

Postprint version : 1.0

Journal website : <https://www.sciencedirect.com/journal/health-policy>

Pubmed link : <https://pubmed.ncbi.nlm.nih.gov/36933452/>

DOI : 10.1016/j.healthpol.2023.104762

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Has public support for solidarity in healthcare financing in the Netherlands changed over time? A repeated cross-sectional study

Marloes A. Meijer ^{1,*}, Anne E.M. Brabers ¹, Judith D. de Jong ^{1,2}

¹ Nivel, Netherlands Institute for Health Services Research. Otterstraat 118, 3513 CR Utrecht, the Netherlands

² Maastricht University. Duboisdomein 30, 6229 GT Maastricht, the Netherlands

ABSTRACT

It is argued that solidarity-based healthcare systems are under pressure and that public support is decreasing. It can, therefore, be expected that support for solidarity in healthcare financing has diminished over time. However, little research has been conducted into this. To fill this gap, we used survey data from 2013, 2015, 2017, 2019, and 2021 to examine changes in public support for solidarity in healthcare financing in the Netherlands over time. This was operationalised as the own willingness and the expected willingness of others to contribute to other people's healthcare costs. Using logistic regression analysis, we found that the own willingness to contribute has slightly increased among the general population over time, although this was not observed in all subgroups. No change in the expected willingness of others to contribute was observed. Our results suggest that the willingness to contribute to other people's healthcare costs has, at least, not decreased over time. A majority of the Dutch population remains willing to share the burden of healthcare costs, indicating support for the principles of the solidarity-based healthcare system. However, not all people are willing to contribute to the healthcare costs of others. In addition, we do not know how much people want to pay. Further research into these topics is necessary.

1. Introduction

In many Western European countries, including the Netherlands, the healthcare system is financed according to the principles of solidarity. Solidarity refers to a social cohesion between

* Corresponding author at: Otterstraat 118, 3513 CR Utrecht, the Netherlands

E-mail address: m.meijer@nivel.nl (M.A. Meijer).

individuals. In countries with a solidarity-based healthcare system, this cohesion is established by public social insurance arrangements installed by the government through which resources are redistributed between citizens [1]. Individuals pay compulsory healthcare contributions in exchange for financial support in case of illness [2]. Important is that these contributions are, in part, related to income, so that people on higher incomes contribute more (i.e. income solidarity). In addition, they are unrelated to health risks (i.e. risk solidarity). In that way, financial barriers to healthcare are removed [3].

Citizens can have different motivations to support solidarity in healthcare financing. Van Oorschot [4] distinguishes between four motives: feelings of affection, moral convictions, self-interest, and acceptance of authority. Regardless of citizens' attitudes towards solidarity in healthcare financing, the mandatory nature of solidaristic arrangements obliges them to contribute [1]. Although people cannot opt out of contributing to the costs of healthcare, it is still important that public support for solidarity in healthcare financing is sufficient. The functioning of healthcare systems depends on the degree to which citizens put their trust in these systems and are willing to contribute to them [5,6]. However, it is argued that solidarity-based healthcare systems are currently under strain and that public support is decreasing (e.g. [7,8, 9]). Various developments, including rising healthcare costs, are believed to have a negative influence upon public support for solidarity in healthcare financing. Rising costs can be explained by, among other factors, an ageing population, medical-technological developments, and rising public expectations [10,11,9]. Moreover, the recent COVID-19 pandemic has put additional financial pressure on healthcare systems [12]. Rising healthcare costs could lead to crowding out other government expenditures and increasing financial burdens on citizens. This raises questions about the sustainability of universal, solidarity-based healthcare systems [13,14]. Beside this, more information about sickness and health has become available. This may contribute to a better understanding of health risks [3]. When people have more knowledge about health and health risks, they have the opportunity to estimate more accurately to what degree they, and others, are at risk of falling ill.

As a result, they may be less willing to contribute to the healthcare costs of people who face health problems due to risks that appear to be controllable [7,3,15].

Since the aforementioned developments put pressure on solidaritybased healthcare systems, it can be expected that public support for solidarity in healthcare financing has diminished over time. However, little research has been conducted into this. Most studies focus on support at one point in time (e.g. [16–19]). To fill this gap, this study examines changes in public support for solidarity in healthcare financing in the Netherlands over time. This is important since declining support affects the legitimacy of solidarity-based healthcare systems, which as a result could threaten their continued existence [6]. In this study, support for solidarity in healthcare financing is defined as the willingness to contribute to other people's healthcare costs. This is because it is necessary that citizens do not only hold feelings of solidarity; they should also be willing to perform acts of solidarity [7]. By looking at people's willingness to contribute, we connect financial consequences to showing solidarity [15]. We aim to discover how the willingness to contribute to other people's healthcare costs in the Netherlands has developed over time, using data from 2013, 2015, 2017, 2019, and 2021. Information on how solidarity is embedded in healthcare financing in the Netherlands can be found below.

1.1. Solidarity in healthcare financing in the Netherlands

The Dutch healthcare system was reformed in 2006. Since this reform, the system is characterised by regulated competition between private health insurers. Because solidarity has long been a deeply rooted principle in the Dutch healthcare system, the reform would not have been politically feasible without arrangements that preserve solidarity. Solidarity is incorporated into the system through national, mandatory health insurance [20]. Every adult citizen is obliged to take out a basic health

insurance policy with a health insurer of their choice. With this, the entire adult population is covered by the mandatory insurance. Children under 18 years are insured free of charge through their parents' insurance policy. The basic health insurance covers many forms of primary and secondary care, including care from a general practitioner, medications, and hospital care [21]. The level of service coverage, thus, is high. When taking out health insurance, people can choose between policies that reimburse care from all healthcare providers, contracted or not (restitution policies), and policies with restricted conditions, that only fully reimburse care from contracted providers (in-kind policies) [22]. Reimbursement for non-contracted care ranges between 65% and 85%, depending on the type of policy and type of care [23]. Premiums for the basic health insurance range from €125 to €155 per month in 2023, with an average of €138 [24]. The premium of the same health insurance at the same health insurer is the same for everyone, irrespective of personal characteristics such as health status or age. With this, risk solidarity is incorporated into the system. In addition, there is income solidarity. People on higher incomes contribute more to the costs of healthcare than those on lower ones. This occurs in two ways. Firstly, healthcare contributions paid by employers are dependent on income. Secondly, people with a low income qualify for an allowance that compensates them for their healthcare costs [20]. This allowance is based on the household income [25]. In 2013, 57% of Dutch households received a healthcare allowance [22]. The maximum monthly allowance is €154 for singles and €265 for families in 2023 [26].

