Measuring objective and subjective well-being in the Netherlands

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Abstract

Many wellbeing proxies used in literature relating to economics and policy may not be fully accurate representations of the state of welfare in a country, GDP being one of them. This paper measures objective and subjective wellbeing using domains and key indicators for the country of the Netherlands throughout 2003 to 2020. There are notable year-on-year differences between objective wellbeing and subjective wellbeing. Common trends have also been identified whereby subjective wellbeing follows objective wellbeing over the medium term spanning three to five years. Objective wellbeing is captured through nine key domains, namely, education, safety and crime, environment, work / employment, degree of social inclusion, quality of institutions, health, income, and housing. Subjective wellbeing is constructed using four indicators concerning trust, self-reported happiness, self-reported subjective wellbeing, and social support. GDP is found to have a positive relationship with objective wellbeing and an insignificantly flat relationship with subjective wellbeing. The paper also identifies key policies and reforms in the Netherlands which are likely to have had an impact on the objective wellbeing domains over the period of analysis starting from 2003 to 2020.

Contents

1. Introduction

Well-being in a society can be a vague notion to understand. This is not surprising as its definition is broad and spans multiple dimensions. It can range from the job people work up to the subjective happiness derived from the environment in which people live. The research question of this project is catered to focus on an objective perspective of well-being by capturing domains which are quantifiable and compare that to a subjective wellbeing index to explain why divergencies exist (if they do) between what is objectively reported and what is subjectively stated. This is relevant because in today's society, where statistics and indicators are the main drivers of policy changes and economic decisions, misrepresentation of the state of affairs would result in less effective functioning of the democratic system. The economy wide indicator commonly used to provide a notion of the performance of a country is gross domestic product (GDP). This measurement is useful as it states the value of goods & services. Breaking that down by industry and sector, enables relevant analysers to determine economic prosperity. The statistic is widely used in many theoretical models as a proxy for development and welfare, however well-being cannot simply be measured by the value of its economic production, thus using GDP for this purpose can be considered cumbersome.

Therefore, in order to better understand society, one must be able to understand why there may be differences in how people experience and feel about their lives versus what is reported by statistics. This would theoretically be of value as it aids to have better clarity in the effects of policies conducted and how the changes brought about effect society from the perspective of the individual.

This paper is to present an index which is composed of domains related to education, safety & crime, environment, work / employment, degree of social inclusion, institutional quality, health, income and housing. The index is calculated as a time series from 2003 - 2020 (with the likelihood to include years preceding 2010) and concerns specifically the Netherlands, showing the development of each domain over the years. The domains in question are weighted in accordance with their relative importance to well-being. The overriding objective of the index is to provide an understanding of where Dutch society currently stands in terms of objective welfare. The index provides a clear-cut glance at the wellbeing and offers a notion of where society is headed towards. Moreover, using the index and its domains, more complex concepts can be identified such as social exclusion and liveability.

The key research question of this paper is as follows. Are there differences (if any) between the reported objective wellbeing of the index constructed in this paper and the subjective wellbeing index created through data gathered from publications of welfare?

Observing the changes in the index domain by domain over time and searching for plausible reasons as to why there were increases or decreases will help to provide a bridge between the data and societal developments. This will provide an explanation why the index went up or down even though GDP increased or decreased, for example. In this case identifying causation may prove to be difficult since GDP is indeed very broad and is affected by macroeconomic and political forces that are beyond the

scope of this project but searching for the part of GDP growth that can be explained / caused by increases in welfare may prove fruitful, as income is key component of welfare.

The objective and subjective indices will be able to provide a clear idea of wellbeing in accordance with the domains used. This in turn may be relevant for public policy and may shed light on current societal developmental problems, explain trends over time that have affected societal well-being and give insight into the future as to what may happen to the domains in question given current and medium/long term macroeconomic, environmental, and political developments. Where this paper differs from most other works related to wellbeing indexes is that many don't consider subjective measures of wellbeing. What is reported by individuals in a society also may not accurately transpose the actual measure of their wellbeing. The paper explores the reasons why divergences occur (if they do) between the wellbeing measure objectively provided in the analysis of this paper and the subjective wellbeing reported in welfare surveys, interviews, and questionnaires.

A flourishing society is not one that merely maximizes its economic output, and thus understanding what matters most for measuring wellbeing and understanding its changes over time enables responsible parties to better understand what constitutes sustainable societal development by looking at past trends and seeing the current status of the index can provide a useful guideline to gauge where society should be headed in the medium and long term. This entails spotting the domains in question that may be lacking and in turn be able to target resources more effectively to those areas in which marginal improvement will have the highest effect on well-being. Therefore, the index can aid in formulating key areas of improvement in society and thus aid policymakers in their decision-making process. Lastly, by not focusing on key indicators of our society and merely maximizing economic wealth, we are affecting the potential of future generations to live a sustainable and a well-balanced fair life. Economic growth does not capture environmental damage, nor does it measure societal relations and threats to our culture and way of life.

The paper is organized as follows. Section 2 contains a literature review of the results and findings of other works related to wellbeing indexes. Section 3 displays the data used relating domains and indicators, and their respective sources. Section 4 explains how the wellbeing indexes are constructed in a step-by-step manner. Section 5 presents the results of the objective and subjective wellbeing indexes. The differences and commonality are also discussed. Section 6 links the results of the indexes to economic developments and policies. Section 7 concludes and summarizes the topic.

2.Literature Review

Several other works on the topic of creating a well-being index have been made in the past. This section seeks to summarize the core findings, presents the composition of the indexes, and provides the reader with an idea of what to expect in the coming sections of this project.

Rijpma, Moatsos, & Badir, (2017) present an index for the Netherlands similar to the one constructed in this paper. They show that from 2003 up until 2009, their BW indicator and GDP per capita move in line with one another. As GDP per capita increased, so did the BW index as there was consistent improvement across most dimensions. A decrease in the number of murders and violent crime rates, causing the safety dimension to have the steepest progress. Moreover, consistent increases in life expectancy had a positive impact on the health dimension. A fall in the levels of particular matter and improvements in biodiversity resulted in sustainable progress in the dimension of environment. Up until the crises, increases in disposable income led to the healthy improvement of the wellbeing dimension.

After 2009 however, their BW indicator stagnates even though GDP per capita picks up following the crisis. It is reported that many firms retained their employees, which is evidenced in the jobs and material wellbeing dimensions given they had fallen only slightly and were largely unimpacted by the crises. In 2013 the BW indicator fell drastically. The explanation provided by the authors for this is the rise in unemployment and the reported low life satisfaction by households. Uncertainty resulting from the crisis is also cited to play a role in the subjective well-being dimension. Furthermore, decreasing housing prices affecting homeowners and higher rent costs impacting tenants had a significant impact on the housing dimension 2013 onwards. Therefore, even though economic growth resulted in the recovery of the job market in 2015, the deficit in housing and life satisfaction resulted in the lack of progress in the BW indicator.

Of all the dimensions, the only one that remained stable without significant changes was material wellbeing due to the fact that disposable income remained stagnant throughout the twelve years spanning from 2003 to 2015. The main recipients of economic growth were corporations and the government (Badir et al., 2016), partly explained by the fact that productivity growth outpaced wage growth. All in all, a pessimistic conclusion of the research is that the BW indicator hardly improved much of its level in 2003, peaking in 2009. Though economic output has recovered, wellbeing hasn't had the same strong recovery.

Part of what has been shown is that the effects on society caused by the recession were much greater than indicated merely by the value of GDP. The report 'Beyond GDP' by the OECD (2018) further goes into this argument. This gives rise to the question that is also linked to this project, namely that GDP may not correctly signal for sustainable recovery resulting from macroeconomic shocks. This comes with several issues because if the government simply follows GDP metrics, their response and decisions may not be ones that are adequately optimal for society. Hence, having a wellbeing index can uncover issues that are not shown with standardized economic growth statistics.

Indeed, the problems that arise, as stated in the research conducted by the OECD (2018), go further than economic recovery. The manner in which the crisis came to result in a loss of trust in institutions and responsible governmental bodies, which has a sustained negative impact of wellbeing. As cited by OECD (2017), European countries most severely hit by the crisis (namely Portugal, Greece and Spain) experienced a 10-point decrease of confidence in national governments. In the US, only around 20% of citizens trusted the federal government in 2017. This is directly line with the results of the BW indicator made by the authors mentioned above. If governments are not aware of these consequences, they will simply not be tackled, because they are not captured in standard economic indicators.

As reported by Saez (2016), the economic growth that came about after the crisis mostly benefited the top 1%. Therefore, the majority of households in the United States weren't actually seeing increases in their incomes, though GDP per capita was increasing. A similar phenomenon was cited in Europe. Therefore, it is indeed plausible that the average household didn't experience a real recovery from the crisis as suggested by GDP indicators at the time. This again falls well in notion that wellbeing stagnated after the crisis not only in the Netherlands. The economic insecurity has also had an impact of the wellbeing of society at a psychological level. A real estate market collapse leaves a psychological burden on people's feeling of economic safety even after the market stabilizes. This is a direct impact on wellbeing. An argument can be made here, namely that these effects on wellbeing in themselves affect proper functioning of the economy as the people in employment would not theoretically be optimally efficient at their workplace as a result of these adverse effects on their wellbeing. Therefore, it can be stated that it is in the government's best interest to ensure optimal wellbeing of its citizens such that they can be optimally productive at work to ensure economic prosperity.

A common theoretical argument found in many economics textbooks is that market failures and inefficiencies that arise in competitive markets are not internalised. Even more so, they are not captured by standard metrics of GDP. Market failures that occur from market power, missing markets that don't enrapture risks, environmental externalities and imperfect information very often affect the general population and their well-being.

The report conducted by the OECD in 2018 points to a relevant case which can explain partially why wellbeing metrics are lagging behind. The shift of pension systems from defined benefit to defined contribution has largely shifted pension income risks to the individual, leaving him/her more vulnerable to economic shocks that may affect the pension income at retirement. This has the effect of increasing economic insecurity, therefore hampering wellbeing.

There are of course aspects that GDP doesn't cover that aren't negative. Free to use technologies that allow better connectivity between people and access to knowledge and skills (Ahmad and Schreyer, 2016). These services affect wellbeing in a positive direction though counter arguments are present when it comes to side effects of technological innovations such as decreased human interactions and lower attention spans.

Easterlin (1974) reports that on average, subjective wellbeing doesn't change much beyond a certain level of GDP per capita. There is also a positional argument to be made whereby subjective wellbeing is subject to the wellbeing of others, that is one compares his/her happiness and state of being to others around in formulating their analysis on the matter.

Helliwell, Layard and Sachs, (2018) report that detrimental factors to subjective wellbeing are health, relationships and connection with others, and employment. It is noteworthy that environmental conditions do not affect subjective wellbeing as much as one would expect. A plausible reason for this is that it is difficult to internalise the correct extent of negative effects of the natural environment into one's state of being. Leyard et al (2014) find that childhood plays an important role in determining the subjective wellbeing of people in their adult life and can affect their resilience.

In this section of the literature review, we will consider wellbeing between social groups of the Dutch population. A highly relevant study done by Boelhouwer (2010) constructs a life situation index consisting of eight dimensions. Those being sports, social participation, mobility, durable consumer goods ownership, holidays, socio-cultural leisure activities, health, and housing. The general finding is that since 1974, the life situation index has generally improved across most social groups. The economic crisis that occurred in the 1980s resulted in a fall in the index which recovered by 1986.

The groups that have experienced the most improvement in the index are stated to be higher-educated individuals, single people, people in the age groups of 55 and 74 years and couples without children. Meanwhile, less than average improvement was seen in lone-parent families, people between 25 and 34 years of age and the members of society with the least amount of formal education. Interestingly, since the creation of the index in 1974, the difference in the scores of the groups at the tail ends has increased. This means that the gap between highly educated and less educated was bigger in 2006 than it was in 1974. Same applies across other dimensions.

The report states that men were initially better off than women in their life situation however that gap has been greatly reduced by 2006. Single person households tend to have the lowest scores all throughout the period of examination. Not surprisingly, those in employment were consistently doing better in their life situation scores than those without a job. The latter two results suggest how important social connections are in the domains of life of people. Moreover, examining the groups that have low scores on their index, the author shows that they tend to have low scores in areas related to income, such as mobility, housing and consumer goods ownership. The author states that environment also plays an important role. He finds that people living in smaller towns tend to score higher than those who live in the four largest cities in the Netherlands, although the gap has decreased in the times leading to 2006 as inhabitants in larger cities experienced increases in income and made progress in the development of their social lives (such as doing sports and volunteering).

3.Data

The data gathered for the Netherlands spans the period of 2003 to 2020. The main sources of data can be found in table 1 below. The objective wellbeing index is comprised of nine domains. Each of these domains has several indicators that determine its value. The subjective wellbeing index has four indicators.

Source	Website
Statistics Netherlands	*https://www.cbs.nl/en-gb/*
OECD	*https://stats.oecd.org/*
UN Office on Drugs and Crime	*https://www.unodc.org/*
PBL Netherlands Environmental Assessment Agency	*https://www.pbl.nl/en*
World Bank	*https://data.worldbank.org/*
Eurostat	*https://ec.europa.eu/eurostat/web/main/data*

Table 1: Data sources

3.1 Education

The education domain has six indicators. Percentage of young adults (15-29 years of age) who are either in education or employment. Net educational expenditures in both private and public institutions, ranging from primary to tertiary level of education. This second indicator includes all funding sources, from central government to international institutions (taken as USD in purchasing power parity).

The third indicator is average number of hours of instruction time per year in compulsory general education (this includes primary and upper secondary general education). Share of working population (25–64 year-olds) that have attained tertiary level education (ISCED2011 levels 5 to 8). The fifth indicator is rate of early school leavers from education (percentage of the total population aged 18-24). The final indicator is school life expectancy, from primary to tertiary (calculated in years).

3.2 Safety and Crime

The safety and crime domain has six key indicators. The first two are rate of burglary and theft. The third is number of victims of intentional homicide (per 100,000 population). The next two indicators are rate of serious and sexual assault in the previous 12 months (rate taken as per 100,000 of the population). The last indicator is persons held in prisons, penal or correctional institutions (rate taken as per 100,000 of the population).

3.3 Environment

The three indicators in the environment domain are total emissions by the Dutch economy. This is measured in total CO2 (millions of kilograms). Next is the general government expenditure on environmental protection, measured in millions of euros. The last indicator is the Environmental Policy Stringency Index. This is an index calculated by the World Bank and measures the extent to which environmental policies price in polluting and environmentally hazardous behaviour. The index ranges from 0 (not very stringent) to 6 (very stringent) and is based on the degree of stringency of 13 environmental policy instruments, primarily related to climate and air pollution.

3.4 Work/Employment

The three of the five indicators of the work/employment domain are employment rates by levels of education. This concerns below upper secondary education, upper secondary and post-secondary non-tertiary education, and total tertiary education. These three indicators are recorded for the working population, namely 25 to 64 year olds.

The last two indicators are the fatal accidents at work, measured as a count (relating to total number of accidents for the year) and public expenditure on public employment services. Measured as a percentage of GDP.

3.5 Degree of Social Inclusion

This domain has two indicators. The first is the voice and accountability indicator. It measures the ability of citizens to participate in selections of government, freedom of association and expression, and freedom of media. It is calculated on a range of -2.5 to 2.5. The second indicator is persons at risk of social exclusion or poverty. This is taken as a count in thousandths of persons.

