# Population Ageing and the Attitude Towards the Elderly.

A new insight in different aspects of population ageing influencing the attitude towards the elderly: evidence across the world.

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# Abstract

The populations of many countries are ageing expeditiously. This has led to many social and economic implications: increasing pressure for pension, health care and social care systems. These implications influence the society as a whole. The aim of this thesis is to globally explore the relationship between aspects of population ageing and the attitude towards the elderly. Central to the discipline of population ageing is the concept of ageism. Ageism indicates the process of stereotyping and of discrimination against the elderly because of their age. In this thesis, different hypotheses are established based on the ageism theory and OLS regressions are performed on different country-level and individual-level variables that are expected to influence the attitude towards the elderly. On county-level, these variables are the share of the elderly, the elderly active, and public spending (pension and health care). On individual-level, these variables are again public spending (pension and health care), income, employment status, religion and ethnicity. From the regressions it is concluded that a higher share of the elderly does not lead to a more negative attitude towards the elderly. Individual-level variables did have an influence on the attitude. For example, individuals with higher income or with an Eastern ethnicity have a more negative attitude towards the elderly. A limitation of this thesis is that only one wave could have been included in the OLS regressions. Therefore the regressions, especially the country-level regressions, measure correlation instead of a causal relationship.

# Contents

# 1

# Introduction

It is a worldwide phenomenon: the ageing population. A development where the relative size of younger and older groups in the population changes over time. It takes place in almost all the countries in the world, but the magnitude and speed differ. The population has been ageing for years in developed countries, but is more recent in developing countries. In this thesis, the effect of the ageing population on the attitude towards the elderly will be examined. Before going into this mechanism, it is essential to explore the aspects of the ageing population. An ageing population is characterized by a growing number and percentage of older and very old people. Because of this changing balance between the scope of different age groups, there are discussions about the provision and payment of care (Tinker, 2002). The definition of older people is not that pronounced. In some parts of the world it is 60 and over, and in other parts it is 65 and over. Elderly people of 80 years or older are characterized as very old.

There are different reasons for the ageing population to be so prevalent. Increased longevity, decreased mortality, declining fertility and immigration all play a role in this phenomenon. In addition, the baby boom after The Second World War contributed to the ageing population. In 1990, the share of people 60 years or older worldwide increased to 9.2 per cent. In 2013 this number increased to 11.7 per cent and this number is expected to keep growing to 21.2 per cent in 2050 (UN, 2013). The ageing population has a considerable socio-economic impact. The number of working individuals per older individual (old-age support ratio) is already low, but will decrease even more. This leads to more financial weight on assistance systems for the elderly. While people live longer, the non-communicable disabilities and diseases increase with the ageing population, resulting in more fiscal pressure on health care systems (Tinker, 2002). Because of the increasing fiscal pressure connected with population ageing, it can be expected that the attitude towards the elderly will decrease. In this thesis, the changing attitude as a result of population ageing is measured, together with other country-level and individual-level variables influencing the attitude. The attitude towards the elderly is an interesting and important topic to study, because in most welfare states, policies accommodating the elderly are based on solidarity between generations. If a more negative attitude is the trend, policies based on solidarity lose support. To maintain a functioning welfare state, support for policies and thus a positive attitude towards the elderly is crucial.

Within the ageing population, there are demographic differences. First, most of the older and oldest people are women and simultaneously, women experience disability earlier and more severely. Second, worldwide, 40 per cent of the individuals aged 60 years or older live alone or only with their

spouse, but the more developed a country is, the more common it is for the elderly to live independently. Next, the labour force participation of the elderly in developing countries increased, especially for men. Contrary, in developed countries, the participation rate of the elderly is low. Finally, in developed countries, public financial transfers are an important element of old age support (UN, 2013).

### 1.1 Research Question

The ageing population has notable effects on socio-economic factors. As mentioned by Tinker (2002), it can have implications for society and for attitudes towards the elderly. Population ageing is associated with negative stereotypes that the elderly are dependent and a burden to society. Besides, the elderly are identified as wealthy, selfish and uncaring (Bytheway, 1995). The negative association of the elderly was first introduced by Robert Butler in 1975 with the term *Ageism*: "A process of systematic stereotyping of, and discrimination against, people because they are old, just as racism and sexism accomplish this for skin colour and gender."(Butler, 1989:139).

Another implication for society is the payment of services for the elderly as result of the falling support ratio. This trend has effects on pensions and dependency policies, because the working population pays for the benefits of the retired population. Because the elderly contribute little but have big claims on the welfare state, there will be a lot of transfers from young to old. Overall, 40 to 60 per cent of all public expenditures is responsive to the structure of age cohorts in the population (Visco, 2001). This results in more spending on pensions as a percentage of GDP. In addition, the second biggest public expenditure on the elderly is health and long-term care. With information on health spending per age cohort, as a result of the ageing population, health spending on the elderly as a percentage of GDP will increase (Visco, 2001). On the other hand, the participation rate of the elderly in developed countries is low. The reason for this low rate is the relation between employment and the retirement age and the availability of pensions. When pension benefits are generous and do not have a limited coverage, employment among the elderly will be lower (Tinker, 2002).

Taking this all into account, the ageing population has major social and economic implications for the whole population. The term *ageism* indicates that the elderly have a negative association and this negative view can be strengthened with the increased ageing population and increased costs. In this thesis, the relationship between the share of the elderly within a country and the attitude towards the elderly is examined to find evidence for a changing attitude towards the elderly with population ageing. Only the attitude of individuals younger than 65 years old on individuals older than 65 will be included. The research question central in this thesis is: *"To what extent do different aspects of population ageing influence the attitude towards the elderly?".* This research question is divided in two sub-questions: *"To what extent do country-level variables of population ageing influence attitude*

*towards the elderly?"* and *"To what extent do individual-level variables of population ageing influence the attitude towards the elderly?".* In this thesis, fiscal motives for a more negative attitude are distinguished. This distinction is based on the socio-economic implications of the ageing population mentioned, that attitude towards the elderly can be influenced by a financial aspect. For example, public expenditures for the elderly differ within countries, so the attitude towards the elderly can depend on the amount of public expenditures on the elderly within a country. Also individual characteristics were observed, for example level of income because this can also influence the burden an individual experience due to population ageing. By doing this, the mechanism behind attitudes towards the elderly can be clarified: whether ageism is strengthened with country-level or individual-level variables.

Besides measurements on country-level, microdata will be used to study what characteristics influence the attitude towards the elderly. Population ageing may influence the attitude towards the elderly, but the attitude may also be affected by personal characteristics of population ageing. The purpose of this thesis is therefore not only to investigate the relation between ageing population or share of the elderly and the attitude towards the elderly, but also to explore the influence of personal traits on the attitude.

### 1.2 Justification

The high share of the elderly and the ageing population are considered a social problem and a lot of research have been conducted on the topic. Because of this worldwide demographic trend, it is an important concern how countries will consider, treat and accommodate the elderly (Olshansky et al., 2011). Different relations between individual-level characteristics and the attitude have been examined. North and Fiske (2015) conducted a research on the attitude towards older individuals in Eastern and Western cultures. The authors found that, despite the contrary beliefs that Easterners have deeper respect for the elderly, Eastern cultures have a significantly greater negative attitude towards the elderly. The importance of demographic challenges and attitude towards the elderly is underlined, not only in the field of psychology, but also for economic developments (North & Fiske, 2015). The same results were found by Lou et al. when comparing the attitude towards the elderly in the United States and China, individualism versus collectivism (Lou et al., 2013). Their paper was also based on ageism and the prejudicial beliefs against older people. They found that Chinese students have a more negative attitude towards the elderly than American students. There is also a lot of research on the ageing population and the attitude of nurses towards the elderly. An example is the research of Liu et al., where it was found that nurses tend to be slightly less positive towards the elderly since 2000, but attitudes strongly differ (Liu et al, 2013). A Dutch research by Bleijenberg (2012)

showed the opposite effect and finds an more positive attitude of nurses towards the elderly between 2005 and 2009.

The relevance of examining attitude towards the elderly is highlighted in these researches mentioned above. In this thesis, the focus will not only be on the difference between the Eastern and Western cultures. The groups being compared in this thesis on country-level are the countries with a high share of the elderly and countries with a low share of the elderly. The focus is not only on cultural differences but also on demographic differences. Not only cross-cultural but also cross-demographical.

Beside social implications, population ageing also result in fiscal and economic implications. The elderly have different needs than younger cohorts. The elderly work less, save less, need more health care and (in most countries) depend on public pensions as a big part of their income (Bloom et al., 2010). The Australian Productivity Commission examined the economic implications of an ageing Australia. In 2044, it is expected that a quarter of the Australian population will be 65 or over. This results in a lower labour force participation rate because this rate declines for people aged 55 years or older. As result of the population ageing, GDP per capita will decline with 1.25 per cent per year, while on the other hand, government expenditures are expected to rise. These consequences of declining GDP and increasing government expenditures are not only for Australia, but for most countries facing population ageing. To reduce this fiscal pressure, several policy measures are needed, the sooner the better (Productivity Commission, 2005). But according to Bloom et al. (2010), there are factors that imply that population ageing will not slow down economic growth. Despite the lower labour-force participation and lower savings rates as result of population ageing, the authors expect only moderate declines of economic growth. The negative effects of population ageing will be compensated by behavioural responses, higher labour-force participation among women, and policy reforms such as an increase in the retirement age (Bloom et al., 2010). The ageing population is associated with higher health expenditures, because the elderly require more health care (Bloom et al., 2010). According to the European Union's Economic Policy Committee (2010), population ageing will intensify public pensions and health expenditures and stresses the importance of a balance between future public expenditures and tax revenues. On the other hand, the elderly are healthier than in the past and can work longer and more productively. Different researches show that there is no or little relationship between age and an individual's health care expenditure. Those studies suggest that the factor that does influence health care expenditures is the closeness to death (Werblow et al., 2007).

Taking this all of together, the population ageing has three types of effects.

1. Labour market effects: Productivity of the elderly is lower compared to younger workers. Nevertheless, the elderly are healthier than in the past and can work longer and more

productively. Overall, the elderly work less than the average population and rely on pension plans.

2. Budgetary effects: The elderly depend on public pensions and other policies. With a higher share of the elderly, the burden on these policies increases. The elderly are also often associated with higher health care costs, while different research, exemplified in the next chapter, refute this relation.
3. Societal effects: There is a social difference between older individuals and younger individuals, as Bleijenberg (2012) showed in his research. This seems important in the sociological field, but is also relevant in the political debate. The welfare state is based on the idea of solidarity. When the share of the elderly increases and more individuals rely on public pensions and need more health care, they receive benefits based on solidarity. If the level of solidarity goes down as result of population ageing, the pressure on the welfare state and its different social programs increases.

This thesis tries to provide new insights on how population aging influence the attitude towards the elderly more broadly and how this affects budgetary and societal aspects. This thesis is scientifically relevant and contributes to Public Administration as an area of knowledge by testing the ageism theory on not only individual-level but also on country-level. Ageism is a theory that suggest stereotyping of and discrimination against older individuals. It is examined whether population ageing has an impact on the attitude towards the elderly, and what individual aspects influence the attitude. There has been research done on factors influencing the attitude, but this thesis is innovative and relevant by being one of the first measuring the attitude by using a large global data set. This thesis is also relevant for societal reasons because of the societal effects of population ageing. A lot of the elderly policies rely on the solidarity principle, working population (younger individuals) pay for the retired population (older individuals). Solidarity is a valuable pillar in the welfare state. If this thesis shows a more negative attitude because of population ageing, this indicates a declining solidarity between generations. This has an impact on different policies and the welfare state. This thesis can contribute to solidarity policies and recommend policy changes to improve solidarity if needed to maintain support for the welfare state. Due to data restraints, this thesis cannot provide a comprehensive indication of attitude towards the elderly over time.