2. Methods

2.1 Setting

Data were collected using the Dutch Healthcare Consumer Panel. This panel is managed by the Netherlands Institute for Health Services Research (Nivel) and aims to measure opinions on, knowledge about, and experiences with healthcare in the Netherlands [27]. At the time of our study in November 2021, the panel consisted of approximately 11,500 members from the general Dutch population aged 18 years and older. Numerous background characteristics of the panel members are known, such as their age, gender, educational level, and self-reported health. Members have agreed to answer questionnaires on a regular basis. The Consumer Panel can only be joined through invitation. Pseudonymised data were analysed and processed in accordance with the privacy policy of the Dutch Healthcare Consumer Panel. The panel complies with the General Data Protection Regulation (GDPR) [28]. According to Dutch legislation, neither obtaining informed consent, nor approval by a medical ethics committee, are obligatory for conducting research through the panel [29].

2.2. Questionnaire

Questionnaires were sent out to samples of 1,500 panel members in 2013, 2015, 2017, 2019, and 2021. The samples were representative of the adult Dutch population with regard to age and gender. A new sample was drawn for each year. The samples, thus, do not necessarily consist of the same panel members, although there is some overlap (see Statistical analysis). Among the questions included were those about the willingness to contribute to other people's healthcare costs. Questionnaires could be filled in online or by post, depending on the personal preference of the panel members. In order to increase the response, reminders were sent out to respondents who had not yet completed the questionnaire. The final response was N=764 (51%) in 2013, N=633 (42%) in 2015, N=668 (45%) in 2017, N=664 (44%) in 2019, and N=837 (56%) in 2021. These response rates are similar to those of other studies conducted through the Dutch Healthcare Consumer Panel.

2.3. Measures

2.3.1. Support for solidarity in healthcare financing

Support for solidarity in healthcare financing was operationalised as the willingness to contribute to other people's healthcare costs. This has also been done in other studies on healthcare solidarity (e.g. [17]). We looked into the respondents' own willingness to contribute as well as the degree to which they expect that others are willing to contribute. An individual's own willingness to contribute was measured by asking respondents: "Are you willing to pay for healthcare treatments in the basic health insurance that you do not or not yet use, but others do?". The expected willingness of others to contribute was measured by asking: "Do you think others are willing to pay for these healthcare treatments in the basic health insurance?". Both questions could be answered with No or Yes (recoded into: 0=not willing, 1=willing). Balcetis and Dunning [30] showed that people are better at predicting the behaviour of others than their own as they tend to overestimate the prosocial nature of their own behaviour. Because of this, it is suggested that someone's expectation of the behaviour of others is a better predictor of that person's actual behaviour than their own reported behaviour [30]. If this is the case, the question about the expectation of others' willingness to contribute measures the willingness to contribute more accurately than the question about own willingness to contribute. We included both questions in order to gain the best possible insight into the degree to which the Dutch population is willing to contribute to other people's healthcare costs.

2.3.2. Background variables

The background characteristics included in this study are: age (continuous); gender (1=male, 2=female); highest completed level of education (1=low, including none, primary school, or pre-vocational education, 2=middle, including secondary or vocational education, 3=high, including professional higher education or university. In addition, the background characteristic self-reported health was measured using the validated SF-36 instrument. Respondents were asked to assess their general health. They could choose between excellent (score 1), very good (score 2), good (score 3), fair (score 4), and bad (score 5). Since few respondents chose the last answer, the answers were recoded into three categories. Besides, we recoded the answers so that a higher score indicates better self-reported health. Based on this, three categories are distinguished: 1=bad or fair, 2=good, 3=very good or excellent.

[Table 1]

2.4. Statistical analysis

Descriptive analyses were performed first in order to describe the characteristics of the respondents. We also used descriptive analyses to look into own and expected willingness to contribute for each year measured. Since the response in each year was not entirely representative of the general Dutch population, regarding age and gender, weight factors were applied. Six categories are distinguished, based on three age categories (18-39 years, 40-64 years, and 65 years and older) and two categories for gender (men and women). The weight factors varied from 0.64 to 1.19 in 2013, 0.60 to 1.79 in 2015, 0.74 to 1.77 in 2017, 0.65 to 3.29 in 2019, and 0.74 to 2.24 in 2021. The high weight factor in 2019 can be explained by the fact that fewer respondents from the youngest age group (18-39 years) participated in that year, resulting in an underrepresentation of this group compared to the general population. We compared the respondents aged 18-39 years from 2019 to those from 2013, 2015, 2017, and 2021, in order to determine to what degree this underrepresentation affects our results. We found that the group of 18 to 39-year-olds consisted of fewer women and more people in poor health in 2019 than in the other years. We corrected for

these differences in the regression analyses by controlling for various characteristics, among which were gender and health status.

After the descriptive analyses, logistic regression models were used in order to examine how the willingness to contribute to other people's healthcare costs has developed over time. Respondents' own willingness to contribute and the expectation of the willingness of others to contribute were included as dependent variables in these models, respectively. When studying the development of own and expected willingness to contribute among the general population, we controlled for age, gender, educational level, and self-reported health in order to correct for possible effects due to the composition of the sample. In addition, we investigated the development of own and expected willingness to contribute among subgroups. This was done by studying interaction effects. Regression coefficients for the effect of year were estimated for each subgroup by including interactions between year and the different groups. We focused on differences in the development of willingness to contribute between younger and older people, men and women, people with a low and high educational level, and people in good and poor health.

[Figure 1]

[Table 2]

[Table 3]

Since a new sample was drawn largely from the same group of panel members each year, there was some overlap between the respondents. 2,212 respondents filled in one questionnaire, 416 respondents filled in two questionnaires, 146 respondents filled in three questionnaires, and 21 respondents filled in four questionnaires. None of the respondents completed all five questionnaires. In total, 3,566 questionnaires were completed by 2,795 respondents. The logistic regression models took into account any possible clustering effects resulting from the overlap in respondents. All analyses were performed using Stata, version 16.1. A significance level of 5% ($P=0.05$) was maintained.

[Table A.1]

3. Results

Table 1 presents the background characteristics of the respondents, both per year and for all years together. As can be observed from the table, the proportion of respondents from the youngest age group has declined between 2013 and 2019, whereas the share of 40 to 64-year-olds has increased. However, the share of 18 to 39-year-olds increased again in 2021. In all years, about half of respondents were female. Overall, approximately half of respondents had a middle level of education and about half reported their health as good.

