GDP per capita is a poor predictor of national well-being

Adrien Fabre (CNRS, CIRED)

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Introduction

What makes a country happy?

What country is the happiest? $\Rightarrow$ Answer on: **sli.do/2601**

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Is money really buying happiness?

Literature

World Values Survey, $R^2 = .49$ (Inglehart & Klingemann, 2000)

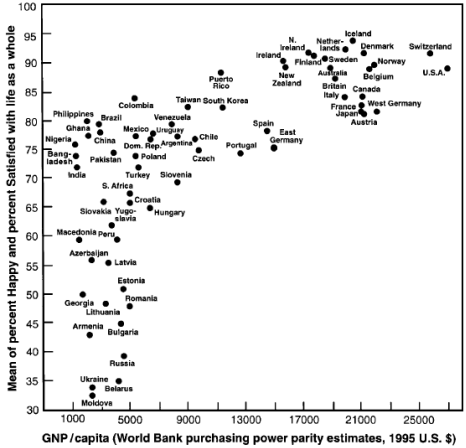

Figure 7.2
Subjective well-being by level of economic development ($R = 0.70$, $N = 65$, $p < 0.0000$). Source: World Values Surveys; GNP/capita purchasing power estimates from World Bank, World Development Report, 1997.

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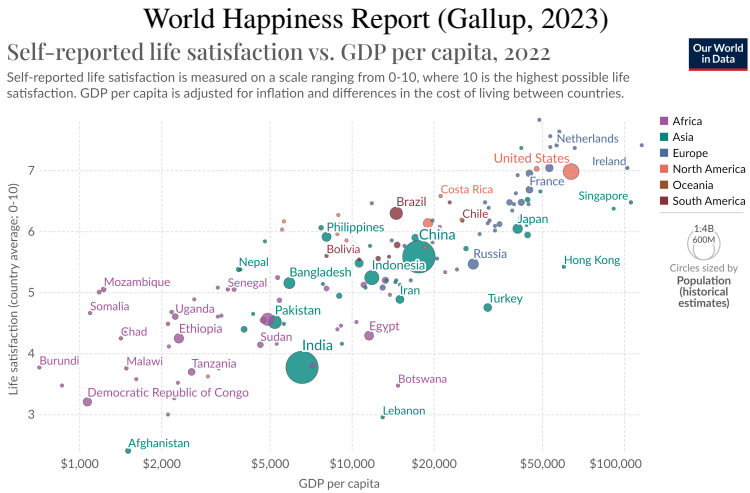

Data source: World Happiness Report (2023); World Bank (2023)
Note: GDP per capita is expressed in international-$[1] at 2017 prices.
OurWorldInData.org/happiness-and-life-satisfaction | CC BY

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We study new indicators and
challenge the view that national income is the best predictor of well-being.

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Another simple variable, the country's (macro) region, is a better predictor of national well-being.

Design

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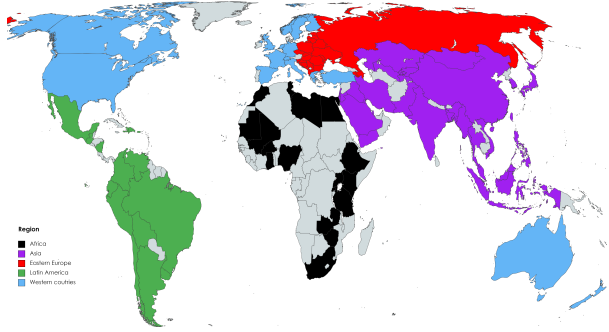

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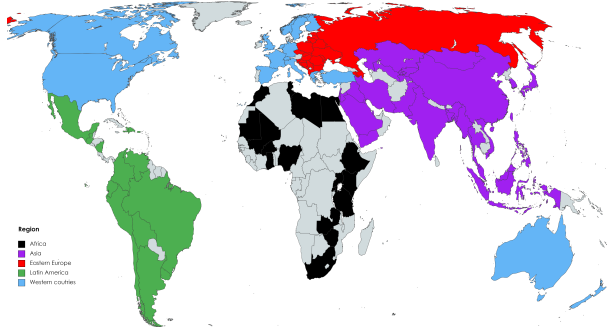