3.6 Quality of Institutions

The first indicator of this domain is the government funding for research and development in business enterprise, government, higher education, private non-profit, and total intramural. Measurement taken as at 2015 dollar value and constant prices. The last three indicators are distributed on a scale of -2.5 to 2.5. The control of corruption indicator measures the extent to which the government's power is deferred from being used for private benefit. Next is the government effectiveness indicator which captures the quality of public and civil services, and quality of policy formulation and their implementation. Lastly, the regulatory quality indicator represents the governments' ability to implement policies and regulations that promote private sector development.

3.7 Income

The income domain contains four key indicators. The first is the low-income households indicator. This captures the percentage of income that accrued to the bottom 40% of the wealth distribution. Next is the income inequality indicator, which is proxied by the Gini coefficient. The third indicator is domestic consumption by households, taken as the value at current prices in millions of euros, from the GDP reading of the final expenditure approach. The last indicator is the mean disposable income. The calculation includes in-kind services that people receive for free or at subsidised prices from governments and non-profit institutions and deducts taxes and transfers.

3.8 Health

The first two indicators of the health domain are the percentage of population in good health and overweight, defined as a BMI of 25.0 kg/m2 or higher. The third indicator is public expenditure on healthcare, as a percentage of GDP. The fourth indicator is life expectancy, measured in years and is taken as an average of male and female figures.

3.9 Housing

This domain has three indicators. The first is the overcrowding rate within households as a percentage of the population. This indicator covers cities, towns, suburbs and rural areas. A household is considered overcrowded if it does not have at its disposal a minimum number of rooms equal to one room per couple in the household, one room for each single person aged 18 or more, one room per pair of children under 12 years of age, one room for each single person between 12 and 17 years of age and not included in the previous category, one room for the household or one room per pair of single people of the same gender between 12 and 17 years of age.

The next indicator is the housing cost overburden rate. This represents the total housing costs (net of housing allowances) amount to more than 40% of the total disposable household income. Indicator is measured for the percentage of the population that are applicable to this in cities, towns, suburbs, and rural areas. The last indicator is government expenditure on housing and community amenities, measured in millions of euros.

3.10 Subjective Wellbeing

The subjective wellbeing index consists of four indicators. The first is percentage of people that have trust (giving a score of a 6 or higher out of 10) in other people, legal system, police, politicians, parliament, political parties, European Parliament, and United Nations. An average is taken across the trust rates of all the mention categories. The second indicator is share of population which report happiness in terms of life satisfaction, satisfaction with education opportunities, work, travel time, daily activities, physical health, mental health, weight, the financial situation, the house, the neighbourhood, social life, and the amount of free time. In addition, concerns about the financial future, feelings of unsafety and trust in others were included. Reported as a percentage of the population. Similarly to the previous indicator, the participants were asked to rate score their happiness out of 10, and only those with scores of 7 or above were considered to have self-reported happiness.

The third indicator is self-reported subjective wellbeing, measured as a negative affect balance. The negative aspects considered relate to anger, sadness, and worry. The positive aspects affect enjoyment, feeling well-rested and laughing or smiling. The indicator refers to the share respondents who report more negative than positive feelings or states on the previous day. The last indicator is social support. Measured by the percentage of people answering "yes" to a question: “If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?”. This is taken as a deprivation rate, specifically as the percentage of people answering with a “no”.

4.Methodology

The main objective is to obtain the index for objective wellbeing and compare that to the index of subjective wellbeing. The first step in reaching that objective is to transform all the data such that it can coherently be inputted into the indices across the time period in question (2003-2020), since in its raw form it comprises of various data types such as percentages and monetary values. Minimum-maximum normalisations were used to standardise all the data into a zero to one range. For the few missing data points incurred, predicted / estimated values were used. Linear interpolation was used for this matter. It is important to note that since some indicators were negatively related to wellbeing, transformations were needed to ensure that upward movements of indicators corresponded to improvements. For such indicators, such as rate of theft, whose increase in values results in decreases in wellbeing, their inverse was taken by subtracting one minus the relevant value to obtain a positive relationship with regards to wellbeing.

The second step is to assign weights to the domains depending on the relative importance of that domain with regards to wellbeing. The determination of the weights was determined by consulting relevant indices in the literature covered as most tend to assign similar weighting to the relevant domains. Empirically, from the sources analysed, it was stated that the weighting tends to not affect the outcomes of the overall index values much though it does improve the accuracy of the findings. The majority of the weighting used was in line with the Netherlands beyond GDP: A Wellbeing Index. The weights used in that study are in accordance to taxonomy of OECD which are implemented in the Better Life Index initiative.

The third step, that comes after the determination of the weights, will be to input the data into the objective and subjective indices across the time period as per equation (1) below, in which the nine domain values are multiplied by their respective weights and summed up in that given year. It is important to note that each indicator was assigned equal weighting in its calculation of the domain. The weighting of each indicator was calculated as per equation (2) below. This automatically has the implication that the values of the domain also have a range of zero to one. Consequently, the calculation of each domain is in accordance with equation (3) below, where the summation of all the values of the indicators in domain i are multiplied by equation (2). The indices were plotted on the same graph to provide a clear picture of the results.

$$Index_t = \sum_{i=1}^{9} Weight_i \times domain_{i,t} \quad (1)$$

$$Indicator\ Weight\ within\ Domain_i = \frac{1}{number\ of\ indicators\ in\ domain_i} \quad (2)$$

$$Domain_{i,t} = (\sum_{i}^{N} Indicator_i) \times Indicator\ Weight\ within\ Domain_i \quad (3)$$

The fourth step involves answering the research question. The discrepancies between the two indices were recorded and an analysis was conducted to investigate why there were differences. In analysing the results of the indexes, the relevant domains and their indicators were observed.

The fifth step of process is providing answers to the results. It is very likely that objective measures influence subjective measures. Therefore, screening government statistics on the domains of the objective index would allow the researcher to see what the cause of major increases or decreases in the relevant domain has been. New policies and laws introduced, and major changes in expenditure on the domains would likely cause significant changes. Reviewing political and macroeconomic events and effects was also required as they would also have large impacts on the objective domains. Furthermore, identifying reasons why both indexes have not moved parallel to one another was also relevant in answering the research question. A relevant example would be investigating why improvements in healthcare have not resulted in higher overall subjective wellbeing. This would provide insights about the effectiveness of fiscal policies. This analysis has potential to find those domains that are currently most lacking and improvement in which would cause increases in subjective wellbeing.

5.Results

It is important to note that indicator scores tend to be relative. For example, if expenditure on education displays a low score, this does not necessarily mean that the level of spending is insufficient within the country. It suggests that the level of spending relative to the other years within the analysis is low. The score themselves determine the level of wellbeing. The absolute level of the wellbeing indexes are not in themselves very important, however it's the changes and levels that are being focused on in the analysis.

Due to the transformations and normalisations of the data, results are stated in purely ups or downs. This means that indicator performance is assessed on its value. Thus, an increase in an indicator or domain always means an improvement and vice versa. For example, if the rate of early school leavers indicator increases, this is associated with an improvement.

5.1 Objective Wellbeing

2005: A general drop

A significant drop in objective wellbeing levels is observed in 2005, as seen in figure 1 below. This is attributed to decreases in the education, work and employment, housing, quality of institutions and degree of social inclusion which all experienced considerable year on year decreases. Moreover, most domains display low scores in that year.

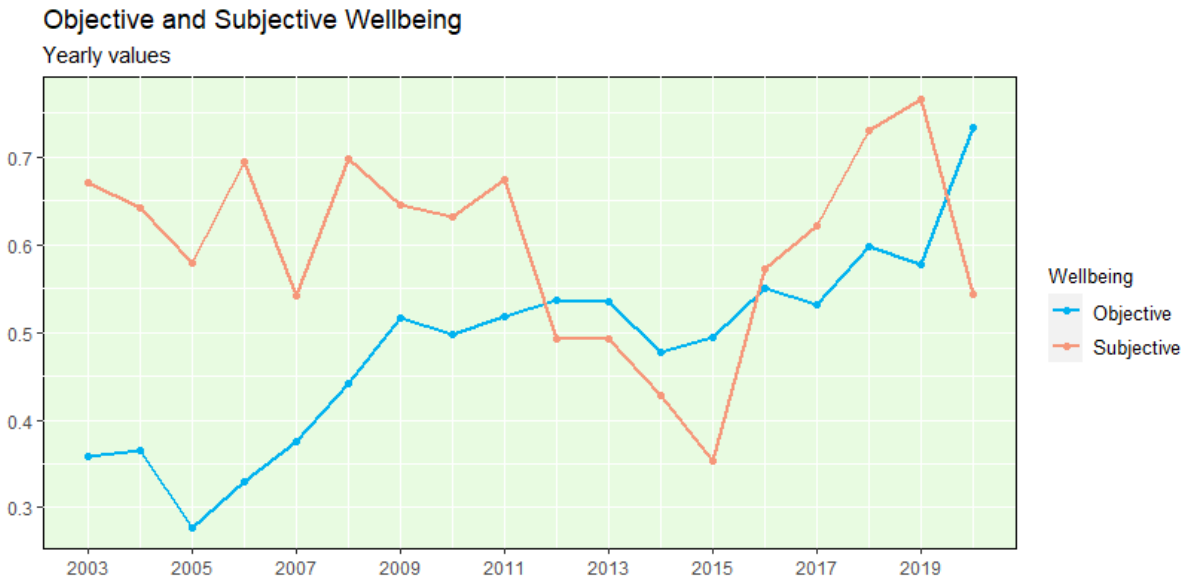

Figure 1: Wellbeing Indexes

The level of education reached its lowest level in 2005 out of all the years in consideration. This is not surprising as four of the six indicators in this domain, being net educational expenditures in both private and public institutions, share of working population (25–64 year-olds) with tertiary level education attainment, rate of early school leavers from education and school life expectancy all had low scores in that year. Moreover, the education domain carries a relatively higher weighting in objective wellbeing which further contributes to the overall result.

The work and employment domain also reached its lowest level in the period of analysis in 2005. Three of the four indicators all scored very low, those being employment of people with below upper secondary education, employment of people with upper secondary and post-secondary non-tertiary education, and employment of people with tertiary education.

Within the housing domain, of the three indicators, the housing cost overburden rate and government expenditure on housing and community amenities both are seen to have low points. Of the four indicators in the quality of institutions domain, government funding for research and development in business enterprise, government, higher education and private non-profit, and regulatory quality both have comparatively low values in that year. Lastly, persons at risk of social exclusion or poverty in cities, towns, suburbs and rural areas is the lacking indicator in the degree of social inclusion domain.

2006 – 2009: Consecutive growth years

The consequent four years up to and including 2009 saw strong growth in objective wellbeing. In 2006, education, safety and crime, environment, work and employment, housing and health all had higher scores. The rate of early school levers had improved in the education domain, that was accompanied by higher net educational expenditures in both private and public institutions.

Five of the six indicators in the safety and crime domain saw improvement with number of victims of intentional homicide (per 100,000 population) indicator showing the largest improvement for that year. Meanwhile rate of theft, rate of sexual violence, persons held in prisons, penal or correctional institutions and rate of burglary all saw marginal improvements in scores.

Compared to 2005, all three indicators showed higher scores in the environment domain for 2006 with general government expenditure in environmental protection having the largest increase. Similarly, all four indicators in the work and employment domain saw improvements in scores with fatal accidents at work indicator showing the largest increase in that domain. Moreover, all three indicators in the housing domain had higher scores compared to the previous year with the overcrowding rate within households and housing cost overburden rate indicators showing steady improvements. In the health domain, the percentage of the population in good health indicator saw a significant improvement together with a mild increase in score of the life expectancy indicator.

In 2007, education, environment, work and employment and health saw further growth in scores. Quality of institutions also had improvements after declining in 2005 and 2006. Additionally, degree of

social inclusion, and safety and crime had marginal increases in their values. The share of working population that have attained tertiary level education indicator of the education domain displayed a stable increase in year-on-year level however the general level of that indicator remained low, relative to the period of analysis. Rate of early school leavers from education, school life expectancy and net educational expenditures in both private and public institutions all saw increases in their scores compared to the previous year.

General government expenditure in environmental protection was the indicator that had a significant impact on increase in the environmental domain in that year. Four of the five indicators in the work and employment domain showed increases in their scores with employment of people with below upper secondary education and employment of people with tertiary education indicators having the largest increases. In the health domain, three of the four indicators displayed improvements. Percentage of the population in good health showed a marginal increase but a relative analysis high level whilst percentage of the population that are overweight and life expectancy both considerable increases in values.

The control of corruption indicator which measures the extent to which the government's power is deferred from being used for private benefit displayed its highest value within the period of analysis and showed a healthy year-on-year increase, together with the regulatory quality indicator of the quality of institutions domain. Though the domain increased, the government effectiveness indicator did show significantly negative year-on-year results in 2007.

The safety and crime indicator had mixed readings in 2007 as four of its six indicators showed improvements however the other 2 significant downgrades, leading to mixed signals as to the situation of that domain within that year. Though the rate of theft, the rate of burglary, persons held in prisons, penal or correctional institutions and the rate of sexual violence indicators showed increases in values, the number of victims of intentional homicide and the rate of serious assault indicators decreased that year. Thus, the marginal overall improvement of this domain showed be interpreted with caution.

The degree of social inclusion domain also showed marginal improvement in 2007, as seen in figure 2 below, however it also provided mixed results in its two indicators. Persons at risk of social exclusion or poverty in cities, towns, suburbs and rural areas, an indicator that showed strong values in 2003 and 2004 but declined in 2005 followed by an increase in 2006, displayed a strong further rebound in 2007. However, the voice and accountability indicator which measures the ability of citizens to participate in selections of government, freedom of association and expression, and freedom of media showed a downgrade in value after reaching its peak values in 2004 and 2005 and dipping in 2006.

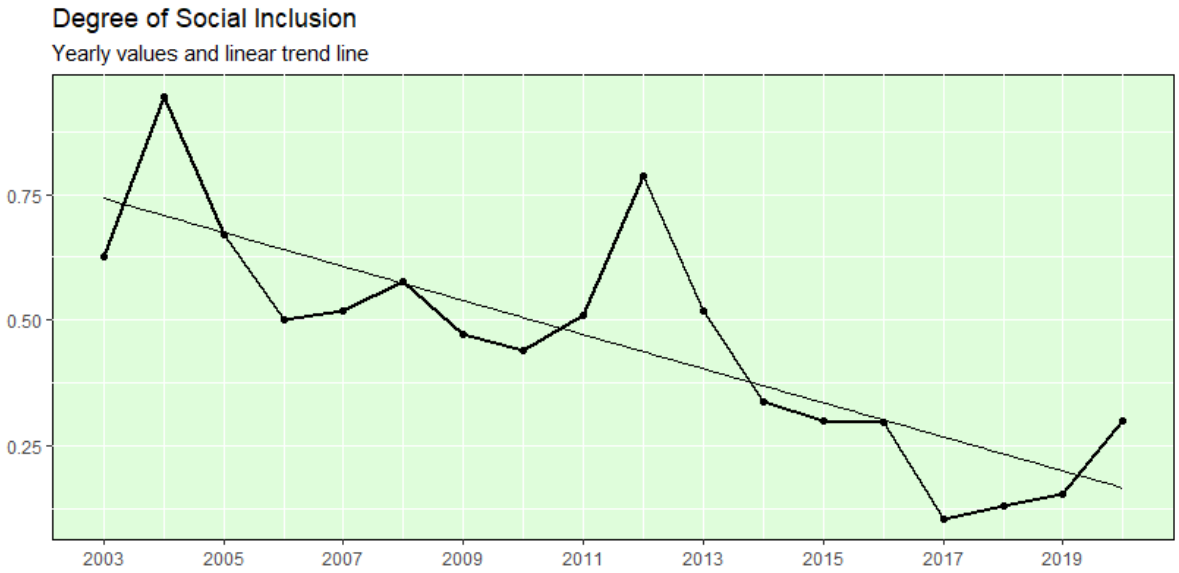

Figure 2: Objective Wellbeing domain

In 2008, significant advancements were observed in the education, environment, work and employment, housing, degree of social inclusion and income domains. In the education domain, the percentage of young adults who are either in education or employment indicator displayed a strong recovery after a significant dip in 2007. Further improvements were seen in net educational expenditures in both private and public institutions, share of working population that have attained tertiary level education, rate of early school leavers from education which reached a peak value within the period of the study, and school life expectancy.