3.1 The overall development of the willingness to contribute to other people's healthcare costs

Fig. 1 shows that in 2013, 73% of respondents were willing to contribute to other people's healthcare costs. In 2015, 2017, 2019, and 2021, this was 63%, 74%, 72%, and 78%, respectively. In all years, the expectation that others were willing to contribute was lower than respondents' own willingness to contribute. Six out of ten respondents (60%) expected that others were willing to contribute to other people's healthcare costs in 2013. In the other years, this varied from 54% (2015) to 64% (2019). Eight in ten (82%) respondents who were not willing to contribute to other people's healthcare costs themselves also expected that others were not willing to do so.

After gaining insight into own and expected willingness to contribute for each year measured, we tested whether the development of the willingness to contribute to other people's healthcare costs over time is statistically significant. With regard to a person's own willingness to contribute, a positive, statistically significant effect of year was found, after adjusting for the background variables (OR=1.04) (see Table A.1 in the annex, model 1). This indicates that own willingness to contribute has increased between 2013 and 2021. However, for the expectation of the willingness of others to contribute, no effect of year was observed (OR=1.00) (model 2). This indicates that expected willingness to contribute has not changed between 2013 and 2021. We also observed differences in the willingness to contribute between groups. Differences were found by age, gender, educational level, and self-reported health (see Table A.1).

3.2. Differences in the development of the willingness to contribute to other people's healthcare costs between groups

3.2.1. Own willingness to contribute

When studying the overall development of people's own willingness to contribute over time, it was observed that this has increased between 2013 and 2021. However, this effect may not be the same for all groups. Because of this, we looked into differences in the development of own willingness to contribute by age, gender, educational level, and self-reported health (see Table 2). Firstly, we studied differences in own willingness to contribute between subgroups in 2013 (the reference year). After this, we examined the development of own willingness to contribute for the different subgroups.

[Figure A.1]

[Figure A.2]

[Figure A.3]

With regard to age, no differences in own willingness to contribute were found in 2013 (model 3a). When examining differences in the development of own willingness to contribute by age, it was observed that there is a statistically significant effect over the years for the group 40 to 64-year-olds (OR=1.04). For this group, own willingness to contribute has increased over time. For the other age groups, however, no effect of year was found. Differences in the development of own willingness to contribute by age did not lead to differences in this willingness in 2021 (see Fig. A.1 in the annex). Regarding gender, no differences in own willingness to contribute were observed between men and women in 2013 (model 3b). However, it was found that own willingness to contribute has increased among women over time (OR=1.04). No effect of year was observed in men (OR=1.04). This did not lead to differences in own willingness to contribute by gender in 2021 (see Fig. A.2 in the annex). With regard to educational level, it was found that, in 2013, the willingness to contribute was higher among people with a middle (OR=1.45) or high (OR=1.27) level of education, as compared to people with a low level (model 3c). Furthermore, a rise in own willingness to contribute was observed among both people with a middle (OR=1.04) and high (OR=1.05) educational level between 2013 and 2021. For people with a low level of education, own willingness to contribute did not change over the years (OR=1.00) (see Fig. A.3 in the annex). Lastly, it was found that there were no differences in own willingness to contribute with regard to self-reported health in 2013 (model 3d). When examining differences in the development of own willingness to contribute, it was observed that this has grown among people who report their health as very good or excellent (OR=1.06). This is in contrast to people who report their health as bad or fair (OR=1.00), and good (OR=1.03), for whom no effect was

observed. However, this did not lead, in 2021, to differences in own willingness to contribute with regard to self-reported health (see Fig. A.4 in the annex).

[Figure A.4]

[Figure A.5]

[Figure A.6]

[Figure A.7]

[Figure A.8]

3.2.2. Expected willingness to contribute

The expected willingness of others to contribute in the general population did not change over time. However, there may be an effect over the years for some groups. Because of this, we looked into differences in the development of the expected willingness to contribute by age, gender, educational level, and self-reported health (see Table 3). Firstly, we looked at the reference year, 2013, to see if there were differences between the subgroups in expected willingness to contribute. Next, the development of the expected willingness of others to contribute was studied for the different subgroups.

As can be observed from Table 3, in 2013, no differences with regard to age (model 4a) and gender (model 4b) were found in the expected willingness of others to contribute. In addition, with regard to age and gender, no differences in the development of the expected willingness to contribute were observed. The expected willingness of others to contribute did not change between 2013 and 2021 for 18 to 39-year-olds (OR=1.00), 40 to 64-year-olds (OR=1.02), and people of 65 years and older (OR=0.98), and neither too for men (OR=1.01) and women (OR=1.00) (see Figs. A.5 and A.6 in the annex). With regard to educational level, it was observed that in 2013, people with a high level of education expected that others were more willing to contribute than people with a low educational level (OR=2.40) (model 4c). However, no differences in the development of the expected willingness to contribute were found (see Fig. A.7 in the annex). Lastly, in 2013, with regard to self-reported health, no differences in the expected willingness of others to contribute were found (model 4d). Regarding the development of expected willingness to contribute, it was found that this has increased among people who report their health as very good or excellent (OR=1.05). For people who report their health as bad or fair (OR=0.99), and good (OR=0.98), however, no effect was observed over the years. Because of this, the expected willingness of others to contribute was higher among people who report their health as very good or excellent than among people who report their health as bad or fair, and good, in 2021 (see Fig. A.8 in the annex).

4. Discussion

This study showed that the own willingness to contribute to other people's healthcare costs has slightly increased in the general population, from 73% in 2013 to 78% in 2021. However, this was not observed in all groups. The increase in own willingness to contribute only occurred among 40 to 64-year-olds, women, people with a middle or high level of education, and people who report their health as very good or excellent. These are groups that, on average, use little healthcare. Healthcare is more frequently used by people with a low socio-economic status, people in poor health, and the elderly [6,21,31–33]. It is, therefore, unlikely that the increase in own willingness to contribute is the result of self-interest, as self-interest assumes that people are willing to contribute to the healthcare system when they expect to benefit from it [34]. Possibly knowledge about the healthcare system

plays a role. People may be more willing to contribute when they know how solidarity is embedded in healthcare financing, and with that, how a solidarity-based system benefits them. However, we do not know if, or how, knowledge played a role in the differences in the development of the own willingness to contribute to other people's healthcare costs. Further research is recommended to study this more closely.

