choosing to administer his priestly duties and offering solace to his fellow travellers. (retrieved from: www.encyclopedia-titanica.org)

So altruism could be a skill or trait that can be used as a resource in daily life to achieve better work outcomes or collaboration, but can also be a resource that obstructs own safety and chance of survival in life-threatening situations (Saks, 2012).

Occupation as measurement. As argued, the resources on board of the Titanic were unequally divided which lead to different chances of survival. Max Weber and Karl Marx stated that the amount of economic resources is dependent upon someone's occupation. The neo-Weberian tradition elaborates on this view by stating not only occupation, but also individual's skills and characteristics give information about someone's economic resources (Breen, 2005). According to this tradition, different occupations require different kinds of skills and characteristics. The more skills required for the occupation, the more prestige and economic resources will be obtained with it. One of the characteristics that is seen as important for an occupation is altruism (Saks, 2012; Perlow & Weeks, 2002). Making a stratification based upon the skills and characteristics could explain differences in life-outcomes.

All in all, it can be assumed that the occupation of male passengers give insight in the level of resources of an individual. As described above, having prestige on board of the Titanic will give advantages and lead to higher chances of survival. A male passenger with a high prestigious occupation will thus have a greater chance of survival. This leads to our first hypothesis:

(H1) Male passengers with a high prestigious occupation will have a higher chance of survival than male passengers with low prestigious occupations.

Male passengers with an occupation that requires a lot of physical strength, such as miners and farmers, will be able to use their strength as a resource in order to survive. Therefore, our second hypothesis is:

(H2) Male passengers with a more physical challenging occupation will have a higher chance of survival than male passengers with lower physical occupations.

Many individuals in caring professions, such as doctors, health visitors, and teachers are motivated by a desire to help others (Nesje, 2016). In the 20th century they envisioned an ideal world where the social conditions of disadvantaged people are improved through social reform and by increasing support for poor people (Csikai & Rozensky, 1997). These individuals have a commitment to help and care for others, and put the needs of others before their own (Nesje, 2016). It is therefore not surprising that individuals in caring professions often have an empathic and caring personality (Abbott & Meerabeau, 1998). According to Ngai & Cheung (2009) these empathic individuals often show altruistic behaviour, because they have a tendency to think about the wellbeing of others, to feel concern for them and to help them when needed. Since skills and traits are reflected in occupation, we can assume that the male passengers that saved others instead of themselves had a caring profession. As explained above, extreme altruism endangers own survival and therefore decreases the individual's chance of survival. This leads to our third hypothesis:

(H3) Male passengers with a caring occupation will have a lower chance of survival than male passengers with other occupations.

Figure 1 gives an overview of the assumed hypotheses and the mechanisms of how occupation leads to an increasing or decreasing chance of survival on board of the Titanic.

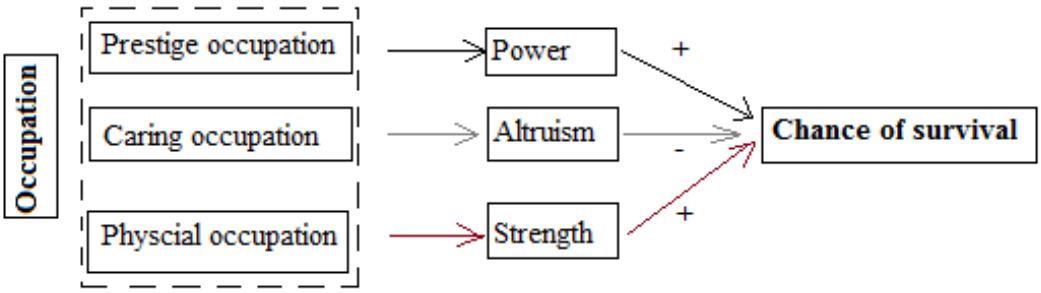

Figure 1. Overview of the assumed relations.

Methods

Data

Dataset. The data used for this thesis originates from two different sources. The first source of data is the large dataset with background variables of all 1310 Titanic passengers (https://www.kaggle.com, retrieved in February 2016). This dataset contains the following information: whether the passengers survived the disaster, their age, passenger class, information of ticket fare, cabin number, their name, their gender, number of sibling and spouses aboard, number of parents and children aboard, their ticket number, embarking place, the number of life boat when survived, number of identified body, and their home destination. The Titanic dataset does not contain information about occupations of the passengers.