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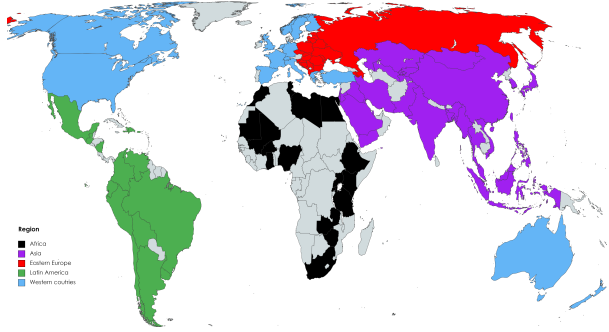

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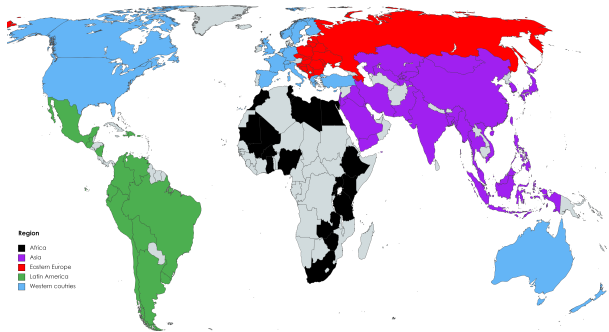
Very happy; *Quite happy*; *Not very happy*; *Not at all happy*; PNR



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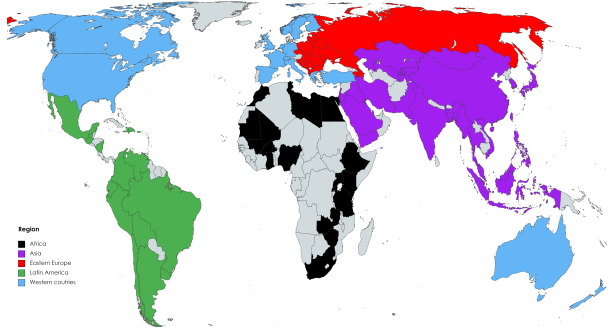
1-Completely dissatisfied – *10-Completeley satisfied*; PNR



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Bond & Lang (19) show that no single indicator can reliably identify two group's relative well-being, justifying reliance on several indicators.

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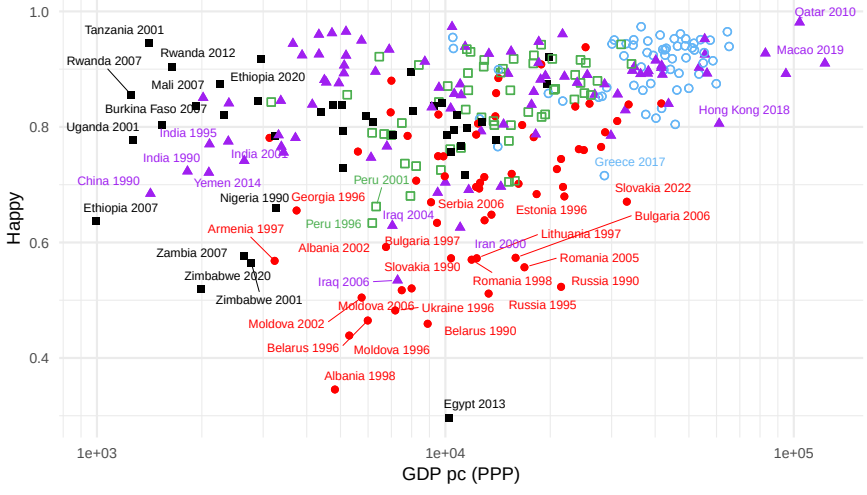
> For robustness, we also run our analyses without this imputation (excluding countries with missing GDP data).

National well-being and income

Graphical evidence

Happy vs. log GDP p.c. (PPP) — All waves of WVS.



