

From Wallets to Whistle

Exploring the relationship between parental socio-economic status and their children's participation in organized sports, while also exploring whether these two factors are associated with the level of physical activity among children.

A Quantitative Study Of The Municipality Of Groningen, The Netherlands



Anne Mombarg
S4505077
A.T. Oosterhoff
Faculty of Spatial Sciences
26-01-2024

Picture by Detta Mellema

Abstract

Only slightly over half of all children between the ages of 4 and 12 in the Netherlands meet the physical activity guidelines. Child obesity carries many risks that could be mitigated with increased physical activity. Children who participate in organized sports tend to meet the physical activity guidelines. Participation in organized sports is greatly influenced by the socio-economic status (SES) of their parents. The relationship between physical activity of children and their parents SES have mixed findings. Moreover, conducting further research in various settings will provide a better understanding of how parental SES impacts the physical activity levels and participation in organized sports of their children.

This quantitative study examines the relationship between parental socio-economic status and their children's participation in organized sports, while also exploring whether these two factors are associated with the level of physical activity among children. Additionally, it examines the role of economic capital, material resources, and health knowledge in parental SES and their children's participation in organized sports. Data retrieved from a self-administered survey with parents having children aged between 4 and 12 as respondents is used in binomial logistic, linear, and multinomial logistic regressions. This data is utilized to assess the existence and direction of the relationship.

The results indicate that there is no relationship between parental SES and their children's participation in organized sports. Additionally, no relationship was found between parental SES, participation in organized sports, and the physical activity levels of their children. However, a positive relationship was found between physical activity and participation in sports associations among children. These contradictory findings in this sample, in comparison to previous research, may be attributed to the sample itself or other external factors. Therefore, a definitive conclusion regarding the relationship can not be drawn, and further research should be conducted to investigate these external factors more extensively.

Table Of Contents

| | |
|----------------------------------------------------------------------------------|-----------|
| 1. Introduction | 5 |
| 1.1 Background | 5 |
| 1.2 Research question | 6 |
| 2. Theoretical Framework | 7 |
| 2.1 Determinants of SES and its influence on sports participation | 7 |
| 2.2 Influence of parental social class on sports participation | 7 |
| 2.3 Influence of economic capital and material resources on sports participation | 7 |
| 2.4 Influence of education level on sports participation | 8 |
| 2.5 Conceptual model | 8 |
| 3. Methodology | 9 |
| 3.1 Research design | 9 |
| 3.2 Research instrument | 9 |
| 3.3 Respondents | 9 |
| 3.4 Analysis | 9 |
| 3.5 Ethical considerations | 11 |
| 4. Results | 12 |
| 4.1 Data | 12 |
| 4.2 Statistical analysis | 12 |
| 5. Discussion | 14 |
| 5.1 Recommendation | 15 |
| 6. Conclusion | 16 |
| 7. References | 17 |

| | |
|--------------------|-----------|
| 8. Appendix | 20 |
| 8.1. Survey | 20 |
| 8.2 SPSS output | 25 |

1. Introduction

1.1 Background

Children are becoming increasingly less active. In 2022, there was a decline (5%) in the number of children who met the physical activity guidelines (CBS, 2022). For children aged 4-12, this means engaging in one hour of vigorous activity (Gezondheidsraad, 2017). This decline was observed compared to 2021. Only 56.8% of all children aged 4 to 12 are adhering to the recommended level of physical activity (CBS, 2022). This indicates that just over half of the children in this age group are getting enough exercise. In the Netherlands, more than 1 in 10 children between the ages of 2 and 12 are overweight, and almost 3 percent are obese (CBS, 2022). In Groningen, 1 in 5 children aged 10/11 are overweight (Social Plan Bureau Groningen, 2015). Obesity and being overweight pose significant health risks, including cardiometabolic risk factors in later life and an increased risk of diabetes (Bailey et al., 2012; Boddy et al., 2014). Childhood obesity can be prevented and reduced in many ways, one of them being by increasing moderate to vigorous physical activity (Remmers, 2017). Therefore, promoting physical activity could help prevent health risks for children.

However, children are greatly influenced by their parents in terms of their sport participation and physical activity. For instance, there is a positive relationship between parents' body mass index (BMI) and that of their children (CBS, 2022; Danielzik et al., 2002; Whitaker, 2010). Another important factor in children's BMI is the education level of their parents. In the Netherlands, over 1 in 5 of the 12.29% of overweight children between the ages of 2 and 12 have parents with lower education levels (CBS, 2022). This also has long-term effects on differences in sports participation among adults that are created by different socio-economic backgrounds established in childhood (Birchwood et al., 2005). Culture is a product of our upbringing and education. There is also a close link between culture, education, and social origin (Bourdieu, 1989). The culture that is an effect of our upbringing influences our participation in organized sports as well (Nielsen et al., 2012). Next to this Nielsen et al. (2012) explained how educational level could contribute to a knowledge gap, potentially resulting in less awareness of health-related benefits and subsequently reducing the likelihood of allowing children to participate in organized sports. However, no research has fully supported this claim.

Earlier research conducted in Germany has established that children with parents of higher SES tend to participate more in organized sports (Rittsteiger et al., 2021). Children who participate in organized sports demonstrate increased physical fitness and a lower risk of being overweight (Drenowatz et al., 2013). Additionally, there is a positive relationship between children who participate in organized sports and those who meet the physical activity guidelines (Marques et al., 2016).

Other studies have also established a connection between parental SES and their children's likelihood of participating in organized sports (Nielsen et al., 2012; Drenowatz et al., 2013). However, this research has primarily been conducted outside of the Netherlands. Given the important role that sports associations play in Dutch society (van der Roes et al., 2020), focusing on a Dutch municipality could provide new insights into this topic. Additionally, there has been a contradiction in the earlier-mentioned research. Nielsen et al. (2012) found a relationship between parental SES and their children's participation in organized sports, but not between parental SES and their children's level of physical activity. On the other hand, Marques et al. (2016) discovered that children who engaged in organized sports were more likely to meet the physical activity guidelines compared to those who did not. Also, Rittsteiger et al (2021) has found a relationship between parental SES and children's physical activity. Therefore, further research is needed to better understand the relationship between parental SES, their children's level of physical activity, and participation in organized sports.

In sum, all this research highlights the importance of children's physical activity, and how they are related to the SES of their parents. There are still many children who do not comply with the physical activity guidelines. Researching the influence of their parent's SES and their children's participation in organized sports could provide a better understanding of the relationship between them and identify ways to improve the health of children.

