Quality of Life in Provinces in Indonesia

As measured with Happy Life Years

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Abstract

The quality of life in different geographical areas can be measured by how long and happy people live in an area. This approach was applied to the 34 provinces in Indonesia. Survey data on happiness were combined with register data on longevity in an index of Happy Life Years (HLY). Scores on this index range from 59 in Kalimantan Timur to 47 in Papua Barat. Some 59% of these differences in apparent quality of life can be explained by regional economic development, competitiveness, democracy and control of corruption, while income-inequality does not explain any of the differences. The relevance of this information for public and private choice is discussed.

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1 INTRODUCTION

Robert F. Kennedy once said that a country's gross domestic product (GDP) measures "everything except that which makes life worthwhile". The creator of this metric was Simon Kuznets (1934) who warned that this metric should be used carefully. Under the global movement Beyond GDP, recent studies have been conducted to respond to that shortcomings of GDP as a measure of how well a country doing for its citizens. Stiglitz et al (2010) have recommended some measures to tackle the problem. Some studies suggest that the measure in Beyond GDP should include subjective well-being, life satisfaction and quality of life (Skevington and Böhnke, 2018).

Attempts to measure quality of life have been reviewed in Hagerty et al. (2001) who found at least 22 indices for measuring quality of life. The authors suggest that many of the indices are reliable and can be used for time series measures and studying subpopulations. They are also a promising way to measure quality of life for public policy. More recently Diener et al. (2018) have suggested some measures that can be used by academics and policy makers for measuring quality of life.

There is growing interest in the quality of life in specific locations. Individual citizens want to know about this when deciding where to live, and policy makers want to know how their area is doing and what they might do to improve their citizen's quality of life. Quality of life can be measured in two ways: 1) by assessing the presence or absence of conditions deemed to be required for a good life, that is *assumed* quality of life, and 2) by assessing how well people actually thrive, that is *apparent* quality of life.

1.1 Assumed quality-of-life

Quality-of-life (QoL) in nations is commonly measured by taking stock of conditions that are believed to make for a better life, such as economic affluence, full employment and education opportunities. The measures of such conditions are added in an index, like the Human Development Index (HDI) or the Index of Social Progress (ISP). When these indices are applied at the local level of cities, they involve measures of local costs of living, amenities and safety; e.g. 'Best places to live in Indonesia'

This approach has several limitations. A substantive limitation is that items in such indices are typically chosen because of their easy availability from statistical sources, rather than based on proven relevance. For instance, the presence of museums in a town may not affect the lives of most of its inhabitants significantly, yet may be used as an indicator of livability for that town. Notions of what is 'good for the people' will often draw on the personal preferences of tertiary educated scientists and policy makers rather than the citizens for whom a city should provide a good life.

There are also technical limitations of this approach, such as the weighing of elements in the index, e.g. is crime rate as important as job-opportunities? If not, how much more or less important is it? Another technical problem is that such measures typically assume that more is better and do not inform us about an optimum, e.g. How much safety is optimal for a good life?

A particular limitation to the use of such indices by policy makers is that items are typically things that are on the political agenda, e.g. reductions in crime and the creation of jobs. As such these indices inform policy makers about the progress made using a chosen way, but such indices do not inform policy makers whether they are on the right track or not, that is, whether such policy achievements really improved the lives of citizens.

1.2   Apparent quality of life

Another approach to measuring the quality of life in an area is to assess how well people thrive in an environment. The focus is then on the *outcomes* of life, rather than on the *preconditions* for those lives.

How well an organism thrives is typically reflected in its lifetime. In higher animals, thriving also reflects in affective experience and humans are able to estimate how well they have felt over longer periods of time. These estimates of how we feel most of the time form at the basis of our appraisal of how 'happy' we are. Thus, in humans, thriving is reflected both in how l*ong* and how *happy* they live.

This difference between 'assumed' and 'apparent' quality of life is discussed in more detail in Veenhoven (2005).

Paper outline

In this paper we use the apparent quality of life assess quality of life in Indonesia. We first present the measure used, the index of Happy Life Years, in section 2. Then, we present earlier data on this index in 158 contemporary nations, to see how Indonesia ranks and what societal characteristics drive the differences in section 3. We focus on differences in apparent quality of life across provinces in Indonesia in section 4. We have found considerable differences, which we explain as far as the available data allow in section 5. We advance some further possible explanations and discuss our results in section 6, setting an agenda for further research. We conclude this paper in section 7.

2 MEASUREMENT OF APPARENT QUALITY OF LIFE
Using Happy Life Years

The quality of life in an environment reflects in how long and happy people live in that environment. This can be measured by combining data about longevity and happiness in an index of 'Happy Life Years' (HLY). This measure is akin to the 'Quality of Life Adjusted Life Years' (QOLYs) used in health care for assessing the effect of medical interventions and has also been applied on the level of nations (e.g. Matthews et al 1999). The index of Happy Life Years is described in more detail in Veenhoven (2005). Below, we summarize the main points and its application to the Indonesian data.

2.1   Elements in the index

The HLY index marries how long people live *objectively* with how much they enjoy their life *subjectively*. Longevity is an indicator of successful adaptation for all creatures; any organism perishes if it fails to meet the demands of its environment.