No change in the expected willingness of others to contribute was observed among the general population between 2013 (60%) and 2021 (61%). As people tend to overestimate the prosocial nature of their behaviour, the expected willingness of others to contribute may be a better predictor of actual willingness to contribute than the reported own willingness to contribute. If this is the case, our results suggest that the willingness to contribute to other people's healthcare costs has, at least, not decreased over time. Public support for solidarity in healthcare financing in the Netherlands is, thus, not found to be in decline. Recent research also showed that people in the Netherlands believe that increasing healthcare costs should not only be paid for by people who use much healthcare [35]. Data on health insurance demonstrate that people are increasingly opting for managed care plans and voluntary deductibles. This could point to a decline in support for solidarity in healthcare financing, since these come with lower health insurance premiums [20,36]. However, we do not know how actual insurance choices are related to views on the principles of the solidarity-based healthcare system. People who opt for managed care plans and voluntary deductibles may still be willing to contribute to other people's healthcare costs.

The results of our study suggest that people remain willing to contribute to other people's healthcare costs, indicating that the solidarity-based healthcare system is supported. This would appear promising for countries with a system based upon solidarity, especially since the call upon solidarity is expected to expand in the future due to an increase in lifestyle-related diseases and an ageing population [14]. However, our study shows that not all people are willing to contribute to other people's healthcare costs. Further, for instance qualitative, research is recommended to look into the reasons for this unwillingness to contribute. In addition, we do not know how much people are willing to pay. In recent years, the growth of health insurance premiums in the Netherlands has been limited [37]. This may be an explanation for the continuous support for solidarity in healthcare financing that was found in this study. However, it is expected that healthcare premiums will sharply increase over the next five years [38]. This could negatively affect people's ability and willingness to contribute, even if they support the general principles of solidarity-based healthcare systems. It is, therefore, recommended to conduct future research into the maximum amount people are willing to pay for the basic health insurance.

The continuous support for solidarity in healthcare financing in the Netherlands indicates that people want to preserve a solidarity-based system. However, it is argued that, even when there is sufficient public support, ongoing financial and staffing pressures threaten healthcare systems based upon solidarity. According to the Dutch Scientific Council for Government Policy (WRR), it is necessary to set priorities in health services in order to maintain solidarity-based systems [14]. Prioritising involves making difficult decisions about which treatments are covered by the basic health insurance and which are not. This could negatively affect public support for solidarity in healthcare financing. In order to generate support for prioritisation decisions, it is essential to involve citizens in this process [39].

4.1. Recommendation for future research

This study focused on the development of the general willingness to contribute to the healthcare costs of others. However, it is known from previous research that the degree to which groups are perceived as entitled to collectively financed healthcare services differs between groups (e.g. [16,40,1]). This is called deservingness [41]. Survey studies from Van Oorschot [41,42] showed that people are seen as more deserving when they have little control over their neediness, their level of

need is high, their identity is close to that of the contributors, they are grateful for the help, and they have contributed to the welfare state in the past or are expected to do so in the future. With regard to deservingness in healthcare, people with unhealthy lifestyles are considered less deserving since they can be held responsible for their health problems to some extent [32,43]. As the number of people with lifestyle-related diseases is expected to increase in the future, it is possible that support for solidarity in healthcare financing will become more conditional [14]. It is, therefore, recommended to study how the willingness to contribute to the healthcare costs of different subgroups has developed over time.

4.2. Strengths and limitations

A strength of this study is the inclusion of data on public support for solidarity in healthcare financing from different years. Because of this, our study not only provides insight into the current level of support in the Netherlands, but also into the development over time. To our knowledge this has not been studied before. The large sample size in each year and the fact that the questionnaires were sent out both by post and online, thereby including people who are not digitally skilled, are further strengths.

A limitation of this study is that the sample was renewed for each measurement. Because of this, the development of the willingness to contribute to other people's healthcare costs has not been studied among the same group of respondents. Changes between different years, therefore, might be the result of changes in the sample rather than actual changes in the willingness to contribute. However, we controlled for several background characteristics in our analyses, thereby correcting for possible effects due to the composition of the sample. Another limitation is that all respondents were members of the Dutch Healthcare Consumer Panel, who have opted to share their opinions on healthcare. Panel members may have a more positive attitude toward healthcare and solidarity than the general population, which could lead to an overrepresentation of the willingness to contribute. For future research, qualitative research among a group of people with diverse values and perspectives, for example through a citizen platform, is recommended to gain more insight into a broader spectrum of views on solidarity in healthcare financing [44].

5. Conclusion

Our results suggest that the willingness to contribute to the healthcare costs of others has, at least, not decreased over time. Public support for solidarity in healthcare financing in the Netherlands is not found to be in decline. Although not all people want to contribute, a majority of the Dutch population remains willing to share the burden of healthcare costs. This indicates support for the principles of the solidarity-based healthcare system.

Funding

The Dutch Healthcare Consumer Panel is financed by The Dutch Ministry of Health, Welfare and Sport. The funder had no role in the design, execution, and writing of the study.

Declaration of Competing Interest

The authors declare that they have no competing interests.

Acknowledgements

We would like to thank all panel members for participating in the study.