In this thesis we focus on male passengers, which are the majority (64,4%) of the overall Titanic population. Of all male passengers, 10.6% were younger than 16 years old and therefore we label them as children. Because of the WCF norm, we only focus on adult male passengers. So after taking out all female passengers and children (age <16) our research population contains 588 passengers. 24.7 percent of the male passengers travelled in upper passenger class, 24.5 percent in middle passenger class, and 50.7 percent in lower passenger class.

Biographies. The second source of data we use for this thesis is the website (https://www.encyclopedia-titanica.org) which contains biographies of Titanic passengers. These biographies are written by relatives or researchers. We used these biographies to determine the occupations of the adult male passengers, and to categorise the occupations into the three dimensions: prestigious occupations, caring occupations, and physical occupations. These biographies do not describe occupation consistently, so for some passengers an accurate job description was given, while for others it simply stated the occupation.

Sampling and coding. In this section we will shortly describe our methods of sampling and coding occupation. As stated before, the first step we made with the data was to take all female passengers and children (<16) out of the data so we only have adult male passengers. For time reasons, we randomly sampled 50 percent of passengers for whom useful occupation information was available, classified by passenger class. Of some selected passengers no biography was available, so we had to randomly select new passengers. In total we analysed the occupation of 73 upper class passengers, 73 middle class passengers, and 159 lower class passengers. So our selected passengers are a total of 305, this is our sample size.

We read all biographies of the randomly selected passengers to determine their occupation, which we translated in the values *1* or *0* on the variables *prestigious occupation*, *caring occupation,* and *physical occupation*. We coded the passengers in an Excel sheet, corresponding with the three passenger classes.

We divided the coding of passengers by passenger class between the two of us. Before starting the actual coding, we coded 10 passengers together so we could get a common understanding. In order to make sure the coding was done consistently, we used double-coding. Every value we ascribed to one of the three variables per passenger was labelled with either the colour green or orange. Green meant that we were sure of the values we gave the variables per passenger, orange meaning we were in doubt. At the end of coding we exchanged our orange labelled passengers to one another, with 10 additional randomly selected passengers, so the other could code these. More information of the coding is given in appendix A. After this exchange all passengers were coded correctly. Because we made three different random samples of our male passengers, one for each passenger class, we then had to merge them together in one dataset. In this dataset we transferred our variables made in Excel into variables in SPSS. To examine if our double coded cases were coded consistently, we performed an interobserver agreement test, Cohen's kappa. This test shows that we have a substantial agreement in our coding of the three dimensions of occupation ($\kappa = .784$, $p < .001$).

Operationalization

Dependent variable. The dependent variable is whether the passenger survived the disaster or died in de disaster. This is measured by the variable *survived* in the *Titanic dataset*. When a passenger survived the sinking of the Titanic the variable *survived* has a value of *1*, and if the passenger died in the sinking the value of *survived* is *0*.

Independent variables. The independent variable is the occupation of a passenger. This is measured by the three dimensions of occupation we distinguished. All of these variables are dichotomous, meaning they have a value of either *0* or *1*. The first variable is *prestigious occupation,* which measures whether the occupation of that passenger has a high social status. Value *0* means a low prestigious occupation, and value *1* means a high prestigious occupation. We used a stratification of social status for occupations which is shown in figure 2. This stratification used by Argyle (1994) classifies occupation into five categories based on the level of skills needed for the job. We coded the occupations of the first two categories of this stratification as high prestige, and the other categories as low

prestige. We used this stratification as a guideline for coding *prestigious occupation*, since not all occupations of Titanic passengers are described in this stratification.

I	Professional, etc. *Accountant, architect, businessman chemist, company secretary, doctor, engineer, judge, lawyer, optician, scientist, solicitor, surveyor, university teacher, veterinarian.*
II	Intermediate *Aircraft pilot or engineer, chiropodist, laboratory assistant/technician, manager, proprietor, publican, member of parliament, nurse, police or fire-brigade officer, schoolteacher.*
IIIn	Skilled non-manual *Auctioneer, cashier, clerical worker, commercial traveller, draughtsman, estate agent, sales representative, secretary, shop assistant, typist, telephone supervisor.*
IVm	Skilled manual *Baker, bus driver, butcher, bricklayer, carpenter, cook, electrician, hairdresser, miner (underground), policeman or fireman, railway engine driver/guard, upholsterer.*
IV	Partly skilled/semi-skilled *Agricultural worker, barman, bus conductor, farmer, fisherman, hospital orderly, machine sewer, packer, postman, roundsman, street vendor, telephone operator.*
V	Unskilled *Chimney/road sweeper, kitchen hand, labourer, lift/car park attendant, driver's mate, messenger, railway stationman, refuse collector, window/office cleaner.*

Figure 2. Stratification of occupation. Adapted from '*The psychology of Social Class*' by M. Argyle, 1994, p 7.