Waves = 1 to 7 (R^2 = 0.17) ■ Africa ▲ Asia ● Eastern Europe □ Latin America ○ Western

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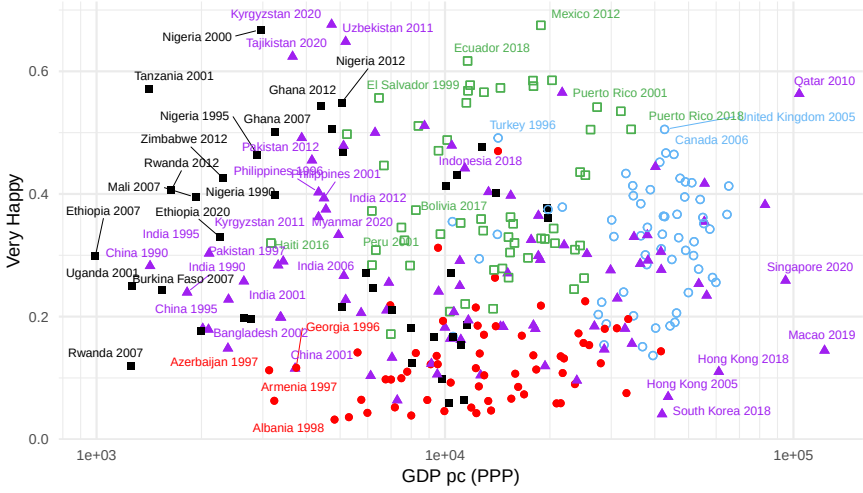
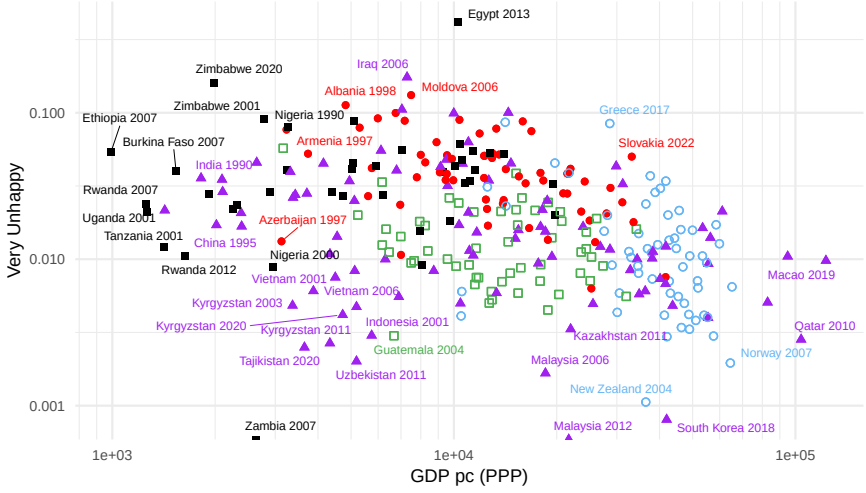


Waves = 1 to 7 (R^2 = 0.01) ■ Africa ▲ Asia ● Eastern Europe □ Latin America ○ Western

Graphical evidence

Very Unhappy vs. log GDP p.c. (PPP) — All waves of WVS.



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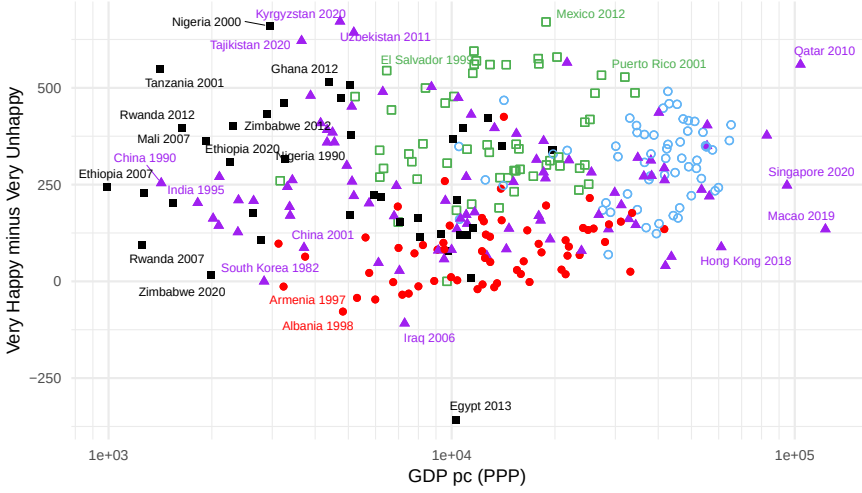
V. Happy – V. Unhappy vs. log GDP p.c. (PPP) — All waves of WVS.



