

The Social Return on Investment (SROI) of Sports and Physical Activity

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1 Why the need for an SROI of sports and physical activity?

1.1 The SROI of sports and physical activity assesses the costs and benefits and helps rationalise, account for and improve municipal policy.

Engaging in sports and physical activity has social value. It makes people healthier and happier; this is not up for debate. But how healthy and how happy? And does it outweigh the investments made? Currently that is not very clear. This is why the Knowledge Centre for Sport Netherlands asked Rebel and the Mulier Institute to calculate the Social Return on Investment (SROI) of sports and physical activity in the Netherlands as accurately as possible. This SROI compares the monetized social costs and the monetizes social benefits related to people who engage in sports and physical activity.

The preliminary work for this study was already partially done. In 2017 Ecorys published a report on the social value of engaging in sports and physical activity (largely monetarised). The task assigned to Rebel and the Mulier Institute was a) to put the costs alongside these results – to be able to make a comparison – and b) to develop an instrument that calculates the estimated SROI for each municipality, while taking the local differences (composition of the population, physical environment, available sports, etc) into account.

The local differences are important, because they can explain why people in municipality A engage more in sports and physical activity than the people in municipality B. This may be due to external factors, for example the attractiveness of the natural environment. But it can also include factors that a municipality can influence, namely the investments it makes in facilities and activation programmes. This way the SROI of engaging in sports and physical activity can help a municipality rationalise and account for the decisions it makes, as well as help it further improve its sports policy.

1.2 By combining different sources and research, we can estimate the SROI of sports and physical activity in the Netherlands, and determine the factors that drive the SROI.

We define the central question of this study as follows: 'What is the SROI of sports and physical activity, and how does it vary by municipality?' The key sub-questions are:

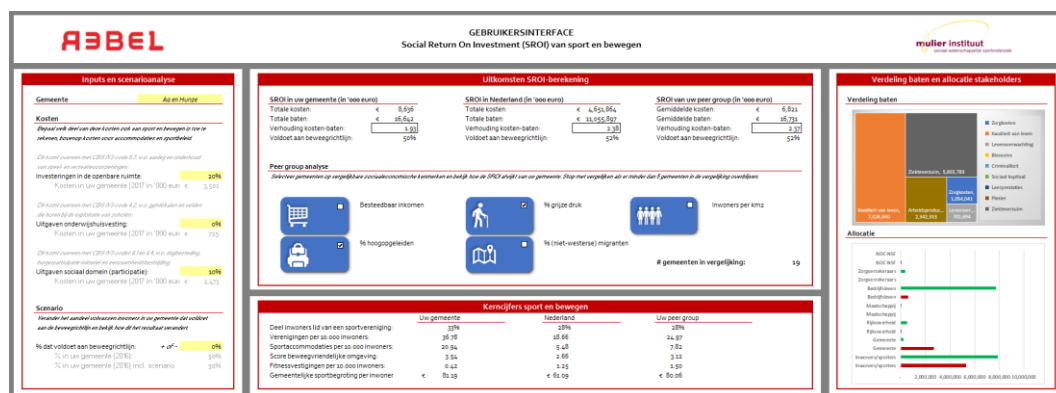
- How do we define 'sports and physical activity'?
- What are the costs incurred for having people engage in sports and physical activity?
- What are the benefits of engaging in sports and physical activity?
- What is the SROI of sports and physical activity in the Netherlands?
- What factors determine the degree to which people engage in sports and physical activity, and what is the municipality's degree of influence on this?

Our research approach is a combination of a literature review, group meetings with municipal policymakers, group meetings with experts in the field and in-depth case studies involving the

municipalities of Amersfoort, Noordwijk and Vlaardingen.¹ Appendix 1 contains a summary of the sources used.

To provide insight into the SROI of sports and physical activity for each municipality, Rebel and the Mulier Institute developed a dashboard.² The dashboard also enables municipalities to compare themselves with a peer group. A peer group includes municipalities with comparable socioeconomic variables (such as income and/or education). We had to make additional assumptions in order to come up with an estimate for each municipality. Appendix 2 contains a summary of all of the assumptions used. Appendix 3 contains an explanation of the dashboard.

Figure 1.1: SROI dashboard



In each chapter of this report, we answer the sub-questions in the sequence in which they are listed. At the end of the report you will find a discussion chapter in which we explore the limitations of the SROI study and the possibilities of a follow-up study.

¹ In these case studies, a number of specific data analyses were carried out relating to the (development of) costs, benefits and sports and physical activity behaviour in the relevant municipalities. The results were further clarified in two meetings with the responsible sports or other civil servants. This gave us a better understanding of the driving forces behind the SROI in these municipalities. Giving policy advice to the municipalities was not part of the case studies.

² The dashboard is managed by the Knowledge Centre for Sport Netherlands.

2 How do we define 'sports and physical activity'?

2.1 There are several interpretations of sports and physical activity; we have opted for a practical approach and ensure that the scope of the benefits and costs is as consistent as possible.

There are many interpretations of the terms sports and physical activity. There are different definitions for 'sports as a goal' and 'sports as a means'. Sports as a goal provides for a more narrow definition and concerns physical activity, a competitive element and the pursuit of excellence. However, sports are increasingly used as a means for achieving social goals. For example, fitness can improve health and bridge can contribute to fighting loneliness.³ Physical activity can be subdivided into, for example, degree of intensity (light, moderate and heavy).

We don't believe that we can provide definitive definitions for the terms sports and physical activity in our study. This is why we are opting for a pragmatic approach; which means we let the availability of the data be leading and ensure – as much as possible – that we use the same scope for the benefits and costs. Specifically, this entails the following:

1. The starting point is the assessment of the social benefits of sports and physical activity completed by Ecorys (2017). This study looked at the benefits that are obtained when a person *regularly* engages in sports and physical activity in comparison to *barely or not at all* engaging in any sports or physical activity.
2. To then translate this to the entire population, we must use an indicator that indicates how many people in an area regularly engage in sports or physical activity. In our view, this is best captured by the Dutch physical activity guidelines in effect since 2017.⁴
3. To obtain an equal balance between the costs and benefits included in our study, we only calculate the costs that in our estimation are directly related to (getting people to) engage in sports and physical activity. See Chapter 3 for further details.

In other words, there are elements that fall beyond the scope of our study. These primarily are activities that, while they are associated with sports, are not directly related to the goal of (getting people to) engage in sports and physical activity. The following elements are not included in the study on the cost side, nor on the benefit side:

- Incidental sports events – these generally do not have any structural impact and are often organised with other goals in mind other than motivating people to increasingly engage in sports and physical activity (e.g. city marketing and economic spin-offs).

³ <https://www.allesoversport.nl/artikel/wat-is-sport/>

⁴ <https://www.gezondheidsraad.nl/documenten/adviezen/2017/08/22/beweegrichtlijnen-2017>. Ecorys (2017) used the NNGB physical activity standard as the criterion for 'regularly engaging in sports and physical activity', while we base our calculations in this study on the physical activity guidelines. This physical activity guidelines are definitely more conservative than the physical activity standard; the percentage of people that meets the physical activity guidelines is lower, primarily due to the addition of bone and muscle-strengthening exercises. This may lead to more conservative estimates in this study, but definitely not to an overestimation. Because we do not know the precise assumptions used by Ecorys (2017), we are unable to make any definitive pronouncements.

- Elite sports – these less effectively match the objective of achieving social goals, such as health and inclusivity. Furthermore, the causal relationship between watching elite sports and being motivated to increasingly engage in sports and physical activity oneself has not, or only barely, been proven.
- Sustainable facilities – although we acknowledge that there is a great deal of attention for the sustainable construction and set-up of sports facilities, municipalities pursue other objectives than promoting sports and physical activity (namely: environmental gains).
- Volunteers – in the Netherlands many sports are made possible by volunteers; their effort adds to both the cost side (e.g. lost time) as to the benefit side (e.g. accrued social capital). However, in economic terms, both are usually equal. This means there's no added value in taking this into consideration in the SROI calculation.
- Passive participation – we do not consider watching sports (live or in the media) part of sports and physical activity and its social value is most likely very small.
- Derivative benefits from spin-off sectors – because people engage in sports and physical activity, this creates derivative benefits, such as employment opportunities. But this is not a direct consequence of the fact that people are increasingly engaging in sports and physical activity and therefore also falls beyond the scope of this study.

3 Costs included in this study

3.1 The costs are related to the policy goal of 'engaging in sports and physical activity'; other costs fall beyond the scope of the SROI.

Our starting point is that we include all costs in the study relating to the goal of engaging in sports and physical activity. The following table includes an overview of these cost items. We have applied an adjustment in several instances. For example, we have not included the investments of NOC*NSF in top sports programmes, because these fall beyond the scope of our SROI study. An explanation of these adjustments – for each cost item – is included in Appendix 2 under the header 'Costs'.

Table 3.1: Overview of cost items, sources and years

Cost Item	Source	Year
Central Government contribution	Rijksbegroting.nl – Ministry of Health, Welfare and Sport (VWS)	2017
NOC*NSF contribution	NOC*NSF Spending Plan	2017
Municipal expenditures	CBS (Statistics Netherlands) IV3 statements	2017 (and 2012-2016)
Contributions to associations	Contribution Monitor, Mulier Institute	2016-2017
Sponsorships and other income of associations	Association Monitor, Mulier Institute	2017
Commercial fitness revenue	CBS Statline	2017
Other commercial revenue	Expert judgement	
Swimming pool access and swimming lesson fees	CBS Statline	2015
Sports materials	Consumer spending on sports, Mulier Institute	2016

We are not including the costs incurred by provinces for sports and physical activity. The reason is that we are unable to effectively estimate which part of the spending by each province is attributable to sports and physical activity and which part is attributable to top sports, events, economic impetus for the region and the like.⁵ Because this concerns a relatively very limited cost item in comparison to all other costs, this is expected to have little impact on the total SROI.