1.2 Research question

Considering the mentioned above the following research question is proposed:

What is the relationship between parental socio-economic status (SES) and their children's sports participation?

To answer this several sub questions were made

- What is the relationship between parental SES and their children's participation in organized sports?
- What is the relationship between parental SES and the amount of physical activity of their children?
- What is the relationship between the participation in organized sport and the amount of physical activity of the children?
- Which factors of economic capital, material resources, and health knowledge have an influence on parental SES and their children's participation in organized sports?

2. Theoretical Framework

2.1 Determinants of SES and its influence on sports participation

Socio-economic status (SES) is a measurement that combines economic status and social class (Baker, 2014). Mutz & Albrecht (2017) measure this in income and level of education. In the same study SES predicts significantly for a higher measured moderate-to-vigorous physical activity. According to Marques et al. (2016), children who engage in organized sports are more likely to meet the physical activity guidelines compared to those who do not. This relationship can be explained by the extra opportunities most sport clubs offer to get physical active (f.i. extra training) and the social support to be active. Sport associations can be seen recognized as physical activity promoting setting (Kokko et al., 2019). Rittsteiger et al. (2021) also found a direct relationship between parental SES and children's physical activity. However, according to Nielson et al. (2012), although there was a relationship between parental SES and their children's participation in organized sports, there was no relationship found between parental SES and the amount of physical activity. Most research show a positive relationship between SES and sports participation.

2.2 Influence of parental social class on sports participation

Earlier research has established that children are highly influenced by their parents in many ways (Kagan, 1999). The SES of a family is often considered a significant factor influencing children's level of physical activity. This parental influence can partly be explained by Hoffman's Socialization Theory (1970), which suggests that individuals are influenced by the social interactions in their environment. This also aligns with Bourdieu (1984) and his definition of habitus. According to Bourdieu, habitus consists of a set of predispositions (inclinations or tendencies), perceptions (how they see and interpret the world), and preferences (what a person likes/prioritizes) that both structure (influence their behavior) and are structured (shaped by external factors). Bourdieu (1984) mentions that the structure of one's habitus is acquired through socialization in a social context, which is shaped, among other things, by one's social class. Social class is an important component of SES. This means that children who socialize in higher social classes are more likely to exhibit behaviors associated with higher social classes. If their parents belong to a higher class, their primary form of socialization will be with individuals from that social class. As a result, children are influenced by the social class of their parents. Additionally, Nielsen et al. (2012) highlight how different social positions lead to distinct lifestyles, tastes, resources, and practices, which in turn influence children's behavior, including their sport participation.

2.3 Influence of economic capital and material resources on sports participation

According to Bourdieu (1989), capital can be divided into social and economic capital. Economic capital refers to the wealth generated or inherited through interactions with the economy. This economic capital, when combined with material resources, can enable parents to involve their children in sports activities. Middle-class parents, who are more likely to have economic capital and material resources, can afford to let their children participate in sports (Green et al., 2005). An example for this is car ownership. A car can offer both transportation and space for engaging in organized sports (Nielsen et al. 2021). Nielsen et al. (2012) concluded from their study that economic capital and material resources have a direct relationship with the likelihood of children participating in sports. Additionally, they found that these factors are direct indicators of SES. Rittsteiger et al. (2021) demonstrated in their conceptual model (Figure 1) how parental SES leads to resources that positively impact their children's physical activity. As a result,

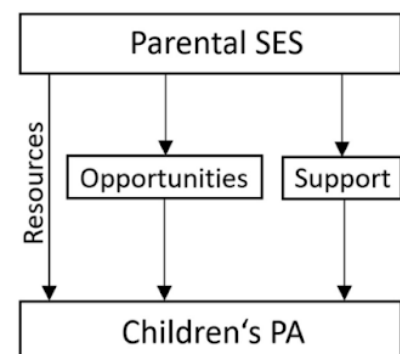


Figure 1: Conceptualization of the different effects of parental SES on children's PA (Source: Rittsteiger, 2021)

economic capital and material resources have an influence sports participation.

2.4 Influence of education level on sports participation

An important aspect of SES is education level. Parents with higher education levels are predictors for their children having a higher moderate-to-vigorous physical activity (Mutz, & Albrecht, 2017). According to Nielson et al (2012), education plays a role in access to information and consequently, participation in sports. When parents have higher education, they have greater access to information. Furthermore, students in higher education acquire better information retrieval skills (Karim et al., 2018). As a result, parents with higher education levels are more likely to possess knowledge about the importance of children's physical activity. This is a direct and independent influence of parents' education level (Nielson et al., 2012). Nielson et al. (2012) also discuss an indirect influence of education level, such as job position, which ultimately affects economic capital and status. The concept of health literacy involves understanding the significance of physical activity. Health literacy is commonly defined as "the motivation and ability to access, understand, and use information to promote and maintain good health" (Nutbeam, 2000). Next to the direct influence of education level, there is a positive relationship between higher education and higher income (Hartog and Oosterbeek, 1988). This means that education also has an indirect influence with sports participation. In conclusion, parents with higher education have better health knowledge, resulting in a higher level of sports participation.

2.5 Conceptual model

This conceptual model shows how multiple parental factors contribute to sport participation. These parental factors are retrieved from earlier-mentioned research. On the right side, there are two factors, income, and education level, which are often measured as SES. As mentioned before, the education of parents most likely affects their income. Economic capital and material resources have a direct relationship with children's sport participation. This relationship is depicted in the model, with both material resources and economic capital having a direct connection to SES and to the box representing children's sport participation. At the bottom of the model, it showcases how the education of parents leads to health knowledge. Knowledge has a direct and indirect influence on the sport participation of children. As can be seen, the health is directly put into practice to determine whether to let their children join a sports association. As mentioned earlier, when parents have a better understanding of the health benefits of exercise, they are more likely to have a higher sport participation.