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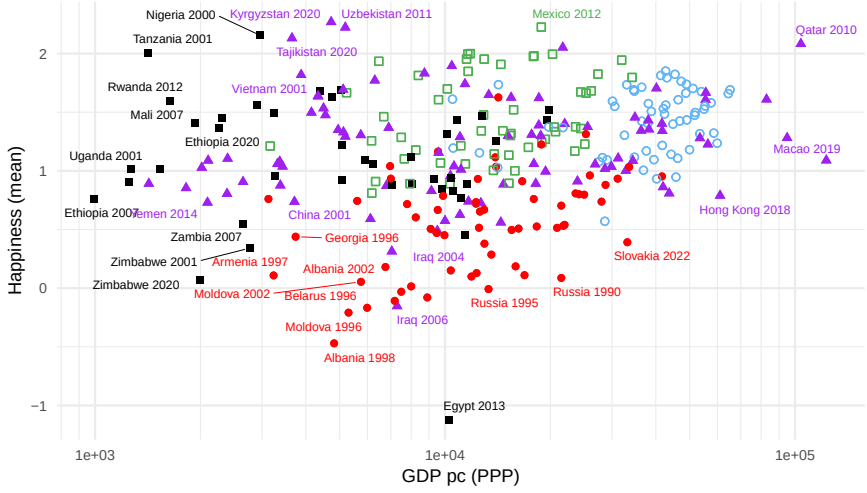
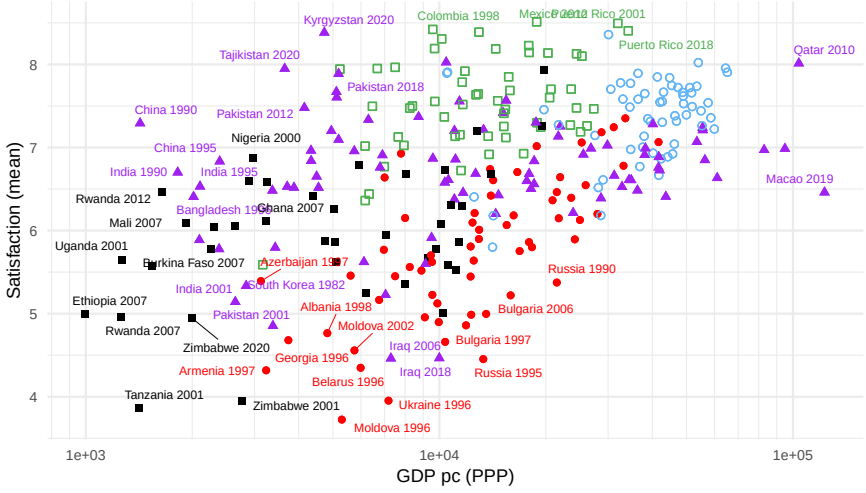
Happiness (mean) vs. log GDP p.c. (PPP) — All waves of WVS.



Waves = 1 to 7 (R^2 = 0.07) ■ Africa ▲ Asia ● Eastern Europe □ Latin America ○ Western

Graphical evidence

Satisfaction (mean) vs. log GDP p.c. (PPP) — All waves of WVS.



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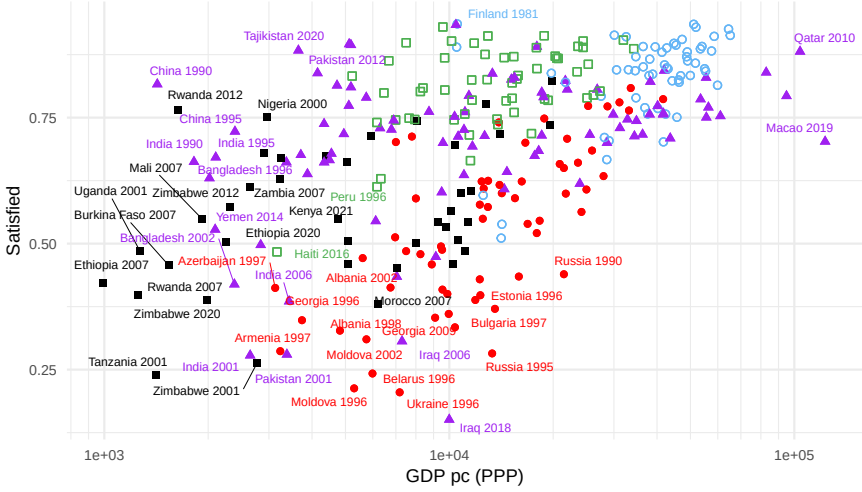
Satisfied vs. log GDP p.c. (PPP) — All waves of WVS.