### 1.3 Reader's Guide

This thesis is composed of five themed chapters. To more broadly explicate the theory behind the mechanism studied in this thesis, different theories about ageing population are displayed in chapter 2. In this chapter, ageism is further discussed and tested on how these perceptions of the aged fit

within the ageing population. Within this basis, evidence is presented for eight different hypotheses regarding cross-demographical and cross-individual perceptions of the aged. To investigate which variables influence the attitude, small-N and large-N cross-sectional regressions will be conducted. The third chapter is concerned with the methodology used for this thesis. The conceptualization and operationalization of the relevant variables, selection of cases, gathering of data and unit of analysis are discussed in this chapter. The results of the data analysis and regressions are discussed in chapter four. The thesis will conclude with chapter five which provides a summary and implications of the findings, gives advice for policymakers and suggests directions for future research. The data on countries included in this thesis are listed in the Appendices.

# 2

# Theory

The mechanism behind this research is called ageism and it explains the socio-economic consequences of an increasing share of the elderly. This concept ageism was introduced in 1969 by Robert Neil Butler and explains discrimination against the elderly. Ageism is a combination of three factors: the prejudicial attitude towards the elderly (combined with the ageing process), discrimination against the elderly and on institutional design that maintains stereotypes about the elderly (Butler, 1969). With the share of the elderly growing, the ageism concept becomes more important. The elderly are often associated with higher socio-economic costs for society and the population ageing is often pictured negatively. In many countries, benefits pension system of the elderly is financed by a pay-as-you-go system. When the share of the elderly increase, the working population needs to contribute more through tax to pay for the benefits of this growing share of the elderly. Also, the costs of health care will probably increase when the share of the elderly increase (Barr, 2012). To summarize, the mechanism behind ageing population and a high share of the elderly leading to a more negative attitude towards the elderly starts with ageism. This concept explains the initial negative attitude towards the elderly. But now with the ageing population, the attitude may become more negative because of the gloomy picture of higher share of the elderly, which results in increasing socio-economic costs.

## 2.1 Ageism

Ageism can be compared to sexism and racism, stereotyping based on interpersonal categorization (Kunda, 1999). Unlike sexism and racism, the study on ageism is underdeveloped. Less research is conducted and fewer publications in journals are published on ageism (Bugental & Hehman, 2007). Despite the lack of research on this topic, evidence for ageism is strong. Prejudgement based on age can have implications on the quality of life for that age group, especially for the elderly (Butler, 1969). These implications can be negative: the elderly have fewer economic and social conveniences, a lower self-esteem and intensified physical health problems. Implications can also be positive: more wisdom and happiness and practical benefits like discounts, housing plans and tax breaks (North & Fiske, 2012).

Ageism has a broad diversity of societal facets and is argued to be more rampant than racism or sexism. For example, ageism occurs in the health sector. Older people often receive less treatment and health complaints are treated as being a part of the ageing process (Bowling, 2007). Ageism also appears in the workplace. Older workers are often ranked lower than younger workers, in spite of several papers showing that productivity does not necessarily decrease with age (North & Fiske, 2012). A third societal facet where ageism appears is within their own family or nursing homes. In addition,

the elderly are often underrepresented on media platforms. Ageism also knows positive aspects. A lot of health care goes to the elderly, families can be a social aspect in the lives of the elderly and the elderly organize themselves within elderly groups (North & Fiske, 2012). These contradicting findings make the term ageism complex, especially for public policies. Government trying to fight ageism by helping the elderly financially can simultaneously reinforce ageism by emphasizing dependency of the elderly (Binstock, 2010).

These stereotyping and discrimination of age groups can become a self-fulfilling prophecy (Berger et al., 2014). The stereotypes are internalized by the elderly, they start self-stereotyping. They start forgetting more, feel sick and unhappy, or feel less productive, resulting in lower confidence (Chen & Bargh, 1997). Positive movements provide hope to combat these negative stereotypes of the aged. Studies have highlighted the importance of having positive self-perceptions. This generates a lot of benefits, such as better health and longevity (North & Fiske, 2012). Also resulting in more positive view towards the elderly is the increased research on benefits of getting older. Older people are wiser, more rational and emotionally healthier (Williams et al., 2006). Regardless of these positive developments, negative prejudiced assumptions about the elderly being irrelevant are still prevailing on modern societal level.

### 2.2. Extant Social-Psychological Theories

The broad concept of ageism is complicated and can have different aspects and effects. In the next section, theories and possible effects of ageism will be formulated. Predictions follow based on these theories and effects. Four theories explaining ageism at different levels define why negative assumptions exist.

#### 2.2.1 Individual-Level Theories

Individual-level theories explain age discrimination as guarding your own ego (North & Fiske, 2012). The elderly tend to identify more with younger individuals when they are confronted with their own limits. On the other hand, younger individuals identify more within their own age group and repel the elderly. By pushing away older individuals, the younger boost their own self-esteem. Individual-level theories explain the negative attitude towards the elderly among younger and middle-aged individuals as a result of negative attitude towards barriers of being older and dying (Montepare & Zebrowitz, 2004). Based on these individual-level theories, the prediction is that younger and middle-aged individuals (approximately 16-50 years old) have a more negative attitude towards the elderly than older individuals (approximately 50 years and older).

### 2.2.2 Interpersonal Theories

These theories directly focus on the physical appearance of older individuals. Different effects support these theories. Negative halo effects state that the (assumed) unattractiveness of the elderly is linked to negative characteristics and capabilities (Langlois et al., 2000). Social affordance effects teach children that certain traits (wrinkles, bended posture) represent an unpassionate individual. These different effects point out the devaluation of the elderly only for their different uncontrollable physical characteristics leading to stereotyping and a ageist view towards the elderly.

### 2.2.3 Evolutionary Theories

These theories base undervaluation of the elderly on evolutionary thoughts. Younger and healthier individuals are preferred over older and unhealthier individuals. Younger and healthier individuals have higher chances to survive and to reproduce. In addition, an ageist view towards elderly increase when individuals feel unsafe for contagious diseases (Duncan & Schaller, 2009).

### 2.2.4 Sociocultural Theories

Modernization has caused a broad evolution of ageism, portraying older individuals as irrelevant for the whole society. There are different causes for this, the introduction of printing press (decreasing the elderly person's role as wisdom-sharers), industrial revolution (young and adaptable workers are more valued), improved education (higher share of young individuals is literate, knowledge of the elderly less important) and medical care (society needs to accommodate a large older population) (Nelson, 2005). In relation, the role of older individuals in society explains perspective on ageism. A big part of the older population is retired, and this leads to the prediction of a more negative valuation of the elderly nowadays than in the past. When concentrating on modern society, the stereotype content model shows that the elderly being characterized as a pitied social group: warm but incompetent (Cuddy & Fiske, 2007).

## 2.3 Ageing Population: Intergenerational Pessimism or Optimism?

The sociocultural theories tend to be pessimistic and illustrate that the elderly are irrelevant in the modern society. This pessimistic view is not the only view, the sociocultural perceptions of the elderly can change to more optimistic. The mechanism behind this is the increasing population ageing which changes the social structure of age. The central question is: how universal are these perceptions of the aged? The shift of social structure-based perceptions can be positive or negative. Older individuals are now portrayed as irrelevant, but because of the population ageing, they become more common and more visible in modern society. Simultaneously, this increasing older population lead to budgetary issues on health care and social security. Different generations might have different views on

generational rights. Younger generations might feel negatively affected by the population ageing because of budgetary pressure. To summarize, compared to a worldwide negative attitude towards population ageing, socio-structural approaches highlight intergenerational differences, age groups preferring their own generation. The next section illustrates these possible shifts as intergenerational pessimism and optimism (North & Fiske, ,2012).

### 2.3.1 Intergenerational Pessimism

Different empirical literature on ageism provide evidence for pessimism as a result of intergenerational interdependence. First, it can lead to r*esource threat* and competition over resources between generations. Because of population ageing, limited resources can lead to tension and prejudice between generations and especially from younger generations, when they financially have to take care of the increased older population. The younger population can suffer from the population ageing because of delayed retirement of the elderly or an increased amount of public benefits (Binstock, 2005). The second explanation for intergeneration pessimism is *benevolent prejudices* and builds on the resource threat. Different age groups are all dependent on the same resource pool as they live in the same society. When older individuals overstep barriers in the eyes of the younger ones, generational pessimism will occur. *Prescriptive stereotypes* also mentions this problem of older individuals intruding upon the domain of the younger groups, when older individuals do not shift away from society as they normally would.

Two predictions can be established based on the resource threat, benevolent prejudices and prescriptive stereotypes. The first prediction states that countries with a higher share of the elderly in their population have a more negative attitude towards the elderly. The second prediction describes that countries with more public spending on the elderly experience a more negative attitude towards the elderly.

Finally, *age progressions* illustrate different approaches as to why younger groups have negative feelings about older individuals and strengthen the predictions with evidence. As already mentioned, older individuals receive more public benefits. Research by Minkler (2006) reinforces this when stating that, despite the share of the elderly being less than a quarter of the total population, they receive 51% of government expenditures on social services. The population ageing increases the pressure on social services. A trolley experiment shows individuals more often sacrifice older individuals above other individuals (Cikara et al., 2010).

Age progression also delivers evidence for difference in perceptions between age groups. Younger groups are resistant when older individuals try to fit in. They want to preserve generational identity boundaries. The reason for this is maintaining self-esteem and group-level-esteem and hindering identity threat. They do not want to be associated with older individuals (Castelli et al.,

2009). The research of Bodner et al., (2012) illustrates that middle-aged men are more ageist than older individuals or women. This strengthens the predictions that different age groups have different attitudes towards the elderly.

### 2.3.2 Intergenerational Optimism

There is also evidence of research for intergenerational optimism. *Age-specific interests* emphasizes that different age groups can have same interests (Irwin, 1998). Additionally, resource threat does not have a big impact on generational pressure compared to unstable market forces and older people might be able to share resources with the young (North & Fiske, 2010). Similarly, health costs are not highly correlated with age and the population ageing (Zweifel et al., 1999). There are *improved elder images*. Population ageing leads to a bigger and more diverse pool of the elderly. This yields more circumstances for the elderly to increase their value in the perception of younger groups. The population ageing also leads to *increased contact* which can decrease prejudice and stereotyping. This effect increases when older individuals themselves are active in communities, for example when they go to church (Evans, 2011). A prediction based on this evidence about increased contact is that countries with an active older generation tend to have a less negative attitude towards the elderly.

## 2.4 Ageism and Share of the Elderly

How universal are these perceptions of the elderly? Are negative stereotypes more common in countries with a high share of the elderly? Or does the generosity of the welfare state play a role in attitude towards the elderly? This section continues on intergenerational pessimism and the predictions based on resource threat, benevolent prejudices, prescriptive stereotypes and age progressions. Two predictions were established based on these perceptions are that countries with a higher share of the elderly in their population have a more negative attitude towards the elderly and that countries with more public expenditures towards the elderly experience a more negative attitude towards the elderly.

Ageism has in particular significant effects in two sectors: employment and health care. Simultaneously, these sectors are both under pressure as result of the population ageing, increased socio-economic costs. Countries with a generous public policy towards health care and pension (more public expenditures) might experience even more pressure. The perceptions of intergenerational pessimism as a result of population ageing are divided in three categories: labour market, health care and welfare states.

### 2.4.1 Effects on the Labour Market

A few decades ago, policies that allowed the elderly to exit the labour market earlier were introduced. An example is the VUT-arrangement in the Netherlands in 1975. The motivation behind these regulations was to decrease the youth unemployment. Despite expectations, younger employees were unable to directly replace older employees. A lot of early retirement regulations were abolished after a few years (Beltzer & Biezeveld, 2004). Most countries still have regular public pension regulations for the elderly when they retire.

