
Research article

On the interrelation between Gross Domestic Product, happiness and sustainability goals

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Abstract: The Gross Domestic Product (GDP) per capita (pc) is one of the six factors used by the World Happiness Index (WHI). However, the GDP also plays a key role in relation to other factors constituting the WHI, as well as the 17 Sustainable Development Goals. The objective of this study was, by simple means, to visualize and discuss a possible correlation between the GDP pc and the other factors of the WHI, as well as with the 17 SDGs, thus serving as a wake-up call for the more affluent countries, pointing out their moral and ethical obligations toward a more sustainable world. Results suggest that the importance of the GDP pc, independently of the actual GDP, accounts for approximately 23.5% of the WHI. Overall, the GDP pc correlates positively with the other WHI factors. However, the correlation to the perception of corruption stands out, as the positive correlation appears to be in contrast with the fact that actual corruption is negatively correlated with the GDP. The GDP pc was found to be positively correlated with the single SDGs, with significant exceptions in the cases of SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action), where strong negative correlations were disclosed. In some cases, no correlation was observed, with SDG 10 (Reduced Inequalities) as a striking example that elucidates the global problem of inequalities.

Keywords: Gross Domestic Product; GDP; World Happiness Index; WHI; Sustainable Development Goals; SDG

JEL Codes: O47, I31, Q01

“Money makes the world go round.” (Sally Bowles in “Cabaret”)

1. Introduction

The development in Gross Domestic Product (GDP) is a measure of a country’s economic growth, positive or negative. The estimation of the GDP includes consumption, investment, government expenditure, and net exports (Callen, 2025). Typically, the GDP per capita (GDP pc) is calculated by a simple division of the GDP by the country’s population, subsequently adjusted to the purchasing power parity (PPP), thus expressing the economic well-being of an average person in the country; as such, it allows a direct comparison between people in different countries.

Although economic well-being is not a direct measure of happiness, it is one of seven indicators used to calculate the World Happiness Index (Helliwell et al., 2025a, 2025b, 2025c); the other six are social support, healthy life expectancy, freedom to make life choices, generosity, perceptions of corruption, and dystopia (Helliwell et al., 2025a). Furthermore, it seems reasonable to assume that economic well-being may play a role in sustainability and sustainable development, as outlined in the 17 Sustainable Development Goals (SDGs) (Sachs et al., 2025). Both the World Happiness Index (Helliwell et al., 2025a, 2025b, 2025c) and the Sustainable Development Report (Sachs et al., 2025), which are published annually, should be consulted for detailed discussions of the single happiness and sustainable indicators.

The objective of the present paper is to elucidate the role of the PPP-adjusted GDP pc in relation to happiness as well as to the 17 SDGs. In other words, assess how an increase in economic capability may influence, positively or negatively, the single happiness and sustainability factors. The present study is not intended to cover in-depth discussions on the reasons for the observed compliance/non-compliance with the single SDGs for individual countries, aiming only to develop an overall picture. Thus, the scope of the study is to graphically visualize, applying an Excel formalism, the degree of compliance to the 17 UN Global Goals as a function of the economic capacity of single countries, expressed as GDP pc. Compliance with the single goals was obtained from data available in the Sustainable Development Report (REF), applying the data normalized on a 0–100 scale (Sachs et al., 2025), which has not previously been done. More detailed discussions on individual SDGs are available in the annual Sustainable Development Reports (Sachs et al., 2025). Data on GDP pc were obtained from the World Happiness Index (Helliwell et al., 2025a, 2025b, 2025c). The graphical visualization immediately reveals a picture of the extent to which compliance with the single goals is reflected in the economic capability of the country; it should serve as a wake-up call, particularly for the more affluent countries, to adopt a more sustainable lifestyle, from both ethical and environmental perspectives (Carlsen, 2024, 2025).

2. Methodology

The study is based on simple correlation analyses using publicly available data for the World Happiness Index (WHI) (Helliwell et al., 2025a, 2025b, 2025c) and for the 17 SDGs (Sachs et al., 2025), with the PPP-adjusted log GDP pc as ordinate and the various WHI and SDG data as abscissa, to visualize trends as effects of increasing GDP. The reported graphical visualizations have been generated with Excel.