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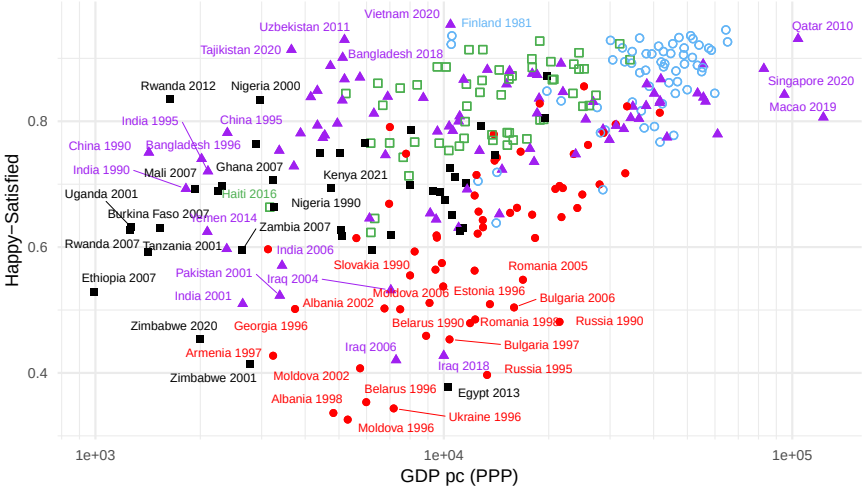
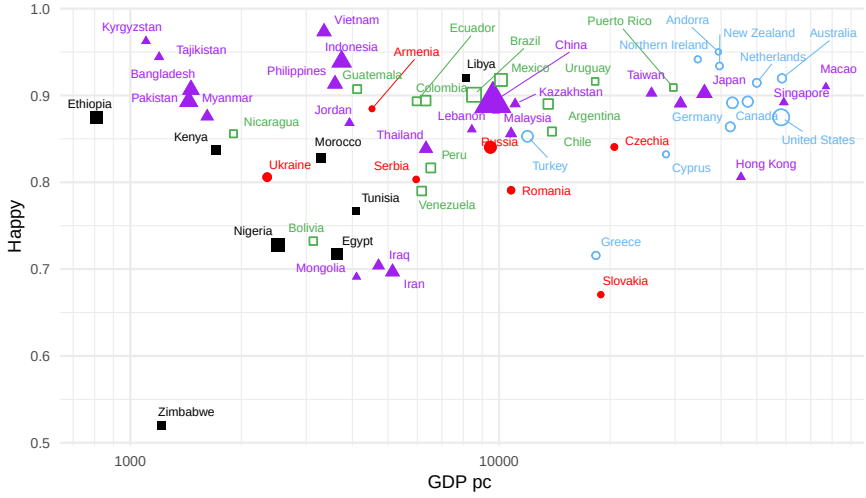
Happy + Satisfied vs. log GDP p.c. (PPP) — All waves of WVS.



Waves = 1 to 7 (R^2 = 0.23) ■ Africa ▲ Asia ● Eastern Europe □ Latin America ○ Western

Graphical evidence

Happy vs. log GDP p.c. (nominal) — Wave 7 (2017-22) of WVS, weighted by population.



Variance explained by GDP p.c.

