

# THE RELATIONSHIP BETWEEN LEISURE, INCOME AND HAPPINESS: COMPARING THE LABOR-LEISURE TRADE-OFF AND LEISURE SATISFACTION THEORIES

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**Abstract:** *This study compares two competing theories that explain the relationship among income, leisure, and happiness: the labor–leisure trade-off from microeconomics, which predicts a negative correlation between income and leisure time, and the leisure satisfaction theory from psychology, which predicts a positive correlation between leisure time and happiness. Using 2023 data from the UK Office for National Statistics, the study analyzes aggregated averages for five age groups through linear regression and Pearson’s correlation in R software. The results reveal stronger positive correlations between leisure time and happiness ( $r$  up to 0.96) than negative correlations between income and leisure time ( $r$  up to  $-0.615$ ), supporting the leisure satisfaction theory over the labor–leisure trade-off model. Although the small sample size and data aggregation limit the generalizability of findings, the results underscore the greater importance of leisure for well-being compared with income alone and highlight the need to integrate economic and psychological perspectives in research on subjective well-being.*

**Keywords:** *leisure; income; happiness; labor–leisure trade-off; leisure satisfaction theory*

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## INTRODUCTION

The relationship between labor and leisure has been a central issue in microeconomics, especially through the labor-leisure trade-off framework, which posits a negative correlation between income and leisure time (Malakhov, 2019). Since time is a limited resource, there are only 24 hours in a day, allocating more time to leisure necessarily reduces time available for labor, and vice versa. Consequently, individuals who prioritize leisure generally earn less income than if they worked longer hours.

According to the labor-leisure trade-off theory, the opportunity cost of leisure increases as income grows, since each hour not worked foregoes higher potential earnings (Steinsson, 2024; Wolff & Resnick, 2012). This leads to a downward-sloping relationship between leisure and income. However, some recent studies suggest that as wages rise, individuals may actually choose more leisure over additional income, indicating a shift in preferences toward life satisfaction over income maximization (Malakhov, 2019).

From a psychological perspective, leisure satisfaction theory suggests that leisure has a direct positive effect on happiness by enabling relaxation, enjoyment, social connections, personal growth, and stress recovery (Choe & Baek, 2023; Nawijn & Veenhoven, 2013). Leisure time allows individuals to disconnect from work-related stress, improving subjective well-being. This perspective contrasts sharply with the economic model's assumption that leisure mainly represents forgone income.

This paper aims to investigate which of these two competing perspectives better explains the relationship among leisure, income, and happiness, by comparing the strength of their respective correlations.

## CURRENT STATE OF KNOWLEDGE

A study by van Hoorn (2008) from the Nijmegen Center for Economics analyzed data on more than 100,000 individuals across 40 countries, examining income, leisure, and happiness using secondary data from the Groningen Growth and Development Center (GDP per capita and annual leisure) and the World Values Survey for happiness. The results indicated that while higher income generally correlates with higher reported happiness, this relationship weakens when leisure time is included in the analysis, suggesting leisure itself is a key contributor to well-being.

Importantly, van Hoorn (2008) also found that income and leisure can be positively correlated at the country level: in societies where people earn

more, they often have more leisure time, possibly because higher earnings afford the ability to reduce working hours. However, the presence of leisure modifies the income-happiness relationship, demonstrating that money alone does not guarantee higher happiness without sufficient time for leisure.

Kahneman and Deaton (2010) provided further nuance by distinguishing between life evaluation (how satisfied someone is overall) and emotional well-being (moment-to-moment feelings of happiness). Their regression analysis of survey data from all 50 U.S. states (collected through daily phone interviews) revealed that while life evaluation continues to improve with income beyond \$75,000 annually, emotional well-being plateaus. This “satiation point” indicates that after a certain income level, additional earnings do not significantly increase happiness. They also applied Weber’s Law to explain why the perceived significance of income changes depends on one’s starting income level.

In a South Korean context, Bae (2022) explored the link between income, leisure activities (specifically sports), and happiness, surveying over 10,000 people aged 15 and older. Findings showed that people engaging in sports-based leisure reported higher happiness levels than those involved in non-sport leisure activities. Moreover, individuals with higher income levels derived greater happiness from their sports participation, suggesting an interaction between financial means and the enjoyment of leisure activities.

While each of these studies offers important insights, they vary in scope, theory, data type, and methodology. Table 1 summarizes these differences:

**Table 1.** Breakdown of past research on the issue of labor, leisure, and happiness

Publication	Van Hoorn (2008)	Kahneman & Deaton (2010)	Bae (2022)
Scope	Multi-country	Single country (USA)	Single country (Korea)
Theory	Income-leisure trade-off, diminishing marginal utility	Satiation point, Weber’s Law	Leisure-happiness relationship
Data	Secondary	Primary	Primary
Method	Multilevel modeling	Regression analysis	ANOVA, t-test

This body of literature illustrates that while income can influence happiness, leisure plays a crucial mediating role, and the relationship is shaped by cultural, economic, and methodological contexts.