The population ageing has different effects on the labour market and on the public policies for the labour market, such as public pensions. The old-age dependency ratio increases dramatically and puts extra pressure on the working population. This is the result of the increased and retired older population but also of the declined labour force participation (Bloom et al., 2010). Not only the size of the working population is changing, but also is the structure. In Germany, the average age in the labour market will increase from 29 years of age in 2003 to 42.5 years of age in 2035. This change in age structure is a worldwide permanent change (Börsch-Supan, 2003). In turn, the changing age structure has effects on labour productivity. These changes mean that in 2035, the productivity of the labour force needs to be increased by 15 per cent to maintain the same level of production per capita as without the population ageing. A part of this increased productivity can neutrally be achieved but productivity increase can be wasted if older employees yield less productivity. Because of a larger older population, the demand for goods changes and jobs need to be reorganized. If pension, health and long-term care insurances are based on a pay-as-you-go system, the gap between gross and net earnings increases as a result of a drop in net earnings (Börsch-Supan, 2003). Additionally, the legal retirement age plays an important role in the labour force participation. In a lot of countries, the legal retirement age will gradually increase to lower the pressure on the younger workers and to decrease the gap between gross and net earnings.

For this thesis, especially the last two points are relevant. With a bigger group of the population being retired, the old-age dependency ratio increases and the tax burden on the working population increases. This has two implications which relate to the intergenerational pessimism assumptions: a larger part of the public expenditures as a part of GDP goes to the elderly and younger groups experience increased tax burden and end thus up with less net earnings. These empirical findings support the two predictions that countries with a higher share of the elderly in their population have a more negative attitude towards the elderly and that countries with more public pension spending on the elderly experience a more negative attitude towards the elderly.

### 2.4.2 Health Care

There are two opposing views on population ageing and the health care expenditures. According to several theories and authors, the ageing population causes an extensive increase in health care expenditures per capita and as a percentage of the gross domestic product. (Mendelson & Schwartz, 1993). Developments in technology and policy changes are crucial on reducing these expenditures. Longman already stated in 1978: "The first and primary cause of this crisis is the ageing of the population. Older people require much more health care than do the young… …As the elderly's share of the population increases, so too will the demand for health care" (Longman, 1978: 8).

Other authors call this relation between age and rising health care expenditures a myth. For example, Reinhardt (2003) admits that health care spending on the elderly is three to five times higher than on younger individuals. However, the ageing population is not the main reason for the increasing health care expenditures, since the ageing process is gradual. Also the 'red herring' theory does not find a relation between age and health care expenditures. In 1999, Zweifel, Felder and Meiers examined this relationship and the 'red herring' theory and found that the positive relation between health care expenditures and age is caused by the large number of older individuals being in their last 2 years of life. The impact of age on the growing expenditures is limited. It is not age that increases the expenditures, but the remaining years to live, independent of the fact whether an individual is 50 or 80 years old. The population ageing only shifts the expenditures to a higher age but expenditures per capita do not change (Zweifel et al., 1999). In 2007, this theory was revised. The authors found the same results but additionally, they concluded that for long-term care, population ageing might play a role. The 'red herring' hypothesis states that there is an effect of age on health care expenditures but this effect is insignificant. Most health care expenditures are not influenced by age and the population ageing but by closeness to death. It is not possible to measure this beforehand but the final years before someone dies are the most expensive years, independently from their age. However, for long-term care, the hypothesis does not hold and age and population ageing does play a role in that health component (Werblow et al., 2007).

Despite these opposing theories, it can be concluded that the population ageing does increase health care costs. Even though some claim this effect is negligible, on long-term care the effect is present. A critical remark is that there is no strong evidence population ageing is the *main* driver for the increase in health care costs. This results in the prediction that countries with more public health care spending on the elderly experience a more negative attitude towards the elderly.

### 2.4.3 Ageism and Welfare States

The amount of public pension spending and public health care spending depend on the generosity of the welfare state. Generous welfare states tend to have more public policies based on solidarity. Working/younger groups pay for non-working/older groups. With the population ageing, the former group becomes smaller, while the latter group becomes larger, increasing the tax burden for the working population. More fiscal transfers have to be made from young to old, putting pressure on the solidarity. For this reason, it can be expected that in countries with a lot of transfers from young to old, a generous welfare state, the attitude towards the elderly is more negative. This expectation can be divided in two predictions based on the earlier sections: effects in the labour market and in health care programs. The predictions are that countries with more public pension spending on the elderly experience a more negative attitude towards the elderly and that countries with more public health care spending on the elderly experience a more negative attitude towards the elderly.

## 2.5 Individual-Level Aspects

The predictions mentioned before are all country-level aspects that may influence attitudes towards the elderly. But there may also be individual-level aspects that influence the attitude. This thesis also tries to unfold several individual-level aspects.

The fiscal consequences of population ageing mentioned above can be experienced different among the population. Public programs, such as pensions and health care, are often facilitated with income taxes. Although tax systems differ worldwide, a few basic principles are applicable in almost every country. Income taxes are generally considered as a progressive tax, the proportion of the tax increases as the income increases (Harris, 2006). For this reason, high income individuals pay more tax and contribute more to public programs that facilitate the elderly. For individuals with a higher income, this might feel like they contribute a lot more to the older generation than lower income individuals. Therefore, it can be predicted that individuals with a higher income have a more negative attitude towards the elderly than individuals with a lower income. The same accounts for employed or unemployed individuals. Since unemployed individuals often do not pay income tax, they contribute less to public programs that facilitates the elderly than employed individuals. Hence, employed individuals might have a more negative attitude towards the elderly than employed individuals.

Beside the fiscal individual-level aspects, cultural and social individual-level aspects of population ageing can also influence the attitude. One aspect is the religion of an individual because some religions often highly respect the elderly because of their knowledge or life experience. Look at Abraham and Sarah, for example, in the Jewish spirituality of ageing. For the Jews, the elderly have a unique spiritually place in their tradition. Those who are wise enough can grow old, and that is a great reward (Bergman et al., 2013). When comparing different religions and ageism, Bergman et al. (2013)

concluded that Muslims are most tolerant towards their the elderly. According to the authors, religion plays a role in forming an attitude towards the elderly. It can be predicted that religious individuals have a more positive attitude towards the elderly. Also ethnicity can affect the attitude. As illustrated in the introduction, a lot of research has been conducted on differences between Eastern and Western cultures and their attitude. Different studies resulted in different findings. Eastern cultures are more collective and a deeper respect for the elderly is expected. Contrary, population ageing is a threat to the collectivist culture in industrialized regions, because the increase in share of the elderly threatens the traditional cultural expectations (North & Fiske, 2015). North and Fiske based their research on these contradictory effects of population ageing. To test these competing theories, the authors conducted meta-analysis and literature research including 23 countries and comparing East to West. They based their idea on the ageism theory and tested how universal the negative perceptions of the aged are. The authors found that, despite the contrary beliefs that Easterners have deeper respect for the elderly, Eastern cultures have a significantly greater negative attitude towards the elderly. The importance of demographic challenges and attitude towards the elderly is underlined, not only in the field of psychology, but also for economic developments (North & Fiske, 2015). The same results were found by Lou et al. when comparing the attitude towards the elderly in the United States and China, individualism versus collectivism (Lou et al., 2013). In their research, standardized surveys were conducted for Chinese and American college students. Their paper was also based on ageism and the prejudicial beliefs against older people. They found that Chinese students have a more negative attitude towards the elderly than American students. Because these findings are contrary to the theory, it is interesting to include this aspect in the thesis. Based on these recent studies, the expectation is that Eastern individuals have a more negative attitude towards the elderly.

### 2.6 On a Positive Note

Despite the ageing population probably leading to increased public expenditures, the effects on economic growth are modest due to behavioural and policy changes. For example, labour force participation among women increases and in a lot of countries a trend of increasing the legal retirement age is occurring. As result of these changes, the economic effects of population ageing can be diminished, especially in developing countries (Bloom et al., 2010).

### 2.7 Hypotheses

Based on this theoretical framework, four hypotheses on country-level and four hypotheses on individual-level can be established. The two main expectations are that country-level aspects and individual-level aspects influence the attitude towards the elderly.

From the theory, predictions were established that country-level aspects influence the attitude towards the elderly. These predictions are reconstructed into four hypotheses and the theoretical grounds for the hypotheses are summarized.

*Hypothesis 1: Countries with a high share of elderly people have a more negative attitude towards the elderly than countries with a low share of elderly people.*

This hypothesis is derived from the ageism theory and is based on intergenerational pessimism: the resource threat, benevolent prejudices and prescriptive stereotypes and age progression. Supported by labour market, health care and welfare state effects. Population ageing and a high share of the elderly in the population can lead to tension between generations and can increase ageism with more prejudices. This especially plays a role when the welfare state is generous and the younger generation pays for the older generation. The younger groups suffer from a high share of the elderly because of delayed retirement or a bigger gap between gross and net earnings. With a high share of elderly people in the population, the pressure on younger groups is higher and attitude is more negative.

*Hypothesis 2: In countries with active elderly people, individuals tend to have a more positive attitude towards the elderly.*

This hypothesis is based on intergenerational optimism: increased contact. Ageism can be reduced when there is increased contact between generations and when older individuals are active in communities.

*Hypothesis 3: In countries with high public pension spending, individuals tend to have a more negative attitude towards the elderly.*

The third hypothesis is also based on intergenerational pessimism: the resource threat, benevolent prejudices and prescriptive stereotypes and age progression. A high share of the elderly in the population puts a burden on the society when a country is a generous welfare state with a lot of public programs. With high public pension spending, a lot of transfers are made from young to old and the elderly depend on the working population. When the public pension spending is high, the fiscal burden put on the working population by the elderly is higher and this might lead to a more negative attitude towards the elderly. This fiscal burden can lead to an increase in ageism in countries with high public pension spending.

*Hypothesis 4: In countries with high health care spending, individuals tend to have a more negative attitude towards the elderly.*

The final country-level hypothesis is again based on intergenerational pessimism: the resource threat, benevolent prejudices and prescriptive stereotypes and age progression. A high share of the elderly in the population puts a burden on the society when a country is a generous welfare state with a lot of public programs. With high public health care spending, a lot of transfers are made from young to old and the elderly depend on the working population. Research has indicated that a lot of health care goes to the elderly and with information on health spending per age cohort, as result of the ageing population, health spending on the elderly as a percentage of GDP will increase. When the public health care spending is high, the fiscal burden put on the working population by the elderly is higher and this might lead to a more negative attitude towards the elderly. This fiscal burden can lead to an increase in ageism in countries with high public health care spending.

Beside predictions on country-level, the theory also provided ground to establish predictions on individual-level. These predictions are again transformed into four hypotheses and the theoretical grounds for the individual-level hypotheses are summarized.

*Hypothesis 5: Individuals with a higher income have a more negative attitude towards the elderly*

Public programs for the elderly are often facilitated with income taxes. Due to the fact that a lot of tax systems worldwide are progressive, high income individuals pay more tax and contribute more to public programs that facilitate the elderly. For individuals with higher income, this might feel like they contribute a lot to the older generation. This fiscal burden can increase the ageist view toward elderly of individuals with higher levels of income.

*Hypothesis 6: Employed individuals have a more negative attitude towards the elderly*

Unemployed individuals often do not pay income tax. They contribute less to public programs that facilitates the elderly than employed individuals. Employed individuals on the other hand do pay taxes and contribute to public programs for the elderly. This fiscal burden can increase the ageist views towards elderly of employed individuals.

*Hypothesis 7: Religious individuals have a more positive attitude towards the elderly*

Different religions have deep respect for older individuals because of their knowledge and life experiences. Studies have shown effects of ageism among different religions and concluded that different religions positively influence the attitude towards elderly. The high respect of different religions for the elderly can decrease ageist views towards elderly of religious individuals.

*Hypothesis 8: Eastern individuals have a more negative attitude towards the elderly*

A lot of beliefs state that Eastern cultures have a more positive attitude towards the elderly. But different researches projects have shown the opposite effect lately. For example, North and Fiske compared the attitude of Western individuals to the attitude of Eastern individual and found a more negative attitude towards the elderly among the Eastern individuals (North & Fiske, 2015). For this reason, it is interesting to include an ethnicity indicator in this thesis. Based on recent research of North and Fiske and Lou et al., ageist view towards elderly is expected to be higher when an individual has an Eastern ethnicity.