The environmental Policy Stringency Index which measures the extent to which environmental policies price in polluting and environmentally hazardous behaviour indicator was the leading indicator that was the cause of the sharp increase in the environment domain for the year as it displayed a significant year-on-year improvement in its value. The general government expenditure in environmental protection indicator also improved. The limiting factor which was the reason why the domain did not show an even higher value in 2008 was the total emissions by the Dutch economy indicator which had a dip in its score.

Employment of people with below upper secondary education, employment of people with upper secondary and post-secondary non-tertiary education, and employment of people with tertiary education all showed continued growth in the scores compared to the previous three years. Its worth mentioning that the fatal accidents at work indicator had a period low dip in its value in that year.

The overcrowding rate within households indicator peaked in 2008. Improvements were also seen in the other two indicators, being the housing cost overburden rate and government expenditure on housing and community amenities, all of which resulted in a steady increase of the housing indicator which had a value above its mean[1] for that year.

[1] More details regarding descriptive statistics of indictors, domains and indexes can be found in the appendix of this paper.

The persons at risk of social exclusion or poverty in cities, towns, suburbs and rural areas indicator displayed a peak value in 2008 though the voice and accountability indicators showed a continued decrease in its downward trajectory from the previous years after having a peak value in 2004 and 2005. The significant magnitude of the increase of the former indicator did outweigh the fall in the latter indicator leading to a healthy reading for the degree of social inclusion domain which was above its mean for the year.

Of the three indicators that showed improvement in the income domains, income inequality indicator had the steepest year-on-year increase, which dipped in 2007 after having a peak score in 2006. This was followed by domestic consumption by households and lastly, marginal improvement in the mean disposable income indicator which had a value below its mean for that year. Overall, the income domain increased that year though its value was not too high relative to later years in the sample.

2009 saw improvements in the domains of environment, work and employment, housing, quality of institutions, income and health. Meanwhile, a marginal increase was observed in the safety and crime domain. The environment domain had increases in all its three indicators, with the environmental policy stringency index indicator shows strong year-on-year gains, continuing its upward trend from the start of the analysis in 2003. The work and employment domain remained somewhat stagnant. The increase in value being was contributed by the public expenditure on public employment services and labour market programmes, which recovered from its dip in value in the previous two years and fatal accident at work, which had its worst value the year before.

The increase in the housing domain was led by government expenditure on housing and community amenities, which had its value almost double and reaching a peak in 2009. The housing cost overburden rate also increased whilst the overcrowding rate dipped slightly after having a maximum value in 2008. Three of the four indicators saw increases in the quality of institutions domain, with the government funding for research and development business enterprise, government, higher education, and private non-profit showing the steepest year-on-year increase. The control of corruption indicator and government effectiveness indicators also saw increased, though the regulatory quality indicator dipped.

The income domain experienced a steady increase, having a value slightly over its mean. This was driven by the low-income households indicator, which measures the income accrued to the bottom 40% of the wealth distribution. Improvements were also seen in the income inequality indicator, which had its value increase for a second consecutive year after its dramatic dip in 2007. Marginal improvement was seen in the mean disposable income indicator, which resumed its slow growth in its steady upward trend across the analysis. Meanwhile, domestic consumption by households experienced a slight but significant dip. The health domain had a steep increase, with public expenditure on healthcare and percentage of the population in good health having large year-on-year increases. The life expectancy indicator also had marginal improvement, but in-line with its upward trend.

2010 – 2015: Low volatility and stagnation

The objective wellbeing index decreased in 2010. This is attributed to year-on-year decreases in the environment, work and employment, housing, degree of social inclusion, and health domains. The decline in the environment domain was driven by a significant decline in the total emissions indicator. General government expenditure in environmental protection also had a lower. The improvement of environmental policy stringency index was not enough to overcome the downturn of the former two indicators.

The work and employment domain was mostly stagnant, with a mild decrease being observed in the employment of people with below upper secondary education indicator, which had a value slightly above its mean. The small increase in the public expenditure on public employment services and labour market programmes indicator was not enough to outweigh the poor performance of the other three indicators. The housing domain had a healthy high value in 2010, which was significantly above its mean value, however its year-on-year performance was lacking. Government expenditure on housing and community amenities declined after peaking the previous year. The overcrowding rate indicator did have a marginal improvement, also having a value substantially above its mean.

The voice and accountability indicator crashed in 2010, reaching its lowest level for the period of analysis after continuing its downward trend since 2006. The persons at risk of social exclusion or poverty indicator remained stagnant compared to the previous year, thus resulting in an overall negative outcome for the degree of social inclusion domain in 2010.

The health domain, which has the largest weighting, experienced a major decrease in the percentage of the population in good health indicator and had a decrease in the percentage of the population that are overweight indicator which had a value just above its mean for that year. Meanwhile, public expenditure on healthcare and life expectancy saw marginal improvements, whose magnitude was not enough to counterbalance the fall in the first two indicators.

The next two years saw minor increases in the objective wellbeing index. In 2011 specifically, increases were observed in the education, work and employment, degree of social inclusion, quality of institutions, and health domains. Meanwhile, a noticeable decrease was observed in the environment, housing, and income domains.

The education domain had a strong performance across all indicators. A significant increase was observed in the school life expectancy indicator. A healthy improvement was also seen in the rate of early school leavers and percentage of young adults who are either in education or employment indicators, resulting in an overall healthy reading for the domain, which scored above its average. Similarly, the work and employment domain also performed well. A rebound from the previous year was seen in the increase in the employment of people with below upper secondary education. The fatal accidents at work indicator also significantly picked up compared to the year before. A slight dip was observed in the public expenditure on public employment services and labour market programmes indicator.

The fatal accidents at work indicator continued to increase in 2011 after having done so in the previous two years. The employment of people with tertiary education indicator saw a marginal improvement and an increase was seen in the employment of people with below upper secondary education indicator. Meanwhile the public expenditure on public employment services and labour market programmes and the employment of people with upper secondary and post secondary non-tertiary education indicators both had lower values which weren't enough to counteract the good performance of the other indicators which were responsible for the slightly above average value of the work and employment domain.

In the degree of social inclusion domain, the voice and accountability indicator had a strong recovery compared to its previous year value whilst the persons at risk of social exclusion or poverty indicator dipped after a having a healthy reading in 2010. Over the domain went up due to the strong performance of the former indicator. The quality of institutions domain had increases in three of its four indicators with the control of corruption indicator having only a slight downward year-on-year movement. The domain saw a mild growth and a value above its mean, with the highest performing indicators being government effectiveness and regulatory quality.

The health domain had a modest year-on-year increase. The public expenditure on healthcare continued to increase as in line with the previous three years. The life expectancy indicator also had a steady improvement whilst the percentage of the population in good health indicator had a slight dip and the percentage of the population that are overweight remaining stagnant.

The environmental policy stringency index was the major cause of the decrease in the environment domain in 2011, having a large dip. The government expenditure on housing and community amenities indicator largely underperformed compared to the year before, explained the dip in the housing domain. The income inequality indicator was responsible for the lower value of the income domain, having a significantly lower value in 2011.

The objective wellbeing index increased only marginally in 2012. Relatively significant increases were only observed in the work and employment, degree of social inclusion and health domains. The increases in the education, safety and crime, and income domains were small and negligible, and are thus considered to have performed stagnantly compared to the previous year. Meanwhile, significant drops were observed in the housing and quality of institutions domains.

The work and employment domain had marginal improvement attributed to a healthy increase in the fatal accidents at work indicator which had a high value considerably above its mean and a modest increase in the public expenditure on public employment services and labour market programmes indicator.

Both indicators in the degree of social inclusion domain performed well. The voice and accountability indicator experienced a steep year-on-year increase, having a value above its mean. The persons at risk of social exclusion or poverty indicator also performed well after its dip the previous year. The public expenditure on healthcare and percentage of the population that are overweight indicator both had

modest year-on-year increases. Meanwhile the percentage of the population in good health indicator stagnated whilst the life expectancy indicator had a marginal dip.

The overcrowding rate indicator had a large decrease away from its peak the year before and was to a large extent the main cause for the large drop in the value of the housing domain. The housing cost overburden rate indicator also performed relatively badly, continuing a drop for a second consecutive year whilst the government expenditure on housing and community amenities indicator had a slight increase in value which shifted modestly above its mean.

Though the quality of institutions domain did not perform well in 2012, its indicators had mixed readings. The government funding for research and development business enterprise, government, higher education, and private non-profit indicator had a significant dip in value. The regulatory quality indicator also had a year-on-year decrease. Meanwhile, marginal improvement was seen in the government effectiveness indicator, which had seen increases for a fourth year running and control of corruption indicator which recovered after a slight dip the previous year, maintaining its high, above average value.

The objective wellbeing index remained flat in the year 2013 though some domains experienced substantial volatility. Significant decreases were observed in the education, work and employment, housing, quality of institutions and degree of social inclusion domains. Increases in values were reported in the safety and crime and income domains. The reason why the index did not fall in 2013 was majorly due to the large year-on-year increase in the safety and crime domain.

The percentage of young adults who are either in education or employment indicator experienced a major drop in value in 2013. The rate of early school leavers indicator also performed poorly relative to its previous year value. The other indicators remained stable with mild increases in the share of working population that have attained tertiary level education and net educational expenditures in both private and public institutions indicators, resulting in an overall drop of the education domain.

The employment of people with below upper secondary education performed poorly in 2013, down from its upward momentum acquired throughout the previous years. The employment of people with upper secondary and post-secondary non-tertiary education indicator also fell significantly whilst the employment of people with tertiary education indicator had a marginal increase. The fatal accidents at work indicator was down after a strong shift upwards the year before. Lastly, the public expenditure on public employment services and labour market programmes indicator had a modest increase. Overall, the underperformance of the three indicators resulted in an overall downturn of the work and employment domain.

The housing domain had a slight bump downwards in 2013 with lower values being observed in the overcrowding rate and housing cost overburden rate indicators, which continued to fall for a second and third year respectively. Meanwhile the government expenditure on housing and community amenities indicator had a slight increase which ultimately was not enough to overturn the effect of the former two indicators.

Similarly to the previous year, the quality of institutions domain saw the underperformance of its government effectiveness and control of corruption indicators. The regulatory quality and the government funding for research and development of business enterprise, government, higher education, and private non-profit indicators saw a marginal increase from their previous year dips. The degree of social inclusion domain saw a significant fall in 2013. The voice and accountability indicator fell after a steep increase the year before. Concurrently, the persons at risk of social exclusion or poverty also saw a large dip after strong upturn the year before.

The safety and crime domain had a strong year with a major increase in its year-on-year figures. All domains rose with the best performing indicators being rate of theft, rate of burglary, rate of serious assault, and rate of sexual violence. The number of victims of intentional homicide and the persons held in prisons, penal or correctional institutions indicators both had increases in values, in line with their upward positive trends from the start of the analysis. The income domain had a strong performance in its income inequality indicator. The mean disposable income indicator also increased modestly whilst the domestic consumption of households indicator had a marginal increase. The low-income households income did fall, leaving an overall effect of a slight increase of the income domain as a whole.

The objective wellbeing index had a significant downturn in 2014. Drops in values were observed in the work and employment, housing, degree of social inclusion, income, and health domains. A point to remark is that there wasn't a domain in 2014 that had a significant improvement overall.

The work and employment domain remained somewhat stagnant with the exception of the employment of people with below upper secondary education which was the driving indicator for the fall in value. The indicator continued its significant downward dip which began the year before. The other indicator had slight oscillations which are deemed insignificant for the analysis. The housing domain experienced a significant drop with two of its three indicators largely underperforming. The overcrowding rate indicator saw its value tumble further, as it had done so the previous two years. The government expenditure on housing and community amenities indicator fell to a value around its mean whilst the housing cost overburden rate indicator dipped marginally.

The degree of social inclusion indicator had a significant decrease in 2014 owing to dips in both of its indicators for a second consecutive year. The income domain had mixed readings with the main reason for its fall in value being the income inequality indicator which fell significantly. The low-income households indicator also had a decrease in its year-on-year value. Meanwhile, the domestic consumption by households and mean disposable income indicators both had modest increases. Similarly, the health domain also experienced fluctuations of both directions in its indicators. The main driver of the fall in value was the percentage of the population that are overweight indicator, which had a significant dip in value. The public expenditure on healthcare indicator had a slight dip. Lastly, the life expectancy indicator had a healthy upward movement.

The objective wellbeing index had a marginal increase in 2015. The education, safety and crime, work and employment, and income domains all had healthy increases in their values. The reason why the

index did not have a stronger growth was due to underperformance in the environment, quality of institutions, degree of social inclusion, and health.

The education domain had a stable growth year with most of its indicators performing well. The percentage of young adults who are either in education or employment indicator recovered steadily after having a its lowest value for the period of analysis the year before. The rate of early school leavers indicator also had a significant upturn from its previous two years of stagnation. The rest of the indicators had stable values above their respective means.

The safety and crime domain saw its value further increase in 2015 with all its indicator seeing increases compared to the previous year and maintaining values well above their averages. The work and employment domain had an improvement from the previous year with four of its five indicators showing increases. Only the public expenditure on public employment services and labour market programmes indicator had a decrease in its year-on-year value.

The income domain had a modest increase with the low-income households indicator have a significant increase in value. The domestic consumption by households indicator saw a mild increase whilst the income inequality indicator remained largely stagnant. Lastly, the mean disposable income indicator experienced a slight decrease.

The environment indicator saw its value fall from the previous year with the total emissions from the Dutch economy and the general government expenditure in environmental protection indicators underperforming. Meanwhile the environmental policy stringency index had a marginal increase. The quality of institutions domain had mixed indicator readings with an overall result of a slight decrease. The government effectiveness and regulatory quality indicators both had steady increases whilst the government funding for research and development in business enterprise, government, higher education, and private non-profit experienced a marginal decrease. The control of corruption indicator largely dragged the domain down in 2015 with its significant fall.

The degree of social inclusion domain had a marginal decrease in 2015. This is explained by the fall of persons at risk of social exclusion or poverty indicator. Meanwhile the voice and accountability indicator had a stable year-on-year growth. The health domain had negative readings in the percentage of the population in good health, the public expenditure on healthcare, and life expectancy indicators. Meanwhile percentage of the population that are overweight indicator remained stagnant, all in all deriving a decrease of the whole domain for that year.

2016 – 2020: An upward trend

Objective wellbeing further rose in 2016 with increases recorded in the education, crime and safety, environment, work and employment, housing, quality of institutions, and income domains. The other domains remained largely stagnant with insignificant movements in values. The education domain had a marginal increase with the percentage of young adults who are either in education or employment, net

educational expenditures in both private and public institutions, share of working population that have attained tertiary level education, and the rate of early school leavers from education indicators having slight growth in their values. Meanwhile, the average number of hours of instruction time per year and the school life expectancy indicators remained largely stagnant.