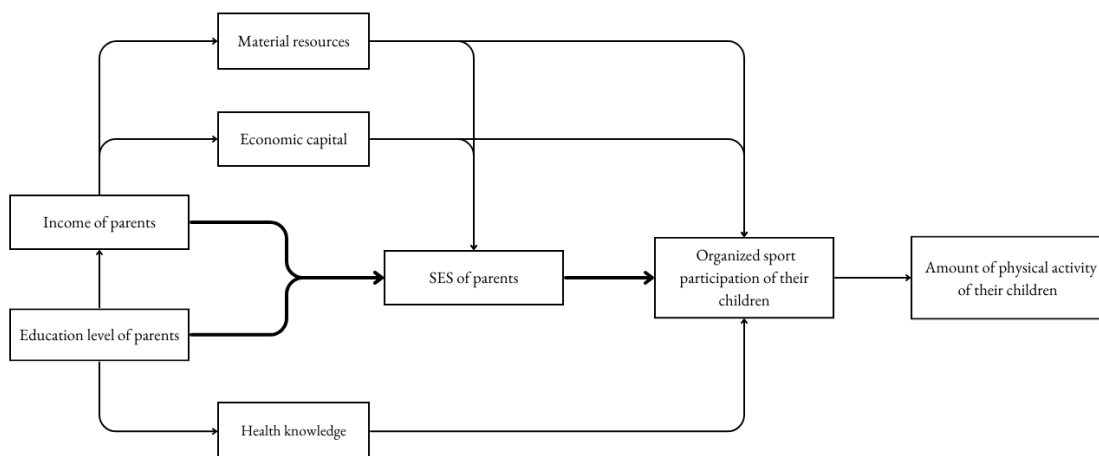


Figure 2: Conceptual model (made by author)

3. Methodology

3.1 Research design

To answer the research question, quantitative research is conducted through the collection and analysis of primary data. The research design is cross-sectional.

3.2 Research instrument

The research instrument used in this study is a survey. The survey is designed to test the conceptual model. To construct this survey next to a literature study a conversation was held with a physical education (PE) teacher from a primary school who is also involved in multiple organizations, discussing how to encourage more children to exercise. They suggested that social capital is more important than material capital in influencing children's participation in sports. However, they also explained that financial concerns can limit parents' ability to enroll their children in sports associations. When struggling to meet basic needs, parents may have less time and resources to dedicate to their children's sports activities. However, the PE teacher also mentioned that many organizations offer financial support to cover these costs, making it easier for parents to afford their children's participation. The convenience of having the mental and financial capacity to think about and facilitate children's sports involvement, along with access to luxuries such as a car, can explain why not all children are equally involved in sports associations. Therefore, additional questions related to SES were included for parents. These questions aim to understand other factors that are highly associated with their education level and income but could also have a direct impact on sports participation according to the PE teacher. By measuring if any of these additional factors have a stronger influence on participation compared to SES alone, adding an extra dimension to this research.

3.3 Respondents

The survey (see appendix 8.1) is filled out by parents from the municipality of Groningen who have children between the ages of 4 and 12. This is done to exclude any external factors, such as distance, and to focus on the age range where children are most likely to be influenced by their parents in making these kinds of decisions. For sampling different forms were used, starting with forms of convenience sampling. This was done via personal networks such as LinkedIn. Next to this, PE teachers were contacted to distribute the survey among parents. Furthermore, flyers were spread through different neighborhoods of the city as a form of random sampling. The survey ran for three months.

3.4 Analysis

The data analysis involved several statistical tests. These tests are designed to answer the sub questions, which ultimately addresses the main research question. Before running every test, a linear test is done to test the VIF scores. This checks for multicollinearity (if the predictors in a regression model are linearly dependent). If the VIF is lower than 10 we can establish multicollinearity and proceed with the test. The tests were conducted using the SPSS program.

3.4.1 Relationship parental SES and children's sports participation

For the sub question: "What is the relationship between parental SES and their children's participation in organized sports?", a binomial logistic regression is performed. This regression determines if the dependent variable can be predicted by the independent variable. The data obtained from the survey indicates whether parents have children who are involved in a sports association, with possible answers of 1) yes, 2) no, and 3) not all of them. To run the binomial logistic regression, the "not all of them" and "yes" responses are grouped and are coded as a success 1. No is coded as unsuccessful, 0. Once this grouping and recoding is done, the test is conducted with children's participation in a sports association as the dependent variable, and income and

education level as the independent variables. SES is measured in income and level in education. It is often assessed by considering education, income, and occupation (Baker, 2014). However, Research indicates that the quality of SES measurement improves when it is simplified (Cirino et al., 2002). Therefore, solely income and level of education are used. Income is treated as a numerical variable, while education level is treated as a categorical variable. The test determined if income or education level can predict children's participation in a sports association.

3.4.2 Relationship parental SES and the amount of physical activity of their children

The second sub question: "What is the relationship between parental SES and the amount of physical activity of their children?" To answer this question, a linear logistic regression is used. Similar to the binary logistic regression, it tests whether one variable predicts another variable. However, in this case, the dependent variable is numerical. The dependent variable is the number of hours, indicated by the parents, their children exercise on average per week. Income and level of education are also included as independent variables. The test determined if income or education level can predict children's physical activity.

3.4.3 Relationship participation in organized sport and amount of physical activity

The third sub question: "What is the relationship between participation in organized sports and the amount of physical activity in children?" Once again, a binomial logistic regression is used to examine this relationship. The dependent variable is whether children are participating in a sports association, while the independent variable is the amount of physical activity. The test determines whether a child's physical activity can predict whether they are in a sports association.

3.4.4 Influence of different factors on parental SES and their children's participation in organized sports

Lastly the fourth sub question is: "Which factors of economic capital, material resources, and health knowledge have an influence on parental SES and their children's participation in organized sports? Here tests are run and when significance found compared to each other to see which factor is the best predictor for parental SES and their children's participation in organized sports.

Firstly, the dependent variable is again whether their children are participating in a sports association, and to see if material resources or health knowledge are dependent on the dependent variable binomial logistic regression is used. Material resources are measured by the number of cars in a household (because of earlier research (Nielsen et al., 2021), and health knowledge will be measured by whether they correctly identified how many hours their child should exercise on a weekly basis. The question, "What do you think is the recommended amount of exercise for a child between the ages of 4-12?", was converted from a numeric variable to a binary variable. A response of 7 will be considered correct, as it represents the advised number of hours a child should exercise every week according to Gezondheidsraad (2017). This response will be coded as 1. Any other response will indicate less health knowledge and will be coded as 0, indicating it is incorrect (no success). The test determined if the number of cars or health knowledge of parents can predict whether a child is in a sport association.

For the second test, a multinomial logistic regression is run with the dependent variable being the level of education and the independent variables being the number of cars and whether they correctly identified the amount of exercise. The test determines if the number of cars or health knowledge of parents can predict their level of education.

