Wellness Policy Series

Health, Happiness, and the Wellness Economy: An Empirical Analysis

January 2023

GLOBAL WELLNESS INSTITUTE™
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HEALTH, HAPPINESS, AND THE WELLNESS ECONOMY: AN EMPIRICAL ANALYSIS

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Contents

About the Authors

About the Global Wellness Institute

The Global Wellness Institute (GWI), a 501(c)(3) non-profit organization, is considered the leading global research and educational resource for the global wellness industry and is known for introducing major industry initiatives and regional events that bring together leaders and visionaries to chart the future. GWI positively impacts global health and wellness by advocating for both public institutions and businesses that are working to help prevent disease, reduce stress, and enhance overall quality of life. Its mission is to empower wellness worldwide.

www.globalwellnessinstitute.org

About the Authors

Health, Happiness, and the Wellness Economy: An Empirical Analysis was written by Dr. Shun Wang, Ophelia Yeung, Katherine Johnston, and Tonia Callender.

Dr. Shun Wang is a senior associate professor at International Business School Suzhou, Xi'an Jiaotong-Liverpool University. He obtained his Ph.D. in Economics at University of British Columbia, and an M.A. in Economics and B.A. in Business Administration at Peking University. Dr. Wang's papers have been published in many economics and interdisciplinary journals. He is an associate editor and founding member of the World Happiness Report. He is also a member of the Global Happiness Council and chairs the Wellbeing Measurement committee. He has been a consultant for the Asian Development Bank and the World Bank.

As research fellows at the Global Wellness Institute, Ms. Yeung, Ms. Johnston, and Ms. Callender form the team that defines and measures the size of the global wellness economy. Their academic and professional background is in public policy and international development, and they received post-graduate degrees from Princeton, Georgetown, and Harvard Universities, respectively. Together, they bring many decades of experience conducting research, impact assessments, and strategy development for countries, regions, industry consortia, companies, and nonprofit institutions.

Preface: About the *Wellness Policy Series*

Why is GWI releasing a *Wellness Policy Series*?

Since its inception, the Global Wellness Institute (GWI) has embraced the vision of "empowering wellness worldwide." Even as we study and advocate for the multi-trillion dollar wellness economy, we also recognize that the private wellness market and consumer action alone cannot bring about wellness for all. Widespread adoption of preventive approaches and healthy lifestyles is essential if we are to address our mounting global health crises and spiraling economic costs. And yet, not everyone has the resources, motivation, knowledge, or enabling environment to do so. Public policy is essential to fill these gaps. This realization is the genesis of GWI's *Wellness Policy Series*.

Who is the *Wellness Policy Series* for?

When we talk about policy, the implication is that we are speaking to governments, but this series is not just for government stakeholders. **Policies to advance the cause of wellness for all require the attention, participation, and cooperation of public, private, and nonprofit/community stakeholders.** In fact, the separate development streams and "siloes" across consumer/business wellness, public health systems, and preventive health/medicine have impeded us from making greater strides toward this goal.

GWI's *Wellness Policy Series* was created to support anyone who would like to leverage policy as a tool to promote better human health and well-being. Whether you are a **government leader, policymaker, public servant, private business, nonprofit, or concerned citizen**, this series will provide you with cross-cutting and actionable ideas for policies, programs, collaborations, and advocacy efforts to address gaps, meet the needs of different population groups, and expand access to wellness for all.

What is covered in the *Wellness Policy Series*?

The *Wellness Policy Series* is a compilation of nine reports, which aim to define wellness policy, articulate why it is needed, and provide a framework and set of strategies for implementing wellness policies across many domains of wellness. The series includes the following reports:

- *Defining Wellness Policy* (November 2022)
- *Health, Happiness, and the Wellness Economy: An Empirical Analysis* (January 2023)
- *Seven Wellness Policy Toolkits* (forthcoming in 2023)
    - Healthy Eating
    - Physical Activity
    - Mental Wellness
    - Traditional & Complementary Medicine
    - Wellness in the Built Environment
    - Wellness at Work
    - Wellness in Tourism

I. Why This Study?

The Global Wellness Institute (GWI) has defined and measured the global wellness economy for over a decade. In that time, wellness has become a powerful consumer movement and a major force in the world's economy. Prior to the pandemic, the wellness economy and its component sectors have consistently grown faster than global GDP, peaking at $4.9 trillion (or 5.6% of global GDP) in 2019.[1] As spending on wellness continues to grow, it raises many important questions. *Is a growing wellness economy good for people? Does this spending actually help us to be healthy and well? Where is wellness spending the most impactful? What is the role of public policy and governments in wellness?*

In the past, the lack of detailed data on the size and distribution of wellness sectors at the country level has constrained our ability to explore important questions, such as the contribution of wellness to people's health and well-being. In 2021, GWI produced, for the first time, a full wellness economy dataset that provides a detailed time series breakdown of the size and composition of the wellness industry across every country. This new proprietary data stream allows us to conduct empirical analyses to shed light on these questions for the first time.

This study is the first-ever global analysis of wellness, happiness, and health, based on the most comprehensive data available for wellness and happiness. While some recent studies have explored the relationships between happiness and the United Nations' Sustainable Development Goals (SDGs)[2] – which include good health and well-being (SDG 3) – to date no one has incorporated wellness spending into the happiness equation. This study examines the nexus of wellness spending, health, and happiness, in a collaboration between GWI and a key author and statistician for the *World Happiness Report*. It analyzes the statistical relationships between total and sector-level wellness economy spending and various measures of happiness (i.e., subjective well-being) and health outcomes (e.g., life expectancy, risks of premature death from noncommunicable diseases, etc.). Based on the results of the statistical analyses, we explore the implications for the wellness economy and the scope for public policy actions.

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[1] Yeung, O., and Johnston, K. (2021). *The Global Wellness Economy: Looking Beyond COVID*. Miami, FL: Global Wellness Institute. https://globalwellnessinstitute.org/industry-research/the-global-wellness-economy-looking-beyond-covid/.

[2] See: De Neve, J.E., Sachs, J.D. (2020). The SDGs and human well-being: a global analysis of synergies, trade-offs, and regional differences. *Scientific Reports*, 10, 15113. https://doi.org/10.1038/s41598-020-71916-9.

II. Methodology

Data Sources and Measures

Wellness economy: This study employs country-level wellness economy data constructed by the Global Wellness Institute for 2017, 2019, and 2020, for 218 countries.[3] In addition to the data on the overall wellness economy size, we have country-level data for 11 wellness sectors: Healthy Eating, Physical Activity, Mental Wellness, Wellness Real Estate, Workplace Wellness, Traditional & Complementary Medicine, Public Health & Prevention, Wellness Tourism, Spas, Thermal/Mineral Springs, and Personal Care & Beauty. To compare the relative size of the wellness economy across countries, we calculate per capita values for the overall wellness economy and for each sector. For the regression analyses of overall wellness economy and happiness/health outcomes, we remove wellness tourism from the wellness economy totals, because a sizable share of tourism expenditures come from inbound arrivals to the country and do not reflect wellness activities by locals. Therefore, wellness tourism only enters the analysis in the sector-by-sector statistics.

> ### Wellness and the Wellness Economy: GWI Definitions
>
> **Wellness is defined as** *the active pursuit of activities, choices, and lifestyles that lead to a state of holistic health.* Wellness is active and emphasizes the process of seeking health and well-being; it is different from the concepts of health or well-being, which are outcomes or a static state of being.
>
> **The wellness economy is defined as** *industries that enable consumers to incorporate wellness activities and lifestyles into their daily lives.* The wellness economy (which encompasses 11 sectors) is proactive and preventive, making it different from the traditional healthcare industry, which mainly focuses on disease treatment and control.

Happiness: In this study, we use measures of "happiness" that are equivalent to the concept of "subjective well-being," which refers to a range of individual self-reports of life assessments and emotions. We employ three measures of happiness, drawn from the Gallup World Poll: Cantril ladder, positive affect, and negative affect.

- **Cantril ladder** is a widely used measure of life satisfaction. The survey question for Cantril ladder is: "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we ask how you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?" This sort of question was first designed by Cantril (1965), and thus the life ladder score is also called Cantril ladder, or Cantril's Self-Anchoring Striving Scale.

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[3] Note that the actual number of countries used in the analyses slightly varies across each model, due to the number of values available for other variables. The appendix tables note the number observations used in each separate model (capturing the number of countries included multiplied by the number of years).