The second variable is *caring occupation*, which measures the amount of caring characteristics an individual needs in the occupation. Value *0* means low caring characteristics needed, and *1* means that the occupation is a caring profession. We coded occupations as *caring* when it involved a job that required taking care of others, such as doctors and nurses, or when an occupation served the community, such as ministers, teachers and priests.

The third and last variable is *physical occupation*. This variable measures if the occupation requires physical strength. A value of *0* means little or no physical strength is

required, and a value of *1* means that the occupation does require physical strength. We coded an occupation as *physical* when the occupation consisted for a large part of physical work.

Having a value either *1* or *0* on one of the three variables that measure occupation, does not rule out having a value *1* or *0* on one of the other variables of occupation. This is because an occupation could have a high social status but also require physical strength, such as professional athletes. So a passenger could have values on all of the variables that measure occupation, or do not have values on any of the variables.

Control variables. For this thesis we will take three control variables into account. The first control variable is the age of the passenger. It is assumable that older individuals have lower chances of survival because of the limitations that come with age. When individuals get older they face more health issues, lose their physical strength, and thus could become less capable of saving themselves (Kirkwood & Austad, 2000). However, according to Larsson, Grimby & Karlssson (1997) the strength and speed of movement for men increases when they get older, reaches its maximum around the age of 40 years old, and the decreases. It is therefore reasonable to assume that the effect of age on the chance of survival is a quadratic relationship instead of a linear relationship. To examine if the effect of age on the chance of survival is quadratic, we create a scatterplot and included a Lowess curve (Landou & Everitt, 2004). This curve provides a representation of the change in the proportion of survival when age increases. The resulting graph shows that survival chances are highest for the youngest passengers and decreases with age. Although this relationship is not completely linear, the assumption that the effect of age is quadratic cannot be accepted. Therefore, we will only take original ratio variable *age* into our analyses. The minimum age of our sample is *17*, since all children are excluded, and the maximum age is *71*.

The second control variable is passenger class. Frey et al. (2010a, 2010b) show that passenger class is an important predictor of survival, because passenger class determines for a large part the accessibility of life boats. Upper class passengers had more access to lifeboats than middle and lower class passengers (Frey et al., 2010a, 2010b). The variable *passenger class* measures the class of passengers on a ordinal scale with three different values: *1 = upper class, 2 = middle class, 3 = lower class*, which is equivalent to upper, middle and lower passenger class. For the analyses these categories are transformed into three dichotomous variables.

Since it is assumable that higher class passengers paid more for their ticket, we include ticket fare as third control variable. Ticket fare gives information about the economic resources that can be used to gain access to lifeboats. The variable *ticket fare* measures the amount of money paid for a ticket on a ratio scale. Table 1 shows the relevant descriptive statistics of all used variables.

Analyses

For answering our main question we will conduct two analyses. The first is a multiple linear regression analysis. We are aware that this analysis assumes that the dependent variable is continuous, while our dependent variable *survived* is dichotomous. Our variables also violate other assumptions of linear regression such as homoscedasticity, multivariate normality and the linear relationship between variables (Landou & Everitt, 2004).

Therefore, our complementary analysis will be a logistic regression analysis. This analysis suits our variables better since this analysis could be used for dichotomous dependent variables. We are not skilled enough to interpret the results of the logistic regression, but we will make an attempt. Hence, our main interpretation of the results will be of the linear regression. We are aware that the interpretation of the linear regression could lead to unrealistic results, such as a chance of survival above 1 or below 0. However, we expect the direction of the slope of the linear regression to be somewhat the same as in the logistic regression. So we will only look at the logistic regression to see if our main results drastically chances.

For all regressions we will test one-sided, because our hypotheses state so, with a significance level of $p < .05$.