The next test is similar to the multinomial regression, except the dependent variable is income. This means that instead of a multinomial logistic regression, a linear regression is used. The same independent variables will be used. The test determined if the number of cars or health knowledge of parents can predict their income.

3.4.5 Income and education level of parents

Lastly a test will be to measure the left side of the conceptual model which from theory predicts that education level influences income. For this a linear logistic regression is run. The dependent variable being income and the independent level of education. This test measures if the level of education can predict income of parents. The test determined if level of education of parents can predict their income.

3.5 Ethical considerations

The survey asks for personal information, such as income and information about their children. Therefore, ethical considerations were being taken into account. Before beginning the survey, parents are provided with a text explaining how the data will be handled and used. It is mentioned that the data will only be used for this research and will not be shared with other parties. It is emphasized that the data will never be traced back to them and will be deleted after the completion of this research. This is possible because a random survey ID is connected to their answers, and no information such as names is requested. The data is stored only on two personal devices and in a database on a Qualtrics account connected to a personal student account. Lastly, it is mentioned that by proceeding to the next page, they agree to their data being used. An email address is also provided for any questions or comments. Furthermore, no ethical issues were encountered.

4. Results

4.1 Data

In total, the survey was filled in 45 times. Of those surveyed, 38 had children who were participating in a sports association, 4 did not have children being member of a sports association, and 3 had children who were not all in a sports association. This results in 84% of the children in this survey are a member of a sport organization. This deviates from the national average where 69% of children between the ages of 6-12 (note that there is no data for the ages 4-5) are in a sports association (Sportbewegenincijfers, 2022).

The average number of hours of physical activity was 10,75, with a range between 6 and 18. In terms of the highest level of education, 28 respondents reported being higher educated, 5 reported being higher secondary educated, 1 reported being lower educated, and 1 reported being low educated (the rest did indicate their level of education). The average monthly income was € 5.398,44, with a range of 1000 and 18.000.

Table 1: Descriptive statistics children's participation in organized sports with mean income, mode education level of the parents and their children's mean physical activity in a week

| Children in Organized sport | n | M income | Mo education level | M physicial acitivity |
|------------------------------------|----------|-----------------|--------------------------------------------------|------------------------------|
| Yes/Not all of them | 41 | € 5.612,07 | High (higher professional education, university) | 14,5 |
| No | 4 | € 3.333,33 | High (higher professional education, university) | 7 |
| Total | 45 | € 5.398,44 | High (higher professional education, university) | 10,75 |

4.2 Statistical analysis

Before running every test, linear logistic regression is done to test the VIF scores. This checks for multicollinearity. If the VIF is lower than 10 we can establish multicollinearity and proceed with the test. None of the VIF scores were higher then 10 so every test can be run like normal. For all the analysis the significance was set at 0.05.

4.2.1 Relationship parental SES and children's sports participation

The first test run determined if income or level of education can predict whether their children are in a sports association was a binomial logistic regression. None of the p-values are significant (see appendix 8.2 table 1). This means that the income and level of education of parents are not predictors of whether their children participate in a sports association for this sample.

4.2.2 Relationship parental SES and the amount of physical activity of their children

The second run test determined if there is a linear relationship between parental income, level of education, and the amount of physical activity of their children. There is no significant linear relationship (see appendix 8.2 table 2). Meaning that there is no linear relationship between parental income or level of education and the amount of physical activity of their children.

4.2.3 Relationship participation in organized sport and amount of physical activity

The third test is binomial logistic regression to determine whether a child's membership in a sports association can predict their weekly amount of physical activity. The test is significant, indicating that the amount of physical activity can significantly predict whether a child is part of a sports association ($B = 2.227$, $p < 0.000$, see appendix 8.2 table 3). The B value of 2.227 implies that, when holding other variables constant, as the amount of exercise increases, the log-odds of a child being in a sports association also increase. Therefore, if a child engages in higher levels of physical activity, it is expected that they will be more likely to be part of a sports association.

4.2.4 Influence of different factors on parental SES their children's participation in organized sports

The next test is a binomial logistic regression, where the dependent variable is whether their children are in a sports association and the independent variables are the number of cars a household has and whether they had the affirmative answer for the question on how much their child should exercise. None of the p-values are not significant (see appendix 8.2 table 4). Therefore, we accept the null hypothesis, indicating that the number of cars or if they had the question right cannot predict whether their children are in a sports association.

To test whether the number of cars or the parents' ability to answer the questions correctly can predict their level of education, a multinomial regression is conducted. None of the variables is found to be significant (see appendix 8.2 table 5). This means that the number of cars or if they had the question right does not predict their level of education.

In the next test, the dependent variable is the number of cars. The independent variable is the income of the parents for a linear regression. There is a significant value, indicating that the number of cars is indeed linearly related to the income of the parents ($B=2560,054$, $p=0,003$. See appendix 8.2 tabel 6). This means that if a household earns more, they are likely to have more cars (this is because B is a positive number which indicates a positive relationship). However, there is no linear relationship between income and whether the parents answered the question correctly.

4.2.5 Income and education level of parents

In the last test the linear logistic regression between the dependent variable of income and the independent variable of level of education. The result is significant for the test ($B=2615,566$, $p=0,020$. See appendix 8.2 table 7). Since the B coefficient is a positive number, it is a positive relationship meaning the higher the level of education the higher the income. This is in line with the conceptual model.

5. Discussion

Before drawing the final conclusion, it is important to highlight a few aspects of this research. This study tested the influence of parents' socio-economic status on their children's participation in organized sports, as well as the association between these factors and the level of physical activity among the children. The reviewed literature acknowledges a relationship between these factors; however, there are mixed results in studies regarding the correlation between parental SES and children's physical activity or participation in organized sports. The statistical test yielded contradicting results compared to earlier research, finding no relationship between parents' SES and their children's participation in sports, as well as no relationship between SES and their children's physical activity.