# 3

# Research Design

In this thesis, quantitative research methods are used to gain an extensive understanding of the central research question. The research goal is explanatory, with focus on identifying a general causal effect. The design is a combination of small-N and large-N and is focused on several cases. 59 countries and 70,504 observations from the World Values Survey, OECD and the World Bank are included in the research. Availability and reliability of the data was the main driving force of this choice. For different countries, the attitude of individuals younger than 65 towards the elderly will be calculated and linked to the share of the elderly in the countries and other independent variables. The final goal is to analyse whether the level of share of the elderly in a country influences the attitude towards the elderly in a country, or if other country-level or individual-level aspects of population ageing influence the attitude. The research is prospective because it focusses on a causal effect in the future and it is forward looking (Toshkov, 2016: 156). It focusses on the effect of causes; that is what kind of independent variables (causes) have an effect on the attitude towards the elderly (effect). It tests a specific relationship because the question is focused on estimating different potential causal effect (Toshkov, 2016: 160). Finally, the research is X-Y focused. The X is given, the different country- and individual-level aspects of population ageing and the Y is given, the attitude towards the elderly.

In chapter 3, the research design is justified. First, relevant variables are conceptualized and operationalized. An overview of the variables, observation level and operationalization is provided in table 1. Section 3.2 provides a discussion of the research approach and design. An OLS regression will measure the relation between the dependent variable and different independent variables. Section 3.3 elaborates on the case and data collection. This chapter concludes with a summary.

### 3.1 Concepts and Operationalization

The key concepts based on the hypothesis shape the different independent variables, aspects of population ageing, and the dependent variable, attitude towards the elderly. Based on the regression that tries to provide evidence for the hypotheses, the concepts need to be operationalized. This section will first illustrate the conceptualization and operationalization of the independent and dependent variable. Also the control variables that are included in individual-level regressions will be discussed as well.

The conceptualization of the dependent variable attitude towards the elderly is the perspective of how different (individuals in) countries see the elderly. It is an opinion about the older population. This

concept is operationalized within the data set of the World Values Survey. The following statements are used to measure attitudes towards the elderly (World Values Survey, 2012):

- Older people are not respected much these days;
- Older people get more than their fair share from the government;
- Older people are a burden to society;

The possible answers to these questions are on a four point Likert scale: (1) strongly agree, (2) agree, (3) disagree, (4) strongly disagree. To make a distinction between a positive and negative attitude towards the elderly, answers 1 and 2 are considered a negative attitude towards the elderly and answers 3 and 4 are considered a positive attitude towards the elderly.

The attitude towards the elderly is divided into two different variables in Stata based on the three questions. One variable, the regular attitude, includes all three the questions and one variable, the fiscal attitude, only includes question 2 and 3 to highlight the fiscal burden an individual might experience due to population ageing, increased public expenditures. These two variables are again divided into variables for country-level and for individual-level, resulting in four dependent variables: regular attitude on country-level, regular attitude on individual-level, fiscal attitude on country-level and fiscal attitude on individual-level. Differences between country-level and individual-level variables will be elaborated later on in this chapter.

The conceptualization of the first independent variable the share of the elderly is based on the definition of the OECD: “The elderly population is defined as people aged 65 and over.” (OECD, 2017). The share of the elderly is operationalized by the total share of people aged 65 and over in a country as percentage of the whole population. Samples of the data set of the World Values Survey are representative for a population aged 16 and over, so the share of the elderly in the data set is calculated as share of individuals aged 65 and over in a country sample as a percentage of the whole country sample (World Values Survey, n.d.). After comparing this share of the elderly variable in Stata with the real share of the elderly in countries, small differences were observed. This means the World Values Survey is not completely representative. This variable is still useable because the proportions are right and the balance between countries in Stata does not differ from the ‘real world’.

Ageism decreases when older individuals are active in communities. This variable is operationalized in the data set with the question if an individual is active, inactive or not a member of different organizations: church or religious organization, sport or recreational organization, art music or educational organization, Labour Union, political party, environmental organization, professional association, humanitarian or charitable organization, consumer organization, self-help or mutual aid group or other organizations. The elderly are considered active when they are an active or an inactive member in at least one of the ten organizations. Obviously, the elderly are considered not active if they are not an active or an inactive member in any organization.

Increased expenditures towards the elderly can increase ageism, thus increase the negative attitude. To measure expenditures on the elderly, public pension spending is used. This variable is conceptualized as benefits on a pension plan paid as a percentage of GDP. This can be compared to the public pension spending. Data and operationalization of this variable are retrieved from the OECD (OECD, 2017). This public pension spending variable measures the public pension spending in Stata per country in the year 2013. This variable is both measured on country-level and individual-level. On individual level, interaction variables and control variables are included to make a distinction between different individuals in countries.

The final country-level variable that needs more justification is health care spending. Data from the World Bank is used to conceptualize this data as public health expenditures as a percentage of GDP (world Bank, 2018). The variable is operationalized in Stata and shows the public health expenditure as a percentage of GDP per country in 2013. Like the public pension spending variable, this variable is both measured on country-level and individual-level. On individual level, interaction variables and control variables are again included to make a distinction between different individuals in countries.

The individual-level variables are income, employment status, religion and ethnicity. Also for the individual-level regressions, the attitude of individuals younger than 65 on the elderly is measured. Income is measured on a ten-point scale in which 1 indicates the lowest income group and 10 indicates the highest income group. A respondent had to classify his or her household including all incomes and transfers obtained. This resulted in a ten-step income variable in Stata. Employment is conceptualized as whether an individual is employed (1) or unemployed (0). This resulted in a dummy variable in Stata. Religion indicates the religion of an individual and is 0 if an individual is not religious. The different options in Stata are reduced to eight options: Catholic, Protestant, Orthodox, Jew, Muslim, Hindu, Buddhist or other. The final individual-level variable is ethnicity and indicates the ethnic group an individual belongs to. This variable is reduced to six options: Caucasian white, negro black, south Asian, east Asian, south-east Asian and coloured. The justification for different Asian options, is the contradicting conclusions of different research about Asian and Eastern cultures and attitude towards the elderly.

Three control variables are included in the regressions: age, gender and education. These control variables are included in the individual-level regression in the same way as the independent variable, but the interpretation differs. The specific relation between the control variables and the dependent variable is not relevant for this thesis, but by including them in the regression, their effect from the equation between the relevant variables is removed. The three control variables can influence the dependent variable, attitude towards the elderly. For example, older individuals tend to have a more positive attitude towards the elderly. Women are often illustrated as having more sympathy, which can lead to a more positive attitude. In their research, Bodner et al., (2012) conclude

that middle-aged individuals and men are more ageist than older individuals and women. Finally, better educated individuals may have better understanding and a more positive attitude towards the elderly (Lou et al., 2013). Table 1 below, presents a summary of the variables, the level of observation, the operationalization, the variable name and the sources from which they are obtained.

For the individual-level regressions on public pension and health care spending, an interaction variable is added for the age of a respondent. For the three variables, a mean variables was generated and that mean variable was centred by subtracting the mean from the original variable. In the regressions, the centred variables of the public pension spending and the public health care spending are interacted with the centred variable of age to show the interaction effect on the dependent variable.

Table 1: Summary variables country-level and individual-level

| Variables | Level of observation | Operationalization | Source |
|---|---|---|---|
| *Dependent variable* | | | |
| Attitude towards the elderly | Country/individual | Aggregation of 3 questions about the elderly: Older people are not respected much these days; Older people get more than their fair share from the government; Older people are a burden to society | World Values Survey |
| Fiscal attitude towards the elderly | Country/individual | Aggregation of 2 questions about the elderly: Older people get more than their fair share from the government; Older people are a burden to society | World Values Survey |
| *Independent variables* | | | |
| Share of the elderly | Country | Percentage of individuals 65+ per country sample | World Values Survey |

| | | | |
|---|---|---|---|
| The elderly active | Country | Individual of 65 years or older is an active or inactive member in at least one of the ten organizations | World Values Survey |
| Public pension spending | Country & individual | Benefits on a pension plan paid as a percentage of GDP | OECD |
| Public health care spending | County & individual | Public health expenditures as a percentage of GDP | World Bank |
| Income | Individual | Household income on a scale from 1-10 | World Values Survey |
| Employment status | Individual | Individual employed or unemployed | World Values Survey |
| Religion | Individual | Religion of individual: non, Catholic, Protestant, Orthodox, Jew, Muslim, Hindu, Buddhist or other | World Values Survey |
| Ethnicity | Individual | Ethnicity of individual: White, Black, Asian or Coloured | World Values Survey |
| *Control variables* | | | |
| Age | Individual | Age | World Values Survey |
| Gender | Individual | Male or female | World Values Survey |
| Education | Individual | Highest education attained on scale 1-9 | World Values Survey |

**3.2 Research Approach and Design: Quantitative Analysis**

Based on different aspects of ageism, a more negative or more positive attitude towards the elderly can be expected. Different country-level and individual-level variables play a role in the attitude towards the elderly and different hypotheses are established. Quantitative regression analysis tries to unfold the relation of these hypotheses and measures which hypotheses hold.

The data includes quantitative variables on different scales, from dummy variables to 1-10 scaled and non-categorized variables. The variables were incorporated into Stata in order to conduct a quantitative analysis using Ordinary Least Square (OLS) regressions (linear regressions). Quantitative OLS regression analyses are used to test the hypotheses and formulate an answer to the research question. A regression analysis is a statistical technique that estimates the relation between different variables and explains how the dependent variable changes when an independent variable changes. OLS tries to find the parameters that minimizes the sum of prediction errors squared (Toshkov, 2013). In this thesis, an OLS regression analysis is used to better understand how the country-level and individual-level independent variables are related to the dependent variable and to examine these relationships. The basic equation for the OLS regression analysis is presented in figure 1.

Figure 1: Basic equation for regression analysis (Toshkov, 2013).

**Variables**

$$Y_i = \alpha + \beta Q_i + \gamma A_i + \varepsilon_i$$

Dependent variable — Treatment variable — Control variables

An OLS regression tries to explain the dependent variable on the left with explanatory variables on the right. In this thesis, the dependent variable is the attitude towards the elderly and the country-level independent (treatment) variable are share of the elderly, active elderly people, public pension spending and public health care spending. The individual-level independent variables are again public pension spending and public health care spending and income, employment status, religion, ethnicity. Control variables are age, gender and level of education.

The type of regression used is a combination of small-N and large-N design. The justification why this design fits the research question is because the question tries to unfold a causal relationship. Large-N designs are in essence a comparative approach that uses information and proof from several cases to test a causal hypothesis (Toshkov, 2016). Small-N designs are more likely to measure a correlation instead of a causal relationship. The study is cross-sectional and it analyses data from different countries or individuals at one specific point in time. For country-level regressions, the attitude of individuals in different countries will be aggregated and averaged, so the attitude can be observed on a country-level. By doing this, the attitude towards the elderly of different countries can

be observed and linked to country-level independent variables. There are 59 countries included in the data set, so regressions on country-level result in 59 observations in general. A disadvantage of using aggregated country-level variables is that it yields less observations and individual characteristics are not accounted for. For this reason, also regressions on four individual-level variables were included.

For the regressions on individual-level, data is not aggregated and more observations can be reached. Data per individual is used for these regressions and this results in 70,504 observations. A disadvantage of a cross-sectional analysis is that it is not possible to include a fixed effects variable and a causal relationship cannot be guaranteed. Instead, regressions give coefficients for a correlation. This method is used nevertheless, because the questions that captures attitudes towards the elderly were introduced in wave 6 from the World Values Survey. There was no data available on the attitude towards the elderly in earlier waves. Attitude over time cannot be measured.

The effects of different variables on the attitude towards the elderly is tested by running four regressions on country-level and six regressions on individual level. The steps for conducting the OLS regressions are the same for both levels, although they differ in number and character. Another difference is that on individual level, control variables and an interaction variable are included. Chapter 4 presents the results from the OLS regressions on both levels and then moves on to a discussion on the results.