Table 1. Descriptive of male adult Titanic passengers (N =587, and sample N=305)

			Population		**Analysis sample**	
	Min.	Max.	Mean	SD	Mean	SD
Dependent variable						
Survived	0	1	.180	.384	.180	.382
Independent variables						
Prestige occ.					.300	.460
Caring occ.					.060	.242
Physical occ.					.570	.495
Control variables						
Age	17	71	33.25	12.432	32.940	12.370
Passenger class	1	3				
Ticket Fare	0	512.33	27.999	46.509	28.712	46.010

Results

In this section we will discuss the results of the analyses. We will first check some assumptions before conducting the regression analyses. After this, we will focus on discussing the main results of the multiple linear regression and the logistic regression.

Assumptions

Since the variables are dichotomous, the assumptions for linear regression analyses cannot be checked. The conditional distribution of the dependent variable is not normal, the relation between the variables is not linear and homoscedasticity cannot be assumed. However, we expect a high association between some independent variables, such as between the variables *prestigious occupation* and *passenger class*.

By means of a crosstab we test this association. The results show evidence that *prestigious occupation* and *passenger class* are significantly associated (Pearson Chi^2 (2)= 168.40, $p < .001$). Although *passenger class* is an ordinal variable, we interpret the Cramer's V to test the strength of this association. Cramer's V is .743, which indicates a strong association. This means that someone with a prestigious occupation is more likely to travel in a higher passenger class. To control if passenger class is also highly associated with the other

independent variables *caring occupation* and *physical occupation,* we conduct two more crosstabs for these associations. Results show evidence that *physical occupation* and *passenger class* are significantly associated (Pearson Chi^2 (2) = 78,940, p < .001), with a Cramer's V of .509, which indicates a moderate association. This means that someone with a physical occupation is more likely to travel lower passenger class. Since Cochran's Rule is violated when conducting a crosstab for the variables *caring occupation* and *passenger class,* an exact test is conducted. The exact test shows evidence that *caring occupation* and *passenger class* are significantly associated (Pearson Chi^2 (2) = 5,411, p = .037), with a Cramer's V of .113, which indicates a very weak association. Based on these results we cannot conclude that someone with a caring occupation is more likely to travel higher class. Out of these analyses we can conclude that *passenger class* is associated with *prestigious occupations* and with *physical occupations*.

We also expect that the association between the independent variables *ticket fare* and *prestigious occupation* will be high, since passenger class differs by the amount of the ticket fare. To test the association between *ticket fare* and *prestige* we compute the variable *ticket fare* into a categorical variable. We made 11 categories for *ticket fare*, each category indicating steps of 50 pounds and conducted another crosstab. The results show evidence that *ticket fare* and *prestige* are significantly associated (Pearson Chi^2 (2) = 119.463, p < .001). Cramer's V is .417, which indicates a moderate association. So an individual with a prestigious occupation is more likely to pay a higher ticket fare.

Taking all the variables of occupation together with the variable *passenger class* and the variable *ticket fare* in the regression analysis could lead to inaccurate results because of the high associations, therefore we first conduct a regression model, model 1a, with only the independent variables of occupation. Then we will conduct model 1b that consist of both the independent and control variables. Finally, model 2 will be the logistic regression analysis.

Multiple linear regression

A joint test is conducted, to see if adding dummy variables of passenger class instead of just the variable *passenger class* is a right decision. The results show that the model which includes the dummy variables is a better model than the first one, which contains the variable *passenger class* as a whole. So there seems to be differences between the three passenger classes in the chance of survival (R^2change = .037, F-change = 12.375, p = .001).

Main relations. Table 2 shows the results of the regression analyses. Model 1a shows that male passengers with a *prestigious occupation* have a significant higher chance of survival than male passengers without a *prestigious occupation.* The chance of survival increases with 14.9 percent points when someone has a prestigious job compared to a non-prestigious job. This finding supports our first hypothesis.

Model 1a shows no significant relation between having a *caring occupation* and chance of survival. The direction of the relation is negative, which is in line with our hypothesis. However, since we do not have evidence that the relation is significant, the finding does not support the second hypothesis.

Finally, model 1a shows no evidence of a significant relation between having a *physical occupation* and the chance of survival. Male passengers with a *physical occupation* do not have a significantly higher chance of survival than male passengers without a *physical occupation.* This finding does not support the third hypothesis.

Main relations with control variables. When adding our control variables to the linear regression in model 1b, the significant relation found in model 1a between *prestigious occupation* and chance of survival disappears. So in model 1b we find no evidence of a relation between *prestigious occupation* and chance of survival, controlling for passenger class. However, the direction of the slope is still positive. Both the directions of the slope of *caring occupations* and *physical occupations* with the chances of survival are not significant. In model 1b we find no relation between occupation and chance of survival.