- **Positive affect and negative affect** are based on survey questions that attempt to capture recent emotions experienced by the interviewee. The answer to each survey question is binary, where 1 is for "yes" and 0 is for "no."

  - The survey questions for positive affect include: "Did you experience the following feelings during a lot of the day yesterday? How about enjoyment? Did you smile or laugh a lot yesterday? Did you learn or do something interesting yesterday?" The metric for positive affect is the simple average of the three questions for enjoyment, laughter, and learning or doing something interesting.

  - The survey questions for negative affect include: "Did you experience the following feelings during a lot of the day yesterday? How about worry? How about anger? How about sadness?" The metric for negative affect is the simple average of the three questions for worry, anger, and sadness.

Health: To measure health outcomes, we use five metrics, drawn from various sources.

- **Life expectancy at birth:** Number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life. The data are from the United Nations Development Programme (UNDP).

- **Healthy life expectancy at birth:** Average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury. The data are from the World Health Organization's Global Health Observatory (WHO GHO).

- **Infant mortality rate:** Probability of dying between birth and exactly age 1 year of age, expressed as deaths per 1,000 live births. The data are from the United Nations Inter-agency Group for Child Mortality Estimation (UN IGME).

- **Under-five mortality rate:** Probability of dying between birth and exactly 5 years of age, expressed as deaths per 1,000 live births. The data are from UN IGME.

- **Risk of premature death from four non-communicable diseases for those ages 30 to 70:** Probability of dying between the exact ages 30 and 70 years from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases. The data are from WHO GHO.

Empirical Framework

We conduct empirical analysis on the correlations between the wellness industry and measures of happiness and health outcomes, using the Pooled Ordinary Least Squares (OLS) model below. This statistical model is often used when conducting analysis for panel data. Our regression model examines the relationships between the wellness economy and specific outcome or dependent variables, for example the relationship between the wellness economy and happiness.

$$Y_{ijt} = \beta_0 + \beta_1 wellness + \beta_2 lngdppc_{ijt} + \beta_3 lnpop_{ijt} + \delta_j + \mu_t + \varepsilon_{ijt}$$

In this model, *i*, *j*, and *t* denote country, region, and year, respectively. The dependent variable *Y* represents national-level outcome variables, including happiness and health measures. *Wellness* denotes the per capita value of the overall wellness economy or each wellness subsector.[4] *Lngdppc* is the natural log of GDP per capita in 2017 international dollars, adjusted for purchasing power parity. We controlled for GDP on a per capita basis because it is an important determinant of happiness and health, and it is also likely to be highly correlated with wellness economy. *Lnpop* denotes the natural log of population size, in order to control for this variable. δ_j and μ_t denote region and year dummies respectively, to control for potential regional and time differences. ε_{ijt} is the error term. β_1 denotes the coefficient of correlation between the wellness economy and the outcome variable.

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[4] In the regressions for happiness outcomes, the unit of per capita wellness economy and subsectors is per $1,000. In the regressions for health outcomes, we use the logarithm of per capita wellness economy and subsectors to better fit the models.

III. Wellness Economy and Happiness

Empirical Analysis: Wellness Economy and Happiness

We first examine the raw relationships between the wellness economy and happiness at the country level, without controlling for other variables, by plotting three measures of happiness (Cantril ladder, positive affect, and negative affect) against wellness economy per capita (*see Figures 1.1, 1.2, and 1.3*). *Figure 1.1* illustrates a relatively strong positive correlation between wellness economy per capita and happiness (as measured by the Cantril ladder). *Figure 1.2* shows a mild positive correlation between wellness economy per capita and positive affect. *Figure 1.3* shows a negative correlation between wellness economy per capita and negative affect, indicating that as wellness spending per capita increases, feelings of sadness, worry, or anger decline.

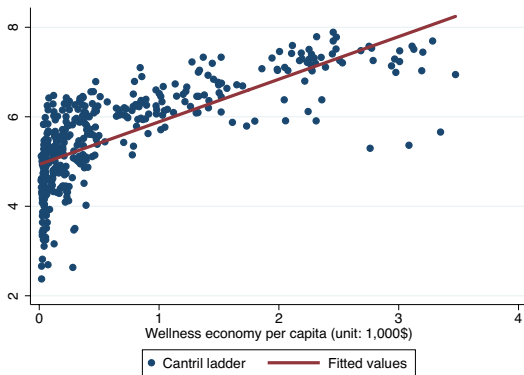**FIGURE 1.1: WELLNESS ECONOMY PER CAPITA AND CANTRIL LADDER**

FIGURE 1.2: WELLNESS ECONOMY PER CAPITA AND POSITIVE AFFECT
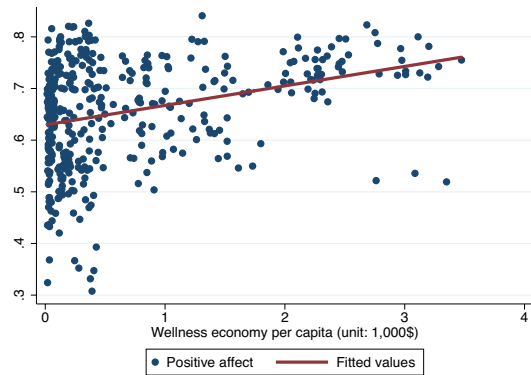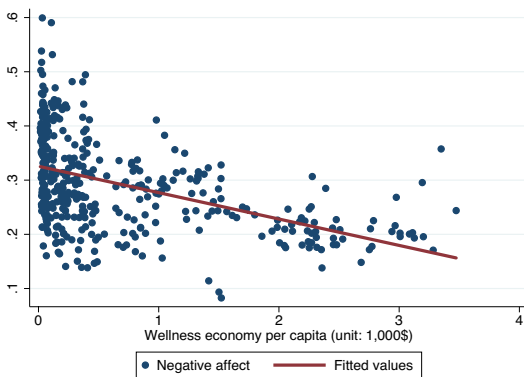

FIGURE 1.3: WELLNESS ECONOMY PER CAPITA AND NEGATIVE AFFECT

Next, we conduct regression analyses using the equation described in *Section II*. The key results are summarized in *Table 1* below (see *Appendix Table 1* for full results).

TABLE 1: WELLNESS ECONOMY PER CAPITA AND HAPPINESS INDICATORS

	Dependent Variables (Coefficients):								
	Cantril Ladder	**Positive Affect**	Enjoy	Laugh	Learning	**Negative Affect**	Sadness	Worry	Anger
Wellness Economy per Capita	0.448 ***	0.030 *	0.034	0.004	0.054 ***	**-0.020**	-0.012	-0.033	-0.012

Note: Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

To aid readers in understanding this table, coefficients showing a moderate or strong, and statistically significant, relationship are marked in red font.

*Each coefficient in this table represents the result of a separate regression analysis between wellness economy per capita and each individual happiness indicator. **The coefficients cannot be directly compared with one another to assess relative strength of relationships**, because the measurement scales for the various happiness indicators are not all the same (e.g., Cantril ladder is measured on a 0-10 point scale, while positive affect and its sub-elements are measured on a 0-1 point scale).*

In this type of analysis, the two important considerations are the size of the coefficient (which shows the strength of the relationship between the two variables) and the statistical significance (which indicates that the results are unlikely to be explained by chance or random factors). Conventionally, statistical significance at the 5% level or lower (e.g., 1% level) is considered very robust. In other words (for those not well-versed in statistical analysis), a larger coefficient with more asterisks (*) in the table indicates a stronger and more robust relationship between the independent variable (wellness economy per capita) and dependent variable (Cantril ladder).

- Looking at Cantril ladder as the outcome variable, the analysis shows a very strong positive relationship with wellness economy per capita (coefficient of 0.448, statistically significant at the 1% level).

- For positive affect as an outcome variable, there is not a strong relationship with wellness economy, since the results are only significant at the 10% level. Among the three sub-elements of positive affect (enjoyment, laughter, learning), the only statistically significant correlation is between wellness economy per capita and "learning or doing something interesting yesterday." The coefficient of wellness economy per capita is 0.054, significant at the 1% level; this relationship is strong considering that the "learning" outcome variable is measured on a scale of 0 to 1.

- For negative affect as an outcome variable (as well as its sub-elements), there are no strong or statistically significant relationships with wellness economy.

Interpretation and Implications: Wellness Economy and Happiness

Expenditures on wellness are positively correlated with happiness at the country level.