Survival is the only indicator of good adaptation for most species, but in higher animals, successful adaptation also reflects in affective experience.

The basic function of feelings is probably to inform organism whether it is in the right pond or not. Since this faculty is only required in organisms that can move from one environment to another, it probably only exists in higher animals and not in plants (Morris 1992). Like higher animals, humans as a part of the primate family, are endowed with the faculty of affective experience. Research has shown that our affective reaction typically precedes cognitive appraisals (Zajonc 1980), which suggests that the development of reason in the humans species has not replaced the earlier affective orientation system but has come to function in parallel with it. There is also evidence that human's judgements of their life-as-a-whole draw on affective information in the first place (Schwarz & Strack 1991, Kainulainen et al. 2018), another indication that this orientation system still works. In this view, happiness is another signal of good adaptation, which can be meaningfully combined with longevity. If people live long and happy in an environment, then environment is apparently successful in meeting the needs of those human species. The two elements, longevity and happiness, are defined and measured as follows.

Long life

How long people live in an area can only be established once they have died, however, we can estimate probable average life-times of inhabitants of an area on the basis of age at death data of proceeding inhabitants, correcting for likely effects of changes such as improved health care. This gives us an average 'life-expectancy'; that is how long statisticians expect that someone will live, on average, in an area. It is not measure how many years these people actually expect to live.

Statistical life-expectancy is a standard item in international health statistics

(WHO 2017). In Indonesia data on life-expectancy are also available at the province level (BPS, 2017). In this paper we use data on life-expectancy at birth assessed in the year 2017.

Happy life

Let us first define happiness in the sense we us it: we define happiness as an individual's overall satisfaction with his or her life-as-a-whole. In other words, how much that individual likes the life they live. This concept is delineated in more detail in Veenhoven (1984). Synonyms of happiness defined this way are 'life-satisfaction' and 'subjective well-being'.

Since happiness is something people have on their mind, it can be measured using questioning. Different questioning techniques can be applied, open and closed questions, and single and multiple questions. The most commonly used method is to ask single question. An overview of valid questions on happiness is available in the collection 'Measures of Happiness' of the World Database of Happiness (Veenhoven 2018b).

In the study reported in this paper, happiness was measured using the following question: *How happy are you with life at this moment?* Answers to this question were rated on a numerical response scale ranging from 1 (very unhappy) to 10 (very happy). This question was used in the 2017 Happiness Measurement Survey, conducted by the Indonesian Central Bureau of Statistics. The sample distribution represents the socio-economic conditions of households in each province and data was collected from 72,317 respondents (SPTK, 2017).

2.1 Why combine life expectancy and happiness?

One could imagine a place where people live happy but short lives, possibly as a result of overindulgence in pleasures such as drugs and sex. If so, many individuals might opt for a less happy but longer lives due to not overindulging once informed of this danger. This illustrates why we should consider the degree and duration of happiness in combination.

A similar problem exists with the use of life-expectancy as a social indicator. If growing older means that we spend more years ailing which may cause some unhappiness, a rise in longevity may not mark real progress. To deal with this problem, a measure called 'Disability Adjusted Life Years' (Murray and Acharya, 1997) has been introduced. This is used to assess only the number of years spent in good health on the assumption that those in good health are happier those who are not. Our measure of Happy Life Years follows this logic.

2.2 How combine life expectancy and happiness?

The number of years citizens live happily in a country can be measured by combining information about length of citizen's lives drawn from civil registrations of births and deaths with data on their appreciation their lives as assessed in surveys. The following simple formula can be applied:

Happy-Life-Years = Life-expectancy at birth x 0-1 happiness

Suppose that life expectancy in a country is 50 years, and that the average score on a 0 to 10- step happiness scale is 5. Converted to a 0-1 scale, the happiness score is then 0,5. The product of 50 and 0,5 is 25. So, the number of happy life years is 25 in that country. If life expectancy is 80 years and average happiness 8, the number of happy life years is 64 (80 x 0,8). Theoretically, this indicator has a broad variation. The number of Happy Life Years is zero if nobody can live in the country, and will be infinite if a country's society is ideal and its inhabitants immortal. The practical range will be between 20 and 75 years. Presently at least, life expectancy at birth in nations varies between 30 and 80, and average happiness is seldom lower than 0.4 on a 0 to 1 scale and seldom higher than 0,8. The number of Happy-Life-Years will always be lower than standard life expectancy. It can equal an individual's real length of life only if everybody is perfectly happy in that individual's country (score 1 on scale 0 to 1).

A high HLY means that citizens live both long and happily, a low HLY implies that the life of the average citizen is short and miserable. A medium HLY values can mean three things: 1) a moderate length-of-life and moderate appreciation-of-life, 2) a long but unhappy life, and 3) a short but happy life. This indicator is described in more detail elsewhere (Veenhoven 1996, 2000), and is scored highest in a scholarly review of indicators by Hagerty et al. (2001).

3   HAPPY LIFE YEARS IN NATIONS

Data on average years lived happy are available for 158 nations over the years 2005-2014 and are presented in the world map shown in Figure 1. As can be seen, HLY ranges between 14.8 in Togo and 67.9 in Costa Rica, HLY tends to be high in developed western nations and is lowest in developing Africa.