2.1. Data

The data used in the present study originates from the latest edition of the World Happiness Index (Helliwell et al., 2025a, 2025b, 2025c) and the Sustainable Development Report (Sachs et al., 2025). It is essential to note that the WHI indicators and, thus, the ranking of countries, are based on their self-assessed life evaluations, i.e., the opinions of residents regarding the extent to which, for example, GDP influences or explains their happiness. More detailed information on the single WHI and SDG indicators can be found in Helliwell et al. (2025b) and Sachs et al. (2025), respectively. In total, the study includes 139 countries for which data are available (cf. Appendices) (Helliwell et al., 2025a, 2025b, 2025c; Sachs et al., 2025). The data originates from the latest issues of the World Happiness Index (Helliwell et al., 2025) and the Sustainable Development Report (Helliwell et al., 2025a, 2025b, 2025c). Hence, the applied data are the latest available (cf. Sachs et al., 2025, Helliwell et al., 2025a, 2025b, 2025c).

In the case of the Sustainable Development Goal (SDG) indicators, the 17 SDGs are subdivided into five pillars (YorkU, 2026; Whatcanyou do, 2021) (Table 1) according to the overall area the indicators are reflecting.

Table 1. The five pillars of the SDGs (YorkU, 2026; Whatcanyou do, 2021).

Pillar	Description	SDGs
People	End poverty in all forms and ensure dignity and equality	1, 2, 3, 4, 5
Planet	Protecting our planet's natural resources and climate for future generations	6, 12, 13, 14, 15
Prosperity	Ensure prosperous and fulfilling lives in harmony with nature	7, 8, 9, 10, 11
Peace	Foster a peaceful, just, and inclusive society	16
Partnership	Implement the agenda through a solid global partnership	17

The combined data material is presented in Appendices Table A1 (WHI), B1 (WHI indicator importance), A2 (SDG–People), B2 (SDG–Planet), C1 (SDG–Prosperity), and D1 (SDG–Peace and SDG–Partnership).

3. Results and discussion

In the following, the relationships between the GDP, expressed here as the PPP-adjusted log GDP per capita (pc), and the other WHI indicators, as well as with the 17 SDGs, are graphically visualized and discussed. The overall objective is to critically assess the validity of discussions, e.g., at the COP 29 meeting in Baku (Carlsen, 2025), on the role of economically more capable countries, e.g., on sustainability, and thus their possible moral and ethical financial implications to support poorer/developing countries.

3.1. Log GDP pc and its role on happiness

The relationship between money and happiness has received considerable interest. In Ecclesiastes 10:19, it is stated that “Laughter and bread go together, and wine gives sparkle to life—But it’s money that makes the world go around” (Ecclesiastes 10:19); Paul Van Der Merwe has been quoted for saying

“Money makes the world go round; however, happiness greases the axle. Without this lubricant, life will seize” (Van Der Merwe, 2025). However, studies have shown that money alone does not lead to happiness. While money seems to contribute to happiness, other factors also play a significant role (Kudrna and Kushlev, 2022). The present study revealed a slight positive correlation between the WHI and the log GDP pc, i.e., the money available to the average person, based on data available in Appendix Table A1 (Figure 1).

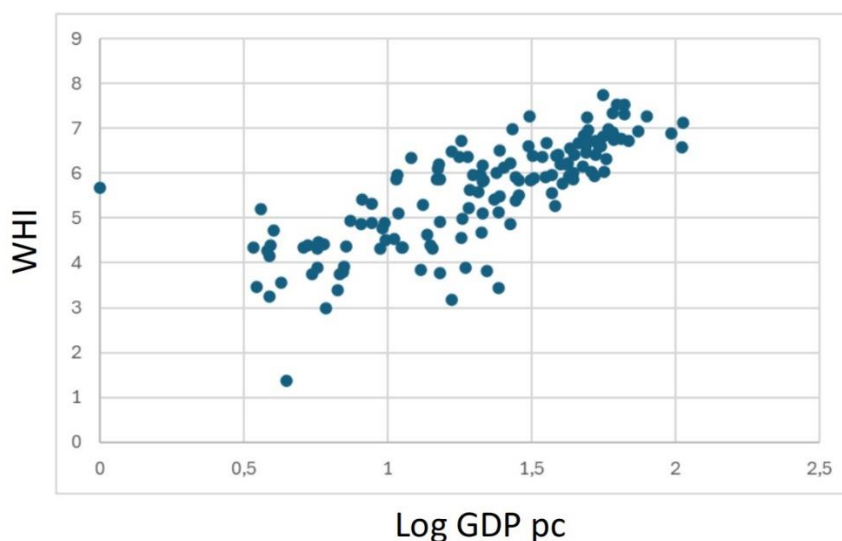


Figure 1. Correlation between log GDP and WHI.