We find significant effects for *passenger class* in model 1b. With upper passenger class as a reference category, middle passenger class passengers have 32.6 percent point lower chances of survival. Lower passenger class passengers have 26.5 percent point lower chances of survival than the first passenger class. We find that lower passenger class passengers have 6 percent point higher chance of survival than the middle passenger class. Conducting a Bonferroni correction for these results, we find that only upper passenger class differs significantly with middle ($M_{difference} = .288$, $p < .001$) and lower passenger class ($M_{difference} = .179$, $p = .002$) in chances of survival. Middle passenger class and lower passenger class do not differ significantly with one another in chances of survival.

When observing the other control variables *age* and *ticket fare* we find a significant effect of *age*. This supports the assumption that older passengers have a lower chance of survival than younger passengers. The results show that passengers will have 4 percent lower

chance of survival with every year of ageing. We find no evidence for a relation between *ticket fare* and chance of survival. The fit of model 1b is better than the fit of model 1a, with an explained variance of 10 percent (R^2change = .069, F-change = 5.674, $p < .001$). However, this still indicates a weak model.

Logistic regression analysis

As a complementary analysis we conduct a logistic regression. The outcome of this analysis is shown in table 2 as model 2. Because we will focus on the linear regression model for our conclusions, we will only conduct a logistic regression analysis including all variables.

In model 2 we find no evidence that *prestigious occupation, caring occupation* and *physical occupation* predict chances of survival, because they are not significant. The direction of the slope for *prestigious occupation* has changed in the logistic regression from positive to negative, although this is not significant; indicating that passengers with a prestigious occupation do not have significant lower chances of survival than other passengers. Another difference we find in model 2 compared with model 1b is that, with upper passenger class as a reference category, only middle passenger class is significant. So middle class passengers have significant lower chances of survival than upper class passengers. The last difference is that the control variable *age* is no longer significant, indicating that older passengers did not have a disadvantage over younger passengers.

Table 2. Regression models of independent and control variables by survived (0/1).

	Model 1a		**Model 1b**		**Model 2**	
	B	SE	B	SE	B	SE
Prestige occ.	.149*	.004	.010	.073	-.132	.636
Caring occ.	-.147	.059	-.128	.090	-1.639	1.107
Physical occ.	.075	.070	.076	.052	.586	.411
Age			-.004*	.002	-.035	.016
Passenger class						
Upper (ref.)						
Middle			-.329**	.082	-2.821*	.761
Lower			-.266**	.090	-1.890	.675
Ticket fare			.000	.001	.002	.003
Constant	.101*	.014	492**	.117	.760	.883
R^2	.032		.100			
Pseudo R^2 (Nagelkerke)					.170	

* p < .05, ** p < .001, N = 305, tested one-sided.

Conclusion and discussion

The Titanic is the most well-known maritime disasters because the stories of true heroism and sacrifice appeals to a lot of people (Bijan, 2014). In this thesis we sought to unravel the survival of Titanic passengers to a greater extend, by investigating how the chances of survival depended on the occupation of male passengers. We decided to exclude women and children form our research. First of all, children are not active in the labour market and thus we cannot look at their occupation. Secondly, women on board of the Titanic had an exceptional high chance of survival because of the adherence to the WCF norm (Frey et al., 2010a, 2010b, 2011; Elinder & Erixson, 2012). Women were saved first and therefore did not rely on their own resources in order to survive the disaster in contrast to male passengers who did rely on their own resources. Sociological theory assumes that individuals use their resources in order to better their life-outcomes (Abrahamson, 1981; Ultee et al., 2009). On board of the Titanic the better life-outcomes were to survive the disaster. This thesis thus links to the sociological question of inequality, since different resources could lead to different chances of survival on board of the Titanic. In order to determine the resources of male passengers we used occupation as a measurement. We hypothesized that different occupations enhance different resources. Therefore, we classified occupations of male passengers into three dimensions of occupation, respectively whether a passenger had a prestigious occupation, a physical occupation or a caring occupation. These three variables of measuring occupation distinguish different resources that might enhance or obstruct survival of the Titanic disaster. Since the Titanic dataset does not contain information about occupation of passengers, we randomly sampled half of all male passengers per passenger class and read their biographies to extract their occupation. We conducted linear regression analyses and a logistic regression analysis, but as explained before we will only discuss the outcomes of the linear regression analyses.