The crime and safety domain had a positive year with five of its six indicators having increases in values. Only the rate of sexual violence indicators had a worse off value that year. All the indicators maintained their high values above their means for 2016. The environment domain also performed well compared to the year before with two of its three indicators showing steady gains. Meanwhile the total emissions from the Dutch economy indicator remained almost remained stagnant.

The work and employment domain had a mild increase. The employment of people with below upper secondary education and the employment of people with upper secondary and post-secondary non-tertiary education indicators both saw steady gains. The employment of people with tertiary education saw a marginal increase. The fatal accidents at work indicator had its value slightly decrease from the year before whilst the public expenditure on public employment services and labour market programmes indicator had a larger fall.

The housing domain saw an increase in 2016 owing to the significant growth of the housing cost overburden domain which compensated for a fall in the government expenditure on housing and community amenities indicator. Meanwhile, the overcrowding rate indicator remained stagnant. The quality of institutions domain grew steadily in 2016. The regulatory quality indicator had a significant increase. The control of corruption indicator had a slight improvement whilst the government funding for research and development business enterprise, government, higher education, and private non-profit indicator had a marginal increase. Meanwhile the government effectiveness indicator had a slight fall in value.

The income inequality indicator had a significant increase in 2016. Together with slight improvements in the domestic consumption by households and the mean disposable income indicators, the income domain performed well, with only the low-income households indicator having a slight decrease.

The objective wellbeing index recorded a minor fall in 2017. The reason for this is attributed to fall in values in the safety and crime, environment, quality of institutions, degree of social inclusion, and income. Meanwhile, only the education had a significant increase.

The safety and crime domain experienced a slight dip mainly driven by a substantial fall in the number of victims of intentional homicide indicator. The other indicators remained at stable values and experienced only minor movements. The environment domain had a marginal fall in 2017 due to a fall in the environmental stringency index indicator. The general government expenditure in environmental protection and total emissions by the Dutch economy indicators both had slight year-on-year improvements.

The quality of institutions domain had a slight fall attributable to a major decrease in the control of corruption indicator. The other indicators had minor fluctuations whilst the regulatory quality indicator had a steady increase to reach a peak value. The degree of social inclusion had a steep decrease in value owing to the underperformance of both of its indicators.

The income domain had mixed reading with an overall marginal decrease in value. Lower readings were seen in the income inequality indicator after a strong rebound the year before. The low-income households indicator dipped slightly for a second consecutive year. Meanwhile, the domestic consumption by households and the mean disposable income indicator both had mild but steady upwards movements in their values.

The objective wellbeing index picked up in 2018 owing to appreciations in the education, safety and crime, environment, work and employment, housing, quality of institutions, degree of social inclusion, and income domains. The growth was hampered by a significant fall of the health domain.

The education domain had a steady year-on-year growth largely attributable to a significant increase in the percentage of young adults who are either in education or employment indicator. The other indicator also had healthy high values with slight year-on-year deviations. A similar narrative is seen in the safety and crime domain which had a strong improvement in its number of victims of intentional homicide indicator. The other indicators remained at high values with slight yearly oscillations.

The environment had strong readings in all its indicators resulting an overall steady increase owing largely to high growth in the environmental policy stringency index indicator. This growth was exacerbated by healthy increases in the emissions and government expenditure in environmental protection indicators. The work and employment domain had a mild increase in 2018. The employment of people with below upper secondary education, upper secondary and post-secondary non-tertiary education, and tertiary education indicators all recorded steady growth in value whilst the fatal accidents at work indicator stagnated. The overall increase of the domain was slowed down by a downturn of the public expenditure on public employment services and labour market programmes indicator.

The increase in the housing domain is attributed to a significant increase in the government expenditure on housing and community amenities indicator which had a strong rebound after its consecutive two-year falls. The overcrowding rate indicator fell slightly whilst a marginal increase was seen in the host cost overburden indicator. The quality of institutions domain grew steadily in 2018 owing to improvements in the government funding for research and development and control of corruption indicators.

The degree of social inclusion domain grew marginally though with mixed readings. A slight rebound was seen in the persons at risk of social exclusion or poverty indicator whilst a fall of a smaller magnitude was recorded in the voice and accountability indicator. The income domain saw steady improvements in all its indicator resulting is an overall mild growth of the domain.

Objective wellbeing had a yearly decrease in 2019. This is attributable to decreases in the education, housing, quality of institutions, and income domains. It wasn't a purely negative year as significant increases were seen in the environment, work and employment, and health domains.

The fall in the education experienced a decrease largely attributed to a collapse of the instruction time indicator. The other indicators remained stable with mild oscillations in both directions. The housing domain dipped as a result of a significant decrease in the overcrowding rate indicator. A slight fall was reported in the housing cost overburden indicator which remained at a high value. The government expenditure on housing and community amenities indicator had a slight increase.

The fall of the quality of institutions domains is explained by the fall in the government effectiveness and regulatory quality indicators. The control of corruption indicator also dipped slightly. The collapse of the income inequality indicator was the main driver of the fall of the income domain in 2019. A decrease was noted in the low-income households indicator. Meanwhile, the fall was cushioned by improvements in the consumption by households and mean disposable income indicators.

The objective wellbeing index had a drastic improvement in 2020. Improvements were recorded across all domains. The education domain performed steadily with a fall only observed in the rate of early school leavers indicator. The safety and crime domain also performed well, with the rate of sexual assault indicator stagnating though still having a high value being the exception.

The environment domain increased. The total emissions and general government expenditure in environmental protection indicators peaked whilst environmental stringency index indicator stagnated at a relatively high level. The increase of the work and employment was largely carried by the peaking of the public expenditure on public employment services and labour market programmes indicator. A peak was also recorded in the improvement of the fatal accidents at work indicator. The degree of social inclusion domain had an improvement in 2020 as both its indicators increased.

The quality of institutions domain also had a steady increase with the government funding for research and development indicator experiencing a peak value. The regulatory quality indicator decreased, which slightly hampered the growth of the domain. The income domain performed well. Peak values were observed in the low-income households and mean disposable income indicators. Improvement was recorded in the income inequality indicator whilst the domestic consumption indicator had a decrease.

The health domain increased due to improvements in the public expenditure on healthcare and percentage of the population in good health indicators. A marginal decrease was seen in the percentage of the population which are overweight whilst the life expectancy indicator dipped. The housing domain performed well with the overcrowding rate indicator having a marginal improvement whilst the other indicators experienced minor increases.

5.2 Subjective Wellbeing

2004 – 2007: A downward trend

The subjective wellbeing index fell in 2004 and 2005. The trust indicator collapsed in 2004 and remained very low in 2005. The self-reported happiness indicator remained high in 2004 and dipped slightly in 2005. The self-reported subjective wellbeing indicator had a slight gradual fall throughout 2004 and 2005 but ultimately remained at a high value in 2005. Similarly, the social support indicator had marginal decreases in both years but also remained relatively high in 2005, as seen in figure 3 below.

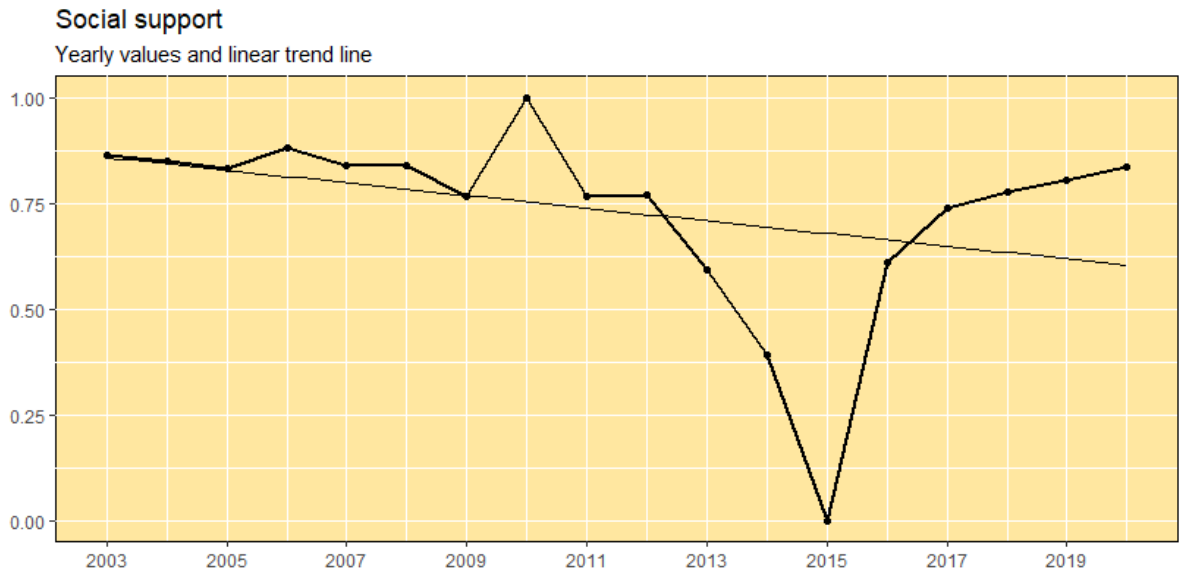

Figure 3: Subjective Wellbeing indicator

Subjective wellbeing had a rebound in 2006. Slight improvement observed in the trust indicator. Self-reported happiness rose again after a dip the previous year. Self-reported subjective wellbeing peaked whilst the social support indicator had a slight upward movement. The improvements were reversed in 2007 as the subjective wellbeing index continued its downward movement. This fall is attributable to the large fall in the self-reported subjective wellbeing indicator. Social support also had a slight dip. Meanwhile the trust indicator continued to increase marginally.

2008 – 2011: Spike in wellbeing followed by mixed readings

The subjective wellbeing index had a strong increase in 2008 but remained stagnant in the next couple of years. The growth in 2008 is mainly due to a strong improvement in the trust indicator. The self-reported happiness peaked that year, whilst the social support indicator had a marginal increase. Self-reported subjective wellbeing had a stable increase that year, as seen in figure 4 below.

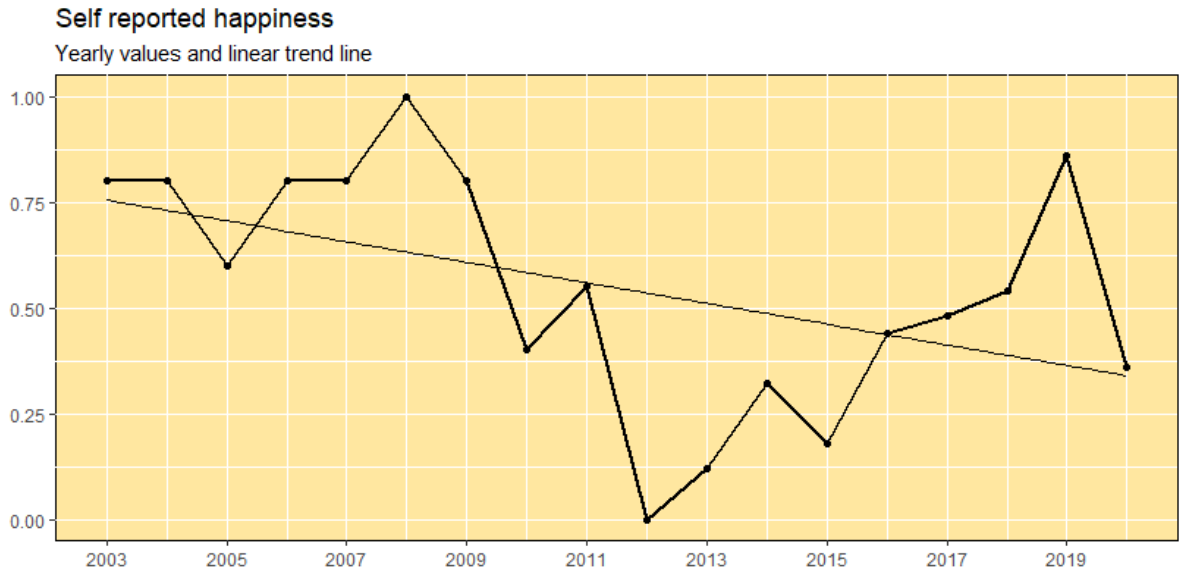

Figure 4: Subjective Wellbeing indicator

The growth in 2008 was not sustained in next couple of years as the trust indicator dipped the next year and recovered again in 2010. It increased only marginally in 2011. The self-reported happiness indicator decreased in 2009 and 2010. It then had a mild improvement in 2011. Meanwhile, the self-reported subjective wellbeing indicator continued its upward trend throughout and had a high value in 2011. The social support indicators experienced volatility, peaking in 2010 and settling for a relatively high value in 2011.

2012 – 2015: Large discrepancies and negative growth

The subjective wellbeing had a downgrade in 2012, followed by a stagnation in 2013 and continued decreases in 2014 and 2015. Throughout that period, the trust indicator had significant deviations. The indicator remained flat in 2012 from the previous year, increased then decreased in the following two years and then rebounded up in 2015 to a value steadily above its mean.

The main driver of the fall in 2012 of the index was the collapse of the self-reported happiness indicator which had mild recoveries in the next two years and dipping again in 2015. The social support indicator followed a sustained downward trend in the three years following a stagnation in 2012. Self-reported subjective wellbeing also had general downward movements throughout, only remaining flat in 2014, as seen in figure 5 below.

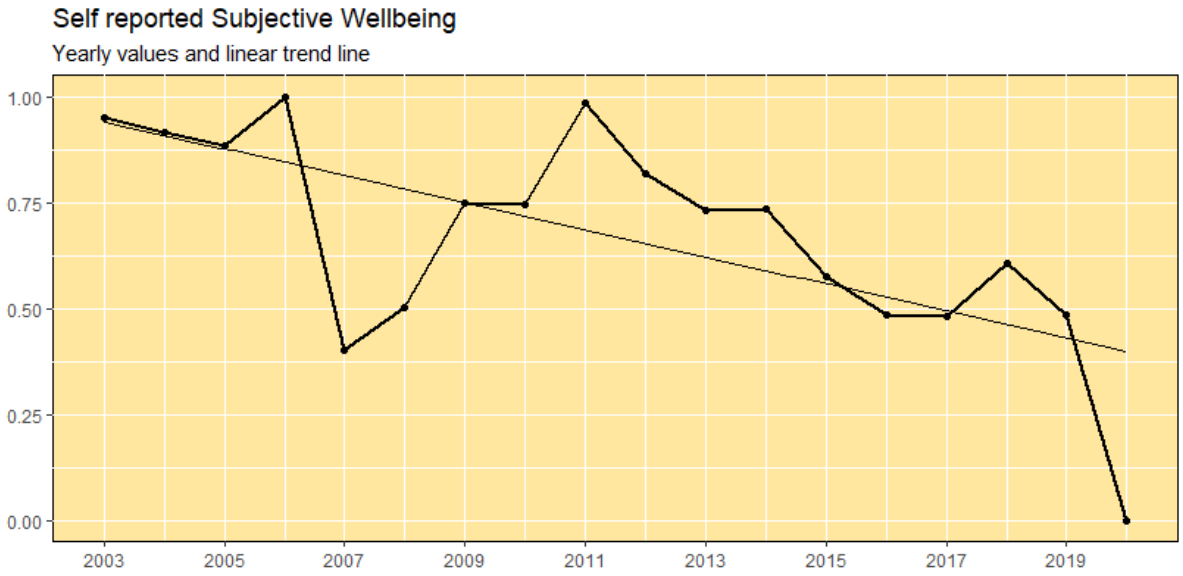

Figure 5: Subjective Wellbeing indicator

2016 – 2019: Years of sustained growth

The subjective wellbeing index rebounded strongly in 2016 and continued to improve throughout the next couple of years. The large improvement in 2016 is owed to significant increases in the self-reported happiness and social support indicators. The trust indicator also had a stable increase, as seen in figure 6 below, whilst the self-reported subjective wellbeing had a slight dip.

