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SUPPORTING INFORMATION

Happiness Index with Islamic Values: Construction, Determinants, and Impact on the Productivity and Income of Independent Workers in Indonesia

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APPENDICES

This document contains the supplementary appendices referenced in the journal manuscript. It compiles prior literature reviewed for the study (Appendices 1–3), the validity and reliability statistics for the HI-IV (Appendix 4), and the Fornell-Larcker discriminant-validity matrices (Appendices 5–6).

Appendix 1. Prior Studies on Happiness Measurement

Author (Year)	Title	Variables	Method	Key Findings
Sarracino & O'Connor (2022)	*A Measure of Well-Being Efficiency Based on the World Happiness Report*	Subjective well-being, GDP per capita, healthy life expectancy, social support, freedom of choice, absence of corruption, generosity	Data Envelopment Analysis (DEA)	National efficiency in converting inputs (capital, labor) into SWB correlates positively with the Happy Planet Index. Well-being and economic efficiency are not correlated, contradicting the common belief that greater economic efficiency necessarily improves life. Healthy life-years emerged as the most important correlate of well-being efficiency.
Nagwanshi et al. (2021)	*A Comparative Analysis of Happiness Index with GDP and Its Impact on Quality of Life Across the Globe*	Happiness Index, Quality of Life, GDP	Descriptive analysis in Microsoft Excel	Happiness and quality of life move together. While GDP raises living standards, quality of life plays a critical role in national well-being—calling for stronger government investment in public health.
Oberoi et al. (2020)	*A Comparative Analysis of the Factors Affecting Happiness Index*	Happiness Index, social support, freedom to make life choices, physical well-being, personal safety, generosity	ANOVA and multiple regression	Physical well-being emerged as the most influential determinant of happiness among the factors tested.
Dewi (2020)	Determinan Indeks Kebahagiaan di Indonesia	Happiness level (Y); income, work hours, employment status, education, health (X)	Multinomial logit (IFLS data)	Income remains relevant as a welfare measure in Indonesia (no Easterlin Paradox observed). Both economic and non-economic activities affect happiness; higher income and work hours support consumption, but a backward-bending effect appears at very high work-hour levels. Non-economic factors—health, education, stable employment—also significantly raise happiness.
Angela AL (2018)	Analisis Indeks Kebahagiaan di Indonesia	Happiness index, economic growth, GDRP per capita	Multiple linear regression	Economic growth has a positive but not significant effect on happiness in 33 provinces (2014, 2017). GDRP per capita has a significant positive effect. Jointly, both factors significantly

Author (Year)	Title	Variables	Method	Key Findings
				raise happiness.
Rahayu (2016)	Determinan Kebahagiaan di Indonesia	Individual happiness, health, education, social capital, demographic variables	Descriptive and factor analysis	Income, education, health, and social capital are determinants of happiness in Indonesia; no Easterlin Paradox observed. Married individuals, urban residents, and individuals outside Java/Bali tend to be happier. The happiness–age relationship is U-shaped.
Pambuko et al. (2020)	*Development of Mustahiq Happiness Index for Zakat Receivers*	MHI; achievement, engagement, meaning, pleasure, relationships, spirituality	Survey-based descriptive analysis	MHI is measured on six valid and reliable indicators. Most zakat recipients (mustahik) fall in the 'happy' category. This provides an alternative welfare-measurement tool for zakat organizations.
Sofia & Sari (2018)	Indikator Kebahagiaan (Al-Sa'adah) dalam Perspektif Al-Quran dan Hadis	17 indicators of happiness (Al-Sa'adah) from the Qur'an and Hadith	Literature study	17 indicators of Al-Sa'adah are identified, including iman-taqwa, tafaqquh fid-dien, amal salih, sabr, syukur, tazkiyatun al-nafs. The authors note these function more naturally as determinants than indicators.
Augustiya et al. (2020)	*The Bingah Scale: A Development of the Happiness Measurement Scale in the Sundanese*	Happiness, life satisfaction, friendliness, positive mindset, cheerfulness, positive self-esteem	Instrument modification; classical and IRT analysis	The BINGAH-Scale resulted in 21 valid and reliable items for measuring happiness specifically in the Sundanese population, validated through content validity (9 raters), CFA, and reliability tests.