⁵ The same considerations furthermore apply to investments made by recreational amenities boards for open air facilities.

Aside from estimating the SROI of sports and physical activity in the Netherlands, another objective of our study is to be able to approximate the SROI at the municipal level. To do this, we need to distribute all costs across all Dutch municipalities in a logical manner. How we do this, is described below.

Municipal spending on sports and physical activity is the only thing that is available at the municipal level from this overview. Primarily these are the costs for sports facilities and stimulating people to engage in sports. These costs are reported yearly to Statistics Netherlands (CBS) and are available through means of the IV3 stats (information for third parties). Investments in public spaces, educational accommodations and the social domain (participation) are in theory partly attributable to sports and physical activity. Examples are the construction of a path using asphalt (instead of shells), so that it is also suitable for rollerblading, expanding the gym as part of the renovation of a school building or the costs of daytime activities whereby seniors exercise together. Because the degree of allocation highly varies on a case-by-case basis, the municipalities are unable to provide an estimate – in the above-referenced dashboard – of the portion of these cost items to be allocated to sports and physical activity and therefore for inclusion in the SROI estimate. These costs have not been included in estimating the SROI for the Netherlands (Chapter 5).

For all other cost items we use a logical distribution key that enables us to allocate them to each municipality and to be able to calculate the SROI at the municipality level this way. For example, we do this on the basis of the number of residents, the number of association members or the number of sports facilities in a municipality. The choice of distribution keys is also explained in Appendix 2, under the header 'Costs'.

4 The social benefits of sports and physical activity

4.1 The social value of sports and physical activity can be subdivided into the categories health, social (incl wellbeing/happiness), and labour.

Richard Bailey et al. (2013) developed the Human Capital Model with 79 (qualitatively described) benefits that result from engaging in sports and physical activity. The 79 benefits are divided into six core values: physical, emotional, social, individual, intellectual and financial. In 2017, Ecorys, under contract to the Knowledge Centre for Sport, conducted a study into the socioeconomic value of sports and physical activity, including an appraisal thereof. The results of this study are a key building stone for calculating the SROI. Based on the fundament of Bailey et al. (2013), Ecorys (2017) subdivided the social benefits of engaging in sports and physical activity into three categories: health, social and labour.

In this study we used the Ecorys (2017) classification as a basis. On the one hand this provides for a well-organised overview and on the other hand it provides a reference framework for appraising a large part of the effects. In the sections below, for each main category, we describe the effects we identified and the appraisal of these effects in monetary terms (euros).

4.1.1 Health: sports and physical activity result in reduced healthcare costs, a higher quality of life, higher life expectancy and more injuries.

Engaging in sports and physical activity results in better health. In appraising these health benefits, Ecorys (2017) makes a distinction among four effects. First, healthcare costs are avoided as a result of a reduced probability of certain disorders, such as diabetes, intestinal cancer, breast cancer, depression, dementia and strokes. Second, the quality of life for these people increases due to the prevention of suffering as a result of certain disorders. The elevated quality of life is determined on the basis of a reduction in the burden of disease, expressed as 'Years Lived with Disability'. Third, sports and physical activity, due to their limiting effect on disorders, result in a longer life expectancy, calculated on the basis of 'Years of Life Lost'. Finally, sports and physical activity can also have negative effects in the form of an elevated number of injuries.

Below is an overview of the key figures pertaining to health for people who regularly engage in sports and physical activity as developed by Ecorys (2017), compared with people who do not or barely engage in any sports or physical activity (left: 5-24 years of age, right: 25-54 years of age). This table presents the average figures for the Netherlands, per person, for the expected remaining life span.

Figure 4.1: Appraisal of 'Health' benefits (Ecorys, 2017)

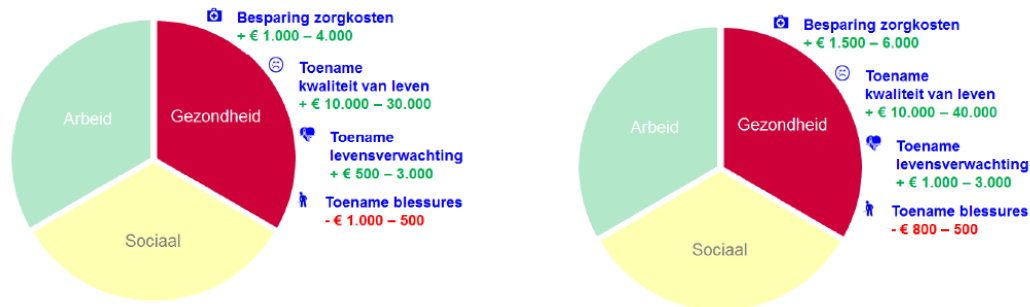


Chart translation:

Arbeid = Labour	Besparing zorgkosten = saving on health care costs
Gezondheid = Health	Toename kwaliteit van leven = increase in quality of life
Sociaal = Social	Toename levensverwachting = increase of life expectancy
	Toename blessures = increase of injuries

The literature emphasises the positive effects of engaging in sports and physical activity on health (for example Breedveld et al., 2016; Straatmeijer, 2018). Many studies make use of a comparable approach to the one used by Ecorys in appraising these effects. For example the studies conducted by SIRC (2016), Thornton et al. (2016), Lee et al. (2012) and Warburton et al. (2010) also consider the healthcare costs relating to the reduced probability of disorders in appraising the healthcare benefits of engaging in sports and physical activity. Furthermore, the 'Years Lived with Disability' (studies such as Ding et al., 2016 and GBD, 2016) and the 'Years of Life Lost' (e.g. Lee et al., 2012 and Ding et al., 2016) concepts are also regularly applied.

4.1.2 Social (incl wellbeing/happiness): sports and physical activity can improve learning performance, reduce the school dropout rate, strengthen social capital, reduce criminality and give pleasure.

Ecorys (2017) subdivides social benefits into five effects. Sports and physical activity potentially result in improved learning performance, in any event they do not result in a deterioration, and they result in a reduced school dropout rate. However, there still is insufficient quantitative supporting data to actually express these effects in monetary terms. In addition to the school-related factors, engaging in sports and physical activity can also serve an important meeting and identity function, which has a positive effect on the social ties among people. As such, engaging in sports and physical activity can contribute to building social capital. Due to a lack of quantitative supporting data, this effect has not been appraised.

There are multiple ways in which sports affect anti-social behaviour, namely: preventing boredom, teaching positive standards, acquiring status, and creating positive tension. This results in a lower probability of crime, especially among youth. Furthermore, engaging in sports and physical activity naturally gives enjoyment. Due to a lack of quantitative supporting data, this effect has not been appraised.

Finally, Ecorys (2017) suggests that the social effects of sports and physical activity are strongly dependent on the context within which they take place and that in a certain context they can even have negative effects, such as exclusion or aggression. It is argued that there is still too little insight into such effects to be able to monetise them.

Below is an overview of the key figures pertaining to the social effects for people that regularly engage in sports and physical activity as developed by Ecorys (2017), compared with people who do not or barely engage in any sports or physical activity (left: 5-24 years of age, right: 25-54 years of age). This table presents the average figures for the Netherlands, per person, for the expected remaining lifespan.

Figure 4.2: Appraisal of 'Social' benefits (Ecorys, 2017)

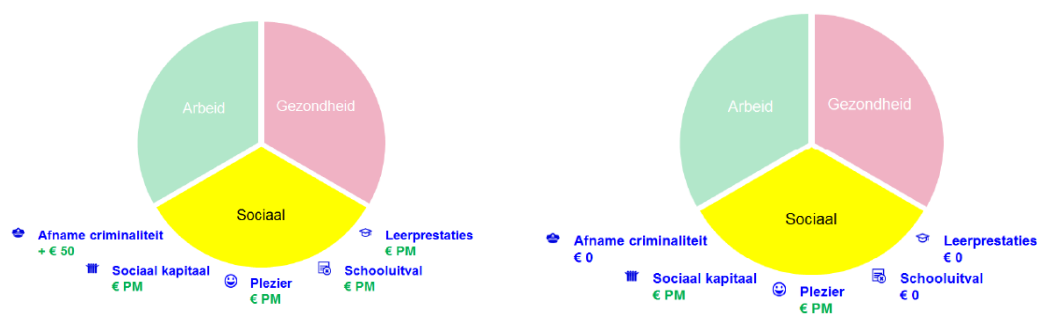


Chart translation:

Arbeid = Labour	Afname criminaliteit = decrease in crime
Gezondheid = Health	Sociaal kapitaal = social capital
Sociaal = Social	Plezier = fun
	Schooluitval = school dropout
	Leerprestaties = learning performance

The lack of quantitative supporting data for the impact on learning performance is also evident in the literature studies conducted by Breedveld et al. (2016) and Straatmeijer (2018). For example, Breedveld et al. (2016) indicates that sporting youngsters performs better at school than non-sporting youngsters, but the cause and effect are not clear. Straatmeijer (2018) writes that the potential financial benefits of improved brain function could be very high, but that more scientific supporting data is required to be able to express these benefits in monetary terms.