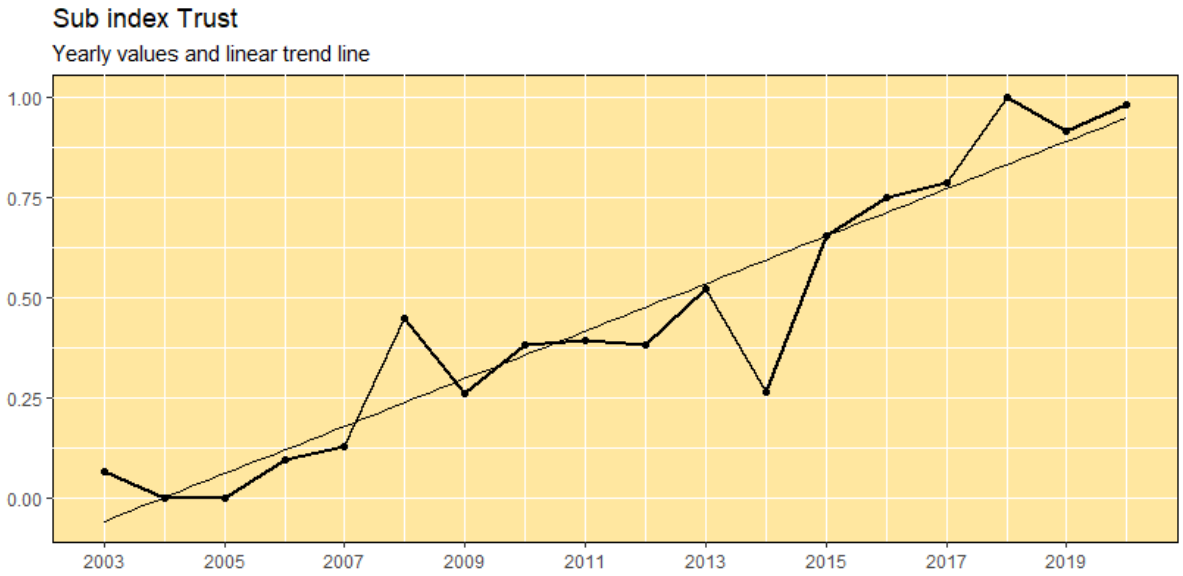

Figure 6: Subjective Wellbeing indicator

The index continued to improve in all of the subsequent years. The trust indicator peaked in 2018 and settled at a high value in 2019. The self-reported happiness and social support indicators had continuous upward movements. The self-reported subjective wellbeing remained stagnant from its 2016 value though it had a significant increase in 2018.

2020: A significant downturn

Though the trust indicator had a slight improvement which remained at a high value and the social support indicator had a slight year-on-year increase, the subjective wellbeing index largely underperformed in 2020. This is attributable to large decreases in the self-reported happiness and self-reported subjective wellbeing indicators.

5.3 Differences and Commonality of the Indexes

A general theme observed in the two indexes is that the subjective wellbeing trend tends to follow the objective wellbeing trend in a time lagged manner. Specifically, the upward trend of the objective wellbeing in the years from 2006 to 2009 is followed by an upward trend of the subjective wellbeing from the period of 2008 to 2011. Similarly, the upward trend of the objective wellbeing starting in 2015 till 2020 is followed by an upward trend in subjective wellbeing in the years starting 2016 up until 2019. This is indeed plausible from a theoretical point of view. It is difficult to have improvements or high scores in subjective wellbeing without adequate economic and financial conditions on top of necessary societal stability related to safety, housing, and education. When considering the overall linear trends of the full 2003 – 2020 period of analysis of both indexes, the objective wellbeing performs better than subjective wellbeing, which has a slightly downward sloping linear trendline, as seen in figure 7 below.

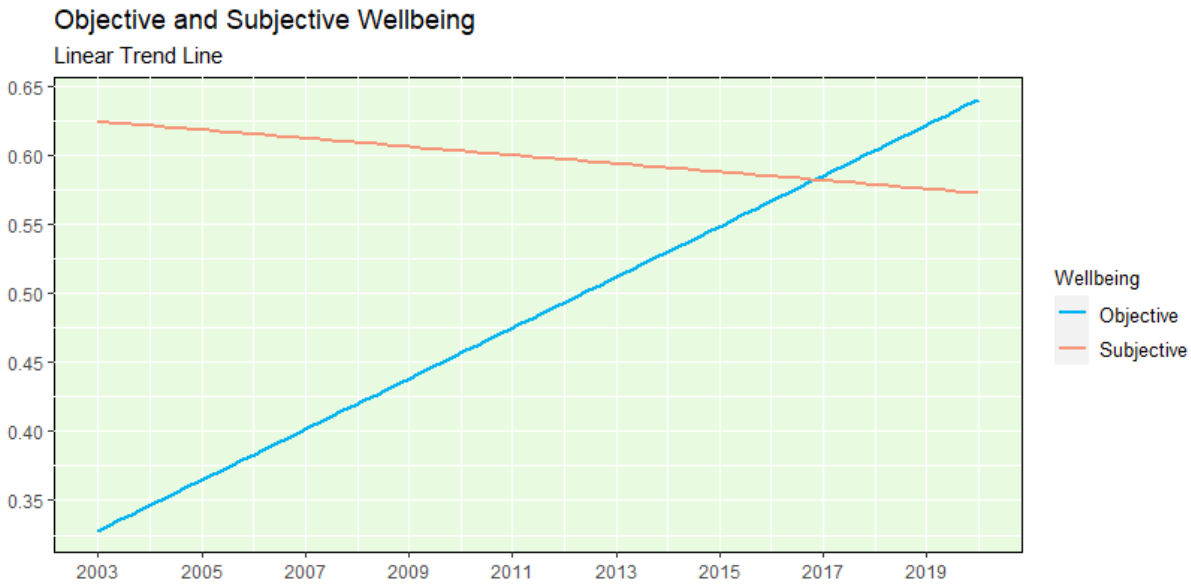

Figure 7: Wellbeing linear trends

In the years of stagnation of the objective wellbeing, namely from 2010 to 2015, the subjective wellbeing begins to deteriorate. This is seen in the years 2012 to 2015. This creates a point of discussion. One may argue that a lack of improvement in objective measures, may cause people to perceive decreases in the quality of life. Therefore, even though economic and societal conditions may be suitable enough for stable and content wellbeing, lack of growth may cause people to feel worse off. This may be the case because they have anchored their notion of objective wellbeing to a certain standard, which they may deem average or insufficient if it is not improved after a certain timeframe. This causes their perceived notion of wellbeing to fall rather than remain stagnant. This also ties into the notion of expectations. Periods of improvement may cause members of society to accept growth as a norm and once that is no longer the case, it may cause a decrease of perceived welfare which is triggered by the lack of improvement rather than consideration of the progress accomplished over the past.

Some variation was observed in the yearly changes of the indexes. Specifically, the magnitude of change from one year to the next was significantly different between both indexes in eleven years of the analysis. The subjective wellbeing index had higher volatility overall. Therefore, even though both indexes have some overlapping lagged trends, their movements are largely different. The general gradient of the objective wellbeing index is upward when considering the whole period of analysis whilst that of subject wellbeing is downward sloping initially but shows gradual improvement and even falls in line with objective wellbeing in the later years, as seen in figure 8 below. It is interesting to note that six of the nine domains in the objective wellbeing index have upward linear trends, health has an almost flat linear upward trend whilst housing has a slight downward. Only one domain has a negative downward trend and that is the degree of social inclusion domain. Polynomial trend lines of order two also show similar results with the exceptions of housing which has a slight U-shaped trend whilst the health domain displays a more defined inverse U-shaped trend, as seen in figures 9 and 10 below.

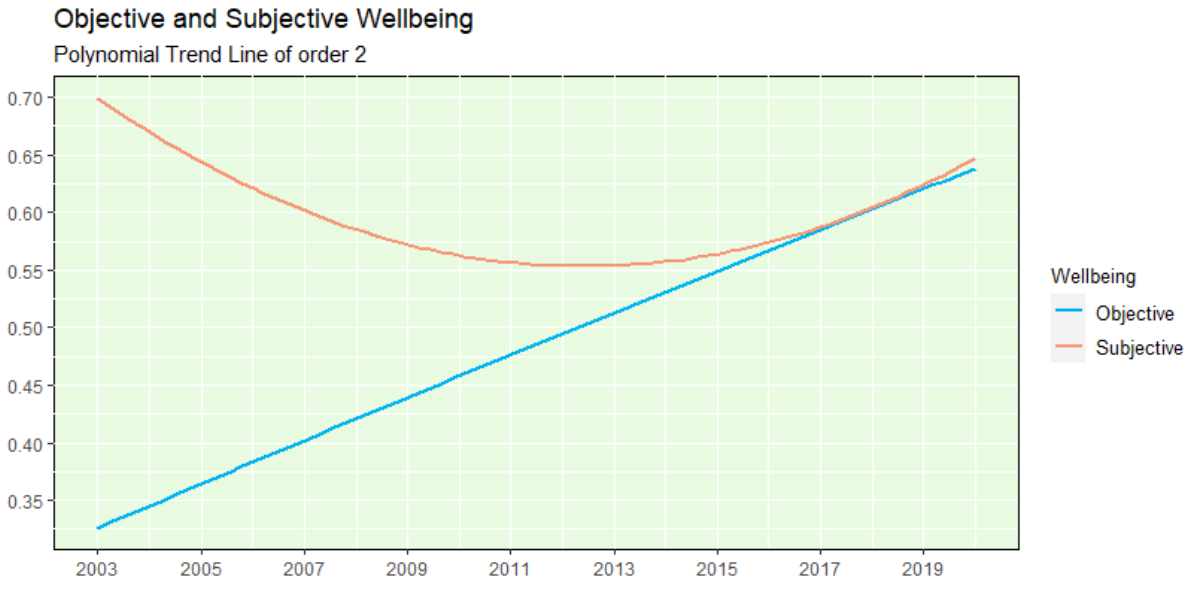

Figure 8: Wellbeing polynomial trends

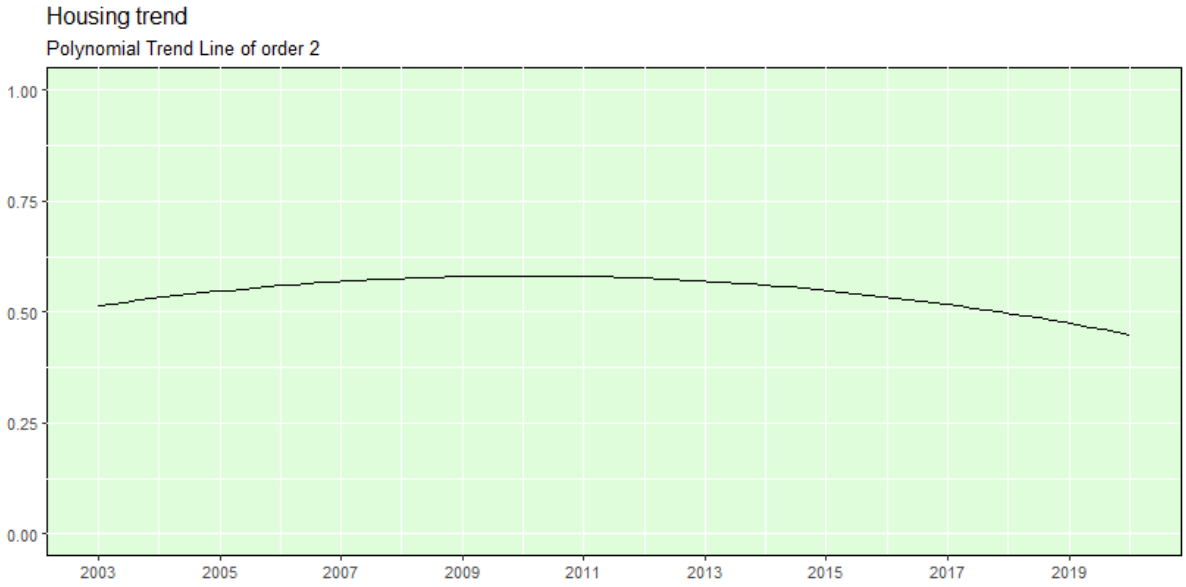

Figure 9: Objective Wellbeing Domain

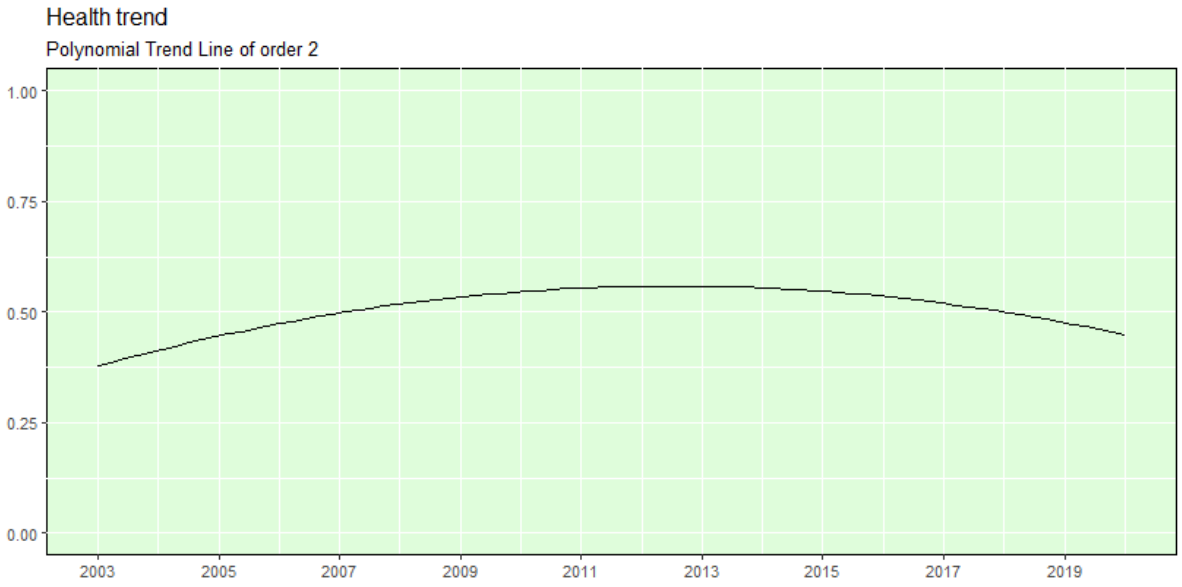

Figure 10: Objective Wellbeing Domain

Conversely, three of the four indicators in the subjective wellbeing index have downward linear trends through the analysis whilst only the trust indicator has an upward trend. Their respective order two polynomial trends show similar results for the trust and self-reported subjective wellbeing indicators. The self-reported happiness indicator displays a slight U-shaped trend with the upward slope of the curve beginning in the later years starting around 2015, as seen in figure 11. A similar situation is seen in the social support indicator though its overall U-shape of the curve is flatter, as seen in figure 12 below.