Figure 1 about here

Rank of Indonesia
Indonesia ranks in the middle when looking at worldwide figure for HLY, with a HLY of 43.3. This is the result of a life-expectancy of 70.8 years and average happiness of 6.1 on scale 0 to 10. Similar HLY levels are observed in Iran, the Lebanon and Kazakhstan, HLY is somewhat lower in Indonesia than in the neighboring countries Malaysia (49,8), Thailand (50,7) and The Philippines (48,0), but considerably higher than in Myanmar (34,5).

Drivers of the differences
Analysis of the societal characteristics behind these differences reveals that HLY tends to be higher the richer the country (r=+.23), the more democratic the political system (r=+.20), the more people trust each other (r=+.47) and the less corruption is controlled (r=-.34). Findings on the relation of HLY with social inequality diverge, HLY is higher the more gender-equality is practiced (r=+.70) and lower the greater the differences in happiness among citizens (r= -

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.39), but HLY appears to be unrelated to income inequality in nations (r=-.08). These findings are described in more detail in Veenhoven (2018).

4   HAPPY LIFE YEARS IN INDONESIA

We present the distribution of the three indicators of apparent quality of life in Indonesian provinces; 1) average happiness, 2) life-expectancy and 3) the resulting index of Happy Life Years in Table 1. The latter scores are presented visually on the map on Figure 2.

<p style="text-align:center;">Table 1 about here</p>

<p style="text-align:center;">Figure 2 about here</p>

4.1   Level in Indonesia as a whole

The HLY for Indonesia as a whole is 54.24 years, which is substantially higher than the 43.3 Happy Life Years observed in the above mentioned cross-national study. The difference is partly due to the rise of life-expectancy, which was 70.8 in 2005 for the earlier cross-national study and 71.6 in 2017 for this study. Another part is due to the rise in average happiness over these years which we estimated at 0.9 on scale 0-10[3]. A further difference is in the question on happiness used, the key term in the question was 'satisfaction with life' in the earlier cross-national study while they key term 'happy' was used for the 2017 Indonesian study. Rating for questions on how 'happy' you are tend to be higher than on questions about 'satisfaction with life' and in Indonesia that difference is also about 0.9 on scale 0-10[4]. Together, these variations fully explain the difference in HLY observed in the earlier cross-national study and in this Indonesian study. The differences in degree of HLY in these studies

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[3] We compared with the happiness score 0f 6,7 in 2014 using Indonesian Family Life Survey which used the same question as in this Happiness Measurement Level Survey 2017 which results in 7.6.
[4] We calculate from another survey called Indonesian Family Life Survey (IFLS 2014) which has questions both on happiness and life satisfaction. As they have happiness scale (1-4) and life satisfaction scale (1-5), we need to transform them become 0-10 scale. After transformed, happiness score become 6.7 and life satisfaction score become 5.8, indicating that happiness score tends to be higher than life satisfaction one.

does hinder the comparison of correlations made later in this paper.

4.2 Differences across provinces in Indonesia

The HLY score differs considerably across Indonesian provinces with scores ranging from 59 in Kalimantan Timur to 47 in Papua Barat. HLY tends to be higher in the north of the country than in the south. Kalimantan Utara, Kalimantan Timur, Gorontalo, Sulawesi Utara and Maluku Utara are among the happiest-longest provinces in Indonesia. Meanwhile, inhabitants of the provinces of Nusa Tenggara Timur, Papua Barat and Sumatra Utara are among the least happy-longevity provinces of Indonesia.

4.3 Correlated provincial characteristics

These differences in the *life-outcomes* are the result of across provincial variation in *living-conditions*. What kinds of living conditions drive these differences? Following the societal correlates of HLY in nations across the world, we will now examine whether similar factors also drive differences in HLY across provinces in Indonesia.

Economic prosperity

The economic prosperity of a province can be measured using the Gross Domestic Product (GDP), data for an area which are taken from Indonesian Central Bureau of Statistics (BPS, 2017). A plot of these data against the HLY scores from Table 1 is presented in Figure 3. There is a strong correlation between GDP and Happy Life Years in provinces with coefficient is +0.41, which fits common knowledge that wealth is essential to quality-of-life (Veenhoven, 2005). The +.41 correlation across Indonesian provinces is stronger than the above-mentioned +.23 correlation across nations in the world.

Figure 3 about here

Economic competitiveness

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Beside the GDP, competitiveness is included as an economic indicator. The main source of secondary data of this study came from the Indonesian Central Bureau of Statistics and the competitiveness score is adopted from Ridwan et al. (2017). The results show that there is a relationship between competitiveness and HLY scores (+0.32). Highly economically competitive provinces tend to have higher HLY score. In this case, Jakarta is the most economically competitive province with relatively high HLY score.

<center>[Figure 4](#) about here</center>

Income inequality

Having considered the average *degree* of material prosperity in Indonesia provinces, we considered the *distribution* of this prosperity among inhabitants of provinces. To do this we used a measure of income-inequality, the GINI coefficient, data on which were taken from the Indonesian Central Bureau of Statistics (2017).

The relationship between the GINI coefficient and Happy Life Years in Indonesia is shown in Figure 5. As in the above-mentioned comparison across nations in the world, we see no statistical association between HLY and income inequality in Indonesian provinces, +0.02. The scattergram on Figure 4 shows that people live equally long and happy in province with small income disparities, such as Kalimanta Utara, as in provinces with large income differences, such as Gorontalo and Yogyakarta.