The regression analysis found a strong positive relationship between wellness economy spending per capita and happiness (as measured by the Cantril ladder).

- We found that for a 10% increase ($60) in wellness economy spending per capita above the average level, the average happiness level will increase by 0.5% (or 0.03 units on the Cantril ladder scale of 0 to 10).

- In another way of expressing this relationship, for every increase of one standard deviation unit ($844) in wellness economy per capita, the average happiness level increases by 6.7% (or 0.377 units on the Cantril ladder scale of 0 to 10).

We should caution here (as with all of the regression analyses presented in this report), that correlation does not mean causation, so we cannot definitively say that wellness spending *causes* happiness levels to rise. Nonetheless, these important results signal that there are well-being benefits from wellness economy spending.

Since this analysis looks at country averages for happiness levels and wellness spending, it does not translate into individual-level implications. Therefore, one should not interpret the results to mean that if a person spends $60 more on wellness per year, they will become 0.5% happier.

It is possible that the ability to spend money on wellness may contribute to people's feelings of happiness or life satisfaction, more so than the wellness expenditures themselves. People with higher disposable incomes have higher spending power to consume wellness products and services. They may feel a higher degree of financial security and control of their lives, or they may feel good that they are able to invest in self-care. At the same time, this finding raises other important questions that would require further analysis (and that may not even be answerable):

- Does the correlation between wellness spending and happiness actually reflect a unique impact of wellness expenditures, or does it reflect other factors such as leisure time, or a more equitable distribution of disposable income to spend on leisure and self-care?

- Is wellness spending an appropriate measure of "wellness engagement"? People who enjoy nature may engage in wellness by hiking on local trails, and they are not practicing wellness any less than those who visit a wellness resort. If physical activity elevates happiness, would someone who spends $500 a month on boutique fitness evaluate their happiness higher than someone who meditates daily and exercises in the park, but spends no money on those activities?

These questions are not easy to answer, but they are worth investigating when we consider the role of governments and public policy in creating opportunities and investing in infrastructure for their citizens to engage in and benefit from wellness.

IV. Wellness Economy and Health

Empirical Analysis: Wellness Economy and Health

In the next set of analyses, we examine the raw relationships between the wellness economy and health outcomes at the country level, without controlling for other variables. *Figures 2.1-2.5* plot the logarithm (*log*) of wellness economy per capita[5] against five health measures: life expectancy, healthy life expectancy, infant mortality rate, under-five mortality rate, and risk of premature death from four non-communicable diseases. *Figures 2.1 and 2.2* illustrate a positive log-linear relation between wellness economy per capita, life expectancy, and healthy life expectancy. For the three ill-health measures, including mortality rates and risk of premature death, the relationship is negative (*see Figures 2.3, 2.4, and 2.5*). These figures together show that the wellness economy is positively correlated with health outcomes.

We next use regression analysis to explore the correlations between log wellness economy per capita and the five health outcome indicators, using the equation described in *Section II*. Results show that log wellness economy per capita is strongly correlated with all five health indicators, and all of the coefficients are statistically significant at the 1% or 5% level (see summary in *Table 2* below; full results are provided in *Appendix Table 2*). Wellness economy per capita shows a strong positive relationship with life expectancy (coefficient of 2.744) and healthy life expectancy (2.039). Wellness economy per capita shows a strong inverse relationship with infant mortality rate (-7.175), under-five mortality rate (-10.080), and risk of premature death from four non-communicable diseases (-2.646).

TABLE 2: WELLNESS ECONOMY PER CAPITA AND HEALTH OUTCOME INDICATORS

(log value per capita)	Dependent Variables (Coefficients):				
	Life Expectancy	**Healthy Life Expectancy**	**Infant Mortality Rate**	**Under-Five Mortality Rate**	**Premature Deaths from 4 NCDs**
Wellness Economy per Capita	2.744 ***	2.039 ***	-7.175 ***	-10.080 ***	-2.646 **

Note: Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

To aid readers in understanding this table, coefficients showing a moderate or strong, and statistically significant, relationship are marked in bold red font.

*Each coefficient in this table represents the result of a separate regression analysis between wellness economy per capita and each individual health indicator. **The coefficients cannot be directly compared with one another to assess relative strength of relationships**, because the measurement scales for the various health indicators are not all the same.*

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[5] Note that the relationship between wellness economy per capita and health outcomes is better fitted by a log-linear model, which is slightly different from the linear wellness economy-happiness relationship discussed in *Section III*.

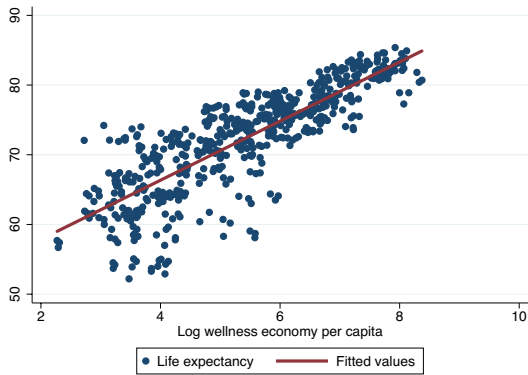**FIGURE 2.1: LOG WELLNESS ECONOMY PER CAPITA AND LIFE EXPECTANCY**

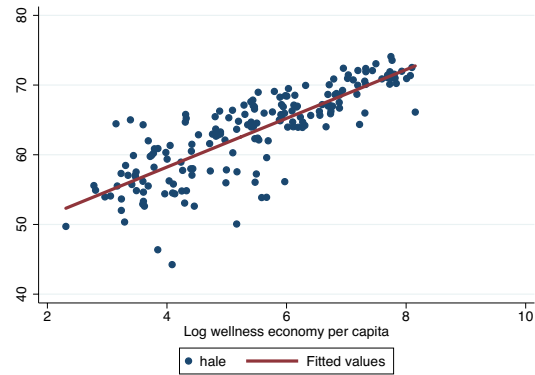**FIGURE 2.2: LOG WELLNESS ECONOMY PER CAPITA AND HEALTHY LIFE EXPECTANCY**

FIGURE 2.3: LOG WELLNESS ECONOMY PER CAPITA AND INFANT MORTALITY RATE (DEATHS PER 1,000 LIVE BIRTHS)
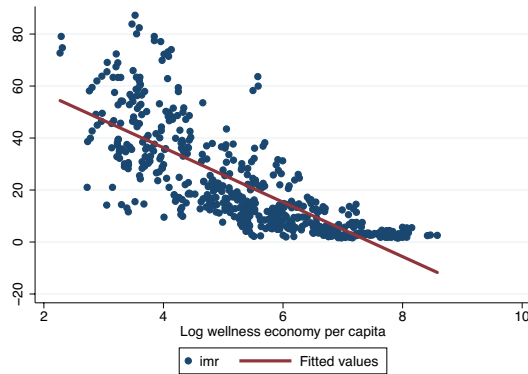

FIGURE 2.4: LOG WELLNESS ECONOMY PER CAPITA AND UNDER-FIVE MORTALITY RATE (DEATHS PER 1,000 LIVE BIRTHS)
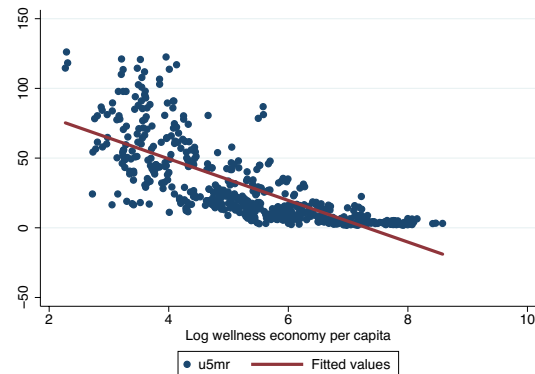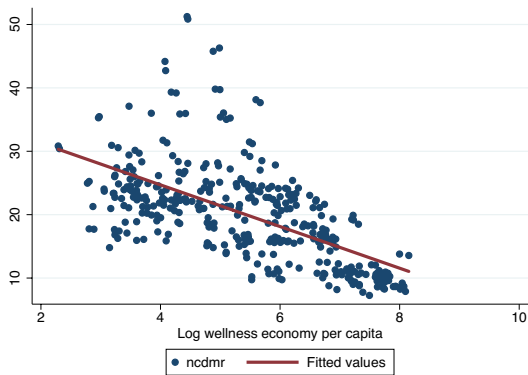

FIGURE 2.5: LOG WELLNESS ECONOMY PER CAPITA AND RISK OF PREMATURE DEATH FROM FOUR NON-COMMUNICABLE DISEASES (%, AGES 30-70)

Interpretation and Implications: Wellness Economy and Health

The wellness economy and health outcomes are strongly and positively related to each other at the country level.