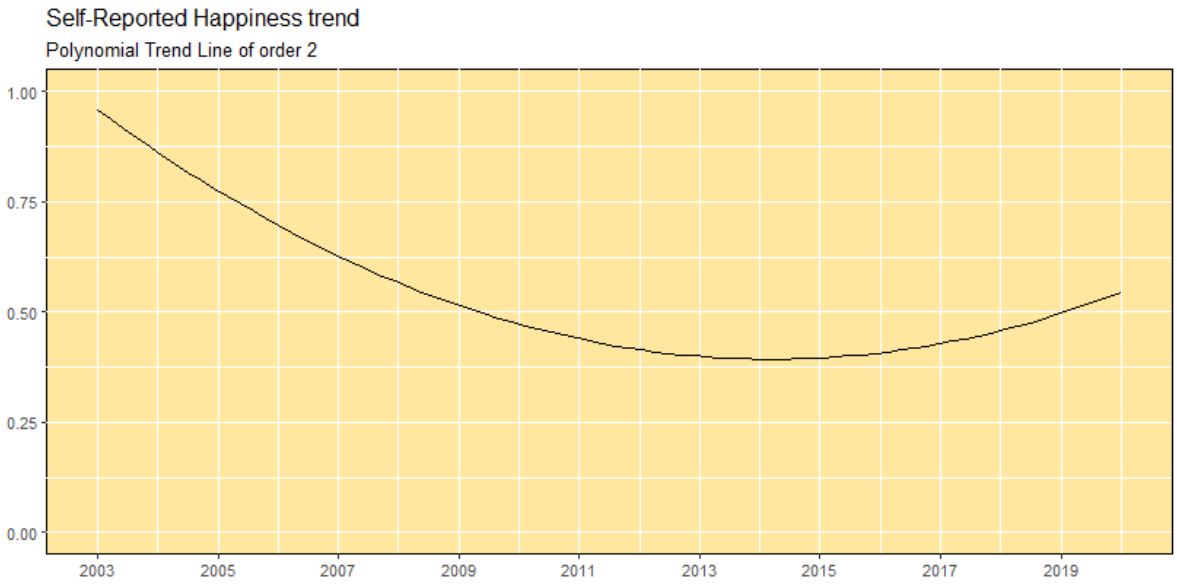

Figure 11: Subjective Wellbeing Indicator

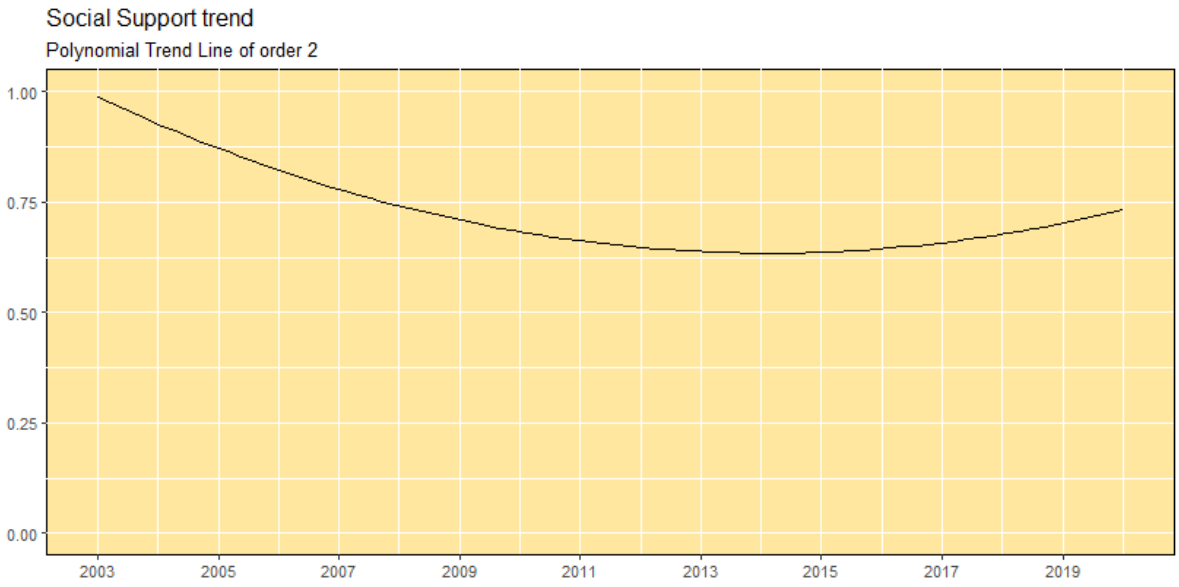

Figure 12: Subjective Wellbeing Indicator

6.Macroeconomic Shocks and Developments

6.1 Polices and Economic Developments

This section concerns major reforms, policies, macroeconomic shocks, and economic events that can be inked to the wellbeing indexes and the relevant domains. Given the broad nature of the topics covered in the analysis, it is inconclusive to state that the reforms or events mentioned have been the sole impact of the results specified however it is plausible that they have aided in the general upward or downward movement of the domain or index in question.

The work and social assistance act ('Wet werk en bijstand') that was introduced in **2004** shined light on income inequality and poverty by outlining topics related to poverty alleviation measures through supplementary benefits and social services, social assistance benefits by providing income support through means-tested eligibility, and inclusive social policies. The **income** domain in question was somewhat flat at that time and did pick up in the latter years, as seen in figure 13 below.

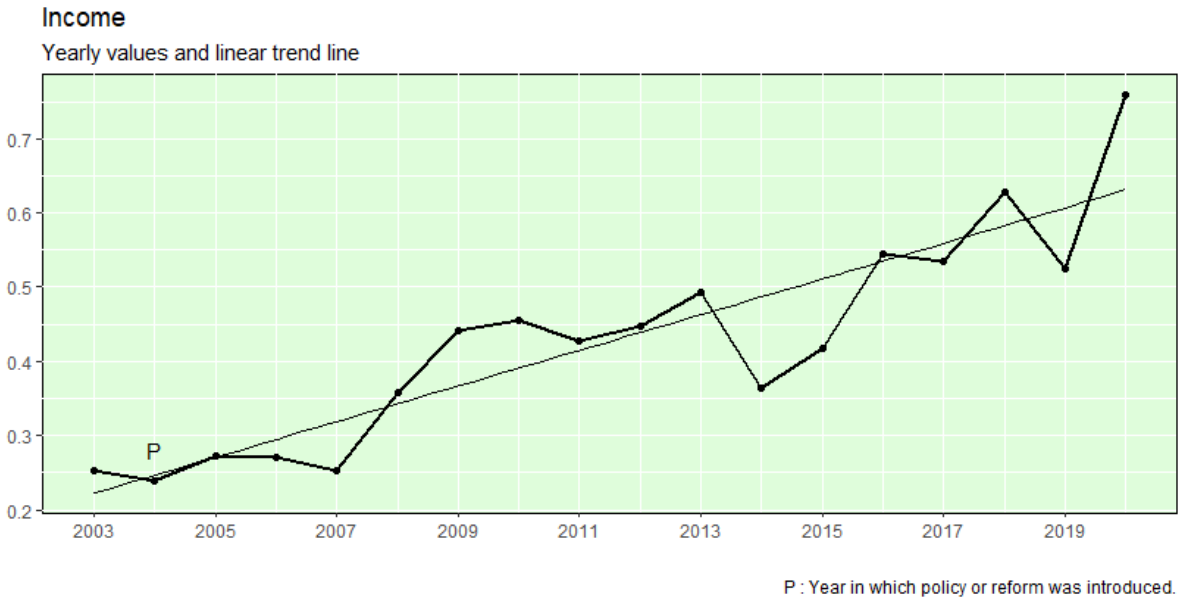

Figure 13: Objective Wellbeing domain

The health insurance reform in **2006** enacted by the Dutch government that aimed to improve access to healthcare and increase competition between insurers, can be argued to have contributed to improvement of the **health** domain in the years after the reform, as seen in figure 14 below. The health domain showed improvement in the years after the reform up to and including 2013. This may also have been accelerated by the fact that government expenditure on healthcare also increased over time. Conversely, the long-term care reform in **2015** doesn't link with improvements in the health domain, as it had stagnant and negative readings in the few years after the reform.

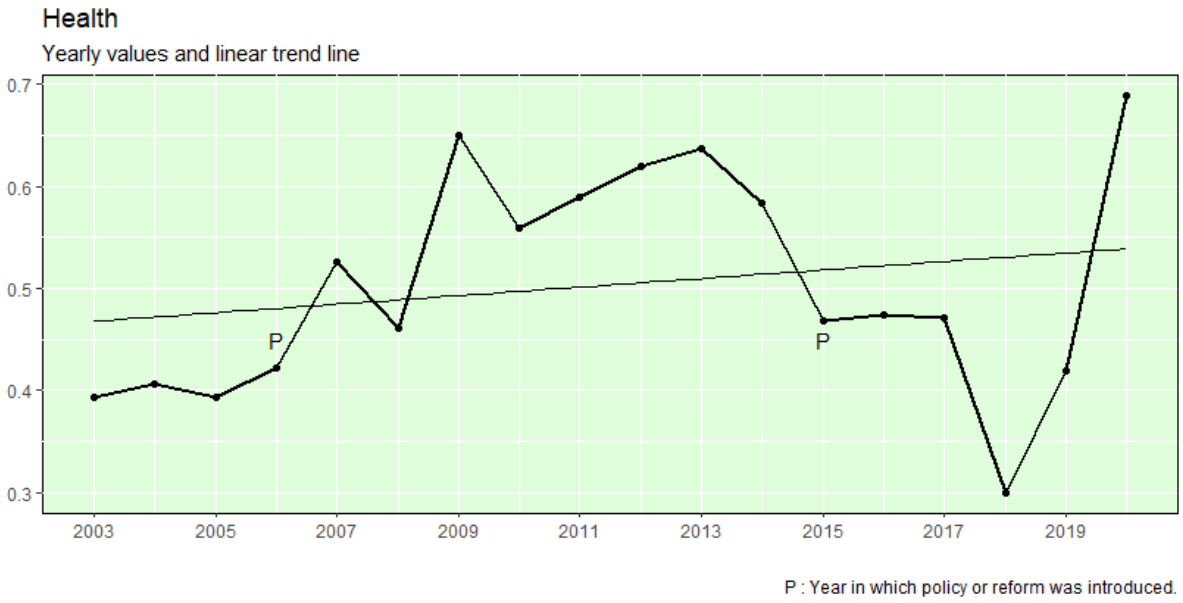

Figure 14: Objective Wellbeing domain

In **2007**, the better regulation program ('Programma Vernieuwing Rijksdienst') was introduced. The reform introduced regulatory impact assessments and aimed to enhance transparency whilst reducing administrative burdens. In that same year, the social support act ('Wet maatschappelijke ondersteuning') came into effect. The act mainly concerns people who require assistance due to chronic illnesses and disabilities. It promotes self-reliance, develops the facilitation of care services, and outlines cooperation concerning social service organizations, municipalities, and healthcare providers. Both reforms relate to the **quality of institutions** domain which had steady increases in the period of 2009 until 2011, as seen in figure 19 below.

The financial crisis of 2008 and 2009 seems to have no spillover effect on the objective wellbeing in the Netherlands. The upward trend that began in 2006 did not decrease in gradient over the period of the crisis. The increase of objective wellbeing in 2009 is not surprising as the economic stimulus package undertaken by the Dutch government in that year may have aided in the performance of some domains. The subjective wellbeing performed well in 2008 and fell in 2009. Though the crisis itself may not have had a clear direct impact on the objective wellbeing of the Dutch population, subjective wellbeing may have dipped in 2009 due to the uncertainty faced as a result of the crisis and its future implications on the stability of the financial and housing sectors worldwide. The economic anxiety that arises from such a crisis can be argued to have been a consideration in how people value their welfare in the Netherlands at that time.

A major reform related to crime and safety was the security regions ('Wet veiligheidsregio's') which was implemented in **2010**. Safety regions were established to promote coordination and cooperation, risk and crisis management, as well as communication. It's worthwhile to mention that post 2010, the **safety and crime** domain did experience increases in the coming years, with a major improvement in 2013, as seen in figure 15 below. This reform was enforced after a stagnant period for the domain in previous years.

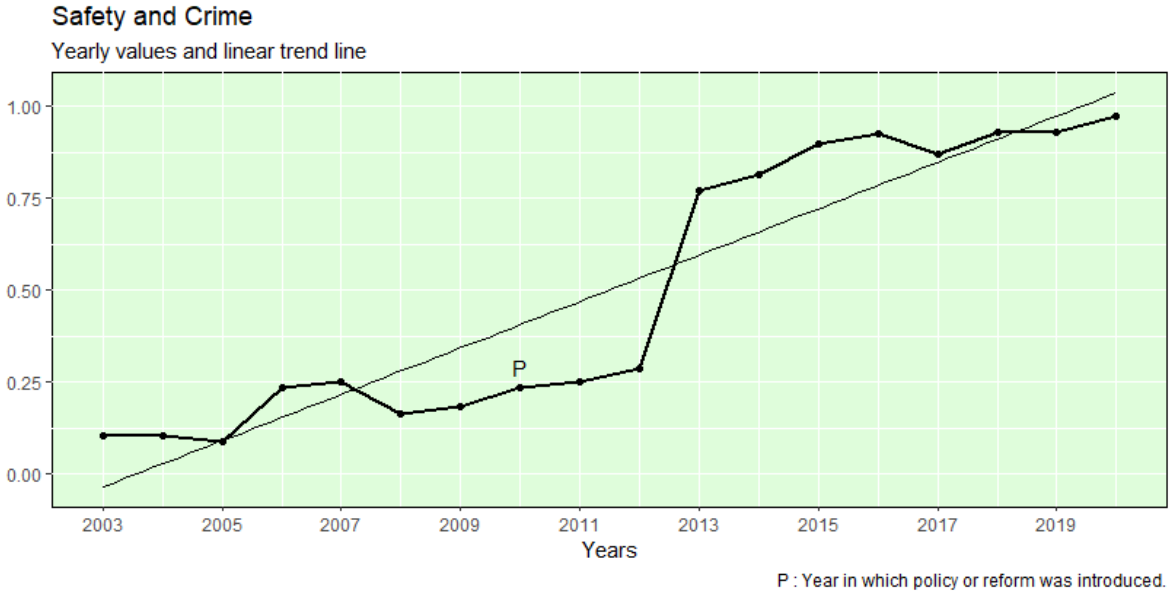

Figure 15: Objective Wellbeing domain

A major shock to the Eurozone was the sovereign debt crises which peaked between 2010 and 2012. Though objective wellbeing increased in 2009, it stagnated throughout the period of the crises. Subjective wellbeing experienced volatility and had significant decreases throughout the crises period. This is not surprising because even though the sovereign debt defaults were not present in the Netherlands, the economic downturn and government deficits had most likely limited the government's ability to influence the domains of the objective wellbeing, on top of the austerity measures related to pensions reforms, spending cuts and tax increase that were conducted. Moreover, the rough economic period was arguably a limiting factor in people's subjective perceptions of wellbeing, which is what could have hindered the subjective wellbeing index.

The low interest rate environment, post the debt crisis, that resulted in low costs of debt and increased investing incentives provided more lenient conditions for wellbeing to spur. In these years which can be characterized as having higher economic stability, the objective wellbeing had some fluctuations. It did pick up over time in the latter years of the decade. A similar pattern was observed in subjective wellbeing which greatly picked up after 2015.

In **2014**, the inclusive education policy (or 'Passend Onderwijs') was introduced and ultimately aimed to support children with special needs. The policy came in after a drop in the education domain the previous year and a stagnant year-on-year value in 2012. Following this reform, the **education** domain is seen to prosper as it recorded a consecutive four-year increase, as seen in figure 16 below.