The literature studies also show that in terms of the impact on social capital there is too little supporting data to appraise this impact. Breedveld et al. (2016) argues that sports play an important, but generally paradoxical role in terms of social cohesion. Literature shows that in and due to sports and top sports, the social differences due to ethnic background or socioeconomic status can be bridged, but also that it often strengthens existing social ties, and consequently results in the social exclusion of socially less dominant groups. This shows that engaging in sports and physical activity does not have a clear effect on strengthening social capital.

In discussions held with experts, it was evident that in addition to potentially strengthening social capital (here: social ties among people), other intangible effects can also result from playing sports (and to a lesser extent from engaging in physical activity). Straatmeijer (2018) points out that sports and

physical activity can have an effect on acquiring social skills and self-confidence, in a positive as well as a negative sense. In addition, participation in sports by youngsters can have a positive impact on personal development, such as reducing problematic behaviour and increasing wellbeing and instilling a sense of solidarity (see, for example, Super et al., 2018; Fraser-Thomas et al., 2005; Eime et al., 2013). These potential social effects are included in the study to a minor extent – by associating a value to reduced youth crime – but for a large part they are excluded because a sound appraisal methodology is missing. Chapter 7 deals with this in further detail.

4.1.3 Labour: sports and physical activity reduce absence due to illness and increase labour productivity.

Finally, Ecorys (2017) identified two effects within the category labour. Sports and physical activity have a positive effect on absence due to illness; the more people play sports, the lower the absence due to illness rate. In addition, sporting employees, aside from reduced absence, are more productive than non-sporting colleagues. This shows that sports and physical activity increase labour productivity. Both effects are assessed in terms of the average remuneration of employees adjusted for the average labour force participation rate.

Below is an overview of the key figures pertaining to the labour effects for people who regularly engage in sports and physical activity as developed by Ecorys (2017), compared with people who do not or barely engage in any sports or physical activity (left: 5-24 years of age, right: 25-54 years of age). This table presents the average figures for the Netherlands, per person, for the expected remaining lifespan.

Figure 4.3: Appraisal of 'Labour' benefits (Ecorys, 2017)

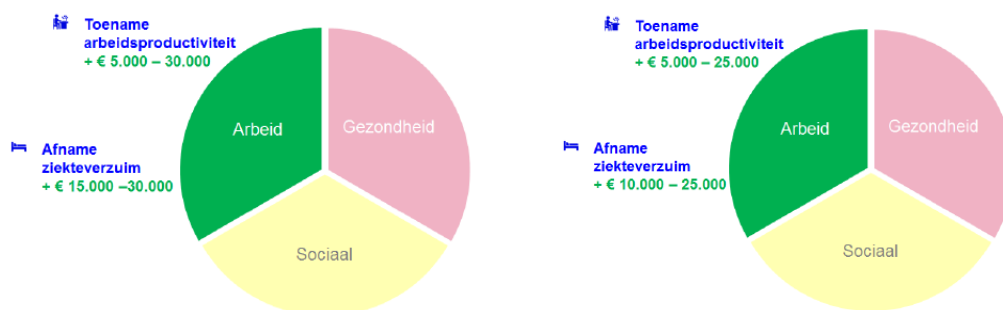


Chart translation:

Arbeid = Labour	Toename arbeidsproductiviteit = increase in labour productivity
Gezondheid = Health	Afname ziekteverzuim = decrease in absence due to illness
Sociaal = Social	

The absence due to illness and labour productivity effects are evident from the economic literature. The impact of sports and physical activity on labour productivity could also be formulated in reverse, such as Ding et al. (2016) did. They calculated the indirect productivity costs of physical inactivity on the basis of the financial value of the loss in productivity due to early death.

5 What is the SROI of sports and physical activity?

5.1 The SROI of sports and physical activity in the Netherlands is estimated to be between 1 to 2.51; i.e. the social return is over 2.5 times as high as the costs.

We estimate the SROI of sports and physical activity to be 2.51. This means that the social benefits of sports and physical activity are over 2.5 times as high as the investments made in it. Below we explain in broad outline how we came to this estimate.

The total spending on sports and physical activity in the Netherlands is over €4.4 billion. This is the total of all spending by the State, NOC*NSF, municipalities, companies and the communities involved in sports and physical activity (see table further down).

The benefits are calculated as follows:

- The calculated social benefits of sports and physical activity differs by age group. In Appendix 2 we describe how we came to this estimate of the social benefits (per year) for the age groups 5-24 years of age, 25-64 years of age and 65+. The benefits – approximated – associated with this are as follows: 1,090 euros (5-24 years), 1,260 euros (25-64 years) and 2,090 euros (65+).
- In the Netherlands (in 2016), 51.7% of people meet the physical activity guideline. In the group 25-64 years this was 56.0% and in the group 65+ this was 36.9%. The Health Monitor does not provide any data for people in the 5-24 age group. We are therefore using the average of 51.7% for this group.⁶
- On 1 January 2017, approximately 4.0 million people in the age group 5-24 years, 9.0 million in the age group 25-64 years and 3.2 million people in the age group 65+ were living in the Netherlands.
- The total benefits, rounded, are therefore 11.1 billion euros:
 - Age group 5-24: 2.3 billion euros (1,090 euros x 51.7% x 4.0 million people).
 - Age group 25-64: 6.4 billion euros (1,260 euros x 56.0% x 9.0 million people).
 - Age group 65+: 2.4 billion euros (2,090 euros x 36.9% x 3.2 million people).

The costs and benefits of sports and physical activity for all of the Netherlands are distributed as follows. It is clear that the major cost inflaters are municipal spending, spending on commercial facilities, contributions and expenditures for sports materials. The largest benefit items are: quality of life, absence due to illness and labour productivity.

⁶ Each year Statistics Netherlands (CBS) publishes national data about the number of people in the different age groups that meets the physical activity guideline (Health Survey), but there are methodological differences between the Health Monitor and the Health Survey and as a consequence the results are not comparable as such. As an additional check, we calculated the average number of young people in the age groups 4-12 years, 12-16 years, 16-20 years and 20-24 years that meet the physical activity guideline, as indicated by the Health Survey. This turned out to be approximately 50% and therefore does not deviate all that much from our assumption.

Table 5.1: Costs and benefits by category

Cost Category	Amount (millions of euros)	Return Category	Amount (millions of euros)
Commercial sports facilities (fitness and other)	1,092	Quality of life	4,668
Municipal expenditures	1,056	Absence due to illness	3,890
Sports materials	856	Labour productivity	1,556
Contributions to associations	673	Healthcare costs	700
Sponsorships and other income of associations	337	Life expectancy	467
Swimming pool access and swimming lesson fees	272	Crime	8
NOC*NSF contribution	19	Social capital	PM
Central Government contribution	15	Learning performance/school dropout rate	PM
		Enjoyment	PM
		Injuries	-233
Total	4,406		11,056

5.2 The SROI does not provide for an investments check like a Social Cost-Benefit Analysis (SCBA). For the SROI we weigh the costs and benefits in broad outline.

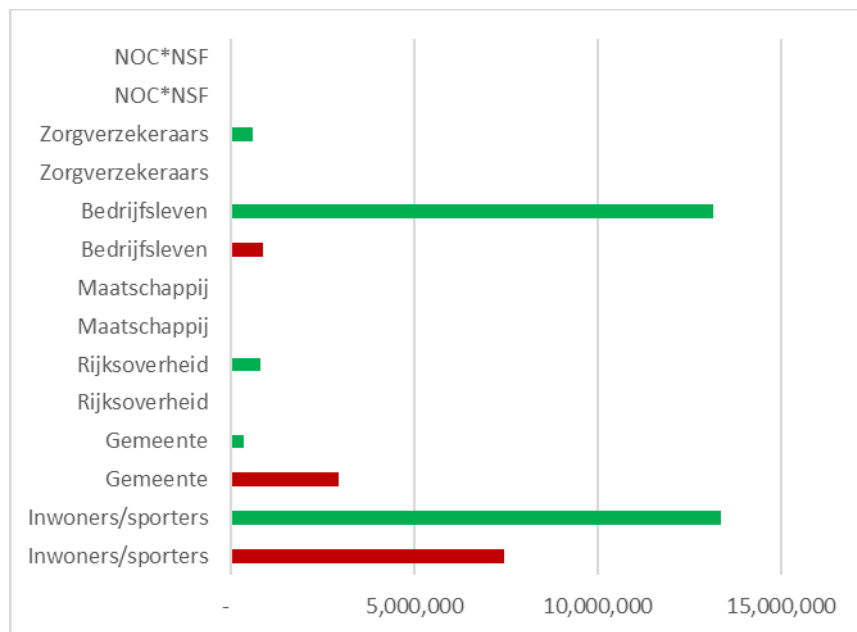
We consider it important to explain the interpretation of the SROI calculation. How should an SROI of 2.51 be interpreted? To understand this, it is important to understand the difference between an SROI and, for example, a Social Cost-Benefit Analysis (SCBA). The SROI provides a snapshot of the current state of affairs. It identifies all (annual) social costs and benefits in the broadest sense and these are then weighed off against each other. It is not a check of the expected benefits of a specific intervention. An SCBA, on the other hand, does provide for this. In case of an SCBA, you are projecting two videos at the same time, as it were. One showing how the world develops without intervention and one showing how the world develops with intervention, after which you identify the differences. For an upcoming policy decision about an intervention, such as the construction of a large facility or the organisation of a sports event, an SCBA may be an obvious choice. A challenge pertaining to SCBAs – in comparison to an SROI approach – is that there must be a sufficiently strong substantiation of the causal relationship between the interventions and the effects, so as to be able to attribute these effects to the intervention.