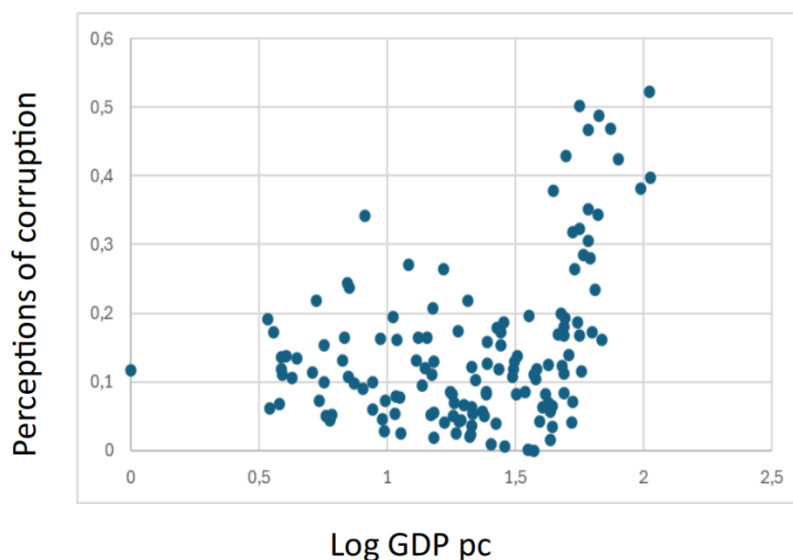


Figure 2. Correlation between log GDP and the perception of corruption.

Similarly, slight positive correlations can be observed between log GDP pc and the experience of social support and healthy life expectancy. In contrast, virtually no correlations were observed for the

factors “freedom to make life choices” and “generosity”. In the case of generosity, this appears somewhat surprising. The correlation between log GDP per capita and the indicator perceptions of corruption is strikingly nonlinear, as a clear tendency toward a high level of perception is observed for wealthier countries (Figure 2). Countries with low per capita income tend to have higher corruption (Tanzi and Davoodi, 2000). However, the data summarized in Figure 2 displays the opposite trend, i.e., the perception of corruption, which is based on answers to the questions “Is corruption widespread throughout the government or not?” and “Is corruption widespread within businesses or not?” (Helliwell et al., 2025b), is apparently higher in wealthier countries, despite a de facto lower level of corruption (Helliwell, 2025a, 2025b, 2025c, Figure 2, Appendix A1 and B1). In both cases, this may be based on assumptions and a lack of concrete knowledge as a result of data collection methods.

Despite the aforementioned positive correlation between the log GDP per capita and the WHI (Figure 1), it is interesting to note that, when examining the relative data for the factors that comprise the WHI (Appendix Table B1), it was found that the average value for the log GDP per capita was relatively constant. Thus, the average log GDP was found to be 23.5 with a standard deviation of 5.5, strongly suggesting that, independently of the amount of money available (i.e., log GDP pc), the respondents in the 142 countries virtually rate the actual amount of money available as equally crucial for their overall happiness. Identical figures are found for social support (23.7/4.9), whereas in the case of perception of corruption (cf. Figure 2), the variation is found to be much higher, but generally of less importance (2.5/1.8).

3.2. *The role of GDP on sustainability*

It is not unreasonable to assume that the amount of money available may impact sustainability at various levels. In the following, relationships are analyzed between log GDP pc and the 17 Sustainable Development Goals adopted in 2015 by all United Nations Member States, providing a shared blueprint for peace and prosperity for people and the planet (United Nations, 2025d). The 17 Sustainable Development Goals (SDGs) can be subdivided into five pillars (Table 1), being visualized and discussed below.

3.2.1. The pillar *People*

The pillar *People* encompasses (cf. Table 1) SDGs 1 (no poverty), 2 (zero hunger), 3 (good health and well-being), 4 (quality education), and 5 (gender equality) (United Nations, 2025d). These five SDGs are closely related to our daily well-being, and as such, a positive correlation with the individual’s available amount of money, expressed as log GDP per capita, could be expected. In Figure 3, the relationships between log GDP per capita and the five SDGs (1, 2, 3, 4, and 5) are shown.

From Figure 3, it is immediately clear that for all five SDGs, positive correlations exist between the available funds and the respective SDGs. Especially in the case of SDG 1 (no poverty), it is obvious, and not surprising, that poverty has been virtually eradicated in these countries. In contrast, even wealthier countries have not eliminated hunger (WHO, 2024). Furthermore, in the cases of SDG 3 (good health) and SDG 4 (quality education), high degrees of goal fulfillment are noted for wealthier countries (Sachs et al., 2026). For the final SDG in this series, i.e., SDG 5 (gender equality), the correlation is not as evident as for the other four goals, pinpointing that the globally existent issues

concerning gender equality (Carlsen, 2020), only to a minor extent, can be related to the availability of money (Carlsen et al., 2023).