<center>[Figure 5](#) about here</center>

Happiness inequality

Though unrelated to inequality in incomes, HLY is correlated with inequality in happiness as measured using its standard deviation. The correlation is strong and positive: $r = +.67$. See figure 6. Illustrative cases are Sulawesi Utara, Kalimantan Utara and Gorontalo where people live long and happy inspite of a high dispersion of happiness. This positive correlation differs from the negative correlation of -.39 observed in the above-mentioned international study.

<center>[Figure 6](#) about here</center>

<center>11</center>

Democracy

The relationship between provincial democracy index and HLY is presented in Figure 7. We can see a positive correlation of +0.32, which is higher than the +.20 correlation among nations in the world. The shape of the relationship is linear, which suggests that democracy is not yet at its limit regarding its ability to confer quality-of-life. The results show that people who live in provinces that have a higher democracy index tend to live longer and happier. The provinces of Kalimantan Utara, Gorontalo and Yogyakarta have higher indices of democracy and at the same time have higher level of HLY. An interesting result is seen Nusa Tenggara Timur, they have a higher democracy index but lower level of HLY.

Figure 7 about here

Control of corruption

Data on control of corruption is available for only 12 of the 34 Indonesian provinces and has taken from Transparency International 2016. A plot of these data against happy life years is presented on Figure 8. A strong correlation appears, r =+.67. Note that 'control' of corruption means less corruption, so the positive correlation denotes a negative effect of corruption on how long and happy people live in a province. Jakarta is a province where corruption is low and HLY high, while Sumatra Utara is a case of high corruption and low HLY.

Figure 8 about here

Trust in local government

The relationship between trust in local government and HLY is presented in Figure 9. We can see a small correlation (r=+0.22). The provinces of Sulawesi Utara, Gorontalo and Maluku Utara tend to higher levels of trust in local government and at the same time have higher level of HLY. In contrast, Papua Barat tends to have less trust in local government and lower level of HLY. This low correlation is the more remarkable, because trust in local government is a subjective perception which is likely to be coloured by subjective life-satisfaction. These results taken indicate that the above mentioned much stronger correlation with control of

corruption is not caused by a more positive subjective view on life, but rather by creating better objective living conditions.

<div align="center">Figure 9 about here</div>

Trust in neighbors

The relationship between trust in neighbors and HLY is presented in Figure 10. We can see a small correlation (r=+0.20). The provinces of Kalimantan Utara, Kalimantan Timur and Jakarta tend to higher levels of trust in neighbors and at the same time have higher levels of HLY. In contrast, Nusa Tenggara Timur tends to have less trust in neighbors and lower level of HLY. This low correlation is the more remarkable, because trust in neighbors is a subjective perception which is likely to be colored by subjective life-satisfaction. The correlation is also lower than the +.47 correlation between HLY and average trust in people across nations.

<div align="center">Figure 10 about here</div>

5   DISCUSSION

Our aim for the research presented this paper was to understand and examine where the best places are to live in Indonesia using Happy Life Years approach. The results suggest that there is a cluster among the provinces where people live longer and happy. Kalimantan Utara, Kalimantan Timur, and Sulawesi Utara.

Drivers of the differences

Why are they the best places to live? Above we identified several societal correlates of HLY in provinces: economic prosperity, economic competitiveness, democracy and control of corruption, which together explain 59% of the variation of HLY across Indonesian provinces.

Drivers of the differences

What are the causal mechanisms behind the difference in HLY in the Indonesian provinces? In the case of economic development and competitiveness, evident direct effects will be found in better material conditions, which allow more comfortable living, better health care and a sense of security. The effect of control of corruption on the quality of life in Indonesian provinces will at least be partly mediated by economic development as good government fosters economic growth by managing incentives to enhance productivity and help shift activity to more economically productive endeavours. Another effect will be in government spending, such as on health and welfare, e.g. Ibrahim and Siri (2017) showing the importance of government spending to support longevity. See also Radcliff and Shufield (2016) on this issue. Likewise, democracy could add to apparent quality of life in several ways. One is in the increased opportunities for participation and the resulting allocation of resources (e.g. Frey & Stutzer (2002). Another effect will be in a greater sense of control over one's life. All these societal characteristics are part of a larger 'modernization' which allows individuals more choice in their lives and as such makes that more people come to live a way of life that fits them (Veenhoven & Berg 2015).

Next to these effect *of* societal conditions on HLY, at least part of the correlation can be driven by effects of HLY *on* societal development. A happy and healthy populace will be more productive economically and the happiness of citizens will also work out positively on democracy and good governance, among other things because happy citizens cheat less on taxes (e.g. Ferrer-I-Carbonel & & Gërxhani 2016).

The case of inequalities

We found no correlation between HLY and *income-inequality* in Indonesian provinces, which fits the pattern observed across contemporary nations mentioned in section 4.2. To our surprise, we found a positive correlation between HLY and *happiness-inequality* in Indonesian provinces, while in the analysis of HLY across contemporary nations a negative correlation was observed. Social inequality is well-known for its negative effects on health and happiness (e.g. Wilkinson & Pickett 2009) and that raises the

question of why the correlation with HLY can be absent or even positive.