Discussion of results

Results show no evidence to assume that occupation influences that chance of survival of male passengers on board of the RMS Titanic. We find a significant effect of having a prestigious occupation on chances of survival in model 1a, but when including the control variables in model 1b this effect disappears. This might be due to the high association found between having a prestigious occupation and the control variable passenger class. Most passengers with a prestigious occupation travelled upper passenger class, which is shown in appendix A, to a lesser extend in middle passenger class, and almost none in lower passenger

class. In model 1b the control variable passenger class is significant, meaning that middle and lower passenger class men have lower chances of survival than upper passenger class men. This is in line with results found in previous research (Frey et al., 2010a, 2010b, 2011; Elinder & Erixson, 2012). We included passenger class as a measure of access to lifeboats, since the deck plan of the Titanic show that upper passenger class was positioned closer to the lifeboats. With finding the significant effect of passenger class and no effect of prestigious occupation our interpretation of access is supported. I suggest further research into the mechanisms underlying the effect of passenger class on the chances of survival. A proposal is to investigate the access of lifeboats passenger class gives to a greater extend. This is possible since the dataset shows the cabin number of a passenger, and the deck plans include the position of those cabins and the nearest exits, lifeboats and so on. In this way, you can control if passengers who were saved by a lifeboat got into the lifeboat closest to their cabin, and what lifeboats had the most or the least cabins in close surrounding. Even the order of releasing of the lifeboats is available, meaning that one can investigate if passengers who missed the closest lifeboats then made it in time to embark another lifeboat or if they had to overcome to many obstacles to get there. The results also show no significant effect of ticket fare on the chances of survival, meaning we find no evidence that money is a resource that is used on board of the Titanic in order to survive. However, we must notice that ticket fare and passenger class are highly associated as well, meaning that higher passenger classes, and thus passengers with prestigious occupations, paid more for their ticket on board of the Titanic. The high association between passenger class and prestigious occupations as well as ticket fare, implicate that we were not able to look into the differences of survival within passenger classes. Further research can attempt to investigate the differences in chances of survival within passenger classes more accurately. In this thesis passenger class now holds to many possible mechanisms of survival, namely prestige, economic resources or access, so it is important to investigate passenger class in greater detail in order to see what mechanisms and resources are used.

We find the assumed negative direction of having a caring occupation on the chance of survival, although this effect is not significant. Observing appendix A we see that only 19 passengers out of the randomly sampled 305 are coded as having a caring occupation. It could be due to the small amount of passengers with a caring occupation that we find no effect, although we can assume that the randomly selected cases are an accurate representation of all male passengers. An explanation for not finding an effect of caring occupations could be

because of the gender differences in occupation. Most caring occupations, such as nursing and social work, are seen as traditionally feminine occupations which makes it less likely for a man to have one of these occupations (Shinar, 1975). In other words, most caring occupations are executed by women instead of men, apart from the higher prestige occupations such as doctors and ministers. It is possible that by excluding women from this thesis no effect of having a caring occupation is found. Further research could investigate other disasters that did not have the strong WCF norm to see if our assumed effect is found by taking women into the research.

We also found the assumed positive direction of having a physical occupation on the chance of survival, although this effect is not significant either. Again, having a physical occupation is highly associated with passenger class. Most passengers coded as having a physical occupation travelled lower passenger class, and less higher passenger classes. Hence, further research also needs to look into the differences in chances of survival within passenger classes, because this thesis was not able to accomplish this. However, we find an effect of age, meaning that older passengers have lower chances of survival than younger passengers. This finding supports Kirkwood & Austad (2000) who stated that individuals lose their physical strength as they age, and thus become less capable of saving themselves.

Simplifications

In this thesis we simplified the conditions of the sinking in order to answer our main question. A first simplification is that we assumed that all male passengers had equal situations in which they could use their resources. The situations between the passenger classes however were not equal. More lifeboats were located near the upper passengers class decks, meaning that all upper passenger class women and children could have been in lifeboats earlier than other women and children, and thus these upper passenger class men had less competition with each other because they had more spaces in lifeboats to divide between them than other passenger classes. The decks of upper class passengers were closed for other passenger classes for certain amount of time during the sinking, resulting that lower passenger classes had to divide not only less lifeboats between them, but also more passengers to divide them with; because of the larger amount of passengers traveling lower and middle class.