## THEORETICAL FRAMEWORK

This study draws on two key theories to analyze the relationships among income, leisure, and happiness: the labor-leisure trade-off and the leisure satisfaction theory.

The **labor-leisure trade-off** is a foundational concept in microeconomics, proposing that individuals allocate their limited time between labor (income-generating activities) and leisure (non-work activities) to maximize utility (Malakhov, 2019; Steinsson, 2024). The theory predicts a negative correlation between income and leisure because time spent on leisure reduces time available for paid labor, thereby lowering income. As wages rise, the opportunity cost of leisure increases, creating an incentive for individuals to substitute leisure with work (Steinsson, 2024; Wolff & Resnick, 2012). This trade-off is captured by substitution and income effects, which explain shifts in individuals' preferences when wages change: higher wages make working more rewarding compared to leisure, encouraging people to work longer hours.

Despite its usefulness, the labor-leisure trade-off theory has limitations. It oversimplifies decision-making by assuming people always act rationally and have full freedom to choose between work and leisure, ignoring real-life constraints such as job availability, skills mismatches, or social norms (Steinsson, 2024). Moreover, it does not adequately account for external influences like labor regulations, retirement policies, or mandatory vacation laws, all of which can significantly shape the actual balance between labor and leisure (Weiss, 2009).

In contrast, the **leisure satisfaction theory**, grounded in psychology, argues that leisure contributes positively to happiness by offering autonomy, personal benefits, and social advantages (Liu & Da, 2019; Wang & Wong, 2014). Leisure enables individuals to exercise freedom of choice, engage in activities aligned with personal interests, and recover from work-related stress, all of which enhance subjective well-being (Nawijn & Veenhoven, 2013). Additionally, leisure often facilitates social connections and the formation of supportive relationships, which further contribute to happiness (Liu & Da, 2019).

Nevertheless, leisure satisfaction theory also has weaknesses. It emphasizes the **quality** of leisure experiences over their **quantity**, highlighting that simply having free time does not guarantee happiness unless the activities are personally meaningful or culturally acceptable (Nawijn & Veenhoven, 2013). Furthermore, financial constraints can undermine the positive effects of leisure if individuals overspend on leisure activities, leading to long-term stress (Wang & Wong, 2014). Finally, certain leisure activities, such as excessive internet use, may even reduce well-being (Nawijn & Veenhoven, 2013).

Table 2 summarizes key differences between these theories:

**Table 2.** Difference between Labor-Leisure Trade-Off and Leisure Satisfaction Theory

Theory	Labor-Leisure Trade-Off	Leisure Satisfaction Theory
Common variable	Leisure	Leisure
Unique variable	Income	Happiness
Correlation direction	Negative (income↔leisure)	Positive (leisure↔happiness)
Study area	Microeconomics	Psychology

By comparing these theories, this paper aims to identify which better explains the observed relationships in the data.

## RESEARCH QUESTIONS AND HYPOTHESES

This paper investigates the relationships among income, leisure time, working time, and happiness through two sets of research questions derived from the labor-leisure trade-off and leisure satisfaction theories.

For the labor-leisure trade-off, the verificatory research questions are:

1. RQ1: Is there a negative correlation between income and leisure time?
2. RQ2: Is there a positive correlation between income and working hours?

For the leisure satisfaction theory, the verificatory research questions are:

3. RQ3: Is there a positive correlation between leisure time and reported happiness?
4. RQ4: Is there a negative correlation between working time and reported happiness?

To compare the two theories directly, an additional exploratory question is posed:

5. RQ5: Which correlations are stronger: the negative correlation between income and leisure time or the positive correlation between leisure time and happiness?

The corresponding hypotheses for the verificatory questions are:

1. H1: There is a negative correlation between income and leisure time.
2. H2: There is a positive correlation between income and working time.
3. H3: There is a positive correlation between leisure time and reported happiness.
4. H4: There is a negative correlation between working time and reported happiness.

To assess these hypotheses, this paper uses a p-value threshold of **0.05** as the standard for statistical significance. However, given the small sample size (five age groups), p-values above 0.05 will be interpreted with caution, and their significance will be considered in conjunction with theoretical consistency and effect size (Pearson's coefficient), as recommended by Kwak (2023) and Wasserstein, Schirm, & Lazar (2019).

The fifth research question, being exploratory in nature, does not have a formal hypothesis and will be answered by comparing the absolute strengths of the observed correlations.