▸ More results

For different *well-being* and *income* indicators, we compute the R^2 of the regression:

$$well\text{-}being_i = \alpha + \beta\, income_i + u_i$$

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Happiness variable	log GDP p.c.		Income cluster					Mean	Max
	PPP	nominal	sextile PPP	k = 5 PPP	k = 6 PPP	k = 7 PPP	k = 7 nominal		
Very Happy	0	0	0.04	0.01	0.06	0.03	0.03	0.02	0.06
Happy	0.1	0.12	0.14	0.13	0.15	0.14	0.16	0.13	0.16
Very Unhappy	0.04	0.06	0.07	0.07	0.08	0.08	0.11	0.07	0.11
Satisfied	0.2	0.24	0.2	0.21	0.2	0.2	0.24	0.21	0.24
Satisfaction (mean)	0.14	0.17	0.13	0.15	0.14	0.14	0.17	0.15	0.17
Happiness (mean)	0.03	0.04	0.07	0.06	0.09	0.07	0.07	0.06	0.09
Happy + Satisfied	0.18	0.22	0.19	0.2	0.2	0.19	0.23	0.2	0.23
V. Happy – V. Unhappy	0	0.01	0.04	0.02	0.06	0.03	0.04	0.03	0.06
Mean	0.09	0.11	0.11	0.1	0.12	0.11	0.13	0.11	0.13
Max	0.2	0.24	0.2	0.21	0.2	0.2	0.24	0.21	0.24
Number of obs.	304	304	304	304	304	304	304		

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Happiness (mean) is poorly explained by income (8% at best).

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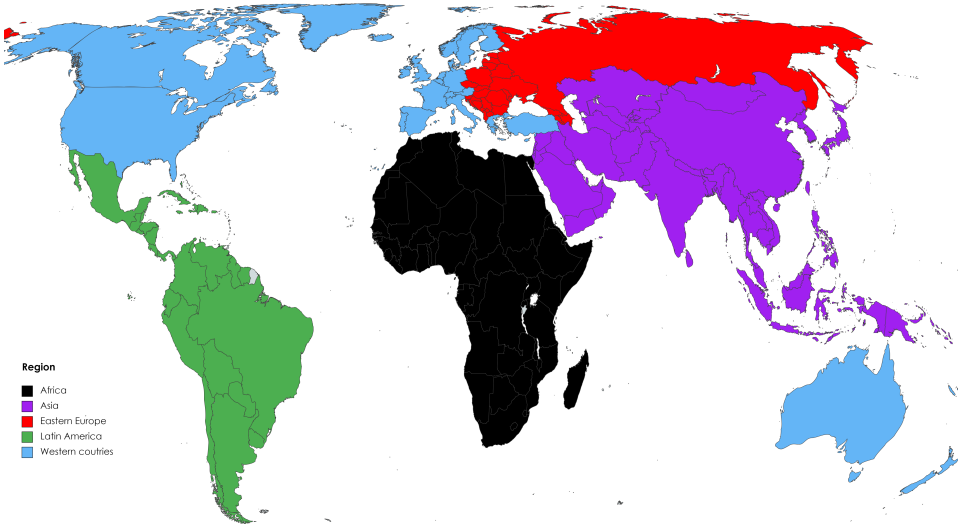
Blanchflower & Bryson (2023) show that on respective positive/negative affects, the happiest state is: Bhutan (well-rested), Denmark (satisfaction), Finland (anger), Hawaï (enjoy), Paraguay (smile), Taiwan (sadness), Uzbekistan (worry), Vietnam (pain).

Region vs. GDP per capita as predictor of well-being

Region grouping

WVS countries grouped into the five UN regional groups.



Comparing the share of variance explained by income vs. region

For different *well-being* and *income* indicators, we run regressions and compute corresponding R^2:

$$\textit{well-being}_i = \alpha_1 + \beta_1 \, \textit{income}_i + u_i \tag{1}$$

$$\textit{well-being}_i = \alpha_2 + \gamma_2 \, \textit{region}_i + e_i \tag{2}$$

$$\textit{well-being}_i = \alpha_3 + \beta_3 \, \textit{income}_i + \gamma_3 \, \textit{region}_i + \varepsilon_i \tag{3}$$

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This follows the LMG methodoly (Lindeman, Merenda & Gold, 1980; Grömping, 2007).