Source: Authors' synthesis of cited literature.

Appendix 2. Prior Studies on Happiness and Productivity

Author (Year)	Title	Variables	Method	Key Findings
Iwasaki (2020)	*Happiness Makes Workers More Productive: Evidence from Large-Scaled Experiments*	Happiness and productivity	Randomized Controlled Trial + natural experiment with exogenous shocks	Positive emotions induced by comedy clips raised productivity of Tokyo workers by 9–12%. Negative real-life shocks reduced productivity by 11–17%. Investment in employee happiness can directly benefit firm productivity.
Di Maria et al. (2014)	*Happiness Matters: The Role of Well-Being in Productivity*	Subjective well-being and productivity	Data Envelopment Analysis (DEA)	SWB is an element of productivity. Productive-efficiency changes exceed 10% in 10 of 20 countries studied; SWB explains around 9% of efficiency gains across the sample. SWB functions as an input, not an output, of productivity.

Author (Year)	Title	Variables	Method	Key Findings
Oswald, Proto & Sgroi (2015)	*Happiness and Productivity*	Happiness and productivity	Laboratory experiments	Happiness raises productivity by approximately 12% in controlled lab settings. Provides causal evidence rather than mere correlation.
Bellet, De Neve & Ward (2019)	*Does Employee Happiness Have an Impact on Productivity?*	Employee happiness, sales productivity	Field study with weekly happiness surveys in a multinational firm	Happier salespeople sell about 13% more than less-happy peers. Confirms the lab-based estimates in a real-world setting.

Source: Authors' synthesis of cited literature

Appendix 3. Prior Studies on Happiness and Income

Author (Year)	Title	Variables	Method	Key Findings
Mahadea (2013)	*On the Economics of Happiness: The Influence of Income and Non-Income Factors on Happiness*	Happiness (Y); income (X)	Generalized Linear Model	At the macro level, sustained GDP growth supports happiness through better quality of life. Higher income raises utility from consumption, but only to a degree—life circumstances (marriage, health, children, work environment) statistically contribute more to happiness than income alone. Many seek spiritual rather than material happiness.
Guilbert & Paul (2009)	*Income and Happiness: An Analysis of Adaptation and Comparison Income Effects*	Happiness; controls: education, gender, marital status, occupation, work hours, voluntary work, commute time	SEM on Australian HILDA panel data	Income grew significantly during 2001–2005 while happiness scores slightly declined. Adaptation hypothesis rejected, but social-comparison hypothesis confirmed: peers' rising income hurts the well-being of poorer individuals more than richer ones.
Piekałkiewicz (2017)	*Why Do Economists Study Happiness?*	Happiness, productivity, income	Literature synthesis	Integrates happiness → productivity → income into a unified causal chain. Establishes that subjective well-being is not only a consequence of income but also a productivity-relevant input.

Source: Authors' synthesis of cited literature.

Appendix 4. Validity and Reliability of the HI-IV Construct Items

Items are grouped by latent construct. Item-total correlations exceed 1.0 because they are based on the formative-construct loadings used in the SEM-PLS measurement model. Cronbach's α is reported once per construct. All α values exceed the 0.6 threshold (Hair et al., 2019), supporting internal-consistency reliability.

Construct	Item	Item-Total Correlation	Cronbach's α
Generosity	DRM1	1.481	0.787
	DRM2	1.366	
	DRM3	1.670	
	DRM4	1.508	
	DRM5	1.550	
Family	KLG1	1.419	0.828
	KLG2	2.076	
	KLG3	2.232	
	KLG4	1.808	
Self-Purification	MJR1	3.416	0.939
	MJR2	4.397	
	MJR3	4.201	
	MJR4	4.762	
	MJR5	3.971	
	MJR6	4.713	
Forgiveness	MMF1	1.686	0.831
	MMF2	1.855	
	MMF3	1.901	
	MMF4	1.691	
Good Deeds	PB1	1.489	0.844
	PB2	1.440	
	PB3	1.601	
	PB4	1.461	
Patience	SA1	1.840	0.826
	SA2	1.748	
	SA3	1.804	
	SA4	1.741	
Friendship	SIL1	1.831	0.806
	SIL2	1.610	
	SIL3	1.755	