Appendix

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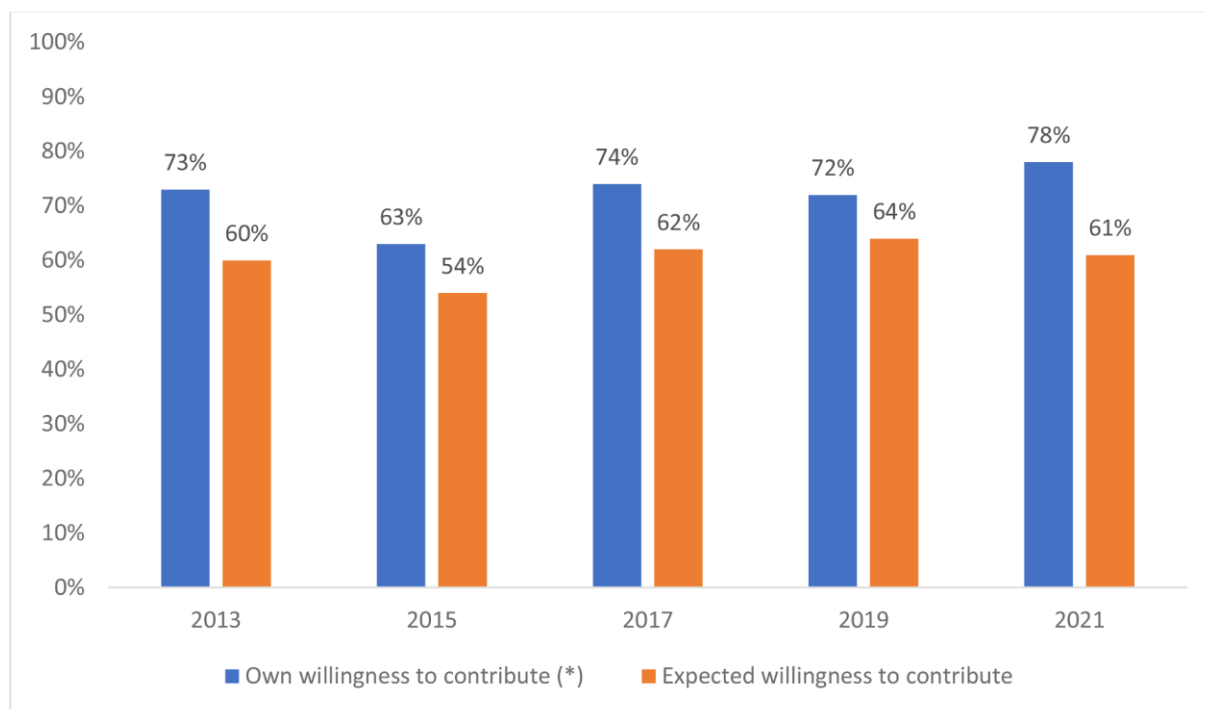
Tables and figures

Table 1 Descriptive statistics of the respondents per year and in total.

	2013	2015	N (%)			N (%)
			2017	2019	2021	Total
Age	764	633	668	664	837	3566
18-39 years	232	134	133	90	174	763
	(30%)	(21%)	(20%)	(14%)	(21%)	(21%)
40-64 years	348	287	363	398	412	1808
	(46%)	(45%)	(54%)	(60%)	(49%)	(51%)
65 years and older	184	212	172	176	251	995
	(24%)	(33%)	(26%)	(27%)	(30%)	(28%)
Gender	764	633	668	664	837	3566
Male	366	328	344	339	395	1772
	(48%)	(52%)	(52%)	(51%)	(47%)	(50%)
Female	398	305	324	325	442	1794
	(52%)	(48%)	(49%)	(49%)	(53%)	(50%)
Highest completed level of education	756	621	647	638	823	3485
Low	108	103	93	80	79	463
	(14%)	(17%)	(14%)	(13%)	(10%)	(13%)
Middle	366	311	317	288	362	1644
	(48%)	(50%)	(49%)	(45%)	(44%)	(47%)
High	282	207	237	270	382	1378
	(37%)	(33%)	(37%)	(42%)	(46%)	(40%)
Self-reported health	760	629	614	623	731	3357
Bad / fair	97	111	107	117	135	567
	(13%)	(18%)	(17%)	(19%)	(18%)	(17%)
Good	351	318	343	303	336	1651
	(46%)	(51%)	(56%)	(49%)	(46%)	(49%)
Very good / excellent	312	200	164	203	260	1139
	(41%)	(32%)	(27%)	(33%)	(36%)	(34%)

Figure 1. Own willingness to contribute and the expected willingness of others to contribute per year (N=571-780, weighed)

* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Table 2 The development of own willingness to contribute by age, gender, educational level, and self-reported health (N=3,184).

Own willingness to contribute	Model 3a: Age		Model 3b: Gender		Model 3c: Educational level		Model 3d: Self-reported health	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Age (18-39 years=ref)								
40-64 years	1.22	0.21	1.32*	0.16	1.31*	0.16	1.32*	0.16
65 years and older	1.21	0.23	1.31*	0.17	1.30*	0.17	1.30*	0.17
Gender (male=ref)								
Female	0.82*	0.07	0.81	0.11	0.82*	0.07	0.82*	0.07
Educational level (low=ref)								
Middle educational level	1.62**	0.20	1.63**	0.20	1.45	0.27	1.63**	0.20
High educational level	3.83**	0.55	3.84**	0.55	3.27**	0.68	3.84**	0.55
Self-reported health (bad/fair=ref)								
Good	1.18	0.13	1.18	0.13	1.18	0.13	1.06	0.21
Very good/excellent	1.22	0.16	1.21	0.16	1.22	0.16	0.98	0.20
Constant	1.13	0.27	0.89	0.17	0.98	0.21	1.00	0.22
Age * year								
18-39 years	1.02	0.03						
40-64 years	1.04*	0.02						
65 years and older	1.04	0.03						
Gender * year								
Male			1.04	0.02				
Female			1.04*	0.02				
Educational level * year								
Low					1.00	0.03		
Middle					1.04*	0.02		
High					1.05*	0.03		
Self-reported health * year								
Bad/fair							1.00	0.03
Good							1.03	0.02
Very good/excellent							1.06*	0.03

* = $p \leq 0.05$,

** = $p \leq 0.01$

Table 3 The development of the expected willingness of others to contribute by age, gender, educational level and self-reported health (N=3,169).