A second simplification is that we assumed that the circumstances of male passengers were the same during the time of sinking, so all passengers had the same conditions and chances to get into lifeboats at the beginning of the sinking as well as at the end of the sinking. This however might not have been the case. The chances of getting off the Titanic safely changed

constantly, and thus different resources might have been helpful as the time of sinking increased. For example, having a prestigious occupation could be more useful in the beginning of the sinking when there are more lifeboats because passengers could then use their social status to get into lifeboats. As argued before, passengers with high prestige are more likely to travel upper passenger class, and therefore were more likely to have earlier and more direct access to information which could result in faster action, or more help of other passengers to get into lifeboats (Frey et al., 2010a, 2010b, 2011; Elinder & Erixson, 2012; Goodman & Careis, 1993; Hall, 1986). But in order to use their prestige as a resource to get into lifeboats, the lifeboats must have been available. Physical strength however might be important during the full time of sinking, because being stronger or faster enables a passenger to get a higher chance of getting into a lifeboat by fighting themselves into it. In the final minutes when all lifeboats were gone and passengers started falling into the cold sea, physical ability might be more of an advantage than having prestige or being a caring person, because it enables this passengers to last longer in the water and maybe survive until a lifeboat came to the rescue. On the other hand, having a caring occupation could have been more of a disadvantage in the beginning of the sinking, since there were more others to save, although it can also be argued that so many passengers did not survive the sinking and thus during the sinking no altruistic passenger was ever done saving others.

A final simplification is that we assumed that occupation is an accurate measurement of the resources a passenger on board of the Titanic has, while occupation does not necessarily cover this. First, some passengers were involved in voluntary work while their actual occupation cannot be coded as a caring occupation. An example is a passenger involved in voluntary work for the church, but working as a miner and thus coded as having a physical occupation. Secondly, we assumed that the passengers chose the occupation that suited their interests and personality, and thus enhanced their characteristics. This is a logical assumption to make nowadays but less so for the beginning of the 20th century. Intra- and intergenerational mobility were low in that time, meaning that individuals were less able to choose the occupation that suited them the most (Maas, 2014; Van Leeuwen & Maas, 2010; Graaf & Kalmijn, 2001). They were more dependent on what their father's occupation was or whatever work was available (Van Leeuwen & Maas, 2010; Graaf & Kalmijn, 2001). So the resources gained through occupation might not necessarily be the only resources passengers could have had and used to increase their chances of survival.

Coding

For coding the occupations of passengers into our three dimensions we used the stratification of occupations by Argyle (1994). It might be the case that we did not find effects of occupation on the chances of survival because of the used stratification. Occupations could have had different level of prestige in the early 20th century than in the late 20th century. By using a different stratification, different classification of occupation could have occurred, and further research could investigate this to a greater extend.

A second shortcoming of the coding is that we coded the three variables of occupation as dichotomous variables. Either the passenger had a prestigious occupation, a physical occupation or a caring occupation or not. In this way a lot of information about occupation and its resources is lost. Further research could measure, for example, a prestigious occupation more accurately by distinguishing more categories, such as occupations without prestige, moderate level of prestige and high prestige. The same could be done with the other two dimensions of occupation. It is assumable that for example a doctor has more prestige than a professional athlete, and thus could use the resource of having prestige to a further extend. Since we coded into dichotomous variables we cannot distinguish the effect of the level of prestige, physical or caring resources on the chances of survival.

Conclusion

In this thesis we did not find evidence to support our hypothesis. This does not mean that occupation does not influence the chances of survival in life-threatening situations. When an effect of occupation is found this would mean that the choice people make for an occupation will be of greater importance, since this could even affect survival chances in life-threatening situations. This thesis was a first attempt to study the role of occupation in life-threatening situations and therefore had a lot of restrictions. Further research could study the role of occupation more accurately. We also have to bear in mind that the Titanic was an extraordinary maritime disaster. The strong adherence to the WCF norm decreased the chances of survival for male passengers and increased the chances of survival for women and children to an extreme high. By investigating other maritime disasters that did not have the adherence to the WCF norm, women can be taken into account and therefore study the role of occupation to a further extend. The question of inequality in life-threatening situations is an important one to ask, because this will give more insight in what resources increase an individual's chance of survival.