Example: municipality A has an SROI of 1 to 2.25. What does this tell you? It tells you that there is a positive relationship between all benefits in municipality A due to the fact that people meet the physical activity guideline, and all costs incurred in municipality A (by the sportspeople themselves, by the municipality, by the State, etc). The SROI indicates whether added value is achieved with the investments in sports and physical activity, which in case of municipality A – with an SROI higher than 1 – is indeed the case. What does this not tell you? An SROI of 1 to 2.25 does not mean that if one more euro were to be added to the municipality's sports budget, this would result in 2.25 euros in social gains and vice versa. The SROI is not a reflection of the effects of an investments decision.

5.3 Municipalities invest more than they receive in return, but benefit from a healthier and happier population; the business community proportionately benefits the most.

The graph below reflects the global distribution of the 4.4 billion euros in costs (in red) and the 11.1 billion euros in benefits (in green), which make up the SROI for all of the Netherlands.

Figure 5.1: Distribution of costs and benefits across all parties



The amounts that the NOC*NSF and the State invest in sports and physical activity are proportionately so low (also see Table 5.1) that they are not visible in this diagram. The same applies to the benefits that accrue to society – other than to the residents/sportspersons themselves. This forms part of the minor benefits relating to a reduction in crime (also see Table 5.1). Another striking observation is that the NOC*NSF does not have any benefits and that health insurers do not incur any costs that can be attributed to sports and physical activity.

The Central Government (Rijksoverheid) and health insurers (zorgverzekeraars) both have a (minor) positive balance in terms of benefits and costs. The State invests partly in sports and physical activity, but also benefits from an increase in national labour productivity. As we just indicated, health insurers do not incur any costs that are included in our calculations. At the same time, they benefit from the decreasing healthcare costs due to a healthier population. This in turn is offset by the fact that the benefits are depressed by an increased life expectancy and a higher number of injuries, but on balance the benefit of lower healthcare costs carries more weight.

Municipalities (Gemeente) invest more in sports and physical activity than they accrue in direct benefits (due to a decrease in Social Support Act (Wmo) costs and crime). However, municipalities of course also benefit from a healthier and happier population; after all, the municipality is there for the wellbeing of its residents. Add to this the fact that the social effects that have not been appraised primarily benefit the municipality and its residents.

People that engage in sports and physical activity (Inwoners/sporters) proportionately invest the most of all involved parties. There are many social benefits for this group, especially due to a higher quality of life and a higher life expectancy. As indicated above, the social effects that we were unable to appraise primarily benefit this group.

Finally: in absolute figures, the business community (Bedrijfsleven) benefits the most from a population that engages in sports and physical activity. In proportion, the benefits for this group are much higher than the costs. Furthermore, the benefits primarily accrue to employers (absence due to illness and labour productivity), while the costs largely are incurred by other companies (sponsorship).

6 What influences the degree of engaging in sports and physical activity?

6.1 Multiple factors influence sports and physical activity behaviour and consequently the SROI per municipality as well; having knowledge about these factors is relevant for policymaking.

From existing research and from the discussions we held with experts in the context of this study, we know that there are multiple factors that influence the extent to which people engage in sports and physical activity in a municipality and therefore that there are differences in SROI among municipalities. This is why, in this chapter, it is important to take a further look at what these factors are and how to explain the SROI of a municipality. We emphasise that it is important to look beyond the figures; often the key is the underlying story that explains the figures. For this reason we included the insights from the case studies of the municipalities of Amersfoort, Noordwijk and Vlaardingen in this chapter.

What possibly influences sports and physical activity behaviour in municipalities? The influencing factors may include municipal policy for sports facilities (see Section 6.2) or for stimulating sports (see Section 6.3), or may comprise socioeconomic variables and environmental factors (see Section 6.4). The availability of commercial facilities or the attractiveness of outdoor spaces for engaging in individual sports and physical activity can play a contributing role, but this is not dealt with any further in this chapter. The ultimate goal of this chapter is to gain a better understanding of the factors that can influence the SROI of a municipality and how municipalities can make use of this insight. This is why, in the following two sections, we also included the recent recommendations of the Association for Sports and Municipalities (VSG) (2018) concerning possible ways of optimising municipal policy.

6.2 Sports facilities: the largest cost item for municipalities, important for youth, and numerous considerations are involved in planning facilities.

The major part of municipal spending on sports is allocated to inside and outdoor facilities. Partially, these expenditures are unavoidable. For example, the presence of gym halls follows the presence of primary schools: the regulations stipulate that a gym hall must be present at a maximum point-to-point distance of 1 km from a primary school. But partially, it's also an autonomous decision of a municipality. In deciding to invest in a new facility or maintaining an existing facility, there are multiple considerations that can influence sports and physical activity behaviour, such as: is there a high demand for the sports that can be played in this facility? Where will the facilities be located within the municipality? Furthermore, do the facilities add something of substance to the diversity of the overall supply?

And in a broader sense, from an SROI perspective, the extent to which the investment is cost efficient is also relevant. Is the facility able to accommodate many members at low costs? Does it have a regional function and are neighbouring municipalities prepared to co-invest in facilities that are also used by their residents (e.g. swimming pools)? Does the facility have a multifunctional purpose so that other investors are also prepared to take on parts of the costs?

In general, the principle that applies is that sports facilities are more important for encouraging young people in a municipality to start playing sports, because they tend to play more in an organised context.

The trend in recent years is that adults increasingly engage in sports that are not organised (cycling, jogging, etc). The availability of facilities is therefore more important to get young people, rather than adults, to exercise (Hoekman & Van den Dool, 2017; Hoekman, 2018). The vision document 'Sports Stimulate' (VSG, 2018) therefore recommends that the planning of facilities takes the growth, contraction, preferences, barriers and meeting places of the youth target group in the municipality into account. The preference would be for sports facilities and schools in a municipality to be planned such that they are located close together (VSG, 2018).

Other considerations identified in the vision document concerning the planning and location of facilities (and the layout of public spaces) are as follows:

- Do not limit the sports policy to constructing, managing and renting sports facilities. Instead, consider the entire municipality as a potential sports space/physical exercise infrastructure and focus on promoting recreational forms of sports and physical activity and the living environment's exercise friendliness.
- Consider ways of handing over the management and operation of facilities to residents, thus reducing the municipalities' tasks. In this respect it is important to take the issue of how to safeguard the quality and the accessibility of the facilities into account.
- In an ageing municipality, assess whether closing down a sports hall is opportune when it is/was primarily used by younger people.
- Think of the sports facility as a new type of district centre with a multifunctional character. Other applications may include: accommodation for a physiotherapist, childcare facility, daytime activities or a meeting space for the district team.

Insights from the case studies

Amersfoort

Amersfoort spends a relatively large amount of its sports budget on facilities. The municipality's regional function, which, for example, is evident from the large Amerena sports complex, is largely responsible for this. Amersfoort is actively giving thought to ways in which to make its sports budget more flexible and to get more people to engage in sports and physical activity and to consequently further increase the effectiveness of its policy. Possible ways of saving on spending on facilities, for example, include investing more in exercising in outdoor spaces, collaborating with private partners and increasing the focus on proven effective interventions.

Noordwijk

Noordwijk locates its sports facilities very conscious, namely in the centre of the village. This way residents are confronted with these facilities, and in fact it is impossible to avoid them. Furthermore, it is also a good way to connect both village centres.

In recent years Noordwijk has invested a great deal in renovating sports facilities that for the most part were built in the sixties and seventies. Noordwijk has used the financial crisis to address this renovation challenge at a relatively low cost. On balance, the municipal sports costs per inhabitant have risen in

recent years, which has lowered Noordwijk's SROI. Noordwijk expects that other municipalities will also be confronted with this renovation challenge in the near future.

Vlaardingen

Vlaardingen stands on the threshold of major investments in new sports facilities. This is in part due to the necessary renovation of facilities that were built in the sixties and seventies with the aid of a government grant. The municipality is working together with a private operator on two facilities – a swimming pool and a sports hall. In one case by leasing the facilities (and then re-leasing them to educational institutions) and in the other case by providing a grant to offset the capital costs.

The municipality of Vlaardingen uses part of the costs for maintaining the sports facilities for sheltered employment. The funding for this consequently does not come from the sports budget, but from the social domain.

6.3 Stimulating sports: focus of municipalities on specific target groups, significant overlap with other policy domains and constant search for effective interventions.

Aside from investing in facilities, a municipality can also use its sports policy to actively focus on sports and physical activity. By subsidising associations, the required membership fees reduce and consequently the financial threshold for joining a sports association. Grassroots sport events result in a positive sports climate and focused stimuli make it possible to activate difficult-to-reach target groups. The use of neighbourhood sports coaches plays a key role in this regard. Their task is to enable people to increasingly engage in sports and physical activity in the neighbourhood by establishing a connection between the providers of sports and wellbeing, healthcare, social services, childcare and education.

But the municipality can also influence sports and physical activity behaviour through activities in adjacent policy domains. For example activities in the social domain, over which municipalities have had more control since decentralisation, are important in this respect. Sports and physical activity are used as a means for countering loneliness, for example. And of course, in the education sector efforts are made to enable children to engage in sports and physical activity, sufficiently and in the right way.

The vision document 'Sport Stimulates' (VSG, 2018) recommends that interventions proven to be effective, be used in stimulation projects aimed at specific target groups.⁷ Sometimes such interventions are not available. In that case municipalities have to start looking for an approach with positive experiences in actual practice or develop a new approach by experimenting. In that case VSG (2018) recommends that people first think through how this approach is expected to work and then monitor this.