The regression analyses found a strong, positive relationship between wellness economy spending per capita and health outcome indicators across countries.

- A 10% increase in wellness economy per capita is associated with 0.27 years of additional life expectancy and 0.2 years of additional healthy life expectancy (equivalent to 0.4 and 0.3 percentage points increase, respectively).

- In another way of expressing this relationship, for every increase of one standard deviation unit ($769) in wellness economy per capita, the average life expectancy increases by 1.26 years.

- A 10% increase in wellness economy per capita is associated with a decrease of 0.72 infant deaths per 1,000 births and a decrease of 1.0 under-five deaths per 1,000 births (equivalent to 3.4 and 3.6 percentage points decrease, respectively).

- A 10% increase in wellness economy per capita is associated with 0.26% lower risk of premature death from four non-communicable diseases (cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases) for those ages 30-70.

Statistical correlation does not mean causation. However, because we have controlled for societal wealth in the analysis (in the form of per capita GDP), the strong relationships between wellness spending and health outcomes are not simply explained by the wealth of the country.

V. Eleven Wellness Economy Sectors and Happiness

Empirical Analysis: Eleven Wellness Economy Sectors and Happiness

The next step of our study took us through a series of analyses where we examined each of the eleven sectors of the wellness economy (measured on a per capita basis) and their relationship to happiness (as measured by the Cantril ladder). Regression analyses were conducted using the equation described in *Section II* where we controlled for population size and the wealth of the population. The results of this analysis are summarized in *Table 3* below (see *Appendix Table 3* for full details).

TABLE 3: WELLNESS ECONOMY SECTORS PER CAPITA AND HAPPINESS

Wellness Economy Sector (Value per Capita)	Dependent Variable: Cantril Ladder (Coefficient)
Workplace wellness	**25.450*****
Wellness real estate	**2.177*****
Healthy eating	**1.737*****
Physical activity	**1.676*****
Thermal/mineral springs	**0.466*****
Wellness tourism	**0.399*****
Public health & prevention	**2.782****
Personal care & beauty	0.701*
Mental wellness	3.410
Spas	1.207
Traditional & complementary medicine	-1.374

Important Note:

__The size of the coefficients should not be directly compared__ to assess relative strength of relationships. Therefore, one should not assume that the very large coefficient for workplace wellness means a much stronger relationship than for the other sectors. Each coefficient in this table represents the result of a separate regression analysis, and the size of the coefficient is driven by the underlying size of that sector. The wellness subsectors do not enter the regression model together due to multicollinearity.

Note: Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

To aid readers in understanding this table, coefficients showing a moderate or strong, and statistically significant, relationship are marked in bold red font.

This summary table presents the coefficients and the statistical significance of 11 discrete regression analyses. It is very important that readers <u>do not compare the size of the coefficients across sectors</u> (vertically) because each regression analysis and its results should be interpreted individually. For example, one should not assume that the very large coefficient for workplace wellness means a much stronger relationship than for the other sectors. The results of the regression analysis indicate that:

- Four wellness sectors show a strong, positive relationship with happiness (Cantril ladder), significant at the 1% level: workplace wellness (coefficient of 25.450), wellness real estate (2.177), healthy eating (1.737), and physical activity (1.676).

- Two wellness sectors show a moderate, positive relationship with happiness (Cantril ladder), significant at the 1% level: thermal/mineral springs (0.466) and wellness tourism (0.399).

- There is a strong, positive relationship between public health & prevention spending and happiness (2.782), but the statistical significance is less robust (5% level).

- The relationships for the other four wellness sectors are not statistically significant at the conventional significance level (5% or lower).

Interpretation and Implications: Eleven Wellness Economy Sectors and Happiness

Many wellness sectors are strongly and positively correlated with happiness at the country level.

The regression analyses found a statistically significant, strong, positive relationship between wellness sector spending per capita and happiness (Cantril ladder) for many individual wellness sectors. The coefficients presented above can be interpreted as follows:

- A 100% increase in workplace wellness spending per capita ($10) corresponds to a 4.7% increase in happiness level.

- A 100% increase in healthy eating spending per capita ($141) corresponds to a 4.4% increase in happiness level.

- A 100% increase in physical activity spending per capita ($117) corresponds to a 3.5% increase in happiness level.

- A 100% increase in public health & prevention spending per capita ($47) corresponds to a 2.3% increase in happiness level.

- A 100% increase in wellness real estate spending per capita ($26) corresponds to a 1.0% increase in happiness level.

- A 100% increase in wellness tourism spending per capita ($135) corresponds to a 1.0% increase in happiness level.

- A 100% increase in thermal/mineral springs spending per capita ($16) corresponds to a 0.1% increase in happiness level.

Although the relationships vary a lot across sectors in terms of magnitude (for some sectors, such as thermal/mineral springs, the impact on happiness level is very small), these findings are consistent with the significant correlation between overall wellness economy per capita and happiness (as presented in *Section III*).

VI. Eleven Wellness Economy Sectors and Health

Empirical Analysis: Eleven Wellness Economy Sectors and Health

Following the same methodology used for the analyses in *Section IV*, we next use regression analysis to analyze each of the eleven sectors of the wellness economy (measured as the logarithm (log) of wellness sector spending per capita) and their relationships to five indicators of health outcomes. The results for this analysis are summarized in *Table 4* below (see *Appendix Tables 4-8* for full details).

TABLE 4: WELLNESS ECONOMY PER CAPITA AND HEALTH OUTCOME INDICATORS

(log value per capita)	Dependent Variables (Coefficients):				
	Life Expectancy	**Healthy Life Expectancy**	**Infant Mortality Rate**	**Under-Five Mortality Rate**	**Premature Deaths from 4 NCDs**
Healthy eating	0.607*	**0.767****	-1.680*	-2.275*	-0.689
Physical activity	**1.263****	0.643	-2.051	-3.531	-0.759
Mental wellness	0.496	0.519*	**-2.284*****	**-3.265****	-0.813*
Wellness real estate	0.458	0.245	-1.246	-1.913*	-0.154
Workplace wellness	**1.225*****	**0.861****	**-3.534*****	**-5.513*****	**-1.236****
Traditional & complementary medicine	**1.514*****	**1.173*****	**-3.394****	**-3.863****	-0.919
Public health & prevention	0.199	-0.305	-0.398	-0.599	0.344
Personal care & beauty	**1.232****	**1.182*****	**-2.335****	**-3.023****	-1.335
Spas	**1.121*****	**0.814*****	**-3.805*****	**-6.242*****	**-0.701****
Thermal/mineral Springs	**0.420*****	**0.438*****	**-0.734****	**-1.147****	-0.481*
Wellness tourism	**1.098*****	**0.734*****	**-3.574*****	**-5.817*****	**-0.619****

Note: Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

To aid readers in understanding this table, coefficients showing a moderate or strong, and statistically significant, relationship are marked in bold red font.

*Each coefficient in this table represents the result of a separate regression analysis between wellness sector spending per capita and each individual health indicator. **The coefficients cannot be directly compared with one another to assess relative strength of relationships**, because the measurement scales for the various health indicators are not all the same. The wellness subsectors do not enter the regression model together due to multicollinearity.*

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This summary table presents the coefficients and the statistical significance of 55 discrete regression analyses (11 wellness sectors x five health outcome indicators). It is very important that readers <u>do not compare the size of the coefficients across sectors</u> (vertically) or across health indicators (horizontally) because each regression analysis and its results should be interpreted individually.

The results of the wellness sector-level regression analysis are in many ways similar to the results for the overall wellness economy analysis (presented in *Section IV*):

- Four of the health outcome variables (life expectancy, healthy life expectancy, and both mortality rates) show moderate to strong relationships with 7 out of the 11 wellness sectors (statistically significant at the 1% or 5% level).

- The health outcome variable for risk of premature death from four NCDs shows a moderate to strong relationship with 3 of the wellness sectors (statistically significant at the 5% level).

- Looking across the wellness sectors:

  - Three sectors show moderate/strong relationships with all of the health outcome variables: workplace wellness, spas, and wellness tourism (statistically significant at the 1% or 5% level).