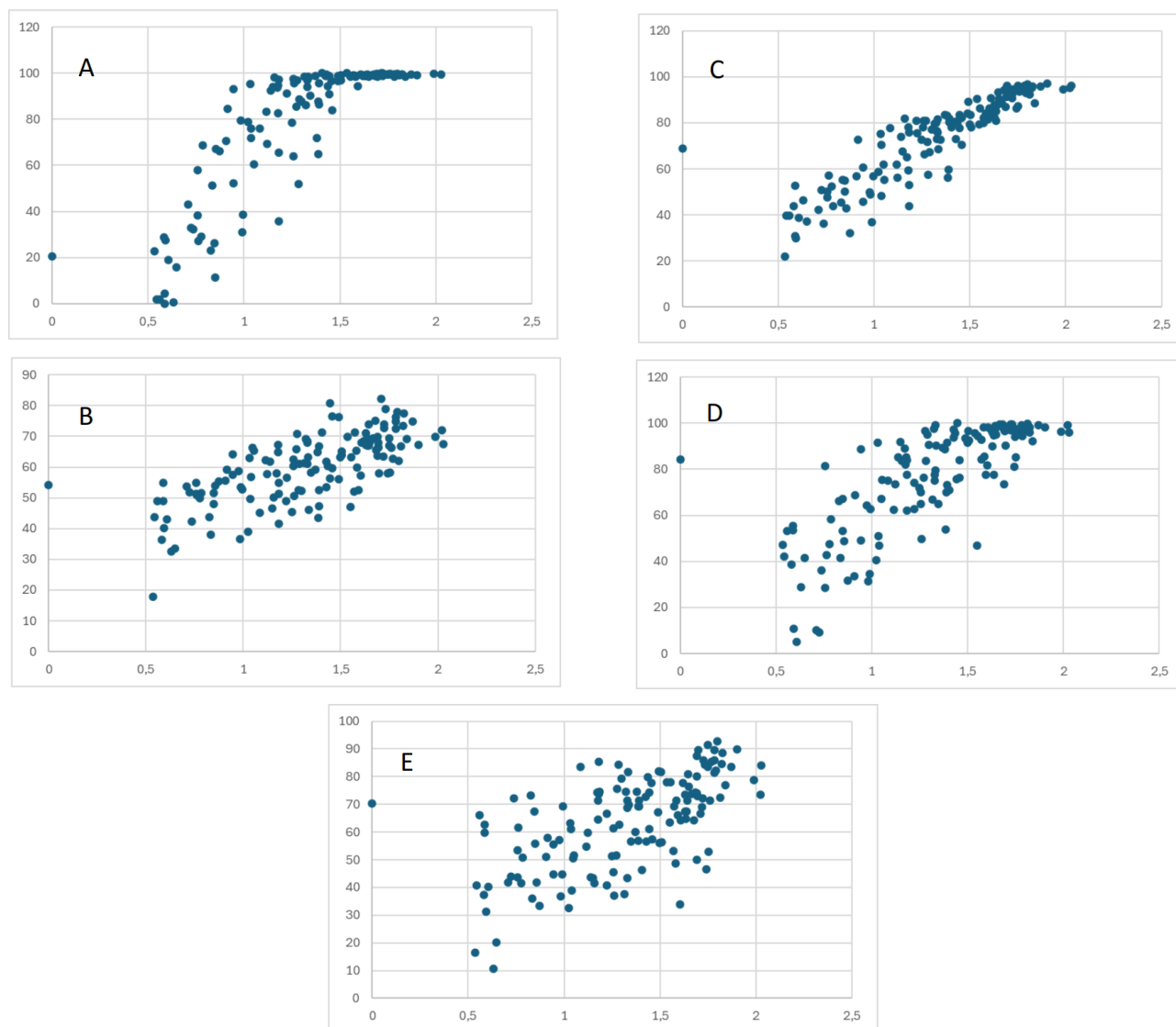


Figure 3. Correlations between log GDP pc and the elements of pillar *People*. A) SDG 1, B) SDG 2, C) SDG 3, D) SDG 4, and E) SDG 5.

3.2.2. The pillar *Planet*

The pillar *Planet* includes (cf. Table 1) SDGs 6 (clean water and sanitation), 12 (responsible consumption and production), 13 (climate action), 14 (life below water), and 15 (life on land) (United Nations, 2025d).

These five SDGs have a more indirect effect on people, and it is not immediately intelligible that people will utilize available funds in these areas. In comparison to the above discussion on the *People* pillar, the *Planet* pillar presents a distinctly different picture (Figure 4). Thus, while a clear positive correlation is observed for SDG 6, this is not the case for the remaining 4 SDGs (Figure 4).