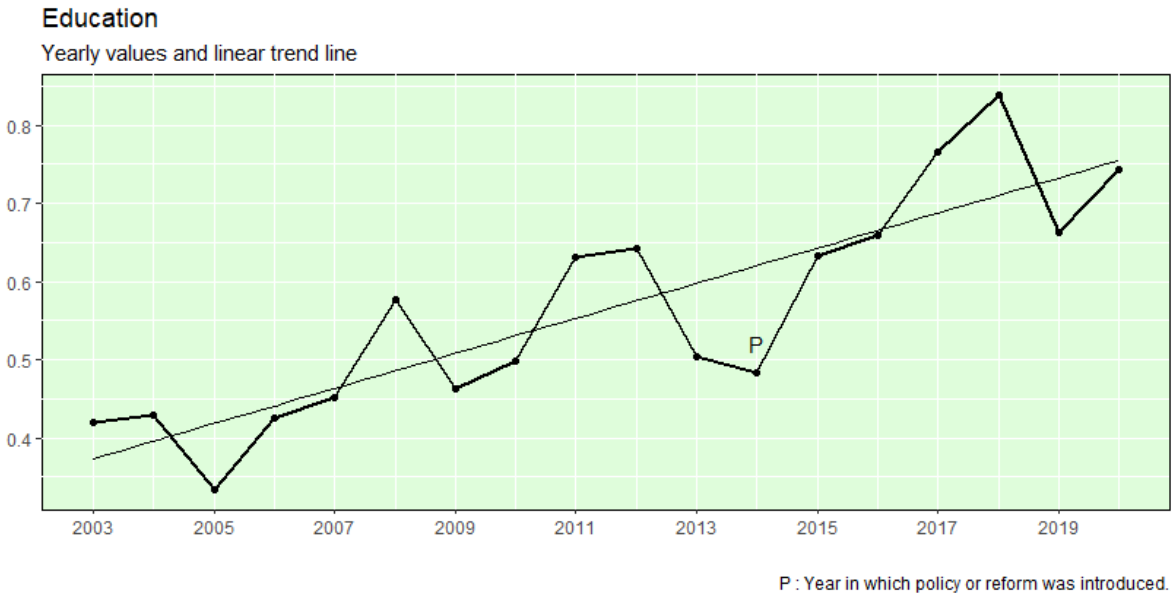

Figure 16: Objective Wellbeing domain

The housing act that came into effect in **2015** brought about numerous technical changes such as classification and separation of social and investment activities of associations, and their relevant accounting treatment. One of the main purposes was to provide affordable housing to social disadvantaged members of society. This is not surprising as the **housing** domain in this analysis had been falling for five consecutive years since 2008. It is noteworthy to mention that the domain did pick up from its low value in 2015 post the new housing act and continued to steadily grow, as seen in figure 17 below.

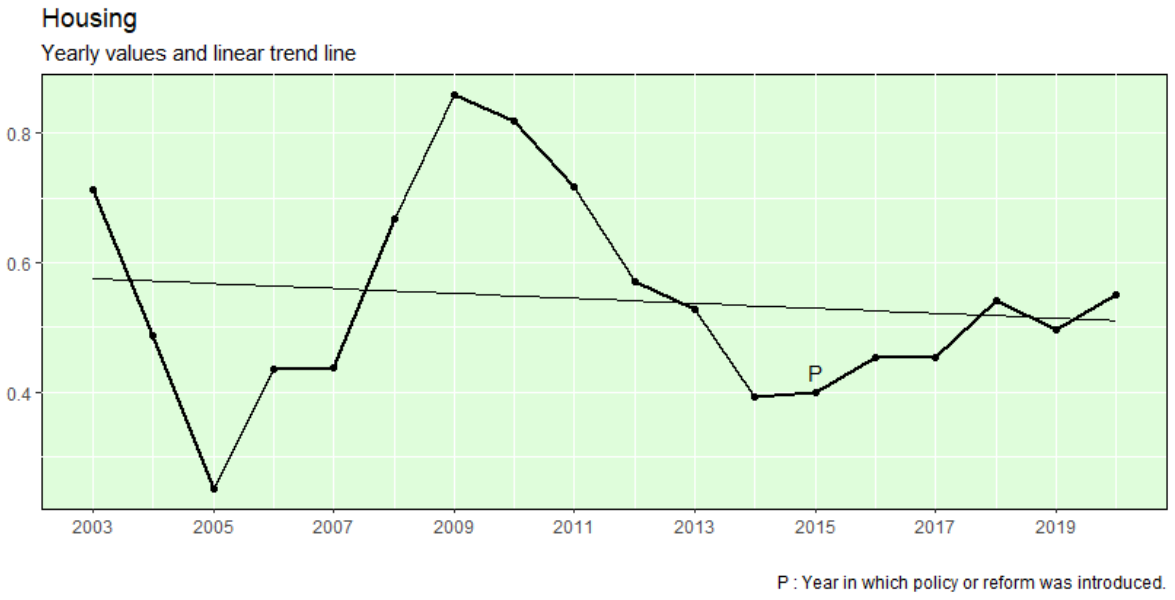

Figure 17: Objective Wellbeing domain

The work and security act ('Wet werk en zekerheid') was implemented in phases throughout **2015** and **2016**. The act relates to topics concerning collective bargaining, unemployment benefits, dismissal regulations, and contracts. The **work and employment** domain had already began recovering in 2015 from two consecutive years of decreases though it continued to improve significantly in the years after the implementation of the reform, as seen in figure 18 below.

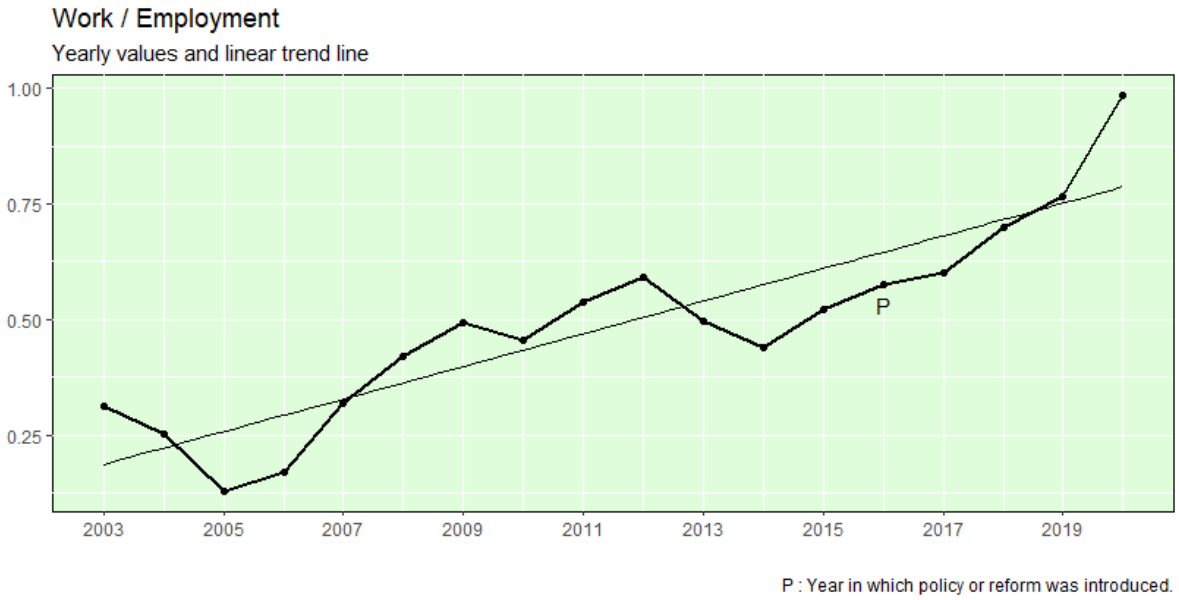

Figure 18: Objective Wellbeing domain

Concerning the **quality of institutions** domain was the whistleblowers act ('Wet Huis voor Klokkenluiders') which was introduced in **2016**. The policy protects whistleblowers and establishes a base through internal reporting mechanisms and external reporting channels for reporting corruption or any wrongdoing. The domain did pick up that year though it had fluctuations in the years to come as it followed a general upward trend, as seen in figure 19 below.

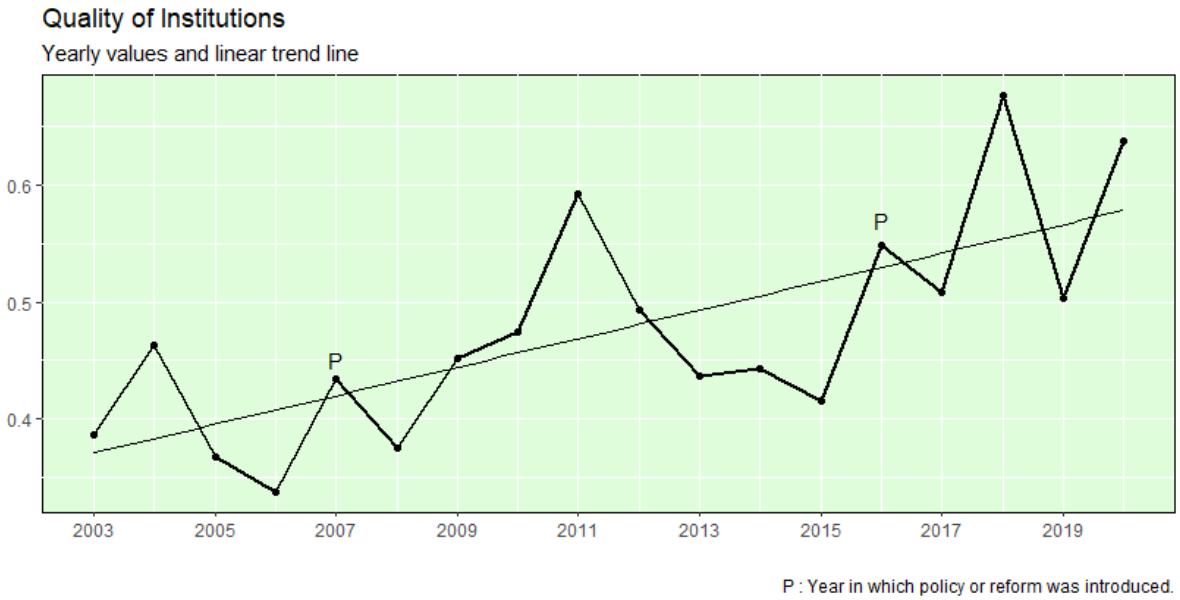

Figure 19: Objective Wellbeing domain

The National Climate Agreement in **2019** was one of the major environmental frameworks undertaken to address climate change and low-carbon transition. It pinpoints topics related agriculture and land use, energy efficiency and building renovation, greenhouse gas targets, and circular economy and waste management. The **environment** domain had been improving in the years leading up to this framework, but it seems that the climate agreement did not have a negative impact on the domain as it plunged up in 2020, as seen in figure 20 below.

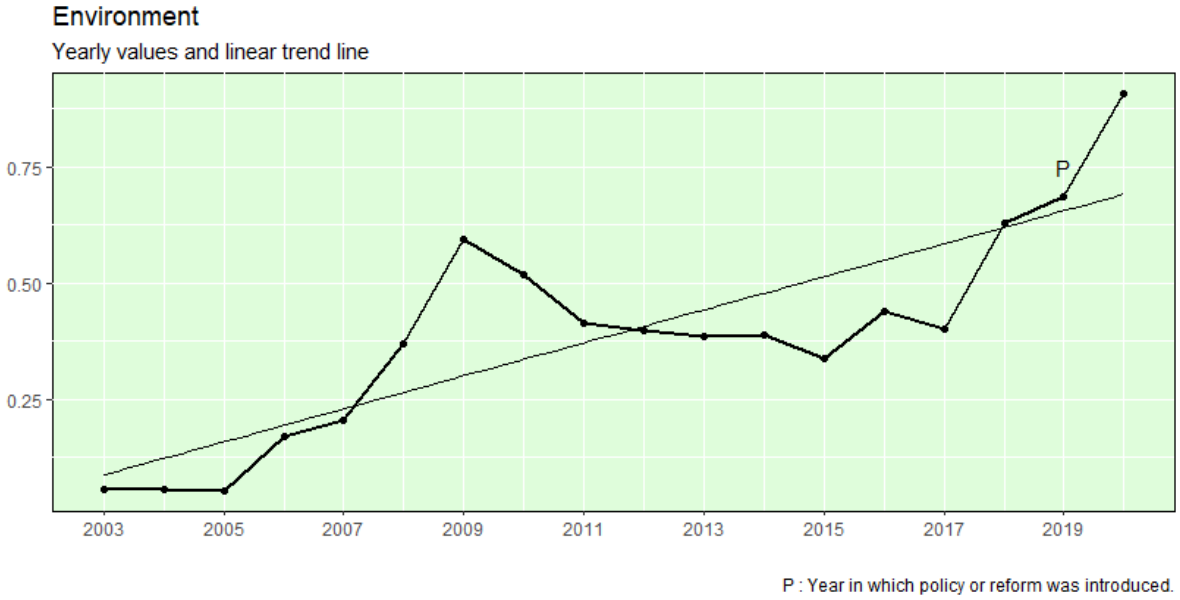

Figure 20: Objective Wellbeing domain

The wellbeing indices had contradicting results during the covid-19 pandemic in 2020. The objective wellbeing had a significant increase whilst subjective wellbeing fell. The increase in government expenditure can be linked to have contributed to the stable reading of objective wellbeing. The large

perceived increase of health risk, and pandemic related uncertainties can be argued to have been a large factor in the reason why subjective wellbeing fell.

6.2 Gross Domestic Product

Taking Gross Domestic Product data at 2015 prices and using the same transformations as for the rest of the data in the analysis, some noteworthy findings are found. The subjective wellbeing index seems to be unaffected by movements in GDP, as seen in figure 21. This is also confirmed in the insignificantly low coefficient found in the regression analysis[2].

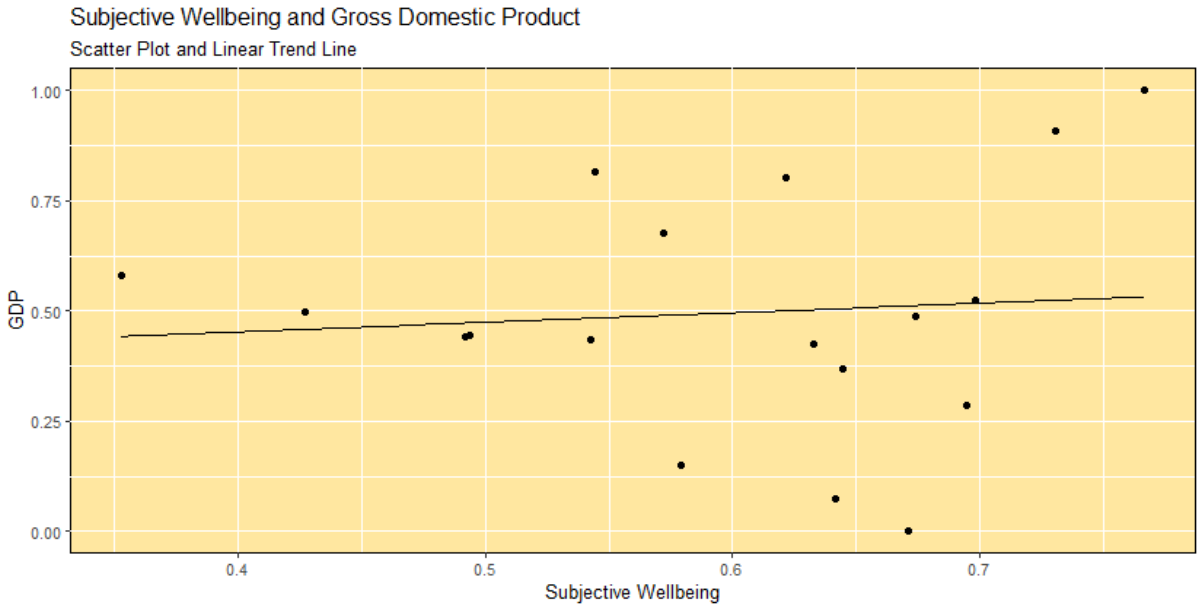

Figure 21: Subjective Wellbeing and GDP

Objective wellbeing however, displays a positive relationship with GDP, as seen in figure 22 below. The regression analysis also shows a statistically significant positive coefficient[3]. This implies that GDP can be used as a weak proxy for the objective wellbeing index conducted in this paper. However, it inconclusive to state whether it is a good predictor of wellfare given its insignificant relationship with subjective wellbeing.