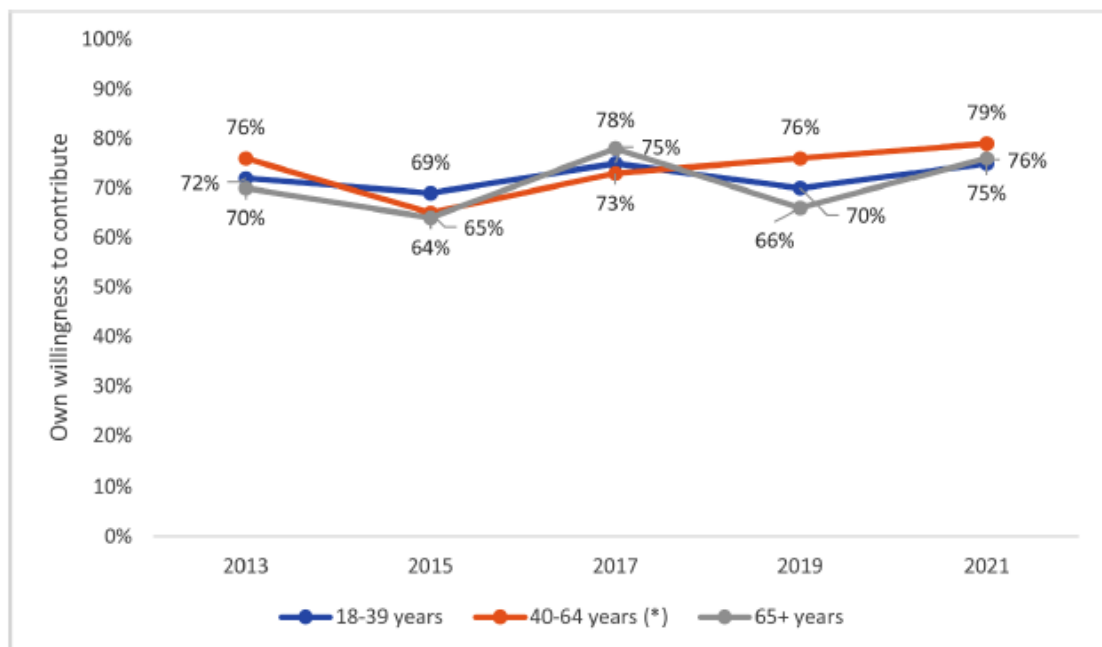
Expected willingness to contribute	Model 4a: Age		Model 4b: Gender		Model 4c: Educational level		Model 4d: Self-reported health	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Age (18-39 years=ref)								
40-64 years	1.17	0.19	1.30*	0.14	1.29*	0.14	1.30*	0.14
65 years and older	1.39	0.25	1.26	0.15	1.26	0.15	1.26	0.15
Gender (male=ref)								
Female	0.78**	0.06	0.79	0.10	0.77**	0.06	0.77**	0.06
Educational level (low=ref)								
Middle educational level	1.36*	0.17	1.36*	0.16	1.02	0.19	1.37**	0.17
High educational level	3.16**	0.41	3.15**	0.41	2.40**	0.48	3.16**	0.41
Self-reported health (bad/fair=ref)								
Good	1.24*	0.14	1.24	0.14	1.24	0.14	1.31	0.25
Very good/excellent	1.32*	0.16	1.31*	0.16	1.31*	0.16	1.07	0.21
Constant	0.85	0.19	0.65*	0.12	0.83	0.17	-0.68	0.15
Age * year								
18-39 years	1.00	0.03						
40-64 years	1.02	0.02						
65 years and older	0.98	0.02						
Gender * year								
Male			1.01	0.02				
Female			1.00	0.02				
Educational level * year								
Low					0.94	0.03		
Middle					1.02	0.02		
High					1.01	0.02		
Self-reported health * year								
Bad/fair							0.99	0.03
Good							0.98	0.02
Very good/excellent							1.05*	0.02

* = $p \leq 0.05$,

** = $p \leq 0.01$

Figure A.1. The development of own willingness to contribute over time by age (N=3184)

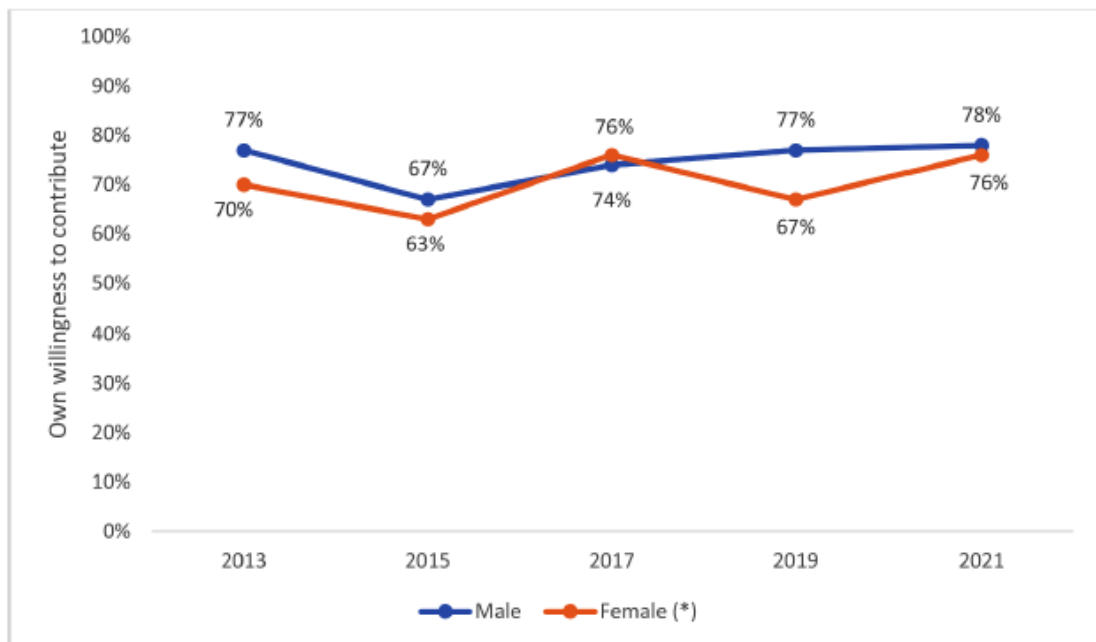
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Figure A.2. The development of own willingness to contribute over time by gender (N=3184)

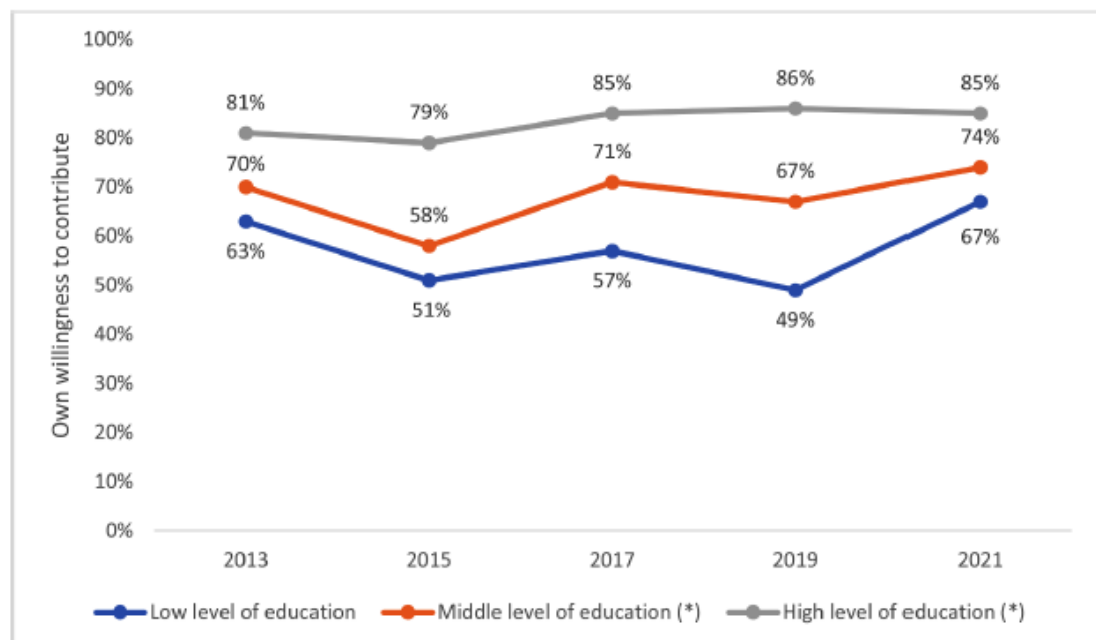
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Figure A.3. The development of own willingness to contribute over time by educational level (N=3184)