  - Three sectors show moderate/strong relationships with 4 out of the 5 health outcome variables: traditional & complementary medicine, personal care & beauty, and thermal/mineral springs (statistically significant at the 1% or 5% level).

  - Two sectors have no statistically significant relationships with the health outcome variables: wellness real estate and public health & prevention.

Interpretation and Implications: Eleven Wellness Economy Sectors and Health

As discussed above, 6 out of the 11 wellness sectors (workplace wellness, spas, wellness tourism, traditional & complementary medicine, personal care & beauty, and thermal/mineral springs) show significant and strong relationships with most or all of the health outcome indicators, while 5 sectors (mental wellness, healthy eating, physical activity, wellness real estate, public health & prevention) show few or no statistical relationships with health. There are many reasons why wellness sector spending may be correlated with health, and in some cases the statistical relationships may be due to confounding factors that underpin different types of wellness spending as well as health outcomes (as discussed further below). Conversely, the lack of a statistically significant relationship between some wellness sectors and health in this analysis does not necessarily mean that a relationship does not exist (see further discussion below).

Many wellness sectors are strongly and positively correlated with health outcome indicators at the country level.

- **The wellness sectors that are most associated with leisure and self-care – wellness tourism, spas, thermal/mineral springs, wellness tourism, traditional & complementary medicine, and personal care & beauty – show the strongest relationships to many health outcome indicators in the statistical analysis.** This finding might come as a surprise to those who are skeptical of the leisure and self-care aspects of wellness. Wherever people are in their life cycle and no matter the circumstances, they can benefit from leisure and self-care. This result may be a call for increasing diversity and inclusion in these wellness modalities, so that they don't overly emphasize the high-end market, and so that they become as widely accessible and affordable as possible. We also cannot rule out the possibility that there is a confounding factor (and not just the spending in these wellness sectors), that is behind their statistical relationships with health outcomes. For example, countries with well-developed markets and spending in sectors such as spas, wellness tourism, and personal care & beauty tend to have a higher level of development and better healthcare infrastructure; therefore, it may be an underlying level of development and healthcare that is driving both higher spending on leisure/self-care and higher health outcomes. Though our statistical model has controlled for GDP per capita to account for these underlying factors, it may not fully capture all of them, since GDP per capita is a not a perfect measurement of countries' development levels.

- **Workplace wellness is the only sector that shows a strong and statistically significant correlation with happiness and all of the health outcome indicators across countries.** Keep in mind that these relationships may be driven by underlying employment characteristics other than the workplace wellness expenditures themselves. GWI's measurement of expenditures on workplace wellness is underpinned by a number of economic and employment characteristics across countries, including the share of workers employed in the formal economy, the share of workers employed in permanent contract jobs with benefits, and the share of workers employed in mid- to large-sized organizations. Therefore, the statistical findings likely reflect the fact that countries with a high level of workplace wellness spending tend to be more developed countries with a higher share of workers employed in stable, "good" jobs with benefits.

For some wellness sectors, there is little or no statistical relationship with health outcome indicators because spending money on a wellness activity is not always a good indicator of actually engaging in wellness and healthy behaviors.

- It may come as a surprise that wellness sectors such as **healthy eating, physical activity, mental wellness, and wellness real estate show much weaker relationships with health indicators** – even though these aspects of wellness (i.e., eating healthy food, engaging in physical activity, cultivating mental resilience, and living in a healthy built environment) are widely documented to impact health outcomes. **We believe that the reason for the lack of statistical correlations in our model is because for these sectors/activities, a higher level of spending is not a good proxy indicator for actually engaging in these aspects of wellness or reaping their benefits.** For example:

  - Spending a lot of money on gym memberships, fitness apparel, and fitness technology does not mean that people are engaging in a sufficient level of physical activity (or are

even exercising at all). In countries where public facilities and free opportunities to exercise are limited, there may be a very small slice of the population spending a lot of money on physical activity, while the rest of the population is inactive. Conversely, in countries with many low-cost, free, and accessible facilities for exercise, or where people engage in more natural movement through walking or other daily activities, physical activity rates may be high while per capita spending may be low.

- Similarly, spending money on mental wellness products and services (e.g., meditation apps, sleep gadgets) does not equate to higher engagement with mental wellness modalities and practices.

- In wellness real estate, higher spending levels may reflect growing consumer demand to counteract the negative impacts of a fundamentally unhealthy physical/built environment in their city or region. Conversely, in regions that already have healthy physical environments (e.g., green space, walkability, clean air, etc.) people do not need to spend money to reap the health benefits of these environmental features.

- GWI's measurement of the healthy eating sector captures packaged/processed foods that are labelled/marketed as healthy (e.g., fortified and functional foods, reduced sugar products), as well as vitamins, supplements, and weight loss products. There is limited scientific evidence that consumption of any of these types of products is an important part of what doctors, nutritionists, and scientists consider a "healthy diet" (which would include fresh produce, whole grains, etc.). Therefore, it is not surprising that spending in the "healthy eating" sector lacks statistical relationships with health outcomes.

- **We did not find statistical relationships between public health & prevention and any of the five health outcome indicators; however, this finding should not be taken to mean that public health and prevention do not matter to health outcomes.** This finding is probably due to the fact that patterns of spending on public health/prevention are closely tied to countries' level of development, patterns of overall health expenditures, and other factors. Low- and lower-middle income countries with the poorest health outcomes (especially in Africa) tend to spend a larger share of their health budgets on basic prevention and primary health services (often supported by donor aid), while there is less money available for advanced and specialized treatment and expensive pharmaceuticals.[6] Meanwhile, highly developed countries with very high overall health expenditures may spend a lot of money on public health/prevention on a per capita basis, but also do not necessarily have the best health outcomes (e.g., the United States). This may be yet another area where expenditures on public health/prevention at the country level are not a good indicator of how equitably and effectively this money is spent, or of whether the system is engaging enough people or reaching the at-risk people who would benefit from it the most.

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[6] See: WHO (2019). *Global Spending on Health: A World in Transition.* WHO/HIS/HGF/HFWorkingPaper/19.4. Geneva, Switzerland: WHO. https://www.who.int/publications/i/item/WHO-HIS-HGF-HFWorkingPaper-19.4.

VII. Key Takeaways

Overall Findings

- This study is the first-ever global analysis of wellness, happiness, and health, based on the most comprehensive data available for wellness and happiness. While some recent studies have explored the relationships between happiness and the United Nations' Sustainable Development goals (SDGs) – which includes good health and well-being (SDG 3) – to date no one has incorporated wellness spending into the happiness equation. This study examines the nexus of wellness spending, health, and happiness, in a collaboration between GWI and a key author and statistician for the *World Happiness Report*.

- Overall, this study shows that there is a strong correlation between wellness, happiness, and health, after we control for confounding factors such as wealth, population size, and regional and time differences. Furthermore, we have found that spending in many individual wellness sectors has strong correlations with happiness and health outcomes. While we cannot go further to say that these are casual relationships, they are significant findings nonetheless. In the future, as more wellness and happiness data are available over a longer time span, we will be able to update this analysis and produce more robust findings.

Wellness and Happiness

- The wellness economy is strongly and positively correlated with happiness at the country level. It is possible that this correlation is related to people's *ability to spend money*, rather than the wellness expenditures themselves. When people have enough disposable income to be able to spend money on wellness, it may contribute to a feeling of happiness, life satisfaction, or control over their lives.

- Many individual wellness sectors are strongly and positively correlated with happiness at the country level: workplace wellness, wellness real estate, healthy eating, physical activity, thermal/mineral springs, wellness tourism, and public health & prevention. The strength of these relationships varies, with some sectors (workplace wellness, healthy eating) having a stronger relationship with happiness, while others have a weaker relationship (thermal/mineral springs).

Wellness and Health

- The wellness economy is strongly and positively correlated with several health outcomes at the country level, including life expectancy, healthy life expectancy, infant mortality rate, under-five mortality rate, and risk of premature death from four NCDs. Although our statistical model controls for country wealth (measured by GDP per capita), it is possible that these relationships are also driven by a confounding factor, such as countries' health systems or overall level of development.

- The wellness sectors that are most associated with leisure and self-care (wellness tourism, spas, thermal/mineral springs, traditional & complementary medicine, and personal care & beauty) show the strongest relationships to many health outcome indicators in the statistical analysis.