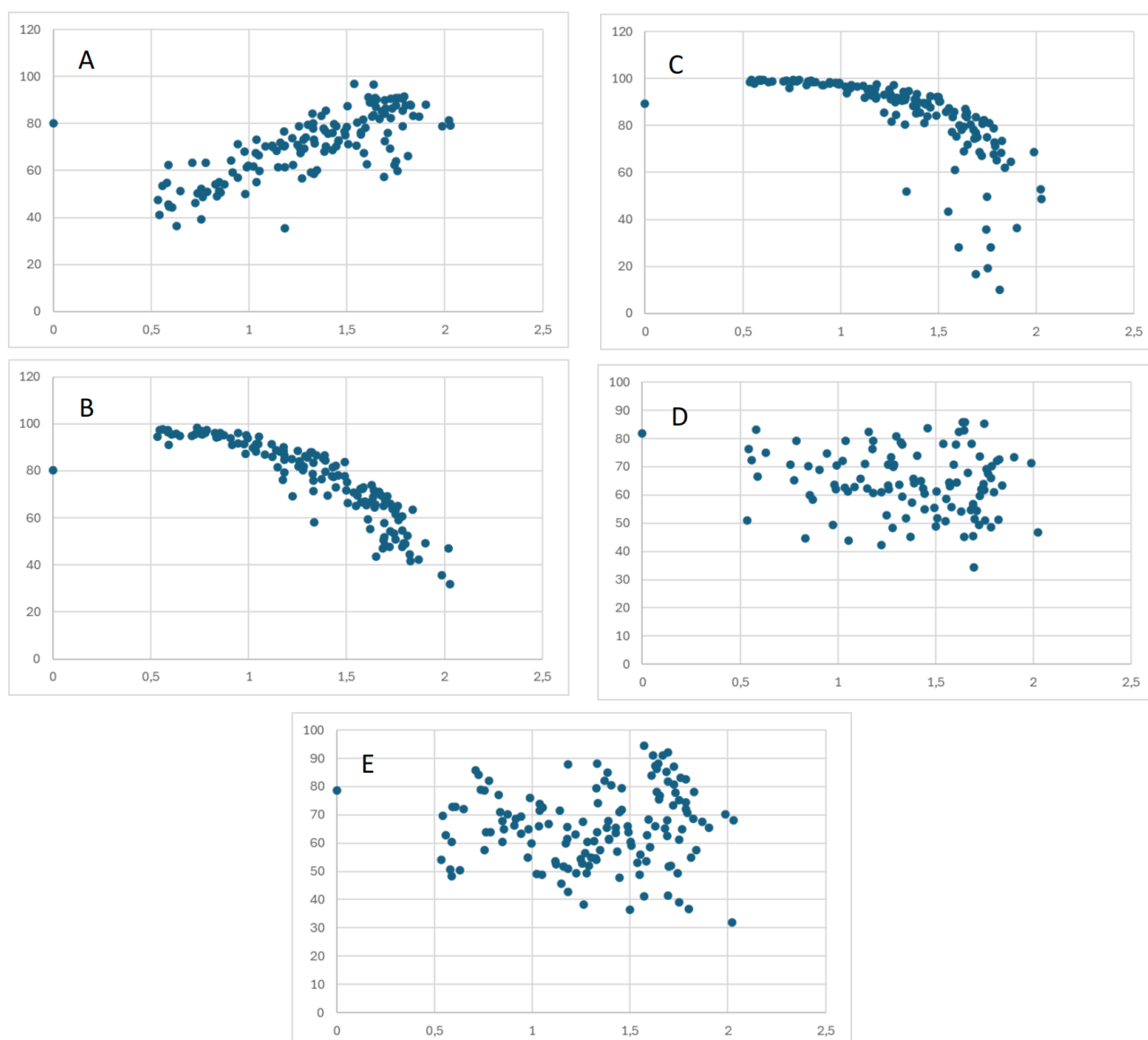


Figure 4. Correlations between log GDP pc and the elements of pillar *Planet*. A) SDG 6, B) SDG 12, C) SDG 13, D) SDG 14, and E) SDG 15.

It is not surprising that a positive relationship between available funds and access to clean water and sanitation (SDG 6) is observed, even with an expected high density for the wealthiest countries, where the topics outlined in SDG 6 are not significant issues (United Nations, 2025a).

Significantly more disturbing are the pronounced negative correlations observed for SDG 12 and SDG 13, both of which are key elements in the attempt to reach a sustainable environment. From Figure 4B–C, it is clear that the production and consumption (SDG 12) in wealthier countries are far behind the goals. Thus, despite having sufficient funds, consumers do not consistently meet even the basic requirements for sustainable consumption, nor do producers. This lack of compliance with SDG 12 further negatively influences the issues related to SDG 13 (climate action) as visualized in Figure 4C. It is worthwhile to remember the lack of any outcome from the Baku meeting, where the wealthier countries virtually denied helping the developing countries to fight the climate issues (Carlsen, 2025) that they obviously cause.