⁷ Also see: <https://www.kenniscentrumsport.nl/sportinterventies-en-beweegeinterventies/>

Insights from the case studiesAmersfoort

Since 2012, the proportion of people in Amersfoort that meets the physical activity standard and the Dutch combi standard (physical activity and fitness), has been increasing more than the average in the Netherlands. The municipality is working on the basis of a district-oriented approach with specific attention devoted to the target groups youth, elderly people and people with a mental or physical limitation. In its approach, Amersfoort opts for proven effective interventions such as 'Socially Vital' for elderly people and is achieving a measurable result with this approach.

Noordwijk

Noordwijk is devoting specific attention to reaching vulnerable target groups. For example, the municipality recently subsidised a 'Walking Soccer' tournament for elderly people and provided a start-up grant for a 'Physical Activity' school – a light version of a fitness centre, especially for elderly people. 'Friends United' was a project focused on getting youth with autism engaged in physical activity.

Vlaardingen

From the municipality of Vlaardingen's own analysis it appears that women with a migration background, low income groups and the 65+ age segment, engage relatively little in sports and physical activity. The municipality is attempting to focus on this with various stimulation programmes, for example with the project 'Aging in Good Health in Vlaardingen'. This project was created in 2016 with the objective of changing people's mindset concerning the participation of elderly people in sports. The project is managed by a network organisation of approx 28 participating parties. They are working together and as a result, supply and demand are growing closer together.

6.4 Socioeconomic variables and environmental factors appear to be more significant in determining sports and physical activity behaviour in a municipality than the municipal policy itself.

Various studies have attempted to determine the relationship between municipal spending and sports and physical activity behaviour in municipalities. They have not produced a clear picture. The most recent Municipal Spending Monitor published by the Mulier Institute (Van den Dool, 2018) observes that when sports spending in a municipality is compared with participation in sports, there appears to be a slightly negative relationship. In other words: the weekly participation in sports is higher when the municipal expenditures (per resident) are lower. A suggested possible explanation for this is that municipalities are aware of the low sports participation rate and as a result increase their investments.

Gooskens (2017) and Hoekman (2018) both used regression analysis, whereby they checked for other variables, to estimate the relationship between municipal spending and participation in sports and physical activity. Gooskens's findings show a positive and significant relationship between both

variables. In his analysis, Hoekman (2018) also looked at the type of investment, age and participation in sports versus sports club membership. His conclusions are as follows:

- There is a positive relationship between municipal spending and participation of youth in sports/sports clubs.
- Participation in policy interventions has no effect on the participation of youth in sports/sports clubs.
- There is a negative relationship between municipal spending and the participation of adults in sports.

A possible explanation for this last conclusion is that neighbourhood coaches are deployed more often in municipalities with a lower sports participation rate (Hoekman, 2018). This is in line with the reasoning of Van den Dool (2018). Based on these studies it is impossible to draw any conclusions concerning the strength of the relationship between municipal investments and sports and physical activity behaviour.⁸

In addition to the municipal sports policy, there are other factors that explain the difference in sports and physical activity behaviour among municipalities. First, there are the socioeconomic variables. According to Hoekman (2018) these are more important in explaining the participation of youth and adults in sports/sports clubs than the municipal sports policy. The literature shows that the following variables have a positive effect on the degree people engage in sports and physical activity: higher level of education, higher household income, greater feeling of safety in the neighbourhood, lower age, lower level of migration, lower degree of urbanisation, fewer people with a limitation and smaller family size (Gooskens, 2017; Hoekman, 2018).

Naturally, personal variables also play a role, such as the intrinsic motivation to engage in sports or the perception of one's own health. These are not dealt with in any further detail in this study.

Second, there are the environmental factors. The influence of these factors on sports and physical activity behaviour is complex. In urban environments, sports facilities are much closer on average, which encourages people to play sports. In smaller municipalities, people use their bicycles to cover larger distances, but in the least densely populated areas the reverse is true and people more often use their car to cover such distances. The availability of nature reserves (beaches, forests, dunes, etc.) naturally increases the level of sports and physical activity (in a unorganised context). Finally, a region's history and culture have an impact on sports and physical activity behaviour. This is a factor that cannot be systematically classified or quantified, but that was brought out anecdotally.

Insights from the case studies

Amersfoort

From a statistical perspective, Amersfoort is often considered the 'most average municipality' of the Netherlands and is used as a reference point. The socioeconomic factors in Amersfoort therefore do not stand out. Far more interesting is its environment. In terms of the 'outdoor space' (one of the

⁸ Furthermore, we note that these studies consider 'plays sports weekly' as an indicator rather than the 'physical activity guideline', which we use for estimating benefits. Perhaps a study of the relationship between municipal spending and the physical activity guideline would yield different insights.

elements of the Key Indicator Exercise-Friendly Environment), Amersfoort scores lower than anywhere else in the Netherlands, but it is a well-known fact that Amersfoort residents make frequent use of the outdoor space in other municipalities. However, in the context of 'sports-inclusive thinking', the municipality makes specific investments designed to make public spaces suitable for sports and physical activity. For example by making a playground plan, a cycling plan and the organisation of walking trails (with the co-financing of sponsors).

Noordwijk

Noordwijk is a true sports-centred municipality. In Noordwijk there is a positive social pressure on parents to enrol their children in sports. This is embedded in the municipality's DNA. Furthermore, historically there always has been a competitive atmosphere between the municipalities in the so-called 'Flowerbulb Region', because their football clubs compete with each other at a high level.

Noordwijk has a fairly skewed income distribution and the municipality is relatively prosperous. This may translate into a higher participation rate. By contrast, over the past few decades the municipality's greying population has significantly increased, which can have a negative influence on the degree to which people engage in sports and physical activity.

Vlaardingen

Vlaardingen is socially lagging and it has an ageing population. The question is whether this will continue to be this way in the future. This is because, like many other municipalities, the municipality has a significant homes development programme: over the coming decades, 5,000 homes are to be built in Vlaardingen. As a result, the socioeconomic profile is expected to change. The number of young people, as well as the number of people with higher incomes, is expected to increase. The challenge is clear: the municipality must be prepared for the present and for a potentially very different future.

7 What are the next steps for the SROI of sports and physical activity?

7.1 The SROI provides (the best possible) estimate at a macro level and therefore has a number of limitations that are impossible to resolve within the context of this study.

This SROI study was conducted at macro level. We approach reality as precise as possible and relevant, but there will always be some limitations. Both on the cost and on the benefits side.

But what are these limitations? Below are a few examples related to the costs of sports and physical activity.

- We did not structurally include the provincial costs (and the costs of the recreational amenities boards) in this study, because we were not able to effectively estimate the portion for each province that is attributable to the policy objective of engaging in sports and physical activity.⁹ However, the expectation is that provincial costs only form a limited part of the total investments and in some provinces these costs are in fact nil.
- In the case studies, we found that the investments in facilities are not necessarily included in the sports budget of each municipality, and instead, for example, are included under the municipal budget header 'real estate'. In addition, at times there are costs that are included in the municipal sports budget, but not directly relatable to promoting sports and physical activity behaviour and therefore should fall outside the scope of the study (for example expenditures for talent development or the organisation of national championships). This skews the comparison of costs among municipalities. It should also be noted that a further analysis of the source data was beyond the scope of our study.
- For example, we know that there are interventions in the social domain in which sports are used as a means for achieving social objectives. These costs are not included in the sports budget, although they are attributable to sports and physical activity. The same thing applies to investments in public spaces and in educational facilities. All of this is so varied that this can only be determined at a micro level (on a case-by-case basis). This is why we have included a function in the dashboard we developed, that allows each municipality to attribute part of their costs to sports and physical activity anyway.¹⁰

⁹ In provincial budgets, the items that are relevant to this study are generally combined with other items under headers such as 'nature' or 'recreation and tourism'. An unambiguous and reliable calculation of the spending on sports and physical activity by each province is therefore not possible without specific investigation.

¹⁰ While this makes for a more accurate SROI estimate, we are not suggesting this to be comprehensive. In other words, there may be other areas as well in which municipalities make contributions to sports and physical activity that are not accounted for. For example the cycling policy. This policy in part is intended to improve the accessibility of cities and to reduce car emissions, but also, in part, to promote people's physical activity behaviour and health. However, we do not have any specific CBS IV3 data about cycling policy that we could use to enable users of the dashboard to attribute a part of this to sports and physical activity.

There are limitations on the *benefits* side of the SROI study as well.

First, not all social value is captured by measuring how many people meet the physical activity guideline. A bridge-playing tournament for seniors has little to do with physical activity. But in a broader sense it could be put under the header 'playing sports' and potentially it contributes to fighting loneliness. As long as it is not included on the costs side (i.e. as long as it is not included as part of the municipal sports budget), there is no imbalance. Otherwise, there could be an imbalance, but the data is not such that it would enable us to understand the SROI at this level of detail.