### 3.3 Case Selection and Data Collection

The units of analysis are countries and individuals. 59 countries from the World Values Survey will be involved in the unit of analysis, including but not limited by: Mexico, Colombia, Turkey, Brazil and Chile (low share of the elderly) and Japan, Germany, Sweden, Spain and the Netherlands (high share of the elderly). Together, these 59 countries yield 70,504 observations for individual-level regressions. The data is collected from the World Values Survey and consists of information of wave 6, the period 2010-2013. Relevant variables that are collected from other sources than the World Values Survey are variables with information for 2013. For this thesis, not only countries with a high or low share of the elderly are included, but all countries available from the data set. With a larger sample, the difference in attitude as a result of a higher share of the elderly is more reliable and a higher generalizability can be reached.

Ten different regressions on the dependent variable, the attitude towards the elderly, will be conducted. For some regressions, the size of the sample differs because of missing values. Missing values are excluded from the regression. For example, regressions for healthcare on country-level include 45 countries. *No answer*- or *don't know*-options have been removed from the sample. This has implications for individual-level regressions. Not all respondents answered the question about their

income. The result is that the regression with the income variable for example yields 68,704observations.

### 3.4 Summary

The data is collected on two levels - country and individual - for the year 2013 in 59 countries worldwide. The dependent variable attitude towards the elderly is measured by three questions on the elderly and then divided in a fiscal attitude. The country-level measures are aggregates of the individuals in a country. The main aspect of population ageing is the share of the elderly which measures the percentage of 65+ within a country sample. To account for the importance of other factors, data on eight additional aspects of population ageing as independent variables were gathered based on different approaches of ageism. On country-level, these are whether an older individual is active, the level of public pension spending and the public health care spending. On individual-level, these are the income level, the employment status, the religion and the ethnicity. For individual-level regressions, three control variables were included: age, gender and. Interactions resulted in centred variables of public pension and public health care spending that were interacted with the centred age variable show the interaction effect on the dependent variable.

# 4

# Analysis

The results of the data have been analysed in two different ways. In the first section of chapter 4, the results are examined with the descriptive statistics. The difference in share of the elderly between countries and the corresponding attitude are shown. Second, for all dependent and independent variables, the observations, mean, standard deviation, minimum and maximum are displayed. However, only linking independent variables to the attitude in the descriptive statistics is not enough because those are solely presentations of the facts. To test whether the hypotheses hold, Ordinary Least Square regressions provide a better answer. In the second part of this chapter, models are used employing probability theory to test the hypotheses. Five models are used to analyse the data and to show the relation between two variables. Based on the regressions, the hypotheses are accepted or rejected and conclusions are drawn.

## 4.1 Descriptive

Descriptive statistics quantitatively summarize characteristics of variables and analyses these statistics. Information about the dependent and independent variables is valuable in analysing whether a relation exist. Table 2 presents the summary statistics and demonstrates the features of the different variables.

The total share of the elderly in the data set is 10.21 per cent. This means that the attitude towards the elderly is measured among 89.79 per cent of the data set, since only the attitude of individuals younger than 65 is included. For the country-level variables, the amount of observations differs from 25 to 59 and for the individual-level variables, the amount of observations differs from 31,793 to 70,504. The average of all individuals in a country is measured and this average number is adopted for country-level analyses. As explained, there are four different dependent variables measuring the attitude towards the elderly. It is to be noticed that the initial attitude towards the elderly is high, with 2.793 for the regular attitude and 3.032 for the fiscal attitude on a scale from 1 to 4. The lowest average country-level attitude is still a high number of 2.313 for the regular attitude and 2.487 for the fiscal attitude. When comparing the regular attitude to the fiscal attitude, the fiscal attitude is higher than the regular attitude in all cases. All independent variables differ in range. Some variables are dummies, others are steps, percentages or values: shares of elderly are percentages and the employment status is a dummy. Ranges for other variables are less apparent, like the income variable. This variable is divided in equal steps from one to ten where one indicates the lowest income group and ten indicates the highest income group. There are no absolute numbers connected to these

steps, but individuals were asked to specify an appropriate step for their household income. A disadvantage of this variable is that it is self-reported and no clear numbers. The range for religion and ethnicity is not divided in equal steps but it indicates various religions and ethnicities. To illustrate, if religion has a value of 64, this means an individual is Roman Catholic. The first four independent variables are on country-level which yield less observations than the remaining six individual-level variables, since the country-level variables are the average of the individuals in a country.

Table 2: Summary statistics

| Variable | Observations | Mean | Std. Dev | Min | Max |
|---|---|---|---|---|---|
| *Dependent variables* | | | | | |
| Attitude Country | 59 | 2.807 | .206 | 2.313 | 3.513 |
| Fiscal attitude Country | 59 | 3.050 | .261 | 2.487 | 3.600 |
| Attitude Individual | 70,504 | 2.793 | .588 | 1 | 4 |
| Fiscal attitude Individual | 70,504 | 3.032 | .688 | 1 | 4 |
| *Independent variables* | | | | | |
| Share of the elderly | 59 | .103 | .072 | .012 | .270 |
| The elderly active | 59 | .527 | .289 | .051 | .979 |
| Public pension spending country | 25 | 5.728 | 3.476 | 0 | 11.8 |
| Public health care spending country | 45 | 3.962 | 2.274 | .9 | 10.1 |
| Public pension spending individual | 31,793 | 5.688 | 3.328 | 0 | 11.8 |
| Public health care spending individual | 55,682 | 4.011 | 2.257 | .9 | 10.1 |
| Income | 68,704 | 4.935 | 2.092 | 1 | 10 |
| Employment status | 70,504 | .908 | .289 | 0 | 1 |
| Religion | 70,504 | 52.488 | 32.555 | 0 | 99 |
| Ethnicity | 70,504 | 940.391 | 381.616 | 70 | 1400 |

Table 2 indicates that the share of the elderly differs relatively between countries. The average share of the elderly for all countries is 10.3 per cent, with a minimum of 1.2 per cent and a maximum of 27 per cent. Figure 2 shows the different shares of the elderly in the countries included in this thesis. A few countries stand out when comparing the shares. A remarkably high share of the elderly is found in The Netherlands (27 per cent), Australia (24.6 per cent), Sweden (24.1 per cent) and Japan (23.8 per cent). On the contrary, Azerbaijan (6.3 per cent) Bahrain (2.5 per cent), Morocco (1.2 per cent) and Pakistan (1.2 per cent) experience a low share of the elderly. Figure 3 shows the different attitudes towards the elderly. The differences in attitudes between countries are less extreme than the differences in share of the elderly. But there are still some observable differences in attitudes that can be connected to the share of the elderly. For example, the attitude for the countries with a higher share are 2.9 for the Netherlands, 2.9 for Australia, 2.8 for Sweden and 2.7 for Japan. The attitude for the countries with a low share are 3.0 for Azerbaijan, 2.5 for Bahrain, 3.0 for Morocco and 2.8 for Pakistan. In this example, two countries with a low share of the elderly have a higher attitude towards the elderly. These figures show that some countries with a higher share of the elderly show a more negative attitude. At first sight, there might be a connection between the share of the elderly in a country and the average attitude towards the elderly within a country. Nevertheless, since these descriptive statistics are pure facts, it is not a sufficient tool to test the hypotheses and to connect the two variables. A more accurate way to analyse the relationship between two variables is an OLS regression. Section two of this chapter shows the results of the regression and elaborates on the outcomes.

Figure 2: Share of the elderly in a country

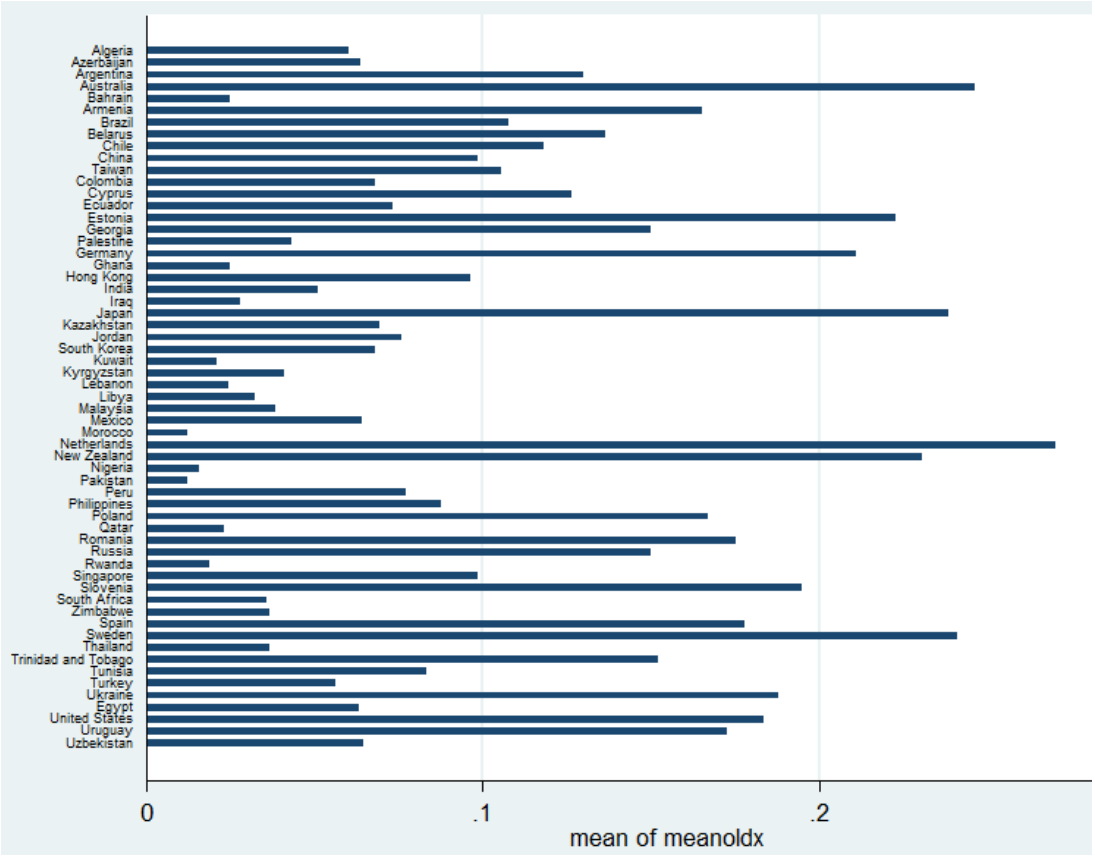
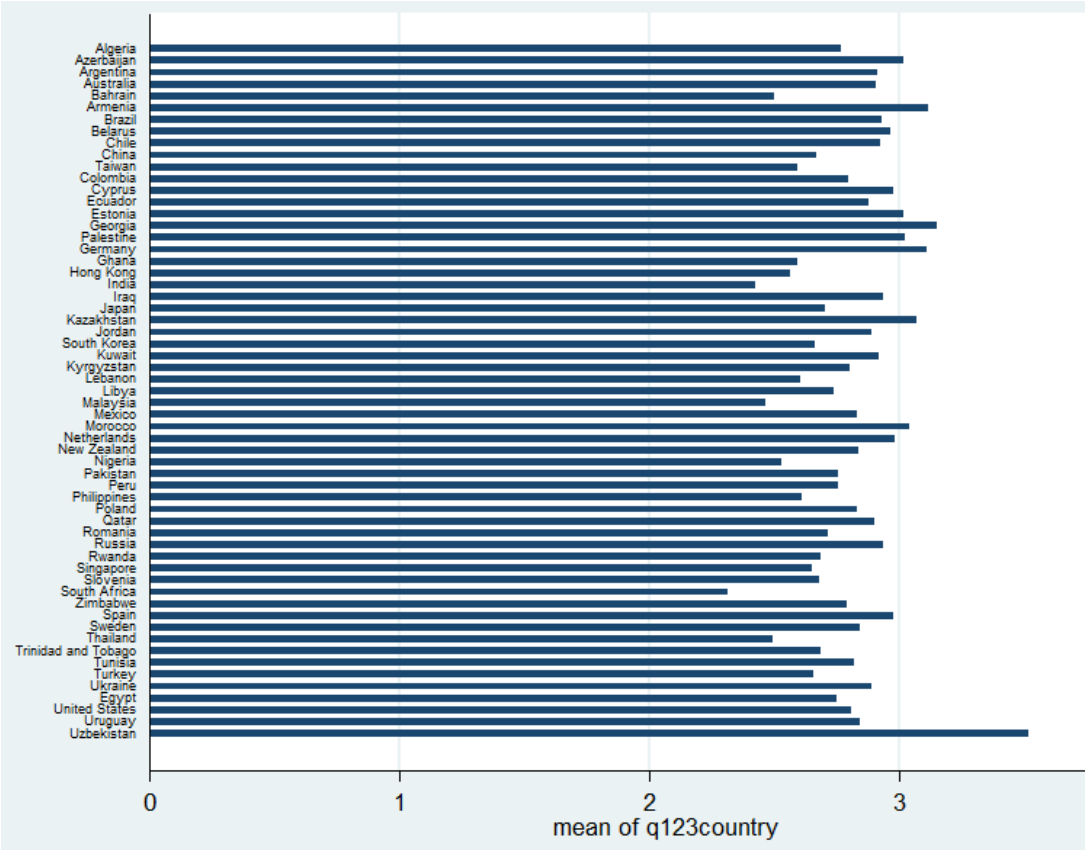



Figure 3: Attitude towards the elderly in a country



### 4.2 Ordinary Least Square Regressions

The effects of different variables on attitude towards the elderly are displayed in five different models. Model 1 presents the country-level variables and model 2 to model 5 show the individual-level variables. The statistics are conducted with a 95% confidence interval for the coefficients (p-value<0.05) in order to estimate whether an independent variable holds significant effect on attitude towards the elderly.