For the first sub question, no relationship was found in this sample between the SES of parents and their children's participation in a sports association. This is not in line with the theory and the conceptual model. It is important to note that the small size of the dataset introduces certain risks. A small dataset can lead to biases and is not as reliable (Hackshaw, 2008). In addition, there may be other external factors that could explain the lack of relationship between parental SES and their children's participation in this sample. All respondents in this study came from the municipality of Groningen, which has the "Jeugdfonds Sport & Cultuur Groningen" initiative. This initiative pays for contributions to sports associations for families who cannot afford it. Furthermore, "Sam & Alle kinderen" provides funds for sports equipment for families in need. These initiatives could explain why, specifically in Groningen, the SES of parents is not necessarily connected to their children's participation in a sports association. In addition, the municipality of Groningen also has a lifestyle program called "BSlim," which aims to lower the barriers to participating in sports in an organized form. This could be traced back to the idea of social capital. Social capital is likely to be formed by parents; however, it could also be influenced by external factors. For example, initiatives promoting sports can form a different type of social capital for children than what their parents provide. Additionally, the influence of peers can contribute to this social capital especially for lower social class. Children from lower social classes tend to be influenced by an extend family such as physical education teachers and peers (Stuij, 2015). Nevertheless, further investigation is needed to explore these aspects.

Secondly, no relationship was found in this sample between the SES of parents and physical activity. Earlier mentioned theories have yielded mixed results, but it was expected to find a relationship. This could be attributed to the small dataset or the social capital formed by other external factors mentioned earlier. Another possible reason could be the use of bikes as a means of transportation. Many children in the Netherlands use bikes to go to school, which contributes to their level of vigorous activity (Craats et al., 2020). This may explain why parental SES does not necessarily influence the amount of physical activity in their children in the Netherlands. However, this should be further investigated.

For the third sub question, physical activity significantly predicts whether a child participates in a sports association. Children who participated in organized sports showed a higher level of physical activity, which is consistent with previous research. This finding confirms the important role that sports associations play in promoting physical activity for children, as mentioned earlier. It is also in line with the significant role that sport associations have in Dutch society (van der Roest et al., 2020).

The last sub question had mixed results. On the one hand a higher sport participation is related with more cars in a household. Which proved the link in the conceptual model that income influences material resources and economic capital. However, no relationship was found between health knowledge and income or level of education. Also, no relationship was found between education level and the number of cars. These variables were assessed in a rather simplistic manner. Material resources were measured based on the number of cars, as previous research indicated that car ownership was an important factor in children's participation in organized sports. However, this fails to account for other material resources, such as owning a bike, which is a commonly used mode of transportation in the Netherlands. Knowledge was measured by assessing whether parents had an idea of how much exercise their child should engage in. Based on this question, it was concluded that parents had a better understanding of health when getting this question right. While this conclusion was drawn quickly, it is interesting to explore how parental perceptions influence their decision to involve their children in sports. Concluding this, income does have an influence on material resources. However, economic capital, material resources, and health knowledge do not have an influence on sports participation.

5.1 Recommendation

In the end, the research method used proved to be beneficial as it yielded clear outcomes and could easily be connected to the conceptual model. The tests and survey questions complemented each other effectively, making this design of potential interest for future research.

In addition to the test questions, the survey also included background questions. Conducting qualitative research could further explore these answers and provide insights into the underlying reasons. One approach could involve interviewing parents from diverse backgrounds about their children's participation in sports. By gaining a deeper understanding of the factors contributing to the lack of relationship between SES and sports participation, potential underlying issues that were not addressed in this research could be identified. Moreover, such research could also consider the external factors mentioned earlier.

6. Conclusion

This thesis examined the relationship between parental SES and their children's participating in sports, as well as how this relates to the amount of physical activity of the children. Based on the theoretical framework, it was expected that a higher SES of parents would have a positive influence on their children's participation in sports and the amount of physical activity. A self-conducted survey was used to test these relationships in the municipality of Groningen. The statistical tests yielded conflicting results compared to earlier research, with most of them not indicating a relationship in this sample. However, some factors were in line with the conceptual model. The amount of physical activity did predict whether the children are in a sport association. Next to this, the level of education predicted income, and income predicted the number of cars in a household. If we focus solely on the sample, the answer to this research question would be that there is no relationship between parental SES and their children's likelihood of participating in (organized) sports, as well as the amount of physical activity. This could be due to external factors such as initiatives to compensate for the financial aspect or other programs promoting the physical health of children. Resulting in a different social capital than their parents. Additionally, the role of biking is an important factor in the Netherlands that should be considered for further research. Furthermore, the conflicting results may also be a result of the limited and diverse dataset. In conclusion, in this sample size, there is no relationship between parental SES and their children's participation in (organized) sports. However, to fully support this conclusion for the municipality of Groningen, a larger and more diverse sample size should be used. Therefore, we cannot draw any definitive conclusions from this sample-based test.

7. References

- Bailey, D. P., Boddy, L. M., Savory, L. A., Denton, S. J., & Kerr, C. J. (2012). Associations between cardiorespiratory fitness, physical activity and clustered cardiometabolic risk in children and adolescents: The HAPPY study. *European Journal of Pediatrics*, 171(9), 1317-1323.
- Baker, E. H. (2014). Socioeconomic status, definition. *The Wiley Blackwell encyclopedia of health, illness, behavior, and society*, 2210-2214.
- Birchwood, D., Roberts, K., & Pollock, G. (2008). Explaining differences in sport participation rates among young adults: Evidence from South Caucasus. *European Physical Education Review*, 14(3), 283–298.
- Boddy, L. M., Murphy, M. H., Cunningham, C., Breslin, G., Foweather, L., Gobbi, R., et al. (2014). Physical activity, cardiorespiratory fitness, and clustered cardiometabolic risk in 10- to 12-year-old school children: The REACH Y6 study. *American Journal of Human Biology: The Official Journal of the Human Biology Council*, 26(4), 446-451.
- Bourdieu, P. *Distinction. A Social Critique of the Judgement of Taste*. London: Routledge & Kegan Paul, 1984
- Centraal bureau van statistiek statline (CBS) (2023). CBS Statline. [online] Available at: <https://opendata.cbs.nl/#/CBS/nl/dataset/85539NED/table?ts=1696583165918> [Accessed 6 Oct. 2023].
- Centraal Bureau voor de Statistiek (CBS) (2022). Beweeggedrag jeugd Available at: <https://opendata.cbs.nl/#/CBS/nl/dataset/85457NED/table?ts=1685693975751> [Accessed 15 Dec. 2023].
- Centraal Bureau voor de Statistiek (CBS) (2022). Minder overgewicht en obesitas onder kinderen met hoogopgeleide ouders. [online] Centraal Bureau voor de Statistiek. Available at: <https://www.cbs.nl/nl-nl/nieuws/2022/45/minder-overgewicht-en-obesitas-onder-kinderen-met-hoogopgeleide-ouders>.
- Cirino, P. T., Chin, C. E., Sevcik, R. A., Wolf, M., Lovett, M., & Morris, R. D. (2002). Measuring socioeconomic status: reliability and preliminary validity for different approaches. *Assessment*, 9(2), 145-155.
- Craats, I.V., Berg, P.V., Kemperman, A., & Waygood, E.O. (2020). Children's school travel and wellbeing in the Netherlands.
- Danielzik, S., Langnäse, K., Mast, M., Spethmann, C., & Müller, M. J. (2002). Impact of parental BMI on the manifestation of overweight 5–7 year old children. *European journal of nutrition*, 41, 132-138.