In the cases of SDG 14 (life below water) and SDG 15 (life on land), virtually no correlations were present, although a slight negative correlation in the case of SDG 14 may be noted. This may be attributed to the fact that the decline in biodiversity in general receives attention throughout the planet.

3.2.3. The pillar *Prosperity*

The pillar *Prosperity* includes (cf. Table 1) SDGs 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), 10 (reduced inequalities), and 11 (sustainable cities and communities) (United Nations, 2025d). These five goals focus on the societies and the relations to money availability, as shown in Figure 5.

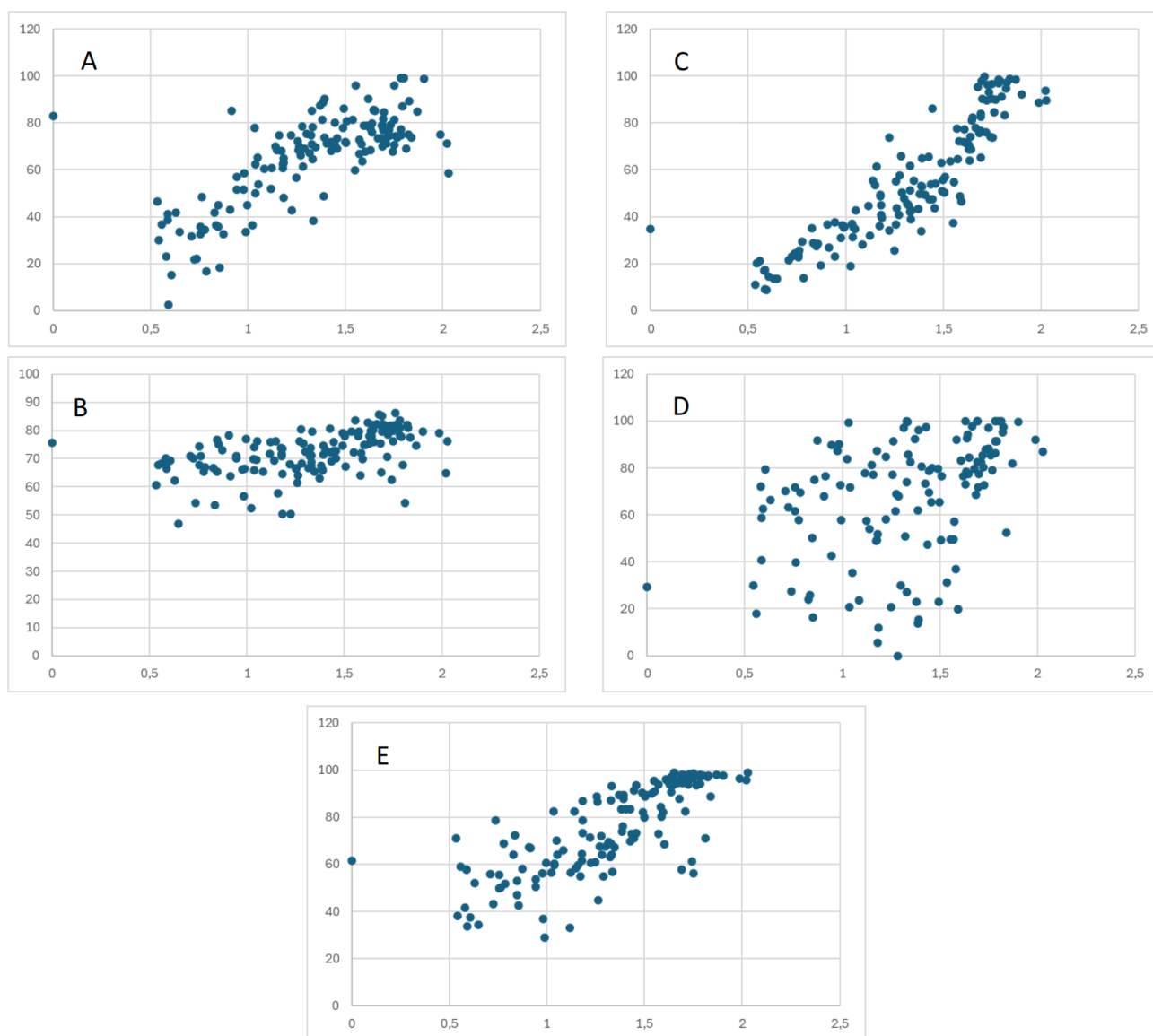


Figure 5. Correlations between log GDP pc and the elements of pillar *Prosperity*. A) SDG 7, B) SDG 8, C) SDG 9, D) SDG 10, and E) SDG 11.