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- Workplace wellness is the only sector that shows a strong and statistically significant relationship with all five of the health outcome indicators as well as happiness across countries. However, these relationships may be driven by underlying employment characteristics other than the workplace wellness expenditures themselves.

- For some wellness sectors, there is little or no statistical relationship with health outcome indicators because spending money on a wellness activity is not always a good indicator of actually engaging in wellness and healthy behaviors (e.g., healthy eating, physical activity, mental wellness, wellness real estate).

Caveats

- **Correlation does not mean causation**, so we cannot definitively say that wellness spending *causes* better happiness or health outcomes.

- Since this analysis looks at country averages for health outcomes and wellness spending, **one should not interpret the results on an individual level** (e.g., "If I spend 10% more on wellness then I will live 3 months longer."). Country-level statistical analysis may not translate into individual-level implications.

Concluding Thoughts

These statistical analyses provide some insights into the relationships between wellness spending and various health and happiness outcomes. For governments seeking the most effective and efficient use of limited resources, they imply that in some circumstances, allocating funds to support wellness activities may help to improve health and well-being outcomes. However, while the results may make intuitive sense, we cannot rely solely on these statistical analyses to predict value-added in any circumstance. Certainly, our analysis demonstrates the need for further empirical research in this field of inquiry. There is a clear case for public and private sector funding to support research on the relationships among wellness spending, wellness activities, happiness, and health outcomes. Having further empirical evidence of the role of wellness spending and activities can help with future policy and program decision-making.

For industry leaders contemplating investments in various wellness sectors, this report may serve to educate potential public partners and assist in advocating for policies and programs to support impactful and cost-effective wellness services and initiatives. Wellness industry leaders understand the value of these goods, services, and practices to their customers. This initial analysis takes a welcome step toward finding empirical support for why national and local policymakers should explore wellness policy to support their citizens' health and well-being.

Appendix Tables

TABLE 1. WELLNESS ECONOMY AND HAPPINESS INDICATORS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Dependent Variables (Coefficients):				
	Cantril Ladder	Positive Affect	Enjoy	Laugh	Learning	Negative Affect	Sadness	Worry	Anger
Wellness economy per capita (1,000$)	0.448***	0.0303*	0.0335	0.00396	0.0543***	-0.0192	-0.0125	-0.0337	-0.0120
	(0.148)	(0.0182)	(0.0247)	(0.0167)	(0.0204)	(0.0148)	(0.0130)	(0.0219)	(0.0154)
Log GDP per capita	0.357***	0.0269**	0.0274*	0.0289*	0.0229	-0.0440***	-0.0458***	-0.0481***	-0.0376***
	(0.109)	(0.0124)	(0.0149)	(0.0147)	(0.0146)	(0.0118)	(0.0118)	(0.0162)	(0.0113)
Log population	0.00200	0.00125	0.00227	2.89e-05	0.00115	-0.00177	0.00155	-0.00515	-0.00184
	(0.0308)	(0.00448)	(0.00592)	(0.00481)	(0.00521)	(0.00379)	(0.00350)	(0.00589)	(0.00363)
Constant	2.138*	0.331**	0.350**	0.437***	0.220	0.775***	0.689***	1.040***	0.594***
	(1.163)	(0.136)	(0.175)	(0.165)	(0.150)	(0.120)	(0.127)	(0.170)	(0.114)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	399	396	396	399	399	396	396	396	396
Adj. R-squared	0.716	0.498	0.395	0.447	0.523	0.443	0.468	0.337	0.483

Notes: Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 2: WELLNESS ECONOMY AND HEALTH INDICATORS

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Health Indicators				
	Life Expectancy	Healthy Life Expectancy	Infant Mortality Rate (Deaths per 1,000 live births)	Under-Five Mortality Rate (Deaths per 1,000 live births)	Risk of Premature Death from 4 Non-communicable Diseases (30<=age<=70, %)
Log wellness economy per capita	2.744***	2.039***	-7.175***	-10.08***	-2.646**
	(0.650)	(0.703)	(2.074)	(2.867)	(1.135)
Log GDP per capita	-0.150	0.292	-1.005	-1.186	-0.173
	(0.869)	(0.886)	(2.900)	(3.891)	(1.297)
Log Population	-0.0564	0.151	0.0248	0.366	-0.548**
	(0.132)	(0.133)	(0.385)	(0.567)	(0.233)
Constant	63.75***	50.47***	67.52***	87.17***	40.61***
	(6.456)	(6.085)	(21.04)	(29.27)	(9.369)
Region dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Observations	546	176	551	551	352
Adj. R-squared	0.841	0.802	0.773	0.772	0.650

Notes: The 4 non-communicable diseases in column (5) include cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases. Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 3: SUBSECTOR OF WELLNESS ECONOMY AND LIFE EVALUATION

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Cantril Ladder										
Healthy eating	1.737*** (0.589)										
Physical activity		1.676*** (0.465)									
Wellness real estate			2.177*** (0.712)								
Spas				1.207 (1.514)							
Thermal/mineral springs					0.466*** (0.144)						
Traditional and complementary medicine						-1.374 (1.380)					
Wellness tourism							0.399*** (0.128)				
Workplace wellness								25.45*** (4.476)			
Mental wellness									3.410 (3.664)		
Personal care and beauty										0.701* (0.367)	
Public health and prevention											2.782** (1.101)
Log GDP per capita	0.418*** (0.0992)	0.401*** (0.0986)	0.521*** (0.0907)	0.594*** (0.0900)	0.549*** (0.0897)	0.575*** (0.101)	0.520*** (0.0904)	0.355*** (0.0992)	0.497*** (0.0990)	0.426*** (0.111)	0.453*** (0.0999)
Log Population	-0.00320 (0.0305)	-0.0175 (0.0306)	-0.00485 (0.0288)	-0.0156 (0.0334)	-0.00241 (0.0307)	-0.00568 (0.0301)	0.00243 (0.0303)	0.00792 (0.0298)	-0.0277 (0.0348)	0.00440 (0.0311)	-0.0138 (0.0302)
Constant	1.645 (1.127)	2.088* (1.136)	1.089 (1.073)	0.609 (1.120)	0.950 (1.109)	0.906 (1.163)	0.988 (1.114)	1.924* (1.091)	1.856 (1.246)	1.833 (1.180)	1.818 (1.150)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	399	399	399	371	399	399	397	399	255	399	399
Adj. R-squared	0.712	0.716	0.705	0.704	0.696	0.695	0.699	0.732	0.680	0.704	0.704

Notes: The value of each wellness sector is at the per capita level ($1,000). Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 4: SUBSECTOR OF WELLNESS ECONOMY AND LIFE EXPECTANCY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Life Expectancy										
Log healthy eating	0.607* (0.317)										
Log physical activity		1.263** (0.579)									
Log wellness real estate			0.458 (0.280)								
Log spas				1.121*** (0.215)							
Log thermal/mineral springs					0.420*** (0.138)						
Log traditional and complementary medicine						1.514*** (0.439)					
Log wellness tourism							1.098*** (0.189)				
Log workplace wellness								1.225*** (0.380)			
Log mental wellness									0.496 (0.324)		
Log personal care and beauty										1.232** (0.497)	
Log public health and prevention											0.199 (0.430)
Log GDP per capita	2.099*** (0.555)	1.181 (0.863)	1.568* (0.805)	1.251** (0.497)	1.487*** (0.467)	1.488** (0.586)	1.265** (0.497)	1.126 (0.707)	1.846*** (0.664)	1.352** (0.656)	2.553*** (0.688)
Log population	-0.178 (0.150)	-0.187 (0.146)	-0.257* (0.138)	0.234 (0.175)	0.0957 (0.170)	-0.276* (0.150)	0.199 (0.148)	-0.0103 (0.167)	-0.303** (0.144)	-0.0871 (0.147)	-0.144 (0.146)
Constant	58.19*** (6.214)	64.36*** (7.751)	67.32*** (8.432)	59.58*** (5.957)	63.00*** (5.892)	63.05*** (6.368)	58.13*** (5.874)	65.26*** (6.813)	64.99*** (7.369)	60.74*** (5.856)	55.42*** (6.785)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	546	546	312	504	320	546	533	524	354	546	546
Adj. R-squared	0.826	0.830	0.826	0.849	0.830	0.835	0.856	0.836	0.810	0.833	0.822