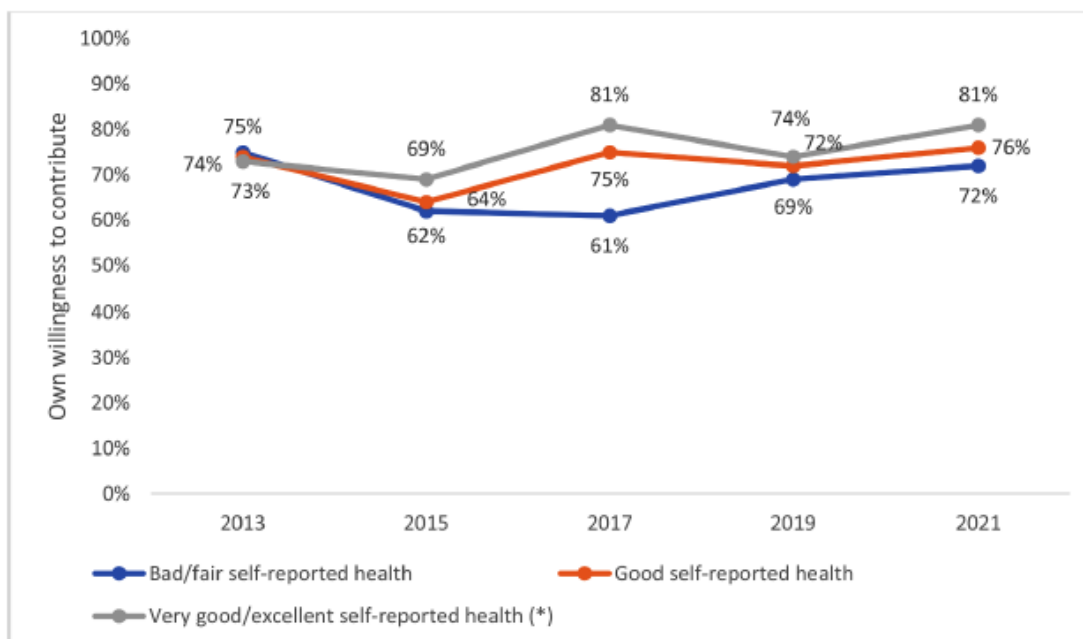
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Figure A.4. The development of own willingness to contribute over time by self-reported health (N=3184)

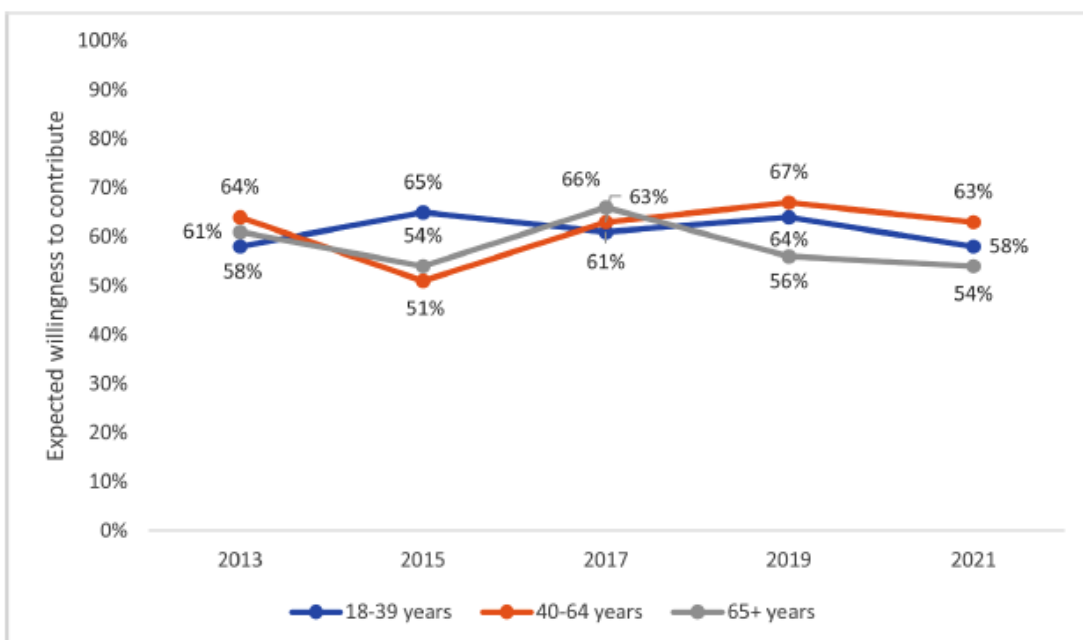
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