In the cases of SDG 7 (Figure 5A) and SDG 9 (Figure 9), clear positive correlations with money availability are noted in both, with a clear tendency toward virtually full compliance among wealthier countries. Especially in the latter case (SDG 9), a nonlinear correlation with an upward tendency for the most affluent countries can, not surprisingly, be seen. A very minor positive correlation is noted for SDG 8, in agreement with a projected growth of around 2.8% for the world in 2025, as reported by the International Monetary Fund (IMF, 2025). The wealthier countries generally comply with the goals set for SDG 11, while the less affluent countries lag behind.

Reducing inequalities (SDG 10) remains a major and, in some areas, increasing problem worldwide, and any general trend toward a better situation is unfortunately not evident. Hence, minority groups like racial and ethnic groups (e.g., blacks, Hispanic and Asian Americans), religious groups (e.g., Muslims, Jews), LGBTQ+ individuals, disabled people, indigenous peoples, migrants, and women are subjects of inequality worldwide, independently of money availability. Examples are unfortunately legion; the several hundred anti-LGBTQ+ bills in the U.S may serve as an exemplary case (AUCL, 2025). It is worthwhile to remember that, despite the number, gender, or origin, all people and societies should have or be given equal rights (Carlsen, 2024; Carlsen, 2025).

3.2.4. SDGs 16 and 17

These two last pillars comprise one SDG each, i.e., SDG 16 (peace, justice, and strong institutions) and SDG 17 (partnerships for the goals) (United Nations, 2025d). From Figure 6A–B, a positive correlation is seen in the case of SDG 16 (United Nations, 2025b), whereas no correlation at all can be verified in the case of SDG 17. Such a missing correlation (United Nations, 2025c) is in complete agreement with the lack of outcome of the recent COP 29 meeting in Baku (COP 29, 2024, Carlsen, 2025), as previously reported elsewhere (Carlsen, 2025).

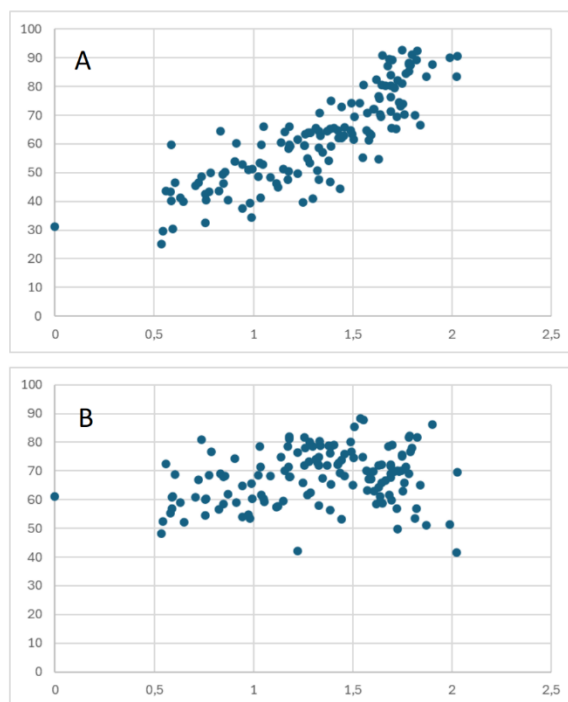


Figure 6. Correlations between log GDP pc and SDGs 16 and 17. A) SDG 16, B) SDG 17.

4. Conclusions and outlook

It is problematic to argue that money does not make the world go round. The present study has shown how money (here in terms of the GDP per capita) influences both happiness and sustainability issues. The general trend appears to be that the higher the economic capability of a country, the more positive the influence on both happiness and sustainability factors. However, significant exceptions were noted. The study clearly demonstrates that more affluent countries are apparently far behind in complying with sustainable consumption and production (SDG 12) and climate action (SDG 13); it is questionable if these countries will be able to comply with such goals by 2030. In other cases, such as SDG 10 (reduced inequalities), no correlation whatsoever was observed, indicating that disparities remain omnipresent worldwide. However, SDG 5 (gender equality) revealed some positive progress, particularly in wealthier countries, whereas poorer/developing countries are far behind in complying with the goal.

The analyses presented clearly indicate that affluent countries, while focusing on the developing and climate-exposed nations, must focus internally on adopting a more sustainable lifestyle, which should be regarded as a moral and ethical issue.