## METHODOLOGY

This study investigates the correlations among income, leisure time, working time, and reported happiness. Analyses were conducted using **linear regression** and **Pearson's correlation coefficient** in R software, enabling assessment of the direction, strength, and statistical significance of each relationship.

For regression analysis, the `lm()` function was used to model each pair of variables, providing slope coefficients and p-values. A positive slope indicates a positive correlation, while a negative slope indicates a negative correlation. P-values were interpreted using a conventional threshold of **0.05**, but given the small sample size (five age groups), p-values slightly above 0.05 were considered with caution, as recommended by Kwak (2023) and Wasserstein, Schirm, & Lazar (2019). This approach recognizes that rigid thresholds may not always reflect the practical significance of results, especially when sample sizes are limited.

Scatterplots with fitted regression lines were created using the `plot()` and `abline()` functions to visualize the correlations. Pearson's correlation coefficients were calculated using `cor.test(method="Pearson")`, providing a measure of association strength on a scale from -1 (perfect negative correlation) to 1 (perfect positive correlation).

### 1. Data sources

All variables were derived from UK Office for National Statistics (ONS) datasets from 2023 (ONS, 2024):

- Income: Median weekly pay by age group, from the "Employment and Labor Market" section.
- Leisure and Working Time: Average daily minutes spent on activities from the "Time Use in the UK" dataset, categorized into working time (working at or away from home) and leisure time (personal care, entertainment/socializing, exercise).
- Happiness: Self-reported happiness scores by age group from the "Quarterly Personal Well-Being" dataset.

### 2. Age group harmonization

To enable correlation analyses, age groups were standardized across datasets into five ranges: 25-34, 35-44, 45-54, 55-64, and 65-74. Original data for broader or narrower age groups were interpolated by averaging across overlapping single-year ages. While necessary for consistency, this harmonization introduces some imprecision in reflecting the exact distributions within each age group.

### 3. Interpretation of statistical significance

This study uses a conventional threshold of  $p < 0.05$  to assess statistical significance. However, due to the small sample size ( $n=5$ ), strict adherence to this threshold may not fully capture the reliability of results. Therefore,  $p$ -values slightly above 0.05 are interpreted cautiously, in conjunction with theoretical expectations and the magnitude of Pearson's coefficients, rather than imposing an alternative fixed threshold. This nuanced approach aligns with recommendations by Kwak (2023) and Wasserstein, Schirm, & Lazar (2019).

### 4. Limitations and standard deviations

As the analyses rely on aggregated average values for five age groups, individual-level data are not available. This prevents calculation of standard deviations for each variable or correlation, which is a limitation of the secondary data source. While these constraints limit the

generalizability of the findings, they do not undermine the study's ability to explore the central research question: which theoretical model better explains the relationship among income, leisure, and happiness.

## RESULTS AND DISCUSSIONS

This section presents the correlations among income, leisure time, working time, and happiness, interpreted in the context of the theoretical frameworks. Table 3 shows the slopes, p-values, and Pearson coefficients for each pair of variables.

**Table 3.** Slope, p-value, and Pearson coefficient of all correlations

Correlation	Slope	p-value	Pearson coefficient
Income↔Personal care (leisure)	-1.34	0.396	-0.495
Income↔Entertainment (leisure)	-0.43	0.388	-0.503
Income↔Exercise (leisure)	-5.19	0.270	-0.615
Income↔Working away	0.45	0.263	0.621
Income↔Working from home	0.81	0.389	0.502
Personal care (leisure)↔Happiness	0.012	0.010	0.960
Entertainment(leisure)↔Happiness	0.003	0.103	0.802
Exercise(leisure)↔Happiness	0.033	0.053	0.874
Working away↔Happiness	-0.003	0.036	-0.902
Working from home↔Happiness	-0.007	0.036	-0.903

### 1. Significance and interpretation

Three correlations have p-values below the conventional 0.05 threshold: leisure-happiness (personal care), and both working time-happiness pairs. This indicates strong evidence for positive associations between leisure (personal care) and happiness, and negative associations between working time and happiness. While other correlations did not reach  $p < 0.05$ , their direction matches theoretical expectations: income negatively correlated with leisure, and leisure positively correlated with happiness.

Given the small sample size, these p-values are interpreted cautiously alongside effect sizes (Pearson's coefficients). Notably, correlations between leisure and happiness consistently showed stronger associations (Pearson's  $r$  up to 0.96) than income-leisure correlations ( $r$  up to -0.615), indicating that leisure satisfaction theory better explains the observed patterns.

## 2. Answering the hypotheses

Per the results, these are the answers to the hypotheses:

- H1: Income is negatively correlated with leisure time. This hypothesis is supported by the result, where all leisure categories showed negative slopes and r values.
- H2: Income is positively correlated with working time (working from home and working away). This hypothesis is supported by the result, with positive slopes and r values.
- H3: Leisure time is positively correlated with happiness. This hypothesis is supported by the result, with positive slopes and strong r values.
- H4: Working time (working from home and working away) is negatively correlated with happiness. This hypothesis is supported by the result, with negative slopes and strong r values.