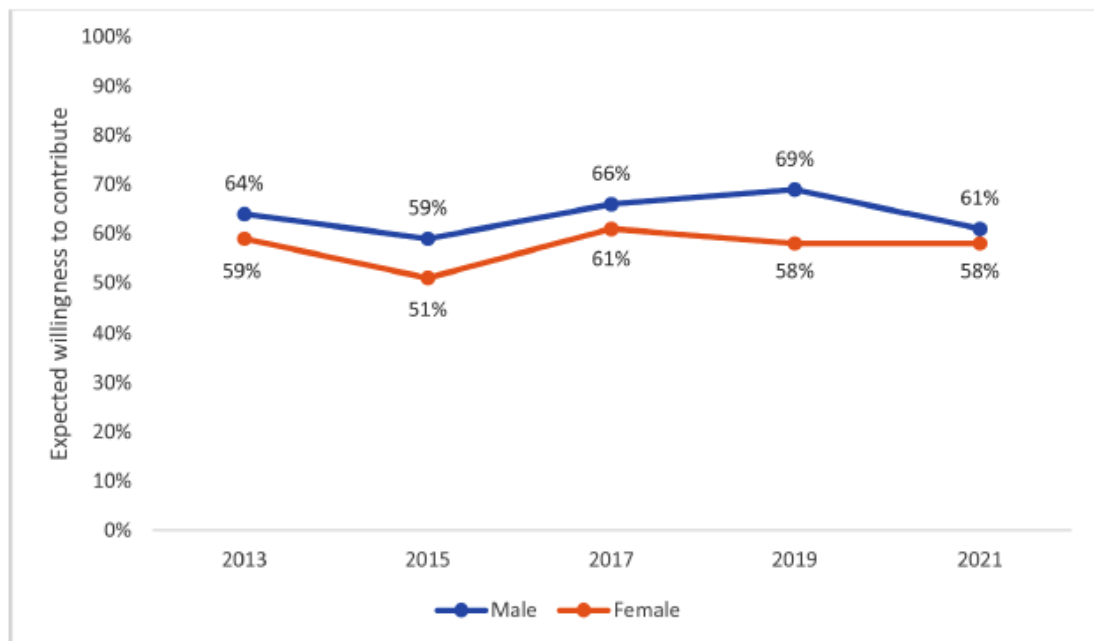
Figure A.5. The development of expected willingness to contribute over time by age (N=3169)

* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

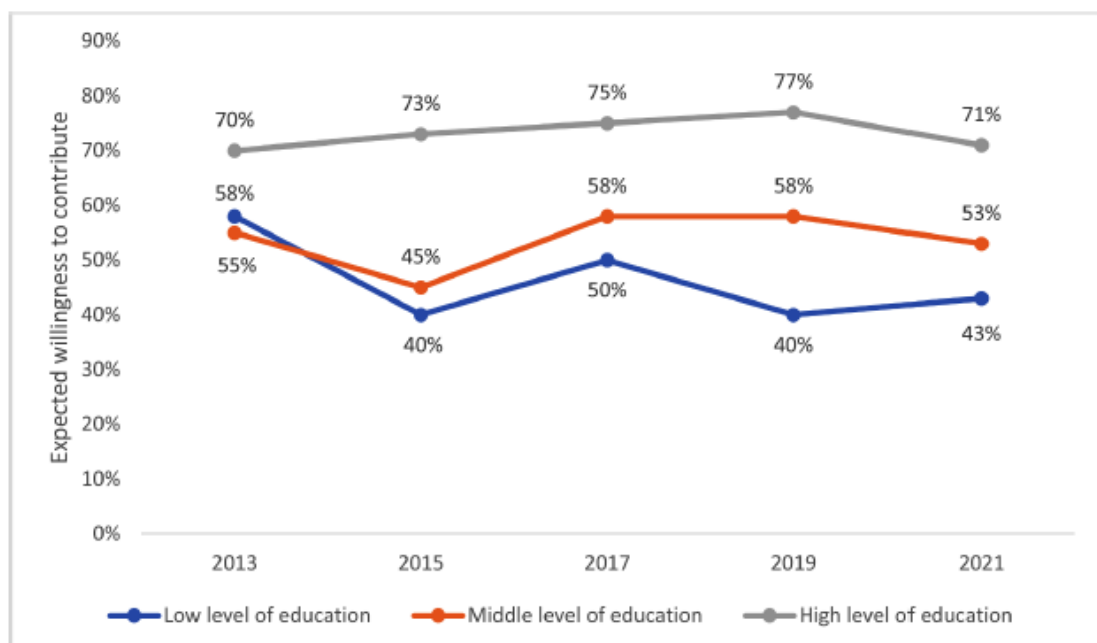
Figure A.6. The development of expected willingness to contribute over time by gender (N=3169)
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Figure A.7. The development of expected willingness to contribute over time by educational level (N=3169)

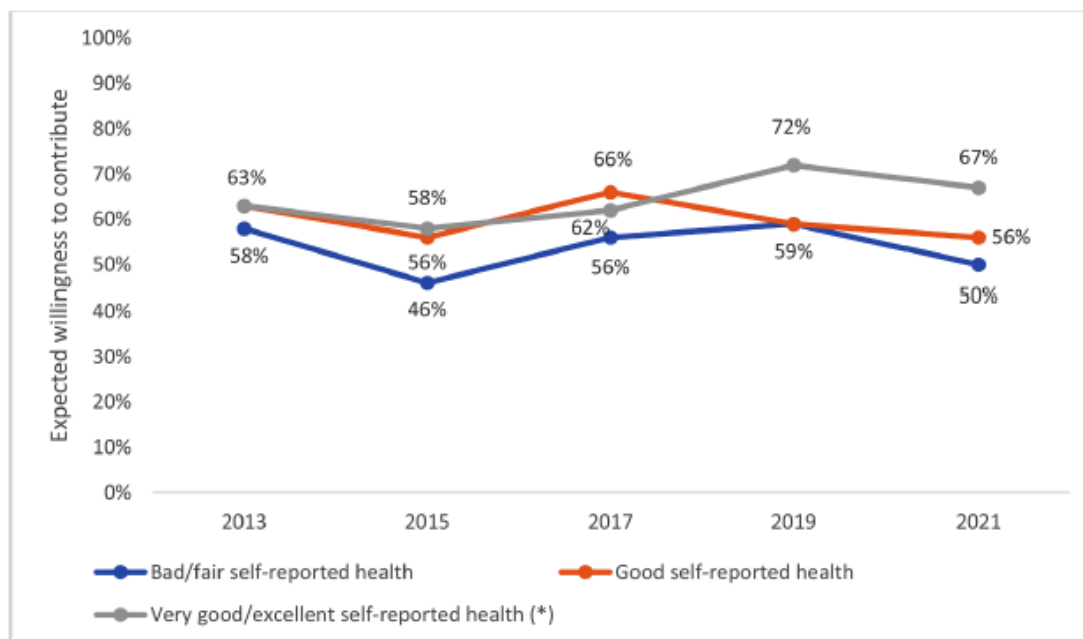
* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)

Figure A.8. The development of expected willingness to contribute over time by self-reported health (N=3169)

* = significant linear trend was observed ($p \leq 0,05$).



* = significant linear trend was observed ($p \leq 0,05$)