A substantive explanation of the relationship between inequality and HLY could be that inequality is also a source of hope, which fosters active adaptation and as such balances negative effects of inequality. This 'end of the tunnel' explanation of income inequality is seen to apply in particular to developing economies (Hirschman & Rothshield 1973). It could also apply to happiness-inequality; lethargy will prevail when everybody is unhappy, as is the case in many African countries, and seeing that some of your compatriots are happier than you are may tell you that you may become happier as well. Further a technical effect can be that the standard-deviation of happiness will rise when social progress changes a concentration at the negative end of the scale to a more normal distribution.

6   CONCLUSIONS

The number of years lived happy (HLY) differs considerably across provinces in Indonesia. This is something worth knowing for individual citizens when they make decisions about where to live. This information is also relevant for policy makers, it informs them how well they doing in providing conditions for a good life and shows that economic development, democracy and control of corruption are the main ways to achieve that aim. Further research is required to identify further ways to improve the apparent quality of life of citizens in Indonesia.

REFERENCES

BPS (2017). Gross Domestic Product per provinces in Indonesia 2010-2016. Jakarta: BPS

Diener, E., Lucas, R. E., & Oishi, S. (2018). Advances and Open Questions in the Science of Subjective Well-Being. *Collabra: Psychology*, *4*(1), 15. DOI:http://doi.org/10.1525/collabra.115

Ferrer-i-Carbonell, A.; Gërxhani, K. (2016) *Tax Evasion and Well-Being: A Study of the Social and Institutional Context in Central and Eastern Europe*, European Journal of Political Economy, 45, 149 - 159

Gerring, J., Thacker, S. C., & Alfaro, R. (2012). Democracy and Human Development. The Journal of Politics, 74(1), 1–17.

Hagerty, M.R., Cummins, R.A., Ferriss, A.L., Land, K., Michalos, A.C., Peterson, M., Sharpe, A., Sirgy, J. & Vogel, J. (2001). Quality of life indexes for national policy: review and agenda for research. *Social Indicators Research, 55: 1-96.*

Hirschman, Albert O.; Rothschild, Michael (1973). The Changing Tolerance for Income Inequality in the Course of Economic Development. *In Quarterly Journal of Economics 87 (4), pp. 544–566.*

Kainulainen, S.,Saari, & Veenhoven, R. (2018) Life-satisfaction is more a matter of feeling well than having what you want: Tests of Veenhoven's theory. *International Journal of happiness and Development*, 4, 209-235

Mathers, C. D., Sadana, R., Salomon, J. A., Murray, C. J., & Lopez, A. D. (1999) Healthy life expectancy in 191 countries. *The Lancet, 357(9269), 1685-1691*

Radcliff, B. & Shufeldt, G. (2016) Direct Democracy and Subjective Well-Being: The Initiative and Life Satisfaction in the American States. *Social Indicators Research Volume 128, Issue 3, pp 1405–1423*

Skevington, S.M. & Böhnke, J.R., How is subjective well-being related to quality of life? Do we need two concepts and both measures? *Social Science & Medicine (2018), doi: 10.1016/ j.socscimed.2018.04.005.*

Stiglitz, J. E., Sen, A. & Fitoussi, J.-P. (2009) *Report by the Commission on the Measurement of Economic Performance and Social Progress* Vol. 12 (Commission on the Measurement of Economic Performance and Social Progress)

Veenhoven, R. (1996) Happy life-expectancy: A comprehensive measure of quality-of life in nations *Social Indicators Research,* 39, 1-58

Veenhoven, R. (2005) *Apparent quality of life in nations: How long and happy people live.* Social Indicators Research, 71, 61-86

Veenhoven. R.. (2016) *Happy Life Years in 158 nations 2005-2014* World Database of Happiness. Rank report Happy Life Years. Internet: worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/Rankreport_HappyLifeYears.php

Veenhoven, R. & Berg, M. c. (2013) Has modernization gone too far? Modernity and happiness in 141 contemporary nations. *International Journal of Happiness and Development, 1 (2) 172-195*

WHO (2018) WHO methods and data sources for life tables 1990-2016. http://www.who.int/healthinfo/statistics/LT_method.pdf?ua=1

Wilkinson, R.G. & Pickett, K. (2009)
The Spirit Level: Why More Equal Societies Almost Always Do Better
Allen Lane, UK