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Appendix A

This appendix describes the coding of occupation in greater detail. The frequency of passengers with a prestigious, caring or physical occupation is shown in table A.1. As already described in the method section, the values ascribed to one of the three variables of occupation were labelled with either 'green' or 'orange'. Green meant that we were sure of the categorisation and orange meant that we were in doubt. An example of an 'orange' labelled occupation is *businessman*. In the stratification of Argyle (1994) being a businessman can be seen as a prestigious job. We decided to categorized all businessman occupations as a prestigious occupation, although we are aware that a businessman who runs a famous and expensive hotel is not comparable with a businessman who just begun running his own business. Because we could not always deduce the kind of businessman a passenger was, we thus decided to code all of them as a prestigious occupation. Another example is the occupation *store owner*, since it was not always clear whether the store was successful or not. However, even though it was not clear whether the store was successful in the society, being the owner of a store gives a man high prestige within the store. It can therefore be assumed that a man who has a high prestige within his job and a man who have a high prestige within society, share the same kind of resources in terms of traits an skills, because they are both used to being in charge of others. Therefore, we also categorized store owners as prestigious occupations.

Some occupations did not fall in our categorization of occupation. These occupations were labelled as 'blue' and served as the reference category. Examples are *chauffeurs*, *taxi drivers*, or *machinists*. According to the stratification of Argyle (1994) these occupations can be seen as semi-skilled jobs and score very low on the prestige level. Since a man with these kind of occupations does not require physical strength, and do not really have to take care of others, it can also not be seen as a physical or caring occupation.

Some passengers did not have an occupation, but were referred to as *students* in the biographies. Since being a student is not the same as having an occupation, we did not coded these passengers in one of the three categories. However, we realize that a student could have had the same resources as the occupation he is studying for. For example, it is likely that a medical student has the same caring traits as a licenced doctor. We therefore choose to label all the students with an orange colour, and only coded them if the occupation they studied for was made clear. Otherwise we randomly selected another male passenger. Table A.2 gives an overview of the frequency of our 'green', 'orange', and 'blue' labels.

Table A.1. Frequency of male passengers with a prestigious, caring or physical occupation per passenger class

	Prestigious occ.	**Caring occ.**	**Physical occ.**
Upper passenger class	65	7	16
Middle passenger class	19	7	31
Lower passenger class	8	5	128

Table A.2. Frequency of occupations with the label ‘green’, ‘orange’ or ‘blue’ per passenger class

	Green label	**Orange label**	**Blue label**
Upper passenger class	64	9	0
Middle passenger class	48	4	21
Lower passenger class	109	40	12

Table A.3 gives a general overview of *all* occupations we came across, their frequencies and the occupational label we gave them. Some occupations fit into two categories and were therefore also labelled accordingly. For example, a *famous athlete* can be seen as a physical occupation because of the sport, but also as a prestigious occupation since the athlete is well known and popular due to the sport. Also the occupation *doctor* fits within two categories. On one hand a doctor can be seen as a caring occupation, since a doctor literary takes care of others, and on the other hand this job also scores high on prestige in the stratification of Argyle (1994).

Table A.3. Frequency of all occupations and their label

Occupation	**Frequency**	**Occupation variable**
Assistant in a store	8	none
Attorney	1	prestige
Baker	2	none
Blacksmith	3	physical
Bootmaker	1	physical

Bricklayer	1	physical
Businessman	28	prestige
Butler	4	caring
Cattleman	2	physical
Carpenter	6	physical
Chauffeur/cap driver/machinist	8	none
Colonel	4	physical/prestige
Diamond trader	2	prestige
Doctor	2	prestige/caring
Domestic servant	2	caring
Factory worker	6	physical
(Famous) musician/artist	8	prestige/none
Famous athlete	5	prestige/physical
Farmer	28	physical
Fireman	3	physical
Gardener	3	physical
General labourer	46	physical
Hotel owner	7	prestige
Machinist	4	physical
Manager	4	prestige/none
Mechanical engineer	4	prestige
Merchant	2	none
Military/soldier	8	physical
Miner	12	physical
Painter/Decorator	7	physical

Politician	4	prestige
Priest	4	prestige/caring
Property developer	7	prestige
Servant	4	caring
shoemaker	3	none
Stockbroker	5	prestige
Stone cutter	6	physical
Stonemason	5	physical
Store owner	12	prestige
Student	5	none
Toolmaker	10	physical
Wood Carver	5	physical
Work for church (voluntary)	9	caring
Writer/Editor/Journalist	4	none
Yachtsman/Seaman/Sailor	8	physical