For all regressions, the coefficient, p-value and R-squared are interpreted. The coefficient indicates the correlation between two variables, the p-value the statistical significance level and the R-squared the percentage of variance explained by the statistical analysis. The regressions on individual-level all include the control variables age, gender and education. All results from the regressions in the models are explained and linked back to the theory of ageism from the theoretical framework.

#### 4.2.1. Regressions on Country-Level Variables

The first model shows the effect of four country-level independent variables on the attitude towards the elderly. In section 4.2.1, the regressions and the coefficients of the country-level independent variables on the regular and fiscal attitude towards the elderly are explained. These country-level variables are share of elderly people, the active elderly people, public pension spending and public health care spending. For the first two independent variables, the regular attitude and the fiscal attitude is given. For the latter two, only the coefficient on the fiscal attitude is given, because of the fiscal aspect of the independent variables. The number of observations and R-square value differ per independent variable.

Model 1: OLS regression: Effect of country-level variables on the (fiscal) attitude towards the elderly

| Variables | (1) Attitude towards the elderly | (2) Attitude towards the elderly | (3) Fiscal attitude towards the elderly | (4) Fiscal Attitude towards the elderly | (5) Fiscal attitude towards the elderly | (6) Fiscal attitude towards the elderly |
|---|---|---|---|---|---|---|
| Share of the elderly | .868*** | | 1.650*** | | | |
| | (.311) | | (.369) | | | |
| The elderly active | | -.319*** | | -.319*** | | |
| | | (.094) | | (.113) | | |
| Public pension spending | | | | | .022 | |
| | | | | | (.015) | |
| Public health care spending | | | | | | .023 |
| | | | | | | (.015) |
| R-squared | .092 | .199 | .207 | .124 | .106 | .041 |
| Number of observations | 59 | 59 | 59 | 59 | 25 | 45 |

Notes. The model covers the period 2013. Standard errors are in parenthesis. Asterisks denote: ***p < 0.01, **p < 0.05, *p < 0.1.

For the first independent variable share of the elderly, the hypothesis is that countries with a high share of the elderly have a more negative attitude towards the elderly. When running the OLS, this results in a statistical significant coefficient in column 1 of .868. The positive share indicates that the higher the share of elderly people in a country, the higher the attitude in a country. The coefficient means that when the share of the elderly is higher in a country with one per cent, the attitude increases by .009 (.00868) points. Countries with a higher level of elderly people have a more positive attitude towards the elderly. When regressing the same independent variable on only the fiscal attitude in column 3, the direction of the coefficient is bigger and still positive with 1.650., meaning that when the share of elderly is higher in a country with one per cent, the attitude increases by .017 (.01650) points. The directions of these two coefficients between share of the elderly and the (fiscal) attitude towards the elderly is the opposite direction expected from the theory. According to the theory of ageism and intergenerational pessimism, the resource threat, benevolent prejudices, prescriptive stereotypes and age progression would lead to a more negative attitude due to a higher share of the elderly. As result of population ageing and a higher share of the elderly, tension between generations increases prejudices and ageism. When the share of the elderly is higher, younger groups suffer from

this high share because of postponed retirement or the big gap between gross and net income. These factors would result in a more negative attitude when the share of elderly in a country is higher. Nevertheless, the results from the regression show a positive relation between share of the elderly and attitude towards the elderly. Hypothesis 1 is rejected. Notable is that the coefficient is higher when only including the fiscal attitude. This can indicate that the fiscal burden experienced from a higher share of the elderly is not that pronounced. Note that in both regression the R-squared is low with .092 and .207. This means that only 9.2 per cent for the regular attitude and 20.7 per cent for the fiscal attitude of the variance is explained by these statistical analyses. A limitation for this regression is that the coefficient indicates a correlation, not a causal relationship. It might be that the share of elderly has an effect on the attitude, but the attitude has an effect on the share of elderly in a country. It is improbable, but when a country is known for positive attitudes and respect for the elderly, elderly people might decide to move to that country. This effect is not presumable, but this correlation limitation had to be mentioned.

For the regression with the independent variable the elderly active, both regressions on attitude and fiscal attitude show the same results: a statistically significant coefficient of -.319 in column 2 and 4. This negative coefficient indicates that the more the elderly are active in a country, the more negative the attitude towards the elderly. This negative relation between active elderly people and attitude towards the elderly is opposite to the direction as hypothesised from the theory. According to the theory, an active the elderly group in a country can reduce the ageist views on the elderly due to increased contact between generations. The regression shows the opposite effect and hypothesis 2 is rejected. Critical remark is that the R-squared is again low. Only a small part of the variance is explained by the statistical analysis, 19.9 per cent for the regular attitude and 12.4 per cent for the fiscal attitude. An explanation for this finding is that the elderly feel forced to be active in countries with a negative attitude. This statistical result does again not indicate a causal relationship, but indicates a correlation. There is a possibility that the activity of the elderly does not influence the attitude, but the attitude influences the activity. This means that the elderly are possibly more active in a country with a lower attitude towards the elderly. The elderly might feel the pressure to be more active in a country with a negative attitude in an attempt to increase the attitude. The uncertainty of a causal relationship resulting in reversed causality, especially for country-level regressions, is a limitation of this thesis. For this relation, a reversed causality is more presumable than for the relation in column 1 and 3.

For the regression with public pension spending and public health care spending as independent variables, only the fiscal attitude is measured. The coefficient is 0.22 for public pension in column 5 spending and .023 for public health care spending in column 6 but is in both cases not statistically significant. When the public pension spending or public health care spending is higher, the

attitude towards the elderly is higher as well. This is again contrary to the predictions that were derived from the theory, but is consistent with the first two regressions on the fiscal attitude. These hypotheses were also based on intergenerational pessimism. If a country is a generous welfare state and offers a lot of public programs (public pension or health care) to its citizens, money transfers exist from younger groups to the elderly. With more public pension spending or public health care spending, the fiscal burden on the younger and working groups increases and might lead to a more ageist attitude towards the elderly. But these regressions do not support this theory. Comparable with the first two regressions on the fiscal attitude, these coefficients can signify that the fiscal burden is not that highly experienced as a result of the fiscal consequences of the ageing population. Hypothesis 3 and 4 are rejected but the coefficients are not significant. The R-squared for hypothesis 3 is low: 10.6 per cent of the variance is explained by this statistical analysis for the public pension spending variable. The variable public health care spending for hypothesis 4 explains only 4.1 per cent of the variance. A explanation for this result and the results in column 1 and 3 can be based on Zweifel's findings. In 1999, he already concluded that health care costs are not highly correlated with age and the population ageing and that higher health care spending does not necessarily lead to a more negative attitude towards the elderly (Zweifel et al., 1999). This does not mean that the results illustrate public health care spending do not increase with age and the share of the elderly. It is about the interpretation. When the elderly are not associated with higher health care spending, it does not necessarily lead to a more negative attitude. Another explanation for the rejection of hypotheses 1, 3 and 4 comes from the study of North and Fiske. They suggest that, compared to unstable market forces, resource threat does not have a big impact on generational pressure. Additionally, the elderly might be willing to share the resources with the younger age groups (North &Fiske, 2010). Again, this does not mean population ageing does not increase budgetary pressure, but it is about the interpretation. When (a higher share of) the elderly is not associated with higher pressure and more public spending, a higher share or higher public spending does not have to lead to a more negative attitude. Beside these explanations from the theory, an important explanation for this result is the methodology used for this outcome. This regression also measures correlation instead of causality. This means that there is a possibility the public spending does not influence the attitude, but the attitude influences the public spending. When the attitude towards the elderly is high, it might lead to more solidarity and more support for public pension and health care spending and eventually higher public spending. It is not possible to solve this problem of reversed causality within this methodology.

#### 4.2.2. Regressions on Individual-Level Aspects

Model 2 regresses individual-level independent variables on the individual level dependent variable: fiscal attitude towards the elderly. The individual-level independent variables in model 2 are public

pension spending (interaction), public health care spending (interaction) and employment status. The variables public pension spending and public health care spending were already measured on country-level, but is also measured on individual-level to be able to control for individual-level characteristics. Additionally, an interaction variable is added for public pension spending and public health care spending. Three control variables that are added for all individual-level regressions: age, gender and education. The education variable is prefixed in the regression to specify indicators for each level of education.

Model 2: OLS regression: Effect of individual-level variables on the fiscal attitude towards the elderly

| Variables | (1) Fiscal Attitude towards the elderly | (2) Fiscal Attitude towards the elderly | (3) Fiscal Attitude towards the elderly | (4) Fiscal Attitude towards the elderly | (5) Fiscal Attitude towards the elderly |
|---|---|---|---|---|---|
| Public pension spending | .032*** | | | | |
| | (.001) | | | | |
| Public health care spending | | .024*** | | | |
| | | (.001) | | | |
| Public pension spending centred | | | .031*** | | |
| | | | (.001) | | |
| Age centred | | | .003*** | | |
| | | | (.000) | | |
| Public pension spending interaction (pension * age) | | | -.0002*** | | |
| | | | (.000) | | |
| Public health care spending centred | | | | .023*** | |
| | | | | (.001) | |
| Age centred | | | | .003*** | |
| | | | | (.000) | |
| Public health care spending interaction (health care * age) | | | | -.0001* | |
| | | | | (.000) | |
| Employment status | | | | | .029*** |
| | | | | | (.009) |
| R-squared | .044 | .025 | .045 | .026 | .012 |
| Number of observations | 31,793 | 55,682 | 31,793 | 55,682 | 70,504 |

Notes. The included control variables are age, gender and education. The model covers the period 2013. Standard errors are in parenthesis.. Asterisks denote: ***p < 0.01, **p < 0.05, *p < 0.1.

For both public pension spending as for public health care spending, the coefficients do not change a lot in column 1 and 2 compared to the regression on country-level in model 1. The coefficients are now statistically significant on individual-level, but only explain a small part of the variation due to the small R-squared. The interpretation and explanation of these coefficients are still the same as given for the coefficients in model 1, column 5 and 6. The rejection of hypotheses 3 and 4 is strengthened. For both public spending variables, an interaction term is added with age in column 3 and 4. The interaction effect shows if the effect of one independent variable, public spending, depends on the value of another independent variable, age. The centred values for public pension and health care are both positive with .031 and .023. This means that the attitude is positively related with public spending. If public spending increases, the attitude towards the elderly is higher. When focussing on the interaction variables for public pension and health care spending, it appears both interaction variables are negative and statistically significant, but less economically significant because of the small coefficient and small R-squared. This means that the positive relation between public spending and the attitude decreases when age increases, but this effect is not that considerable. This age-effect is not in line with individual-level theories of younger individuals repelling the elderly and the prediction based on those theories, nor with Bodner's findings. He illustrated that older individuals are less ageist than younger or middle-aged individuals, since older individuals are closer to the elderly group than younger individuals. On a larger global scale and with a bigger data set, these results are not comparable with earlier findings based on a smaller scale. An explanation from the theory is that different age groups can have the same interests and have empathy for each other. Because of similar interest, being in a younger age group does not necessarily lead to a more negative attitude towards the elderly (Irwin, 1998).