Table 1: Life expectancy, Happiness, and Happy Life Years

Provinces	Code	Life Expectancy	Happiness	Happy Life Years
Kalimantan Timur	KI	73.70	8.01	59.04
Kalimantan Utara	KU	72.47	8.10	58.70
Sulawesi Utara	SA	71.04	8.12	57.70
Di Yogyakarta	YO	74.74	7.60	56.80
DKI Jakarta	JK	72.55	7.68	55.7
Gorontalo	GO	67.14	8.26	55.43
Riau	RI	70.99	7.67	54.43
Jawa Tengah	JT	74.08	7.34	54.41
Maluku Utara	MU	67.54	8.01	54.11
Kalimantan Barat	KB	69.92	7.73	54.07
Kep Bangka Belitung	BB	69.95	7.69	53.78
Aceh	AC	69.52	7.7	53.53
Sulawesi Tenggara	SG	70.47	7.59	53.48
Jawa Barat	JB	72.47	7.37	53.39
Kalimantan Tengah	KT	69.59	7.66	53.28
Kepulauan Riau	KS	69.48	7.66	53.19
Sulawesi Selatan	SN	69.84	7.61	53.16
Sumatera Selatan	SS	69.18	7.68	53.11
Kalimantan Selatan	KS	68.02	7.78	52.90
Bali	BA	71.46	7.38	52.72
Jawa Timur	JI	70.80	7.44	52.71
Sumatera Barat	SB	68.78	7.64	52.58
Banten	BT	69.49	7.56	52.50
Jambi	JA	70.76	7.4	52.36
Bengkulu	BE	68.59	7.61	52.20
Lampung	LA	69.95	7.41	51.84
Sulawesi Tengah	ST	67.32	7.63	51.39
Maluku	MA	65.40	7.84	51.30

Papua	PA	65.14	7.71	**50.23**
Nusa Tenggara Barat	NB	65.55	7.62	**49.96**
Sulawesi Barat	SR	64.34	7.71	**49.61**
Sumatera Utara	SU	68.37	7.12	**48.69**
Papua Barat	PB	65.32	7.19	**46.96**
Nusa Tenggara Timur	NT	66.07	7.04	**46.54**
Indonesia		**71.06**	**7.63**	**54.24**

Table 2 Societal qualities and happy life years in 34 provinces in Indonesia

Condition in province	Zero-order	N
GDP	+0.41	34
Competitiveness	+0.32	33
Happiness inequality	+0.69	34
GINI	+0.02	34
Democracy	+0.32	34
Controlled-Corruption	+0.67	12
Trust in local gov	+0.22	34
Trust in neighbors	+0.20	34

Figure 1: Happy Life Years in nations

HAPPY LIFE YEARS IN 159 NATIONS 2005-2014
How long and happy people live

Happy Life Years
14.8 — 67.9
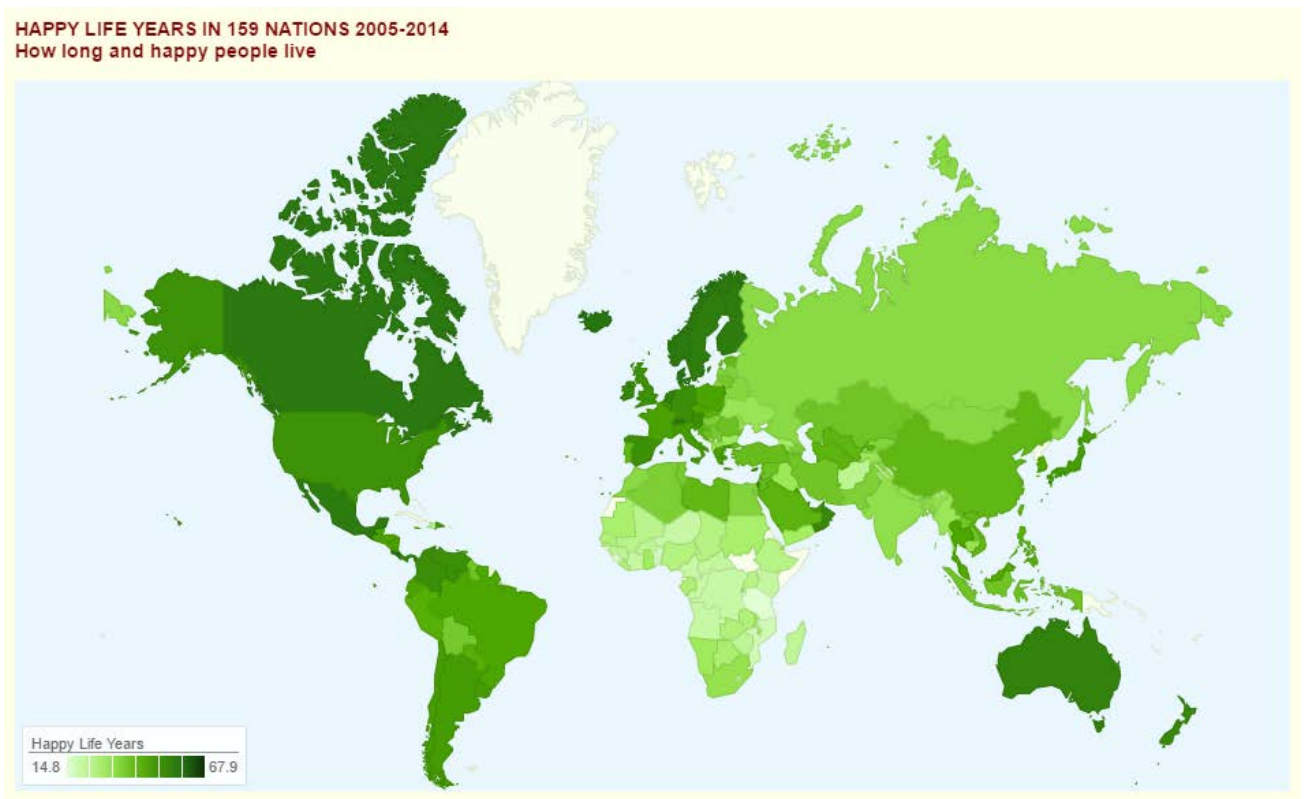
Source: World Database of Happiness (Veenhoven 2018)