Diversiteitsagenda 2.0. (n.d.). Available at: <https://gemeenteraad.groningen.nl/Documenten/Bijlage-Diversiteitsagenda-2-0.pdf> [Accessed 30 Sep. 2023].

Drenowatz, C., Steiner, R.P., Brandstetter, S., Klenk, J., Wabitsch, M. and Steinacker, J.M. (2013). Organized Sports, Overweight, and Physical Fitness in Primary School Children in Germany. [online] *Journal of Obesity*. Available at: <https://www.hindawi.com/journals/job/2013/935245/>.

Gezondheidsraad (2017). Beweegrichtlijnen 2017. [online] Available at: <https://www.gezondheidsraad.nl/documenten/adviezen/2017/08/22/beweegrichtlijnen-2017> [Accessed 4 Dec. 2023].

Green, K., Smith, A., & Roberts, K. (2005). Young people and lifelong participation in sport and physical activity: A sociological perspective on contemporary physical education programmes in England and Wales. *Leisure Studies*, 24(1), 27–43

Hackshaw, A. (2008). Small studies: strengths and limitations. *European Respiratory Journal*, 32, 1141 - 1143.

Hartog, J. and Oosterbeek, H. (1988). Education, allocation and earnings in the Netherlands: Overschooling? *Economics of Education Review*, 7(2), pp.185–194.
doi:[https://doi.org/10.1016/0272-7757\(88\)90043-x](https://doi.org/10.1016/0272-7757(88)90043-x).

Hoffman, M. L. Moral development. In P. H. Mussen (Ed.), *Carmichael's manual of child psychology*. Vol. 2. (3rd ed.) New York: Wiley, 1970. Pp. 261-359

Kagan, J. (1999). The role of parents in children's psychological development. *Pediatrics*, 104 1 Pt 2, 164-7 .

Karim, A. A., Khalid, F., Nasir, M. K. M., Maat, S. M., Daud, M. Y., & Surat, S. (2018). Enablers to Information Search and Use in Higher Learning. *Creative Education*, 9, 2089-210

Kokko, S., Martin, L., Geidne, S., Van Hove, A., Lane, A., Meganck, J., Scheerder, J., Seghers, J., Villberg, J., Kudlacek, M., Badura, P., Mononen, K., Blomqvist, M., De Clercq, B., & Koski, P. (2019). Does sports club participation contribute to physical activity among children and adolescents? A comparison across six European countries. *Scandinavian journal of public health*, 47(8), 851–858. <https://doi.org/10.1177/1403494818786110>.

Lindsay, A. C., Sussner, K. M., Kim, J., & Gortmaker, S. (2006). The role of parents in preventing childhood obesity. *The Future of children*, 169-186.

Marques, A., Ekelund, U., & Sardinha, L. B. (2016). Associations between organized sports participation and objectively measured physical activity, sedentary time and weight status in youth. *Journal of science and medicine in sport*, 19(2), 154–157.

<https://doi.org/10.1016/j.jsams.2015.02.007>

Mutz, M., & Albrecht, P. (2017). Parents' Social Status and Children's Daily Physical Activity: The Role of Familial Socialization and Support. *Journal of child and family studies*, 26(11), 3026–3035. <https://doi.org/10.1007/s10826-017-0808-3>

Nielsen, G., Grønfeldt, V., Toftegaard-Støckel, J., & Andersen, L. B. (2012). Predisposed to participate? The influence of family socio-economic background on children's sports participation and daily amount of physical activity. *Sport in Society*, 15(1), 1-27.

Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, 15(3), 259–267. doi: 10.1093/heapro/15.3.259.

Remmers, T. (2017). Unravelling environmental influences on children's physical activity. [Doctoral Thesis, Maastricht University]. Maastricht University.
<https://doi.org/10.26481/dis.20171206tr>

Rittsteiger, L., Hinz, T., Oriwol, D., Wäsche, H., Santos-Hövenner, C. and Woll, A. (2021). Sports participation of children and adolescents in Germany: disentangling the influence of parental socioeconomic status. *BMC Public Health*, 21(1). doi:<https://doi.org/10.1186/s12889-021-11284-9>.

Social Planbureau Groningen (2015) Available at:

<https://sociaalplanbureaugroningen.nl/wordpress/wp-content/uploads/2017/12/Feitenblad-Aandeel-kinderen-met-ernstig-overgewicht-neemt-af-in-de-provincie-Groningen-2015.pdf>
[Accessed 24 Sep. 2023].

Sportenbewegenincijfers (2022). Clublidmaatschap | Sport en bewegen in cijfers. [online] Available at: <https://www.sportenbewegenincijfers.nl/kernindicatoren/clublidmaatschap>.

Stuij, M., (2015) Habitus and social class: a case study on socialisation into sports and exercise, *Sport, Education and Society*, 20:6, 780-798, DOI: 10.1080/13573322.2013.827568

van der Roest, J. W., Hoeijmakers, R., & Hoekman, R. (2020). Netherlands: Sports clubs at the heart of society and sports policy. *Functions of Sports Clubs in European Societies: A Cross-National Comparative Study*, 183-209.

Whitaker, K. L., Jarvis, M. J., Beeken, R. J., Boniface, D., & Wardle, J. (2010). Comparing maternal and paternal intergenerational transmission of obesity risk in a large population-based sample. *The American journal of clinical nutrition*, 91(6), 1560–1567.

<https://doi.org/10.3945/ajcn.2009.28838>

8. Appendix

8.1. Survey

English(translated)

Thank you for your willingness to participate in my survey! Completing the questionnaire will take no more than 5 minutes.

I am Anne, a student of Human Geography and Planning at the University of Groningen. My thesis examines children's participation in sports associations and the influence of different parental characteristics. This survey contains questions that will be processed anonymously. Your answers will remain confidential and will be used exclusively for this research. Upon completion of the study, all data collected will be deleted. The final thesis will be published in the university library. Your participation will help us better understand the relationship between children, parents and sports.