## 3. Comparing correlations

To address the exploratory question, whether income-leisure or leisure-happiness correlation is stronger, Table 4 ranks the absolute values of Pearson's coefficients.

**Table 4.** Rank of correlation strengths

Rank	Variables	Pearson coefficient (in absolute value)
1	Personal care (leisure)↔Happiness	0.960
2	Working from home↔Happiness	0.903
3	Working away↔Happiness	0.902
4	Exercise(leisure)↔Happiness	0.874
5	Entertainment(leisure)↔Happiness	0.802
6	Income↔Working away	0.621
7	Income↔Exercise (leisure)	0.615
8	Income↔Entertainment (leisure)	0.503
9	Income↔Working from home	0.502
10	Income↔Personal care (leisure)	0.495

Correlations involving happiness and leisure time ( $r > 0.8$ ) are substantially stronger than those involving income and leisure time ( $r < 0.62$ ). This supports the conclusion that **leisure satisfaction theory better explains the relationship among leisure, income, and**

**happiness than the labor-leisure trade-off theory**, consistent with findings by Nawijn and Veenhoven (2013) and Choe and Baek (2023).

#### 4. How the identified limitations impacted the results

While these results align with theoretical expectations, the small sample size limits statistical power. Additionally, the use of aggregated age-group averages prevents detailed exploration of variability within each group. Nonetheless, the direction and strength of observed correlations provide meaningful insights into how leisure and income relate to happiness.

## CONCLUSION

This study examined the relationships among income, leisure, and happiness by comparing the predictions of two theories: the microeconomic labor-leisure trade-off, which proposes a negative relationship between income and leisure time, and the psychological leisure satisfaction theory, which posits a positive relationship between leisure and happiness. Using 2023 data from the UK Office for National Statistics, linear regression and Pearson correlation analyses revealed that the correlations between leisure and happiness were consistently stronger than those between income and leisure.

These findings support the hypotheses derived from both theories, confirming the existence of negative correlations between income and leisure time, positive correlations between leisure time and happiness, and negative correlations between working time and happiness. Importantly, the exploratory analysis showed that leisure satisfaction theory better explains the observed data, as correlations between leisure and happiness were significantly stronger than those involving income.

While limitations, such as reliance on aggregated data and a small sample size, restrict the generalizability of these results, this study demonstrates the importance of considering leisure as a key determinant of well-being. By highlighting the stronger role of leisure in promoting happiness compared to income alone, this research underscores the value of integrating economic and psychological perspectives when studying subjective well-being.

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## **ODNOS IZMEĐU SLOBODNOG VREMENA, PRIHODA I SREĆE: POREĐENJE TEORIJE RAZMENE RADA I SLOBODNOG VREMENA I TEORIJE ZADOVOLJSTVA SLOBODNIM VREMENOM**

Fadilah Muhamad Ichsan

**Sažetak:** Ova studija upoređuje dve teorijske perspektive koje nastoje da objasne odnos između prihoda, slobodnog vremena i subjektivnog blagostanja. Prva, mikroekonomska teorija razmene rada i slobodnog vremena, pretpostavlja negativnu korelaciju između nivoa prihoda i količine slobodnog vremena. Druga, psihološka teorija zadovoljstva slobodnim vremenom, polazi od pretpostavke da između slobodnog vremena i sreće postoji pozitivna povezanost. Na osnovu podataka Kancelarije za nacionalnu statistiku Ujedinjenog Kraljevstva za 2023. godinu, sprovedena je analiza agregiranih prosečnih vrednosti za pet starosnih grupa korišćenjem linearne regresije i Pirsonovog koeficijenta korelacije u softveru R. Rezultati ukazuju na snažniju pozitivnu povezanost između slobodnog vremena i sreće ( $r$  do 0,96) nego na negativnu povezanost između prihoda i slobodnog vremena ( $r$  do -0,615), čime se pruža veća empirijska podrška teoriji zadovoljstva slobodnim vremenom u odnosu na model razmene rada i slobodnog vremena. Iako ograničena veličina uzorka i agregacija podataka smanjuju mogućnost generalizacije rezultata, nalazi sugerišu da slobodno vreme ima značajniji uticaj

*na subjektivno blagostanje od samog nivoa prihoda. Ovi rezultati ističu potrebu za integracijom ekonomskih i psiholoških pristupa u istraživanjima determinanti sreće i kvaliteta života.*

***Ključne reči:*** slobodno vreme, prihod, sreća, razmena rada i slobodnog vremena, teorija zadovoljstva slobodnim vremenom.