For the effect of being employed on the attitude towards the elderly in column 5, the regression finds a positive and statistically significant effect. The relationship between being employed and the attitude is positive. When an individual is employed, the attitude towards the elderly is more positive. The small R-squared implies that this variable explains 1.5 per cent of the variation. From the theory it was hypothesised that employed individuals have a more negative attitude towards the elderly, because they contribute more to public programs for the elderly through income taxes. This fiscal burden was a reason for increased ageist stereotyping among employed individuals. But the regression shows an opposite effect. Hypothesis 6 is rejected.

In model 3, the results from the regression of income on fiscal attitude are given. As already explained in the previous chapter, the steps are not connected to absolute numbers, but illustrate equal levels of income, where one indicates the lowest income group and ten indicates the highest income group. Individuals were asked to specify an appropriate step for their household income.

Model 3: OLS regression: Effect of income on fiscal attitude towards the elderly

| Variables | (1)<br>Fiscal attitude towards the elderly |
|---|---|
| Second step | .019 |
| | (.015) |
| Fourth step | .028** |
| | (.012) |
| Sixth step | -.039*** |
| | (.013) |
| Eight step | -.137*** |
| | (.015) |
| Tenth step | -.205*** |
| | (.027) |
| R-squared | .022 |
| Number of observations | 68,704 |

Notes. The included control variables are age, gender and education. The model covers the period 2013. Standard errors are in parenthesis. Asterisks denote: ***p < 0.01, **p < 0.05, *p < 0.1.

The results of step two, four, six, eight and ten are displayed. For step two and four, the coefficients are positive. This means compared to step one, when an individual receives more income, their attitude towards the elderly is more positive. But remarkable is that from step four, the coefficient changes to negative. Compared to step one, when an individual is in income step four or higher, their attitude towards the elderly is more negative. This result is in harmony with the theory and the hypothesis. When an individual is in a higher income step, he or she pays more tax due to a progressive tax system. Higher income individuals therefore contribute more to public programs that assist the elderly. They experience a higher fiscal burden and this can increase ageist stereotyping of individuals with higher levels of income. The coefficients are significant and hypothesis 5 is accepted. The income level alone does not explain a lot of variation in attitude, the R-squared is only 2.2 per cent.

Model 4 shows the relation between religion and attitude towards the elderly and show that different religions have an effect on attitude compared to non-religious individuals.

Model 4: OLS regression: Effect of religion on attitude towards the elderly

| Variables | (1)<br>Attitude towards the elderly |
|---|---|
| Roman Catholic | .006<br>(.007) |
| Protestant | -.079***<br>(.009) |
| Orthodox | .120***<br>(.008) |
| Jew | .000<br>(.050) |
| Muslim | .092***<br>(.007) |
| Hindu | -.265***<br>(.015) |
| Other | -.037***<br>(.007) |
| R-squared | .031 |
| Number of observations | 70,504 |

Notes. The included control variables are age, gender and education. The model covers the period 2013. Standard errors are in parenthesis. Asterisks denote: ***p < 0.01, **p < 0.05, *p < 0.1.

Religion also explains a small part of the variance on the attitude towards the elderly. Protestants, Hindus and 'other' religions have a more negative attitude towards the elderly compared to non-religious individuals. Roman Catholics, Orthodoxies and Muslims have a more positive attitude towards the elderly compared to non-religious individuals. Hypothesis 7 stated that religious individuals have a more positive attitude towards the elderly. This hypothesis was based on various research showing different effects of ageism among religious and non-religious individuals. This hypothesis can only be accepted for the religions with a positive coefficient: Roman Catholic, Orthodox and Muslim. Berman et al., (2013) found that Muslims are most tolerant towards the elderly compared to other religions and non-religious individuals. This thesis finds a more positive attitude of the Muslims towards the elderly compared to non-religious individuals, but Muslims are not the most tolerant religion. Orthodox individuals are the most tolerant towards the elderly compared to non-religious individuals. Bergman et al. (2013) only included 308 individuals in their analysis. With a bigger data set the influence of different religions on the attitude towards the elderly differs from earlier research.

Because of the bigger data set, the results from this thesis is more reliable than results from earlier research with less individuals included.

In model 5, the effect of different ethnicities compared to the baseline on the attitude towards the elderly is shown. The baseline is composed of other ethnicities beside the six religions displayed in the model.

Model 5: OLS regression: Effect of ethnicity on attitude towards the elderly

| Variables | (1)<br>Attitude<br>towards<br>the elderly |
|---|---|
| Caucasian<br>White | .015<br>(.019) |
| Negro black | -.120***<br>(.022) |
| South Asian | -.135***<br>(.023) |
| East Asian | -.250***<br>(.019) |
| South-East<br>Asian | -.292***<br>(.024) |
| Coloured | -.035<br>(.023) |
| R-squared | .026 |
| Number of<br>observations | 70,504 |

Notes. The included control variables are age, gender and education. The model covers the period 2013. Standard errors are in parenthesis. Asterisks denote: ***p < 0.01, **p < 0.05, *p < 0.1.

The regression shows that ethnicity also explains a small part of the variance on the attitude towards the elderly: 2.6 per cent. Compared to the baseline ('other') ethnicities, all ethnicities in the regression have a more negative attitude towards the elderly, except for Caucasian white individuals. The theoretical framework already illustrated contrary findings concerning Eastern cultures and attitude towards the elderly. But conventional beliefs are that Eastern individuals have a more positive attitude towards the elderly. Because of the contrary theory, a distinction is made between different Asian parts in the regression. The regression show that all Asian ethnicities have a more negative attitude towards the elderly than the baseline. All three coefficients are statistically significant. Individual with a negro black ethnicity are also statistically more negative towards the elderly, but the coefficient is

smaller than the Asian coefficients. Hypothesis 8 is accepted. Earlier research from North and Fiske (2015) and Lou et al. (2013) with smaller data sets also found that Eastern individuals have a more negative attitude towards the elderly. This thesis shows that these findings still hold on a larger global scale with a bigger data set.

### 4.3 Summary

The regressions on the different independent variables show some remarkable results. Only three coefficients were in the direction that was expected from the theory and the hypotheses. An important remark is that there is a source of uncertainty in the method used to calculate the attitude towards the elderly, especially on country-level regressions. Because there was only one wave included in the regression, no fixed effects could be added. The coefficients are therefore not per se a causal relationship, but a correlation. It cannot be concluded with full certainty that these coefficients work in the hypothesised direction, from X to Y. Based on the theory and common sense, it can be expected and reinforced that the coefficients work in the hypothesised direction, but it is important to make this remark. This applies especially to the country-level regressions because these regressions resulted in less observations and did not include any control variables.

When comparing country-level results to individual-level results, the first thing that stands out is the bigger R-squared on country-level. This is not exceptional, since the regressions on individual level only included one individual variable and individual-level control variables and thus explains less variance. For the country-level variables, all hypotheses were rejected. A higher share of the elderly leads to a more positive (fiscal) attitude towards the elderly instead of the hypothesised more negative attitude. The ageism theory does not hold for this relation. It is very unlikely that this relation occurs the other way around, that a more positive attitude leads to a higher share of the elderly. Also the hypothesis for the active elderly people on the attitude was not accepted. The more the elderly were active in a country, the more negative the attitude. Reverse causality best explains this outcome: a more negative attitude towards the elderly can turn into an incentive for the elderly to be more active and to change the attitude into more positive. Contradictory to the theory, higher public pension and health care spending lead to a more positive fiscal attitude, on country-level as well as on individual-level. An explanation for this might be that the fiscal burden of the elderly is not experienced that strongly by younger individuals compared to other fiscal burdens, like unstable market forces. In addition, the elderly might be willing to carry increased fiscal pressure or to share resources with the young. Zweifel (1999) stated that population ageing does not inevitably lead to higher health care costs and thus to a more negative attitude. It is about the interpretation that elderly and a higher share of elderly is not linked with higher public spending and a higher pressure. These linkages back to the ageism theory suggest that intergenerational optimism is more predominant than intergenerational

pessimism. Intergenerational optimism better explain relationship between the country-level variables and the attitude towards the elderly. Another explanation is that the relation is reverse, a more positive attitude towards the elderly, more solidarity, leads to more public spending.

More hypotheses were accepted on individual level. The regression of the employment status on attitude yielded a result conflicting with the hypothesis. Employed individuals had a more positive fiscal attitude towards the elderly. A different direction of this relation is improbable, the attitude towards the elderly is not likely to influence whether an individual is employed. The hypothesis of income on the attitude was accepted. From income step 6, the fiscal attitude towards the elderly was more negative compared to income step 1. Different results derive from the regression of religion on attitude toward the elderly. Protestants, Hindu and 'other' religions have a more negative attitude towards the elderly than non-religious individuals. Especially orthodox individuals have a more positive attitude towards the elderly compared to non-religious individuals. Part of the hypothesis on religion was accepted. It is unlikely but it might be that this relation works the other way around. An individual's attitude towards the elderly might have an influence on the religion that individual has. This result differs from earlier research indicating Muslims is the most tolerant religion towards the elderly. The final regression was on the relation between ethnicity, with focus on Eastern individuals, and the attitude towards the elderly. Because of earlier contrary research, there was a distinction made between different regions in Asia. The results were obvious. For all Eastern regions, the attitude towards the elderly was more negative compared to the baseline. The final hypothesis was accepted. Also tested on individual level was the difference between age and attitude. The prediction was that younger groups have a more negative attitude towards the elderly, but results showed the opposite effect. This opposite effect was explained by Irwin (1998) and the similar interests between age groups.

When comparing country-level to individual-level explanations for the attitude towards the elderly, it seems apparent that individual-level variables better explain the attitude based on the ageism theory. No hypotheses were accepted on country-level but three hypotheses were accepted on individual level. However, this conclusion is not that clear-cut. The regressions on country-level were less precise, had fewer observations and did not include a country fixed effects. It can be concluded that different individual-level variables have small influence on the attitude towards the elderly. The income, religion and ethnicity variables are compatible with the ageism theory, while the employed variable is in conflict with the ageism theory. The hypotheses that can be accepted based on this chapter are hypotheses 5, 7 and 8. A higher income leads to a more negative attitude; being religious (partly) leads to a more positive attitude compared to being not religious and Eastern individuals have a more negative attitude towards the elderly. In the final chapter, the implications and policy recommendations based on the results are described and suggestions for future research are provided.

# 5

# Conclusion

This thesis tries to unfold different factors influencing the attitude towards the elderly. In the analysis above, the impact of country-level and individual-level variables on the attitude towards the elderly is studied. The mechanism behind this study is the different aspects of ageing population and the socio-economic consequences of this phenomenon. The main aspect of population ageing, thus the main explanatory variable, is the share of the elderly that can lead to a more negative attitude towards the elderly. The ageism theory supports this hypothesis with intergenerational pessimism. The fiscal consequences of population ageing and the impact for individuals are measured with the variables public spending (pension and health care), income and employment. For these fiscal independent variables, the fiscal attitude towards the elderly was measured. In addition to the share of the elderly in a country and fiscal consequences, the social factors that might influence the attitude due to ageist views were also measured. The effect of the elderly being active in a country, being religious and being Eastern were included in the analysis. All regressions on country-level variables rejected the country-level hypotheses, but three individual-level hypotheses were accepted. Due to methodological shortcomings, especially on country-level, the results from the regression do not yield in strong causal conclusions.