Figure 2: Spatial distribution of HLY among Indonesian provinces
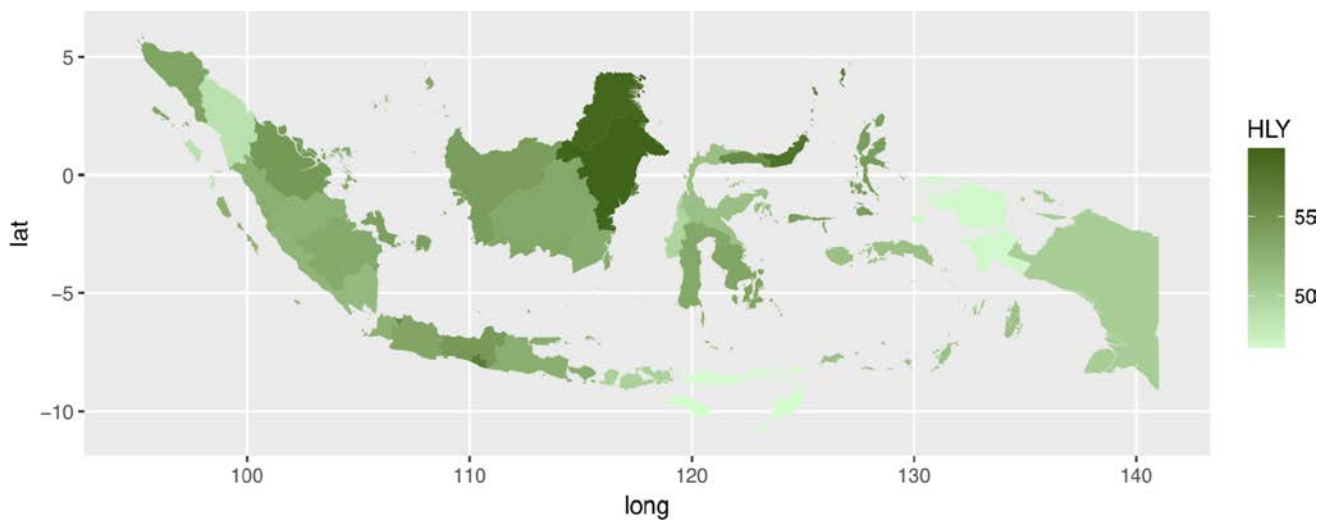
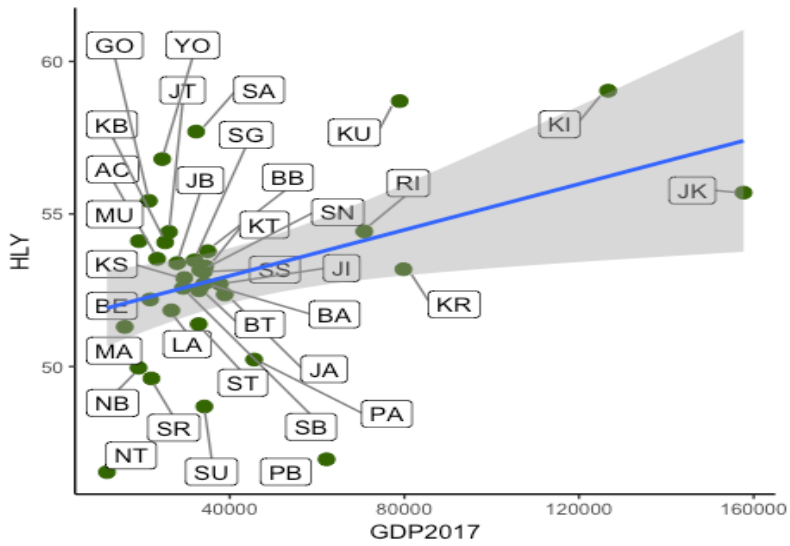Figure 3: Correlation between GDP and HLY in Indonesian provinces