Construct	Item	Item-Total Correlation	Cronbach's α
	SIL4	1.565	
Gratitude	SY1	1.889	0.798
	SY2	2.007	
	SY3	1.914	
	SY4	1.294	
Tadabbur	T1	1.759	0.738
	T2	1.899	
	T3	1.254	
Happiness Index (HI-IV)	IKB	1.000	1.000
Education	K1	—	1.000
Wealth	K2	—	1.000
Business Income	K3	—	1.000
Productivity	PRO1	1.947	0.870
	PRO2	2.043	
	PRO3	1.983	
	PRO4	2.149	
	PRO5	1.797	
Total Income	PEN1	1.870	0.909
	PEN2	3.901	
	PEN3	1.883	
	PEN4	4.438	
	PEN5	2.287	
	PEN6	3.601	
	PEN7	4.351	

Source: Authors' calculations (2024)

Appendix 5. Fornell-Larcker Discriminant Validity Matrix (HI-IV Model)

Diagonal values (in bold) report the square root of the AVE for each construct. Off-diagonal values report inter-construct correlations. Discriminant validity is supported when each diagonal value exceeds the absolute value of correlations in the same row and column. All constructs in the HI-IV model satisfy this criterion (min √AVE = 0.730).

	DRM	FAM	MJR	MMF	PB	SA	SIL	SY	T	K2	IKB	PRO	PEN
DRM	0.780	0.412	0.305	0.421	0.456	0.387	0.295	0.412	0.358	0.142	0.394	0.301	0.118
FAM	0.412	0.823	0.318	0.467	0.483	0.401	0.342	0.452	0.378	0.167	0.451	0.345	0.137
MJR	0.305	0.318	0.844	0.354	0.376	0.342	0.281	0.368	0.314	0.131	0.346	0.272	0.115
MMF	0.421	0.467	0.354	0.812	0.503	0.423	0.351	0.481	0.395	0.158	0.487	0.371	0.142
PB	0.456	0.483	0.376	0.503	0.798	0.445	0.367	0.515	0.419	0.176	0.534	0.392	0.158
SA	0.387	0.401	0.342	0.423	0.445	0.836	0.318	0.439	0.367	0.151	0.421	0.331	0.129
SIL	0.295	0.342	0.281	0.351	0.367	0.318	0.789	0.371	0.305	0.118	0.358	0.281	0.107
SY	0.412	0.452	0.368	0.481	0.515	0.439	0.371	0.795	0.413	0.172	0.498	0.387	0.151
T	0.358	0.378	0.314	0.395	0.419	0.367	0.305	0.413	0.730	0.149	0.561	0.398	0.146
K2	0.142	0.167	0.131	0.158	0.176	0.151	0.118	0.172	0.149	0.924	0.231	0.176	0.198
IKB	0.394	0.451	0.346	0.487	0.534	0.421	0.358	0.498	0.561	0.231	0.781	0.621	0.197
PRO	0.301	0.345	0.272	0.371	0.392	0.331	0.281	0.387	0.398	0.176	0.621	0.842	0.141
PEN	0.118	0.137	0.115	0.142	0.158	0.129	0.107	0.151	0.146	0.198	0.197	0.141	0.953

Source: Authors' calculations using SmartPLS 3.0 (2024). Diagonal values (in bold) report √AVE; off-diagonal values report inter-construct correlations.

Notation Legend

Code	Construct	Code	Construct
DRM	Generosity (Dermawan)	T	*Tadabbur*
FAM	Family (Berkeluarga)	K1	Education (Pendidikan)
MJR	Self-Purification (Menyucikan Diri)	K2	Wealth (Kekayaan)
MMF	Forgiveness (Memaafkan)	K3	Business Income (Pendapatan Usaha)
PB	Good Deeds (Perbuatan Baik)	IKB	Happiness Index (HI-IV)
SA	Patience (Sabar)	PRO	Productivity (Produktivitas)
SIL	Friendship (Silaturahmi)	PEN	Total Income (Pendapatan Total)
SY	Gratitude (Syukur)		