The main question of this thesis was: *"To what extent do different aspects of population ageing influence the attitude towards the elderly?".* This research question was divided in two sub-questions: *"To what extent do country-level variables of population ageing influence attitude towards the elderly?"* and *"To what extent do individual-level variables of population ageing influence the attitude towards the elderly?".* Based on the theory of ageism and OLS regressions, an answer can be formulated to these questions. The results from the country-level regressions can answer the first sub-question that country-level variables of population ageing do not influence the attitude towards the elderly in the expected direction from the ageism theory. All four country-level hypotheses were rejected: countries with a higher share of the elderly had a more positive attitude, countries with a more active elderly population had a more negative attitude and higher public pension and health care spending in a country resulted in a more positive attitude. Intergenerational pessimism does not explain the outcomes and it seems that intergeneration optimism is prevalent. The second sub-question can be answered based on the individual-level regression that individual-level variables of population ageing partly influence the attitude towards the elderly in the expected direction from the ageism theory. Three of the four individual-level hypotheses were accepted: individuals with a higher

income have a more negative attitude, religious individuals have (partly) a more positive attitude and Eastern individuals have a more negative attitude. Only the sixth hypothesis could not be accepted on individual-level, employed individuals do not have a more negative attitude. Based on the answers to the two sub-questions, an answer to the main research question can be formulated. Different aspects of population ageing influence the attitude towards the elderly, both country-level as individual-level aspects. Nevertheless, country-level aspects do not influence the attitude as expected from the theory and hypotheses. Individual-level aspects mostly do influence the attitude in the expected direction. From the ageism theory, there is more evidence for intergenerational optimism than intergenerational pessimism. Simultaneously, there are some substantial methodological inadequacies that influence the outcomes, especially for the country-level aspects. The inclusion of only one wave did not provide country fixed effects and carries the uncertainty of a causal relationship, because the regressions measure correlation. The coefficients from the regressions might work the other way around, reversed causality. Country-level regressions are particularly sensitive for this reversed causality because of the fewer observations and the exclusion of control variables.

### 5.1 Academic Implications

Before moving on to the practical implications and policy recommendations this thesis provides, also academic implications can be derived from this thesis. There has been a lot of research on the attitude towards the elderly and on the different aspects influencing this attitude. Most of this research were small-N and were performed with interviews or small surveys. This thesis is the first to largen the scale for this topic to a large-N research globally. On the one hand, this leads to improvements. Findings of earlier research and the ageism theory can be tested and strengthened or weakened. In the ageism theory, the shift of ageism towards intergenerational optimism or pessimism was insecure. This thesis finds stronger results for intergenerational optimism. Another example is the study of Bergman et al. (2013) who examined ageist views among different religions and concluded that Muslims are the most tolerant towards the elderly. This thesis included more individuals and religions and contributes to the ageism theory by finding that Muslims indeed are tolerant towards the elderly, but not the most tolerant when including more religions. Another example is the influence of ethnicity on ageist views already examined by many researchers resulting in opposite findings. This thesis contributed to the theory by including ethnicity in the regressions and distinguishing different Eastern parts. By finding that Eastern individuals from all parts included are more negative towards the elderly, this thesis provides more certainty for the direction of the relationship between Eastern individuals and the elderly. On the other hand, being one of the first to examine the attitude towards the elderly on a large global scale, there are always shortcomings and recommendations for future research. The data for the attitude towards the elderly is recent and not many associations collected global data on the

attitude towards the elderly yet. The World Values Survey was one of the first to do so in wave 6, the period 2010-2013. With information for only one wave, causality cannot be guaranteed with a one hundred per cent certainty. The deficiencies of this thesis and recommendations for further research will be illustrated in section 5.3. In the next section 5.2, the practical implications and policy recommendations are provided.

**5.2 Policy Recommendations**

An important conclusion from this thesis is that the initial attitude towards the elderly is high and effects of different variables are diminishing the attitude that much when looking at the coefficient and R-squared. This is positive news for generous welfare states. The attitude towards the elderly is important because in most welfare states, policies accommodating the elderly are based on solidarity between generations. A positive attitude towards elderly is the trend and a higher share of elderly does not diminish this positive attitude, nor does higher public spending. Policies for the elderly based on solidarity maintain support which leads to a maintaining well-functioning welfare state.

As mentioned in the introduction, this research was relevant on a practical and societal level. The three effects population ageing have are labour market, budgetary and societal effects. The implications for the labour market and budgetary effects as mentioned in chapter one turn out to be not as pessimistic as expected. Fear was that with a higher share of the elderly, the burden on public policies increases, for example on pension or health care. The elderly work less than the average population and receive public pension and might need more health care. But the regressions showed that higher public spending does not necessarily lead to a more negative attitude towards the elderly. An explanation came from Zweifel (1999) that health care costs are not highly correlated with age. Population ageing does not necessarily lead to higher public health care spending and thus to a more negative attitude. Public spending on pension and on health care does not lead to a more negative attitude. This explicitly does not mean that population ageing does not lead to problems for the labour market or budgetary pressure but it does mean that there is support and solidarity for the public programs that support the elderly. As mentioned, a critical remark is reversed causality which will be further explained in section 5.3.

Solidarity is a crucial pillar for generous welfare states to exist and has implications for societal effects of population ageing. This thesis shows that a higher share of the elderly does not lead to a more negative attitude towards the elderly. It does not indicate a declining solidarity between generations when the share of the elderly increases and implies support for the welfare state and public programs. Besides, the fiscal attitude does not decline because of higher public spending like pension and health care. The country-level budgetary effects of population ageing do not lead to a more negative attitude. But some individual-level budgetary aspects of population ageing do lead to a

more negative attitude, for example the income level. Individuals with a higher income have a more negative fiscal attitude towards the elderly. This can lead to less solidarity between older generations and younger generations with a higher income. Individuals might experience higher tax burden as a result of population ageing. To lower the burden on these individuals, countries can decide to change the funding system for public programs. For example, make the fiscal burden equal for all income levels, and change the progressive tax system. This can lead to a more positive attitude among all individuals, including those with higher income levels. But a drawback might be that the attitude of individuals with a lower income becomes more negative. It is important to find a right way to balance the fiscal burden of the ageing population equally over the different income groups to minimize societal effects and maintain solidarity between generations. Based on the social aspects of population ageing, especially recommendations for Eastern countries are in place since individuals from that ethnicity tend to have a more negative attitude towards the elderly. An explanation for this is the threat of population ageing to the collectivist culture in industrialized regions. The rise in share of the elderly threatens the traditional cultural expectations. This negative attitude of Eastern individuals is momentous for Eastern countries. A lot of Eastern countries are generous welfare states that depend on solidarity between generations and that simultaneously experience a high share of elderly. This negative attitude towards the elderly is a threat for the solidarity and for the public programs for the elderly. This effect can be diminished by reducing the welfare state or by reducing the pressure of needing to meet the expectations.

Overall, the findings of this thesis show positive results. The initial attitude towards the elderly is high and a higher share of the elderly does not lead to a more negative attitude. There seems to be support for public programs that assist the elderly, like public pension and public health care. The financial results of the ageing population on the labour market or on financial aspects are not measured in this thesis, but the societal aspect is. Not only is this important in the sociological field, but it is crucial in the political and economic debate. Welfare states rely on the phenomenon of solidarity, not only between working and not working or health and unhealthy, but especially between young and old. This thesis show that, even though population ageing puts pressure on the welfare state and its different financial programs, it does not lead to a lower level of solidarity. There are some individual-level aspects generating a more negative attitude, like income and having an Eastern ethnicity. Policy recommendations are provided for these findings and because of the low R-squared, the consequences of these aspects on the attitude are nominal. In conclusion, the more major country-level aspects of population ageing do not lead to a more negative attitude towards the elderly and the societal effects are optimistic: a high attitude towards the elderly that is not negatively influenced by a higher share of the elderly or higher public spending. However, this conclusion has a critical remark

of the regressions measuring correlation instead of causality. This leads to important recommendations for future research.

### 5.3 Future Research

As mentioned throughout this thesis, the methodology to test causal relationships is not perfect. The regressions measure correlation instead of causality. Other earlier researches on ageism and attitude towards the elderly were case studies or were carried out with interviews or short surveys. No large-N or global designs on the attitude are widely presented yet. The reason for this is that there is not much data available on the attitude towards the elderly. In this thesis, the attitude towards the elderly was measured with questions from the World Values Survey, one of the first associations to widely collect individual's attitudes towards the elderly. The topic of and the questions on the elderly were first introduced in wave 6 in 2013, the wave used for this thesis. In previous waves, the attitude towards the elderly was not a topic of interest and this was therefore not measured. This is noticeable, because population ageing is not a recent development. The attitude in this thesis could only be measured based on one year and fixed effects could not have been added. The result is that the regressions yield correlations instead of causalities. This is especially a large limitation for the regressions on country-level, because of the smaller observations. A main conclusion point of this thesis is that the initial attitude towards the elderly is high and share of the elderly and public spending does not diminish the attitude. But causality is not guaranteed, the relationship might be reversed. It is not to be presumed that a higher attitude towards the elderly leads to a higher share of the elderly, but it is plausible that a higher attitude towards the elderly leads to higher public spending. It is also possible that the amount of active the elderly does not influence the attitude, but the attitude influences the amount of active the elderly. This reversed relation is not excluded in the methodology of this thesis, the correlation is measured and not the causality. To improve this thesis, another wave is needed that provides information on the attitude towards the elderly. With information on the attitude for more than one time frame, a country fixed effects can be included and a causal relationship can be measured instead of correlation. In December 2019, a new wave of the World Values Survey will be published, with again questions on the attitude towards the elderly. Recommendation for future research is to improve this research by including the new wave in the data set. With more waves including regressions with fixed effects that measure the causal relationship, the results will be stronger and a more stable conclusion can be achieved.

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# Appendices

**Appendix 1: Total Sample of Countries**

1. Algeria
2. Azerbaijan
3. Argentina
4. Australia
5. Bahrain
6. Armenia
7. Brazil
8. Belarus
9. Chile
10. China
11. Taiwan
12. Colombia
13. Cyprus
14. Ecuador
15. Estonia
16. Georgia
17. Palestina
18. Germany
19. Ghana
20. Hong Kong
21. India
22. Iraq
23. Japan
24. Kazakhstan
25. Jordan
26. South Korea
27. Kuwait
28. Kyrgyzstan
29. Lebanon
30. Libya
31. Malaysia
32. Mexico
33. Morocco
34. Netherlands
35. New Zealand
36. Nigeria
37. Pakistan
38. Peru
39. Philippines
40. Poland
41. Qatar
42. Romania
43. Russia
44. Rwanda
45. Singapore
46. Slovenia
47. South Africa
48. Zimbabwe
49. Spain
50. Sweden
51. Thailand
52. Trinidad
53. Tunisia
54. Turkey
55. Ukraine
56. Egypt
57. United States
58. Uruguay
59. Uzbekistan

**Appendix 2: Sample of Counties for Regression with Public Pension Spending**

1. Australia
2. Brazil
3. Belarus
4. Chile
5. China
6. Colombia
7. Cyprus
8. Ecuador
9. Estonia
10. Germany
11. India
12. Jordan
13. South Korea
14. Kyrgyzstan
15. Mexico
16. The Netherlands
17. New Zealand
18. Poland
19. Russia
20. Slovenia
21. South Afrika
22. Spain
23. Sweden
24. Turkey
25. United States

**Appendix 3: Sample of Counties for Regression with Public Health Care Spending**

1. Algeria
2. Azerbaijan
3. Armenia
4. Brazil
5. Chile
6. Colombia
7. Cyprus
8. Ecuador
9. Estonia
10. Georgia
11. Germany
12. Ghana
13. India
14. Iraq
15. Kazakhstan
16. Jordan
17. Kyrgyzstan
18. Lebanon
19. Libya
20. Malaysia
21. Mexico
22. Morocco
23. Netherlands
24. New Zealand
25. Nigeria
26. Pakistan
27. Peru
28. Philippines
29. Poland
30. Romania
31. Russia
32. Rwanda
33. Singapore
34. Slovenia
35. South Africa
36. Zimbabwe
37. Sweden
38. Thailand
39. Trinidad
40. Tunisia
41. Turkey
42. Ukraine
43. United states
44. Uruguay
45. Uzbekistan