In addition, there are certain social effects that we, although we identify them, do not appraise. There may be three reasons for this: a) these effects are not easily expressed in monetary terms; b) no accepted appraisal methodologies exist for this (as yet); c) while there exist certain innovative appraisal methodologies that have occasionally been used for this in international studies, it is not possible to transpose these to the Netherlands, because the required empirical basis is still missing. Examples of these social effects include: wellbeing/happiness, self-confidence and social skills. Whether, how and when it will be possible to appraise these types of intangible effects in a meaningful way, depends on the development of the scientific economic literature. Public servants responsible for sports who decide to use the findings of this SROI study in making their future policy decisions should be aware of the fact that the model as it currently stands potentially devotes too little attention to the social value of sports conducted in an association context (in comparison to, for example, unorganised sports). Associations also have an important meeting function and are also the place where younger people acquire behavioural standards, which contributes to their personal development. These are effects that currently are not appraised in the SROI estimate.

Finally, there also are effects we have not included because we are unable to establish a clear effect. For example, the British SROI study (SIRC, 2016)¹¹ attaches a relatively high value to 'improved wellbeing'. When people increasingly engage in sports and physical activity, this will increase their wellbeing, this is not really up for debate. But to what extent is this a clear effect? For example, we would argue that a higher quality of life (which could form part of improved wellbeing) is clear. On balance the burden of disease goes down when people increasingly engage in sports and physical activity, which means that, on average, the quality of life also increases. This is why we included this in our study. The same applies to absence due to illness and labour productivity, which do not appear in the British SROI study and are probably included under the broader definition of improved wellbeing in that study. However, the effect of engaging in sports and physical activity on building social capital (which could also form part of improved wellbeing) differs on a case-by-case basis and in certain specific instances, as described above in Chapter 4, can be negatively affected by participating in sports.

The economic appraisal of improved wellbeing in Britain is based on a study in which large Britain-specific data files were analysed. A similar knowledge base for the situation in the Netherlands is not available. It is therefore not clear whether the British insights can simply be transposed to a SROI study for the Netherlands. In fact, it would most probably lead to a double counting of effects, assuming that improved wellbeing also includes effects such as a higher quality of life.

¹¹ With reference to the study conducted by Fujiwara et al. (2014).

Other limitations on the benefits side of the SROI study include the following:

- We established a relationship between the costs in 2017 and the benefits in 2017,¹² while it is entirely conceivable that there are delayed effects. In particular, young people benefit from investments in sports facilities. If this motivates them to engage in more physical activity at a young age, they may also be inclined to do so at a later age. The effect of a substantial change in the costs incurred by a municipality for sports facilities (positive or negative) would therefore only be fully visible much later.
- We do not have any data about how many youngsters (5-18 years) in each municipality meet the physical activity guideline. The Health Monitor only provides data for adults (19-64) and elderly people (65+) at this geographical level. However, it is certainly conceivable that there are differences among municipalities. In addition, we do not have any data about the average benefits for people in the age category 55+ engaged in sports and physical activity. This is why we have had to make assumptions about the physical activity guideline for both categories (5-18 years of age and 55+).

7.2 A follow-up study could help further refine the SROI on the cost as well as benefits side, which would make the findings more accurate.

Is there any way to offset these limitations with additional studies in the future?

Yes, this is partly possible by analysing the source data. Further refinement on the cost side of the SROI especially is still possible in terms of attributing the provincial and municipal costs to the policy objective 'promoting sports and physical activity'. On the benefits side, the registration of youths (5-18 years) that meet the physical activity guideline in each municipality and a more accurately estimated key indicator for benefits in the age category 55+ would make the SROI even more precise.

In terms of the appraisal of social effects, there are roughly two ways in which to further the research.

The first would be to have a study conducted at a macro level, similar to the study conducted in the British context, which makes it possible to appraise wellbeing economically. For example, this could be done as part of a research programme that includes collaboration among Statistics Netherlands (CBS), the Netherlands Institute for Social Research (SCP) and/or the Netherlands National Institute of Public Health and Environmental Protection (RIVM). The objective would be to establish a connection between the level of wellbeing and sports and physical activity behaviour at an individual level, for example by adding questions to the Health Monitor about the experienced wellbeing, and about wellbeing and income (the latter is already included in the Health Monitor). Even if it turns out to be possible to assign a value to wellbeing this way, it is still important to prevent double counting with other effects (as described in Section 7.1).

The second would be to monitor the effects of specific sports and physical activity interventions in the municipality at a micro level. The case studies have identified examples that appear to be effective – such as Sociaal Vitaal (Socially Vital) in Amersfoort – but you cannot just extrapolate a single intervention like this to the entire population of elderly people in the Netherlands. The fact that other municipalities may be engaged in other interventions, some of which may perhaps be less effective,

¹² See Appendix 2 for the supporting rationale for choosing this year.

while others may be more effective, also supports that conclusion. A case-based method of reasoning still needs to be developed for this purpose. As soon as there are additional examples and we are able to compare different cases, we will hopefully come closer to the point where we can more clearly appraise the social aspect of sports and physical activity.

7.3 It would be useful to make the knowledge from the study available in an 'open source' format and to update the calculation model with new data once every 2-3 years.

This study should be viewed as a foundation that can be further expanded and improved over time, with the aid of new information. Once more data becomes available about, for example, costs, sports and physical activity behaviour and the appraisal of the social benefits, it would be very valuable to add these to the calculation model. It is relevant to add the data already contained in the model and that becomes available again on a regular basis to the calculation model, so that trends can be identified. For example: changes in the relationship between municipal spending on sports facilities and stimulating sports. This is why we recommend to fully update the model every 2-3 years. Areas for attention in this respect are changes in municipal classification that take place in the Netherlands in the interim.

Because the calculation model contains a rich – and in the future hopefully increasingly rich – source of information for researchers, we recommend that this knowledge be made available in an open source format. The data in the model is public data and therefore would allow for this. Students, for example, could use the calculation model, with their own additions, for regression analyses to research statistical relationships. This way the calculation model can contribute to a further build-up of general knowledge.

Appendix 1: Sources and Discussion Partners

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Data Sources

CBS Statline (2015, 2016 and 2017) – various demographic and socioeconomic data

CBS Statline (2015 and 2017) – revenue from fitness centres and from swimming pool access and swimming lesson fees

CBS IV3 statements (2012-2017) – municipal spending on sports and physical activity

CBS data by SBI (standard business classification) code (2015 and 2017) – number of commercial sports facilities by municipality

Consumer spending on sports (2016) – spending on sports materials

Contribution Monitor 2016/2017 (2016-2017) – average contributions by VSG region

Database of Available Sports Mulier 2019 – number of sports facilities by municipality

Database of Associations Mulier – based on Chamber of Commerce data (2018) – number of associations by municipality

Health Monitor 2016 – number of people that meet the physical activity guideline (and other standards) by municipality

Key Indicator Exercise-Friendly Environment (EFE) (2018) – EFE key indicator score by municipality

NOC*NSF KISS data (2017) – number of association members by municipality

NOC*NSF Spending Plan and Guidelines (2017) – NOC*NSF spending on sports and physical activity

Rijksbegroting.nl (National Budget) (2017) – Central Government spending on sports and physical activity

Association Monitor Annual Report (2017) – sponsorships and other income of associations

Volksgezondheidszorg.nl (Population Health) (2015) – number of households engaging in fitness by municipality

Participant User Sessions (24 January and 11 April 2019)

Amersfoort

Vlaardingen

Noordwijk

Lelystad and Lelystad sports organisation

Katwijk

Alphen aan den Rijn

Deventer sports organisation

Sports Service Team/Municipality of Haarlemmermeer

Haarlem

Doetinchem Sports Service

Association for Sports and Municipalities (VSG)

Participant Expert Sessions (7 February and 28 March 2019)

Annet Tiessen-Raaphorst, Netherlands Institute for Social Research (SCP)

Brian Godor, Erasmus University Rotterdam

Hugo van der Poel, Mulier Institute

Wanda Vos, Netherlands National Institute of Public Health and Environmental Protection (RIVM)

Appendix 2: Overview of Key Assumptions

General

- The data files used all originate from reliable sources. Often consulted sources include Statistic Netherlands (CBS) and reports and data files produced by the Mulier Institute.
- It was not possible to always link files of the same year together, because not all of the data is maintained annually (at the right level of detail). We chose 2017 as a basis because most of the required data was available for that year. Where this was not possible, we chose the closest year before or after this for which the data was available.
- We adhered to the 2017 municipal classification. Data from earlier years for the then still existing municipalities was left out of the model.

Level of sports and physical activity

- For each municipality, we have data about the number of adults (19+) that meet the new physical activity guideline (in effect since 2017), the NNGB physical activity standard, the fitness standard, the combi (physical activity and fitness) standard and the percentage of people who play sports on a weekly basis. This data comes from the 2016 Health Monitor. When data at the municipal level was lacking, we assumed that the percentage of youths (5 to 18 years) that meet the physical activity guideline was the same as the rest of the population in every municipality.
- We opted for the new physical activity guideline as the yardstick, first of all because it replaced the old standards, and second, because it provided the best starting point for approximating the benefits calculated by Ecorys (i.e. the difference between 'not or barely and regularly engaging in sports and physical activity'). Due to the requirement to also perform bone and muscle-strengthening exercises several times a week – which is primarily achieved through intensive physical activity and sports – the new physical activity guideline in many municipalities approaches the plays sports weekly yardstick.
- The percentage of residents that meets the physical activity guideline was lacking for Meierijstad, Schiermonnikoog and Vlieland (for Meierijstad this is because this municipality was created in 2017, while the figures from the Health Monitor date from 2016). Data for part of the population (19-64 or 65+) was missing for Ameland, Dantumadiel, Ferwerderadiel and Littenseradiel. This means we were unable to calculate the benefits of sports and physical activity (and therefore the SROI) for these 7 municipalities.