Notes: The log value of each wellness sector is at the per capita level. Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 5: SUBSECTOR OF WELLNESS ECONOMY AND HEALTHY LIFE EXPECTANCY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Healthy Life Expectancy										
Log healthy eating	0.767** (0.365)										
Log physical activity		0.643 (0.586)									
Log wellness real estate			0.245 (0.318)								
Log spas				0.814*** (0.223)							
Log thermal/mineral springs					0.438*** (0.125)						
Log traditional and complementary medicine						1.173*** (0.384)					
Log wellness tourism							0.734*** (0.201)				
Log workplace wellness								0.861** (0.371)			
Log mental wellness									0.519* (0.287)		
Log personal care and beauty										1.182*** (0.414)	
Log public health and prevention											-0.305 (0.449)
Log GDP per capita	1.648*** (0.550)	1.623* (0.841)	1.637** (0.806)	1.463*** (0.457)	1.117** (0.449)	1.468*** (0.507)	1.387*** (0.466)	1.178* (0.663)	1.477** (0.595)	1.086* (0.571)	2.723*** (0.614)
Log population	0.0690 (0.143)	0.0504 (0.142)	-0.00136 (0.162)	0.329* (0.179)	0.290 (0.183)	-0.0353 (0.146)	0.291* (0.151)	0.140 (0.152)	-0.0688 (0.148)	0.136 (0.140)	0.0570 (0.142)
Constant	47.76*** (5.821)	49.11*** (7.275)	52.59*** (8.537)	46.63*** (5.339)	53.40*** (5.588)	50.54*** (5.728)	47.14*** (5.365)	53.24*** (6.549)	54.53*** (6.918)	50.01*** (5.399)	42.36*** (6.103)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	125	162	106	176	174	172	172	176	176
Adj. R-squared	0.792	0.790	0.774	0.814	0.809	0.798	0.809	0.794	0.781	0.802	0.788

Notes: The log value of each wellness sector is at the per capita level. Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 6: SUBSECTOR OF WELLNESS ECONOMY AND INFANT MORTALITY RATE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Infant Mortality Rate (Deaths per 1,000 live births)										
Log healthy eating	-1.680* (0.853)										
Log physical activity		-2.051 (1.536)									
Log wellness real estate			-1.246 (0.830)								
Log spas				-3.805*** (0.655)							
Log thermal/mineral springs					-0.734** (0.365)						
Log traditional and complementary medicine						-3.394** (1.432)					
Log wellness tourism							-3.574*** (0.584)				
Log workplace wellness								-3.534*** (1.204)			
Log mental wellness									-2.284*** (0.873)		
Log personal care and beauty										-2.335** (0.955)	
Log public health and prevention											-0.398 (1.373)
Log GDP per capita	-6.679*** (1.608)	-5.957** (2.580)	-4.659* (2.390)	-3.539* (1.499)	-5.986*** (1.046)	-5.671*** (2.070)	-3.727** (1.467)	-3.718 (2.288)	-4.428** (1.739)	-5.823*** (1.816)	-8.110*** (2.294)
Log population	0.349 (0.446)	0.270 (0.437)	-0.0987 (0.470)	-1.206*** (0.460)	-0.775* (0.429)	0.472 (0.468)	-0.814** (0.410)	0.0397 (0.518)	0.833** (0.412)	0.168 (0.428)	0.205 (0.409)
Constant	79.66*** (18.48)	75.47*** (24.09)	60.17** (26.58)	76.73*** (16.90)	82.19*** (14.36)	72.65*** (21.47)	77.81*** (16.66)	55.32** (22.31)	46.15** (19.35)	77.98*** (18.86)	89.53*** (21.79)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	551	551	551	309	505	319	551	527	518	355	551
Adj. R-squared	0.772	0.758	0.755	0.758	0.792	0.752	0.761	0.807	0.772	0.750	0.759

Notes: The log value of each wellness sector is at the per capita level. Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 7: SUBSECTOR OF WELLNESS ECONOMY AND UNDER-FIVE MORTALITY RATE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Under-Five Mortality Rate (Deaths per 1,000 live births)										
Log healthy eating	-2.275* (1.199)										
Log physical activity		-3.531 (2.224)									
Log wellness real estate			-1.913* (1.126)								
Log spas				-6.242*** (0.997)							
Log thermal/mineral springs					-1.147** (0.554)						
Log traditional and complementary medicine						-3.863** (1.924)					
Log wellness tourism							-5.817*** (0.908)				
Log workplace wellness								-5.513*** (1.668)			
Log mental wellness									-3.265** (1.356)		
Log personal care and beauty										-3.023** (1.343)	
Log public health and prevention											-0.599 (1.839)
Log GDP per capita	-6.679*** (1.608)	-5.957** (2.580)	-4.659* (2.390)	-3.539* (1.499)	-5.986*** (1.046)	-5.671*** (2.070)	-3.727** (1.467)	-3.718 (2.288)	-4.428** (1.739)	-5.823*** (1.816)	-8.110*** (2.294)
Log population	0.349 (0.446)	0.270 (0.437)	-0.0987 (0.470)	-1.206*** (0.460)	-0.775* (0.429)	0.472 (0.468)	-0.814** (0.410)	0.0397 (0.518)	0.833** (0.412)	0.168 (0.428)	0.205 (0.409)
Constant	106.6*** (26.95)	95.32*** (33.94)	70.30* (37.10)	98.06*** (23.95)	97.64*** (19.32)	101.3*** (31.33)	103.1*** (23.51)	66.79** (30.84)	57.18** (26.06)	105.4*** (26.82)	119.8*** (30.67)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	551	551	309	505	319	551	527	518	355	551	551
Adj. R-squared	0.759	0.758	0.750	0.803	0.755	0.759	0.819	0.775	0.749	0.759	0.754

Notes: The log value of each wellness sector is at the per capita level. Robust standard errors clustered by country are reported in parentheses. *** , ** , and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

TABLE 8: SUBSECTOR OF WELLNESS ECONOMY AND RISK OF PREMATURE DEATH FROM 4 NON-COMMUNICABLE DISEASES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dependent Variable: Risk of Premature Death from 4 Non-Communicable Diseases (30<=age<=70, %)										
Log healthy eating	-0.689 (0.863)										
Log physical activity		-0.759 (0.947)									
Log wellness real estate			-0.154 (0.396)								
Log spas				-0.701** (0.344)							
Log thermal/mineral springs					-0.481* (0.248)						
Log traditional and complementary medicine						-0.919 (0.632)					
Log wellness tourism							-0.619** (0.277)				
Log workplace wellness								-1.236** (0.595)			
Log mental wellness									-0.813* (0.467)		
Log personal care and beauty										-1.335 (0.879)	
Log public health and prevention											0.344 (0.718)
Log GDP per capita	-2.238** (0.984)	-1.986 (1.308)	-2.488** (0.995)	-2.175*** (0.629)	-1.627* (0.886)	-2.195*** (0.726)	-2.174*** (0.632)	-1.108 (0.912)	-1.576* (0.846)	-1.440 (1.046)	-3.274*** (0.931)
Log population	-0.447* (0.238)	-0.424* (0.232)	-0.0234 (0.213)	-0.604* (0.310)	-0.428 (0.383)	-0.365 (0.236)	-0.669** (0.269)	-0.473* (0.245)	-0.278 (0.246)	-0.522** (0.238)	-0.436* (0.234)
Constant	45.76*** (9.536)	43.08*** (11.39)	38.48*** (10.93)	46.46*** (8.926)	36.12*** (12.02)	44.08*** (9.000)	48.26*** (8.836)	34.22*** (9.778)	34.47*** (10.58)	42.52*** (8.981)	51.08*** (9.882)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	352	352	179	324	212	352	348	344	172	352	352
Adj. R-squared	0.637	0.637	0.623	0.660	0.662	0.638	0.629	0.606	0.629	0.646	0.635

Notes: The log value of each wellness sector is at the per capita level. The 4 non-communicable diseases include cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases. Robust standard errors clustered by country are reported in parentheses. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

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Fountain Life brings together the world's most renowned medical and health experts to boost longevity and performance – putting the health back in health care. We do this by utilizing cutting-edge Artificial Intelligence (AI) to collect data and gain insights into the human body that have never been possible before. Our data-driven approach helps us to find illnesses (including cancer, and cardiac, metabolic and neurodegenerative disease) early, before they can cause harm. As a result, our members operate at peak performance throughout their life, ultimately feeling as healthy and vibrant at 100 as they were at 60.