Use of AI tools declaration

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

Conflict of interest

The author declares no conflicts of interest in this paper.

References

- AUCL, In 2025, the ACLU is tracking 616 Anti-LGBTQ bills in the U.S., 2025. Available from: <https://www.aclu.org/legislative-attacks-on-lgbtq-rights-2025>, (accessed June 2026).
- Callen T (2025) Gross Domestic Product: An Economy's All, International Monetary Fund, 2025. Available from: <https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/gross-domestic-product-GDP>, (accessed June 2026).
- Carlsen L (2020) Gender inequality and development. *Sustain Sci* 15: 759–780. <https://doi.org/10.1007/s11625-019-00767-9>
- Carlsen L (2024) Sustainability: An ethical challenge: The overexploitation of the planet as an exemplary case. *Sustainability* 16: 3390. <https://doi.org/10.3390/su16083390>
- Carlsen L (2025) The Baku Paradox: An Analysis of Selected Sustainable Development Goals. *Sustainability* 17: 2547. <https://doi.org/10.3390/su17062547>
- Carlsen L, Bruggemann R, Fattore M (2023) Factors determining the degree of gender equality within the European Union. *Qual Quant* 57: 1483–1499. <https://doi.org/10.1007/s11135-022-01405-w>
- COP 29, In solidarity for a green world, 2024. Available from: <https://cop29.az/en/home>, (accessed June 2026).
- Ecclesiastes 10:19 MSG. Available from: <https://www.bible.com/bible/97/ECC.10.19.MSG>, (accessed June 2026).

- Helliwell JF, Layard R, Sachs JD, et al. (Eds.) (2025a) World Happiness Report 2025, p. 16. Available from: <https://www.worldhappiness.report/ed/2025/>, (accessed June 2026).
- Helliwell JF, Layard R, Sachs JD, et al. (Eds.) (2025b) World Happiness Report 2025, Box 2.2. Available from: <https://www.worldhappiness.report/ed/2025/>, (accessed June 2026).
- Helliwell JF, Layard R, Sachs JD, et al. (Eds.) (2025c) World Happiness Report 2025, Fig. 2.1. Available from: <https://www.worldhappiness.report/ed/2025/>, (accessed June 2026).
- IMF, Real GDP growth, 2025. Available from: https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD, (accessed June 2026).
- Kudrna L, Kushlev K (2022) Money Does Not Always Buy Happiness, but Are Richer People Less Happy in Their Daily Lives? It Depends on How You Analyze Income. *Front Psychol* 13: 883137. <https://doi.org/10.3389/fpsyg.2022.883137>
- Sachs JD, Lafortune G, Fuller G, et al. (2025) *Financing Sustainable Development to 2030 and Mid-Century. Sustainable Development Report 2025*. Paris: SDSN, Dublin: Dublin University Press. <https://doi.org/https://doi.org/10.25546/111909>
- Tanzi V, Davoodi HR (2000) Corruption, Growth, and Public Finances, Internationally Monetary Fund, Available from: <https://www.imf.org/external/pubs/ft/wp/2000/wp00182.pdf>, (accessed June 2026).
- United Nations, SDG 6, Clean water and Sanitation, 2025a. Available from: <https://www.un.org/sustainabledevelopment/water-and-sanitation/>, (accessed June 2026).
- United Nations, SDG 16, Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels, 2025b. Available from: <https://sdgs.un.org/goals/goal16>, (accessed June 2026).
- United Nations, SDG 17, Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development, 2025c. Available from: <https://sdgs.un.org/goals/goal17> (accessed June 2026).
- United Nations, The 17 goals, Department of Economic and Social Affairs, Sustainable Development, 2025d. Available from: <https://sdgs.un.org/goals> (accessed June 2026).
- Van Der Merwe P (2025) Available from: https://www.goodreads.com/author/quotes/6406273.Paul_Van_Der_Merwe, (accessed June 2026).
- Whatcanyoudo, What can you do? The 5p's, 2023. Available from: <https://whatcanyoudo.earth/selecting-the-sdg-for-youraction/the-5-ps/> (accessed June 2006).
- WHO, Hunger numbers stubbornly high for three consecutive years as global crises deepen: UN report, 2024. Available from: <https://www.who.int/news/item/24-07-2024-hunger-numbers-stubbornly-high-for-three-consecutive-years-as-global-crises-deepen--un-report>, (accessed June 2026).
- YorkU (2026) 5 Pillars of Sustainable Development York University, CA. Available from: <https://www.yorku.ca/unsdgs/toolkit/sdgs-in-the-classroom-digital-toolkit-homepage/5-pillars-of-sustainable-development/> (accessed June 2026).



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