Costs

Municipal spending – sports policy and activation (CBS IV3 code 5.1) and sports facilities (CBS IV3 code 5.2)

- The total spending on sports policy and activation and on sports facilities is used as a basis for municipal spending on sports and physical activity. Because one-time outliers were observed in some municipalities, we made an adjustment here and there: when the expenditures were 20% higher or lower than the average spending in the period 2012-2016, we included the average of 2012-2017 in the model.

Municipal spending – educational facilities (CBS IV3 code 4.2), public green space and recreation (CBS IV3 code 5.7), combined strength and citizens participation; guided participation (CBS IV3 codes 6.1 and 6.4)

- It is possible that part of the costs for enabling residents to engage in sports and physical activity are not captured under 'sports facilities' and 'sports policy and activation'. These are costs that are incurred in a different municipal policy domain, but with the objective of stimulating sports and physical activity. Dashboard users have the option of attributing part of these costs for their municipality as they see fit.
- Following consultation with experts and policymakers, we concluded that these costs primarily pertain to 'educational facilities' (e.g. the gym halls and fields that are part of a school's operation), 'public green space and recreation' (e.g. playgrounds and recreational facilities) and 'participation' (e.g. fighting loneliness) domains. This is why we also included these cost items in our model. Because the allocation is highly municipality-specific, we set the percentage to 0% by default.

Other Costs

- *Central Government.* Not all costs budgeted for sports by the State can be related to the objective of getting people to participate more in sports and physical activity. We only included those costs that in our estimation can be linked to this objective. This includes grants for Disabled Sports, for Sports and Physical Activity in neighbourhoods and for Stimulating a Safer Sports Climate. Other costs, for example for top sports or for funding knowledge institutes, are excluded. In addition, the State's (Ministry of Health, Welfare and Sport (VWS) and Ministry of Education, Culture and Science (OCW)) contribution to other levels of government are also excluded, because including these contributions would result in double counting with municipal expenditures.
 - To distribute the costs across municipalities, we used the distribution key 'number of residents in a municipality in comparison to the total in the Netherlands'.
- *NOC*NSF.* The same principle we applied to the State also applies here: only those costs that in our estimation directly relate to having people engage in sports and physical activity were included. In our estimation, this includes basic financing for sports associations and contributions to regional sports networks. Costs, for example for top sports, in which the NOC*NSF also plays an important role, therefore fall outside this scope.
 - To distribute the costs across municipalities, we used the distribution key 'number of association members in a municipality in comparison to the total in the Netherlands'. Where data about the number of association members was sometimes lacking, we used the average percentage association members in the Netherlands.

- *Contributions.* Contributions are the most important source of income for sports associations. From the 2016/2017 Contribution Monitor, we know the contribution levels per VSG region for athletics, handball, hockey, tennis, football and volleyball. For five of these six sports (except for handball) the NOC*NSF's KISS database also provides the share of these sports of the total number of association members. This meant that we were able to calculate a weighted average contribution for each VSG region, whereby we assumed that the sports that were not included in this on average had the same level of contribution as the five above-referenced sports.
 - To distribute the costs across municipalities, we multiplied the average contribution amount per VSG region by the number of association members in a municipality.
- *Sponsorships and other income of associations.* In addition to contributions and municipal grants, associations also derive income from sponsorships, cafeteria income, etc. From the Association Monitor 2017 Annual Report we know that this 'other income' represents approximately 1/3 of the total income. This is why, for each municipality, we applied a multiplier to the total contribution income of each association (which represents almost 2/3 of the income) of 0.5.
- *Commercial sports facilities.* People not only engage in sports in an association context or in public spaces, but also in commercial facilities. Fitness accounts for the largest part in this respect. Through Statistics Netherlands (CBS) we know the total benefits of the fitness sector. We have made our own estimate of how this benefit relates to the benefits of other commercial sectors. On this basis we adopted a multiplier of 0.5 to convert the fitness benefits into the benefits from the total available commercial sports facilities.
 - To distribute fitness revenue across municipalities, we used the distribution key 'number of households practicing fitness in a municipality in comparison to the total in the Netherlands'.
 - To distribute the benefits from other sectors across municipalities, we used the distribution key 'number of commercial facilities (riding schools, bowling and swimming pool centres and sports schools) in a municipality in comparison to the total in the Netherlands'.
- *Swimming pools.* The fees incurred by people to access a swimming pool and/or for swimming lessons are not included in the contribution expenditures nor are they included in the estimated benefits from commercial sports facilities. Because this is a significant cost item, we had to calculate this separately. From CBS, we know the level of these amounts in the Netherlands.
 - To distribute the benefits from swimming pool access and swimming lesson fees across municipalities, we used the distribution key 'number of residents in a municipality in comparison to the total in the Netherlands'.
- *Sports materials.* Sportspeople invest in materials in various ways to enable them to engage in sports. The most obvious costs are for sports clothing and shoes, and for other sports items. These costs are included in the total calculation.
 - To distribute these costs across municipalities, we used the distribution key 'number of sportspeople in a municipality that plays sports weekly in comparison to the total in the Netherlands'.

Benefits

- The Ecorys study established (broad) ranges within which the social benefits of regularly engaging in sports and physical activity (compared to not at all or barely) fall for each individual. We decided to use the bottom of these ranges as the average benefit. There are two important reasons that legitimise this conservative – bottom of the range – choice: (i) we do not have full insight into the assumptions underlying the Ecorys study, and (ii) it is fairly reasonable to assume that even without any public or private investment in sports and physical activity, a small percentage of people would engage in sports and physical activity anyway, for example by jogging on a beach or hiking in a nature reserve (this is offset by the conservative choice of the benefits per person).
- The benefits in the Ecorys study are calculated for the age groups up to and including 54 years. When there was a lack of available data for the 55-64 age group, we assumed that the benefits for this group were just as high as the 25-54 age category. For the 65+ age category we no longer consider labour productivity and absence due to illness as benefits. We did assume somewhat higher savings on healthcare costs and a higher benefit in terms of the increased quality of life.
- We used one average key figure for the benefits of sports and physical activity for three age groups: 5-24 years, 25-64 years and 65+. We calculated the average benefit of sports and physical activity for each of these groups. To approximate the total benefits in a municipality, we multiplied the average benefit by age group by the number of people in that age group who meet the physical activity guideline.
- We converted the benefits calculated per individual by Ecorys to a base year to be able to put this on the same footing as the annual costs. We did this by using a discount rate of 3% (the same as Ecorys) and a duration of 65 years (5-24 age category), 35 years (25-64 age category) or 7 years (65+ age category). This choice was based on the difference of the average age per group and the life expectancy of Dutch citizens (assumed to be 80 years).

Distribution of Costs and Benefits

- The allocation of costs to stakeholders is fairly simple. The costs incurred by the State are allocated to the State, contributions are allocated to residents/sportspeople, etc. Only the cost item sponsorship and other income of associations can be distributed across multiple stakeholders. We assume that 2/3 is allocated to the business community (particularly sponsorship) and 1/3 to the residents/sportspeople themselves (particularly cafeteria income).
- For the allocation of benefits, we made assumptions about the extent to which each benefit ends up with different stakeholders. For some types of benefits this is fairly clear (for example, the benefits resulting from a better quality of life are attributed 100% to residents/sportspeople), while it is more difficult to ascertain for other types of benefits. Our assumptions are summarised in the overview shown below.

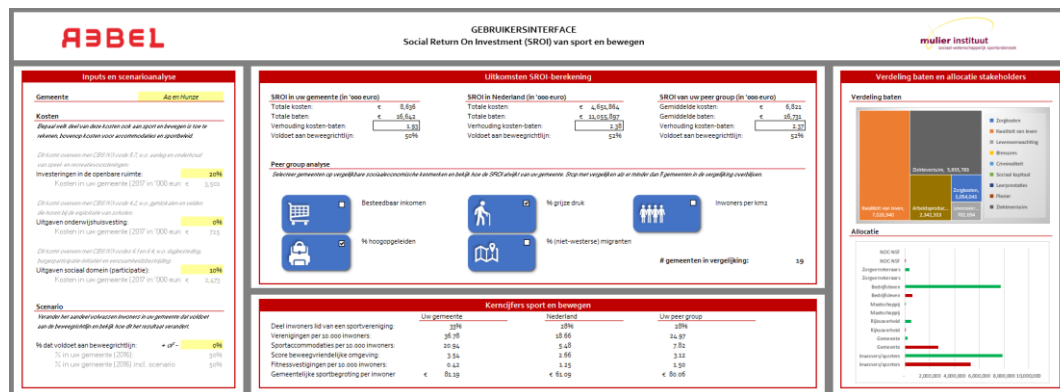
Gezondheid	Inwoners/sport	Gemeente	Rijksoverheid	Maatschappij	Bedrijfsleven	Zorgverzekeraar	NOC*NSF
Zorgkosten	20%	20%	0%	0%	0%	60%	0%
Kwaliteit van leven	100%	0%	0%	0%	0%	0%	0%
Levensverwachting	120%	0%	0%	0%	0%	-20%	0%
Blessures	60%	0%	0%	0%	0%	40%	0%
Sociaal							
Criminaliteit	0%	40%	20%	40%	0%	0%	0%
Sociaal kapitaal	60%	20%	0%	20%	0%	0%	0%
Leerprestaties / schooluitval	80%	0%	0%	20%	0%	0%	0%
Plezier	100%	0%	0%	0%	0%	0%	0%
Arbeid							
Ziekteverzuim	0%	0%	0%	0%	100%	0%	0%
Arbeidsproductiviteit	0%	0%	20%	0%	80%	0%	0%

Peer Group Analysis

- For the peer group analysis we classified each municipality into one of four quartiles (0%-25%, 25%-50%, 50%-75% and 75%-100%) on the basis of the key socioeconomic variables (disposable income, highly educated individuals, greying population, migration and residents per km²). Each municipality is assigned a score for each socioeconomic variable indicating the quartile to which it belongs. For example, the municipality of Amsterdam falls in the lowest category of municipalities (0%-25%) in terms of disposable income and in the highest category of municipalities (75%-100%) in terms of highly educated individuals, etc.
- Dashboard users can then choose to compare their municipality with other municipalities in terms of one or more of these socioeconomic variables. The more variables are selected, the fewer other municipalities are included in the comparison. This is because increasingly fewer municipalities then match each of the selected variables. We recommend you stop making comparisons when the selection includes fewer than five municipalities.