Figure 4: Correlation between Competitiveness and HLY in Indonesian provinces
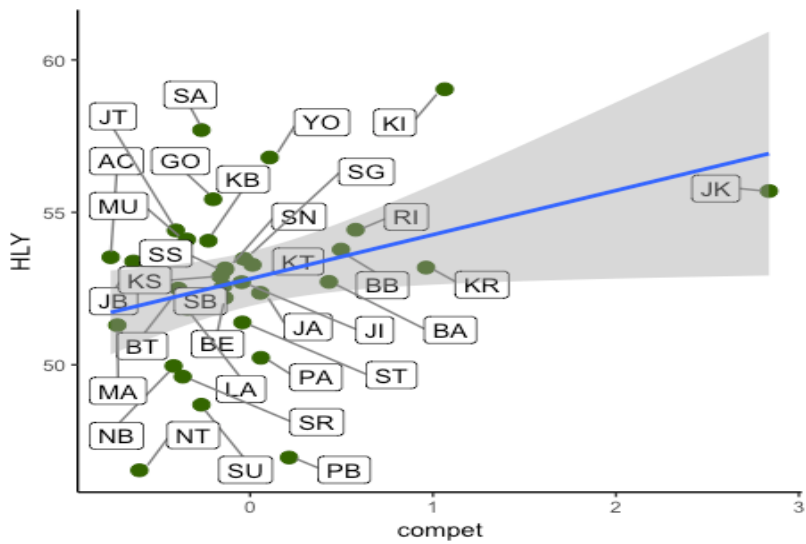
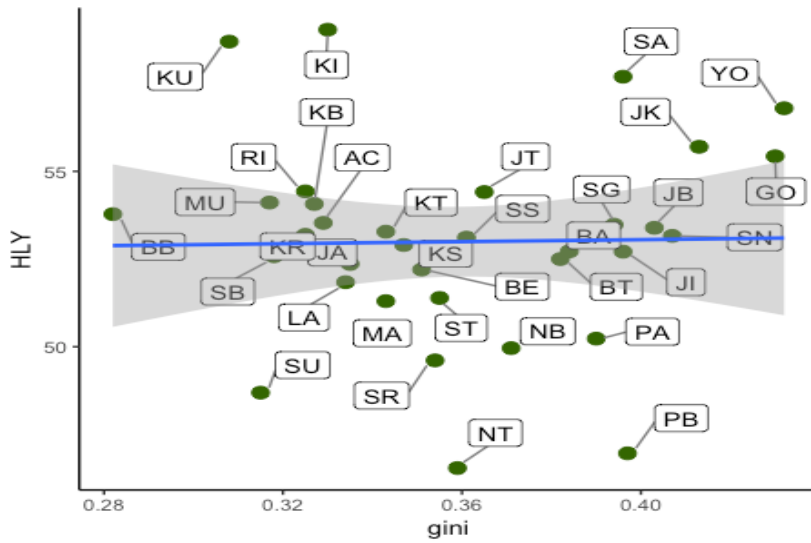Figure 5: Correlation between GINI and HLY in Indonesian provinces

Figure 6: Correlation between Happiness Inequality and HLY in Indonesian provinces
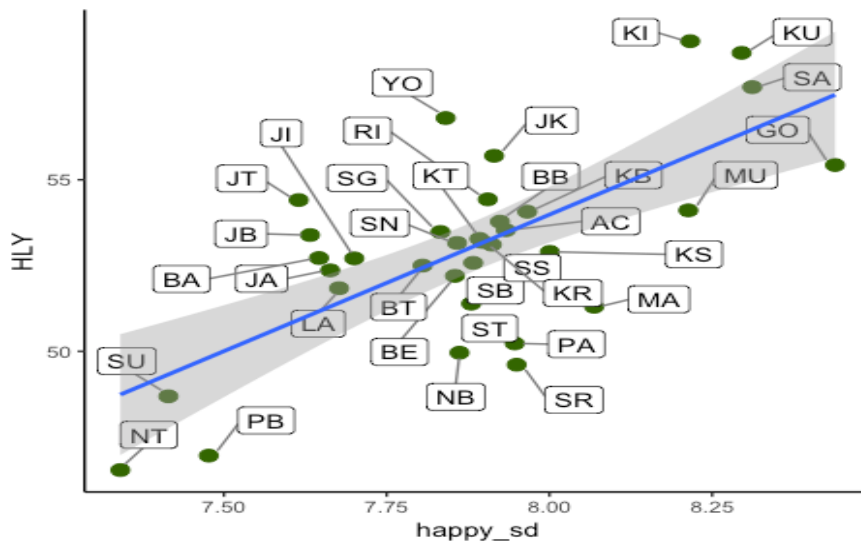
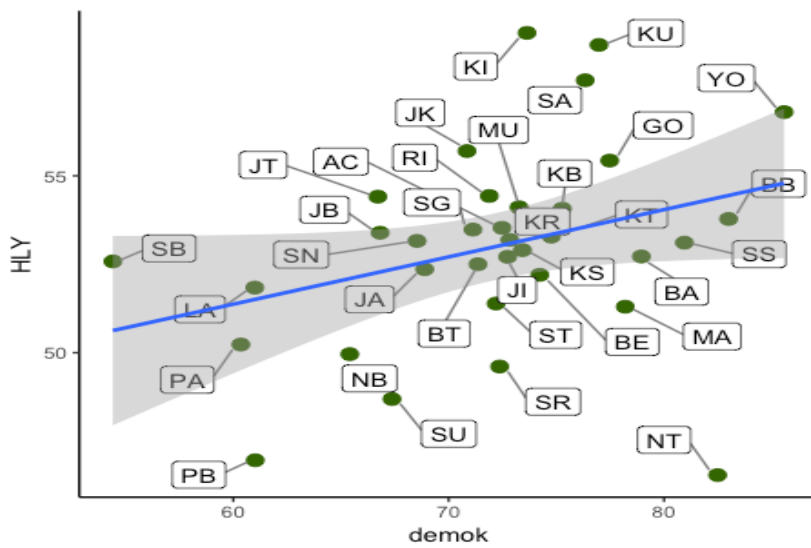Figure 7: Correlation between Democracy and HLY in Indonesian provinces

Figure 8: Correlation between Control of corruption and HLY in Indonesian provinces

Figure 9: Correlation between Trust in local government and HLY in Indonesian provinces

Figure 10: Correlation between Trust in neighbors and HLY in Indonesian provinces