Thank you again for your participation. If you have any questions, please email a.mombarg@student.rug.nl

By continuing, you consent to the processing and storage of your responses.

Q1 How many children between the ages of 4-12 do you have?

Q2 What age(s) does/do your child(ren) have?

Q3 For this survey, it is important that you fill in the questions about your child(ren) between the ages of 4-12.

Q4 Is/are your child(ren) in a sports association?

- Yes (1)
- No (2)
- Not all (3)

Q5 Why does your child(ren) belong to a sports association?

You can choose more than one answer.

- My child wanted this themselves (1)
- I find it important my child exercise (2)
- Because of friends of my child (3)
- Because school advised me to(4)
- For my child's social development (5)
- For my child's motor development (6)
- For my child to be as healthy as possible (7)
- My child is overweight (8)
- Other namely: (9) _____
- Not applicable (10)

Q6 Why is/are your child(ren) not in a sports association?

You can choose more than one answer.

- I think it is too expensive (1)
- My child doesn't want to (2)
- The sports association is too far away (3)
- There is no sports club for the sport my child plays (4)
- My child has another hobby (5)
- My child already exercises enough (6)
- I don't think it's important (7)
- Other namely: (8) _____
- Not applicable (9)

Q7 To what extent did your child(ren) have the choice to join a sport or not?

You can choose more than one answer.

- My child had completely their own choice (1)
- My child could partially choose this himself (2)
- My child and I decided this together (3)
- I decided this (4)
- Other, namely: (5) _____

Q8 On average, how many hours of exercise do/does your child(ren) do per week? (Take the average for your children if you have more than one. For exercise, consider PE classes, outdoor play, cycling, sports outside the sports association but also hours while playing sports at the sports association)

Q9 What do you think is the recommended amount of time for exercise (moderate-intensity exercise, such as cycling, walking, or swimming) per week for a child aged 4-12? Please enter the number of hours.

Q10 What is your highest completed education?

- Low (at most elementary school) (1)
- Lower secondary (vmbo) (2)
- Higher secondary (mbo, havo, vwo) (3)
- High (hbo, wo) (4)

Q11 What was your household's aggregate income (net) last month? If you do not know exactly, that is not a problem; an estimate is sufficient.

Q12 Do you own a car? Enter the number of cars in your household.

Dutch (as used)

Bedankt voor uw bereidheid om deel te nemen aan mijn onderzoek! Het invullen van de vragenlijst kost niet meer dan 5 minuten.

Ik ben Anne, een student Sociale Geografie en Planologie aan de Rijksuniversiteit Groningen. Mijn afstudeerscriptie onderzoekt de deelname van kinderen aan sportverenigingen en de invloed van verschillende kenmerken van ouders. Deze enquête bevat vragen die anoniem verwerkt zullen worden. Uw antwoorden blijven vertrouwelijk en worden uitsluitend voor dit onderzoek gebruikt. Na afloop van het onderzoek worden alle verzamelde gegevens verwijderd. De uiteindelijke scriptie wordt gepubliceerd in de universiteitsbibliotheek. Uw deelname helpt ons de relatie tussen kinderen, ouders en sport beter te begrijpen.

Nogmaals bedankt voor uw medewerking. Als u nog vragen heeft, kunt u mailen naar a.mombarg@student.rug.nl

Door verder te gaan, stemt u in met de verwerking en opslag van uw antwoorden.

Q1 Hoeveel kinderen tussen de leeftijd van 4-12 heeft u?

Q2 Welke leeftijd(en) heeft/hebben dit/deze kind(eren)?

Q3 Voor deze survey is het belangrijk dat u de vragen invult over uw kind(eren) tussen de 4-12 jaar.

Q4 Zit(ten) uw kind(eren) bij een sportvereniging?

- Ja (1)
- Nee (2)
- Niet allemaal (3)

Q5 Waarom zit(ten) uw kind(eren) wel bij een sportvereniging?

U kunt meerdere antwoorden kiezen.

- Mijn kind wilde dit zelf heel graag (1)
- Ik vind het belangrijk dat mijn kind beweegt (2)
- Door vriendjes of vriendinnetjes (3)
- Door advies van school (4)
- Voor de sociale ontwikkeling van mijn kind (5)
- Voor de motorische ontwikkeling van mijn kind (6)
- Mijn kind zo gezond mogelijk laten zijn (7)
- Mijn kind heeft overgewicht (8)
- Anders namelijk: (9) _____
- Niet van toepassing (10)

Q6 Waarom zit(ten) uw kind(eren) niet bij een sportvereniging

U kunt meerdere antwoorden kiezen.

- Ik vind het te duur (1)
- Mijn kind wil dit niet (2)
- De sportvereniging zit te ver weg (3)
- Er is geen sportvereniging voor de sport die mijn kind beoefent (4)
- Mijn kind heeft een andere hobby (5)
- Mijn kind beweegt al genoeg (6)
- Ik vind het niet belangrijk (7)
- Anders namelijk: (8) _____
- Niet van toepassing (9)

Q7 In hoeverre had(den) uw kind(eren) zelf de keuze om wel of niet op een sport te gaan?

U kunt meerdere antwoorden kiezen.

- Mijn kind had volledig eigen keuze (1)
- Mijn kind kon dit deels zelf kiezen (2)
- Mijn kind en ik hebben dit samen besloten (3)
- Ik heb dit besloten (4)
- Anders namelijk: (5) _____

Q8 Hoeveel uren beweegt/bewegen uw kind(eren) gemiddeld per week? (Neem hierbij het gemiddelde van uw kinderen als u meerdere kinderen heeft. Denk bij bewegen aan de gymlessen, buitenspelen, fietsen, sporten buiten de sportvereniging maar ook uren tijdens het sporten bij de sportvereniging)

Q9 Wat denkt u dat de aanbevolen hoeveelheid tijd voor beweging(matig intensieve inspanning, zoals fietsen, wandelen of zwemmen) per week voor een kind met de leeftijd van 4-12 jaar is? Vul het aantal uren in.

Q10 Wat is uw hoogst afgeronde opleiding?

- Laag (maximaal basisschool) (1)
- Lager middelbaar (vmbo) (2)
- Hoger middelbaar (mbo, havo, vwo) (3)
- Hoog (hbo, wo) (4)

Q11 Wat was het verzamelinkomen(netto) van uw huishouden afgelopen maand? Als u het niet precies weet, is dat geen probleem; een schatting is voldoende.