BIOLOGIQUE RECHERCHE

biologique-recherche.com

For over 45 years, Biologique Recherche's unique methodology has built a strong reputation for astounding effectiveness based on a clinical approach to skincare, delivering immediate and long-lasting results. Combined with highly customized protocols and meticulous procedures which recondition the epidermis, Biologique Recherche's extensive range of skincare products are highly concentrated in botanical, marine and biological active ingredients that are formulated with no artificial fragrance in its own laboratory in France. Biologique Recherche is the partner of choice in over 85 countries for exclusive medical spas and day spas in addition to the world's premier luxury hotel spas.

BLUE ZONES CENTER

bluezonescenter.com

The Blue Zones Center & Legacy Hotel & Residences located in the Miami Worldcenter offer members and guests a place for higher well-being. The 220,000 sq. ft. Blue Zones Center's Health Zone™ combines 360-degree lifestyle transformation with the latest innovations in predictive, preventive, longevity medicine. Together with our partners and healthcare providers, we're helping people live healthier, happier, longer lives. In the Legacy Hotel's Hospitality Zone™ residents and guests will find a new level of luxury, comfort and integrated well-being. Everything from a world-class spa to Well-Being Suites™ that optimize mental and physical wellness.

NATURA BISSÉ
naturabisse.com

The journey of Natura Bissé is an ever-unfolding story: intuition, passion, perseverance, investigation and connecting with people are the essence of our skincare brand.Our products are crafted with honesty, integrity, science and tenderness. Formulated with high concentrations of advanced, innovative ingredients to accurately address every skin concern, they feature exceptional textures and aromas that awaken the senses, elevating beauty rituals into mindful personal moments.

TECHNOGYM
technogym.com

Technogym is a world leading brand in products and digital technologies for fitness, sport and health for wellness. Technogym offers a complete ecosystem of connected smart equipment, digital services, on-demand training experiences and apps that allow every single end-user to access a completely personalized training experience anytime and anywhere: at home, at the gym, on-the-go. Over 50 million people train with Technogym in 80,000 wellness centers and 500,000 private homes world-wide. Technogym has been an official supplier to the last eight Olympic Games and it's a brand of reference for sport champions and celebrities all over the world.

ART OF CRYO
artofcryo.com

We are honored to support the Global Wellness Institute on its mission to empower wellness strengthening the basis of our industry by research. Art of Cryo is the high-performance cryo-chamber brand by L&R Kältetechnik. We stand for our maxim "More than cold". More than cold stands not only for reliable service friendly lasting top edge products, but as well for thinking outside the box adding breath exercise and oxygen plasma during cryo treatments, individualized treatment times and treatment combinations. We are working on monitoring solutions to enhance the customer experience and giving real feedback to the guest and operator.

CANYON RANCH
canyonranch.com

Canyon Ranch is the pioneer in integrative wellness destinations inspiring guests to pursue a lifetime of wellbeing for over four decades. Guests are guided by world-class experts—from medical to metaphysical—who provide personalized care within our curated programs. This unique approach creates a sustainable wellness strategy for mind, body, and spirit by providing clarity, skills, and motivation for true transformation. Our resorts are in four breathtaking locations: Tucson, surrounded by the Catalina Mountains; Lenox, in the Berkshires; Woodside, within the Redwood Forest; and at The Venetian in Las Vegas.

CARILLON MIAMI WELLNESS RESORT
carillonhotel.com

Located along the shores of Miami Beach, Carillon Miami Wellness Resort presents an authentic and progressive approach to complete well-being welcoming guests to enjoy luxury travel and world-class wellness experiences. The resort is home to the largest spa on the Eastern Seaboard (70,000 sq. ft.) with an innovative touchless wellness division and a curated team of gifted practitioners and Board-Certified physicians, a one-of-a-kind Thermal Experience; personalized health retreats, and more. The resort features 150 spacious one- and two-bedroom luxury apartments, (720 – 1,200 sq. ft.), an array of recreational activities including a two-story indoor rock wall, group fitness classes and resort pools. Carillon promotes a path to a healthier lifestyle extending beyond each guest's stay.

HB REAVIS
hbreavis.com

We're an international workspace provider that designs, builds, and manages workspaces which enhance wellbeing and productivity. Since 1993, we've delivered over 1.5 million sq m/16 million sq feet of space. Today, over 75,000 people work in an HB Reavis-built workspace, and currently most of our operations are focused in the UK, Germany, Poland, and Slovakia. Our wellbeing-centric approach is everything to us. We help people to work more effectively on their own and through collaboration. We help people stay healthy, physically and mentally, and we help people get the most out of life, personally and professionally.

JOHN W. BRICK FOUNDATION

johnwbrickfoundation.org

The John W. Brick (JWB) Mental Health Foundation was founded by Victor and Lynne Brick, in honor of Victor's oldest brother John, who died of complications of schizophrenia. In all the years of his treatment, never once was he put on a well-rounded, fully integrated program that included healthy lifestyle practices. JWB is a non-profit organization that is changing the way the world treats mental health. Our purpose is to integrate salutogenic approaches, such as exercise, nutrition, and mind-body practices, into treating mental illness and promoting mental wellness.

MINDBODY

mindbodyonline.com

Mindbody is the leading experience technology platform for the fitness, wellness, and beauty industries. With the addition of ClassPass, the leading global fitness and wellness membership, to the Mindbody portfolio, consumers and wellness businesses around the world are easily connected through a rich wellness community. Fitness studios, salons, spas, and integrative health centers—from the newest entrepreneurs to the largest franchises—use Mindbody's integrated software and payments platform to run, market, and grow their businesses. Consumers use Mindbody and ClassPass to choose from a broad range of wellness experiences across thousands of gyms, exercise studios and wellness providers around the globe. For more information on how Mindbody is helping people lead healthier, happier lives by connecting the world to wellness, visit mindbodyonline.com.

RANCHO LA PUERTA

rancholapuerta.com

Rancho La Puerta Wellness Resort & Spa is more than a grand getaway. It's a revelation about what matters—the door to a new way of being. Hike some of the West's most picturesque trails. Try cycling or salsa, water polo or yoga, Pickleball, or painting. Sink into a mountain sage massage and float under the Baja California sun. Farm-to-table meals are served under convivial skies. Travel magazines rate us one of the world's best destination spas. Just an hour from San Diego, we offer Mexican hospitality that feels like home.

RANCHO MISSION VIEJO

ranchomissionviejo.com

Rancho Mission Viejo, a 23,000-acre master planned community in south Orange County, California, was intentionally developed on a foundation of wellness. The Ranch promotes living well with incomparable access to nature, amenities, people and programs that make pursuing all dimensions of wellness a part of every age and stage of life. The land is our brand – 17,000 acres of it are permanently preserved through the Reserve at Rancho Mission Viejo, ensuring it remains so, forever.

SIX SENSES

sixsenses.com

Six Senses creates places that live in total harmony with the local environment – from remote islands and urban hotels to mountain retreats and desert dunes. All properties share a commitment to community, sustainability, and well-being, infused with a touch of quirkiness. Guests can tap into the good vibes, groundbreaking sleep standards, and pioneering wellness integrated into every moment of their stay. Experiences are crafted to be out-of-the-ordinary to reawaken all the senses so that guests want for nothing and remember everything. The enduring purpose is to help people reconnect with themselves, others and the world around them.

UNIVERSAL COMPANIES

universalcompanies.com

For more than 40 years, Universal Companies has helped spas manage and grow their businesses. As a trusted primary supplier for 80,000+ active customers worldwide, we've developed exclusive brand partnerships, revenue-sharing retail strategies, and a robust educational platform. Spa development and expansion, including design and equipment solutions, are also core components of our service offerings. From award-winning space planning to feasibility studies and global consolidation, our team delivers everything you need to create superior spa experiences. UCo has been honored with American Spa's Professional's Choice Award since 2005.

VELVÆRE

velvaereparkcity.com

Magleby Development recently announced the groundbreaking of Velvære, a thoughtfully-envisioned wellness community adjacent to Park City's iconic Deer Valley Resort, positioned within America's newest ski resort currently under development by Extell Utah. Dedicated to providing residents and members a wellbeing and adventure-centric lifestyle, Velvære embraces nature and intentional living. The 60-acre community features 115 residences, along with two amenity centers: a state-of-the-art Wellness Center featuring holistic and transformative hyper-wellness experiences and an Adventure Center, providing the perfect jumping off point for year-round outdoor recreation, from direct ski-in/ski-out access, hiking, and mountain biking to other wilderness activities, serving as the ultimate Utah basecamp.

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