Appendix 3: Operation of the Dashboard

The dashboard that users in each municipality can use to estimate the SROI of sports and physical activity is illustrated below. The dashboard is divided into three sections – left, centre and right – and an explanation of how each section of the dashboard works follows below, using the municipality Aa en Hunze (first in the list) as the example.



Left section of the dashboard: Inputs and Scenario Analysis

Inputs and scenarioanalyse

Gemeente: Aa en Hunze

Kosten

Bepaal welk deel van deze kosten ook aan sport en bewegen is toe te rekenen, houvingskosten voor accommodaties en sportbeleid.

Dit komt overeen met CBS-rij-codes 6.2, w.o. aanleg en onderhoud van speel- en recreatievoorzieningen.

Investerings in de openbare ruimte: 20%

Kosten in uw gemeente (2017 in '000 eur): € 3,591

Dit komt overeen met CBS-rij-codes 4.2, w.o. gebouwen en velden die kosten bij de exploitatie van scholen.

Uitgaven onderwijshuisvesting: 0%

Kosten in uw gemeente (2017 in '000 eur): € 725

Dit komt overeen met CBS-rij-codes 6.1 en 6.4, w.o. dagbesteding, burgerparticipatie-initiatief en eenzaamheidsbestrijding.

Uitgaven sociaal domein (participatie): 10%

Kosten in uw gemeente (2017 in '000 eur): € 2,473

Scenario

Verander het aandeel uitkomsten inwoners in uw gemeente dat voldoet aan de beweegrichtlijn en bekijk hoe dit het resultaat verandert.

% dat voldoet aan beweegrichtlijn: 0%

% in uw gemeente (2016): 50%

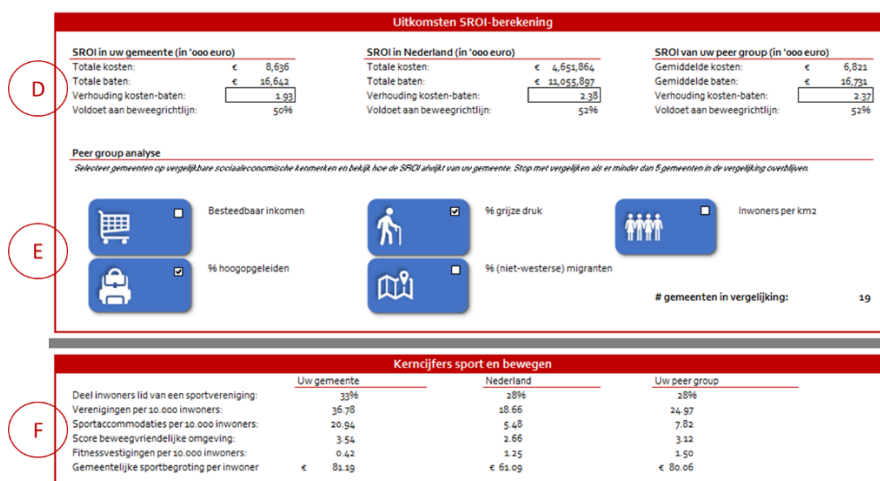
% in uw gemeente (2036) incl. scenario: 50%

- The dashboard user starts off with Part A and enters the name of the municipality for which he/she wants to see the SROI (and other data), by selecting a name from the list of all municipalities. This list contains all of the municipalities in accordance with the 2017 municipal classification.
 - Example: Aa en Hunze.
- The model by default uses the municipal sports budget as input for calculating the SROI estimate. In Part B of the dashboard, the user can include part of the costs that fall under other municipal

budget headers into the SROI estimate. These are the items 'investing in public spaces' (CBS IV3 code 5.7), 'educational facilities' (CBS IV3 code 4.2) and 'participation' (CBS IV3 codes 6.1 and 6.4). The user is required to enter the percentage of the costs here that is attributable to the policy objective sports and physical activity. This percentage will differ by municipality. Next, the model also includes these costs in the calculation of the SROI estimate for the municipality itself and for all other municipalities. The reason for this is that this way the SROIs of the municipalities continue to be mutually comparable.

- *Example: public spaces: 20%; educational facilities: 0%, participation: 10%.*
- After these first two actions are completed, the key results for the municipality and for all of the Netherlands are displayed (see next section). If desired, users can request to have a hypothetical scenario calculated in Part C of the dashboard: what would happen if the percentage of people that meets the physical activity guideline in our municipality were to change by X% (while keeping costs the same)? The model then calculates this once again for all municipalities, to maintain mutual comparability.
 - *Example: no scenario analysis (0%).*

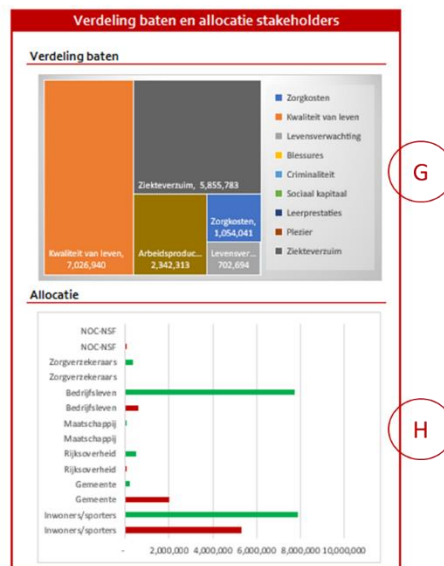
Centre of the dashboard: Outcome of the SROI calculation and key figures for sports and physical activity



- Part D of the dashboard displays the model's most important outputs by municipality and for all of the Netherlands. These are: total costs, total benefits, the SROI and the percentage of people that meets the physical activity guideline (which serves as a basis for calculating the benefits).
 - *Example: the total costs of sports and physical activity in Aa en Hunze are approx €8.6 million and the total benefits are approx €16.6 million. The SROI – the relationship between the two – is therefore as follows: 1.93. This means that the benefits of the population engaged in sports and physical activity in Aa en Hunze is almost 2x as high as all of the costs incurred by the State, the municipality, the population, etc.*

- The dashboard provides the option of comparing a municipality with a group of municipalities with the same socioeconomic characteristics (Part E). The user can select this group by checking one or more of the five blue boxes. The model then retrieves the results for all municipalities that with one or more of these characteristics fall in the same quartile (0-25%, 25-50%, 50-75%, 75-100%) as the municipality itself and calculates the average. The rationale for choosing these five characteristics is that the scientific literature shows that they exhibit a relationship with the sports and physical activity behaviour in a municipality. This enriches the comparison options for a municipality, over and above a comparison with the Dutch average alone. The outcome of this peer group analysis is displayed in Part D, once at least one or more of the five characteristics has been selected. To ensure the comparison is meaningful, we recommend a choice of characteristics that results in having at least five municipalities included in the comparison.
 - *Example: when the '% highly educated individuals' and the '% greying population' have been selected, the Aa en Hunze peer group ends up with an average SROI score of 2.37. This is higher than Aa en Hunze itself, and lower than the Dutch average.*
- To gain further insight into the possible driving forces underlying the SROI, the bottom of the dashboard contains several key figures about sports and physical activity, including the 'Key Indicator Exercise-Friendly Environment' developed by the Mulier Institute. These figures may be of help in explaining visible differences between the municipality, the Dutch average and the peer group.
 - *Example: Aa en Hunze has a relatively high association participation rate (33%) and in addition, there are relatively many associations and sports facilities per 10,000 residents (36.78 and 20.94). By contrast, fewer people in Aa en Hunze meet the physical activity guideline (50% compared to 52% in the Netherlands) and the municipality itself incurs higher costs per resident (€81.19 compared to €61.09 in the Netherlands). The fact that Aa en Hunze has a lower SROI than the average in the Netherlands may be largely due to these last two factors.*

Right section of the dashboard: Distribution of benefits and allocation to stakeholders



- Finally, the dashboard displays the distribution of benefits by type (Part G) and the allocation of costs and benefits to different involved stakeholders (Part H). Several general assumptions support the distribution and the allocation of effects as a result of which the percentages are the same for each municipality. Naturally, the amounts by municipality differ.
 - Example: the social benefits of sports and physical activity in Aa en Hunze – just as they do in other municipalities – largely consist of a higher quality of life, less absence due to illness and higher labour productivity. The associated amounts in Aa en Hunze are approx €7.0 million, €5.9 million and €2.3 million, respectively. The business community is a major beneficiary (approx €7.7 million) and incurs relatively few costs (approx €0.6 million). Aa en Hunze itself invests more in sports and physical activity than it receives in benefits (approx €0.2 million on €2.7 million), but of course it also benefits from a healthy and happy population.