Q12 Heeft u een auto? Vul hier het aantal in van de auto's van uw huishouden.

8.2 SPSS output

Table 1: Result of binomial logistic regression with dependent variable whether their children are in a sports association and the independent variables income and level of education

| Variables in the Equation | | | | | | | |
|---------------------------|--------------------|--------|-----------|-------|----|-------|---------------|
| | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 1 ^a | Income | ,001 | ,000 | 1,868 | 1 | ,172 | 1,001 |
| | Education level | | | ,018 | 2 | ,991 | |
| | Education level(1) | 20,656 | 40192,970 | ,000 | 1 | 1,000 | 934495842,993 |
| | Education level 2) | -,215 | 1,597 | ,018 | 1 | ,893 | ,806 |
| | Constant | -,092 | 1,796 | ,003 | 1 | ,959 | ,912 |

Table 2: Result of linear regression with dependent variable physical activity of children association and the independent variable income and level of education of parents.

| Variables in the Equation | | | | | | | |
|---------------------------|--------------------|--------|-----------|-------|----|-------|---------------|
| | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 1 ^a | Income | ,001 | ,000 | 1,868 | 1 | ,172 | 1,001 |
| | Education level | | | ,018 | 2 | ,991 | |
| | Education level(1) | 20,656 | 40192,970 | ,000 | 1 | 1,000 | 934495842,993 |
| | Education level 2) | -,215 | 1,597 | ,018 | 1 | ,893 | ,806 |
| | Constant | -,092 | 1,796 | ,003 | 1 | ,959 | ,912 |

Table 3: Result of binomial logistic regression with dependent variable whether their children are in a sports association and the independent variable physical activity

| Variables in the Equation | | | | | | | |
|---------------------------|----------|-------|------|--------|----|------|--------|
| | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 1 | Constant | 2,277 | ,525 | 18,814 | 1 | ,000 | 9,750 |

Table 4: Result of binomial logistic regression with dependent variable whether their children are in a sports association and the independent variables number of cars and health knowledge of parents and

| Variables in the Equation | | | | | | | |
|---------------------------|----------------|---------|----------|------|----|------|---------------|
| | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 1 ^a | Cars | 19,907 | 5923,933 | ,000 | 1 | ,997 | 442171569,541 |
| | right_wrong(1) | 18,991 | 5923,933 | ,000 | 1 | ,997 | 176868627,816 |
| | Constant | -18,298 | 5923,933 | ,000 | 1 | ,998 | ,000 |

Table 5: Result of binomial logistic regression with dependent variable level of education of the parents and the independent variables number of cars and health knowledge of parents and

| Parameter Estimates | | | | | | | | | |
|--------------------------------------------------------|--------------------|----------------|------------|-------|----|-------|--------------|------------------------------------|----------------|
| What is your highest completed education? ^a | | B | Std. Error | Wald | df | Sig. | Exp(B) | 95% Confidence Interval for Exp(B) | |
| | | | | | | | | Lower Bound | Upper Bound |
| Low (max primary school) | Intercept | -33,807 | 4830,967 | ,000 | 1 | ,994 | | | |
| | [Car.=,00] | 18,187 | 3898,478 | ,000 | 1 | ,996 | 79182569,094 | ,000 | . ^b |
| | [Car.=1,00] | -,086 | 4904,867 | ,000 | 1 | 1,000 | ,918 | ,000 | . ^b |
| | [Car.=2,00] | 0 ^c | . | . | 0 | . | . | . | . |
| | [right_wrong=,00] | 15,393 | 2853,089 | ,000 | 1 | ,996 | 4843491,134 | ,000 | . ^b |
| | [right_wrong=1,00] | 0 ^c | . | . | 0 | . | . | . | . |
| Lower secondary (vmbo) | Intercept | -34,313 | 5565,433 | ,000 | 1 | ,995 | | | |
| | [Car. = 00] | -,766 | ,000 | . | 1 | . | ,465 | ,465 | ,465 |
| | [Car.=1,00] | 15,894 | 3704,387 | ,000 | 1 | ,997 | 7995307,160 | ,000 | . ^b |
| | [Car.=2,00] | 0 ^c | . | . | 0 | . | . | . | . |
| | [right_wrong=,00] | 15,916 | 4153,500 | ,000 | 1 | ,997 | 8174024,536 | ,000 | . ^b |
| | [right_wrong=1,00] | 0 ^c | . | . | 0 | . | . | . | . |
| Higher secondary (mbo, havo, vwo) | Intercept | -1,533 | 1,202 | 1,625 | 1 | ,202 | | | |
| | [Car.=,00] | ,455 | 1,408 | ,104 | 1 | ,747 | 1,576 | ,100 | 24,897 |
| | [Car.=1,00] | -1,769 | 1,228 | 2,074 | 1 | ,150 | ,171 | ,015 | 1,893 |
| | [Car.=2,00] | 0 ^c | . | . | 0 | . | . | . | . |
| | [right_wrong=,00] | ,559 | 1,242 | ,202 | 1 | ,653 | 1,748 | ,153 | 19,964 |
| | [right_wrong=1,00] | 0 ^c | . | . | 0 | . | . | . | . |

a. The reference category is: hig (hbo, wo).
b. Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing.
c. This parameter is set to zero because it is redundant.

Table 6: Result of binomial logistic regression with dependent variable whether their children are in a sports association and the independent variables the number of cars and health knowledge

| Coefficients ^a | | | | | | | | |
|---------------------------|-------------|-----------------------------|------------|---------------------------|-------|------|-------------------------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 1730,386 | 1135,636 | | 1,524 | ,139 | | |
| | Cars | 2560,054 | 777,885 | ,524 | 3,291 | ,003 | ,985 | 1,015 |
| | right_wrong | 1536,221 | 1040,122 | ,235 | 1,477 | ,151 | ,985 | 1,015 |

Table 7: Result of linear logistic regression with dependent variable income and independent variable level of education of parent

| Coefficients ^a | | | | | | | | |
|---------------------------|-----------------|-----------------------------|------------|---------------------------|------------|------|-------------------------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | - 4641,509 | 4091,135 | | - 1,135 | ,266 | | |
| | Education level | 2615,566 | 1066,700 | ,414 | 2,452 | ,020 | 1,000 | 1,000 |