Share of explained variance that is explained by income

▸ More results

Happiness variable	log GDP p.c.		Income cluster					Mean	Max
	PPP	nominal	sextile PPP	k = 5 PPP	k = 6 PPP	k = 7 PPP	k = 7 nominal		
Very Happy	0	0.01	0.11	0.03	0.14	0.07	0.08	0.06	0.14
Happy	0.24	0.3	0.32	0.31	0.34	0.32	0.37	0.32	0.37
Very Unhappy	0.24	0.32	0.35	0.36	0.37	0.36	0.48	0.35	0.48
Satisfied	0.35	0.42	0.35	0.36	0.36	0.36	0.42	0.37	0.42
Satisfaction (mean)	0.26	0.31	0.24	0.26	0.25	0.26	0.32	0.27	0.32
Happiness (mean)	0.08	0.12	0.18	0.14	0.21	0.16	0.19	0.15	0.21
Happy + Satisfied	0.32	0.39	0.34	0.35	0.35	0.35	0.41	0.36	0.41
V. Happy – V. Unhappy	0.01	0.03	0.12	0.05	0.15	0.09	0.1	0.08	0.15
Mean	0.19	0.23	0.25	0.23	0.27	0.24	0.3	0.25	0.3
Max	0.35	0.42	0.35	0.36	0.37	0.36	0.48	0.37	0.48
Number of obs.	304	304	304	304	304	304	304		

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Region is a better predictor than region in 94% of alternative specifications: looking at each wave separately, weighting countries by population, dropping pandemic years...
(including 86% of 88 specifications involving the best-predicting income variable). ▸ More results

Conclusion

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National well-being is more correlated with the world region than with the GDP p.c.

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Despite evidence against translation issues (Diener & Suh, 2000),
We should check whether emotions are better predicted by region than income.

Robustness checks

Variance explained by PPP income cluster (k = 7)

Go back

Happiness variable	All waves	Only selected waves							
	Pop. weight	1 & 2	3	4	5	6	7	Mean	Max
Very Happy	0.05	0.25	0.06	0.17	0.06	0.12	0.21	0.13	0.25
Happy	0.21	0.19	0.24	0.23	0.22	0.17	0.06	0.19	0.24
Very Unhappy	0.04	0.2	0.15	0.19	0.16	0.1	0.08	0.13	0.2
Satisfied	0.23	0.2	0.22	0.35	0.26	0.23	0.1	0.23	0.35
Satisfaction (mean)	0.16	0.23	0.17	0.32	0.2	0.21	0.05	0.19	0.32
Happiness (mean)	0.09	0.18	0.13	0.22	0.15	0.14	0.07	0.14	0.22
Happy + Satisfied	0.27	0.2	0.25	0.33	0.27	0.21	0.09	0.23	0.33
V. Happy – V. Unhappy	0.05	0.16	0.07	0.19	0.08	0.12	0.16	0.12	0.19
Mean	0.14	0.2	0.16	0.25	0.18	0.16	0.1	0.17	0.25
Max	0.27	0.25	0.25	0.35	0.27	0.23	0.21	0.23	0.35
Number of obs.	304	26	56	40	58	60	64		

Share of explained variance that is explained by PPP income cluster (k = 7)

Go back

Happiness variable	All waves	Only selected waves							
	Pop. weight	1 & 2	3	4	5	6	7	Mean	Max
Very Happy	0.19	0.3	0.08	0.36	0.13	0.37	0.47	0.27	0.47
Happy	0.54	0.33	0.36	0.58	0.39	0.48	0.26	0.42	0.58
Very Unhappy	0.25	0.26	0.28	0.57	0.44	0.43	0.34	0.37	0.57
Satisfied	0.57	0.35	0.28	0.56	0.38	0.42	0.25	0.4	0.57
Satisfaction (mean)	0.36	0.37	0.22	0.47	0.3	0.38	0.12	0.32	0.47
Happiness (mean)	0.31	0.25	0.18	0.46	0.25	0.43	0.23	0.3	0.46
Happy + Satisfied	0.57	0.32	0.32	0.57	0.39	0.42	0.24	0.41	0.57
V. Happy – V. Unhappy	0.22	0.22	0.1	0.38	0.16	0.41	0.38	0.27	0.41
Mean	0.38	0.3	0.23	0.5	0.3	0.42	0.29	0.34	0.5
Max	0.57	0.37	0.36	0.58	0.44	0.48	0.47	0.42	0.58
Number of obs.	304	26	56	40	58	60	64		