[2] Refer to table 4.1 in the appendix.
[3] Refer to table 4.2 in the appendix.

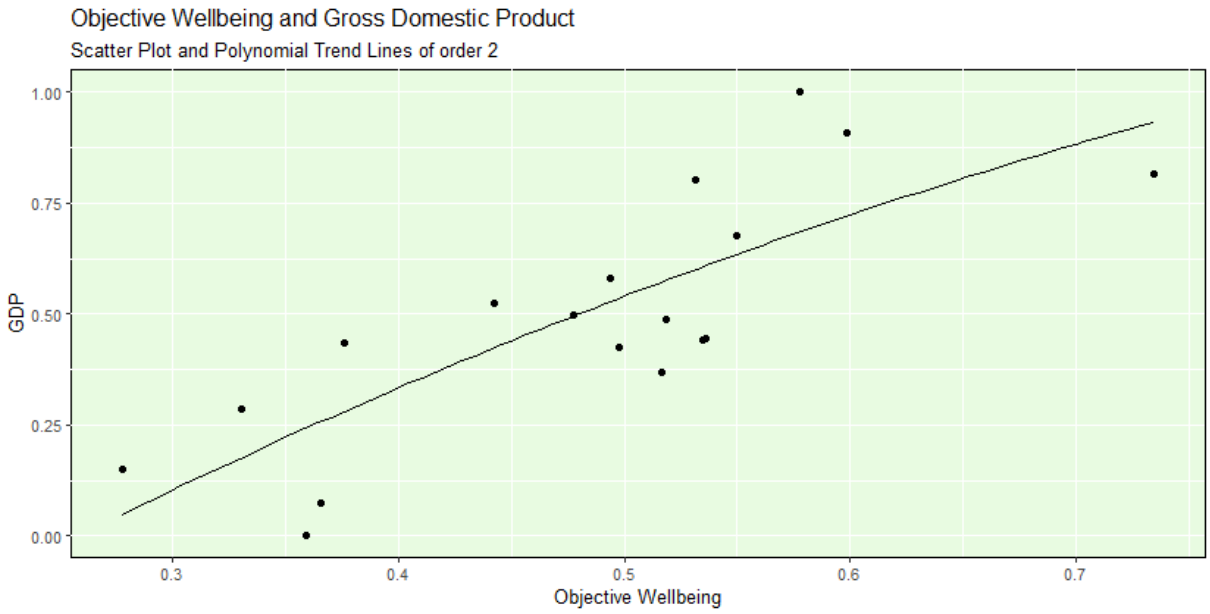

Figure 22: Objective Wellbeing and GDP

7.Conclusion

The wellbeing indexes both show similar trends in some periods of the period of analysis which starts from 2003 up to and including 2020. The subjective wellbeing index tends to follow the objective wellbeing trends in a time lagged manner. Although the trends of the indexes tend to have a relation, yearly volatilities of their individual values are different. When comparing the yearly movements, the tow indices move in different directions and with varying magnitudes relatively often. Their relation is seen over slightly larger time spans. The subjective volatility index tends to have higher volatility overall compared to the objective wellbeing index.

A significant takeaway from this study is that raw data tends to struggle to display the state of wellbeing in a society. Given the yearly changes tend to differ, it is reasonable to state that people value their happiness on indicators different from the ones used in objective wellbeing. That is not to discredit the role of objective wellbeing domains within a country as their standard and development provide a foundation for its members to pursue a state of wellbeing that fits their own understanding and definition of it. These domains set the standard of living and can have an effect of raising welfare even without the conscious realization of its citizens who may not be able to internalise adverse scenarios and standards experienced in less developed nations. Perhaps a point of further research is the refinement of weighting in the domains of objective wellbeing. It is reasonable to assume that certain domains carry a larger importance to individuals in the formulation of subjective wellbeing. Therefore, finding out which domains carry higher importance could shed light on which pillars of the economy people value more.

Although the number of plausible variables that can affect the domains and indexes are broad and large in number, it is evident that they are somewhat sensitive to policies and reforms. Significant changes in laws tend to impact most domains within a year or two, as seen in the large movements of domains post reforms. This is not to conclude that they are the sole reason for the movement but do contribute significantly, given that no other significant changes have occurred.

All in all, relating to the research question, there are significant differences and deviations between the two indexes, but also common trends have been recorded in the medium term spanning three to five years. Objective wellbeing has improved steadily over the period of analysis whilst subjective wellbeing has deviated significantly but has recovered in the latter years of the analysis. Both indexes performed well in the latter years and are on an upward trend as seen in their polynomial trend lines of order two. A warning signal is that three of the four indicators of subjective well-being are on downward linear trends, with only trust having an upward slope. Most of the objective wellbeing domains however face an upward slope in their trend lines with only degree of social inclusion having a negative slope. This may raise a point of concern towards funding directed at objective wellbeing domains. Is it important to maintain objective standards if they are at the expense of falling indicator trends of subjective wellbeing? Moreover, should policymakers focus on subjective wellbeing indicators or is personal happiness an issue to be tackled at an individual level? And lastly, if the objective domains are not sufficient enough for people to optimize their own subjective welfare, are there issues to be found in the foundation of societies related to the philosophy that people embody, psychology that is learned through the years, cultural values that are instilled on the individuals, and the standards under which people operate?

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Appendix

Table 2: Pearson Correlations

	Education	Safety and Crime	Environment	Work Employment	Degree of Social Inclusion	Quality of Institutions	Income	Health
Education		0.7276	0.7110	0.8517	-0.6756	0.7976	0.8363	0.0061
Safety and Crime	0.7276		0.6237	0.7335	-0.8083	0.5505	0.7608	0.0564
Environment	0.7110	0.6237		0.9156	-0.6413	0.7095	0.9074	0.4315
Work Employment	0.8517	0.7335	0.9156		-0.6198	0.7929	0.9319	0.3540
Degree of Social Inclusion	-0.6756	-0.8083	-0.6413	-0.6198		-0.4665	-0.6710	0.0738
Quality of Institutions	0.7976	0.5505	0.7095	0.7929	-0.4665		0.8007	0.1400
Income	0.8363	0.7608	0.9074	0.9319	-0.6710	0.8007		0.3121
Health	0.0061	0.0564	0.4315	0.3540	0.0738	0.1400	0.3121	
Housing	0.0415	-0.3381	0.3212	0.1978	0.0983	0.1659	0.1381	0.3501
Objective Wellbeing	0.8230	0.7289	0.9325	0.9762	-0.5952	0.8005	0.9532	0.4525
Subjective Wellbeing	0.0812	-0.2714	0.0853	-0.0099	-0.0625	0.1500	-0.0007	-0.4550
Trust	0.9199	0.8573	0.8176	0.9001	-0.7940	0.7222	0.9175	0.0452
Self-reported happiness	-0.3099	-0.4508	-0.2352	-0.3488	0.1102	-0.2788	-0.4222	-0.4662
Self-reported subjective wellbeing	-0.5756	-0.6277	-0.6593	-0.7048	0.5609	-0.4411	-0.6648	-0.2379
Social support	-0.1713	-0.5208	-0.0110	-0.1223	0.2875	0.0638	-0.0838	-0.0888

Table 2.1: Pearson Correlations (continuation)

	Housing	Objective Wellbeing	Subjective Wellbeing	Trust	Self-reported happiness	Self-reported subjective wellbeing	Social support
Education	0.0415	0.8230	0.0812	0.9199	-0.3099	-0.5756	-0.1713
Safety and Crime	-0.3381	0.7289	-0.2714	0.8573	-0.4508	-0.6277	-0.5208
Environment	0.3212	0.9325	0.0853	0.8176	-0.2352	-0.6593	-0.0110
Work Employment	0.1978	0.9762	-0.0099	0.9001	-0.3488	-0.7048	-0.1223
Degree of Social Inclusion	0.0983	-0.5952	-0.0625	-0.7940	0.1102	0.5609	0.2875
Quality of Institutions	0.1659	0.8005	0.1500	0.7222	-0.2788	-0.4411	0.0638
Income	0.1381	0.9532	-0.0007	0.9175	-0.4222	-0.6648	-0.0838
Health	0.3501	0.4525	-0.4550	0.0452	-0.4662	-0.2379	-0.0888
Housing		0.2559	0.3846	-0.0045	0.1743	0.1296	0.3816
Objective Wellbeing	0.2559		-0.0690	0.8755	-0.4352	-0.6519	-0.1508
Subjective Wellbeing	0.3846	-0.0690		0.0531	0.7364	0.1567	0.7435
Trust	-0.0045	0.8755	0.0531		-0.2989	-0.6994	-0.2183
Self-reported happiness	0.1743	-0.4352	0.7364	-0.2989		0.0863	0.5073
Self-reported subjective wellbeing	0.1296	-0.6519	0.1567	-0.6994	0.0863		0.1037
Social support	0.3816	-0.1508	0.7435	-0.2183	0.5073	0.1037	

Table 3: Descriptive Statistics Domains and Indexes

Variable	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Education	18	0.56	0.14	0.33	0.45	0.65	0.84
Safety and Crime	18	0.5	0.36	0.088	0.2	0.89	0.97
Environment	18	0.39	0.23	0.052	0.24	0.5	0.91
Work Employment	18	0.49	0.21	0.13	0.34	0.59	0.99
Degree of Social Inclusion	18	0.45	0.22	0.11	0.3	0.56	0.94
Quality of Institutions	18	0.47	0.092	0.34	0.42	0.51	0.68
Income	18	0.43	0.14	0.24	0.29	0.52	0.76
Health	18	0.5	0.11	0.3	0.42	0.59	0.69
Housing	18	0.54	0.16	0.25	0.44	0.64	0.86
Objective Wellbeing	18	0.48	0.11	0.28	0.39	0.54	0.73
Subjective Wellbeing	18	0.6	0.11	0.35	0.54	0.67	0.77

Table 3.1: Descriptive Statistics Education Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Percentage of young adults who are either in education or employment	Percentage	18	91	0.89	89	91	92	93
Net educational expenditures in both private and public institutions	Currency	18	41367	7821	28604	35163	46170	53957
Average number of hours of instruction time per year in compulsory general education	Time (hours)	18	810	10	790	810	810	834
Share of working population that have attained tertiary level education	Percentage	18	33	4.4	28	30	36	43
Rate of early school leavers from education	Percentage	18	6.3	0.83	5.3	5.7	6.7	8.4
School life expectancy	Years	18	17	0.86	16	17	18	19

Table 3.2: Descriptive Statistics Crime and Safety Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Rate of theft.	Count	18	526562	226505	204555	311829	684276	858200
Rate of burglary.	Count	18	210500	122876	49630	87590	300618	393551
Number of victims of intentional homicide	Rate per 100,000	18	0.82	0.2	0.55	0.66	0.9	1.2
Rate of serious assault	Rate per 100,000	18	224	181	27	30	387	434
Rate of sexual violence	Rate per 100,000	18	41	15	23	27	57	63
Persons held in prisons, penal or correctional institutions	Rate per 100,000	18	82	17	62	66	92	116

Table 3.3: Descriptive Statistics Environment Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Total emissions by the Dutch economy	CO2 (mln kg)	18	201017	9091	174426	197966	207372	215243
Government expenditure in environmental protection	Currency	18	9935	906	8368	9380	10400	11838
Environmental Policy Stringency Index	Index Value	18	3.1	0.54	1.8	2.8	3.4	3.8

Table 3.4: Descriptive Statistics Work / Employment Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Employment of people with below upper secondary education	Percentage	18	61	1.6	58	60	62	63
Employment of people with upper secondary and post secondary non-tertiary education	Percentage	18	79	1.6	77	78	80	82
Employment of people with tertiary education	Percentage	18	87	1.5	84	87	88	90
Fatal accidents at work	Count	18	63	29	23	38	90	106
Public expenditure on public employment services and labour market programmes	Percentage	18	2.5	0.5	1.8	2.2	2.8	3.9

Table 3.5: Descriptive Statistics Degree of Social Inclusion Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Voice and accountability	Units	18	1.5	0.065	1.5	1.5	1.6	1.7
Persons at risk of social exclusion or poverty	Count	18	2635	143	2432	2485	2768	2845

Table 3.6: Descriptive Statistics Quality of Institutions Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Government funding for research and development	Currency	18	6055	357	5481	5815	6275	6841
Control of corruption	Units	18	2	0.1	1.8	1.9	2.1	2.2
Government effectiveness	Units	18	1.8	0.089	1.7	1.8	1.8	2.1
Regulatory quality	Units	18	1.8	0.11	1.7	1.7	1.8	2

Table 3.7: Descriptive Statistics Income Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Low-income households	Percentage	18	23	0.47	22	22	23	24
Income inequality	Unit	18	0.29	0.0093	0.28	0.28	0.3	0.31
Domestic consumption by households	Currency	18	300239	27051	256214	285854	314735	353547
Mean disposable income	Currency	18	26878	3583	21431	24573	29225	33700

Table 3.8: Descriptive Statistics Health domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Percentage of the population in good health	Percentage	18	80	0.88	78	80	81	82
Percentage of the population that are overweight	Percentage	18	48	1.9	45	47	50	51
Public expenditure on healthcare	Percentage	18	13	0.88	12	12	14	14
Life expectancy	Years	18	81	0.97	79	80	81	82

Table 3.9: Descriptive Statistics Housing Domain

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Overcrowding rate within households	Percentage	18	6.9	3.8	2.2	3.3	10	13
Housing cost overburden rate	Percentage	18	40	14	21	29	51	66
Government expenditure on housing and community amenities	Currency	18	3411	608	2327	2890	3683	4612

Table 3.10: Descriptive Statistics Subjective Wellbeing Indicators

Variable	Data Type	N	Mean	Std. Dev.	Min	25th Percentile	75th Percentile	Max
Sub index Trust	Percentage	18	59	5	50	55	63	66
Self-reported happiness	Percentage	18	86	1.4	83	85	87	88
Self-reported subjective wellbeing	Index value	18	8.2	1.4	6.4	7.1	9.3	12
Social support	Percentage	18	6.4	1.8	4.3	5.6	6.3	12

Type: OLS linear regression				
Dependent Variable: Subjective Wellbeing				
	Estimate	Std. Error	t-value	p-value
Intercept	0.58195 ***	0.05548	10.489	0
GDP	0.03397	0.09853	0.345	0.735
R^2 = 0.00737				

Table 4.1: Subjective Wellbeing regression

Type: OLS linear regression				
Dependent Variable: Objective Wellbeing				
	Estimate	Std. Error	t-value	p-value
Intercept	0.32481 ***	0.03419	9.499	0
GDP	0.32174 ***	0.06072	5.299	0
R^2 = 0.637				

Table 4.2: Objective Wellbeing regression